

Chapter 4

Results

4.1 Descriptions of Areas Studied

4.1.1 Communities located near the mangrove forest in Tambon Ta Se

Tambon Ta se is located in Hat Samran Subdistrict, Trang Province ; and adjacent to the Andaman Sea on the west and the south. It is about 95 km² in total area. Most of the land consists of flood plains and coastal plains. There are five canals run across the areas. The forest of about 19.2 km² (or 12,000 rai) is mostly mangrove forest; some part of it are state owned , and open to public and communal use. This tambon has 6 villages; the total population is 4,176; most of them are Muslims. The people's principle occupation is small-scale fishery. Other occupations include rubber cultivation and rice cultivation; in addition, some villagers make wickerwork using the leaves of *Pandanus* spp. for the supplement incomes.

4.1.2 Communities located in Tambon Thung Nui

Tambon Thung Nui is located in Khuan Kalong District, Satun Province. It covers 144.76 km² ; the land consists of rolling hills as well as plains and flood plains. There are many canals and streams; it has both primary and secondary forest, with two of national conservation forest : Dong Chueak Chang and Paa Khao Khom. This tambon has 11 villages; the total population of about 9,371 is mostly Muslims. Their major occupation is rubber cultivation. Other occupations include fruit and rice cultivation.

4.1.3 Communities located near Thale Noi Non-hunting Area

Thale Noi Non-hunting Area is one of the forty wetlands that has been considered by the International Union for the Conservation of Nature and Natural resources (IUCN) as the wetland of international importance in Asia (Kaewdee, 1999). It is situated on the extream northern end of Songkhla lake; its total area is 457 km², and take in part of 3 provinces: Phattalung (in Khuan khanun district), Songkhla (in Ranod district) and Nakhorn Si Thammarat (in Hua Sai and Cha-aud districts). This area consists of Thale Noi lake (28 km²), marsh, paddy fields, canals, grasslands, rubber plantations, reed beds, tropical evergreen forest and *Melaleuca* swamp forest. Most of the villagers in the area are Buddhist Thai; rice farming is their major traditional occupation. Other occupations include rubber cultivation, fishing, weaving "Kra chut sedge" (*Lepironia articulate*(Retz.) Domin) into mats and other handicrafts.

4.1.4 Communities located in Tambon Ban Na and Khlong Sai Khao

Tambon Ban Na is located in Srinakharin Subdistrict, Phattalung

Province. It's adjacent to the Nakhorn Si Thammarat Range (or "Khao Banthad" called by local people) on the west. The total area is about 117 km². For the topography, there are high mountains, rolling hills and plains, with more than 30 canals and streams in the area. It has both primary rainforest, which is rather still fertile, and secondary forest. There are 11 villages; the total population is 7,341 and all of them are Buddhists. The villagers' principle occupations are cultivation of rubber, rice, and fruit plants.

Tambon Khlong Sai Khao is located in Kongra district, Phattalung province. It's also adjacent to Khao Banthad on the west. The total area is about 35 km². Most of the land consists of flood plains and plains at foothills. There are 5 canals and 10 small streams run across the areas. The forests in this area are like those in tambon Ban na. Tambon Khlong Sai Khao consists of 8 villages; the total population is about 7,176, consisting of both Buddhists and Muslims. The major occupation is agriculture; most villagers grow rice for family consumption.

4.1.5 Communities located in Tambon Khao Phra, Khu Ha

Tambon Khao Phra is located in Rattaphum District, Songkhla Province. Its total area is about 207.7 km². For topographic features, there are mountains and plains; many canals and streams run across the areas. Most of the forests are secondary forests and rubber plantations. This tambon consists of 12 villages; with the total population of about 12,160, include both Buddhists and Muslims. The agriculture is their principle occupation; about 1,864 households engage in rubber cultivation, while 410 and 116 households engage in fruit plants and rice cultivation respectively.

Tambon Khu Ha is also located in Rattaphum District, Songkhla Province. Its total area is about 42.7 km². Most of the land consists of plains, flood plains, and mountains. There are 14 villages; the population of about 11,463 is mostly Buddhist. Their principle occupations are cultivation of rubber and rice. The villagers grow rice for family consumption and selling in the local markets.

4.1.6 Communities located in Tambon Thung Phla

Tambon Thung Phla is located in Khok Pho District, Pattani Province. Its total area is about 24.75 km²; it comprises 5 villages. The population is about 3,474; the villagers are both Buddhists and Muslims. Most of the land consists of flood plains and plains at foothills. The people's principle occupations are cultivation of rice, rubber and fruit plants.

4.1.7 Communities located in Tambon Phron, Khosit

Tambon Phron is located in Tak Bai District, Narathiwat Province. Its total area is about 51.60 km². Most of the land consists of flood plains and swampy places; with about 19.2 km² (or 12,000 rai) is peat swamp forest. This tambon comprises 6 villages. The total population is about 4,582, consisting of both Buddhists and Muslims. The major occupations of most villagers are rice cultivation and growing fruit plants. Other occupations include livestock raising, handicraft making, working as factory's employees.

Tambon Khosit is also located in Tak Bai district, Narathiwat province. It's about 19.84 km² in total area. Most of the land consists of flood plains; there is the Kolok river runs across these areas, and forms a part of the boundary between Thailand and Malaysia on the southeast. Moreover, there is a peat swamp forest which is stated as the national conservation forest. Various parts of the areas are used for cultivation of rice, rubber, coconut and some other crops. This tambon has 5 villages. The total population is about 6,495 ; most of them are Muslims. The people's principle occupations are cultivation of rice, coconut, fruit plant, rubber, and other crop plants. Other occupations are livestock raising, business, and working as factory's employees.

4.1.8 Communities located in Tambon Ka Lu Wo

Tambon Ka Lu Wo is located in Muang District, Narathiwat Province. It is about 75 km² in total area. For topographic features; there are few plains, mountains, and flood plains. It comprises 7 villages. The population is about 8,331 ; 90% of them are Muslims. The major occupations of 70% of the villagers are rubber cultivation. The others include rice cultivation and fruit plants cultivation; the fruit plant that widely grown is duku (*Lansium domesticum* Correa).

4.1.9 Communities located near To Daeng Peat Swamp Forest

To Daeng Peat Swamp Forest is located in Narathiwat Province; it occupies a part of Tak Bai, Su-ngaikolok and Su-ngaipadee Districts. It is the only remaining primary peat swamp forest in Thailand, and many species both plants and animals are found. It's about 347 km² in total area. Due to the intensive use, the area has been extensively reduced. The communities in which the study was conducted are located near this forest in Su-ngaipadee and Su-ngaikolok District. Most of the land in the communities consist of flood plains and swamps. Most villagers are Muslims; their major occupations are rubber cultivation, rice cultivation, fruit plant cultivation, and livestock raising.

4.2 Culture and tradition

The way of life or culture which includes the beliefs, social forms and material traits of a social group of Buddhist Thais and Muslim Thais are quite different. Besides religion and language, culture concerning food-consumption, death, dress and religious practices are distinctly different between the two groups. Buddhist Thai appear to be able to follow the way of life recommended by their religion with a considerable degree of flexibility. Whereas the Muslim Thai believe in strict religious practice; all of them are required to strictly follow the Islamic Pillars, i.e. to make a declaration of faith that there is no deity except Allah and that Mohammed is the Messenger of Allah, to pray to Allah (to act prescribed prayers) 5 times a day, to do Islamic Fast during the entire month of Ramadan, to donate to the poor (called Zagat) once a year and to participate the Haj in Mecca, Saudi Arabia at least once in their lifetime. In addition, there are many prohibitions laid down for Muslims, such as not to make worship to any deity, not to eat or drink or sell certain things such as

meat of animals which died of natural causes, blood, pork, alcoholic beverage, etc., to get usury, to wai (a Thai gesture, used as a form of worship) to any deity or to any individual except to Allah alone. Not only adult Muslim people, but also the young ones practice their religion very seriously. There are Pondok schools in almost every village particularly in the southern border provinces which the village young people attend on Saturdays and Sundays to study the Islamic Pillars. Muslim Thais lead their lives according to Allah's guidance so that happiness can be attained both in this world and a life hereafter.

Generally, one of the sources of culture is social values and beliefs which influence the mind of people. Such values and beliefs are subject to change. On the contrary, the Muslims' culture or the Islamic Culture to be the God-given one and not subject to change, unlike those of Buddhist or other non-Muslim societies. Besides the difference in culture of the two groups, the traditions, which are usually intermingled with religious services, are also quite different.

The Buddhist traditions in this area include the Ordination Rite, the Wedding Ceremony, the Funeral Rite, the Songkran Festival (Thai New Year celebration), the Chak Phra Celebration (celebration of the Lord Buddha's Return from Heaven), the Ching Pret Tradition (tradition for making merit dedicated to the deceased), Long Khaek tradition (tradition of neighbours gathering together in order to help one another at a time of an over load of work), etc. Whereas, the traditions followed by the Muslim Thais include the Ramadan Fasting Ceremony, the Hari Rajah Festival, the Circumcision Rite, the Wedding Ceremony, the Funeral Rite, Maulid Day Ceremony and the Azura Ceremony.

The Ramadan Fasting Ceremony is taken place in the ninth month of the Islamic calendar. It is strictly observed by all adult Muslim Thais, ages of 15 and up, in the lower part of southern Thailand. However, an exception may also be made on the basis of personal health reasons. During the month of Ramadan, they are required to abstain from consuming any form of food and beverage, and to abstain from sexual activity from dawn until dusk.

The Hari Rajah Festival is taken place twice a year; the first is taken place on the day called called "Hari Rajah Por Sor". This festival is held by the Muslim Thais to celebrate the returning to their normal way of life, once the month-long fast is over. This day is usually falls on the first day of the new moon of the tenth month in the Islamic calendar. The second is taken place on the day called "Hari Rajah Haji". This festival is held for the celebration of the ending of the "Haj" ceremony which usually falls on the tenth of the twelfth month. On these special religious days, all Muslim Thais are required to undertake the practices, such as : taking a "sunnah" bath in order to prepare themselves for prayer and entering the mosque, wearing their best clothes, congregating at the mosque to attend the prayer service, to visit the "Kubo" or crematory to read the Koran for all those who have passed away, etc. In addition, on these special days most Muslim Thais usually visit friends and relatives and also give them a traditional snack of sticky rice wrapped in leaves of *Licuala* sp.

The Maulid Day Ceremony is one of the most significant social traditions among The Muslim Thais in this area. Maulid day is the birthday of the Prophet Mohammed; the ceremony is observed in order to honor him, and usually falls in the month of January. On this day, the Muslim Thais prepare and share a feast of goat

meat or chicken curry and rice between relatives and neighbors. The feast is customarily followed by a prayer requesting Allah to bless the Prophet Mohammed.

The Azura ceremony is observed in order to commemorate an important day in Islamic history and to encourage the people to cooperate and share with each other in making a special kind of dessert called “Zura”. The making of “Zura” may be undertaken at their houses or at a mosque of the village. Each villager brings ingredients, such as coconut, rice, sugar, green beans, which are required for making the dessert. All the ingredients are mixed together, and then cooked. After the cooking is finished, the prayer requesting Allah to bless all the villagers for happiness and prosperity is made. After that, the dessert is distributed to every villager.

Some traditions such as Ramadan Fasting Ceremony are strictly observed by and confined to only the Muslims; consequently the Buddhists do not participate in any stage of this ceremony. In addition, there are many traditions of the Muslims that the activities or procedures can be participated in by Buddhists such as Hari Rajah Festival, Sunut (or circumcision) Ceremony, Maulid Day Ceremony, etc.

However, there are some traditions that are practiced by both the Buddhist and Muslim Thais. Such traditions include merit-making, birth, marriage, death, house-warming and La-sang (or Puya-bunae) ceremonies. These traditions of the two groups share some similarities but some differences do exist. Some activities of the Buddhist Thai traditions, can be participated in by the Muslim Thais without conflict with Islamic principles. For the La-sang ceremony that is found only in few villages in the lower South, it is usually observed after all the crops have been harvested to show the farmers' gratitude to the rice farm. In some villages, both that of Buddhist and Muslim Thais are cooperated.

4.3 Language

Most Buddhist and Muslim Thais in municipal areas speak Thai and southern Thai dialect especially those who live in Trang, Phattalung, Satun, and Songkhla provinces. Although some Muslim Thais in this area speak the Pattani Malay, or local dialect (Yawi), or the Satun Malay in their daily life, but they are able to communicate effectively in the southern Thai dialect. However, most Muslim Thais in Pattani and Narathiwat provinces especially the older ones living in remote areas speak only Yawi. Whereas the younger ones speak Thai (the official national language) only at school; and they can not speak southern Thai dialect.

4.4 Dressing

In daily life, costumes of Buddhist and Muslim Thais both men and women especially the older ones living in remote areas are more or less different. The Muslims dress like the Malaysians; women wear batik sarong, a long and narrow-sleeved blouse, and a head cover or scarf in a Muslim style; men wear sarong, long-sleeved shirt, and a head cover in the Indonesian cap; sometimes a

traditional Malay turban is wrapped around the head. Whereas, most young people dress in western style especially when they go to work or to school.

For the Buddhist Thais, some of them particularly the older ones living in remote areas dress like the Muslim Thais; they wear sarong and a shirt or blouse in western style or Thai style without a head cover. Whereas, most of them living in a big city or in a municipal area usually dress in western style.

4.5 Dwelling houses

The houses in villages were once located in scattered settlements, but they have gradually been relocated to their present arrangement on either side of the road in the village for convenience in transportation. The characteristic of the houses of both Buddhist and Muslim Thais are similar. Most of them are one-storey buildings on stilts of about 3 m high and a few are two-storey buildings. The houses in traditional style may be built singly or twin with double or triple small gables which are usually seen throughout the southern border provinces of Thailand. In addition, some parts of the traditional dwelling houses of both Buddhist and Muslim Thais, such as the top of the roof, the gables, the roof ridge and the ventilation under the roof, are often decorated. The decoration design that is most widely used only by Muslims is calligraphic with Arabic scripture; it reminds them of the Allah's teaching in order to lead their religious way of life. Most of the houses are made completely of wood; some of them are made of wood and brick, and a few are made completely of brick.

The main structural components of the traditional dwelling houses are usually made of the timber logging from the nearby forest. However, there are stilt houses constructed with corrugated iron or bamboo. The stilts are usually made of local hard wood such as *Cotylelobium melanoxyton* (Hook.f.) Pierre, *Fagraea fragrans* Roxb., *Intsia palembanica* Miq. and *Oncosperma tigillarum* (Jack) Ridl., etc.

The roofs are usually made of either tiles or corrugated iron or thatches made from leaves of *Metroxylon sagu* Rottb. (Sago palm), *Nypa fruticans* Wurmb. (Nipa palm), etc.

The floors are often made of hard wood planks or bamboo; they are built one higher or lower than the others. The floor of the main living quarter of the house is the highest; whereas the floor of the verandah is the lowest. For Muslims' dwelling houses, a specific floor space is always reserved for the daily prayers performed by the members of the family.

The walls are generally made with plank, corrugated iron or woven bamboo; sometimes the wooden walls had been carved skillfully and artistically.

The gables are the structural component often found in the local dwelling house of both Buddhist and Muslim Thais, and usually decorated with fancy designs; the sunrise beams are popular among the gable decoration.

The staircases are made of wood, and attached to both the front and the back of the houses; for most house, in front of the staircase a water container is provided for the cleaning of feet before entering the house.

The part underneath the houses is designed to be high enough for people to walk under comfortably. This may be used as a rest space, storage, or a

stall for livestock. The livestock which the villagers raise are sheltered at night in this place.

The house compounds are unplanned and loosely organized. Plants of different kinds, both perennial and annual, are grown in random fashion in the compound.

4.6 The beliefs concerning the plant uses of the local people in the lower part of the southern Thailand

4.6.1 The beliefs concerning the plant uses of the Buddhist Thais

Some of the Buddhist Thais particularly who have been in very remote areas still have some of the beliefs concerning plant uses that have been passed on from their ancestors. Various tradition ceremonies, or rituals, or practices that performed in various occasions of the local people reflect their own beliefs. Certain kinds of plants are employed as follows.

1) The treatment of diseases, ailments, and health-care

Nowadays, though the government provide health-care service centers around the country, in many traditional societies, traditional medicals that practiced by the healers or herbal practitioners still provide essential health-care for the villagers. The traditional treatment of diseases and ailments at a certain stage of the procedures that depend on the beliefs are as follows.

1.1) The treatment of spiritual sickness

In some villages of the studied areas, sometimes, when villagers feel sick and they believe that it is caused by bad spirits, the healers or herbal practitioners use the leaves of *Areca catechu* L. accompanied by the incantation to treat the patient. Other treatments for this ailment include spitting of a chewed betel quid on the patient, and also throwing of rice grains to the patient. All these treatments are accompanied by the incantation that performed by the healers or herbal practitioners. It is believed that these treatment will ward off the bad spirits and release the sickness from the patient.

1.2) The treatment of numbness

The herbal practitioners treat numbness by using the roots of *Desmos chinensis* Lour.; the roots is cut into 108 pieces of 2 cm long, and then cast with spells, boiled in water. Then this water is given to the patients to drink. During the treatment, the patients are prohibited from eating fruit of papaya (*Carica papaya* L.) and seeds of *Archidendron jiringa* (Jack) I.C. Nielsen; alcoholic beverage is also prohibited as well.

1.3) Pterygium treatment

To treat pterygium, the healer use coconut shell that was cut in half to cover the affected eyes of the patient, and then topped by a small piece of fresh meat. During this stage of the treatment, the healer invoke an incantation. After that the meat is cut. This treatment is done once a day for

three days in the morning. It is believed that, by this treatment, the pterygium is cured.

1.4) The treatment of fever associated with menstruation

For this treatment, some villagers make a decoction of 4 medicinal plant species: the stems and roots of *Sida alnifolia* L., the roots of *Imperata cylindrica* (L.) P.Beauv., the whole plant of *Mimosa pudica* L., and the roots of *Cordyline fruticosa* (L.) Gopp., this decoction is given to the patient to drink. Obviously, the collecting of the roots of the last species is a charm procedure. The collectors must put a lighted candle and money (1 baht coin) on the ground near the plant as a token, and it is accompanied by incantation.

1.5) The treatment of herpes infection

The Buddhist herbal practitioners of some villages cure herpes infection by spitting of a chewed betel quid onto the affected areas of the patient; and it accompanied by the incantation. After that they use the leaves of sago palm (*Metroxylon sagu* Rottb.) to gently fan over the affected areas.

1.6) The treatment of toothache

Some of the villagers living in some studied areas believe that the toothache will be soothed if they string a small piece of a stem of *Linostoma pauciflorum* Griff. with a thread, and then tie around the waist at all times.

1.7) The practices regarding birth and child-care

Nowadays, among the Buddhist Thais, the childbirth is usually taken place at the health service center or at the hospital. However, some pregnant women still prepare for her childbirth, and child-care with the aid of midwives. Some villagers still have the beliefs which were passed down by their ancestors regarding both the birth and child-care; these beliefs are as follows.

1.7.1) The beliefs concerning general practices and the traditional medicinal treatment during pregnancy.

The pregnant women are usually prohibited from consuming any twin fruits; they believe that such the fruits will cause the pregnancy of a twin. They are also prohibited from consuming any spicy food; it believed to cause bald patch on the child's head.

1.7.2) The beliefs concerning the application of heat during the immediate post partum period, and the practices after childbirth.

Some women who got her child delivered by the aid of midwives have to practice heat treatment at home for 5 – 9 days. For this treatment, a hot stone wrapped with many sheets of cloths is placed on abdomen of the mother. During 5 – 9 days of the treatment, the mother should take a bath in the morning and evening with water which is steeped with the leaves of *Sida alnifolia* L. and a few of other kinds of medicinal plant. Moreover, the juice from the crushed garlic bulbs (7 bulbs), pepper seeds (7

seeds), and betel leaves (*Piper betle* L.) (10 leaves) is drunk after taking a bath; it believed to stimulate the involution of uterus and dry up the lochia, and also to relieve bodily discomfort and to strengthen the health of mother as well. During the 3 months after giving birth, the mother should be careful of food to be consumed. The following are the certain foods which are forbidden or encouraged to be consumed according to the beliefs. The food that are forbidden include jack fruit (*Artocarpus heterophyllus* Lam.), coconut juice (*Cocos nucifera* L.), peanut (*Arachis hypogaea* L.), rambutan (*Nephelium lappaceum* L.) and langsat (*Lansium domesticum* Correa), sawa (*Manilkara zapota* (L.)R.Royen), durian (*Durio zibethinus* Merr.), kluai tani (*Musa balbisiana* Colla), mushroom, desserts wrapped with the leaves of banana (*Musa balbisiana* Colla), curries cooked with coconut milk, pork, meat, and some kinds of sea food. They believe that breaching the forbidden regulation will cause severe illness such as hemorrhage, interruption of lochial discharge, and convulsion; and it may be the cause of death to the mother. However, the midwives are able to treat these illness by giving traditional medicine which made of the roots of *Melastoma malabathricum* L. (white flowers), lime juice and liver of langur to the mother to ingest. For the food that is encouraged to be consumed, they believe that consuming some kinds of dishes such as kaeng liang (Thai-style vegetable soup), or curries cooked with papaya fruit, bua bok (*Centella asiatica* (L.)Urb), the young shoots of *Licuala spinosa* Thunb. will stimulate the lactation. Moreover; spicy food, the dishes cooked with pepper, ginger (*Zingiber officinale* Roscoe), or *Alpinia* sp. should be eaten as well.

1.7.3) The beliefs concerning child-care

For child-care, in the past, there were cultural practices regarding the treatment for the baby at birth, the burying of placenta, the rite of opening the baby's mouth, the rite of putting the baby in a cradle, the rite to please the baby's guardian spirit, and the medical treatment of the baby. At present, these practices has disappeared from most villages. However, some of them can still be observed in some areas, and certain kinds of plant species are usually employed in some stages of the practices.

Some villagers believe that a new born baby can be protected from bad spirits by stringing a small piece of the rhizome of *Zingiber ottensii* Valetton. with a thread, and then tied around the baby's wrist. Moreover, a leaf of betel pepper (*Piper betle* L.) or a leaf of ma-uek (*Solanum stramonifolium* Jacq.) alone or together with thorns of lime tree (*Citrus aurantifolia* (Christm.) Swingle) are usually placed under a baby's mattress for this purpose as well. In the case that the childbirth is under taken at home with the aid of a midwife, the placenta is usually buried near the home and then a certain kind of plants is grown there; the plants that are commonly grown are coconut fruit (*Cocos nucifera* L.), areca nut (*Areca catechu* L.), or banana (*Musa* spp.). They believe that if this plant grows well, the baby will grow healthily and have a good future. Before a baby's first feed, the midwife dips a piece of the stem of *Tinospora crispa* (L.) Miers ex Hook.f. & Thomson into honey, and then it is used to touch a baby's tongue in order to clean the mouth and throat.

2) The traditions

Tradition is an essential factor of a culture; it is people's way of life in society, and appears in almost every stage of life. From this study, there are various tradition practiced by the Buddhist Thais living in the areas; some stages of the tradition procedures, various kinds of local plants play a part in. Such traditions are as follows.

2.1) The tradition of merit-making

The merit-making pattern practiced by the Buddhist Thais living in the studied areas, as well as those who live in other parts of the country, is performed based on two prime motives : to promote good fortune on certain occasions such as for a marriage, or at a house-warming celebration, etc. ; and to rid bad fortune, performed, for example, at a funeral or as a form of condolence on certain occasions after natural disasters.

The procedures of merit-making performed on various occasions are rather similar; generally, the monks are invited to intone holy chants and to perform the religious rites. In addition, there is a series of offerings for the Triple Gems; it not only consists of candles and joss sticks but also consist of some kinds of flowers. The flowers that are mostly used for this purpose are lotus (*Nelumbo nucifera* Gaertn.). Moreover, there is a bowl of sacred water that is, sometimes, mixed with the leaves of a certain kind of plants bearing the Thai name "bai ngoen bai thong" (*Graptophyllum pictum* (L.) Griff.), that symbolizes prosperity and wealth. This water is used in pouring dedicated to ancestor spirits; sometimes, the monks sprinkle it to the participants of the merit-making ceremony for the prosperity and good luck. For the sprinkling of sacred water, in funeral ceremony, the branches and leaves of *Justicia gendarussa* Burm. f. are commonly used as a sprinkler; whereas in the ceremony performed to encourage good fortune, a bundle of the leaves of *Imperata cylindrica* (L.) P.Beauv. is commonly used; and in a ceremony performed to ward off bad spirits, the branches and leaves of *Phyllanthus acidus* (L.) Skeels are commonly used.

2.2) The tradition of house construction

Most of Buddhist Thais living in the areas still have the beliefs concerning the house construction which include the pre-construction, the construction, and the inhabitation in the new house. Before the construction started, the direction of the house is determined. Depending on the beliefs of the Buddhists, their house commonly face to the east or to the west. Regarding the construction period, they believe in the auspicious time to start the construction. At the auspicious time, a hole for a major pole is dug. In the hole, not only the major pole is set in but the owner usually put good articles such as coins, talismans, and various kinds of flowers into it. The major pole is hung with red and white strips of cloths, red and white thread, areca nuts, betel leaves, banana shoot, coconut seedling, and a stem and leaves of sugar cane. In this ritual, sometimes, the monks are invited to intone the

chant of blessings. They believe that this practices will bring the happiness and success to the house's owner. Moreover, most Buddhist Thais in the areas have the beliefs concerning certain kinds of plants encouraged or forbidden to grow in the yard. The plants of which the Thai names have positive meaning and connotation are usually grown, such as khanun or jack fruit tree (*Artocarpus heterophyllus* Lam.) symbolizing helping, makham or tamarind (*Tamarindus indica* L.) symbolizing awe, mayom (*Phyllanthus acidus* (L.) Skeels) symbolizing affection, yo (*Morinda citrifolia* L.) symbolizing praise, and koson (*Codiaeum variegatum* Blume) symbolizing kindness; whereas certain kinds of plants are forbidden to grow, such as kluai tani (*Musa balbisiana* Colla), ta khain (*Hopea* sp.); they believe that these plants are habitation of ghosts or bad spirits.

2.3) The tradition of marriage

There are many kinds of plants that play an important role in the procedure of the marriage tradition. Some of them are used as a offering to the Triple Gems, in the religious ceremony of this tradition; whereas the others are used in the secular ceremonies; most of them are used according to the beliefs which are passed form their ancestors. For secular ceremonies, one of the most important component is a set of the bowls of wedding objects called "khanmark"; it is a token symbolizing the starting point of marriage, and it is provided by the bridegroom's family for the bride's family. Generally, the number of khanmark are 2 or more; some of them contain areca nuts, betel leaves, rice, cooked pork, and desserts; whereas the others contain the wedding gifts or dowry in the form of gold and /or money. Added to this are joss sticks and candles, beans, sesame seeds, rice grains (containing the husks), and the leaves of certain plants of which the names symbolize prosperity and affection, namely bai ngoen bai thong and mayom. Generally, besides the khanmark, there are trays of sugar cane, banana, green coconut, pomelo (*Citrus maxima* (Burm.f.); various kinds of flowers of which Thai names give positive meaning and connotation such as dao rueang (*Tagetes erecta* L.) symbolizing prosperity, dokrak (*Calotropis gigantia* (L.) Dryander ex W.T. Aiton) symbolizing love, ban mai ruroi (*Gomphrena globosa* L.) symbolizing affection which is everlasting, ban chuen (*Zinnia violacea* Cav.) symbolizing freshness, and dok khem (*Ixora* sp.) symbolizing wisdom. In some villages, the leaves of *Clausena excavata* Burm. f. are thrown to newly-weds; they believe that it will protect the newly-weds from bad spirits.

2.4) The tradition concerning death

The plants used in this tradition not only used in merit-making or religious ceremony, but they are traditional used in other stages of the tradition as well. Before placing a dead body in a coffin, generally, it is bathed with water mixed with the crushed turmeric rhizome (*Curcuma longa* L.). Some villagers use the water mixed with small amount of the leaves of lemon grass (*Cymbopogon citratus* Stapf.), the turmeric rhizome, a piece of coconut stem, a piece of banana trunk, the rhizome of *Zingiber ottensii* Val. and charcoal for this purpose. All these plants are believed to mask the odor of the dead body. In addition, some villagers wash the face of the dead with coconut juice.

3) The agriculture

Most villagers in the areas earn their living in agriculture: rice cultivation, rubber cultivation, fruit cultivation, animal raising, fishing, etc. Some of the beliefs concerning the agricultural practice were passed down from their ancestors. All rituals performed by the farmers regarding agriculture reflect their beliefs. At present, the rituals that are performed for the rice cultivation are seen in some areas, whereas most of the others has disappeared.

For the rice cultivation, some farmers believe in spiritual beings, such as Mae Phosop (rice goddess) and guardian spirits. Each year, from the beginning to the end of the farming season, there were certain farming rituals performed by the farmers at some stages of farming; they are as follows.

3.1) The ritual performed before rice planting

The villagers begin their rice cultivation on the most propitious day that was advised by the astrologers or the monks. Before planting, a leaf with petiole of fan palm (*Borassus flabellifer* L.) is pitched in the ground of the paddy field, and then 9 seedlings of rice plants are grown for the prosperity. After that, they ask Mae Phosop to help protect and nurture their crops.

3.2) The ritual performed before rice harvesting

This ritual is performed to pay homage to Mae Phosop, and request for prosperity in harvesting and for a plentiful harvest in the next season. It is undertaken at the farm land, and by the specialist according to custom of the village. It is usually performed in the morning; the specialist will tie few rice plants bearing rice ears together with long white cloth. Added to this with the branches and leaves of certain kinds of plant, such as chumhet (*Senna alata* (L.) Roxb.), bang bai (*Leea indica* (Burm.f.) Merr.), phum riang (*Lepisanthes fruticosa* (Roxb.) Leenh.), khwan khaw (*Aralidium pinnatifidum* (Jung. & de Vriese) Miq.) and sugar cane. After that, candle and joss sticks are lighted, while the specialist bless to express gratitude to Mae Phosop.

3.3) The ritual performed after rice harvesting

This ritual sometimes called La-sang; this term means goodbye to the hay, in southern Thai dialect. It is usually performed after all the crops have been harvested. The objective of this ritual is also to express gratitude to Mae Phosop for the kindness in granting abundant crops.

For the procedure of this ritual, the farmers choose suspicious day and propitious place for performing it. At the beginning of the ritual, the hays from every farm in the village are gathered, tied together in the form of figures of a man and a woman to symbolize god and goddess who protect and nurture the crops. All the villagers prepare traditional dishes consisted of cooked rice, cooked sticky rice, khanom tom (cooked sticky rice mixed with coconut milk, wrapped in the leaves of *Licuala spinosa* Thunb.), boiled eggs and boiled chicken. This food is prepared to offer the monks at the temple, to the god and goodness, and it is also used for the villagers own feast. At the time of the ritual; the food, bouquet of flowers, a spadix and a

young fruit of coconut, joss sticks, and candle are laid in front of the spirit house where the hay figures are placed. Then the specialist perform the ritual.

As well as the rice cultivation, in growing fruit plants, some villagers have the superstitious beliefs that are reflected in the used of “Joe” (an object hung on trees) to scare of thieves, in fruiting season; they believe that those who eat stolen fruits will suffer illnesses.)

4.6.2 The beliefs concerning the plant uses of the Muslim Thais

Similar to the Buddhist Thais in the areas, the Muslims Thais still have some of the beliefs concerning various tradition and practices in their way of life; and certain kinds of plants are employed and being used for various purposes according to the beliefs. The tradition, or practices that the plants play a role are as follows.

1) The treatment of diseases, ailments, and health-care

Nowadays, the uses of traditional medicines that depend on the beliefs of the Muslim Thais are still observed particularly in very remote areas. For the traditional treatment of diseases, ailments, and health-care, some stages of the procedure are being done according to the beliefs are as follows.

1.1) The treatment of spiritual sickness

In some village, when a villager has fever that is believed to be caused by the power of a black magic, or supernatural; and it cannot be cured by modern medicine, the curing is undertaken by aid of healers. In treating this fever the healer spit the chewed leaves of *Breynia vitis-idaea* (Burm.f.) C.E.C.Fisch. to the patient. This treatment is undertaken in the evening and accompanied by an incantation. In addition, sometimes, the patient is bathed with water which is steeped with the leaves of *Codiaeum variegatum* Blume, *Cordyline fruticosa* (L.)Gopp., and citrus (7 kinds); while the traditional music is played. Another method to treat this illness includes rubbing the patient’s body with rice grains, a turmeric rhizome, and the flowers of *Jasminum sambac* (L.) Aiton; and accompanied with the reading of the “Du-a” (a prayer requesting Allah’s blessing). Moreover, sometimes the healer arranges the rice grains, turmeric rhizomes, and pepper seeds on the tray; while the reading of the “Du-a” is being done. After that he throws all these objects to the patient. Generally, in any rooms that the ritual are performed, they usually hang the flowers of *Hibiscus rosa-sinensis* L. and *Jasminum sambac* (L.) Aiton. to the window or the door.

1.2) The fever indication

Some Muslim herbal practitioners use the water extract of the crushed leaves of a local plant namely “Ka-lu-mood” (an unknown species) as an indicator to check whether someone has fever or not. For the procedure, the herbal practitioner applies this extract on the body of the person who wants to be checked, then the excess used extract is stored in a container, left for some time. After that the extract in the container is observed whether it

becomes solid or is still liquid; if it becomes solid, it indicates that the person who is checked has fever and vice versa.

1.3) The treatment of contraceptive

Some female villagers take a decoction of the whole plant of *Melastoma malabathricum* L. as a contraceptive. According to their beliefs, the decoction will be more powerful if the plant used has alternate branching ; moreover, it must be collected only by men, on Tuesday .

1.4) The treatment regarding birth and child-care

As well as the Buddhist Thais, nowadays, the childbirth of most Muslim Thais in the areas are taken place at the health service center, or at the hospital. However, some of them still have their child delivered by the aid of midwives; certainly, the medicinal plants are employed in both the preparation for the childbirth and child-care. Moreover, they still have some of the beliefs concerning these treatments which were passed down by their ancestors; such beliefs are as follows.

1.4.1) The beliefs concerning the preparation for the childbirth

For a pregnant woman with her first child, and 7 months' gestation, a midwife uses coconut oil massage on her abdomen in order to place a baby from a breech to a normal position in the mother's womb, then a small coconut fruit and lime are rolled on the abdomen too. This treatment is accompanied with the incantation; it is believed to promote an easier delivery.

1.4.2) The beliefs concerning the application of heat during the immediate post partum period.

Right after giving birth, the mother must lay down on a bamboo board that is placed over a wood-burning stove. Then the midwife place a hot stone wrapped with many layer of cloths on the mother's abdomen. After that, a traditional medicine is prepared form the stem bark of *Vitex pinnata* L., a young coconut shell, salt and water. All these ingredients are crushed, squeezed, and the extract is given to the mother to drink. It is considered to prevent hemorrhage. On the next day, the midwife prepares a remedy for blood circulation given to the mother; this remedy is prepared by boiling the combination of the rhizome of *Licuala spinosa* Thunb. and *Flagellaria indica* L., the roots of *Goniothalamus macrophyllus* (Blume) Hook.f. & Thomson, and few kinds of other medicinal plants.

1.4.3) The beliefs concerning child-care

For child-care, there are cultural practices influenced by the beliefs which are still observed among the Muslim Thais in the areas. They include the treatment for the baby at birth, the burying of placenta, the rite of the first hair-cut, the rite of opening the baby's mouth, and the rite of putting the baby in a cradle. All these practices, certain kinds of the plants play a role in.

At the birth of a child, some villagers protect their new born baby form bad spirits by laying the baby on 7 layers of cloths

which are laid on the rice grains and turmeric rhizome, a banana leaf, respectively. In addition, they also string a small piece of the rhizome of *Zingiber ottensii* Val. with a thread and then tie around the baby's wrist. The placenta is usually buried near a baby's house, and a coconut tree is usually grown near it. They believe that it will bring prosperity to the baby. Before a baby's first feed, sometimes, a little amount of the fruit juice of *Garcinia atroviridis* Griff. ex T. Anderson mixed with a little amount of salt is dropped into the baby's mouth in order to stimulate vomiting, and the mouth and throat will become clean. When the baby is about one week of age, a fruit of date palm (*Phoenix dactylifera* L.) is brought to touch the baby's lips; it is believed to make the baby become polite and tractable. At this time, there is the rite of the first hair-cut as well. For this ritual, the cut hair is put in a young coconut fruit that was punched at its one end, and then it is buried in the yard. Later, when the baby is about one month of age, some villagers perform the rite of putting the baby in a cradle. In this ritual, certain kinds of the plants are employed, such as banana fruits, a leaf of *Licuala spinosa* Thunb., a rice plant, and a spine of any plants; they all are tied to the baby's cradle, it is believed to make the baby healthy and clever.

2) The traditions

This study reveals that only few traditions of the Muslim Thais in the areas that certain kind of plants are employed, such as :

2.1) The tradition of house construction

Similar to the Buddhist Thais living in the area, the Muslim Thais have the beliefs concerning the house construction particularly the beliefs about auspicious time, the setting of major pole, the direction of the house, etc. However, only a few traditional practices that the plants are employed, such as the setting of the major pole before the beginning of the house construction. The plants or the plant parts that are used in this practice include a banana shoot, a coconut seedling, the rice ears, and various kinds of flowers. All these plants and the plant parts are tied to the major pole before it is put in the hole. Added to this are 7 sheets of cloths with different colour, they are also tied to the major pole. According to their beliefs, all these objects symbolize the happiness, success, and wealthy. Generally, in this ritual, The owner and the participants usually offer the prayer to Allah, requesting blessings. Moreover, the Muslim Thais also have the beliefs concerning the certain kinds of plants encouraged or discouraged to grow in the yard. The plants that are encouraged to grow, and believed to bring prosperity and happiness to the owner are, for example, *Artocarpus heterophyllus* Lam., *Cocos nucifera* L., *Phyllanthus acidus* (L.) Skeels, *Tamarindus indica* L., *Saccharum officinarum* L. The beliefs about the growing of these plants among the Muslim Thais are similar to those of the Buddhist Thais living in the areas. For the plants that are usually not grown in the yard; they include *Areca catechu* L., *Cyrtostachys renda* Blume, *Hibiscus rosa-sinensis* L., *Michelia alba* DC., *Ficus* sp., *Minusops elengi* L., etc. According to their beliefs, these plants are habitation of ghosts, or the cause of broken home.

2.2) The tradition of marriage

The marriage tradition of the Muslim Thais in the areas is little different from that of the Buddhist Thais. There is no merit-making in this tradition of the Muslims; whereas it is rather strictly practiced by the Buddhists. For other traditional practices of the Muslims, only few kinds of plants are used, such as: the areca nuts, the betel leaves, the banana fruits, the sugar cane stems, and oranges. The areca nuts and betel leaves are used for filling the bowls of wedding or “khanmark”. The betel leaves are also popular for the decoration of khanmark. The leaves of the plant namely “bai ngoen bai thong” are popular used to decorate khanmark as well. According to their beliefs, the areca nuts and betel leaves symbolize a long happy married life, whereas bai ngoen bai thong symbolizes wealthy. Generally, in this tradition, they usually prepare yellow sticky rice for the bride and the bridegroom to feed each other; it is also served to the guests of the ceremony. This is a custom handed down to the present-day Muslim Thais in some areas of the lower south.

2.3) The Su nut tradition

Su nut refer to the circumcision of a male; it is mostly undertaken when he is about 7 – 10 years of age. Although Su-nut is not the mandatory, but every male Muslim cannot reach perfection unless he undertakes the Su-nut. This practice is done to ease the thorough cleaning of every part of the body before attending the five daily prayers (La Madh). Nowadays, circumcision is usually undertaken at hospital with no ceremonious practice. However, in very remote areas, it is undertaken at home or mosque by Tok Mudeng (or the religious doctor). Some villagers usually give the yellow sticky rice to the boy who is about to undertake the Su-nut to eat; they believe that it will decrease the bleeding form the cut. The procedure of this tradition is started with the reading of the “Du-a”. After that, the Tok Mudeng directs a boy to sit on a banana tree which is laid on the floor. As soon as the top part of the boy’s penis is stretched, the Tok Mudeng will make an incision. After the circumcision, a decoction of the turmeric rhizome is usually given to the boy to drink; they believe that it will soothe the pain and also relieve contusion. To accelerate the wound healing, sometimes, they use the sap from the petioles of *Alocasia denudata* Engl.; or the crushed leaves of *Chromolaena odoratum* (L.) R.M. King & H. Rob , or *Melastoma malabathricum* L.

2.4) The tradition concerning death

There are only few traditional practice concerning the death of the Muslim Thais. Immediately after someone dies, his/or her body must be bathed, wrapped, and then a prayer service for the dead is performed. After that, the dead body is carried to the “Kubo” or the cemetery where it will be buried. It is very important that the body must be buried within 24 hours after death. For some stages of the traditional practice, such as the bathing of the dead body, some certain kinds of plants are employed. Generally, it must be bathed thoroughly at least once. If the bath is taken more than once, cleaned-soil water is used first, then water that had been steeped with the leaves of *Ziziphus mauritiana* Lam. will be added to this water, sometimes, with the

leaves of *Citrus hystrix* DC , the stem of *Entada rheedii* Spreng. , and some aromatic flowers. After the funeral ceremony, merit-making ceremony will be performed later on the 7th, 20th, and 40th day.

3) The agriculture

Similar to the Buddhist Thais, most of the Muslim Thais earn their living in agriculture, and some of them still have the beliefs concerning it. Some of the rituals that they have performed reflect such beliefs; they are as follows.

3.1) The ritual performed before rice planting

The Muslim Thais also believe in auspicious day to begin rice planting. On the most propitious day, the farmers grow certain kinds of plants in their paddy field, such as *Areca catechu* L., *Calamus* sp., *Dillenia* sp. and 4 rice plants. They believe that this practice will provide the abundant crops. In some villages, the farmers grow *Colocasia esculenta* (L.) Schott and *Fagraea racemosa* Jack at the corner of their paddy field. It is believed to provide the fertility of the soil and plentiful supply of water.

3.2) The ritual performed before rice harvesting

In some villages, before reaping, the farmers perform a ritual called “Ngue tae”. For the procedure of this ritual, they arrange the areca nuts, the betel leaves, the leaves of *Areca catechu* L., and the rice grains (containing the husks) on the tray, and then placed in the rice barn. After that, on a following day, the farmers collect 3 bundles of rice ears, and deposit in the rice barn as well. Then, 5 and 7 bundles of rice ears are collected later on the 3rd and 4th day, respectively. After that, the reaping of the season is started. In some villages, the farmers place the young shoot of banana, the sugar cane plant, and the rice ears at the roof beam of the rice barn. They believe that, by the performing of this practice, they will get enough rice for consuming throughout the year, and the pests will be driven away from their crops.

4.7 Enumeration of useful plants

From the study that was conducted in 18 communities of Buddhist Thais and in 18 communities of Muslim Thais located in 9 studied areas of the lower part of Southern Thailand from May 2001 to October 2004; 477 species of used plants were noted, collected and identified to species level. They belong to 251 genera and 84 families of Dicotyledon, to 79 genera and 26 families of Monocotyledon, to 17 genera and 11 families of Fern, to 1 genus and 1 family of Gymnosperm and to 1 genus and 1 family of other lower plants (Table 3).

The number of the used plant species belonging to each family of Monocotyledon, Fern, Gymnosperm and other lower plant are shown in Figure 3, and those of Dicotyledons are shown in Figure 4. These plants are separated into 6 groups according to their uses as food, medicine, construction, utensil, ritual and other uses. The total number of the plants that have been used for each purpose in the studied areas are as follows : 236 species for food, 327 species for medicines, 31 species for construction, 21 species for utensils, 39

species for rituals and 72 species for other uses (Figure 5). The most important plant families of the local people in term of species used are shown in Table 4.

Out of 477 species of the used plants, 390 species are used by Buddhist Thais, whereas 372 species are used by Muslim Thais living in the areas. The comparison of the number of the plants that are used for various purposes between these two groups of people are shown in Table 5 and Figure 6,

The information on the uses of plants are shown in Table 6, and presented alphabetically by family, genus, and species within a given family. Listed with each species are the species name, vernacular, use (s), part (s) used, and user (s). The descriptions of some used plants and the manner in which they are used as well as their locations, distribution, ecology, and material studied or voucher specimen number are presented. For the users, the Buddhist or Muslim Thais, are represented by 'B' or 'M' in bracket respectively. Table 7 shows formulae of traditional medicines including their indications, ingredients, preparation and application.

Table 3 Number of plants used by Buddhist and Muslim Thais arranged by group category and taxonomic rank.

Plant group	Family	Genus	Species
Dicotyledon	84	251	353
Monocotyledon	26	79	103
Fern	11	17	19
Gymnosperm	1	1	1
Lower plant	1	1	1
Total	123	349	477

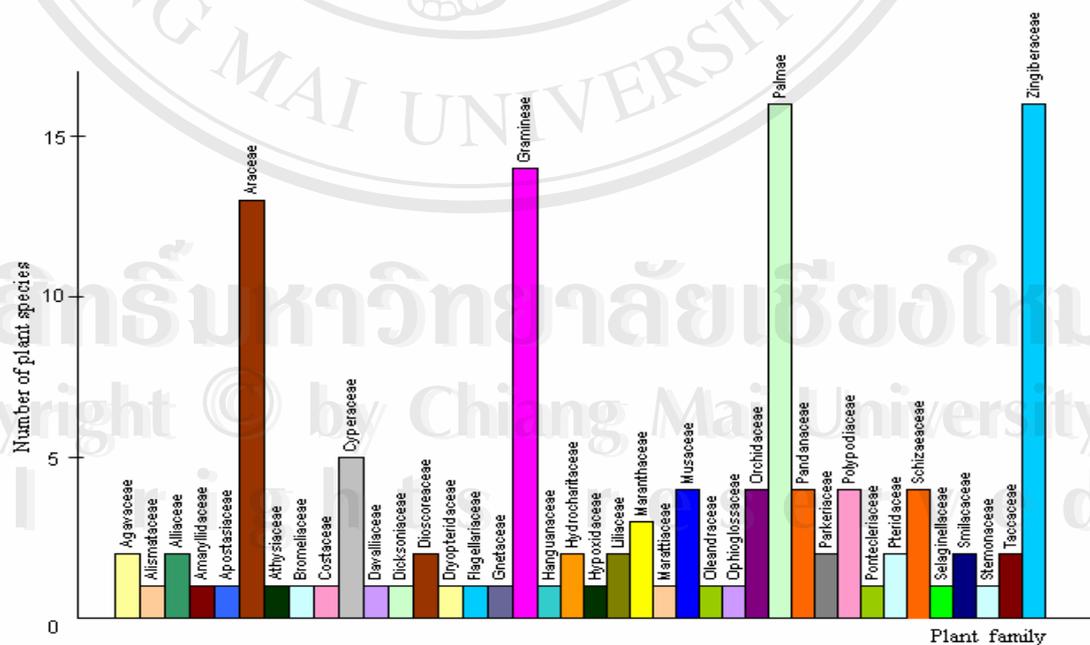


Figure 3. A chart indicates the number of used plant species of each family of monocotyledon, gymnosperm, fern and lower plant.

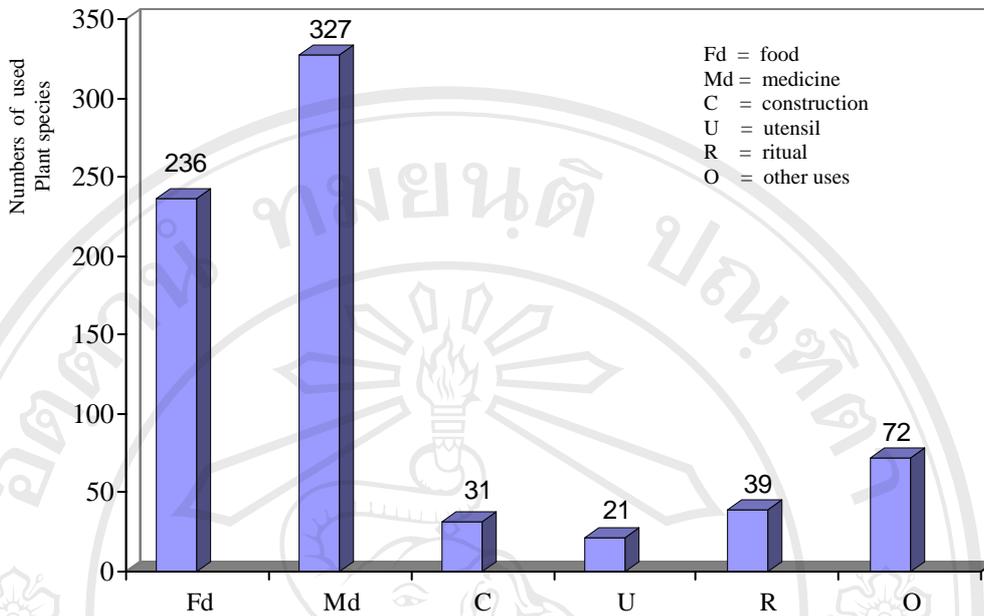


Figure 5. A chart shows total number of plants used by both Buddhist and Muslim Thais, categorized according to their uses.

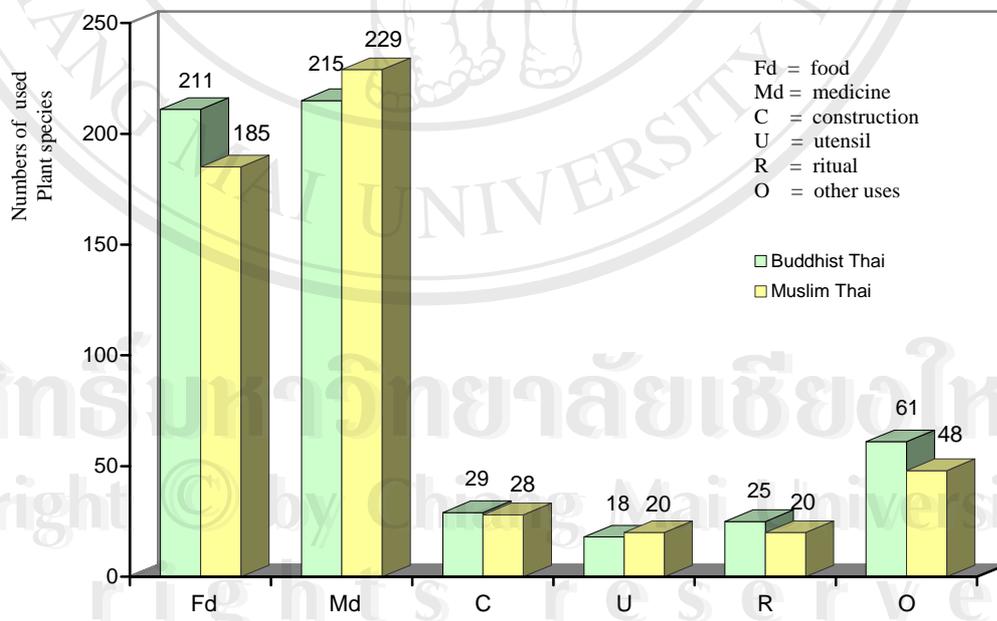


Figure 6. A chart shows a comparison of number of plants used for each purpose between Buddhist and Muslim Thais.

Table 4. The important plant families of the local plants in terms of number of species used.

Family	Food	Medicine	Other	Total
Leguminosae	20	22	11	33
Euphorbiaceae	15	22	6	31
Rubiaceae	8	15	2	19
Palmae	13	8	23	16
Zingiberaceae	12	11	4	16
Moraceae	11	4	5	16
Gramineae	7	10	5	14
Verbenaceae	1	13	4	13
Araceae	10	6	1	13
Compositae	3	11	3	13
Annonaceae	5	10	-	11

Table 5. A comparison of number of plants used for each purpose between Buddhist and Muslim Thais.

Uses	Users	
	Buddhist	Muslim
Food	211	185
Medicine	215	229
Construction	29	28
Utensil	18	20
Ritual	25	20
Other uses	61	48

Table 6 Used plant and their uses

Family and species name	Vernacular	Uses	Part used	User
Acanthaceae				
<i>Acanthus ebracteatus</i> Vahl	Kaem mo แก้มหมอ	Medicine	Flowers : treatment of abscesses Leaves : as a tonic ; treatment of diabetes	M B
<i>Andrographis paniculata</i> (Burm.f.) Wall. ex Nees	Fa thalai , Ya ngu ฟ้าทะลาย, ยางู	Medicine	Whole plant : as a tonic; treatment of anorexia , insomnia Stems, leaves : treatment of snake bites Leaves : treatment of urinary stones , wasting illness , lumbago	B, M B, M M
<i>Barleria lapulina</i> Lindl.	Salet phang phon tua phu เสลดพังพอนตัวผู้	Medicine	Leaves : treatment of snake bites treatment of herpes infections	B, M B
<i>Clinacanthus nutans</i> (Burm.f.) Lindau	Salet phang phon tua mia เสลดพังพอนตัวเมีย	Medicine	Leaves : treatment of snake bites , insect bites, herpes infection	B, M
<i>Graptophyllum pictum</i> (L.) Griff.	Bai ngoen bai thong ใบเงินใบทอง	Ritual	Branches, leaves : they are commonly placed in a bowl of holy water used in merit-making ceremony ; to decorate bowls of wedding or “khanmark”	B, M
<i>Justicia gendarussa</i> Burm. f.	Chiang phra เชียงพรา	Ritual	Branches, leaves : getting rid of evil spirits	B , M
<i>Rhinacanthus nasutus</i> (L.) Kurz	Thong phan chang ทองพันชั่ง	Medicine	Whole plant : as a tonic for potency ; treatment of lumbago , back ache Leaves : treatment of ringworm	B M
<i>Thunbergia fragrans</i> Roxb.	Tan pakka ตานปากกา	Medicine	Whole plant : treatment of chronic gastrointestinal ailments	B
<i>Thunbergia laurifolia</i> Lindl.	Rang chuet thao รางจืดเถา	Medicine	Whole plant : treatment of toxication Roots : as an antidote	B B

Abbreviations : B = Buddhist Thai , M = Muslim Thai

F = Formula of traditional medicine which its ingredients , preparation and application are shown in Table 7

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Table continues

Table 6 (continued)

Family and species name	Vernacular	Uses	Part used	User
			Roots : treatment of snakes bites Leaves : treatment of contusion	M M
Agavaceae		Miscellaneous	Leaves : as a lactifuge	M
<i>Cordyline fruticosa</i> (L.) Gopp.	Mak phu mak mia หมากผู้หมากเมีย	Medicine	Stems : treatment of fever	B
		Ritual	Leaves : used in ceremonial occasions; in magical treatment of fever.	M
<i>Dracaena umbratica</i> Ridl.	Kamlang hanuman กำลั้งหนุมาน	Medicine	Roots : as a tonic	B
Alismataceae				
<i>Caldesia oligococca</i> (F. Muell.) Buchenae	Khi tai ขี้ไต้	Food	Shoots : eaten raw as a vegetable , cooked in curries.	B
Alliaceae				
<i>Allium ascalonicum</i> L.	Hom หอม	Food	Bulbs : as a condiment in various kinds of dishes , eaten raw or cooked.	B , M
		Medicine	Bulbs : treatment of swelling	B
<i>Allium sativum</i> L.	Krathiam กระเทียม	Food	Bulbs : as a condiment in various kinds of dishes, eaten raw, cooked or pickled.	B , M
		Medicine	Bulbs : treatment of abdominal pain	B
Amaranthaceae				
<i>Aerva lanata</i> (L.) Juss	Klet pla khao เกล็ดปลากาว	Medicine	Whole plant : as an antidiabetes , anti-allergic agent	B
<i>Alternanthera sessilis</i> (L.) DC.	Phak pet ผักเป็ด	Medicine	Whole plant : as an antidiarrheic	M

Table continues

Table 6 (continued)

Family and species name	Vernacular	Uses	Part used	User
<i>Gomphrena globosa</i> L.	Ban mai ruoi บานไม้ร้อย	Ritual	Flowers : employed in tradition of marriage	B
Amaryllidaceae				
<i>Crinum asiaticum</i> L.	Ba wae ba kong บานแวบกง	Medicine	Leaves : treatment of corns	M
Anacardiaceae				
<i>Anacardium occidentale</i> L.	Mamuang Himmaphan, Ya ruang	Food	Leaves : eaten raw as a vegetable. Pear-like pedicels : eaten fresh as fruit. Seeds : eaten after cooking or roasting.	B , M B , M B , M
	มะม่วงหิมพานต์	Medicine	Barks : treatment of diarrhea	B
	ยาร่วง	Miscellaneous	Barks : the roasted bark chips are put in palm wine as a preservative , and for good taste.	B
<i>Bouea oppositifolia</i> (Roxb.) Meisn.	Pring ปริง	Food	Fruits , young leaves : eaten raw	B , M
		Construction	Wood : house building and for various purposes.	B , M
<i>Dracontomelon dao</i> (Blanco) Merr. & Rolfe	Ko โก	Food	Fruits : the ripe fruits are eaten fresh.	B , M
<i>Mangifera caesia</i> Jack	Lam ya , Lam yai ลำยา , ลำไย	Food	Fruits : the ripe fruits are locally used to give sour flavor to various kinds of dishes.	B , M
<i>Mangifera foetida</i> Lour.	Mut มุด	Food	Fruits : eaten raw	B , M
		Medicine	Leaves : treatment of hemorrhage	B
<i>Mangifera indica</i> L.	Muang ม่วง	Food	Fruits, leaves : eaten raw	B, M

Table 6 (continued)

Family and species name	Vernacular	Uses	Part used	User
<i>Semecarpus curtisii</i> King	Rak รัก	Medicine	Stem bark : treatment of post partum	M
		Miscellaneous	Leaves : as an immuno - stimulating factor	B
Ancistrocladaceae				
<i>Ancistrocladus tectorius</i> (Lour.) Merr.	Khon ti ma	Food	Leaves : cooked in Thai-style vegetable soup.	B
	ก้อนดีหมา	Medicine	Roots : as a blood circulation tonic; treatment of bodily discomfort	B , M
		Ritual	Leaves : to drive off bad spirits from the houses.	B
Annonaceae				
<i>Anaxagorea javanica</i> Blume	Champun จำปูน	Medicine	Whole plant : as a tonic	B
<i>Annona muricata</i> L.	Thurian nam	Food	Fruits : eaten fresh.	B , M
	ทุเรียนน้ำ	Medicine	Roots : as an anti-emetic	M
<i>Annona reticulata</i> L.	Noi nong	Food	Fruits : eaten fresh.	B , M
	น้อยโหน่ง	Medicine	Leaves : as an antidiabetes	M
<i>Friesodielsia desmoides</i> (Craib) Steenis	Sao yud สาวหูด	Medicine	Whole plant : as a blood tonic ; treatment of fever caused by menstruation.	M
			Whole plant : as a tonic for potency	B
<i>Desmos chinensis</i> Lour.	Sao yud สาวหูด	Medicine	Roots : treatment of fever; treatment of numbness	B
			Stems : as a blood circulation tonic , treatment of bodily discomfort	B
<i>Goniothalamus macrophyllus</i> (Blume) Hook. f. & Th.	Ching dok diao ชิงคอกเตี้ย	Medicine	Whole plant : as a blood circulation tonic , treatment of bodily discomfort	B
			Roots : as a tonic	B , M M

Table continues

Table 6 (continued)

Family and species name	Vernacular	Uses	Part used	User
			Stems : as a mouthwash	
<i>Melodorum siamense</i> (Scheff.) Ban	Nom maew นมแมว	Medicine	Leaves : as an antidiarrheic	M
<i>Polyalthia bullata</i> King	Tuka a li ตุ๊กกะอาลี	Medicine	Whole plant : treatment of bodily discomfort	M
<i>Polyalthia suberosa</i> (Roxb.) Thwaites	Si nai ซี่ไหน	Food	Fruit : eaten fresh.	M
		Medicine	Whole plant : as an antipyretic, treatment of post partum	B
<i>Uvaria grandiflora</i> Roxb. ex Hornem	Kluai musang Pe sae ka yu กล้วยมูสัง, ปี่เซกายู	Food	Fruits : eaten fresh.	B, M
		Medicine	Whole plant : treatment of back pain	M
<i>Uvaria rufa</i> L.	Nom khwai นมควาย	Food	Fruits : eaten fresh.	B, M
Apocynaceae				
<i>Aganosma marginata</i> (Roxb.) G.Don	Dueai din เดื่อยดิน	Food	Leaves : eaten as vegetable	B
		Medicine	Leaves : treatment of abscesses	B
<i>Alyxia reinwardtii</i> Blume	Nut นูด	Miscellaneous	Stems : as a firewood in cremation ; to perfume clothing in a wardrobe.	B
<i>Alstonia macrophylla</i> Wall. ex G.Don	Thung fa ทุ่งฟ้า	Medicine	Branches and leaves : as a tonic Stems : treatment of bodily discomfort	B B
<i>Alstonia scholaris</i> (L.) R. Br.	Tin pet, Pu le ดินเป็ด, ปูเล๊ะ	Medicine	Latex : treatment of toothache Stems and roots : treatment of influenza Leaves : to promote vagina contraction	M B M

Table 6 (continued)

Family and species name	Vernacular	Uses	Part used	User
<i>Alstonia spathulata</i> Blume	Thia, Kabui เทียบ , กะบวย	Medicine	Roots : as a tonic	M
		Miscellaneous	Wood : making small objects ; to rub a knife	M
<i>Parameria laevigata</i> (Juss.) Moldenke	Som yen ส้มเขิน	Miscellaneous	Stems : used as cordage	B
<i>Tabernaemontana peduncularis</i> Wall.	Ai saek ไอแสก	Medicine	Roots : as a tonic	B
<i>Urceola rosea</i> (Hook. f. & Arn.) D. J. Middleton	Som kiap ส้มเกียบ	Food	Leaves : eaten as a vegetable.	B , M
<i>Willughbeia edulis</i> Roxb.	Khui กุย	Food	Fruits : eaten fresh	B
		Medicine	Bark : treatment of wounds, herpes infection Latex : treatment of aphtous ulcer	B B
<i>Wrightia religiosa</i> Benth. ex Kurz	Mok โมก	Medicine	Leaves : as an antidote for fish and insect poison	M
Apostasiaceae				
<i>Apostasia nuda</i> R.Br.	Lek nang yong เหล็กนั้งยอง	Medicine	Whole plant : as a tonic	B , M
Araceae				
<i>Alocasia denudata</i> Engl.	O nok, Kla di cha นาเอ อ่อนก, กลาดิจา แนะ	Medicine	Tuber, petioles : treatment of wounds	M
<i>Alocasia macrorrhizos</i> (L.) G.Don	O khao เอะขาว	Food	Stem : eaten as substitute for taro.	M

Table 6 (continued)

Family and species name	Vernacular	Uses	Part used	User
<i>Amorphophallus prainii</i> Hook. f.	Buk ngu lueam	Food	Petioles : cooked in curries	B , M
	บุกงูเหลือม	Medicine	Flowers : treatment of aphthous ulcer	M
<i>Amorphophallus paeoniifolius</i> (Dennst.) Nicolson	Buk khang khok	Food	Leaves, petioles : cooked in curries	B
	บุกคางคก			
<i>Caladium bicolor</i> Vent	Bon si บอนสี	Medicine	Tubers : treatment of the bites of venomous animals	M
<i>Colocasia esculenta</i> (L.) Schott	Phueak, Bon	Food	Tubers : boiled or cooked in curries.	B , M
	เผือก , บอน			
<i>Colocasia gigantea</i> Hook.f.	Khun, O dip	Food	Leaves : cooked in curries	B , M
	คูน , อ้อดิบ			
<i>Cryptocoryne cordata</i> Griff.	Wa nam, chuap	Food	Leaves : eaten raw as a vegetable	B
	วาน้ำ , ชิวบ			
<i>Homalomena pendula</i> (Bl.) Bakh.f.	Bon tao บอนเต่า	Food	Petioles : cooked in curries	B , M
	<i>Homalomena</i> sp.	Bon som บอนส้ม	Food	Petioles : cooked in curries
<i>Lasia spinosa</i> (L.) Thw.	Phak nam, Ka li	Food	Leaves : eaten as a vegetable	B , M
	ผักหนาม , กาลี	Medicine	Leaves : as an anthelmintic in cattle	M
<i>Schismatoglottis calyprata</i> (Roxb.) Z. & M.	Bon ya rat	Food	Petioles : cooked as a vegetable.	B
	บอนยารัด			

Table 6 (continued)

Family and species name	Vernacular	Uses	Part used	User
<i>Typhonium trilobatum</i> (L.) Schott	Utta phit อุตพิต	Medicine	Leaves : as an expectorant Tubers : treatment of venomous bites	B B
Araliaceae				
<i>Aralidium pinnatifidum</i> (Jungh & de Vriese) Miq.	Khwan khao ขวัญข้าว	Ritual	Leaves : used in a ritual performed at the beginning of rice-harvesting season	B
<i>Polyscias cumingiana</i> (Presl) F.-Vill	Lep khrut เล็บครุฑ	Medicine	Stem : treatment of snake bites	B
<i>Polyscias fruticosa</i> (L.) Harms	Lep khrut เล็บครุฑ	Food	Leaves : eaten as a vegetable.	B , M
		Medicine	Leaves : as an aphrodisiac.	M
<i>Trevesia arborea</i> Merr.	Nam suae หนามเสือ	Food	Inflorescences : eaten as a vegetable	B
		Medicine	Whole plant : as a tonic Roots : treatment of fever	B M
		Medicine	Whole plant : as a tonic	B , M
Aristolochiaceae				
<i>Thottea tomentosa</i> (Blume) Ding Hou	Hu me หุหมี่	Medicine	Whole plant : as a tonic	B , M
Asclepiadaceae				
<i>Hoya parasitica</i> (Roxb.) Wall. ex Traill	Ta ba ตาบา	Medicine	Leaves : treatment of colic	M
<i>Calotropis gigantea</i> (L.) Dryander ex W.T.Aiton	Rak รัก	Ritual	Flowers : used in tradition of marriage.	B

Table 6 (continued)

Family and species name	Vernacular	Uses	Part used	User
Athyriaceae				
<i>Diplazium esculentum</i> (Retz.) Sw.	Phak kut พากรูด	Food	Leaves : eaten as a vegetable	B , M
Balsaminaceae				
<i>Impatiens mirabilis</i> Hook.f.	Wan din yen ว่านดินเย็น	Medicine	Stems and leaves : Treatment of centipede bites	B
Bignoniaceae				
<i>Dolichandrone columnaris</i> Santisuk	Khae na แคณา	Utensil	Wood : making furniture , small implements , planks , toys. etc.	B , M
<i>Oroxylum indicum</i> (L.) Kurz	Phe ka, Be ka เพกา	Food	Fruits : eaten after boiling or roasting.	B , M
		Medicine	Stem bark : treatment of burns; post partum Stem bark : treatment of scald Roots : treatment of diabetes	M B M
Bixaceae				
<i>Bixa orellana</i> L.	Kham saet ค้ำเสด	Medicine	Roots : treatment of heat rash in children Leaves : Treatment of joint swelling	M M
Bombacaceae				
<i>Ceiba pentandra</i> (L.) Gaertn.	Nun นุ่น	Medicine	Fruits : as a contraceptive	M
		Miscellaneous	Fruits : fiber from the ripe fruits is commonly used for stuffing in mattresses , pillows , etc.	B , M
<i>Durio zibethinus</i> Merr.	Thurian, Rain ทุเรียน , เรียน	Food	Fruits : eaten fresh or made into dessert. The seeds are also edible after boiled or made into dessert.	B , M
		Construction	Wood : indoor construction.	B , M

Table 6 (continued)

Family and species name	Vernacular	Uses	Part used	User
Boraginaceae				
<i>Heliotropium indicum</i> L.	Ya nguang chang หญ้างวงช้าง	Medicine	Leaves : as an expectorant	B , M
Bromeliaceae				
<i>Ananas comosus</i> (L.) Merr.	Sapparot, Yanat สับปะรด , ขนนัด	Food	Fruits : the unripe fruits (a little more than half-grown) are used in cooking various kinds of dishes. The ripe ones are eaten fresh.	B , M
		Medicine	Leaves : as a diuretic	M
Capparaceae				
<i>Cleome gynandra</i> L.	Phak sian ผักเสี้ยน	Food	Leaves : pickled in salt water and eaten as a side dish with rice.	B , M
		Medicine	Whole plant : treatment of epilepsy Whole plant : as a tonic ; treatment of bodily discomfort , numbness , flatulence	M B
<i>Crateva magna</i> (Lour.) DC.	Kum กุ่ม	Food	Leaves : eaten as a vegetable.	B
Caricaceae				
<i>Carica papaya</i> L.	Malako, Loko มะละกอ , ลอกอ	Food	Fruits : mature green fruits can be eaten raw or cooked. The ripe ones are eaten fresh.	B , M
		Medicine	Roots : as a diuretic ; treatment of venereal diseases	M
Celastraceae				
<i>Salacia macrophylla</i> Blume	Khop nang ขอบนาง	Food	Fruits : eaten fresh.	B , M
		Medicine	Roots : treatment of diabetes , bodily discomfort	B , M
Combretaceae				
<i>Terminalia calamansanai</i> (Blanco) Rolfe	Chod ชด	Medicine	Stem bark : as an antidiarrheic in poultry Leaves : treatment of cold in poultry	B M

Table 6 (continued)

Family and species name	Vernacular	Uses	Part used	User
		Construction	Wood : house building	B
<i>Terminalia catappa</i> L.	Hu kwang หูกวาง	Medicine	Leaves : as a blood circulation tonic	B
Compositae				
<i>Ageratum conyzoides</i> L.	Sap raeng sap ka , Bue da สามแรงสามกา, บือคะ	Medicine	Leaves : treatment of wounds , cough	B , M
<i>Blumea balsamifera</i> (L.) DC.	Nat หนาด	Medicine	Leaves : treatment of swelling ; as an anthelmintic , antidiarrheic	B
<i>Chromolaena odoratum</i> (L.) R. M. King & H. Rob.	Sub ruk, Sap suea สับรุก , สามเสือ	Medicine	Leaves : treatment of pneumonosis Leaves : treatment of the wounds	M B,M
		Miscellaneous	Leaves : insect repellent	M
<i>Crassocephalum crepidioides</i> (Benth.) S. Moore	Ya hua ngok หญ้าหัวหงอก	Food	Leaves : eaten raw or blanched as a vegetable.	B
<i>Eclipta prostrata</i> (L.) L.	Ka meng กะเม็ง	Medicine	Whole plant : as an antidiarrheic ; treatment of bodily discomfort , numbness	B
<i>Elephantopus scaber</i> L.	Do mai ru lom, Phang krap โตไม้รูล้ม, ฟังกราบ	Medicine	Whole plant : as a tonic; treatment of chest complaints	B, M
<i>Gynura procumbens</i> (Lour.) Merr.	Kamlang khwai thuek กำลังควายถึก	Food	Leaves : eaten raw or cooked	B
		Medicine	Flowers : as a tonic	B

Table continues

Table 6 (continued)

Family and species name	Vernacular	Uses	Part used	User
<i>Mikania cordata</i> (Burm.f.) B.L.Rob.	Khi kai yan ขี้ไก่ย่าน	Medicine	Whole plant : treatment of helminthes in children Leaves : treatment of flatulence , fever in children	M
<i>Spilanthes paniculata</i> Wall. ex DC.	Phak khrat ผักคราด	Food	Leaves : eaten raw as a vegetable	B
		Medicine	Flowers : treatment of toothache	B , M
<i>Struchium sparganophorum</i> (L.) O.K.	Sudu e-de ชูดูอีเค๊ะ	Medicine	Leaves : treatment of wounds and burns	M
<i>Vernonia cinerea</i> (L.) Less.	Ya dok khao หญ้าดอกขาว	Medicine	Whole plant : treatment of internal injury, contusion, herpes infection	B
<i>Vernonia elliptica</i> DC.	Tan mon ตานหม่อน	Medicine	Whole plant : treatment of gastrointestinal ailments ; treatment of diarrhea in cattle.	B
<i>Zinnia violacea</i> Cav.	Ban chuen บานชื่น	Ritual	Flowers : used in tradition of marriage.	B
Connaraceae				
<i>Cnetis palala</i> (Lour.) Merr.	Ngon kai หงอนไก่	Miscellaneous	Seeds : as dog poison	B
Convolvulaceae				
<i>Anisea martinicensis</i> (Jacq.) Choisy	Lidah batong ลิ๊ะบาดตง	Food	Leaves : cooked as a vegetable	B , M
<i>Cuscuta chinensis</i> Lam.	Foi thong ฝอยทอง	Food	Whole plant : eaten after steamed.	M
<i>Ipomoea aquatica</i> Forssk.	Phak bung ผักบุ้ง	Food	Young shoots : eaten raw or cooked as a vegetable.	B , M
		Medicine	Stems , leaves : treatment of cancer	B

Table continues

Table 6 (continued)

Family and species name	Vernacular	Uses	Part used	User
<i>Ipomoea batatas</i> (L.) Lam.	Man thet, Man la มันเทศ, มันหลา	Food	Leaves : the young leaves are eaten raw or cooked as a vegetable. Tubers : the tubers are eaten after boiled, roasted, cooked in curries, or made into dessert.	B , M
<i>Ipomoea pes-caprae</i> (L.) R.Br.	Pak bung thale ผักบุ้งทะเล	Medicine	Leaves : treatment of jelly-fish allergy	B , M
<i>Operculina turpethum</i> (L.) Silva Manso	Chingcho yan จิงจ้อย่าน	Food	Young shoots : eaten raw or cooked as a vegetable.	B
Costaceae				
<i>Costus speciosus</i> (Koen.) Sm.	Ueang mai na เอื้องหมายนา	Medicine	Rhizome : treatment of rash ; as an aphrodisiac.	B ; M
Crassulaceae				
<i>Kalanchoe pinnata</i> (Lam.) Pers.	Khvam tai ngai pen คว่ำตายหงายเป็น	Medicine	Leaves : treatment of insect bites	M
Crypteroniaceae				
<i>Crypteronia paniculata</i> Blume	Ku wa กูวา	Medicine	Roots , stem bark , leaves : as a contraceptive Leaves : treatment of contusion Stem bark : treatment of toothache , as an abstergent	M M B
		Construction	Wood : house building	B , M
Cucurbitaceae				
<i>Coccinia grandis</i> (L.) Voigt	Tamlueng ตำลึง	Food	Leaves : the young leaves are eaten after cooked in various kinds of dishes.	B , M
		Medicine	Stems : treatment of eye-ache Leaves : treatment of fever	B , M M

Table 6 (continued)

Family and species name	Vernacular	Uses	Part used	User
<i>Gymnopetalum chinense</i> (Lour.) Merr.	Dom ดอม	Food	Leaves , fruits : cooked as a vegetable.	B
<i>Momordica cochinchinensis</i> (Lour.) Spreng	Khi phra fai ขี้พราไฟ	Food	Fruits : cooked as a vegetable.	B , M
		Miscellaneous	Stems : getting rid of worms from cattle's skin.	B
Cyperaceae				
<i>Cyperus involucratus</i> Rottb.	Kok rangka, Kok กกรังกา , กก	Medicine	Roots : as an antidote	B
<i>Cyperus rotundus</i> L.	Ya haeo mu หญ้าเห่าหมู	Medicine	Whole plant : treatment of lumbago	B , M
<i>Kyllinga nemolaris</i> (J. R. & G. Forst.) Dandy ex Hutch. & Dalzied	Ya nuai fai หญ้าหน่วยฝ้าย	Medicine	Flowers : treatment of earache	B
<i>Lepironia articulata</i> (Retz.) Domin	Kra chut, Chut กระจูด , จูด	Utensil	Stems : making mats , baskets and other utensils.	B , M
<i>Scleria poaeformis</i> Retz.	Prue ปรีอ	Miscellaneous	Leaves : made into roof thatches.	B
Davalliaceae				
<i>Davallia solida</i> (G. Forst.) Sw.	Wan nakkharat ว่านนาคราช	Medicine	Rhizome : treatment of toothache , itching	B , M
Dicksoniaceae				
<i>Cibotium barometz</i> (L.) I. Sm.	Wan luk kai thong ว่านลูกไก่ทอง	Medicine	Hairs of rhizomes : treatment of the wounds	B , M

Table 6 (continued)

Family and species name	Vernacular	Uses	Part used	User
Dilleniaceae				
<i>Tetracera indica</i> (Christm. & Panz.) Merr.	Pod bai luen	Medicine	Roots , stem : treatment of aphthous ulcer	M
	ปลัดใบลิ้น		Leaves : as a diuretic	M
<i>Dillenia</i> spp.	San, Si po सान, शिपो	Ritual	Whole plant : used in ritual performed at the beginning of the rice growing season.	M
Dioscoreaceae				
<i>Dioscorea bulbifera</i> L.	Man loen	Food	Tubers : cooked in curries.	B
	มันเลิน			
<i>Dioscorea hispida</i> Dennst.	Kloi กลอย	Food	Tubers : the tubers are eaten after the poison is washed out, and then boiled.	B , M
		Medicine	Tubers : treatment of helminthes in children	B
		Miscellaneous	Shoots : sap from young shoots is dropped into a palm wine. It is said to accelerate severe drunk effects in person who drink it. Roots : getting rid of helminthes	B
Dipterocarpaceae				
<i>Cotylelobium melanoxylon</i> (Hook.f.) Pierre	Khiam เคี่ยม	Construction	Wood : house building.	B , M
		Miscellaneous	Bark : as a preservative in a sweet fluid obtained from the cut inflorescence of <i>Borassus flabellifer</i> L.	B
<i>Hopea odorata</i> Roxb.	Khian เคียน	Construction	Wood : house building.	B , M
<i>Vatiga pauciflora</i> (Korth.) Blume	Sak, Rue so สัก, รือเสาะ	Miscellaneous	Bark : chewed as substitute for betel nut	B
Dryopteridaceae				
<i>Pleocnemia irregularis</i> (Presl.) Holtt.	Kut pa กูดป่า	Food	Leaves : eaten as a vegetable	B

Table 6 (continued)

Family and species name	Vernacular	Uses	Part used	User
Ebenaceae				
<i>Diospyros buxifolia</i> (Blume) Hiern.	Sam tham ลำท่า	Construction	Wood : house building.	B
		Ritual	Leaves : used in ritual performed at the beginning of the rice- harvesting season.	B
<i>Diospyros malabarica</i> (Desr.) Kostel	Phlap พลับ	Food	Fruits : eaten fresh.	B
		Miscellaneous	Fruits : as a sticky substance	B
Elaeagnaceae				
<i>Elaeagnus latifolia</i> L.	Som lod ส้มหลอด	Food	Fruits : eaten fresh , cooked in curries.	B , M
Elaeocarpaceae				
<i>Elaeocarpus robustus</i> Roxb.	Pe yo ปียะ	Food	Fruits : are eaten fresh.	M
		Medicine	Leaves : treatment of herpes infection Bark : treatment of diabetic ulcer , chronic ulcer.	M M
Euphorbiaceae				
<i>Acalypha indica</i> L.	Tamyae maeo ตำแยแมว	Medicine	Whole plant : as an aphrodisiac	M
<i>Antidesma ghaesembilla</i> Gaertn.	Mao na เม่านา	Food	Leaves , fruits : eaten raw as a vegetable	B , M
		Medicine	Leaves : treatment of abscesses	B
<i>Antidesma montanum</i> Blume	Mao polo เม่าโปโล	Medicine	Whole plant : treatment of dysmenorrhoea , hemorrhage	M
<i>Antidesma velutinosum</i> Blume	Mao khon เม่าควน	Food	Fruits : eaten fresh.	B , M

Table continues

Table 6 (continued)

Family and species name	Vernacular	Uses	Part used	User
<i>Baccaurea macrocarpa</i> (Miq.) Mull. Arg.	Lang khae สังแข	Food	Fruits : are eaten fresh.	B , M
<i>Baccaurea motleyana</i> (Mull.Arg.) Mull. Arg.	Ra mai, Ram bai ระไม , รำไบ	Food	Fruits : eaten fresh.	B , M
<i>Baccaurea polyneura</i> Hook.f.	Cham pu ling จ่าปูลิง	Food	Fruits : eaten fresh.	B , M
<i>Balakata baccata</i> (Roxb.) Esser	Yuea chong เหยื่อง	Miscellaneous	Wood : as firewood. Leaves : used to bait traps.	B , M
<i>Baliospermum montanum</i> (Willd.) Mull. Arg.	Thon di ทนดี	Medicine	Roots : as a laxative	B
<i>Breynia vitis-edaea</i> (Burm.f.) C.E.C. Fisch.	Sue mama, Kang pla ซื่อมามา , ก้างปลา	Medicine	Roots and leaves : treatment of post partum	B
		Ritual	Leaves : employed in magical ritual to drive off evil spirits.	M
<i>Claoxylon longifolium</i> (Blume) Endl. ex Hassk.	Ta mat, A yae ตาหมัด , อาเย	Food	Leaves : eaten raw or blanched or cooked as a vegetable	B , M
		Medicine	Whole plant : treatment of fever Roots : treatment of fever	M B
<i>Codiaeum variegatum</i> Blume	Koson โกสน	Ritual	Leaves : magical treatment of chronic fever	M
<i>Croton cascarilloides</i> Raeusch	Plao ngoen เปล้าเงิน	Medicine	Whole plant : treatment of post partum	M
<i>Croton caudatus</i> Geiseler	Kura pria กูระปรีชะ	Medicine	Leaves : as a cardio tonic	M
			Fruits : treatment of hemorrhoids	M

Table 6 (continued)

Family and species name	Vernacular	Uses	Part used	User
<i>Croton tiglium</i> L.	Salot สลอด	Medicine	Leaves : treatment of toothache , itching Seeds : treatment of constipation	B M
		Food	Seeds : eaten after roasted, boiled, or pickled.	B , M
<i>Elateriospermum tapos</i> Blume	Pra ประ	Construction	Wood : house building	B , M
		Medicine	Whole plant : as a galactagogue	M
<i>Euphorbia hirta</i> L.	Namnom ratchasi น้ำนมราชสีห์	Medicine	Whole plant : as a galactagogue	M
<i>Euphorbia thymifolia</i> L.	La mo bue tae ลาโมะบือเตต	Medicine	Whole plant : as a galactagogue	M
<i>Excoecaria cochinchinensis</i> Lour.	Lin kra bue ลิ้นกระบือ	Medicine	Roots : treatment of urinary stones	M
<i>Excoecaria oppositifolia</i> Griff.	Fai duean ha ไฟเดือนห้า	Medicine	Roots : as a blood circulation tonic Stems : as a tonic ; treatment of bodily discomfort	M B
		Food	Leaves : eaten raw as a vegetable	B , M
<i>Glochidion perakensis</i> Hook.f.	Man pu มันปู	Medicine	Roots : as a tonic	M
		Food	Fruits : cooked in Thai- style vegetable soup.	B
<i>Hymenocardia punctata</i> Wall. ex Lindl.	Faep แฟบ	Food	Fruits : eaten fresh , pickled , or cooked in sour curries.	B , M
<i>Phyllanthus acidus</i> (L.) Skeels	Mayom มะยม	Medicine	Roots : as a somnifacient; treatment of asthma	B
		Miscellaneous	Leaves : local people usually tie the leaf rachis in a bundle, and then use it to sprinkle holy water to ward off evil spirits.	B

Table 6 (continued)

Family and species name	Vernacular	Uses	Part used	User
<i>Phyllanthus amarus</i> Schumach. & Thonn	Tai bai khao ได้ใบขาว	Medicine	Whole plant : treatment of diabetes chronic feve , malarial fever	B
<i>Phyllanthus elegans</i> Wall. ex Mull. Arg.	Phak wan chang ผักหวานช้าง	Food	Leaves : eaten raw or cooked as a vegetable.	B , M
		Medicine	Leaves : treatment of toothache treatment of abscesses	B M
		Miscellaneous	Leaves : given to boxers to chew ; it is believed to strengthen the boxers.	M
<i>Phyllanthus oxyphyllus</i> Miq.	Yai thip lan ยายถีบหลาน	Food	Leaves : eaten raw as a vegetable	M
<i>Phyllanthus pulcher</i> Wall. ex Mull. Arg.	Thorani san, luk tai bai ธรณีสาร, ลูกได้ใบ	Medicine	Whole plant : treatment of contusion treatment of abscesses , herpes infection	B , M M
			Roots : treatment of venereal diseases	M
<i>Phyllanthus urinaria</i> L.	Ya tai bai หญ้าได้ใบ	Medicine	Whole plant : treatment of fever, diabetes, high blood pressure	B
			Leaves : treatment of itching	M
<i>Phyllanthus virgatus</i> G. Forst.	Tai bai khao ได้ใบขาว	Medicine	Whole plant : treatment of fever associated with menstruation	B
<i>Sauropus androgynous</i> (L.) Merr.	Phak wan ผักหวาน	Food	Leaves : cooked as a vegetable	B , M
		Medicine	Roots : as a refrigerant	B
<i>Shirakiopsis indica</i> (Willd.) Esser	Ku ra กระ	Medicine	Seeds : as an anthelmintic	B
		Miscellaneous	Leaves : treatment of vermin in livestock , to repel insect larvae in paddy field.	B

Table 6 (continued)

Family and species name	Vernacular	Uses	Part used	User
Fagaceae				
<i>Castanopsis inermis</i> (Lindl. ex Wall.) B.& H.	Ko, Bue ra ngae โก, บือราแง	Food	Fruits : eaten after roasted	B , M
		Construction	Wood : general construction , making furniture.	B , M
Flagellariaceae				
<i>Flagellaria indica</i> L.	Wai ling ห้วยลิง	Medicine	Rhizomes : treatment of herpes infection	M
		Miscellaneous	Stems : the climbing stems are used as cordage to thread leaves of Nipa palm together for roof-thatching.	B , M
Flacourtiaceae				
<i>Flacourtia jangomas</i> (Lour.) Rousch	Khrob ขรบ	Food	Fruits : eaten fresh.	B , M
Gnetaceae				
<i>Gnetum gnemon</i> L.	Miang, Li leng เหมียง , ลีหลง	Food	Leaves : eaten raw as a vegetable , as an ingredient in authentic dessert	B , M
Gramineae				
<i>Bambusa</i> sp.	Phai ไผ่	Food	Shoots : cooked in various kinds of dishes.	B , M
		Utensil	Culms : making household utensils , fishery equipments , etc.	B , M
<i>Centotheca lappacea</i> Desv.	Niao ma เหนียวหมา	Medicine	Whole plant : treatment of fever Leaves : treatment of herpes infection	B B
		Medicine	Flowers : treatment of urinary stones	B, M
<i>Chrysopogon aciculatus</i> (Retz.) Trin.	Ya chao chu หญ้าเจ้าชู้	Medicine	Flowers : treatment of urinary stones	B, M

Table continues

Table 6 (continued)

Family and species name	Vernacular	Uses	Part used	User
<i>Coix lachryma-jobi</i> L.	Dueai เดือย	Medicine	Whole plant : as a tonic	M
<i>Cymbopogon citratus</i> Stapf	Ta khrai, Khrai ตะไคร้, ไคร	Food	Leaf sheath : eaten raw as a vegetable ,used as a condiment in various kinds of dishes.	B , M
		Medicine	Leaves : treatment of post partum	M
<i>Dendrocalamus asper</i> (Roem. & Schult.) Backer ex Heyne	Phai tong ไผ่ตง	Food	Shoots : cooked in various kinds of dishes as a vegetable.	B , M
		Construction	Culms : building materials for houses and bridges.	B , M
		Miscellaneous	Culms : the internodes of the culms are used as containers for collecting juice during the tapping of palm inflorescences.	B , M
<i>Imperata cylindrica</i> (L.) P.Beauv.	Ya kha หญ้าคา	Medicine	Roots : treatment of fever	B
		Ritual	Leaves : used to sprinkle holy water during magic rituals or in religious ceremonies.	B
<i>Leptaspis cf. urceolata</i> R. Br.	Lek mai phai เหล็กไม้ไผ่	Medicine	Whole plant : as a tonic	M
<i>Lophatherum gracile</i> Brongn.	Lek mai phai เหล็กไม้ไผ่	Medicine	Whole plant : as a tonic	B , M
<i>Oryza sativa</i> L.	Khao ข้าว	Food	Grains : main food of people both Buddhist and Muslim Thais.	B , M
		Medicine	Grains : as an ingredient in various types of formulae used to treat various ailments.	B , M
		Ritual	Grains : employed in rituals performed in various occasions.	B , M

Table continues

Table 6 (continued)

Family and species name	Vernacular	Uses	Part used	User
<i>Phragmites karka</i> (Retz.) Trin. ex Stend.	La pho ลาโพ	Food	Shoots : cooked in curries as substitute for bamboo shoots.	B
<i>Saccharum officinarum</i> L.	Oi อ้อย	Food	Stems : sweet juice squeezed from the stems is drunk fresh , or made into sugar.	B , M
		Medicine	Stems : treatment of diabetes Roots : treatment of urinary stones	B M
		Ritual	Stem and leaves : used in rituals in connection with marriage, house-warming , agriculture , etc.	B , M
<i>Thysanolaena maxima</i> Kuntze	Ya mai kwat หญ้าไม้กวาด	Utensil	Inflorescences : made into brooms.	B , M
<i>Zea mays</i> L.	Khao phot, khong ข้าวโพด , กง	Food	Grains : eaten after boiling , steaming , roasting , etc.	B , M
		Medicine	Whole plant : treatment of post partum Corn cobs : treatment of fever associated with menstruation	B M
Guttiferae				
<i>Garcinia atroviridis</i> Griff. ex T. Anderson	Som khaek ส้มแขก	Food	Leaves : eaten raw or cooked as a vegetable. Fruits : as a seasoning or sour flavor in dishes	B , M B , M
		Medicine	Fruits : as a tonic Roots , leaves : treatment of hypertension	B , M B , M
		Construction	Wood : house building , making furniture.	B , M
<i>Garcinia cowa</i> Roxb. ex DC.	Muang, Ka ni ม่วง , กานี	Food	Leaves : eaten raw or cooked as a vegetable	B , M

Table continues

Table 6 (continued)

Family and species name	Vernacular	Uses	Part used	User
<i>Garcinia dulcis</i> (Roxb.) Kurz	Ma phut มะพุด	Food	Fruits : as a sour flavor in dishes	B , M
<i>Garcinia mangostana</i> L.	Mang khut มังคุด	Food	Fruits : eaten fresh.	B , M
		Medicine	Leaves : as a contraceptive	B
			Stem bark : as an abstergent	B
			Fruits rinds : treatment of herpes infection , ulcer	B , M
<i>Garcinia prainiana</i> King	Chu pu จูปู	Food	Fruits : are eaten fresh.	M
Hanguanaceae				
<i>Hanguana malayana</i> (Jack.) Merr.	Kong กง	Food	Apical bud : eaten after cooked	B
		Medicine	Rhizome : treatment of fever	M
Hydrocharitaceae				
<i>Blyxa aubertii</i> A. Rich	Ruai รวาย	Food	Leaves : eaten raw or blanched as a vegetable.	B
<i>Ottelia alismoides</i> (L.) Pers.	Santawa, Phak wa สันตะวา , ผักหา	Food	Leaves : eaten raw or blanched as a vegetable.	B , M
Hypericaceae				
<i>Cratoxylum arborescens</i> (Vahl) Blume	Lo ngae ล่อเง	Medicine	Stem barks : treatment of itching and scabies	M
Hypoxidaceae				
<i>Curculigo latifolia</i> Dryand.	Phrao nok khum, Yo lue mo พรวานกุ่ม, ขอลือมอ	Food	Fruits : eaten fresh.	B , M
		Medicine	Leaves : treatment of wounds , as a haemostatic	M
			Roots : as a diuretic	B

Table continues

Table 6 (continued)

Family and species name	Vernacular	Uses	Part used	User
			Whole plant : treatment of delivery, gastrointestinal ailments	M, B
		Miscellaneous	Leaves : as an appetic stimulant ; used to mask a bitter taste of <i>Senna siamea</i> (Lam.) Irwin & Barneby in curries.	M
Labiatae				
<i>Gomphostemma scortechinii</i> Prain	Lek khru เหล็กครุ	Medicine	Whole plant : as a tonic	B, M
<i>Leucas zeylanica</i> (L.) R. Br.	Ya prik, Tu me หญ้าปริก ตูเมะ	Medicine	Whole plant : treatment of stomach-ache , flatulence , helminthes	M, B
<i>Orthosiphon aristatus</i> (Blume) Miq.	Ya nuat maeo หญ้าหนวดแมว	Medicine	Whole plant : treatment of urinary stones , diabetes Leaves : treatment of leucorrhoea	B, M M
<i>Plectranthus rotundifolius</i> (Poir.) Spreng.	Man khi nu มันขี้หนู	Food	Tubers : eaten as a snack , or cooked in curries.	B, M
Lauraceae				
<i>Cinnamomum iners</i> Reinw.	Chiat, Tae yo เชียด , แตยอ	Food	Leaves : eaten raw as a vegetable.	B
<i>Cinnamomum porrectum</i> (Roxb.) Kosterm.	Chuang จวง	Food	Leaves : eaten raw as a vegetable	M
		Medicine	Heart wood : treatment of dropsy	B
		Miscellaneous	Wood : making furniture, items for household , etc.	B
<i>Litsea elliptica</i> Blume	Thammang ท่ามั่ง	Food	Leaves : eaten raw as a vegetable.	B, M

Table continues

Table 6 (continued)

Family and species name	Vernacular	Uses	Part used	User
<i>Litsea grandis</i> (Wall. ex Nees) Hook.f.	Thang, Mue dae ถัง, มือแด	Construction	Wood : house building	B , M
		Miscellaneous	Leaves : used to wrap food	B , M
Lecythidaceae				
<i>Barringtonia acutangula</i> (L.) Gaertn.	Chik, Puta จิก, ปูตะ	Food	Leaves : eaten raw as a vegetable	B , M
		Medicine	Stem bark : treatment of dermatitis irritated skin caused by irritant sap of <i>Semecarpus curtisii</i> King Leaves : treatment of herpes infection ; as an antidiarrheic	B M , B
<i>Careya sphaerica</i> Roxb.	Kradon, Don กระโดน, โดน	Food	Leaves , flower : eaten raw as a vegetable.	B , M
Leeaceae				
<i>Leea indica</i> (Burm.f.) Merr.	Bangbai, Mali บังบาย, มาลี	Food	Leaves : eaten raw as a vegetable.	B , M
		Medicine	Flowers : treatment of burns and scalds Fruits : treatment of warts , itching	M B
		Ritual	Leaves : used in traditional ritual performed at the beginning of the rice-harvesting season	B
<i>Leea rubra</i> Blume ex Spreng.	Bangbai daeng บังบายแดง	Medicine	Flowers : treatment of herpes infection , burns and scalds.	B , M
Leguminosae – Caesalpinioideae				
<i>Caesalpinia bonduc</i> (L.) Roxb.	Wat หวาด	Medicine	Leaves : as an anthelmintic	M

Table continues

Table 6 (continued)

Family and species name	Vernacular	Uses	Part used	User
<i>Caesalpinia major</i> (Medix.) Dandy & Exell	Wat หวาด	Medicine	Leaves : as an anthelmintic Seeds : treatment of ringworm	B , M M
<i>Cynometra cauliflora</i> L.	Makham khang khok มะขามคางคก	Food	Fruits : eaten fresh or pickled.	B , M
<i>Dialium cochinchinense</i> Pierre	Yi หยี	Food	Fruits : eaten fresh , made into dessert.	B , M
		Medicine	Stem : treatment of dropsy	B
		Construction	Wood : house building ; making agricultural implements , furniture , etc.	B , M
<i>Intsia palembanica</i> Miq.	Lum pho, Mue ba หลุมพอ , มือบา	Food	Leaves : young leaves are eaten raw as a vegetable.	B
		Construction	Wood : house building.	B , M
<i>Senna alata</i> (L.) Roxb.	Chumhet thet ชุมเห็ดเทศ	Medicine	Leaves : as a laxative, a tonic for longevity; treatment of scabies, nasal polyp	B , M
		Ritual	Leaves : used in the traditional ritual performed at the beginning of the rice-harvesting season.	B
<i>Senna hirsuta</i> (L.) Irwin & Barneby	Rang chued ton รางจืดต้น	Medicine	Leaves : as an antidote	B
<i>Senna siamea</i> (Lam.) Irwin & Barneby	Khi lek ขี้เหล็ก	Food	Leaves , flowers : eaten after boiled , and then cooked in curries.	B , M
		Medicine	Stem bark : treatment of malarial fever	B
			Whole plant : treatment of lumbago; as a tonic for longevity	B, M

Table continues

Table 6 (continued)

Family and species name	Vernacular	Uses	Part used	User
<i>Senna sophera</i> (L.) Roxb.	Khi lek chued ขี้เหล็กจืด	Medicine	Whole plant : as a diuretic	M
			Leaves : as an antidote	B
		Miscellaneous	Leaves : a juice from the crushed leaves is used to mask the bitter taste of the remedies.	B , M
<i>Senna tora</i> (L.) Roxb.	Chumhet khwai ชุมเห็ดควาย	Food	Leaves : eaten cooked as a vegetable.	B
		Medicine	Pods : as a laxative	B
<i>Tamarindus indica</i> L.	Makham, Kham มะขาม , ขาม	Food	Leaves, fruits : cooked in sour curries	B , M
		Medicine	Leaves : treatment of diabetes , malarial fever	B
		Utensil	Wood : making household items.	B , M
Leguminosae – Mimosoideae				
<i>Acacia concinna</i> (Willd.) DC.	Som poi ส้มป่อย	Food	Leaves : cooked as a vegetable	B , M
		Medicine	Whole plant : treatment of diabetes Roots , leaves : treatment of post partum	B B
		Ritual	Leaves : used in religious ceremonies.	B
<i>Acacia merillii</i> Nielsen	Hai สาย	Miscellaneous	Leaves : as a hair shampoo	B
<i>Acacia pennata</i> (L.) Willd.	Cha om, Om ชะอม อม	Food	Leaves : cooked as a vegetable.	B , M
<i>Adenanthera pavonina</i> L.	Phai ไผ่	Construction	Wood : house building.	B , M
		Food	Leaves : eaten raw as a vegetable.	B

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Table continues

Table 6 (continued)

Family and species name	Vernacular	Uses	Part used	User
<i>Albizia myriophylla</i> Benth.	Oi chang อ้อยช้าง	Medicine	Stems : as a refrigerant ; treatment of herpes infection	B , M
			Bark : treatment of aphthous ulcer	M
			Roots : treatment of cough	M
<i>Archidendron bubalinum</i> (Jack) I. C. Nelsen	Niang nok เนียงนวก	Food	Seeds : eaten raw as a vegetable.	B , M
<i>Archidendron clypearia</i> (Jack) I.C.Nielsen	Ma kham pae, Pa sae มะขามแป ปาแซ	Food	Leaves : eaten raw as a vegetable.	M
		Medicine	Roots : treatment of aphthous ulcer	M
			Leaves : treatment of itching	M
<i>Archidendron jiringa</i> (Jack) I.C.Nielsen	Niang เนียง	Food	Seeds : eaten raw or boiled	B , M
		Medicine	Stem bark : treatment of diabetes	B , M
			Roots : treatment of diabetes ; as a diuretic	B
<i>Entada rheedii</i> Spreng.	Ba, Saba บ้า สะบ้า	Medicine	Seeds : treatment of ringworm	M
		Miscellaneous	Stems : used as a substitute for hair shampoo	B , M
<i>Entada spiralis</i> Ridl.	Saba chang สะบ้าช้าง	Food	Seeds : eaten after boiled.	M
		Miscellaneous	Stems : used as a substitute for hair shampoo	B, M
<i>Leucaena leucocephala</i> (Lam.) de Wit	Kra thin, To bao กระถิน , ตอเบา	Food	Leaves , pods , seeds : eaten raw as a vegetable	B , M
<i>Mimosa pudica</i> L.	Maiyarap, Ya ra ngap ไมยราพ , หญ้าระงับ	Medicine	Whole plant : treatment of leucorrhoea , urticaria, fever ; as a tonic	B
			Roots : treatment of herpes infection	B

Table continues

Table 6 (continued)

Family and species name	Vernacular	Uses	Part used	User
<i>Parkia speciosa</i> Hassk.	Sato	Food	Leaves , seeds : eaten raw or cooked as a vegetable	B , M
	สะตอ	Medicine	Roots : as an antidiabetes Bark : treatment of mumps.	B M
<i>Parkia timoriana</i> Merr.	Riang	Food	Seeds : eaten raw or cooked in curries	B , M
	เหียง	Medicine	Roots : treatment of diabetes	B
		Utensils	Wood : making household utensils	B , M
Leguminosae – Papilionoideae				
<i>Cajanus cajan</i> (L.) Millsp.	Thua raet ถั่วแระ	Food	Pods : eaten as a snack.	B
		Medicine	Leaves : treatment of hemorrhage Roots : treatment of post partum	B
<i>Canavalia cathartica</i> Thouars	Thua phi ถั่วฝัก	Food	Flowers : eaten raw as a vegetable.	B
<i>Dalbergia parviflora</i> Roxb.	Khri, La ko คี่, ลากอ	Food	Leaves : eaten raw as a vegetable.	B , M
		Medicine	Leaves : treatment of absences	M
<i>Derris indica</i> (Lamk.) Benn.	Ka yi กาหยี	Medicine	Leaves : as an anti-inflammation caused by jelly-fish allergy	M
<i>Desmodium heterocarpon</i> (L.) DC.	Me sa kuching มีซากูจิง	Medicine	Whole plant : as an emmenagogue	M
<i>Milletia atropurpurea</i> (Wall.) Benth.	Sae แซะ	Food	Leaves : eaten raw as a vegetable.	B , M

Table 6 (continued)

Family and species name	Vernacular	Uses	Part used	User
<i>Pterocarpus indicus</i> Willd.	Pradu ประดู่	Medicine	Leaves : treatment of ulcer , insect bites , and contusion	M
<i>Sesbania grandiflora</i> (L.) Desv.	Khae แค	Food	Flowers : cooked in various ways as a vegetable.	B , M
<i>Tadehagi triquetrum</i> (L.) Ohashi	Puti bue le yong ปุดีบัวสี่เหลี่ยม	Medicine	Roots : as a remedy given to women after abortion	M
Liliaceae				
<i>Dianella ensifolia</i> (L.) DC.	Ya nu ton, Se yo หญ้าหนุตัน , ซีโง๊ะ	Medicine	Whole plant : treatment of asthma Roots : as a tonic ; treatment of joint pain Fruits : treatment of earache	B B M
<i>Peliosanthes teta</i> Andr.	Not din, La mo โหนดดิน , ลามอ	Medicine	Whole plant : as a tonic ; treatment of gastrointestinal ailments.	M , B
Loganiaceae				
<i>Fagraea fragrans</i> Roxb.	Tamsao ตำเสา	Medicine	Leaves : treatment of malarial fever Stems : treatment of malarial fever Whole plant : treatment of elephantiasis	M B B
<i>Fagraea racemosa</i> Jack ex Wall.	Phawa nam พาน้ำ	Medicine	Leaves : treatment of measles Roots : treatment of bodily discomfort ; as a refrigerant.	B B
Loranthaceae				
<i>Dendrophthoe incarnata</i> (Jack) Miq.	Kafak chang กาฝากช้าง	Medicine	Leaves : treatment of chronic fever	M
<i>Dendrophthoe pentandra</i> (L.) Miq.	Kafak กาฝาก	Medicine	Stems : treatment of herpes infection	B

Table continues

Table 6 (continued)

Family and species name	Vernacular	Uses	Part used	User
<i>Dendrophloe</i> cf. <i>pentandra</i> (L.) Miq.	Kafak กาฝาก	Medicine	Whole plant : treatment of haemorrhage	M
Lythraceae				
<i>Lagerstroemia speciosa</i> (L.) Pers.	Inthanin, Ba ye อินทนน , บาย	Medicine	Leaves : treatment of diabetes	B
<i>Lawsonia inermis</i> L.	Thian king, Henna เทียนกิ่ง , เฮนน่า	Medicine	Leaves : treatment of asthma in children	M
		Miscellaneous	Leaves : pasted on the fingernails, it leaves the fingernails reddish-orange.	M
Malvaceae				
<i>Abutilon indicum</i> (L.) Sweet	Phong pheng โพงผง	Medicine	Whole plant : treatment of hemorrhoids	B
<i>Hibiscus macrophyllus</i> Roxb. ex Hornem	Chong จง	Construction	Wood : house building	B , M
		Miscellaneous	Bark : making cordage. Leaves : food wrapping	B
<i>Hibiscus rosa - sinensis</i> L.	Chaba ชบา	Medicine	Roots : treatment of snake bites	B
<i>Hibiscus tiliaceus</i> L.	Pho thale โปธิทะเล	Miscellaneous	Bark : making cordage.	M
<i>Sida alnifolia</i> L.	Khat mon ขั้มอน	Medicine	Roots, stems : treatment of fever associated with menstruation.	B
			Roots : to make delivery easier, as an antipyretic	M
<i>Urena lobata</i> L.	Khi khrok, Seng ขี้ครอก , เซ่ง	Medicine	Roots : treatment of ulcer, venereal diseases	M

Table continues

Table 6 (continued)

Family and species name	Vernacular	Uses	Part used	User
Maranthaceae				
<i>Donax arundastrum</i> Lour.	Khla คกล้า	Medicine	Terminal bud : treatment of eye ache Roots : as a refrigerant	B B
		Utensil	Stems : making household utensils.	B , M
		Miscellaneous	Flowers : employed in a special ritual	M
<i>Donax grandis</i> (Miq.) Ridl.	Khlum คลุ่ม	Medicine	Roots : as an antipyretic	B
		Miscellaneous	Stems : the stripped stem barks are used for wickerwork making, to stitch leaves of <i>Metroxylon sagu</i> Rottb. or <i>Nypa fruticans</i> Wurm. together for roof thatching	B , M
<i>Phrynium capitatum</i> Willd.	Let เล็ด	Miscellaneous	Leaves : as wrappers for rice before cooking	B , M
Marattiaceae				
<i>Angiopteris evecta</i> (G. Forst.) Hoffm	Kip raet กีบแรด	Medicine	Rhizomes : as a tonic, treatment of bodily discomfort	B
Melastomataceae				
<i>Clidemia hirta</i> (L.) D. Don	Khleng khleng khon โคลงเคลงขน	Medicine	Branches , leaves : as anthelmintic; treatment of the wounds	M
		Medicine	Whole plant : as a contraceptive; treatment of hemorrhage.	M , B M
Leaves : treatment of umbilical wound , treatment of post partum				
Roots , leaves : treatment of fresh wounds	B, M			
Roots : as an antidiarrheic ; treatment of bodily discomfort Stamens : treatment of herpes infection	B M			
<i>Melastoma malabathricum</i> L. (flowers purple)	Khleng khleng , Ka du do โคลงเคลง, กาดูคู		Fruits : treatment of aphthous ulcer	B

Table continues

Table 6 (continued)

Family and species name	Vernacular	Uses	Part used	User
<i>Melastoma balabathricum</i> L. (flowers white)	Khleng khleng , Ka du do โคลงเคลง กาดูดี้	Medicine	Whole plant : as a contraceptive; treatment of post partum	B
			Roots : treatment of snake bites	M
			Leaves : treatment of fresh wounds	B
			Flowers : as a refrigerant ; treatment of internal injury	M
<i>Osbeckia chinensis</i> L.	Ka du do ba dae กาดูดี้บาดะ	Medicine	Roots : as a contraceptive ; treatment of bodily discomfort	M
Meliaceae				
<i>Aglaia korthalsii</i> Miq.	Sang khriat สังเคียว	Food	Fruits : eaten fresh.	B , M
<i>Azadirachta excelsa</i> (Jack) Jacobs	Thiam เทียม	Food	Leaves , flowers : eaten raw or blanched as a vegetable.	B , M
		Construction	Wood : house building.	B , M
<i>Azadirachta indica</i> A. Juss	Sadao สะเดา	Food	Leaves , flowers : eaten raw or blanched as a vegetable.	B , M
		Medicine	Stem bark : as an antimalarial fever	B
<i>Lansium domesticum</i> Correa	Langsat ลางสาด	Food	Fruits : eaten fresh.	B , M
		Medicine	Seeds : treatment of dizziness in women after giving birth Stem bark : as an antimalarial fever	B B
<i>Sandoricum koetjape</i> (Burm.f.) Merr.	Kraton, Ton กระต้อน , ท้อน	Food	Fruits : eaten fresh , cooked in curries.	B , M
		Medicine	Stem bark : as a contraceptive	B
<i>Xylocarpus granatum</i> Koen.	Tabun khao ตะบันขาว	Medicine	Seeds : as an antidiarrheic	B , M

Table 6 (continued)

Family and species name	Vernacular	Uses	Part used	User
<i>Xylocarpus moluccensis</i> (Lam.) M.Roem.	Tabun dam ตะบันดำ	Medicine	Seeds : as an antidiarrheic	B , M
Menispermaceae				
<i>Cyclea barbata</i> Miers.	Krong mao กรงหมา	Medicine	Roots : treatment of hemorrhage, dysmennorrhoea , insect bites Roots : treatment of hemorrhoids	M B
<i>Fibraurea cf. tinctoria</i> Lour.	Mae khamin แม่ขมิ้น	Medicine	Roots : treatment of bodily discomfort , wasting disease	B , M
<i>Stephania venosa</i> (Blume) Spreng.	Sabu lueat สบู่เลือด	Medicine	Tubers : as a blood circulation tonic; treatment of bodily discomfort	B, M
		Miscellaneous	Leaves : eaten raw for an invulnerable purpose	B
<i>Tiliacora triandra</i> (Colebr.) Diels	Ya nang ย่านาง	Food	Leaves : the young leaves are eaten raw or cooked as a vegetable.	B , M
		Medicine	Roots : as a refrigerant	B
		Miscellaneous	Leaves : used to mask bitter taste in a curry cooked with <i>Senna siamea</i>	M
<i>Tinospora crispa</i> (L.) Miers ex Hook.f. & Thomson	Bora phet, Khet mun บอระเพ็ด , เข็ดหมูน	Medicine	Stem : treatment of hemorrhoids	B
			Stems : treatment of hypertension	M
Moraceae				
<i>Artocarpus elasticus</i> Rienw. ex Blume	Ka - o กะเอาะ	Food	Fruits : eaten fresh	B , M
		Construction	Wood : house building , making furniture.	B , M
<i>Artocarpus heterophyllus</i> Lamk.	Khanun ขนน	Food	Fruits : eaten fresh Seeds : cooked in curries.	B , M

Table continues

Table 6 (continued)

Family and species name	Vernacular	Uses	Part used	User
		Medicine	Wood : treatment of dropsy	B
		Miscellaneous	Wood : making implements, furniture.	B , M
<i>Artocarpus integer</i> (Thunb.) Merr.	Champada จำปาคะ	Food	Fruits : eaten fresh	B , M
		Construction	Wood : house building.	B , M
<i>Artocarpus rigidus</i> Blume	Khanun pan	Construction	Wood : general construction , boat making.	B
<i>Ficus apiocarpa</i> Miq.	Duea nae da ko เดอเนดาโก๊ะ	Medicine	Fruits : prevention of blood-sucking by leech	M
<i>Ficus deltoidea</i> Jack var. <i>angustifolia</i> (Miq.) Corn	Ma juteh มาจูเต๊ะ	Medicine	Leaves : as a tonic	M
<i>Ficus deltoidea</i> Jack var. <i>kunstleri</i> (King) Corner	Li ngo bu loh สิงอบูโล๊ะ	Medicine	Leaves : as a tonic	M
<i>Ficus fistulosa</i> Reinw. ex Blume	Ching จิ้ง	Food	Figs : eaten raw, cooked in curries.	B , M
<i>Ficus ischnopoda</i> Miq.	Kho ton คอโตน	Food	Leaves , figs : eaten raw as a vegetable	M
<i>Ficus obpyramidata</i> King	Pho โฟ๊ะ	Food	Figs : eaten raw as a vegetable	B , M
<i>Ficus oligodon</i> Miq.	Duea mua เต๋อม่่ว	Food	Figs : eaten raw as a vegetable	B , M
<i>Ficus punctata</i> Thunb.	Duea thao เต๋อเถา	Medicine	Fruits : prevention of blood-sucking by leech	M
<i>Ficus racemosa</i> L.	Duea chenoi เต๋อชี่น้อย	Food	Figs : eaten raw as a vegetable.	B , M

Table continues

Table 6 (continued)

Family and species name	Vernacular	Uses	Part used	User
<i>Ficus semicordata</i> Buch.-Ham. ex Sm.	Kuat กวัด	Food	Figs : eaten fresh.	B , M
<i>Ficus superba</i> Miq.	Leab เลียบ	Food	Leaves : eaten raw as a vegetable.	B , M
<i>Streblus asper</i> Lour.	Khoi ข่อย	Miscellaneous	Whole plant : the whole plant is chopped boiled in water, and then this water is sometimes used by local people to bath their fighting cocks. It is believed to strengthen the cocks.	B
<i>Streblus taxoides</i> (Heynes) Kurz	Khi raet nam nom จีแรตน้ำนม	Food	Leaves : cooked in Thai-style vegetable soup; the ripe fruits are eaten fresh.	B
		Medicine	Fruit : eaten fresh Roots : treatment of wounds Roots : treatment of hemorrhage, dysmenorrhea	B M
Musaceae				
<i>Musa acuminata</i> Colla.	Kluai thuaen กล้วยเถื่อน	Food	Pseudo trunk , inflorescence , fruits : cooked in curries	B , M
<i>Musa balbisiana</i> Colla.	Kluai tani กล้วยตานี	Medicine	Inflorescences : treatment of ulcer	B
		Miscellaneous	Leaves : used to wrap a food , made into special food containers.	B , M
<i>Musa sapientum</i> L.	Kluai khai กล้วยไข่	Food	Fruits : cooked in curries , eaten fresh , made into dessert	B , M
		Medicine	Leaf stalk : treatment of earache	M
<i>Musa sapientum</i> L.	Kluai namwa กล้วยน้ำว้า	Food	Fruits : cooked in curries , eaten fresh , made into dessert Inflorescences : eaten raw or boiled as a vegetable.	B , M
		Medicine	Rhizomes : treatment of diabetes	M

Table 6 (continued)

Family and species name	Vernacular	Uses	Part used	User
		Ritual	Pseudo trunk : the pseudo trunk plays a part in a funeral ceremony of Muslims. In this ceremony , the two trunks are used as a board for a dead person to be bathed before being buried. The plant plays a part in various cultural traditions, for example, at wedding, when a house is erected, and in various religious ceremonies.	M B
		Miscellaneous	Leaves : strips cut from the leaf sheath are used for tying and binding. The leaves are usually made into containers, used for wrapping food , etc.	B , M
<i>Musa</i> sp.	Kluai nam fat กล้วยน้ำฟาด	Food	Fruits : eaten fresh.	B , M
		Medicine	Fruits : as an antidiarrheic	M
Myristicaceae <i>Knema globularia</i> (Lam.) Warb.	Han หัน	Medicine	Seeds : as a scabicide	B , M
		Construction	Wood : house building	B , M
<i>Myristica fragrans</i> Houtt.	Chan thet จันทเทศ	Food	Fruits : made into dessert, pickled	B
Myrsinaceae <i>Ardisia crenata</i> Sims.	Tapet takai ตาเบ็ดตาไก่	Food	Leaves , fruits : eaten raw as a vegetable	B , M
		Medicine	Stems : to treat a disease of the fingernails	M
<i>Ardisia elliptica</i> Thunb.	Ram, Pue na ราม , ปือนา	Food	Leaves : eaten raw as a vegetable ; fruits are eaten fresh.	B , M
<i>Ardisia fulva</i> King & Gamble	Phirang kasa พริกกาสา	Food	Fruits : eaten fresh	B , M

Table 6 (continued)

Family and species name	Vernacular	Uses	Part used	User
<i>Embelia coriacea</i> Wall. ex A.DC.	Wua hai วัวหาย	Medicine	Stem bark : as an antidote	B
<i>Labisia pumila</i> (Blume) F.-Vill. & Naves	Ga chi ti mo กาจิติเมาะ	Medicine	Rhizomes : treatment of post partum	M
Myrtaceae				
<i>Melaleuca cajuputi</i> Powell	Met , Samet khao เหม็ด , เสม็ดขาว	Medicine	Whole plant : treatment of post partum , bodily discomfort Leaves : as a tonic	B B , M
		Construction	Wood : making posts , piles , implements, etc.	B , M
		Miscellaneous	Stem barks : used for roof , house walls ; made into torches	B , M
<i>Psidium guajava</i> L.	Chom pu ชมพู่	Food	Fruits : eaten fresh	B , M
		Medicine	Leaves : as an antidiarrheic Roots : treatment of insect bites	B M
		Ritual	Leaves : used in traditional ritual performed at the beginning of the rice-harvesting season.	B
<i>Rhodomyrtus tomentosa</i> (Aiton) Hassk.	Tho , Kue mu ting โห้ , กือมูตึง	Food	Fruits : eaten fresh	B , M
		Medicine	Roots : treatment of abscesses ; as an antidiarrheic Leaves : treatment of post partum	M , B M
<i>Syzygium gratum</i> (Wight) S. N. Mitra	Met chun เหม็ดชุน	Food	Leaves : eaten raw as a vegetable.	B , M

Table 6 (continued)

Family and species name	Vernacular	Uses	Part used	User
<i>Syzygium polyanthum</i> (Wight) Walp.	Phae, Sa mo แพ, ซาโม๊ะ	Food	Leaves : eaten raw as a vegetable Fruits : eaten fresh	B , M
		Medicine	Roots : as an antidiarrheic Leaves : as an aphrodisiac; treatment of hemorrhage, leucorrhoea, skin diseases in children , insect bites	B M
		Miscellaneous	Stem bark : as a dye for fish-net.	B
<i>Syzygium cf. skiophilum</i> (Duthie) Airy Shaw.	Ta khrai ton , Samo sue ka ตะไคร้ต้น, ซาโม๊ะซื่อ กา	Food	Leaves : eaten raw as a vegetable	M
		Medicine	Roots : as an antihypertension	M
<i>Syzygium zeylanicum</i> (L.) DC.	Hua ngok หัวหงอก	Food	Leaves : eaten raw as a vegetable fruits : eaten fresh	M
Nepenthaceae <i>Nepenthes</i> spp.	Mo kaeng ling หม้อแกงลิง	Medicine	Whole plant : treatment of bodily discomfort	B
<i>Nepenthes gracilis</i> Korth.	Mo kaeng ling หม้อแกงลิง	Medicine	Pitchers : treatment of urticaria.	M
		Miscellaneous	Pitchers : as containers for a special kind of local dessert	B , M
Nyctaginaceae <i>Mirabilis jalapa</i> L.	Ban yen บานเย็น	Medicine	Roots : treatment of insect bites	B
Nymphaeaceae <i>Nelumbo nucifera</i> Gaertn.	Bua luang , Bua บัวหลวง , บัว	Food	Shoots : cooked as a vegetable Rhizomes : a decoction is drunk as a beverage Seeds : eaten raw	B , M

Table continues

Table 6 (continued)

Family and species name	Vernacular	Uses	Part used	User
		Medicine	Stamens : treatment of allergy	B
		Miscellaneous	Leaves : used for food wrapping. Flowers : as a religious offering among Buddhist Thais	B , M B
<i>Nymphaea lotus</i> L.	Bua sai , Bua บัวสาย , บัว	Food	Peduncles : cooked in various ways as a vegetable.	B , M
		Medicine	Roots : treatment of cancer	B
<i>Nymphaea stellata</i> Willd.	Bua phuean , Bua บัวเผื่อน , บัว	Food	Peduncles : cooked in various ways as a vegetable.	B
		Medicine	Roots : treatment of cancer	B
Olacaceae				
<i>Erythralum scandens</i> Blume	-	Food	Leaves : cooked as a vegetable	B , M
		Medicine	Whole plant : treatment of convulsions	M
<i>Olox scandens</i> Roxb.	Jok thok จอกทอก	Food	Leaves : cooked as a vegetable	B
		Medicine	Leaves, fruits : treatment of abscesses, itching	B , M
<i>Scorodocarpus borneensis</i> Becc.	Kra thiam ton กระเทียมต้น	Food	Leaves : eaten raw as a vegetable. Stem bark , seeds : as condiment in dishes	M M
<i>Strombosia javanica</i> L.	Man mu, Kae mo มันหมู , แกมมอ	Food	Leaves : eaten raw as a vegetable	B
Oleaceae				
<i>Jasminum sambac</i> (L) Aiton	Mali มะลิ	Ritual	Flowers : employed in a ritual performed to treat spiritual sickness.	M

Table 6 (continued)

Family and species name	Vernacular	Uses	Part used	User
Oleandraceae				
<i>Oleandra pistillaris</i> (Sw.) C.Chr.	Phaya nakkharat พญานาคราช	Miscellaneous	Stems : used in magic treatment	B
Onagraceae				
<i>Ludwigia adscendens</i> (L.) H.Hara	Phak pot ผักปอด	Food	Leaves : eaten raw as a vegetable.	B
Ophioglossaceae				
<i>Helminthostachys zeylanica</i> (L.) Hook.	Tin nok yung ตีนนกยูง	Food	Shoots : cooked in Thai-style vegetable soup ; eaten blanched	B , M
		Medicine	Leaf stalks : treatment of aphthous ulcer in children Whole plant : treatment of impotency	B M
Ophiaceae				
<i>Champereia manillana</i> (Blume) Merr.	Phak pa , Do dae ผักป่า, โต้เต้	Food	Leaves : eaten raw or cooked as a vegetable.	B , M
		Medicine	Leaves : treatment of scabies	M
<i>Lepionurus sylvestris</i> Blume	Mak mok หมากหมก	Food	Leaves : eaten raw or cooked as a vegetable	B , M
		Medicine	Roots : as a tonic ; treatment of fever Roots and stems : treatment of lumbago	M , B B
Orchidaceae				
<i>Corymborchis veratrifolia</i> Blume	Tuga ali ตุกะอาลี	Medicine	Roots : as a tonic	M
<i>Cymbidium atropurpureum</i> (Lindl.) Rolfe	Ka re ka ron กะเรกะร่อน	Medicine	Pseudo bulbs : treatment of pimples on head Leaves : treatment of earache Fruits : treatment of earache	M M M

Table 6 (continued)

Family and species name	Vernacular	Uses	Part used	User
<i>Dendrobium crumenatum</i> Sw.	Ta nga tue ri ตางคี่อี่	Medicine	Pseudo bulbs : treatment of earache , centipede bites	M
<i>Grammatophyllum speciosum</i> Blume	Wan phet cha hueng ว่านเพชรหึง	Medicine	Peduncle and rachis : as a tonic Stems : as a tonic, treatment of lumbago	B B, M
		Miscellaneous	It is the largest orchid, and usually planted as an ornamental.	B , M
Oxalidaceae				
<i>Averrhoa bilimbi</i> L.	Taling pring ตะลิงปริง	Food	Fruits : eaten raw	B , M
<i>Averrhoa carambola</i> L.	Ma fueang มะเฟือง	Food	Fruits : are eaten fresh.	B , M
		Medicine	Roots : treatment of fever, nausea	B
Palmae				
<i>Areca catechu</i> L.	Mak หมาก	Medicine	Seeds : treatment of post partum	M
		Utensil	Leaf sheath : made into water buckets	B , M
		Miscellaneous	Seeds : the seeds , both unripe and ripe ones, are chewed as a masticatory, "betel quid". The main ingredients used in this masticatory besides <i>Areca catechu</i> are betel leaf, lime and tobacco. The practice of betel quid chewing is very popular among the elderly local people both Buddhist and Muslim Thais.	B , M
		Ritual	A plant is grown in the paddy field at the beginning of rice growing season. Leaves : used in magical treatment to ward off evil spirit from a patient in case of sickness due to sorcery. Seeds : employed in various traditional practices	M B B, M

Table 6 (continued)

Family and species name	Vernacular	Uses	Part used	User
<i>Arenga pinnata</i> (Warmb) Merr.	Chok ชก	Food	Apical bud , inflorescences , seeds	B , M
<i>Borassus flabellifer</i> L.	Tan , Not ตาล, โหนด	Food	Apical bud , inflorescences , young fruits , seeds : The apical buds are cooked in various ways as a vegetable. The cut young inflorescences yield sugar palm syrup which is drunk fresh or boiled. Sometimes it is made into sugar bars , which can be kept for a long time to be used in cooking. It is also left to ferment and become an alcoholic beverage or toddy. The young fruits are finely sliced , boiled with salt water and made into a curry. The immature seed pulps are eaten raw or boiled in light syrup. Over-aged seed pulps are sweetened for dessert.	B , M
		Construction	Stems : the aged tree trunks are used in house building to make floor , walls.	B , M
		Utensils	Leaves : making household items.	B , M
		Ritual	Leaves : used in the ritual performed at the beginning of the rice growing season.	B
<i>Calamus palustris</i> Griff.	Wai khring หวายขริง	Food	Fruits : eaten fresh	B , M
		Utensil	Stems : making household items, furniture.	B , M
<i>Caryota mitis</i> Lour.	Tao rang เต้าร้าง	Food	Shoots : cooked in various ways as a vegetable.	B , M
<i>Cocos nucifera</i> L.	Ma phrao , Phrao มะพร้าว พพร้าว	Food	Apical buds : cooked in various ways as a vegetable. Fruits : the fruits both young and mature are edible; the fresh endosperm, when still very young and jelly like, is eaten raw as a delicacy; the	B , M

Table 6 (continued)

Family and species name	Vernacular	Uses	Part used	User
			mature endosperm or coconut meat is grated and mixed with food. The grated endosperm together with water are squeezed, the extract obtained called coconut milk is used to make various kinds of dishes and desserts. Coconut milk can be made into coconut oil which is used for both food and traditional medicines.	
		Medicine	Inflorescences : treatment of impotency Fruits : treatment of diarrhea, fever; as a hemostyptic	B B M
		Construction	Wood : house building ; made into rafts, posts, etc.	B , M
		Miscellaneous	Leaves : used for thatches and weaving Nut shells : made into household utensils	B , M
<i>Corypha utan</i> Lam.	Lan ลาน	Food	Seeds : the immature seed pulps are eaten raw or boiled in light syrup for dessert.	B , M
		Miscellaneous	Leaves : the leaves are used for thatches and weaving.	B , M
<i>Eleiodoxa conferta</i> (Griff.) Burret	Lum phi, Ka lu bi หลุมผี, กะลูปี้	Food	Fruits : eaten fresh or pickled.	B , M
		Medicine	Shoots : treatment of diabetes	M
		Miscellaneous	Leaves : used for roof thatching , mat making.	B , M
<i>Licuala paludosa</i> Griff.	Ka pho daeng กะพ้อแดง	Food	Shoot : eaten as a vegetable	M
<i>Licuala peltata</i> Buch.- Ham	Ching, Kajing-kajing ชิง, กาจิง- กาจิง	Medicine	Roots : as a diuretic	M

Table 6 (continued)

Family and species name	Vernacular	Uses	Part used	User
		Miscellaneous	Leaves : used to wrap some local food.	M
<i>Licuala spinosa</i> Thunb.	Ka pho kiao กะพ้อเขียว	Medicine	Roots : as a poison antidote	M
		Miscellaneous	Leaves : used to wrap some local food	B , M
<i>Metroxylon sagu</i> Rottb.	Sagu สาอู	Food	Trunks : starch in the trunks are made into various kinds of food and dessert	B , M
		Medicine	Roots : treatment of diabetes , fever	M
		Miscellaneous	Leaves : used for roof thatching ; made into mats and other utensils	B , M
<i>Nypa fruticans</i> Wurm.	Chak จก	Food	Inflorescences, seeds, fruit bunches : inflorescences are eaten after boiling and cooking ; seeds are eaten fresh ; fruit bunches yield a sweet fluid	B , M
		Medicine	Young shoot : treatment of diabetes	M
		Miscellaneous	Leaves : made into cigarette wrappers ; roof thatching,	B , M
<i>Oncosperma tigillarum</i> (Jack) Ridl.	La own, Ni bong หลาโอน, นิมง	Food	Apical buds : cooked in various ways as a vegetable.	B , M
		Construction	Stems : house building and other construction .	B , M
		Miscellaneous	Leaves : making household utensils; roofing.	B , M
<i>Phoenix paludosa</i> Roxb.	Peng เป็ง	Food	Apical buds : cooked in curries	M
<i>Salacca wallichiana</i> Mart	Ra kam , Kam ระกำ, กำ	Food	Fruits : eaten fresh or pickled.	B , M

Table continues

Table 6 (continued)

Family and species name	Vernacular	Uses	Part used	User
		Medicine	Leaves : treatment of urticaria	M
Pandanaceae				
<i>Freycinetia</i> cf. <i>angustifolia</i> Blume	Ka pria กะเปรียะ	Medicine	Stems and leaves : as abortifacient	B
<i>Pandanus amaryllifolius</i> Roxb.	Toei hom เดยหอม	Food	Leaves : a juice from the crushed leaves is used as a green colorant in desserts.	B , M
		Medicine	Roots : treatment of skin disease , venereal disease.	M
<i>Pandanus humilis</i> Lour.	Toei nu เดยหนู	Medicine	Fruits : treatment of ringworm	M
		Ritual	Fruits : the fruits are used in a magic treatment by local people to ward off bad spirits from their houses	M
<i>Pandanus immersus</i> Ridl.	Toei nam , Ku wa ai เดยน้ำ กุวาไอ	Medicine	Roots : treatment of debility	M B , M
		Utensil	Leaves : making utensils.	
Parkeriaceae				
<i>Adiantum flabellulatum</i> L.	Kut kan dam, Rue bo tue la ko กูดก้านดำ, รือบอตุ้อลา กอ	Medicine	Whole plant : treatment of lumbago	M
<i>Hemionitis artifolia</i> (Burm. f.) Moore	Phang kran ฟังกราน	Medicine	Whole plant : as a refrigerant; treatment of chest complaints	M, B
Passifloraceae				
<i>Passiflora foetida</i> L.	Ka thok rok, Rok chang กะทกรก, รกช้าง	Food	Leaves , fruits : the young leaves are eaten raw or blanched as a vegetable; the ripe fruits are also edible.	B

Table 6 (continued)

Family and species name	Vernacular	Uses	Part used	User
Piperaceae		Medicine	Leaves : the leaves are eaten raw as an anthelmintic	B
<i>Peperomia pellucida</i> (L.) Humb., Bonpl. & Kunth	Phak kra sang Phak sang ผักกระสัง, ผักสัง	Food	Leaves : eaten raw as a vegetable.	B
		Medicine	Whole plant : treatment of pimples, herpes infection	M
<i>Piper caninum</i> Blume	Phrik nok พริกนก	Food	Fruits : cooked in curries.	B
<i>Piper betle</i> L.	Phlu , Si re พลู, ซี่เระ	Medicine	Leaves : treatment of various ailments and diseases	M
		Ritual	Leaves : the leaves have many uses in daily life in connection with birth , marriage and many traditional rituals.	B , M
<i>Piper chaba</i> Hung.	Di pli chueak ดีปลีเชือก	Medicine	Fruits : as a tonic for longevity, an antidiabetes; treatment of hemorrhoids	B
<i>Piper nigrum</i> L.	Phrik thai พริกไทย	Food	Fruits : as a condiment in various dishes.	B , M
		Medicine	Fruits : treatment of herpes infection; as a tonic for longevity	M ; B
<i>Piper sarmentosum</i> Roxb.	Cha phlu ชะพลู	Food	Leaves : eaten raw or cooked as a vegetable.	B , M
		Medicine	Whole plant : treatment of diabetes; as a blood circulation tonic treatment of bodily discomfort	M B
			Leaves : treatment of post partum	M
Plantaginaceae				
<i>Plantago major</i> L.	Ya en yuet หญ้าเอ็นชืด	Medicine	Whole plant : as a diuretic ; treatment of fever associated with menstruation	B , M

Table continues

Table 6 (continued)

Family and species name	Vernacular	Uses	Part used	User
Plumbaginaceae				
<i>Plumbago indica</i> L.	Chetta mun phloeng daeng เจตมูลเพลิงแดง	Food	Leaves : as a condiment in curries.	B
		Medicine	Roots : as a diaphoretic	B
			Leaves : as an anthelmintic in cattle	B
			Whole plant : as a contraceptive	M
<i>Plumbago zeylanica</i> L.	Chetta mun phloeng khao เจตมูลเพลิงขาว	Medicine	Whole plant : as an antipyretic	B
			Roots : as a blood circulation tonic; treatment of numbness	M
Polygonaceae				
<i>Polygonum odoratum</i> Lour.	Hom chan Kue song หอมจัน กือซง	Food	Leaves : eaten raw as a vegetable.	B , M
		Medicine	Roots : treatment of herpes infection	M
<i>Polygonum tomentosum</i> Willd.	Ueang เอื้อง	Food	Leaves : cooked in curry	B
		Medicine	Leaves : treatment of diarrhea	B
Polypodiaceae				
<i>Drymoglossum piloselloides</i> (L.) C. Presl	Klet nakkharat , Pi ti เกล็ดนากกราช, ปีติ	Medicine	Whole plant : treatment of urticaria	M
			Leaves : treatment of scars	B
<i>Drynaria quercifolia</i> (L.) Sm.	Hua wao ห้วว	Medicine	Rhizomes : as antihypertension; treatment of herpes infection	B ; M
<i>Myrmecophila sinuosa</i> (Wall. ex Hook.) Nakai ex H. Ito	Tan mangkorn , Karong ตานมังกร, การง	Medicine	Whole plant : treatment of venomous bites	M

Table 6 (continued)

Family and species name	Vernacular	Uses	Part used	User
<i>Platycerium coronarium</i> (D.Koenig ex O.F.Mull) Desv.	Khao ho sida ข้าวห่อสิดา	Medicine	Stems : treatment of aphthous ulcer Leaves : as an antihypertension	M B
Pontederiaceae <i>Monochoria elata</i> Ridl.	Phlong พลอง	Food	Shoots , flowers : eaten raw or cooked as a vegetable	B
Proteaceae <i>Helicia robusta</i> (Roxb.) R.Br. ex Wall.	Niang rok เนียงรอก	Food	Leaves , flowers : eaten raw as a vegetable.	B
Pteridaceae <i>Acrostichum aureum</i> L.	Prong thale, Pi yai ปรองทะเล ปี่ไถ่	Food Medicine	Leaves : eaten as a vegetable. Rhizomes : treatment of herpes infection	B , M M
<i>Stenochlaena palustris</i> (Burm.f.) Bedd.	Lam theng ลำเท็ง	Food Medicine	Leaves : cooked in various ways as a vegetable Stems : treatment of herpes infection Leaves : treatment of biliuria	B , M M B
Rhamnaceae <i>Zizyphus mauritiana</i> Lam.	Phutsa , พุดทรา	Food Ritual	Fruits : eaten fresh or pickled. Leaves : used in tradition concerning death	B , M M
<i>Zizyphus oenoplia</i> (L.) Mill.	Lep yiao, Yap yio เล็บเหยี่ยว, ยับยิว	Ritual Miscellaneous	Spines : employed in a ritual performed at the beginning of the rice-growing season. Spines : the local people who have wounds usually keep a spine of this plant species in their pocket when they have to go to cremation; it is believed to avoid inflammation of the wounds.	B B

Table 6 (continued)

Family and species name	Vernacular	Uses	Part used	User
Rhizophoraceae				
<i>Bruguiera cylindrica</i> (L.) Blume	Thua khao ถั่วขาว	Medicine	Fruits : as an antidiarrheic	M
<i>Cereops tagal</i> (Perr.) C. B. Rob.	Prong daeng ไปรงแดง	Food	Fruits : eaten raw as a vegetable.	M
<i>Rhizophora apiculata</i> Blume	Kong kang โกงกาง	Miscellaneous	Wood : as fuel; production of charcoal; making implements.	B , M
<i>Rhizophora mucronata</i> Poir.	Kong kang โกงกาง	Miscellaneous	Wood : as fuel; production of charcoal.	B , M
Rosaceae				
<i>Rubus moluccanus</i> L.	Fa laep ฟ้าแลบ	Food	Leaves : cooked as a vegetable.	B
		Medicine	Stems and leaves : as a blood circulation tonic; treatment of bodily discomfort	B
Rubiaceae				
<i>Catunaregum stipulosa</i> (Zoll. & Moritzi) Triveng	Nam khwak chang หนามขวกช้าง	Ritual	Whole plant : a decoction of the whole plant is drunk; it is believes to exorcise evil spirits from the body.	B
<i>Chassalia curviflora</i> (Wall.) Thwaites	Plai sarn ปลายสาร	Food	Leaves , flowers : eaten raw as a vegetable.	B , M
		Medicine	Roots : as an poison antidote	B , M
<i>Gynochthodes sublanceolata</i> Miq.	Phan samo, Pe tae พันสมอ, ปีเต	Food	Leaves : eaten raw as a vegetable	B , M

Table 6 (continued)

Family and species name	Vernacular	Uses	Part used	User
<i>Hedyotis capitellata</i> Wall. ex G.Don	Ne ma ka koh นิมกาโก๊ะ	Medicine	Whole plant : treatment of insect bites, contusion	M
			Roots : treatment of venereal sores	M
<i>Hedyotis corymbosa</i> (L.) Lam.	Ya lin ngu หญาลิ้นงู	Medicine	Whole plant : treatment of cancer	B
<i>Hedyotis pachycarpa</i> Ridl.	Tong haeng ตองแห้ง	Medicine	Roots : treatment post partum hemorrhage	M
<i>Hydnophytum formicarum</i> Jack	Hua roi ru หัวร้อยรู	Medicine	Whole plant : as a blood circulation tonic ; treatment of lumbago	B
			Stems : treatment of fever ; cancer	M ; B
<i>Ixora javanica</i> (Blume) DC.	Khem thong เข็มทอง	Medicine	Roots : as a blood circulation tonic	M
<i>Lasianthus hirsutus</i> (Roxb.) Merr.	Ruesi som ฤๅษีสอม	Medicine	Whole plant : as an ingredient of various traditional remedies	M
			Roots : as a tonic	M
			Leaves : treatment of rash	B
<i>Mitragyna speciosa</i> (Roxb.) Korth.	Kra thom, Thom กระท่อม, ท่อม	Medicine	Leaves : treatment of diabetes , diarrhea , abdominal pain	M
			treatment of lumbago	B
<i>Morinda citrifolia</i> L.	Yo ban ขอบ้าน	Food	Leaves : eaten cooked as a vegetable	B
		Medicine	Fruits : as a tonic	B , M
<i>Morinda elliptica</i> Ridl.	Yo pa ขอป่า	Food	Leaves : eaten cooked as a vegetable	B , M
		Medicine	Fruits : treatment of hiccough , nausea	B

Table 6 (continued)

Family and species name	Vernacular	Uses	Part used	User
<i>Mussaenda graba</i> Vahl.	Balix a-da บาลิกอด้ะ	Food	Leaves : eaten raw as a vegetable	M
<i>Mussaenda wallichii</i> G. Don	Bao mamuet บ่ามม้ามืด	Medicine	Whole plant : as a tonic	B
<i>Paederia foetida</i> (Lour.) Merr.	Yan pha hom ย่านพาโหม	Food	Leaves : eaten raw as a vegetable.	B , M
		Medicine	Leaves : treatment of joint pain.	B , M
<i>Prismatomeris tetrandra</i> (Roxb.) K. Schum.	Duk kai ดุกไค้	Medicine	Roots : as a tonic; treatment of bodily discomfort, fever Whole plant : treatment of lumbago	B M
<i>Psychotria viridiflora</i> Reinw. ex Blume	Khem เข้ม	Food	Inflorescences : cooked in Thai - style vegetable soup.	B
<i>Saprosma indicum</i> Dalz.	Tud ตุ๊ด	Food	Leaves : eaten raw , cooked in curries	B
		Medicine	Stems and leaves : as an antifatulence	B
<i>Uncaria sclerophylla</i> (Hunter) Roxb.	Ka he กาเฮะ	Medicine	Roots , leaves : treatment of scabies	M
Rutaceae				
<i>Citrus aurantifolia</i> (Christm.) Swingle	Manao มะนาว	Food	Fruits : as a sour flavor to various kinds of dishes.	B , M
		Medicine	Fruits : the fruits are usually used to accompany various kinds of medicinal plants and used as a traditional medicines.	B , M
			Roots : treatment of fever ; as an anti-emetic	B

Table continues

Table 6 (continued)

Family and species name	Vernacular	Uses	Part used	User
<i>Citrus hystrix</i> DC	Makrut , Som krut มะกรูด, ส้มกรูด	Food	Fruits : used as a condiment in various dishes. Leaves : eaten raw as a vegetable , or to season food.	B , M B , M
		Medicine	Roots : treatment of fever ; as an anti-emetic	B
<i>Clausena excavata</i> Burm.f.	Mui หมีข	Food	Leaves : eaten raw as a vegetable.	B , M
		Miscellaneous	Leaves : used to accelerate fruit ripening	B
<i>Euodia roxburghiana</i> (Cham.) Benth. ex Hook.f.	Ya khong ยาคง	Food	Leaves : eaten raw as a vegetable	B , M
		Medicine	Leaves : as an anthelmintic in children	B
<i>Feroniella lucida</i> (Scheff.) Swingle	Ma sang , Sang มะสัง, สัง	Food	Leaves , flowers : eaten raw as a vegetable.	B , M
<i>Glycosmis pentaphylla</i> (Retz.) DC.	Nam khao, Na pae น้ำข้าว, นานเป	Medicine	Leaves : as a contraceptive Roots : treatment of herpes infection	M B
		Ritual	Leaves : treatment of sickness due to sorcery	M
<i>Micromelum hirsutum</i> Oliv.	Lam phi phai ลำผีพาย	Food	Fruits : cooked in curries	B
		Ritual	Stem , leaves : employed in a ritual performed to drive off evil spirits	B
<i>Zanthoxylum nitidum</i> (Roxb.) DC.	Pha grub พากรูด	Food	Leaves : eaten raw as a vegetable	B
		Medicine	Whole plant : treatment of hemorrhoids Roots , leaves : treatment of wounds	M B

Table 6 (continued)

Family and species name	Vernacular	Uses	Part used	User
Salicaceae				
<i>Salix tetrasperma</i> Roxb.	Sanun, Dalu สนุ่น, คาลู	Construction	Wood : house building	M
		Miscellaneous	Leaves : as a hair shampoo.	M
Sapindaceae				
<i>Amesiodendron chinense</i> (Merr.) Hu	Khan ขัน	Food	Seeds : eaten after cooked.	M
		Medicine	Seeds : treatment of sores	M
		Miscellaneous	Seeds : seed oil is used as a hair tonic	M
<i>Guioa pleuropteris</i> (Blume) Radlk.	Som ling ส้มลิง	Food	Fruits : eaten fresh	B
		Medicine	Leaves : as a diuretic	B
<i>Lepisanthes alata</i> (Blume) Leenh.	Ya ho ยะโฮ	Food	Leaves : eaten raw as a vegetable. Fruits : eaten fresh	M M
		Phum riang พุมเรียง	Food	Leaves : eaten raw as a vegetable Fruit : eaten fresh
			Ritual	Leaves : used in ritual performed before rice-harvesting season.
<i>Lepisanthes rubiginosa</i> (Roxb.) Leenh.	Kam cham กำชำ	Food	Fruits : eaten fresh	B, M
		Medicine	Roots : treatment of hemorrhage, dysmenorrhea treatment of fever, nausea. Leaves : treatment of burns, fever and cold	M B B

Table 6 (continued)

Family and species name	Vernacular	Uses	Part used	User
<i>Nephelium lappaceum</i> L.	Ngo , Phom ngo เงาะ, ผมเงาะ	Food	Fruits : eaten fresh.	B , M
		Medicine	Stem bark : as an abstergent	B
Sapotaceae				
<i>Ganua motleyana</i> Pierre ex Dubark	Sa tiao สะเตียว	Food	Leaves : eaten raw as a vegetable	M
		Medicine	Stem bark : treatment of joint pain	M
		Construction	Wood : house building	B , M
<i>Manilkara zapota</i> (L.) P. Royen	Lamut , Sawa ละมุด, สวา	Food	Fruits : eaten fresh	B , M
		Medicine	Fruits : as an antidiarrheic Leaves : treatment of abdominal pain in children	M M
<i>Mimusops elengi</i> L.	Phikun , Kun พิกุล, กุล	Miscellaneous	Fruits : used to dye fish-nets	B
Selaginellaceae				
<i>Selaginella willdenowii</i> (Desv.) Baker	Ya rang kai หญารังไค	Food	Leaves : eaten raw as a vegetable.	B
Schizaeaceae				
<i>Lygodium microphyllum</i> (Cav.) R.Br.	Li phao yung ลิภายุง	Medicine	Whole plant : treatment of numbness Rhizomes : as a refrigerant; treatment of anorexia	M B
		Utensil	Leaf stalk , rachis : used for wickerwork	B, M
<i>Lygodium salicifolium</i> C. Presl.	Li phao ลิภา	Medicine	Whole plant : treatment of treatment of numbness Rhizomes : as a refrigerant; treatment of anorexia	B, M B, M

Table continues

Table 6 (continued)

Family and species name	Vernacular	Uses	Part used	User
		Utensil	Leaf stalk , rachis : used for wickerwork	B, M
<i>Schizaea dichotoma</i> (L.) Sm.	Tan phrao ตานพร้าว	Medicine	Whole plant : treatment of abscesses , pustules	B
<i>Schizaea digitata</i> (L.) Sw.	Tan ตาน	Medicine	Whole plant : treatment of abscesses , pustules	B
Scrophulariaceae				
<i>Lindernia crustacea</i> (L.) F. Muell	Kerak nasi กือรักนาซี	Medicine	Whole plant : treatment of insect bites , scabies	M
<i>Scoparia dulcis</i> L.	Ya tai bai หญ้าไต้ไบ	Medicine	Whole plant : treatment of flatulence	B, M
Simaroubaceae				
<i>Brucea javanica</i> (L.) Merr.	Ratchadat, Maidat ราชดัด, ไม้ดัด	Medicine	Fruits : treatment of sores , scabies Whole plant : as a tonic	B , M M
<i>Eurycoma longifolia</i> Jack	Lai phueak	Medicine	Roots : as a tonic ; treatment of calculi , antihypertension treatment of bodily discomfort , lumbago	M B
		Ritual	Stems : as a tonic Leaves : treatment of sickness due to sorcery	B M
Smilacaceae				
<i>Smilax myosotiflora</i> A. DC.	Lek thong daeng เหล็กทองแดง	Medicine	Tubers : as a tonic ; treatment of lumbago , bodily discomfort.	B
<i>Smilax perfoliata</i> Lour.	Kamlang khwai thuek กำล้งควายถึก	Medicine	Roots and stems : as a tonic ; treatment of lumbago	B , M
Solanaceae				
<i>Capsicum frutescens</i> L.	Phrik khinu ,Dipli พริกขี้หนู, ดีปลี	Food	Fruits : as a condiment in various dishes.	B , M

Table continues

Table 6 (continued)

Family and species name	Vernacular	Uses	Part used	User
<i>Nicotiana tabacum</i> L.	Ya sup ยาสูบ	Medicine	Leaves : treatment of fever	B , M
		Medicine	Roots : treatment of herpes infection	B
		Miscellaneous	Leaves : the shredded dried leaves are used to make local cigarettes which are wrapped in Nipa palm leaves. Sometimes the shredded dried leaves and a betel quid are chewed together as a masticatory.	B , M
<i>Solanum indicum</i> L.	Waeng แว้ง	Medicine	Whole plant : as an antidiabetes	B , M
<i>Solanum involucreatum</i> Blume	Uek muak อึกหมวก	Medicine	Whole plant : as a blood circulation tonic; treatment of bodily discomfort.	B
<i>Solanum stramonifolium</i> Jacq.	Ma uek , Uek มะอึก, อึก	Food	Fruits : eaten raw or made into dishes eaten with rice.	B , M
<i>Solanum torvum</i> Sw.	Ma khuea phuang มะเขือพวง	Food	Fruits : eaten raw as a vegetable , cooked in curries.	B , M
		Medicine	Flowers : treatment of scabies , pustules on children's heads	M
Stemonaceae				
<i>Stemona tuberosa</i> Lour.	Non tai yak หนอนตายหยา	Medicine	Roots : as a scabicide ; to kill head-lice	B
Sterculiaceae				
<i>Heritiera littoralis</i> Dryand.	Du hun คูหูน	Construction	Wood : house building , making household items, and other construction.	M
		Miscellaneous	Fruits : as a toy for children.	M
<i>Leptonychia caudata</i> (Wall. ex G.Don)	Mo taek หม้อแตก	Medicine	Leaves : treatment of fever, faint	B , M
Taccaceae				
<i>Tacca chantrieri</i> Andre	Nang khruan นางครวญ	Medicine	Rhizomes : as an aphrodisiac	B

Table continues

Table 6 (continued)

Family and species name	Vernacular	Uses	Part used	User
			Whole plant : as a blood tonic; treatment of bodily discomfort	B , M
<i>Tacca integrifolia</i> Ker Gawl.	Nang khruan นางครวญ	Medicine	Rhizomes , whole plant : used in a similar way as <i>Tacca chantrieri</i> Andre	B , M
Thymelacaceae				
<i>Linostoma pauciflorum</i> Griff.	Pha mi พาหมี	Medicine	Roots : treatment of nasal polyp	B
		Miscellaneous	Whole plant : to poison fish , as an insecticide	B, M
Tiliaceae				
<i>Corchorus capsularis</i> L.	Ka ching ba yu กาจิงบายู	Medicine	Leaves : treatment of abscesses , ulcer , contusion	M
<i>Microcos tomentosa</i> Sm.	Phla พลา	Medicine	Flowers : treatment of herpes infection Leaves : treatment of herpes infection	M M
Ulmaceae				
<i>Trema cannabina</i> Lour.	Kira กีรา	Medicine	Stem bark : treatment of aphthous ulcer	M
<i>Trema tomentosa</i> (Roxb.) Hara	Kira กีรา	Medicine	Stem bark : treatment of aphthous ulcer	M
Umbelliferae				
<i>Centella asiatica</i> (L.) Urb.	Bua bok บัวบก	Food	Leaves : eaten raw or cooked as a vegetable.	B , M
		Medicine	Leaves : to treat herpes infection	M
Urticaceae				
<i>Laportea interrupta</i> (L.) Chew	Kalang tang kai กะตังตังไก่อ	Medicine	Roots : treatment of herpes infection	B

Table 6 (continued)

Family and species name	Vernacular	Uses	Part used	User
<i>Poikilospermum suaveolens</i> (Bl.) Merr.	Mu ru มูรู	Miscellaneous	Roots , stems : as cordage; used as a torch for honey-collecting on a tall tree.	B , M
Verbenaceae				
<i>Avicennia alba</i> Blume	Pi pi ปีปีขาว แสมขาว	Medicine	Leaves : as an antidote	M
<i>Avicennia marina</i> (Forsk) Vierh	Pi pi ปีปีดำ แสมทะเล	Medicine	Leaves : as an antidote	M
<i>Callicarpa candicans</i> (Burm.f.) Hochr.	Tamo bue si ตาโมะบือซี, ดอกดำ	Medicine	Leaves : as a contraceptive	M
			Roots : treatment of post partum	M
<i>Callicarpa longifolia</i> Lam.	Tok khao ดอกขาว	Medicine	Leaves : treatment of wounds	B
			treatment of post partum , fever	M
			Roots : treatment of fever , nausea	B
<i>Clerodendrum chinense</i> (Osbeck) Mabb.	Nang yaem นางแย้ม	Medicine	Leaf : treatment of flatulence in children	M
<i>Clerodendrum petasites</i> (Lour.) S.Moore	Mai thao yai mom ไม้เท้ายายม่อม	Food	Leaves : eaten blanched as a vegetable.	B
		Medicine	Roots : as an antipyretic; treatment of insect bites	B
<i>Clerodendrum serratum</i> (L.) Moon	Mata kesing มาตาคีซิง	Medicine	Leaves : treatment of cracked and inflamed soles	M
<i>Gmelina elliptica</i> Sm.	Ching jai จิง جای	Medicine	Leaves : treatment of leucorrhoea , hemorrhoids	M
			Fruits : treatment of earache , cough	B , M
<i>Lantana camara</i> L.	Phaka krong , Khi kai ผกากรอง, จี่ไก่	Medicine	Whole plant : as a refrigerant	B

Table continues

Table 6 (continued)

Family and species name	Vernacular	Uses	Part used	User
<i>Peronema canescens</i> Jack	Su ka ชูกา	Medicine	Leaves : treatment of symptosis , helminthes in children.	M
		Construction	Wood : house building , making hedge.	B , M
		Ritual	Leaves : employed in magic treatment to ward off bad spirits	M
<i>Stachytarpheta jamaicensis</i> (L.) Vahl	Phan ngu khiao พันงูเขียว	Medicine	Leaves : treatment of stomach ache	B
<i>Vitex negundo</i> L.	Khon thi, Ku ning คนที, กูนิง	Medicine	Whole plant : treatment of bodily discomfort	B
		Ritual	Leaves : used in religious ceremonies.	B
<i>Vitex pinnata</i> L.	Non, Lue bae นน , ลือเบ	Medicine	Stem bark and leaves : as an abstergent Fruits : treatment of abscesses	M
		Utensil	Wood : making household items , agricultural equipments , etc.	B , M
Violaceae				
<i>Rinorea bengalensis</i> (Wall.) O.K.	Phak wan chang khlong ผักหวานช้างโขลง	Food	Leaves : eaten cooked.	B
Vitaceae				
<i>Ampleocissus arachnoidea</i> (Hassk.) Planch	Som kung ส้มกุ้ง	Food	Leaves : cooked in various way as a vegetable.	B , M
<i>Cayratia japonica</i> (Thunb.) Gagnep	La kong ลากง	Medicine	Leaves : treatment of swellings	M
<i>Cayratia trifolia</i> (L.) Domin	Thao khan เถาคัน	Food	Fruits : cooked in sour curry	B , M

Table continues

Table 6 (continued)

Family and species name	Vernacular	Uses	Part used	User
<i>Cissus hastata</i> Miq.	Som khao	Food	Leaves : cooked in sour curry	B , M
	ส้มข้าว	Miscellaneous	Young shoots : put in palm wine for sour taste.	B
<i>Cissus quadrangularis</i> L.	Phet sangkhat เพชรสังฆาต	Medicine	Stems : treatment of hemorrhoids	B
Zingiberaceae				
<i>Alpinia conchigera</i> Griff.	Kha ling ข่าลิง	Food	Shoots : eaten raw as a vegetable , as a condiment in local dishes.	B, M
<i>Alpinia javanica</i> Blume	Put nu ปุดหนู	Food	Flowers : eaten raw as a vegetable	M
<i>Alpinia mutica</i> Roxb.	Put, Kae nae ปุด, แก่น	Food	Shoots , fruits : eaten raw as a vegetable.	B , M
		Medicine	Rhizomes : treatment of urinary stones	M
<i>Amomum testaceum</i> Ridl.	Krawan กระวาน	Food	Shoots : cooked in curries. Seeds : as a condiment in various dishes.	B , M B , M
		Medicine	Seeds : as an ingredient in various traditional remedies	B
<i>Boesenbergia plicata</i> (Ridl.) Holtt.	Maha prap มหาปราบ	Medicine	Rhizomes : as a cardio tonic	M
<i>Boesenbergia rotunda</i> (L.) Mansf.	Kra chai กระชาย	Food	Tuberous roots : as a condiment in various dishes.	B , M
		Medicine	Roots : treatment of swelling	B
<i>Curcuma longa</i> L.	Khamin ขมิ้น	Food	Rhizomes : as a spice in various dishes ; as a yellow dye for food.	B , M
		Medicine	Rhizomes : as an ingredient in various traditional remedies.	B , M

Table continues

Table 6 (continued)

Family and species name	Vernacular	Uses	Part used	User
<i>Elettariopsis curtisii</i> Baker	Put sing ปลูดสิงห์	Food	Rhizomes , young leaves : eaten raw as a vegetable	M
		Medicine	Whole plant : treatment of flatulence , stomach ache	B , M
<i>Etilingera elatior</i> (Jack) R.M.Sm.	Kala กาหลา	Food	Shoots , inflorescences : eaten raw as a vegetable	B , M
		Medicine	Whole plant : treatment of helminthes Inflorescences : treatment of hypertension	M M
<i>Etilingera littoralis</i> (Koenig) Giseke	Put khang khok ปลูดคางคก	Food	Shoots : cooked in curries	B
<i>Hedychium ellipticum</i> Hamm ex Smith	Khing haeng ขิงแห้ง	Medicine	Rhizomes : as a stomachic; treatment of bodily discomfort	B
<i>Scaphochlamys biloba</i> (Ridl.) Moltt.	Sala thang ซาลาทัง	Medicine	Whole plant : as a contraceptive	M
<i>Zingiber montanum</i> (Koenig) Theilade	Phlai dam ไพลดำ	Medicine	Rhizomes : treatment of urticaria	B
<i>Zingiber ottensii</i> Val.	Phlai dam ไพลดำ	Food	Inflorescences : eaten raw or steamed as a vegetable	M
		Medicine	Rhizomes : as a carminative; treatment of numbness	B , M
<i>Zingiber spectabile</i> Griff.	Dak ngo ดากเงาะ	Food	Shoots : cooked in curries Inflorescences : eaten blanched	B , M
		Miscellaneous	Leaves , inflorescences : ward off bad spirits	M
<i>Zingiber zerumbet</i> (L.) Sm.	Thue phrao ทือพร้าว	Food	Rhizomes : cooked in curries	B

Table continues

Table 7 The formulae of traditional medicines including their indications, ingredients, preparation and application.

Formula	Indication	Ingredients, preparation and application
F1	As a blood circulation tonic ; treatment of bodily discomfort.	Stems of <i>Goniothalamus macrophyllus</i> (Blume) Hook.f. & Th. and <i>Alstonia macrophylla</i> Wall. ex G.Don together with the whole plant of <i>Cleome viscosa</i> L., <i>Solanum involucreatum</i> Blume, <i>Rubus moluccanus</i> L. in equal proportion , and a small piece of wood of <i>Excoecaria oppositifolia</i> Griff. are chopped, dried in shed for 3 days, and boiled in water. Then 1/3 glass of a decoction is taken 3 times a day.
F2	As a blood circulation tonic ; treatment of bodily discomfort.	A combination of whole plant of <i>Thottea tomentosa</i> (Blume) Ding Hou, <i>Tacca integrifolia</i> Ker Gawl. (or <i>Tacca chantrieri</i> Andre.), <i>Trevesia arborea</i> Merr, <i>Mimosa pudica</i> L. and <i>Piper sarmentosum</i> Roxb. are boiled in water, and then this water is drunk as a substitute of drinking water.
F3	As a tonic	A combination of the whole plant of <i>Gomphostemma scortechinii</i> Prain, <i>Apostasia nuda</i> L. and <i>Dracaena umbratica</i> Ridl. in equal proportion is coarsely chopped and boiled in water. Then a decoction is drunk as a substitute of drinking water.
F4	As a tonic	Roots of <i>Glochidion perakense</i> Hook.f. , <i>Alstonia spathulata</i> Blume and tubers of <i>Lasia spinosa</i> (L.)Thw. in equal proportion are boiled in water, and then a decoction is drunk as a substitute of drinking water.
F5	As a tonic ; treatment of lumbago	Rhizome of <i>Angiopteris evecta</i> (G.Forst.) Hoffm. together with the whole plant of <i>Hydnophytum formicarum</i> Jack and tubers of <i>Lek fag khai</i> (an unknown species) in equal proportion are sliced , dried , and then macerated in local whisky. The resultant macerate is then decanted and taken.
F6	As a tonic for potency	Whole plant of <i>Mussaenda wallichii</i> G.Don, <i>Desmos chinensis</i> Lour., <i>Alstonia macrophylla</i> Wall. ex G.Don and stems of <i>Eurycoma longifolia</i>

Table continues

Table 7 (continued)

Formula	Indication	Ingredients , preparation and application
		Jack in equal proportion are dried and then pounded. The powder obtained is then mixed with hot water or honey , and taken daily.
F7	As a tonic for potency	The whole plant of <i>Apostasia nuda</i> L., <i>Lophatherum gracile</i> Brongn. and <i>Gomphostemma scortechinii</i> Prain together with roots of <i>Lepionurus sylvestris</i> Bl. and tubers of <i>Smilax myosotiflora</i> A. DC. are dried, boiled in water, and then a decoction is taken daily.
F8	As a tonic ; treatment of lumbago	Stems of <i>Grammatophyllum speciosum</i> Blume, <i>Rhinacanthus nasutus</i> (L.) Kurz and <i>Smilax perfoliata</i> Lour. together with roots of <i>Eurycoma longifolia</i> Jack and tubers of <i>Smilax myosotiflora</i> A. DC. are dried, boiled in water, and then a decoction is drunk daily as a substitute of drinking water.
F9	As an antidote	A handful of roots of <i>Thunbergia laurifolia</i> Ridl., <i>Cyperus involucratus</i> Rottb. and three fruits of <i>Averrhoa carambola</i> L. are chopped, boiled in water, and then a decoction is taken.
F10	Treatment of allergy	Whole plant of <i>Aerva lanata</i> (L.) Juss together with stamens of <i>Nelumbo nucifera</i> Gaertn. and rhizomes of <i>Tradescantia spathacea</i> Stearn are chopped, boiled in water, and then a decoction is taken.
F11	Treatment of cancer	A combination of the whole plant of <i>Lygodium microphyllum</i> (Cav.) R.Br. and <i>Lygodium salicifolium</i> C. Presl, rhizomes of <i>Nymphaea lotus</i> L. and <i>Nymphaea stellatan</i> Willd., stems and leaves of <i>Ipomoea aquatica</i> Forsk. and thickened stems of <i>Hydnophytum formicarum</i> Jack in equal proportion are coarsely chopped, boiled in water, and then a decoction is taken daily as a substitute of drinking water.
F12	Treatment of chest complaint	A combination of the whole plant of <i>Hemionitis artifolia</i> (Burm. f.) Moore and <i>Elephantopus scaber</i> L. in equal proportion. are boiled in water, and then a decoction is taken 3 times a day.

Table 7 (continued)

Formula	Indication	Ingredients , preparation and application
F13	Treatment of diabetes	Half a handful of <i>Acacia concinna</i> (Willd.) DC. leaves together with a handful of <i>Tamarindus indica</i> L. leaves and three internodes of <i>Saccharum officinarum</i> L. are boiled in 1 liter of water, and then a decoction is drunk daily as a substitute of drinking water.
F14	Treatment of diabetes	One handful of leaves of <i>Mitragyna speciosa</i> (Roxb.) Korth. and a young shoot of <i>Nypa fruticans</i> Wurm. are boiled in water, and then a decoction is taken daily as a substitute of drinking water.
F15	Treatment of diabetes	A combination of the roots of <i>Parkia speciosa</i> Hassk., <i>Parkia timoriana</i> Merr. and <i>Archidendron jiringa</i> (Jack) I.C.Nielsen in equal proportion is boiled in water, and then a decoction is drunk daily as drinking water.
F16	Treatment of diarrhea	Roots of <i>Melastoma malabathricum</i> L., <i>Syzygium polyanthum</i> (Wight) Walp. and stem barks of <i>Anacardium occidentale</i> L. in equal proportion are boiled in water, and then a decoction is drunk frequently during the day.
F17	Treatment of dysmenorrhea , hemorrhage	One handful of roots of <i>Lepisanthes rubiginosa</i> (Roxb.) Leenh. , <i>Streblus taxoides</i> (Heynes) Kurz together with the whole plant of <i>Antidesma montanum</i> Blume and <i>Cyclea barbata</i> Miers. in equal proportion are chopped, dried, and then boiled in water. A decoction is then taken 3 times a day, daily.
F18	Treatment of elephantiasis	A combination of the whole plant of <i>Fagraea fragrans</i> Roxb., <i>Senna siamea</i> (Lam.) Irwin & Barneby and Khi lom (an unknown species) together with branches of <i>Zanthoxylum nitidum</i> (Roxb.) DC., stem bark of <i>Plumeria rubra</i> L. and <i>Anacardium occidentale</i> L. , and roots of <i>Fibraurea</i> cf. <i>tinctoria</i> Lour. in equal proportion are chopped, boiled in water, and then a decoction is taken 3 times a day , for 15 days.

Table 7 (continued)

Formula	Indication	Ingredients , preparation and application
F19	Treatment of fever; as a refrigerant	A combination of a handful of the roots of <i>Tiliacora triandra</i> (Colebr.) Diels, <i>Clerodendrum petasites</i> (Lour.) S. Moore and <i>Sauropus androgynus</i> (L.) Merr. are boiled in water, and then a decoction is taken.
F20	Treatment of fever	A combination of the roots of <i>Lepionurus sylvestris</i> Bl., <i>Donax arundastrum</i> Lour., <i>Donax grandis</i> (Miq.) Ridl. , <i>Prismatomeris tetrandra</i> (Roxb.) K. Schum and <i>Desmos chinensis</i> Lour. in equal proportion are boiled in water , and then a decoction is taken.
F21	Treatment of chronic fever	Leaves of <i>Syzygium polyanthum</i> (Wight) Walp., <i>Callicarpa longifolia</i> Lam. and <i>Dendrophthoe incarnata</i> (Sack) Miq. are boiled in water, and then this water is used to bath a patient; this treatment is done once a day in the morning, for 3 days.
F22	Treatment of fever associated with menstruation	Whole plant of <i>Mimosa pudica</i> L. and <i>Sida alnifolia</i> L. together with a handful of green mesocarp of <i>Cocos nucifera</i> L. fruit and three rice ears are boiled in water, and then this water is drunk frequently during the day.
F23	Treatment of fever associated with menstruation	Stems and roots of <i>Sida alnifolia</i> L. together with roots of <i>Imperata cylindrica</i> (L.) P. Beauv., <i>Cordyline fruticosa</i> (L.) Gopp. and the whole plant of <i>Mimosa pudica</i> L. in equal proportion are boiled in water, and then a glass of decoction is taken.
F24	Treatment of fever , nausea	A combination of roots of <i>Callicarpa longifolia</i> Lam., <i>Lepisanthes rubiginosa</i> (Roxb.) Leenh., <i>Citrus aurantifolia</i> (Christm.) Swingle, <i>Citrus hystrix</i> DC. and <i>Averrhoa carambola</i> L. in equal proportion are rubbed against an earthen ware pot, using a washing from uncooked rice as a solvent. Then a suspension is given to a patient to drink before taken to hospital.

Table 7 (continued)

Formula	Indication	Ingredients , preparation and application
F25	Treatment of hemorrhoids	A combination of fruits of <i>Piper chaba</i> Hung., stems of <i>Tinospora crispa</i> (L.) Miers ex Hook.f. & Thomson, roots of <i>Plumbago indica</i> L., branches and leaves of <i>Andrographis paniculata</i> (Burm.f.) Wall. ex Nees. in equal proportion is coarsely chopped and then macerated in local whisky. A resultant macerate is then taken before bed time and in the morning.
F26	Treatment of insect bites and contusion	A handful of leaves of <i>Pterocarpus indicus</i> Willd., <i>Hedyotis capitellata</i> Wall. ex G.Don, the whole plant of <i>Lindernia crustacea</i> (L.) F.Muell. and a small amount of rice grains are pounded, and then a poultice obtained is applied over the affected areas.
F27	Tonic for longevity; treatment of diabetes	A combination of 1 kg of the whole plant of <i>Andrographis paniculata</i> (Burm. f.) Wall. ex Nees, one handful of whole plant of <i>Orthosiphon aristatus</i> (Blume) Miq., three branches and leaves of <i>Senna alata</i> (L.) Roxb., one handful of leaves of <i>Senna siamea</i> (Lam.) Irwin & Barneby , one handful of leaves of <i>Acanthus ebracteatus</i> Vahl ; and one gram of fruits of <i>Piper chaba</i> Hunt , <i>Piper nigrum</i> L. is dried, and then pounded. A mixture obtained is then mixed with honey, shaped into round balls or pills, and then taken 3 pills a day, daily.
F28	Treatment of lumbago	A handful of the whole plant of <i>Prismatomeris tetrandra</i> (Roxb.) K. Schum , <i>Fagraea fragrans</i> Roxb. and <i>Senna siamea</i> (Lam.) Irwin & Barneby are chopped, boiled in water, and then a decoction is taken.
F29	Treatment of lumbago	A handful of the whole plant of <i>Myrmecophila sinuosa</i> (Wall. ex Hook.) Nakai ex H. Ito, <i>Adiantum flabellulatum</i> L. and few leaves of <i>Andrographis paniculata</i> (Burm.f.) Wall. ex Nees. are grounded, and then eaten; sometimes they are boiled in water, and a decoction is taken.

Table 7 (continued)

Formula	Indication	Ingredients , preparation and application
F30	Treatment of lumbago	A handful of the whole plant of <i>Andrographis paniculata</i> (Burm.f.) Wall.ex Nees and <i>Cyperus rotundus</i> L. together with 15 leaves of <i>Mitragyna speciosa</i> (Roxb.) Korth and a little amount of camphor are boiled in water, and then a decoction at a dose of 1/3 glass is taken 2 times a day.
F31	Treatment of malarial fever	Whole plant of <i>Phyllanthus amarus</i> Schumach. & Thonn. together with stem bark of <i>Azadirachta indica</i> A. Juss and <i>Senna siamea</i> (Lam.) Irwin & Barneby, heart wood of <i>Fagraea fragrans</i> Roxb. and fresh eggs with shells are boiled. They are boiled until the eggs are cooked, and then these eggs are given to the patient to eat.
F32	Treatment of post partum	A combination of roots of <i>Cajanus cajan</i> (L.) Millsp., leaves of <i>Breynia vitis-idaea</i> (Burm.f.) C.E.C. Fisch and <i>Acacia concinna</i> (Willd.) DC. in equal proportion is boiled in water, and then a decoction is given to women to drink after giving birth to treat dizziness caused by consuming food forbidden for women in the post partum stage.
F33	Treatment of post partum	A combination of roots of <i>Cajanus cajan</i> (L.) Millsp., <i>Citrus hystrix</i> DC. and <i>Citrus aurantifolia</i> (Christm.) Swingle in equal proportion is rubbed against an earthenware pot, using water as a solvent. Then a suspension is given to women after childbirth to relieve dizziness.
F34	Treatment of post partum	A combination of one handful of leaves of <i>Rhodomyrtus tomentosa</i> (Aiton) Hassk., <i>Piper sarmentosum</i> Roxb., <i>Cymbopogon citratus</i> Stapf. and <i>Clerodendrum paniculatum</i> L. together with a young fruit of <i>Areca catechu</i> L. are finely crushed, slightly heated, and then shaped into round balls with a diameter of approximately 1 cm. Then the balls are taken at a dose of 1 ball

Table 7 (continued)

Formula	Indication	Ingredients , preparation and application
		per day, for 7 days to promote involution of uterus and to accelerate the lochial discharge in women after giving birth.
F35	Treatment of ringworm	Seeds of <i>Entada rheedii</i> Spreng, <i>Caesalpinia major</i> (Medik.) Dandy & Exell and fruits of <i>Pandanus humilis</i> Lour. in equal proportion are finely crushed, and boiled in coconut oil. Then this oil is applied onto the ringworm.
F36	Treatment of venereal diseases	A combination of roots of <i>Phyllanthus pulcher</i> Wall. ex Mull. Arg., <i>Pandanus amaryllifolius</i> Roxb., <i>Urena lobata</i> L., <i>Chrysopogon aciculatus</i> (Retz.) Trin and <i>Carica papaya</i> L. together with rhizome of <i>Musa</i> sp. in equal proportion are rubbed against an earthenware pot, using water as a solvent. Then a suspension is taken orally and also applied externally onto the affected skin.
F37	Treatment of herpes infection	Stamens of three flowers of <i>Melastoma malabathricum</i> L. together with roots of three plants of <i>Polygonum odoratum</i> Lour. and few pepper seeds are chewed with a betel quid, and then spat onto the affected areas.
F38	Treatment of herpes infection	One handful of the whole plant of <i>Vernonia cineria</i> (L.) Less together with ten branches and leaves of <i>Barleria lupulina</i> Lindl., <i>Clinacanthus nutans</i> (Burm.f.) Lindau and <i>Mimosa pudica</i> L. are crushed, mixed with local whisky, and then an extract is applied onto the affected areas.
F39	Treatment of dropsy	A combination of heart wood of <i>Dialium cochinchinense</i> Pierre, <i>Artocarpus heterophyllus</i> Lam., <i>Fagraea fragrans</i> Roxb. and <i>Cinnamomum porrectum</i> (Roxb.) Kosterm. in equal proportion are boiled in water, and then a decoction is taken 3 times a day.

**Descriptions of the used plant species, presented alphabetically
by families and genera**

Acanthaceae

Acanthus ebracteatus Vahl

Figure 19 D

Vernacular Kaem mo (แก้มหม้อ)

Shrub, 1 – 2 m tall; stem terete, hollow. **Stipules** absent. **Leaves** simple, opposite; petioles 0.5 – 1.5 cm long; blades coriaceous, oblong, lanceolate, elliptic or slightly obovate, 7–17 by 2–6 cm, apex acute with apical spine, margins entire or sinuately dentate-pinnatifid with spiny teeth, base cuneate, shining, glabrous on both sides; nerves 7 – 9 pairs. **Inflorescences** spike, 12 – 20 cm long, erect, terminal or upper axillary; bract 1, caducous; bracteoles 2, persistent. **Flowers** bisexual, white or violet, subsessile, 4 – 5 cm long. **Calyx** deeply 4-lobed, upper and lower lobes largest. **Corolla** bilabiate, with a short tube closed by a ring of hairs inside the top; upper lip none; lower lip large, 4.3 by 2.5 cm, obovate shallowly 3-lobed at apex, pubescent inside, deflexed. **Stamens** 4; filaments hard, thick, 2 cm long; anthers 1-celled, 1 cm long, densely longitudinally hairy. **Ovary** superior, ovoid, glabrous, 2-loculed; ovules 2 in each locule; style terete, bifid. **Fruit** capsule, ovoid-oblong, 2 – 3 by 1 cm wide, green to light brown, leathery, glabrous. **Seeds** 2 – 4, reniform, rugose, flattened.

Locality Ban Ta Se, Hat Samran Subdistrict, Trang Province.

Distribution India, SE.Asia, Malesia to N.Australia.

Ecology In the mangroves and on the muddy banks of tidal rivers. Flowering and fruiting January – May.

Uses The flowers are eaten raw to treat abscesses, (M). The leaves are used as an ingredient in the formula F27 taken as a tonic for longevity and for the treatment of diabetes,(B).

Material studied UBON 1078, 1079 ; BKF 71785

Reference Backer & Bakh.f., Fl. Java. 2 : 555. 1965.

Justicia gendarussa Burm. f.

Vernacular Chiang phra (เจียงพรา)

Shrub, 100 – 180 cm tall; with upright branches, dark violet when young, thickened on the nodes, glabrous. **Stipules** absent. **Leaves** simple, opposite; petioles 5 – 8 mm long; blades thinly coriaceous, narrowly lanceolate, 5 – 20 by 1 – 3.5 cm, apex acuminate, margins entire, base narrow, glabrous on both surfaces, dark green above, pale green beneath; nerves 6 – 7 pairs, dark violet. **Inflorescences** spike, terminal or upper

axillary, erect, 7 – 12 cm long; bracts triangular-subulate, 4 – 5 mm long. **Flowers** bisexual, subsessile, rather crowded in groups along the spikes. **Calyx** cup-shaped, deeply 5-lobed; lobes narrowly lanceolate, 4 – 5 mm long, purplish-green. **Corolla** bilabiate, 1.8 – 2 cm long, white, blotched and veined with violet, upper lip triangular, acute, with a style-channel; lower one obovate, with 3-rounded lobed. **Stamens** 2, inserted in corolla tube, exerted. **Ovary** superior, ovoid, glabrous, 2-loculed; ovules 2 in each locule; style filiform, sparsely pubescent at the base. **Fruit** capsule. **Seeds** 4.

Locality	Ban Ton Panun, Khuan Kalong District, Satun Province.
Distribution	E.Asia.
Ecology	In open places, rather humid habitat; often cultivated in villages; altitude 100 m. Flowering and fruiting throughout the year.
Uses	Branches and leaves are commonly used to sprinkle a holy water in a ritual performed to get rid of evil spirits, (B, M). In rural areas, some masseurs usually mingle the leaves of this plant with their hands before massaging; it is believed to strengthen the hands, (M).
Material studied	UBON 1010, BKF 60462
Reference	Backer & Bakh.f., Fl. Java. 2 : 590. 1965.

***Thunbergia fragrans* Roxb.**

Vernacular Tan pakka (ตานปากกา)

Slender twiner; stem slender, terete, green, pubescent. **Stipules** absent. **Leaves** simple, opposite; petioles 1 – 2 cm long, pubescent; blades thinly coriaceous, oblong or elliptic, 6 – 7 by 2 – 3 cm, apex mucronate, base round or slightly hastate, margins entire, pubescent on both surfaces; tri-nerved at base. **Flowers** solitary, axillary, bisexual, white; peduncles 4 cm long, pubescent; bracts 2, ovate acute, 2 by 1 cm, pubescent outside, pale green. **Calyx** obsolete, with 12 teeth. **Corolla** campanulate, tube 1.5 – 2.0 cm long, 5-lobed; lobes obovate emarginate, 1 cm, pubescent outside. **Stamens** 4, didynamous, inserted near base of corolla tube. **Ovary** superior, 2-loculed, ovules 2 per locule; style glabrous; stigma-lobes triangular. **Fruit** capsule, subglobose, 1 cm long, with beak 2 cm long. **Seeds** 4.

Locality	Ban Ton Sai, Srinakharin Subdistrict, Phattalung Province.
Distribution	E.India.
Ecology	Twining on trees in the forest, often on limestone; altitude 80 m. Flowering and fruiting throughout the year.

Uses The plant combined with *Vernonia elliptica* DC., *Schizaea digitata* (L.) Sw. and two unknown species are boiled in water. The water is used as a bath for children to relieve chronic gastrointestinal ailments, (B).

Material studied UBON 502

Reference Ridl., Fl. Mal. Pen. 2 : 557. 1967.

***Thunbergia laurifolia* Lindl.**

Figure 76 D

Vernacular Rang chuet thao (รางจืดเถา)

Woody climber; stem with longitudinal ridges, swollen at node, sparsely pubescent. **Stipules** absent. **Leaves** simple, opposite; petioles 1.5 – 2.0 cm long; blades coriaceous, glabrous on both surfaces, oblong-lanceolate, 7 – 10 by 2.5 – 4 cm, apex obtuse, base truncate, margins entire, with small lobe at the base; 5-nerved at base. **Inflorescences** terminal cyme, few-flowered; peduncles 2 – 4 cm long; pedicels 3 cm long; bracts 2, ovate, glabrous, 3 by 2 cm. **Flowers** bisexual, showy. **Calyx** a mere rim. **Corolla** broadly campanulate, blue-violet, 5 – 7 cm across; tube yellowish inside, 3 – 4 cm long, 5-lobed. **Stamens** 4, didynamous, inserted near base of corolla tube; anther-cells 2, basally spurred. Disk annular, yellowish-white. **Ovary** superior, 2-loculed; 2 ovules per locule; style thin, apically curved forward; stigma broad, lobed. **Fruit** a capsule, cylindrical, base swollen, 3 – 4 by 1 – 2 cm, with a beak, ripening black. **Seeds** 4, triangular, 10 by 7 mm.

Locality Ban Ton Panun, Khuan Kalong District, Satun Province.

Distribution Burma, Malaysia.

Ecology Climbing high on tree in the edges of secondary forest; altitude 70 – 100 m. Flowering and fruiting February – April.

Uses Decoction of the whole plant is taken for intoxication effect in case of digestion poisonous food or chemical compounds, (B). The roots are used as an ingredient in the formula F 9 taken as an antidote against food poisoning in the case associated with black magic, (B). The roots are crushed and mixed with lime juice or local whisky, applied externally as a poultice to treat snakes bites, (M). The crushed leaves are used as a poultice applied externally to treat contusion, (M). A poultice of leaves is used as a lactifuge applied to the breast, around the nipples of mothers to stop the secretion of milk, (M).

Material studied UBON 506, BKF 124997

Reference Backer & Bakh.f., Fl. Java. 2 : 553. 1965.

Agavaceae

Cordyline fruticosa (L.) A.Chev.

Vernacular Mak phu mak mia (หมากผู้หมากเมีย)

Erect shrub, 2 m tall, sparingly branched, glabrous. **Leaves** simple, spirally arranged on the top of the branches; petioles channeled, 5 – 20 cm long, basally broaden into a sheath; blades herbaceous, lanceolate, 20 – 65 by 8 – 10 cm, apex acuminate, margins entire, base attenuate, glabrous on both surfaces, green with yellow and pink or red streaks. **Inflorescences** panicle, upper axillary, 30 – 70 cm long, widely branched; rachis and rachilla reddish-violet; bracteoles small, membranous, pale violet. **Flowers** bisexual, sessile, solitary along the rachilla. **Tepals** 6, oblong, subequal, 12 – 14 mm long, basally connate, higher up free, reflexed at anthesis, white tinged with violet. **Stamens** 6, slightly shorter than the perianth. **Ovary** superior, 3-loculed, many-ovuled; style filiform, violet at the upper part; stigma minute, 3-lobed.

Locality Ban Huay Ngo, Khok Pho District, Pattani Province.

Ecology Often cultivated as ornamental, hedges. Altitude 40 m. Flowering and fruiting throughout the year.

Uses The basal parts of the stems are used as an ingredient of the formula F23 taken to relieve fever associated with menstruation, (B). The leaves are commonly used as a tool for sprinkler holy water during ceremonial occasions. They are also used in magical treatment of fever; to do so, the leaves of this plant together with those of *Codiaeum variegatum* Blume, and the leaves of 7 kinds of citrus plants are crushed, mixed with water. Then this water is used to bath patients with chronic fever. This treatment is accompanied by traditional music and traditional dance; it believed that, the patients will get well soon after bathing, (M).

Reference Backer & Bakh. f., Fl. Java. 3: 160. 1968.

Dracaena umbratica Ridl.

Figure 41 C

Vernacular Kamlang hanuman (กำลิ่งหนุมาณ)

Herb, 60 – 100 cm tall, few-branched. **Leaves** simple, spirally arranged; petioles 2 – 3 cm long; blades thinly coriaceous, elliptic to elliptic lanceolate, 16 by 6 cm, apex cuspidate, margins entire, base narrowed, glabrous. **Inflorescence** a terminal raceme, 18 – 23 cm long, the lower half flowerless, rachis stout. Bracts triangular, 4 by 5 mm. **Flowers** bisexual, white, 5 or 6 in a tuft; pedicels 3.5 – 4.0 mm long. **Perianth** 2 cm long, 6-lobed; lobes linear, blunt. **Stamens** 6, as long as perianth lobes, filaments long filiform, anthers narrow, versatile. **Ovary** superior, ovoid, 3-loculed, ovule 1 per locule; style 1, long filiform. Fruit not found.

Locality	Ban Ton Sai, Srinakharin Subdistrict, Phattalung Province.
Distribution	Malaysia, Singapore.
Ecology	In tropical rain forest; often cultivated for medicinal purposes; altitude 80 m. Flowering January – February.
Uses	The tuberous roots are either eaten raw or boiled with water or macerated in spirit, and then drunk as a tonic. It's said to increase potency in men, (B).
Material studied	UBON 1034, BKF 108996
Reference	Ridl., Fl. Mal. Pen. 4 : 334. 1967.

Alismataceae

Caldesia oligococca (F. Muell.) Buchenau

Vernacular Khi tai (ขี้ไต้)

Annual marsh herbs, glabrous, up to 80 cm tall. **Leaves** simple, basal, floating; petioles to 70 cm long, prominently septate, ribbed; blades herbaceous, pellucid-dotted, ovate, 10 – 12 by 4 – 6 cm, apex blunt, margins entire, base cordate; nerves 9 – 17, veins connecting the nerves parallel and perpendicular to them, 1 – 5 mm space. **Inflorescence** a terminal panicle; panicles pyramidal, 70 – 75 cm long, branches and pedicels on the branches in whorls of 3. Bracts oblong-lanceolate, connate at the base. **Flowers** bisexual, white, 1 cm across; pedicels 1 cm long. **Sepals** 3, elliptic, 1.5 – 4.0 by 1.0 – 2.5 mm, reflexed and revolute after flowering. **Petals** 3, elliptic, 2.0 – 6.0 by 3.5 – 4.0 mm. **Stamens** 6, filaments very thin, dilated towards the base; anthers bright yellow. **Ovaries** superior, 6, free, obovate, 1-ovuled; styles inserted ventrally halfway down. **Fruit** achene, kidney-shaped, laterally compressed, 3 by 2 mm, with 4 – 5 longitudinal ribs densely set with blunt spiny warts. **Seed** bean-shaped, 1.5 by 0.5 mm.

Locality	Ban Hua Pa Khiao, Khuan Khanun District, Phattalung Province.
Distribution	W.Africa, SE.Asia, to N.Australia.
Ecology	In pools and ditches, and along river-banks; altitude near sea level. Flowering in February.
Uses	The young shoots are eaten raw as a vegetable, or cooked, (B).
Material studied	UBON 335
Reference	Haynes, Fl. Thail. 7(3) : 354. 2001.

Amaranthaceae

Aerva lanata (L.) Juss.

Figure 20 A

Vernacular Klet pla khao (เกตุปลาขาว)

Erect herbs, 60 cm tall, stem terete, densely white hairy. **Stipules** absent. **Leaves** simple, spirally arranged; petioles 0.5 – 1.0 cm long; blades thinly coriaceous, obovate, 1–5 by 1–3 cm, apex rounded, margins entire, base attenuate, tomentose on both sides, denser on the lower side; nerves 4 –5 pairs. **Inflorescences** axillary, cylindrical spike, 1–2 cm long; spikes solitary or fascicled. **Flowers** bisexual, white, small 1.8 mm diam., densely packed together. **Tepals** 5, membranous, oblong acute, 1.0 by 0.5 mm, white-wooly outside. **Stamens** 5, half as long as perianth; filaments basally united into a cup, alternating with subulate pseudo-staminodes; anthers 2-celled. **Ovary** superior, compressed, glabrous, 1-loculed, ovule 1 per locule; style short; stigmas 2, distinct. **Fruit** utricle, irregularly splitting. **Seed** 1, reniform, shining black.

Localities Ban Huay Ngo, Khok Pho District, Pattani Province.

Distribution Africa to Asia.

Ecology In dry localities, open places, along roadsides, waste places; altitude 40 –100 m. Flowering and fruiting throughout the year.

Uses The whole plant together with stamens of *Nelumbo nucifera* Gaertn. and the rhizome of *Tradescantia spathacea* Stearn are chopped and boiled in water. Then this decoction is taken as an anti-allergic agent. A decoction of the whole plant alone is taken for the treatment of diabetes, (B).

Material studied UBON 1304, BKF 125820

Reference Backer, Fl. Mal. 4(2) : 84. 1949.

Alternanthera sessilis (L.) DC.

Vernacular Phak pet (ผักเป็ด), Kue moh (กว๊อโมะ)

Perennial herb; stem terete, creeping to decumbent, rooting at the nodes, many branches; young part white hairy, green turning dull red with 2 opposite longitudinal lines of hairs. **Stipules** absent. **Leaves** simple, opposite; petioles short; blades subcoriaceous, elliptic, 2 – 4 by 1 – 2 cm, apex acute, margins entire or finely serrate ear the tip, base attenuate, glabrous, dark green above, paler beneath; nerves 7–9 pairs, inconspicuous. **Inflorescences** capitata, axillary, sessile, 5 mm across; bracts and bracteoles ovate, glabrous, shorter than the flowers. **Flowers** bisexual, small, numerous, 1.5 mm long. **Tepals** 5, ovate, acute, shining white, glabrous. **Stamens** 3, filaments connate at the base into staminal cup producing teeth alternating with the stamens. **Ovary** superior, obovoid, laterally compressed, 1-loculed, 1-ovuled; style

very short; stigma capitate. **Fruit** utricle, obovoid, laterally compressed, deeply emarginate, 2 mm long. **Seed** 1, orbicular, flattened, brown.

Locality	Ban Po No, Su-ngaipadee District, Narathiwat Province.
Distribution	Pantropical.
Ecology	On marshy ground, open places, also along waysides. Altitude 30 – 40 m. Flowering and fruiting throughout the year.
Uses	The crushed whole plant is mixed with a small amount of lime juice, then it is applied onto the abdomen of children to treat diarrhea and also to relieve abdominal pains, (M).
Reference	Larsen, Fl. Thail. 5(4) : 406. 1992.

Amaryllidaceae

Crinum asiaticum L.

Figure 35 B

Vernacular Ba wae ba kong (บาวเวบบากง)

Small herb, 30 – 40 cm tall, with subterraneous bulb. **Leaves** simple, rosulate, sessile; blades herbaceous, linear, 60 – 70 by 3 – 4 cm, apex acute, margins entire, sheathing at base, glabrous, distinctly longitudinally nerves. **Inflorescence** umbel, axillary, 35 cm long; peduncle compressed, 30 by 1 cm, apically with 2 large bracts and a number of small ones between the flowers. **Flowers** 6 – 8 per umbel, bisexual, white, sessile; **perianth** salver-shaped, with slender and straight tube 3 – 5 cm long, 6-segmented; segments linear-lanceolate, acute at the apex, 7 by 0.9 cm. **Stamens** 6, inserted in the throat; filaments filiform, 5.5 cm long, violet at the tip, white below; anthers 9 mm long, violet. **Ovary** inferior, ovoid, 3-loculed; stigma small, capitate. **Fruit** capsule, irregularly rounded.

Locality	Ban Ro Tan Ba Tu, Muang District, Narathiwat Province.
Distribution	Sumatra, Philippines, New Guinea.
Ecology	In open, wet and grassy areas; altitude near sea level. Flowering and fruiting June – August.
Uses	The young leaves together with a small amount of turmeric rhizome and rice grains are pounded. Then it is used as a poultice applied externally to treat corns twice a day until cure, (M).
Material studied	UBON 1329
Reference	Geerinck, Fl. Mal. Ser. 1. 11(2) : 359. 1993.

Anacardiaceae

Bouea oppositifolia (Roxb.) Meisn.

Figure 30 C

Vernacular Ma pring (มะปริง), Pring (ปริง)

Tree, 10 – 20 m tall, with a clear resin which turn black on exposure, poisonous; polygamous. **Stipules** absent. **Leaves** simple, opposite; petioles 0.5 – 1.0 cm; blades coriaceous, elliptic to elliptic-oblong, 4 – 12 by 1 – 5.5 cm, apex blunt acuminate, margin entire, base cuneate, glabrous on both surfaces, deep green; nerves 10 – 15 pairs. **Inflorescences** terminal or axillary panicle; 3 – 6 cm long, peduncle 1 – 2 cm long. **Flowers** small, numerous, white to pale yellow. **Calyx** lobes 4, broadly ovate pubescent, 0.5 – 0.8 mm long. **Petals** 4, oblong, 2 by 0.5 mm. **Stamens** 4, free; filaments subulate, glabrous; anthers apiculate. Disk small, thin. **Ovary** superior, ovoid, 1-loculed, 1-ovuled; style short; stigma round and flat. **Fruit** a drupe, broadly ellipsoid, 2.5 by 1.5 cm, fleshy, yellow when ripe. **Seed** 1, subglobose, cotyledon dark violet.

Localities Ban Hau Yang, Rattaphum District, Songkhla Province.
Ban Nai Wang, Kongra District, Phattalung Province.

Distribution Burma, Andaman Islands, Laos, Vietnam, Cambodia, China, Malay Peninsula, Sumatra, Borneo.

Ecology In lowland forest, edges of evergreen rain forest; often cultivated for its fruits; altitude 20 – 100 m. Flowering January – February; fruiting March – May.

Uses The sourish immature fruits (in half ripe state) are eaten raw or pickled, and also used as a condiment to give sour flavor to the food. The ripe sweet ones are eaten fresh. The young leaves are eaten raw as a vegetable, (B, M). The timber which is hard and durable is very useful for house building and for various purposes, (B, M).

Material studied UBON 490, BKF 100211

Reference Hou, Fl. Mal. Ser. 1. 8(3) : 466. 1978.

Dracontomelon dao (Blanco) Merr. & Rolfe

Figure 41D

Vernacular Ko (โก)

Tree up to 35 m tall. Stem often with buttress; bark grayish-brown, scaly; branches tomentose. **Stipules** absent. **Leaves** imparipinnate, spirally arranged, with 4 – 9 pairs of leaflets; petioles 3 – 15 cm, rachis 6 – 40 cm long, both pubescent; blades chartaceous, ovate-lanceolate, 11–18 by 5 – 7 cm, apex acuminate, margins entire, base obliquely rounded, glabrescent above, lower surface puberulous especially on the midrib; nerves prominent. **Inflorescences** terminal panicle, and sometimes also in the uppermost leaf axils, pyramidal, up to 30 cm long, pubescent; pedicels 1–2 mm long; bracts ovate, 1.0 – 1.5 mm long, puberulous on both surfaces. **Flowers** bisexual, white or greenish-white, 7

mm long. **Calyx** 5-lobed, ovate-oblong, 4 – 5 mm long, densely pubescent outside, thinly finely pubescent inside. **Petals** 5, valvate but imbricate at the apical part, elliptic-lanceolate, 7 – 10 by 1.5 – 2 mm, puberulous on both surfaces. **Stamens** 10, those opposite the calyx lobes longer than those alternate with them; filaments glabrous; anthers dorsifixed, ovoid-oblong, 1.0 – 1.2 mm long. Disk intrastaminal, shortly cupular, puberulous. **Ovary** superior, 5-loculed, ovule 1 in each locule; stigma capitate. **Fruit** a drupe, globose, 2.5–3.0 cm diam., glabrous, yellowish-brown when ripe, with style-scars on its periphery. **Seed** 1, conical, 7 – 10 mm long.

Localities Ban Lu Bo Sa Ma, Su-ngaikolok District, Narathiwat Province.
Ban Khao Khram, Srinakharin Subdistrict, Phattalung Province.

Distribution India, Burma, Cambodia, S.China, Malesia.

Ecology Only in high-rainfall areas, in evergreen forest, on well-drained to poorly drained soil; altitude near sea level to 80 m. Flowering and fruiting January – December.

Use The ripe fruits are eaten fresh, (B, M).

Material studied UBON 492, BKF 087250

Reference Hou, Fl. Mal. Ser.1. 8(3) : 470. 1978.

***Mangifera caesia* Jack**

Figure 61 A – C

Vernacular Lam ya (ลำยา), Lam yai (ลำไย)

Tree, up to 30 m tall glabrous; bark greyish brown, fissured. **Stipules** absent. **Leaves** simple, spirally aranged, sometimes seemingly verticillate towards the end of the twigs; petioles 1 – 2 cm. long, flattened; blades coriaceous, oblanceolate, 15 – 40 by 5 – 10 cm, apex short-acuminate, margins entire, base attenuate, glabrous; midrib thick, raised on both surfaces; nerves about 40 pairs, obscure on both surfaces. **Fruit** a drupe, broadly ellipsoid, 12 by 7 cm. ripening brownish - yellow, juicy, sour. **Seed** 1, reniform, 6 by 3 cm.

Locality Ban Plak Plue, Mae Lan District, Pattani Province.

Distribution Malay Peninsula, Sumatra.

Ecology In primary and secondary forest, swamp forest. Altitude near sea level to 20 m. Fruiting in October.

Uses The ripe fruits are locally used to give sour flavor to various kinds of dishes, (B, M).

Material studied UBON 1047

Reference Hou, Fl. Mal. Ser.1. 8(3) : 438. 1978.

***Mangifera foetida* Lour**

Figure 61 D – E

Vernacular Mut (มูต)

Tree, 10 – 40 m tall, glabrous; bark rough, fissured. Polygamous. **Stipules** absent. **Leaves** simple, spirally arranged; petioles 3 – 6 cm long; blades coriaceous, elliptic-oblong, 14 – 22 by 6 – 10 cm, apex subacute, margins entire, base narrowed, dark green, glabrous on both surfaces; nerves 16 – 22 pairs. **Inflorescences** panicle, terminal or upper axillary, pyramidal, large, 10 – 30 cm long, red, erect. **Flowers** bisexual and male, small, red; pedicels 1–2 mm long. **Sepals** 5, ovate, 2 – 3 mm long. **Petals** 5, linear-oblong, acute, 4 – 6 mm long, with 3 longitudinal ridges. **Stamens** 5, 1 fertile, 2 – 5 mm long. **Ovary** superior, subglobose, 1-loculed; ovule 1; style excentric, 2 – 3 mm long; stigma slightly thicker than the style. **Fruit** drupe, broadly ellipsoid, 8 – 10 by 6 – 7 cm, ripening greenish-yellow, juicy, sweet, with strong smell. **Seed** 1, reniform.

Locality Found in every study sites.

Distribution Burma, Vietnam, Malay Peninsula, Borneo, Sumatra, Philippines.

Ecology In evergreen rain forest, often cultivated in villages; altitude near sea level to 70 m. Flowering March – April; fruiting May – July.

Uses The unripe fruits are eaten raw after the rinds are peeled in thick slices; it also cooked in sour curry and used to give sour flavor to various kinds of dishes. The ripe sweet ones are eaten fresh, (B, M). A handful of the mature leaves are cut at the tip and base, mixed with a small amount of rice grains, and then crushed, into which water is added. Then it is squeezed, a juice obtained is taken for the treatment of hemorrhage, (B).

Material studied UBON 1108 , BKF 089516

Reference Hou, Fl. Mal. Ser.1. 8(3) : 435. 1978.

***Semecarpus curtisii* King**

Figure 72 C

Vernacular Rak (รั๊ก)

Tree, 5 – 10 m tall, often unbranched. **Stipules** absent. **Leaves** simple, spirally arranged; petioles 1.5 – 6 cm long; blades leathery, oblanceolate or spatulate, 10 – 25 by 4 – 10 cm, apex obtuse, margins entire, base attenuate, glabrous above; sparsely pubescent on midrib, nerves and veins beneath; papillae distinct, covering the lower surface; nerves 15 – 22 pairs. **Inflorescences** panicle, terminal and upper axillary, 40 – 50 cm long; rachis and rachilla pubescent; bracts minute; pedicels 3 – 5 mm

long. **Flowers** unisexual. Female ones small, pale green. **Calyx** campanulate, 5-lobed; lobes triangular, acute, 0.5 mm long. **Petals** 5, free, lanceolate, 3 – 3.5 by 2 mm, with several longitudinal veins, sparsely pubescent outside. Disk annular, yellow, hairy above. **Ovary** superior, subglobose, densely hairy, 1-loculed; ovule 1; styles 3, 1 mm long, bifid. **Staminodes** present. **Fruit** a drupe, subglobose or transverse oblong, 1 by 1.5 – 2 cm, sparsely pubescent, yellow, seated on distinct and fleshy hypocarp; hypocarp cupular, green.

Locality Ban Hua Yang, Rattaphum District, Songkhla Province.

Distribution Malay Peninsula.

Ecology In lowland forest, forest edges; altitude 40–100 m. Flowering January – February; Fruiting June – July.

Uses This plant species has an irritant sap which is of a powerful caustic nature and blisters the skin. Susceptibility to such irritant sap varies according to the sensitivity of the person involved. The local people who have to go into forest become immune to this sap by eating the young leaves of this plant in adequate amount before the beginning of the trip, (B).

Material studied UBON 497, BKF 57525

Reference Hou, Fl. Mal. Ser.1. 8(3) : 511. 1978; Ng, Tree Fl. Mal. 4 : 51. 1989.

Ancistrocladaceae

Ancistrocladus tectorius (Lour.) Merr.

Figure 26 A

Vernacular Khon ti ma (ค้อนตีหมา)

Scandent shrubs, erect in youth; branchlets with circinate and woody hooks. **Stipules** absent. **Leaves** simple, spirally arranged, often in terminal tufts, subsessile; blades coriaceous, elliptic-lanceolate, 15 – 22 by 5 – 7 cm, apex obtuse, margins entire, base decurrent, glabrous on both surfaces; nerves 4 – 8 pairs. **Inflorescences** panicles, axillary, very slender, 10 – 15 cm long. **Flowers** bisexual, red. **Calyx** campanulate, tube short, 5-lobed; lobes ovate, unequal, imbricate, enlarged and winged-like in fruit. **Petals** 5, united at the base, slightly contorted in bud, 3.5 by 2 mm, oblique oval. **Stamens** 10, epipetalous. **Ovary** for the greater part inferior, 1-loculed, 1-ovuled; styles 3, erect; stigma punctiform. **Fruit** a nut, crowned by the enlarged calyx; the calyx segments unequal, oblong to spatulate, apex blunt to rounded.

Locality Ban To Daeng, Su-ngaikolok District, Narathiwat Province.

Distribution Burma, Malesia, S.China.

Ecology	In secondary forest, slightly shady places, often near the sea, on the margin of the beach.
Uses	The young leaves are cooked in Thai-style vegetable soup, (B). A decoction of the roots is taken as a blood circulation tonic, and for the treatment of bodily discomfort, (B, M). The crushed leaves are used as a poultice applied externally to treat dog bites before taking a patient to hospital. (B). The leaves are sometimes used in magical ritual performed by local people to drive off bad spirits from their houses, (B).
Material studied	UBON 469, BKF 134119
Reference	Van Steenis, Fl. Mal. Ser.1. 4(1) : 9. 1948; Ridl., Fl. Mal. Pen. 1 : 250. 1967.

Annonaceae

Desmos chinensis Lour.

Figure 39 E

Vernacular Sao yud (สาวหยุด)

Scandent shrub; young twigs slender, the tip densely hairy, glabrous lower down. **Stipules** absent. **Leaves** simple, alternate; petioles 5 mm long; blades thinly coriaceous, oblong to oblanceolate 10 – 15 by 3 – 6 cm, apex acute or rounded and then abruptly bluntly acute, margins entire or slightly undulate, base rounded, glabrous above except on the midrib, sparsely appressed hairy and glaucous beneath; nerves 7 – 9 pairs, prominent beneath. **Flowers** solitary, leaf-opposed, bisexual, 5 – 6.5 cm long; pedicels 3 – 5 cm, slender, finely pubescent; with a median, acute bract, 5 mm long. **Sepals** 3, free, ovate-lanceolate, valvate, 8 – 9 by 3 – 4 mm, sparsely pubescent. **Petals** greenish -yellow, 6, in two rows, valvate, narrowly lanceolate, claw at the base, 6 – 7 by 1 – 1.7 cm, sparsely appressed pubescent. **Stamens** numerous, closely packed, oblong, 1 mm long, appendages truncate. **Ovaries** many, oblong, 1.5 mm long, densely hairy; ovules 5 – 7 per ovary; stigma oblong, bent. **Fruit** of many carpels, moniliform, with 5 – 7 segments, ripening dark red. **Seed** 1 in each segment.

Locality	Ban Yai, Su-ngai-padee District, Narathiwat Province.
Distribution	E.Himalaya, Malay Peninsula to the Malay Islands, China, Philippines.
Ecology	In open places, border of woods and thickets; often cultivated in villages; altitude 30 m. Flowering and fruiting throughout the year.
Uses	The whole plant is used as an ingredient in the formula F6 taken as a tonic for potency, (B). The stems are used as an ingredient in the

formula F1 taken orally as a blood circulation tonic, and also used to relieve bodily discomfort, (B). The roots are used as an ingredient in the formula F20 taken to relieve fever. The roots are also used to treat numbness; in this case, their stems are cut into 108 pieces of 2 cm long. All of these pieces are marked with special holy letters, accompanied by an incantation, and then boiled in water. Then this decoction is drunk daily; it is said to cure numbness. During the treatment period, the patients are prohibited from eating papaya fruit, seeds of *Archidendron jiringa* (Jack) I.C.Nielsen and not allowed to drink alcoholic beverage either, (B).

Material studied UBON 470, 973

Reference Ridl., Fl. Mal. Pen. 1 : 46. 1967

***Friesodielsia desmoides* (Craib) Steenis**

Figure 49 F

Vernacular Sao yud (สาวหยุด)

Climber; branchlets rusty-tomentose. **Stipules** absent. **Leaves** simple, alternate; petioles 5 – 8 mm long, tomentose; blades subcoriaceous, oblong-elliptic, 10 – 14 by 3 – 5 cm, apex shortly acuminate, base rounded, margins entire, glabrous above except on the midrib of both sides, glaucous pubescent beneath; nerves 9 – 12 pairs. **Flowers** bisexual, solitary, extra-axillary. **Sepals** 3, slightly connate at base, ovate, 8.5 by 6.0 mm, green, pubescent on both sides, veins distinct. **Petals** 6, in 2 whorls; outer ones thinly coriaceous, yellow, oblong-lanceolate, pubescent on both sides, 6 – 6.5 by 1.8 – 2 cm; inner ones thickly coriaceous, ovate, connivent, pubescent outside, 1.3 by 0.8 cm. **Stamens** many, linear-oblong. **Ovaries** superior, 10 – 11 carpels, free, oblong, strigose, 1-loculed; ovule 1 per locule; style oblong; stigma capitate. **Fruit** berry, ellipsoid, mucronate, pubescent, 1.2 – 1.5 by 0.7 – 0.8 cm, ripening red .

Locality Ban Ton Panun, Khuan Kalong District, Satun Province.

Ecology In lowland forest, edges of forest; altitude 80 m. Often cultivated as ornamental plant and for medicinal purposes. Flowering and fruiting throughout the year.

Uses Decoction of the whole plant is drunk frequently during the day as a blood circulation tonic and also for the treatment of fever associated with menstruation, (M).

Material studied UBON 485

Reference Sinclair, Gard. Bull. Sing. 14(2) : 450. 1955.

***Goniothalamus macrophyllus* (Blume) Hook. f. & Th.**

Figure 52 F

Vernacular Ching dok diao (ชิงดอกเดี่ยว)

Shrub, 1 – 2 m tall, bark and wood fragrant, young twigs glabrous. **Stipules** absent. **Leaves** simple, distichous; petioles stout, 1.5 – 2.5 cm long, glabrous; blades coriaceous, obovate-lanceolate, 30 – 40 cm by 8 – 9 cm, apex acuminate, margins entire, base acute, glabrous on both surfaces; nerves 16 – 20 pairs, prominent beneath. **Flowers** solitary, axillary or on the older branches, bisexual; pedicels short, bearing 2 minute bracts. **Sepals** 3, broadly ovate acute, connate at base, forming a short cup, 10 mm long, puberulous, green. **Petals** fleshy coriaceous, 6 in 2 whorls of 3, free, valvate; the outer ones glabrous, ovate-lanceolate, 2.5 – 4.0 by 1 – 1.5 cm long, yellowish-white, with a red spot at base inside; the inner ones shorter, half as long, and thicker, ovate acuminate, shortly clawed, hooded, yellowish-pink, densely plumose on the inner side. **Stamens** numerous, free, linear-oblong, connective apiculate with red spots. **Ovaries** superior, numerous, ellipsoid. Style linear, grooved on the anterior side. Stigma more or less funnel-shaped, two-lobed. **Fruits** fleshy, ellipsoid, bright red, glabrous. **Seeds** 1– 2.

Locality	Ban Ton Panun, Khuan Kalong District, Satun Province. Ban La Lo, Su-ngaipadee District, Narathiwat Province.
Distribution	Borneo, Java, Sumatra.
Ecology	Evergreen rain forest, humid shaded places; altitude 50 – 100 m. Flowering March – April; fruiting June – July.
Uses	The whole plant is used as an ingredient in the formula F1 taken orally as a blood circulation tonic, and for the treatment of bodily discomfort. A decoction of the whole plant of this species alone is also taken as a blood circulation tonic, and to normalize menstruation, (B). A decoction of the roots is given to mother to drink as a tonic for the treatment of post partum, (B, M). The crushed stems are soaked in water, and then this water is used as a mouthwash. A fresh stem is cut into pieces (6 – 10 cm long), then a tip of a piece is finely smashed and then used as a toothbrush, (M).

Material studied UBON 497

Reference Sinclair, Gard. Bull. Sing. 14(2) : 446. 1955.

***Melodorum siamensis* Scheff.**

Vernacular Nom maew (นมแมว)

Scandent shrub, much branched, up to 10 m long; young twigs densely pubescent. **Stipules** absent. **Leaves** simple, distichous; petioles 5 mm long, densely

pubescent; blades chartaceous, oblong-lanceolate, 8 – 18 by 3 – 5 cm, apex obtuse, margins entire, base rounded, glabrous and shining dark green above, paler and sparsely pubescent beneath; nerves 6 – 8 pairs. **Flower** solitary or 2 – 3 together, extra-axillary or opposite the leaves; pedicels 1.5 cm long, with a small bract. **Sepals** 3, broadly ovate, 5 by 9 mm, green, pubescent outside. **Petals** 6, in 2 rows, imbricate, thick, yellow, densely silky hairy on both surfaces; outer ones slightly larger than inner ones, broadly ovate, blunt, 1.5 by 1.5 cm; inner ones elliptic-ovate, with narrow claw, 12 by 8 mm. **Stamens** numerous, short. **Ovary** superior, few-carpelled, free, oblong, densely hairy, 1-loculed; ovules 6 – 10; stigmas sessile, conspicuous. **Fruit** berry, subglobose, 1 cm across, pubescent, shortly stipitate, radiating from a short woody stalk, ripening yellow, pulpy. **Seeds** 3 – 4, oblong, slightly flattened, 8 by 4.5 mm, shining black.

Locality	Found in every study sites.
Ecology	In damp slightly shaded places, forest edges; altitude 20–120 m. Flowering and fruiting throughout the year.
Uses	A handful of the leaves are cut at the tip and the base, mixed with a green fruit of <i>Musa</i> sp. which is cut into 3 pieces, then boiled in water, and then a decoction is taken to treat diarrhea, (M).
Material studied	UBON 1258
Reference	Ridl., Fl. Mal. Pen. 1: 89. 1967.

***Polyalthia bullata* King**

Figure 69 C

Vernacular Phalang changsarn (พลั่งข้างสาร), Tu ka a li (ตุกะอาลี)

Shrub, 2 – 3 m tall; young twigs covered with golden yellow hairs, Stipules absent. Leaves simple, distichous; petioles 3 – 5 mm long, stout; blades chartaceous, bullate, oblong-lanceolate, the sides nearly parallel, 20 – 35 by 4 – 7 cm, apex acuminate, margins entire, base deeply cordate and auricled, medium green and shining above, paler beneath, glabrous except the sunk midrib above, sparsely hirsute below on the midrib and the nerves; veins 20 – 25 pairs, sunken above, prominent beneath. Flowers solitary, terminal, opposite the leaves, pendulous; pedicels 1.5 cm long, slender, pubescent. Sepals 3, free, valvate, triangular, 5 by 4 mm, pubescent outside, spreading. Petals 6, free, valvate in two whorls, yellow, linear-oblong, apex subacute, 3 – 3.5 by 0.5 cm, subequal, slightly concave, sparsely pubescent on both sides. Stamens numerous, connective orbicular. Ovaries 5 – 7, superior, oblong, pubescent. Fruit a drupe, globose, pendulous, 7 – 8 mm diam. Seeds 2, plano-convex.

Locality Ban Ton Panun, Khuan Kalong District, Satun Province.

Distribution Malaysia.

Ecology	In tropical rain forest, slightly shaded places; altitude 90 m. Flowering and fruiting September – January.
Uses	A decoction of the whole plant is taken to treat bodily discomfort, (M).
Material studied	UBON 482
Reference	Sinclair, Gard. Bull. Sing. 14(2) : 300. 1955.

***Polyalthia suberosa* (Roxb.) Thwaites**

Vernacular Si nai (ซีไน)

Shrub, 2 – 5 m tall, young twigs sparsely pubescent. **Stipules** absent. **Leaves** simple, alternate; petioles 3 mm long, pubescent; blades coriaceous, elliptic-oblong or oblanceolate, 8.0 – 11.0 by 2.5 – 3.5 cm, apex acute, base cuneate, slightly oblique, margins entire, glabrous above except the pubescent midrib, sparsely pubescent beneath; nerves 8 – 10 pairs. **Flowers** solitary, bisexual, opposite the leaves; pedicels red, slender 1.8 – 2.0 cm long, with small bract at 5 mm from the base. **Sepals** 3, triangular, green, 2 by 3 mm. **Petals** 6, in 2 whorls; the inner ones ovate-lanceolate, 1.0 by 0.6 cm, yellow; the outer ones slightly smaller, yellow. **Stamens** numerous. **Ovary** superior, many, pubescent, 1-loculed; ovules 2. **Fruits** globose drupe, 8 mm diam, shortly stalked, green becoming red to dark violet. **Seed** 1.

Locality	Ban Ton Panun, Khuan Kalong District, Satun Province.
Ecology	Edges of the forest, roadsides, rather humid places; altitude 40 m. Flowering and fruiting throughout the year.
Uses	The ripe fruits are eaten fresh, (M). A decoction of the whole plant is taken of to relieve fever and it is also used as a bath for a mother after giving birth, (B).
Material studied	UBON 937
Reference	Sinclair, Gard. Bull. Sing. 14(2) : 288. 1955.

***Uvaria grandiflora* Roxb. ex Hornem**

Figure 77 E – F

Vernacular Kluai mu sang (กล้วยมูสัง), Pe sae ka yu (เป้แซกยู)

Woody climber, 6 – 15 m long; bark black; young parts stellate-pubescent. **Stipules** absent. **Leaves** simple, alternate; petioles 3 – 4 mm long, hairy; blades coriaceous, oblong-lanceolate or elliptic, 1–18 cm by 5 – 7 cm, apex acute, margins entire, slightly cordate-rounded base, upper surface glabrous, deep green, stellate-pubescent beneath; nerves 15 – 17 pairs. **Flowers** solitary, extra-axillary, bisexual, showy, 7 cm across; bracts 2, ovate, 10 by 7 mm, puberulous; peduncles 2 – 4 cm long. **Calyx** pale green, hairy, entirely closed before anthesis, afterward irregular 3-fided. **Petals** 6, free, in 2 whorls, imbricate, spreading flat, coriaceous, obovate-oblong, 4 by 2 cm, dark red, pale yellow at

base, densely short-hairy on both surfaces. **Stamens** numerous, 8 mm long, connective broad, appendages conspicuous. **Ovaries** numerous on depressed hemispheric torus, terete, 7 mm long, pubescent, 1-loculed with numerous marginal ovules; stigmas sessile with a waxy yellow gum. **Fruits** aggregate of berries, fleshy, numerous, stalked, terete, apex obtuse, 3 – 8 cm long, 2 – 2.5 cm diam., yellow, densely brown-hairy. **Seeds** 5 – 21, orbicular, flattened.

Locality	Ban Don Sai, Pa Pha Yom District, Phattalung Province.
Distribution	India, Sri Lanka, Burma, Indo-China, Philippines, Malay Islands, New Guinea.
Ecology	In tropical rain forest, edges of the forest; altitude 70 m. Flowering September – December; fruiting February – May.
Uses	The ripe fruits are eaten fresh, (B, M). A decoction of the whole plant is taken for the treatment of back pain, (M).
Material studied	UBON 969, BKF 132438
Reference	Sinclair, Gard. Bull. Sing. 14(2) : 204. 1955.

***Uvaria rufa* L.**

Vernacular Nom khwai (นมควาย)

Woody climber, up to 15 m long, stellately hairy. **Stipules** absent. **Leaves** simple, distichous; petioles 0.5 – 1 cm long, densely brown pubescent; blades coriaceous, elliptic-oblong, 6 – 15 by 2 – 5 cm, apex acuminate, margins entire, base obtuse; upper surface scabrid by minute stiff hairs; lower surface densely covered with soft stellate hairs; nerves 10 – 13 pairs. **Flowers** bisexual, opposite the leaves, 2 – 3 together; pedicels 4 mm long; bracts ovate, pubescent on both surfaces. **Sepals** 3, valvate, connate at base only, green, shortly pubescent on both surfaces. **Petals** 6, free, imbricate in 2 series, oval oblong, 8 – 10 by 6 – 7 mm, bright red turning dark red. **Stamens** numerous, the outer ones sterile, dorsally flattened, 2 mm long; the inner ones fertile, 3 mm long, connective broad. **Ovaries** 7 – 10, free, ovules c. 15 in each ovary; stigma sessile, capitate. **Fruit** aggregate of berries, ovoid-ellipsoid, 8 by 2.5 cm, fleshy, bright red, densely stellate-pubescent. **Seeds** many.

Locality	Found in every study sites.
Distribution	Tropical Asia
Ecology	Edges of the forest, evergreen forest; altitude near sea level to 110 m. Flowering April–June; Fruiting August– October.
Uses	The ripe fruits are eaten fresh, (B, M).

Material studied UBON 965

Reference Backer & Bakh. f., Fl. Java. 1 : 104. 1963.

Apocynaceae

Aganosma marginata (Roxb.) G. Don

Figure 20 B

Vernacular Dueai din (เดื่อขดดิน)

Climbing shrub, glabrous; young twigs brownish-red, with white latex. **Stipules** absent. **Leaves** simple, opposite; petioles 4 mm long, red; blades papery to sub-coriaceous, oblong or elliptic to sub-obovate, 4 – 8 by 2 – 3 cm, apex acuminate margins entire, base rounded or slightly cordate, glabrous on both surfaces, shining dark green above, paler beneath; nerves 8–18 pairs, intramarginal vein conspicuous, prominent beneath. Flower and fruit not found.

Locality Ban Hua Yang, Rattaphum District, Songkhla Province.

Distribution China, India, Bangladesh, Burma, Laos, Vietnam, Cambodia, Malaysia, Indonesia, Philippines.

Ecology In primary or secondary evergreen forest; altitude 70 m.

Uses The young leaves are cooked in Thai - style vegetable soup, or blanched and eaten as a side dish with rice, (B). The boiled leaves are eaten for the treatment of abscesses, (B).

Material studied BKF 091019

Reference Middleton, Fl. Thail. 7(1) : 106. 1999.

Alstonia macrophylla Wall. ex G. Don

Figure 22 D

Vernacular Thung fa (ทุ่งฟ้า)

Tree, up to 30 m tall; young branches sparsely pubescent, with white latex. **Stipules** absent. **Leaves** simple, in whorls of 3; petioles 2 – 3 cm long, pubescent; blades coriaceous, pubescent on lower surface and on midrib above, oblong-obovate, 20 – 25 by 7 – 10 cm, apex acuminate, base cuneate; nerves 22 – 25 pairs, widely spaced, ascending. **Inflorescence** terminal, umbel-like, 3 – 10 cm long, glabrous. **Flowers** bisexual, fragrant, 1.2 cm long, 1 cm across; pedicels 5 – 7 mm long. **Sepals** 5, free, ovate, 1 by 1 mm, apex rounded, edges ciliate. **Corolla** white, salver-shaped, tube 5 – 6 mm long, pubescent inside, 5-lobed; lobes overlapping to the right in bud, oblong, 7 by 3 mm, apex rounded, edges ciliate, base pubescent inside. **Stamens** 5, inserted in upper half of the corolla tube, free filaments very short. Disk

annular, short. **Ovary** of 2 carpels, glabrous, ovate, 1-loculed; ovules many; style including pistil head 3 mm long. **Fruit** a pair of follicles 30 cm long, 4 mm wide, glabrous. **Seeds** many, oblong, pointed at one end, with long cilia around margin.

Locality	Ban Khao Khram, Srinakharin Subdistrict, Phattalung Province.
Distribution	China, Vietnam, Cambodia, Malaysia, Philippines, Indonesia, New Guinea.
Ecology	In evergreen forest; altitude 90 m. Flowering September – October; fruiting November – May.
Uses	The branches and leaves are dried, grounded, and then used as an ingredient of the formula F6 taken as a tonic to increase potency, (B). The stems are chopped, dried in shade, and then used as an ingredient of the formula F1 taken as a blood circulation tonic, and to relieve bodily discomfort, (B).
Material studied	UBON 1195, BKF 70090
References	Ridl., Fl. Mal. Pen. 2 : 347. 1967 ; Whitmore, Tree Fl. Mal. 2 : 9. 1973 ; Middleton , Fl. Thail. 7(1) : 44. 1999.

***Alstonia scholaris* (L.) R.Br.**

Figure 22 E

Vernacular Tin pet (ตีนเป็ด), Pu le (ปู่เล)

Tree, 40 m tall, branches whorled, glabrous, with white latex. **Stipules** absent. **Leaves** simple, in whorls of 4 – 7; petioles 7–15 mm long; blades coriaceous, elliptic or spatulate, 9 – 25 by 4 – 7 cm, apex blunt, margins entire, base cuneate or decurrent, bright green above, paler beneath; nerves 20 – 40 pairs. **Inflorescences** terminal, panicle of umbel-like, 4 – 9 cm long. **Flowers** numerous, bisexual, white. **Calyx** tubular, 5-lobed; lobes ovate, unequal, short pubescent, ciliate. **Corolla** salver-shaped, tube 6 – 8 mm long, hairy inside, 5-lobed; lobes overlapping to the left in bud, broadly ovate, 6 by 5 mm, pubescent on both surfaces, edges undulate. **Stamens** 5, inserted in upper half of the corolla tube, included. **Ovary** of 2 carpels, superior, villous, ovules numerous in each carpel; style slender; stigma capitate. **Fruit** a pair of follicles, 25 – 50 by 3 mm, glabrous. **Seeds** many, oblong, 4 – 8 by 1.5 – 2 mm, with a tuft of hairs at each end.

Locality	Ban Huay Ngo, Khok Pho District, Pattani Province.
Distribution	From India, Sri-Lanka to S.China, SE.Asia, Malesia, Queensland, Bismarck Archipelago and the Solomon Islands.
Ecology	In evergreen forest, in scrub or on forest margins, especially in

Uses The latex is applied locally to the hollow of an aching tooth to soothe toothache, (M). A handful of the leaves together with a small amount of turmeric rhizome and rice grains are crushed, into which a little amount of water is added; a squeezed extract obtained is drunk once a day in the morning, for 3 days, to promote vagina contraction, (M). A decoction of stems and roots is taken 3 times a day, for 3 – 4 days, to treat influenza, (B).

Material studied UBON 1200, BKF 083622

Reference Middleton, Fl. Thail. 7(1) : 45. 1999.

***Alstonia spatulata* Blume**

Figure 23 A

Vernacular Thia (ເທື່ອຍ), Kabui (กะบือ)

Small tree, 5 – 10 m tall; branches whorled, glabrous, with white latex. **Stipules** absent. **Leaves** simple in whorls of 3 – 5; petioles 1 cm long with glands in the axils; blades coriaceous, spatulate, 5 – 10 by 2 – 4 cm, apex broadly rounded, margins entire, base decurrent, glabrous on both surfaces; nerves 20 – 30 pairs, close together, at right angle to the midrib. **Inflorescence** a terminal cyme or umbel-like, 5 – 8 cm long, lax, glabrous, few-flowered; pedicels 5 mm long. **Flowers** white, bisexual, fragrant, 2.5 cm long. **Sepals** 5, sub-orbicular, 1.5 mm long, glabrous, ciliate. **Corolla** salver-shaped, tube 5 mm long, dilate above, 5-lobed; lobes overlapping to the left in bud, oblong, 6 – 8 by 2.5 – 4 mm, apex rounded; glabrous outside, densely pubescent inside except at base of the tube. **Stamens** 5, included, inserted in upper half of the tube, free filaments very short. **Ovary** of 2 carpels, glabrous, ovate, 1 mm long; style and pistil head 5 – 6 mm long; ovules numerous. **Fruit** a pair of follicles, cylindric, 12 – 20 cm long, 3 mm wide, glabrous. **Seeds** many, oblong, ciliate with tuft of hairs at both end.

Locality Ban Lu Bo Sa Ma, Su-ngaikolok District, Narathiwat Province.

Distribution Vietnam, Cambodia, Malaysia, Indonesia.

Ecology Along the edges of peat swamp forest; altitude near sea level. Flowering April – June; fruiting July-August.

Uses The roots are used as an ingredient of the formula F4 taken as a blood circulation tonic, (M). Its very light wood is used for planks and making small objects such as knife handles. The local people use the wood to rub a knife just after it's being rubbed against stone in order to prevent rust forming on it, (M).

Material studied UBON 1013 , BKF 110901

References Ridl., Fl. Mal. Pen. 3 : 346. 1967 ; Whitmore, Tree Fl. Mal. 2 : 12. 1973 ; Middleton, Fl. Thail., 7(1) : 46. 1999.

***Alyxia reinwardtii* Blume**

Figure 23 B

Vernacular Nut (นุ้ถ)

Slender woody twiners, glabrous, laticiferous, with fragrant bark; young branches strongly 3-angled. **Stipules** absent. **Leaves** simple, in whorls of 3 – 4; petioles 4 – 5 mm long; blades thinly coriaceous, elliptic to obovate, 4 – 10 by 2.5 – 4 cm, apex acuminate to obtuse, base cuneate, glabrous, upper surface glossy; midrib slender; nerves 20 – 25 pairs, faint. **Inflorescence** axillary cyme, 1 – 3.5 cm long, peduncles 2 – 3 cm, pedicels 0.5 – 4 mm. **Flowers** bisexual, 8 – 9 mm long, 3 mm across at anthesis. **Sepals** 5, free, lanceolate, apex acuminate, 2 by 1 mm. **Corolla** white, salver-shaped, tube cylindrical, 6–7 mm long, widened and pubescent at the insertion of the stamens, 5-lobed; lobes overlapping to left in bud, ovate, 1–3 mm long, apex acute to rounded. **Stamens** 5, completely included, inserted above the middle of the corolla tube, filaments short. **Ovary** of 2 separate carpels united into a common style, pubescent at the base; style filiform 4 mm long; stigma capitate. **Fruit** a drupe, subglobose or ellipsoid, 7 by 6 mm, pulpy, purple black. **Seed** 1, ovoid, 6 by 3 mm.

Locality Ban Khao Phra, Rattaphum District, Songkhla Province.

Distribution Burma, China, Vietnam, Laos, Cambodia, Malaysia, W.Indonesia.

Ecology Primary or secondary evergreen, deciduous forest, or in thickets; altitude 110 m. Flowering and fruiting June – July.

Uses The aromatic wood was commonly used as a firewood in cremation in the past. A small piece of wood is sometimes used to perfume clothing in a wardrobe. The dried stems are pounded. The powder obtained is used as an ingredient in making talcum powder, (B).

Material studied UBON 1202, BKF 118129

Reference Middleton, Fl. Thail. 7(1) : 55. 1999.

***Parameria laevigata* (Juss.) Moldenke**

Vernacular Som yen (ส้มเย็น)

Climbers, with white latex; branchlets finely pubescent. **Stipules** absent. **Leaves** simple, opposite; petioles 2 – 3 mm long blades thinly coriaceous, glabrous, elliptic to ovate, 5 – 10 by 2 – 4 cm, apex acuminate, base cuneate, margins entire; nerves 3 – 5 pairs; densely hirsute in some of the underside nerve axils. **Inflorescences** terminal panicle and in upper leaf-axils, 2 – 5 cm long; rachis pubescent. **Flowers** small, white; pedicels pubescent, 2 – 4 mm long. **Calyx** deeply divided, 5-lobed; lobes ovate, 0.5 – 1.0 by 0.4 – 0.7 mm, puberulous. **Corolla** campanulate, tube 1.5 – 2.0 mm long, puberulous outside, glabrous inside, 5-lobed; lobes overlapping to the left in bud, 1.5 – 3.0 mm long. **Stamens** 5, inserted at the base of corolla-tube; anthers lanceolate,

sagittate, connivent and adhering to stigma. Disk of 5 separate lobes. **Ovaries** 2, free, short-hairy at the top, united into a common style; style short; stigma obconical. **Fruit** of paired follicles, pendulous, moniliform, 12.0 – 27.0 cm long, 0.4 – 0.7 cm wide, glabrous, dark brown. **Seeds** fusiform, light brown, pubescent, 6 – 7 by 2 mm, with an apical coma; coma white, 2 – 3 cm long .

Locality	Ban Hua Yang, Rattaphum District, Songkhla Province.
Distribution	China, Burma, Malaysia, Indonesia, Philippines, Cambodia, Vietnam.
Ecology	In evergreen forest or thicket; altitude 40 m. Flowering and fruiting January – March.
Uses	The climbing stems are usually used as cordage,(B).
Material studied	UBON 466, BKF 106080
Reference	Middleton , Fl. Thail. 7(1):150. 1999.

***Tabernaemontana peduncularis* Wall.**

Figure 65 A

Vernacular Ai saek (ไอ้แซก)

Shrub, 1 – 3 m tall, with white latex; branchlets slender, terete, glabrous. **Stipules** absent. **Leaves** simple, opposite; petioles 5 – 10 mm long; blades thickly membranous, glabrous on both surfaces, elliptic to obovate, 10 – 20 by 3 – 5 cm, apex acuminate or caudate, base cuneate, margins entire; nerves 12 – 13 pairs. **Inflorescences** terminal or axillary cyme, 7 – 17 cm long; branches wide spreading, many-flowered, lax. Peduncles slender 5 – 10 cm long. **Flowers** bisexual, white. **Sepals** 5, ovate acute, ciliate, 1.5 mm long. **Corolla** salver-shaped, tube 1–2 cm long, glabrous outside, pubescent inside around the insertion of the stamens; lobes 5, linear-oblong, 5 mm long. **Stamens** 5, inserted in the upper half of the corolla tube; filaments short. **Ovary** superior, of two free carpels united into a common style, 15 mm long; carpel 1-loculed; ovules few. **Fruit** of paired follicles, obliquely ellipsoid, 1.0 – 1.5 by 0.5 – 1.0 cm. **Seeds** 1 – 2, ellipsoid.

Locality	Ban Ton Sai, Srinakharin Subdistrict, Phattalung Province.
Distribution	Burma, Cambodia, Malay Peninsula.
Ecology	Cultivated for medicinal purpose; altitude 100 m. Flowering and fruiting throughout the year.
Uses	The roots and the whole plant of <i>Elephantopus scaber</i> L. in equal proportion are chopped, boiled in water. A decoction is drunk daily as a tonic, (B).

Material studied UBON 463, BKF 073904

Reference Middleton, Fl. Thail. 7(1) : 34. 1999.

***Urceola rosea* (Hook. & Arm.) D. J. Middleton**

Figure 77 D

Vernacular Som kiap (ส้มเกี๊ยะ)

Climber, branches terete, glabrous, laticiferous. **Stipules** absent. **Leaves** simple, opposite; petioles 1 – 2 cm long, with glands in leaf axils; blades sub-coriaceous, elliptic, 3 – 8 by 1.5 – 4 cm, apex acuminate, margins entire, base cuneate, with domatias in the axils of the nerves; nerves 4 – 6 pairs. **Inflorescences** terminal cymes forming a panicle, 10 – 17 cm long, many branches; rachis and branches pubescent; pedicels 4 mm long, finely pubescent. **Flowers** many, bisexual, pink. **Sepals** 5, ovate, 2 by 1 mm, pink, pubescent outside. **Corolla** urceolate, tube 2.5 mm long, 5-lobed; lobes overlapping to the right in bud, ovate, 3.5 by 2 mm, papillose outside, pubescent inside. **Stamens** 5, included, inserted near the base of the corolla tube; filaments short; anthers narrowly triangular, base sagittate, 2 mm long, yellow. Disk annular, as long as ovary. **Ovary** of 2 separate carpels united into a common style, pubescent on top, 1 mm long; ovules numerous; style and stigma 1.2 mm long. **Fruit** of paired follicles; follicles fusiform, divergent; 8 – 9 cm long, 7 – 8 mm diam. **Seeds** numerous, narrowly elliptic, flattened, 13 by 3 mm, brown with a terminal white coma 3 – 3.5 cm long.

Locality Ban Khao Khram, Srinakharin Subdistrict, Phattalung Province.

Distribution India, S.China, Vietnam, Cambodia, Laos, Malaysia, Indonesia.

Ecology In evergreen forest, by the streams; altitude 100 – 120 m. Flowering April – May ; fruiting July – August.

Uses The young leaves are cooked in various ways as a vegetable, (B, M). The climbing stems are used as cordage, (M).

Material studied UBON 989, BKF 130990

Reference Middleton, Fl. Thail. 7(1): 149. 1999.

***Willughbeia edulis* Roxb.**

Figure 78 D

Vernacular Khui (ขุ้ย)

Large woody climber, glabrous, laticiferous. **Stipules** absent. **Leaves** simple, opposite; petioles 1 – 2 cm long; blades thinly chartaceous to coriaceous elliptic, obovate, oblong, 8 – 13 by 3 – 4 cm, apex acuminate or obtuse, base cuneate, glabrous on both surfaces, shining dark green above, pale green beneath; nerves 10 – 20 pairs. **Inflorescences** axillary cymes, 2 cm long; peduncles and pedicels short, sparsely

pubescent; bracts triangular 1 mm long. **Flowers** bisexual, 1.3 cm long, 1.3 cm across. **Calyx** deeply divided, segments 5, ovate, apex rounded, glabrous, ciliate, 2 mm long. **Corolla** yellow, salver-shaped; tube 5 mm long, outside glabrous, inside pubescent around stamens; lobes 5, overlapping to the left in bud, oblong, ciliate, 8 by 2 mm. **Stamens** 5, inserted in corolla tube, at c. 3 mm from the base, completely included. **Ovary** superior, ovoid, glabrous, 0.8 mm long, 1-loculed; ovules numerous. **Fruit** berry, pear-shaped, 6 – 7 by 4 – 4.5 cm, ripening yellowish-orange, fleshy, glabrous. **Seeds** 10 – 12, sub-orbicular or ellipsoid, compressed, 9 – 10 by 6 – 8 mm, 5 – 6 mm thick, brown.

Locality	Ban Plak Plue, Mae Lan District, Pattani Province.
Distribution	Malay Peninsula, Java, Sumatra, Borneo.
Ecology	In evergreen forest; altitude 20 m. Flowering February – March; fruiting in April.
Uses	The ripe fruits are eaten fresh. The stem bark is rubbed against an earthenware pot, using the washing from uncooked rice as a solvent. The suspension obtained is applied over the cuts or affected areas for the treatment of wounds, herpes infection. The latex from the stem bark or from the young parts is used for the treatment of aphthous ulcer; it is applied to the affected areas 3 times a day, (B).
Material studied	UBON 997, BKF 128517
Reference	Middleton, Fl. Thail. 7(1): 19. 1999.

Apostaciaceae

Apostasia nuda R. Br.

Figure 26 E

Vernacular Lek nang yong (เหล็กนั่งยอง)

Erect rhizomatous herbs, entirely glabrous; aerial stems slender, 30 – 60 cm tall. **Leaves** simple, spirally arranged; blades linear-lanceolate, 17 – 20 by 0.5 – 1.5 cm apex acute, margins entire, base cuneate; nerves 10 – 20, 5 of which are more prominent beneath. **Inflorescence** a pendulous raceme, 6 – 10 cm long, with tuft of sterile bracts at the base; bracts narrowly triangular to lanceolate, acute. **Flowers** bisexual, slightly zygomorphic, white, 1.0 – 1.5 cm long, perianth recurved. **Sepals** 3, lanceolate, 3 – 4 by 0.5 – 1 mm. **Petals** 3, lanceolate, 3 – 4 by 0.5 mm. **Stamens** 2; filaments adnate to the style at the base; anthers oblong, clasping the style. Staminode absent. **Ovary** inferior, cylindrical, triangular in cross section, 3-loculed; ovules numerous.

Localities	Ban Ton Sai, Srinakharin Subdistrict, Phattalung Province.
Distribution	Burma, Cambodia, S.Vietnam, Malay Peninsula, Indonesia, Java and Borneo.

Ecology	Primary forest, hills and mountains, often cultivated for medicinal purposes; altitude 40 m. Flowering January – February; fruiting April – May.
Uses	The whole plant is used as an ingredient of the formula F3 and F7 taken as a tonic. The whole plant of this species alone can be used for this purpose as well, (B, M).
Material studied	UBON 334, BKF 109029
Reference	Larsen & De Vogel, Fl. Thail. 2 (2) :137. 1972.

Araceae

Alocasia denudata Engl.

Figure 21 B

Vernacular O nok (อ้อ นก), Kla di cha nae (กลาดิชาณะ)

Herb, up to 60 cm tall, with short erect stem, glabrous, tuber absent. **Leaves** simple, few on each plant; petioles slender, 50 – 60 cm long, mottled; blades herbaceous, hastate, 40 – 50 by 18 – 20 cm, dark green above, paler beneath, with pale green or white along the nerves, on lower surface light green; apex acuminate, margin slightly undulate, base 2-lobed; basal lobes basally connate, narrowly triangular, 15 by 5 cm, apex obtuse; above the base with 3 widely distant primary nerves. **Inflorescence** a spadix surrounded by a spathe; peduncle slender, 30 cm long, mottled. Spathe constricted, 10 – 13 cm long; base convolute, swollen, 2 – 3 cm long, constricted above; limb dilate, cymbiform, 8 – 10 cm long, greenish-white. Spadix slightly shorter than the spathe; appendage cylindric, 4 – 5 cm long, pale yellow. **Flowers** unisexual; perianth absent. Male flowers at upper portion; female flowers at lower portion; female portion cone-shaped, slightly shorter than the male one, 1 cm long; neuter portion slightly constricted, 0.5 cm long, between male and female ones. **Stamens** 4. **Ovary** subglobose, 1-loculed; ovules few. Stigma sessile, 3- to 4-horned, conspicuous. Fruit globose, 4 – 6 mm diam., bright orange. Seeds 1 – 3, black.

Localities Ban Ton Panun, Khuan Kalong District, Satun Province.
Ban Toh Wo, Su-ngaikolok District, Narathiwat Province.

Distribution Tropical Asia.

Ecology Common in secondary forest; rubber plantations; moist areas; at altitude near sea level to 80 m. Flowering and fruiting throughout the year.

Uses A juice from the crushed tubers or petioles is applied to a fresh circumsised cut 3 times a day for 3 days to accelerate wound healing, (M).

Material studied BKF 23458

Reference Ridl., Fl. Mal. Pen. 5 : 97. 1967 ; Henderson , Malayan Wild Flowers : Monocotyledon. 226. 1974.

***Alocasia macrorrhizos* (L.) G.Don**

Figure 21 C – E

Vernacular O khao (เอะขาว)

Herb, up to 2 m tall, with stout erect stems, tuber absent. **Leaves** simple, peltate, spirally arranged near the stem–apex, erect; petioles 60 cm long, green, glaucous. Blades herbaceous, ovate-triangular, 25 – 70 by 20 – 45 cm, apex acuminate, margins slightly undulate, base sagittate; basal lobes ovate, with rounded apex. **Inflorescence** a spadix at apex of leafy plant, surrounded by a spathe, few together; spathe constricted, 26 cm long; lower part 4 cm long, tubular, ellipsoid, pale green; upper part 22 cm long, expand, pale yellow. Spadix narrowly cylindrical, slightly shorter than the spathe, creamy white, with sterile appendage; appendage narrowly cylindrical, obtuse, 13 cm long, 2 cm wide. **Flowers** unisexual; the female ones at the lower part, the male ones above on the spadix, with a number of neuters between male and female parts. **Perianth** absent. **Stamens** 10, united into obpyramidal synandria; synandria with a flat, angular apex. **Ovary** superior, subglobose, white, 1-loculed, ovules many; stigma sessile, stellate, 3- to 4- lobed, orange.

Locality Ban Nai Wang, Kongra District, Phattalung Province.

Distribution Tropical Asia.

Ecology Cultivated; in moist places; altitude 110 m.

Uses The central part of the stem is used in cooking or boiled and eaten as substitute for taro, (M).

Material studied UBON 1049, BKF 128708

Reference Backer & Bakh.f., Fl. Java. 3 : 119. 1968.

***Amorphophallus paeoniifolius* (Dennst.) Nicolson**

Figure 24 D – E

Vernacular Buk khang khok (บุกคางคก)

Perennial herb with tuber; tuber depressed globose, up to 30 cm diam. or more, pinkish orange inside. **Leaf** solitary, at first erect, afterwards patent ; petiole solid, stout, 100 – 150 cm long, scabrid, green mottled. Blades suborbicular in outline, 100 – 150 cm across, tripartite; each segments divided into many oblong, oval or elliptical leaflets about 5 – 20 cm long. **Inflorescence** produced after fall of the leaf, spadix, solitary on subterraneous tuber, partly enveloped by a well-developed spathe; peduncle solid, smooth, up to 30 cm long. Spathe broadly campanulate, on one side free and with overlapping margins, 20 – 30 cm long, 30 cm across, with wavy drooping margin; the tube pinkish and greenish outside, purplish and papillose at the base inside; the upper part reddish-brown on both side. Spadix 30 cm long, with a large conic appendage; appendage blunt, deeply wrinkled, dark purple.

Flowers unisexual; perianth absent. **Male flowers** white, 5 mm long, at upper portion of the spadix; stamens 4. **Female flowers** at lower portion; ovary superior, depressed ovoid, 2 by 3 mm, dark purple, glabrous, 2-loculed; ovule 1 in each locule; style slender, 7 mm long; stigma large, bilobed, yellow. **Fruit** a berry, oblong, 1.5 cm long and 8 mm across, shining bright red. **Seeds** 2.

Locality	Ban Khao Khram, Srinakharin Subdistrict, Phattalung Province.
Distribution	Andaman, Sumatra, Java.
Ecology	In slightly shady places, secondary forest, edges of the forest in The lowland; altitude 100 m. Flowering April – May; fruiting during August – September.
Uses	The young leaves and the inner part of leaf stalks are used in a similar way as with <i>Amorphophallus prainii</i> Hook. f., (B).
Material studied	UBON 1207, BKF 35691
Reference	Backer & Bakh.f., Fl. Java. 3 : 111. 1968.

***Amorphophallus prainii* Hook.f.**

Figure 25 A – E

Vernacular Buk ngu lueam (บุกงูเห่ล้อม)

Perennial herb with tuber; tuber depressed globose, up to 15 cm across, pale orange inside. **Leaves** solitary, at first erect, afterwards patent; petioles solid, stout, 100 – 180 cm tall, green, smooth mottled. Blades light green, 100 – 120 cm across, tripartite; each of the 3 segments multifid, side-lobes oblong-lanceolate, 20 by 6 cm. **Inflorescence** a spadix, solitary on subterranean tuber, partly enveloped by a well-developed spathe, produced after the fall of the leaf. Peduncle solid, smooth mottled like the petiole, 10 – 20 cm long. Spathe broadly funnel-shaped, on one side free and with overlapping margins, 18 – 25 cm long, 15 – 20 cm across, yellowish-pink, deep maroon purple at the base, wavy and slightly spreading margin. Spadix 20 – 35 cm long, 4 – 8 cm diam., with a large conic appendage; appendage pale pinkish- yellow, with shallow groove, 10-15 cm long and 5 – 8 cm diam. **Flowers** unisexual; perianth absent. **Male flowers** at upper portion of the spadix; stamens 4. **Female flowers** at lower part; ovary superior, ovoid, 2-loculed; ovule 1 in each locule. Stigma subsessile, nearly as broad as the ovary, 2-lobed, yellow. **Fruit** berry, oblong, 1.5 cm long, bright red when ripe. **Seeds** 2.

Locality	Ban Khao Khram, Srinakharin Subdistrict, Phattalung Province.
Distribution	Sumatra.
Ecology	In evergreen forest, humid and slightly shady places; altitude 80 m. Flowering March – May; fruiting August – October.

Uses The young petioles are eaten after the outer surfaces are peeled off, cut into small pieces, soaked in salt water, and then boiled or cooked in curries, (B, M). Flowers are used for the treatment of aphthous ulcer; the spadix and benzoin are rubbed against an earthenware pot, then a mixture obtained is applied onto the affected areas 1 – 2 times a day, (M).

Material studied UBON 1209

Reference Ridl., Fl. Mal. Pen. 5 : 94. 1967.

***Cryptocoryne cordata* Griff.**

Figure 37 A

Vernacular Wa nam (วน้ำ), Chuap (ชูว)

Submerged herb, 20 – 25 cm tall, with short creeping rhizome. **Leaves** simple, few, rosulate; petioles 15 – 23 cm long, 4 mm diam., fleshy; blades herbaceous, ovate, 6–11 by 5–10 cm, apex blunt, margins entire or slightly undulate, base cordate, olive green above, dark purple beneath, glabrous on both surfaces; pinnately nerved; nerves 4–5 pairs. **Inflorescence** solitary, scape 2 – 3 cm long and hidden within leaf-sheaths; spathe tubular 15 cm long, pale violet; limb lanceolate, apex caudate acuminate, yellow, 5.0 by 1.3 cm. Spadix very short, 1 cm long, in the dilated base of the spathe. Male portion cylindrical, at the upper part of the spadix yellow, flowers numerous, perianth absent. Female portion at the base, flowers few in a single whorl, 4 mm long; perianth absent; ovary flask-shaped, 1-loculed; ovules numerous.

Locality Ban Cho Kot, Su-ngaipadee District, Narathiwat Province.

Distribution Malaysia, Java, Borneo.

Ecology Along streams in forests, peat swamp forest; altitude near sea level. Flowering during April – May.

Uses The young leaves are eaten raw as a vegetable; it is also said to decrease high blood pressure, (B).

Material studied UBON 358, BKF 089456

Reference Ridl., Fl. Mal. Pen. 5 : 86. 1967.

***Homalomena pendula* (Blume) Bakh.f.**

Vernacular Bon tao (บอนเต๋า)

Herb, 1 m tall; stem short, erect; tuber absent. **Leaves** simple, spirally arranged near stem apex; petioles 30–70 cm long, lower half widened into a firm sheath; blades herbaceous, broadly triangular or oblong-lanceolate, 25–36 by 20–27 cm, apex acuminate, margins entire, base cordate; basal lobes rounded at apex. **Inflorescence** spadix, surrounding by a spathe; peduncle 20–30 cm long, 5–6 mm diam; spathe ellipsoid, without constriction, 7 cm long, margins overlapping almost the whole length, apex pointed, greenish-white turning pinkish, persisting in fruit. Spadix cylindrical, slightly longer than the spathe, 7–7.5 cm long, many-flowered; **flowers** unisexual, perianth absent. Male flowers at the upper portion of the spadix, and the female ones at the lower. The upper portion cylindrical, tapering towards apex, 4 cm long. The lower portion cylindrical, 2–2.5 cm long. **Stamens** 2, connective very broad, irregularly 4–5 angular, concealing the anther-cells. **Ovary** ovoid, pale green, 2 by 1.5 mm, 3-loculed; ovules many; stigma sessile, discoid; staminode 1, club-shaped, 2 mm long.

Locality Ban Khao Khram, Srinakharin Subdistrict, Phattalung Province.

Ecology In lowland rain forest, secondary forest, watersides; altitude 80–120 m. Flowering and fruiting throughout the year.

Uses The young leaf stalks are cooked in curries, (B, M).

Material studied UBON 1392, BKF 104765

Reference Backer & Bakh. f., Fl. Java. 3 : 115. 1968.

***Homalomena* sp.**

Vernacular Bon som (บอนส้ม)

Herb, 30 cm tall, glabrous; stem short, erect, tuber absent. **Leaves** simple tufted at the base of plant; petioles slender, 20 cm long, green. Blades herbaceous, triangular, 15–17 by 8–10 cm, apex acuminate, margin entire, base truncate or slightly heart-shaped, pinnately nerved. **Inflorescence** a spadix surrounded by a spathe; spathe without constriction, 3.5 cm long, cuspidate, margins overlapping throughout the whole length, green. Spadix slightly shorter than the spathe, white, without appendage. **Flowers** unisexual; the male portion at the top of the spadix, 2.5 cm long; the female portion at the base, 0.8–1 cm long, with few abortive flowers between them; **perianth** absent. **Stamens** 2; anther-cells oblong, opening by slit. Female flowers mixed with clubbed staminodes. **Ovary** superior, ovoid, 3-loculed; ovules numerous; stigma sessile, discoid, creamy white. Fruit berry, white.

Locality Ban Khao Khram, Srinakharin Subdistrict, Phattalung Province.

Distribution	Borneo.
Ecology	In evergreen forest, secondary forest, humid and slightly shady places; altitude 80 m. Flowering and fruiting throughout the year.
Uses	The young leaf stalks are cooked in curries, (B, M).
Material studied	UBON 899
Reference	Henderson, Malayan Wild Flowers Monocotyledon, 230. 1974.

***Lasia spinosa* (L.) Thw.**

Vernacular Phak nam (ผักหนาม), Ka li (กาลี่)

Perennial herb, 50 –100 cm tall; stem erect, stout, green, prickly. **Leaves** simple, several, crowded at stem apex; petioles 20 – 45 cm long, prickly; blades herbaceous, sagittate-hastate in outline, pedately pinnatifid, 10 – 30 by 7 – 20 cm, smooth above, prickly on main nerves beneath. **Inflorescence** spadix, solitary in leaf-axils; peduncles 30 – 40 cm long, green, prickly. Spathe 10 – 25 cm long, constricted, purplish-brown, when still inrolled ovoid-caudate, twisted, intirely including the spadix, at last falling off. Spadix cylindrical, yellow, 3 – 5 cm long, without sterile appendage. **Flowers** bisexual, numerous; **tepals** 4, 1.5 – 2 mm long; **stamens** 4; **ovary** superior, 1-loculed; ovule 1 in each locule; style very short; stigma sub-orbicular.

Locality Ban Lu Bo Sa Ma, Su-ngaiklok District, Narathiwat Province.

Distribution India, China, Malaysia.

Ecology In marsh or swamp areas, riverbanks; altitude near sea level.

Uses The young leaves are eaten blanched or cooked as a vegetable, (B, M). Leaves are used as an anthelmintic in cattle: 5 leaves are boiled, to which a handful of sugar is added, and then fed to the cattle, (M).

Reference Backer & Bakh.f., Fl. Java. 3 : 111. 1968.

***Schismatoglottis calyptrata* (Roxb.) Z. & M.**

Figure 71 B

Vernacular Bon ya rat (บอนยารัด)

Herb, up to 1 m tall, short-stemmed; tuber absent. **Leaves** crowded; petioles slender, 45 – 50 cm long, 0.8 – 1 cm diam; petiolar sheaths 15 cm long, clasping each other; blades herbaceous, deeply green, ovate-lanceolate, 20 – 25 by 15 – 20 cm, apex acuminate, margins entire, base deeply cordate; basal lobes 3 – 4 cm long, 4 – 5 cm wide;

pinnately nerved, with numerous secondary nerves; intramarginal vein 1.5 – 2 mm from the leaf margin. **Inflorescence** a spadix surrounded by a spathe, several together; peduncles 13 – 15 cm long, 6 mm diam.; spathe greenish-white, partly expanded, constricted above the female part of the spadix, portion below the constriction persistent. Spadix white, elongate, 9 cm long, with club-shaped sterile appendage at top; the lowermost portion female, broadly cylindrical, 2.5 – 3 cm long; upper portion male, 2.5 cm long, falling off later than the upper part of the spathe. **Flowers** white, perianth absent; male flowers with 2 stamens, anther-cells dehiscent by terminal pore; female flowers with flask-shaped ovary; ovary 1-loculed; ovules numerous; stigma very small. Fruit berry, globose. Seed 1.

Locality	Ban Khao Khram, Srinakharin Subdistrict, Phattalung Province.
Distribution	Burma, Malay Peninsula.
Ecology	In evergreen rain forest, shady and humid places, along stream; altitude 110 m. Flowering and fruiting July – August.
Uses	The young leaf stalks are eaten cooked as a vegetable, (B).
Material studied	UBON 1364, BKF 084466
References	Backer & Bakh. f., Fl. Java. 3 : 116. 1968.

Araliaceae

Aralidium pinnatifidum (Jung & de Vriese) Miq.

Figure 26 F

Vernacular Khwan khao (ขวนข้าว)

Shrub or small tree up to 10 m tall, glabrous in its vegetative parts. **Stipules** absent. **Leaves** simple, alternate; petioles 10 – 12 cm long, broadly channelled above, clasping the stem with a slightly dilated base; blades fleshy coriaceous, drying chartaceous, upper surface dark shiny green, lower surface paler fleshy green, broadly obovate in outline, 25 – 40 by 17 – 25 cm, deeply pinnately lobed; lobes 5–7, subopposite, oblong or obovate, 11 – 20 by 4 – 6 cm, all lobe apices minutely acuminate. **Fruit** a drupe, ellipsoid or subglobose, 3 – 4 by 2.5 – 3 cm, pericarp fleshy, ripening purple-black, glabrous. **Seed** 1, broadly ellipsoid, 2.0 – 2.5 cm long, with the surface patterned with deep rumination.

Localities	Ban Khao Khram, Srinakharin Subdistrict, Phattalung Province.
Distribution	Malay Peninsula, Sumatra, Borneo.
Ecology	In evergreen primary rain forest, along stream; altitude 110 m. Fruiting in January.

Used The leaves are used by the local farmers in a ritual performed at the beginning of rice-harvesting season; they believe that it will bring a good luck in the harvesting, (B).

Material studied UBON 453, BKF 085368

Reference Philipson, Fl. Mal. Ser.1. 9(1) : 16. 1979.

***Polyscias cumingiana* (Presl) F.-Vill.**

Vernacular Lep khrut (เล็บครุฑ)

Shrub, 3 – 4 m tall, with few branches bearing spirally arranged leaves towards the ends, glabrous. **Stipules** absent. **Leaves** imparipinnate, 50 cm long; petioles 12 cm long, with sheathing base 3 cm long; leaflets 4 – 6 pairs, ovate-oblong or elliptic, 10 – 15 by 2 – 5 cm, apex acuminate, base rounded, truncate or broadly cuneate, often oblique, margins entire or minutely and distantly dentate (sometimes pinnatilobed or most pinnatipartite). **Inflorescence** a compound umbelliform, terminal or in axils of the upper leaves, 35 – 70 cm long, with verticillate, and often very long branches. **Flowers** 10 – 20 per umbellule; pedicels 8 – 10 mm long, articulate. **Calyx** cupular 2 mm long, 5-toothed. **Petals** 5, valvate, oblong-lanceolate, acute, 2.5 by 1.0 mm. **Stamens** 5, 2 mm long. **Ovary** inferior, 5-loculed; ovule 1 per locule; styles 5, free, at first erect then spreading, persistent. **Fruits** subglobose drupe, fleshy, dried deeply furrowed, 3 – 5 mm diam.

Locality Ban Ko Wiharn, Khok Pho District, Pattani Province.

Ecology Cultivated plant; in slightly shady places, humid places; altitude 40 m. Flowering and fruiting throughout the year.

Uses Stem is used for the treatment of snake (the Malayan pit viper) bites: it is cut into pieces of 10 cm long, and then rubbed against an earthenware pot, using the washing form uncooked rice as a solvent. The suspension is applied over the wound daily until cured, (B).

Material studied UBON 458

Reference Philipson, Fl. Mal. Ser.1. 9(1) : 76. 1979.

***Trevesia arborea* Merr.**

Figure 77 A – B

Vernacular Nam suaе (หนามเสือ)

Tree, up to 15 m tall; stem usually unbranched, trunk spiny. **Leaves** simple, spirally arranged, crowned at the top of stem; petioles terete, 50 cm, sparsely stellately hairy; blades large, sub-orbicular in outline, 30 – 35 cm by 35 – 40 cm, palmately 7- to 12-lobed; lobes ovate-oblong, 12 – 18 by 6 – 8 cm, apex acuminate, margins

serrate, narrowed at the base, stellately hairy on both surfaces. **Inflorescence** axillary, raceme of umbellules, at first reddish pubescent, glabrescent, with a few spines below; rachis stout 1 cm diam., 35 cm long, bearing branches along its length, and ending in an umbel. Umbellules of 20 – 30 flowers; pedicels 1 cm, reddish tomentose; basal bracts triangular, 5 mm long, with densely red stellate hairs. **Calyx** a small rim, lobes 6 – 7, minutely dentate, with densely stellate hairs outside. **Petals** 6 – 7, free, valvate in bud, triangular, with broad base, apex acute, 6 mm long, densely rusty pubescent outside, falling at anthesis as a calyptra. **Stamens** 6 – 7, surrounding the disk, incurved in bud, leaving on the disk depressions caused by the anthers; anthers large, ovoid, 3 mm long; filaments stout, strap-like. **Ovary** inferior, subglobose, 7- to 8-loculed, ovule 1 in each locule; style connate; stigma slightly swollen. **Fruit** not found.

Locality	Ban Khao Khram, Srinakharin Subdistrict, Phattalung Province.
Distribution	N.Sumatra.
Ecology	Scattered in primary rain forest, especially in humid and shady localities; in lowland tropical forest to montane forest; altitude 90 m. Flowering September – October.
Uses	The young inflorescences are eaten after steamed, (B). A glass of decoction of the roots is taken daily for the treatment of fever with yellow body, debility, (M). The whole plant is used as an ingredient in the formula F2 taken as a blood circulation tonic and also for the treatment of bodily discomfort, (B).
Material studied	UBON 460
Reference	Philipson in Fl. Mal. Ser. 1. 9(1) : 99. 1979.

Aristolochiaceae

Thottea tomentosa (Blume) Ding Hou

Figure 76 C

Vernacular Hu me (หุหมี่)

Perennial herb, woody at the base, erect, 30 cm tall, bearing 1 – 5 leaves at the apical part; branches rather slender, 5 mm diam., tomentose. **Stipules** absent. **Leaves** simple, alternate; petioles 0.5 – 1.0 cm long, grooved above, pubescent; blades chartaceous, ovate, broadly ovate, elliptic or broadly elliptic, glabrous above, densely tomentose beneath, 10 – 13 by 5 – 11 cm, apex acute to obtuse, margins entire, base rounded; nerves 7 – 8 pairs, venation closely reticulate, smooth above, prominent below. **Inflorescence** raceme, in the axils of not well-developed leaves, near the base of the stem, sometimes hidden under fallen leaves, 5 – 9 cm long; bracts lanceolate to linear, 3 – 5 by 0.5 – 1.5 mm, tomentose, many along the axis. **Flowers** bisexual, purplish-brown, with 0.5–0.8 cm long pedicel; flower buds distinctly triangular in top view; **perianth** urceolate-campanulate, 3-lobed; lobes triangular, valvate, patent; floral tube pubescent outside, glabrous inside, 3 – 5 mm long,

with thin disk adnate to the inner side. **Stamens** 6, adnate to the style column; filaments glabrous, 1 – 1.5 mm long. **Ovary** inferior, 4-loculed; ovules many in each locule; stigma 3-lobed, elongate, apical part hooked hairy. **Fruit** capsule, elongate, 4-angular and twisted, dehiscing apically towards the base, 3.5 – 4.5 by 0.3 – 0.4 cm, dark purple, glabrescent. **Seeds** many, broadly ovoid, 3-angular in cross-section, 3 by 2 mm.

Locality	Ban Khao Khram, Srinakharin Subdistrict, Phattalung Province.
Distribution	India, Bangladesh, Burma, Vietnam, Malesia.
Ecology	In evergreen forest, humid and shaded places; also in secondary forest, rubber plantations; altitude 100 m. Flowering and fruiting throughout the year.
Uses	The whole plant is used as an ingredient in the formula F2 taken as a blood circulation tonic, and also used to treat bodily discomfort. Sometimes, a decoction of the whole plant of this species alone is taken as a blood circulation tonic as well, (B, M).
Material studied	UBON 958
Reference	Phuphathanaphong , Fl. Thail. 5(1) : 26. 1987.

Asclepiadaceae

Hoya parasitica Wall.

Vernacular Ta ba (ตาบา)

Twining epiphytic herb; all parts with milky latex. Stem slender; **stipules** absent. **Leaves** simple, opposite; petioles 1–1.5 cm long, 3 mm diam; blades fleshy, ovate to elliptic, 9 – 15 by 4 – 7 cm, apex acute, margins entire, base cuneate, glabrous on both surfaces; nerves 3 from the base, conspicuous. **Inflorescences** umbel-like racemes, axillary; peduncles stout 5 cm long; pedicels slender 1.5 cm long. **Flowers** 30 – 40, bisexual, white, 1 cm across at anthesis. **Sepals** 5, small, 1.2 by 1.0 mm, pubescent outside. **Corolla** rotate, 5-lobed; lobes ovate, glabrous, with corona-scales 5; scales fleshy, white, pink at the centre, inserted on the staminal tube, horizontal. **Stamens** 5; pollinium single in each anther cell, erect, oblong, 0.5 mm long. **Ovaries** 2, superior; ovules numerous. **Fruit** follicle. **Seeds** many.

Locality	Ban Ro Tan Ba Tu, Muang District, Narathiwat Province.
Distribution	India.
Ecology	On trees in edges of forest; altitude near sea level. Flowering March – May .

Uses The leaves are used for the treatment of colic in young children; the leaves and pulps of *Garcinia atroviridis* Griff. ex T. Anderson are finely sliced, roasted until dry, and then pounded and mixed with coconut oil. The mixture obtained is applied over the abdomen, (M).

Material studied UBON 1403

Reference Ridl., Fl. Mal. Pen. 2 : 396. 1967.

Athyriaceae

Diplazium esculentum (Retz.) Sw.

Vernacular Phak kut (ผักกูด)

Terrestrial fern, 50 – 100 cm tall; rhizome erect, scaly; scales dark brown, 10 by 1 mm, edges finely toothed. **Stipes** up to 50 cm long, smooth, glabrescent. **Fronde**s bipinnate, large, often 1 m long or more. Pinnae up to 40 cm long and 25 cm wide at the base, rather abruptly narrowly towards acute apex, bearing numerous pinnules; pinnules thin chartaceous, varying much in size, the lowest largest, 12 by 2.5 cm, linear-triangular, apex acuminate, margins crenate or lobed, base truncate or broadly cuneate, subsessile, glabrous; veins pinnate, with 8 – 10 pairs of side veins. **Sori** elongate on nearly the whole length of veinlets, indusiate.

Locality Ban Nai Wang, Kongra District, Phattalung Province.
Ban Khao Khram, Srinakharin Subdistrict, Phattalung Province.

Distribution Tropical Asia, north to central China and S. Japan, east to S. Pacific Islands.

Ecology Usually on moist ground, in paddy field, along stream in open places; altitude near sea level to 100 m.

Uses The young leaves are eaten as a vegetable after blanched or cooked, (B, M).

Reference Tagawa & Iwatsuki, Fl. Thail. 3(3) : 466. 1988.

Balsaminaceae

Impatiens mirabilis Hook.f.

Figure 56 D – E

Vernacular Wan din yen (ว่านดินเย็น)

Succulent herbs, 100 – 150 cm tall; stems large and swollen at the base, hardly branched, glabrous. **Stipules** absent. **Leaves** simple, spirally arranged at the apex of branches only; petioles 15 – 20 cm long, 1 cm diam. at the base; blades

herbaceous, ovate or obovate, 20 – 25 by 4 – 6 cm, apex acute, margins serrate, base narrowed, glabrous; nerves 5 – 6 pairs. **Inflorescence** terminal raceme, up to 30 cm long, with few flowers at the top, opening singly. **Flowers** bisexual, irregular, 4 cm long, pale pink with yellow marking. **Sepals** 5, posterior ones a large petaloid spurred; spur incurved. **Petals** 3, the upper one free, the other ones pairwise connate. **Stamens** 5, filaments short thick, anthers cohering. **Ovary** superior, oblong, 4- to 5-loculed; ovules many; stigma sessile, minute. **Fruits** loculicidal capsule, ellipsoid, 2 cm long, 0.5 cm wide, dehiscing elastically into 4 – 5 valves .

Locality	Ban Ton Sai, Srinakharin Subdistrict, Phattalung Province.
Distribution	Malaysia.
Ecology	On limestone cliffs, open places; altitude 80 m. Flowering and fruiting throughout the year. Often cultivated as ornamental plant and for medicinal purposes.
Uses	The stems and leaves are used to treat centipede bites; they are crushed and then used as a poultice applied to the bites until the poultice become dry, and then change for the new one, (B).
Material studied	UBON 452
Reference	Ridl., Fl. Mal. Pen. 1 : 337. 1967.

Bignoniaceae

Dolichandrone columnaris Santisuk

Figure 41 A

Vernacular Khae na (แคณา)

Evergreen tree, 15 – 30 m tall, glabrous; crown cylindrical, narrow. **Stipules** absent. **Leaves** imparipinnate, spirally arranged, 10 – 30 cm long, 2 – 4 jugate, leaflets opposite; petioles 3 – 6 cm long; petiolules 1.0 – 2.5 cm; blades chartaceous, elliptic, ovate, 3 – 13 by 1 – 5 cm, apex acuminate, margins entire, base oblique, under surface with few hairy domatias at nerves axils, upper surface with scattered peltate scales; nerves 6 – 7 pairs. **Inflorescence** a terminal raceme, few-flowered; peduncles very short. **Flowers** bisexual on slender pedicels, pendulous; pedicels 2 – 3 cm long. **Calyx** closed in bud, later spathaceous, caducous, 4.0 – 5.0 by 1.0 – 1.8 cm. **Corolla** white, funnel-shaped, tube 12 – 14 cm long, basal part long and narrow cylindrical; upper part campanulate with 5 crisped lobes; lobes irregularly, suborbicular, 2 by 3 cm. **Stamens** 4, didynamous, inserted in throat, not exerted. **Ovary** superior, 2-loculed, ovules numerous; styles 10 cm long; stigma terminal, bi-lobed. **Fruits** capsule, linear compressed, 26 – 60 by 1.5 – 2 cm, twisted, with tapering end. **Seeds** many, sub-orbicular, 2.5 – 3.0 by 0.5 – 0.8 cm, thin, with hyaline-membranous winged.

Localities Ban Hua Pa Khiao, Khuan Khanun District, Phattalung Province.
Distribution Cambodia, S.Vietnam, N.Malaysia.

- Ecology In open places, along roadsides, near rice field; altitude near sea level. Flowering January – February; fruiting March – May.
- Uses The light weight wood is used in making furniture, small implements, planks, toys, etc., (B, M).
- Material studied UBON 447
- Reference Santisuk, Fl. Thail. 5(1):54. 1987.

***Oroxylum indicum* (L.) Kurz**

Vernacular Phe ka (เพกา), Be ka (เบกา)

Tree, 6 – 20 m tall, glabrous, hardly branched; twig thick. **Stipules** absent. **Leaves** tufted at twig-ends, 3-pinnate, decussate, 150 cm long and wide; petioles 60 – 170 cm. Leaflets numerous, elliptic or ovate to oblong, 4 – 11 by 3 – 9 cm, apex acuminate, margins entire, base unequal except the terminal ones cuneate; with scattered glands near the nerve axils underneath. **Inflorescence** terminal raceme, erect, stout, 30 – 150 cm long. **Flowers** bisexual, large; pedicels 2 – 4 cm long, with a few bracteoles in lower part. **Calyx** campanulate, truncate, coriaceous, 2 – 2.5 cm long. **Corolla** funnel-shaped, 7 – 8 cm long, 4 cm wide, thickly coriaceous, tube widely ventricose, 5-lobed; lobes wrinkled, undulate-crenate, dull brownish-pink outside, creamy inside. **Stamens** 5, subequal, inserted near the base of corolla tube, villous at the insertion. **Ovary** superior, 2-loculed; ovules numerous; style filiform, violet; stigma 2-lobed. **Fruit** capsule, sword-shaped, pendent, 40 – 120 by 5 – 9 cm, woody. **Seeds** numerous, sub-rectangular, thin, papery, with broadly hyaline-winged, 7 by 4 cm.

- Locality Ban Toh Wo, Su-ngaikolok District, Narathiwat Province.
- Distribution India, Sri Lanka, Burma, S.China, Indo-China, Malesia, Philippines, Celebes and Timor.

Ecology Along the edges of evergreen forest, by rivers and in lowland swampy; altitude near sea level. Flowering and fruiting April – December.

Uses The young fruits or pods are eaten after boiling or roasting, (B, M). Stem bark is widely used as traditional medicine; the stem bark and benzoin are rubbed against an earthenware pot, and then a mixture obtained is used for the treatment of burns by applying it as a poultice onto the affected areas, (M). The stem bark of this species combined with those of *Mangifera indica* L. are pounded, into which a small amount of lime juice pepper seeds and water are added, and then boiled. Then a mixture is pasted on abdomen of a woman after giving birth, and it is kept in place by a cloth wrapped around the abdomen. It is said to firm and to regain a youthful body, (M). The stem

bark is also used for the treatment of scald; it is rubbed against an earthenware pot, to which a little amount of water and lime juice are added. Then a mixture obtained is applied onto the affected areas, (B). The roots of this plant species and those of *Metroxylon sagu* Rottb., and garlic bulbs are boiled in water. Then a decoction is taken daily for the treatment of diabetes, (M).

Reference Santisuk, Fl. Thail. 5(1) : 36. 1987.

Capparaceae

Cleome viscosa L.

Vernacular Phak sian phi (ผักเสี้ยนผี)

Erect annual herb, up to 1 m tall; stem and branches terete, straight, densely brownish glandular, pubescent and viscid throughout. **Stipules** absent. **Leaves** palmately compound, spirally arranged; petioles 2 – 6 cm long; leaflets 3 – 5, subsessile, thinly chartaceous, obovate to elliptic, 1.5 – 4.5 by 1–1.5 cm, the terminal one largest, apex acute or obtuse, margins entire, base cuneate; nerves 5–6 pairs. **Inflorescence** raceme, terminal, 8 – 20 cm long. **Flowers** bisexual, slightly zygomorphic, yellow; pedicels 9 – 14 mm long. **Sepals** 4, free, subequally oblanceolate, glabrous inside, 6 – 7 by 1 – 2 mm. **Petals** 4, free, oblanceolate, apex rounded, glabrous, 7 – 10 by 3 – 5 mm. **Stamens** 16, free, unequal; filaments slender, 5 – 7 mm long; anthers linear, blackish–olive. **Ovary** superior, cylindrical; densely covered with minute, capitate hairs, 1 mm long, 1-loculed; ovules numerous; style short, glabrous; stigma capitate. **Fruit** capsule, cylindrical, 5 – 6 by 0.4 – 0.5 cm, tapering at both ends, ripening light brown. **Seeds** numerous, orbicular, flattened, dark brown, small.

Locality Found in every study sites.

Distribution Tropical Africa, Asia and Australia.

Ecology Common weed along edges of fields, in sunny places. Flowering and fruiting throughout the year.

Uses A decoction of the whole plant is taken for the treatment of epilepsy, (M). The whole plant is dried, pounded, and then mixed with honey and made into pills, and a pill is ingested daily to treat numbness, (B). The whole plant combined with *Heliotropium indicum* L. are chopped, boiled in water; then a decoction is taken to relieve flatulence, (B). The whole plant is also used as an ingredient in the formula F1 taken as a blood circulation tonic and to relieve bodily discomfort, (B).

Material studied UBON 1123

Reference Chayamarit, Fl. Thail. 5(3) : 265. 1991.

***Crateva magna* (Lour.) DC.**

Figure 35 A

Vernacular Kum (กุ่ม)

Small tree, 4–15 m tall. **Stipules** absent. **Leaves** 3-foliolate, alternate; petioles 5–15 cm long, glabrous. Leaflets shortly stalked, subcoriaceous, the terminal ones largest, the lateral ones oblique, elliptic or lanceolate, 10–22 by 4–6 cm, apex gradually acuminate with acute tip, base acute to cuneate; nerves 10–20 pairs, prominent beneath, reticulation conspicuous. **Inflorescence** terminal, raceme, 10–15 cm long. **Flowers** large and showy, to 5 cm across; pedicels 4–5 cm. **Sepals** 4, free, green, ovate acute, 4 by 2 mm. **Petals** 4, free, white turning yellow, elliptic-ovate, 3 by 1.7 cm, with stalked 1 cm long. **Stamens** numerous, purple, thread-like, 5–6 cm. Gynophore 6–8 cm long. **Ovary** superior, cylindric, 5–6 by 2 mm, green, 1-loculed, placenta 2; ovules numerous; stigma sessile, knob-like. **Fruit** berry, subglobose, 4 cm across. **Seed** numerous, horseshoe-shaped, 6–10 mm diam., dark brown.

Locality	Ban Khao Khram, Srinakharin Subdistrict, Phattalung Province.
Distribution	India, S.China, Burma, Indo-China, Malesia.
Ecology	Common along river, in evergreen forest; altitude 80 m. Flowering August – September; fruiting December – February.
Uses	The young leaves are eaten pickled as a vegetable, (B).
Material studied	UBON 1224
Reference	Whitmore, Tree Fl. Mal. 2 : 26. 1973 ; Chayamarit, Fl. Thail. 5(3) : 268. 1991.

Celastraceae***Salacia macrophylla* Blume**

Figure 70 E – G

Vernacular Khop nang (ขอปนาง)

Scandent shrub, 3–8 m long, glabrous. **Stipules** absent. **Leaves** simple, opposite; petioles 8 mm long; blades subcoriaceous, elliptic, oblong-lanceolate, 15–18 by 4.5–5.5 cm, apex caudate sub-acute, base cuneate, margins quite entire; nerves 7–8 pairs. **Flowers** in fascicle of 2–6, axillary, orange, 6 mm across. Pedicels 3 mm long. **Calyx** deeply 5-lobed; lobes triangular, 1 mm long, acute. **Petals** 5, free, ovate, 4 by 2 mm, orange. Disk channel-shaped, yellowish-orange. **Stamens** 3, filaments flat triangular, 1 mm long, entirely cover the ovary when young. **Ovary** superior, 3-loculed, ovules 4 in each locule. **Fruits** globose drupe, 3–5 cm diam., thick-walled, smooth, ripening bright orange. **Seeds** 3 or more, ellipsoid, 2 by 1 cm, covered with sweet pulp.

Locality Ban Pa Ye, Su-ngai-padee District, Narathiwat Province.

Distribution	India, Burma, Indo-China, Malay Peninsula, Sumatra.
Ecology	Scattered in lowland evergreen forest, on limestone rock, peat swamp forest; altitude 20 m. Flowering February – March; fruiting April – June.
Uses	The ripe fruits are eaten fresh, (B, M). Alcoholic maceration or a decoction of the roots is taken for the treatment of diabetes and for the treatment of bodily discomfort as well, (B, M).
Material studied	UBON 443
Reference	Hou , Fl. Mal. Ser.1. 6(3) : 412. 1964.

Combretaceae

Terminalia calamansanai (Blanco) Rolfe

Figure 76 A

Vernacular Chod (ชอด)

Deciduous tree, 30 m tall; young branchlets pubescent. **Stipules** absent. **Leaves** simple, spirally arranged, usually crowded towards the ends of the twigs; petioles 2 – 3 cm long, sparsely pubescent, with 2 lateral glands above the middle; blades chartaceous, narrowly obovate to elliptic, 7.0 – 15.0 by 3.5 – 5.5 cm, apex short cuspidate, margins entire, base narrowly wedge-shaped, glabrous on both surfaces; nerves 5 – 7 pairs. **Inflorescence** axillary spike, 6 – 15 cm long; rachis tomentose. **Flowers** bisexual, greenish-yellow, sessile, 3 mm across. **Calyx** campanulate, tube 1 mm long, 5-lobed; lobes triangular, 1 by 1 mm, tomentose on both sides. **Petal** absent. **Stamens** 10, 2.5 mm long, exserted. Disk hairy. **Ovary** inferior, 1-loculed; ovules 2 per locule; style simple, as long as the stamens. **Fruit** drupe, ellipsoid, with two broad wings, 1.0 – 2.5 by 2.0 – 5.0 cm. **Seed** 1.

Locality	Ban Nai Wang, Kongra District, Phattalung Province.
Distribution	Burma, Indo-China, Malay Peninsula, Philippines, New Guinea.
Ecology	In lowland forest, roadsides, rice field, on limestone cliffs; altitude 80 m. Flowering August – December; fruiting December – April.
Uses	The bark is soaked in water, and then this water is used as an antidiarrheic fed to poultry, (B). A juice from the crushed leaves is fed to poultry with cold, (M). The wood is used in house building, (B).
Material studied	UBON 646, BKF 115165
Reference	Exell , Fl. Mal. Ser.1. 4(4) : 556. 1954.

Compositae

Ageratum conyzoides L.

Figure 20 C

Vernacular Sap raeng sap ka (สาบแร้งสาบกา), Bue da (บือคะ)

Erect annual herb, 30 – 50 cm tall, stem terete, younger part tomentose. **Stipules** absent. **Leaves** simple, opposite below, alternate above; petioles 1 – 3 cm long; blades herbaceous, triangular-ovate, 2 – 5 by 2 – 4 cm, apex acute or obtuse, margins serrate-crenate, base rounded or acute or subcordate, pubescent on both sides; nerves 2 – 3 pairs. **Inflorescence** a terminal head, violet or white, several together on long or short stalk. Heads homogamous, 6 by 4 mm; involucre cupular, bracts 3-seriate, lanceolate, acute, green. **Flowers** bisexual, not or scarcely exerted from the involucre. **Corolla** campanulate, 2 mm long, 5-lobed; lobes short triangular, violet or white. Pappus 5, lanceolate, awn-tipped scales, with serrate margins, white, slightly longer than the corolla. **Stamens** 5; anthers with obtuse base and subacute apex. **Ovary** inferior, 1-loculed, ovule 1. Style bifid, arms long, filiform, far exerted, concolourous with the corolla, giving the colour of the flower-head. **Fruit** an achene, black, 5-angled, 1.5 – 2.0 mm long.

Locality Ban To Wo, Su-ngaikolok District, Narathiwat Province.

Distribution Pantropical.

Ecology Common in waste places, agricultural field, roadsides; altitude near sea level. Flowering and fruiting throughout the year.

Uses The crushed leaves are mixed with lime juice, and then applied externally to the neck of babies to relieve cough, (B). They are also used as a poultice applied onto the wound to stop bleeding and to accelerate wound healing, (M).

Material studied UBON 638, BKF 61844

Reference Ridl., Fl. Mal. Pen. 2 : 182. 1967.

Blumea balsamifera (L.) DC.

Figure 30 A

Vernacular Nat (หนาด)

Shrub, 1–3 m tall, tomentose, smelling strongly of camphore when bruised. **Stipule** absent. **Leaves** simple, alternate; petioles 3 – 4 cm long, with 1–3 pairs of patent appendages; blades membranous, lanceolate to elliptic, 10 – 30 by 5 – 10 cm, apex acute, margins serrate, base narrow, lower surface densely coated with a shining velutinous-felty indumentum; nerves 16 – 18 pairs. **Inflorescence** terminal panicle, composing of numerous pedunculate heads; heads 6 mm.diam., with peduncle 7 – 10 mm long, yellow, heterogamous; branches of the panicle densely felty; involucral bracts linear acuminate, tomentose. **Ray flowers** female, numerous, in several rows; corolla tubular, slender, shortly 3-lobed; pappus red. **Disk flowers** 8 – 25, bisexual;

corolla funnel-shaped, 5-lobed; lobes acute; **stamens** 5, anthers exerted; ovary inferior, 1-loculed, 1-ovuled; style filiform, bifid. **Fruit** achene, 1 mm long.

- Locality Ban Hua Yang, Rattaphum District, Songkhla Province.
- Distribution India, Burma, S. China, Taiwan, Malaysia, Indonesia, Philippines.
- Ecology In open places, roadsides, agricultural field; often cultivated for medicinal purposes; altitude 20 m. Flowering and fruiting September – October .
- Uses A leaf is eaten raw as a remedy to cure diarrhea. The leaves are also used to treat a swelling; in this case, the leaves are laid on a board which used as bed for a patient with a swelling to lay down, and a fire is made under the board. The leaves are also used to get rid of helminthes in cattle; in this case, they are combined with those of *Plumbago indica* L., pickled with salt water, and then fed to the cattle with helminthes, (B).
- Material studied UBON 1043, BKF 136632
- Reference Backer & Bakh. f., Fl. Java. 2 : 387. 1965.

***Chromolaena odoratum* (L.) R.M. King & H. Rob.**

Vernacular Sap suea (สามเสือ), Sub ruk (สี่บุรุษ)

Annual herb, erect, 1.5 m tall; young parts densely pubescent, older ones glabrescent. **Stipules** absent. **Leaves** simple, opposite; petioles 0.5 – 1.5 cm long, pubescent; blades thinly herbaceous, ovate, 5 –11 by 2 – 6 cm, apex acute, margins coarsely serrate-dentate, base cuneate or rounded, sparsely pubescent on both surfaces; venation pinnate, tri-plinerved near the base; midrib distinct. **Inflorescence** terminal, small head, combined into paniculiform corymbs; heads homogamous, 7–8 by 3 – 4 mm; pedicels 6 – 8 mm long. Involucral bracts many, in 3 whorls, linear-lanceolate, pale green, sparsely pubescent. **Flowers** numerous in each head, bisexual; corolla white to light violet, glabrous, funnel-shaped, 5-lobed; lobes triangular; pappus a single whorl of rigid, erect hairs; stamens 5, included; anthers connate; stigmas 2, slender, far exerted, 5 mm long, white; ovary inferior, 1-loculed, 1-ovuled. **Fruit** an achene, linear, flattened, 3 mm long.

- Locality Found in every study sites.
- Distribution Tropical America, India, Java.
- Ecology Common in open places, waste places, dry rice-field, roadsides; altitude 20 – 350 m. Flowering November – January; fruiting December – February.

Uses The young leaves are eaten raw daily for the treatment of Pneumonosis, (M). The crushed leaves are applied as a poultice onto the fresh wounds to stop bleeding and to accelerate the wound healing, (B, M). The young leaves are finely crushed, mixed with a little amount of lime juice. Then a squeezed juice is applied to an umbilicus of a new born baby to speed the drying and removing of its umbilical cord, (M). Water extract of the leaves is used to repel insects in the agricultural field, (M).

Material studied UBON 1393, BKF 075213

Reference Backer & Bakh.f., Fl. Java. 2 : 379. 1965.

***Crassocephalum crepidioides* (Benth.) S.Moore**

Figure 34 F

Vernacular Ya hua ngok (หญ้าหัวหงอก)

Erect, annual herb, up to 1 m tall. Stems slightly succulent, terete, light green; young parts pubescent. **Stipules** absent. **Leaves** simple, spirally arranged; petioles to 2 cm long, finely pubescent; blades thin, herbaceous, elliptic or obovate, 6 – 15 by 2 – 6 cm, apex acute to acuminate, margins irregularly serrate to pinnatifid, base cuneate and decurrent, finely and sparsely pubescent on both surfaces; nerves 5 – 7 pairs. **Inflorescence** terminal, compactly cymose, 3–5 cm long, consisting of several heads; head 13 – 16 by 5 – 6 mm, homogamous, during anthesis nodding, afterward erect. Peduncles and rachis finely pubescent. Outer involucre bracts linear, sparsely ciliate, light green; inner ones connate into a cylindrical tube, green with dark brown pubescent, tips free, acute. **Flowers** numerous, bisexual. **Corolla** tubular; tube 11 – 12 mm long, 5-lobed; lobes triangular, reddish-brown. Pappus 9–12, hair-like, white, soft and erect. **Stamens** 5, included in the corolla tube; anthers connate, violet; filaments free, shorter than the anthers. **Ovary** inferior, 1-loculed; ovule 1; style slender; stigmas 2, divergent, violet. **Fruit** achene, cylindric-linear, 2 mm long.

Locality Found in every study sites.

Distribution Pantropical.

Ecology In evergreen forest, forest edges, river and roadsides, waste places, open places; altitude 20 – 100 m. Flowering and fruiting September – March .

Uses The young leaves are eaten raw or blanched as a vegetable, (B)

Material studied UBON 640, BKF 41608

Reference Backer & Bakh.f., Fl. Java 2 : 426. 1965.

***Eclipta prostrata* (L.) L.**

Vernacular Ka meng (กะเม็ง), Mong meng (มงเม็ง)

Annual herb, erect-ascending, up to 50 cm tall, glabrescent, usually much branched and rooting from the lower nodes. **Stipules** absent. **Leaves** simple, opposite; petioles very short; blades subcoriaceous, lanceolate, 3 – 5 by 1.5 – 2.5 cm, apex obtuse, margins shallowly and irregularly serrate, base narrowed, strigose to hispid on both surfaces; nerves 3 pairs. **Inflorescence** a head 10 mm diam., solitary or two or three together in the upper leaf-axils, heterogamous; peduncle 3 cm long, slender. Involucral bracts several, in 2 whorls, free, oblong, apex acute, sparsely strigose, green, 4 – 6 by 2 – 3 mm. **Flowers** numerous, white. Ray flowers many, 1-seriate, female; corolla ligulate, tube short, limb linear with 2 obtuse apical teeth c. 2 mm long; pappus minute, bristly rim; ovary inferior, 1-loculed, 1-ovuled, stigmas 2, spreading, short, yellow. Disk flowers numerous, bisexual; corolla campanulate, tube 1.5 mm long, 4-lobed; lobes triangular acute, 0.5 mm long; pappus minute; **stamens** 4, minute; anthers connate; pistil as in the ray flowers. **Fruit** an achene, oblong-turbinate, laterally compressed, apex truncate, black.

Locality Ban Hua Yang, Rattaphum District, Songkhla Province.

Distribution Tropics and subtropics.

Ecology In open waste places, wet places and swamp areas; altitude 20 m.

Uses A decoction of the whole plant is taken for the treatment of bodily discomfort, numbness, and also taken as an antidiarrheic, (B).

Material studied UBON 1343, BKF 076369

Reference Backer & Bakh.f., Fl. Java. 2 : 402. 1965.

***Elephantopus scaber* L.**

Vernacular Do mai ru lom (ไต่ไม่รู้ลืม), Phang krap (พังกราบ)

Perennial herb, erect, up to 30 cm tall, pubescent. **Stipules** absent. **Leaves** simple; basal leaves in radically rosette; cauline leaves spirally arranged; petioles very short; blades thinly coriaceous, oblong-ovate, narrowed to base, 5 – 18 by 2–5 cm, apex obtuse, margins serrate, pubescent on both surfaces. **Inflorescence** terminal head, sessile, gathered into larger ones, homogamous with leaf-like bracts round them; bracts 3, broadly ovate, acute, pubescent; involucral bracts (of the single head) oblong-lanceolate, very acute, concave, membranous. **Flowers** bisexual, minute; pappus bristles 5 – 6, with broad base, rigid. **Corolla** tubular; tube 7 – 9 mm long, white, with shallowly 5-lobed; lobes violet. **Stamens** 5. Ovary inferior, style bifid, arms filiform, white. **Fruit** achene.

Localities Found in every study sites.

Distribution	Pantropical.
Ecology	In young forest, grassy field, roadsides; altitude 20 – 100 m. Flowering and fruiting throughout the year.
Uses	The whole plant alone or combined with <i>Helminthostachys zeylanica</i> (L.) Hook. f. are dried and boiled in water. Then this water is drunk as a tonic to treat impotency in men, (B, M). The whole plant is also used as an ingredient in the formula F12 taken to relieve chest complaints, (B). It is also combined with the roots of <i>Tabernaemontana peduncularis</i> Wall., boiled with water, and then a decoction is taken as a tonic for overall health and to relieve bodily discomfort, (B).
Material studied	UBON 645, BKF 82195
Reference	Backer & Bakh.f., Fl. Java. 2:374. 1965.

***Gynura procumbens* (Lour.) Merr.**

Figure 53 E

Vernacular Kamlang khwai thuek (กำลังควายถึก)

Climbing herb; stem terete, glabrous, fleshy. **Stipules** absent. **Leaves** simple, alternate; petioles 1 cm long; blades herbaceous, ovate or oblong-lanceolate, 7 – 9 by 3 – 5 cm, apex acuminate, margins acutely dentate, base rounded, subglabrous. **Inflorescences** terminal panicle, composing of heads 2 – 7 together, lax, drooping; head homogamous; peduncle 5 – 7 cm long, purple; inner involucre bracts 1 – 2 seriate, during anthesis cohering into a cylindrical tube, purple; outer ones much shorter. **Flowers** bisexual, numerous, deep yellow. Pappus numerous, white, linear, caducous. **Corolla** narrowly campanulate, 5-lobed. **Stamens** 5, filaments short, inserted at the corolla tube; anthers connate. **Ovary** inferior, 1-loculed; ovule 1 in each locule; style bifid, arms tapering to the apex, hairy.

Locality Ban Khao Phra, Rattaphum District, Songkhla Province.

Distribution Borneo, Java, Philippines.

Ecology In secondary forest, forest edges, roadsides; altitude 80 m. Flowering April – May.

Uses The young leaves are eaten raw as a vegetable or cooked in Thai-style vegetable soup, (B). The flowers are dried and then made into infusion, and drunk as substitute for tea with the side benefit to increase potency in men, (B).

Material studied UBON 1003, BKF 33964

Reference Backer & Bakh. f., Fl. Java. 2 : 425. 1965.

***Mikania cordata* (Burm.f.) B.L.Rob.**

Vernacular Khi kai yan (ขี้ไก่ย่าน), La po tu ngu (ลาโปตุง)

Climbing herb, 3 – 6 m long, young parts sparsely pubescent. Stem slender, ribbed. **Stipules** absent. **Leaves** simple, opposite; petioles 3 – 6 cm long; blades herbaceous, cordate or triangular-ovate, 4 – 9 by 3 – 7 cm, apex acute, margins crenate-dentate, base broadly cordate, glabrous, gland-dotted on lower surface; venation pinnate, tri-plinerved near the base, midrib distinct. **Inflorescence** axillary, small head; heads homogamous, oblong, 4 – 5 mm long, 4-flowered, combined into small dense corymbs. Involucral bracts 4, 2-seriate, lanceolate acute, equal, with 1 additional small outer ones. **Flowers** bisexual, white. **Corolla** campanulate, 3 mm long, 5-lobed. Pappus a row of scabrid hairs, white. **Stamens** 5, slightly longer than the corolla; anthers connate, greyish-black. **Ovary** inferior, 1-loculed, 1-ovuled; style white, 2-branched, far exserted. **Fruit** achene, narrowly oblong, 5-angled, truncate, dark brown, with a tuft of bristles on top.

Locality Found in every study sites.

Distribution Malay Islands, Africa.

Ecology Common in open places, forest edges, thickets, roadsides; often forming a dense tangled mass; altitude 20–180 m. Flowering and fruiting November – February.

Uses The whole plant alone or combined with leaves of *Leucaena leucocephala* (Lam.) de Wit and *Clidemia hirta* (L.) D. Don are boiled in water, then this water is used as a bath for 3 days in the morning for the treatment of helminthes in children, (M). The crushed leaves mixed with a little amount of lime juice, and then applied on the abdomen of young children to relieve flatulence. In addition, the crushed leaves of this species, *Alpinia mutica* Roxb. and *Piper betle* L. are soaked in water. Then this water is used as a bath to relieve fever in children, (M).

Material studied UBON 1261

Reference Backer & Bakh.f, Fl. Java. 2 : 380. 1965.

***Spilanthes paniculata* Wall. ex DC.**

Vernacular Phak khrat (ผักคราด)

Annual herb, erect, 30 – 40 cm tall, glabrous. **Stipules** absent. **Leaves** simple, opposite; petioles 1.5 – 3 cm long; blades thinly herbaceous, ovate to ovate-lanceolate, 3 – 6 by 2.5 – 7 cm, apex acute, margins shallowly serrate, base truncate, glabrous on both surfaces; nerves 1–2 pairs. **Inflorescence** a head, terminal and upper axillary; peduncles 3 – 6 cm long, slender; heads heterogamous, yellow,

ovoid, 5 – 8 by 4 – 5 mm, tip obtuse. Involucral bracts in 1 or 2 rows, ovate, ciliate. **Flowers** numerous. Ray flowers few, 1-seriate, female; corolla ligulate, tube slender, 1 mm long, sparsely finely pubescent; limb obovate, apex truncate, irregularly 2- to 3-lobed; pappus none; ovary inferior, 1-loculed, 1-ovuled; stigmas 2, spreading, recurved. Disk flowers numerous, bisexual, 1.3 mm long, each embraced by chaff; corolla salver-shaped, 5-lobed; lobes triangular acute; stamens 5, included in the corolla tube; anthers linear, laterally connate; ovary and stigma as in the ray flowers; pappus 1. **Fruit** an achene, obovate, flattened, smooth, black, margins membranous and ciliate, 2 by 1 mm.

Localities	Ban Huay Ngo, Khok Pho District, Pattani Province. Ban To Wo, Su-ngaikolok District, Narathiwat Province.
Distribution	India, S. China, SE. Asia, Java.
Ecology	Common in waste ground, humid grassy, rice-field, riverbanks; altitude 10 – 40 m. Flowering and fruiting throughout the year.
Uses	The young leaves are eaten raw as a vegetable, with the side benefit to relieve flatulence, (B). The fresh flowers are chewed to soothe toothache, (B, M).
Material studied	UBON 1368, BKF 128729
Reference	Backer & Bakh.f., Fl. Java. 2 : 408. 1965.

***Struchium sparganophorum* (L.) O.K.**

Vernacular Sudu e-de (ឥដ្ឋឺតៃ)

Erect, annual herb, up to 30 cm tall. Stem often branched at the base; on the younger parts finely pubescent and glandular. **Stipules** absent. **Leaves** simple, spirally arranged; petioles 1 cm long, glabrescent; blades herbaceous, elliptic or oblong-obovate, 8 – 10 by 2 – 4 cm, apex acute, base narrowed into a petiole, margin shallowly serrate. **Inflorescences** axillary head, semi-globose, homogamous, 3 – 5 mm diam., sessile, 1 – 3 together; involucre disciform; bracts numerous. **Flowers** bisexual, small, white; pappus consisting of a pale, thick-walled, soft, and irregularly dentate cup; corolla tubular, 3-lobed. **Stamens** 10. **Ovary** inferior, 1-loculed, 1-ovuled; style-arms violet. **Fruit** a small achene, 3 – 5 angular, brown.

Locality	Ban Ro Tan Ba Tu, Muang District, Narathiwat Province.
Distribution	Tropical America.
Ecology	In slightly shady and humid localities; along watersides, waste places; altitude near sea level. Flowering and fruiting throughout the year.

Uses The crushed leaves mixed with a little amount of lime juice, then a mixture is applied externally to cure wounds and burns, (M).

Material studied UBON 643, BKF 990336

Reference Backer & Bakh. f., Fl. Java. 2 : 369. 1965.

***Vernonia cinerea* (L.) Less.**

Vernacular Ya dok khao (หญ้าดอกขาว), Ya la ong (หญ้าละออง)

Erect annual herb, 15 – 80 cm tall; stem ribbed, finely pubescent, slightly branched. **Stipules** absent. **Leaves** simple, alternate; petioles 3 –12 mm long; blades membranous, ovate, obovate, narrowly spatulate, or oblong, 1 – 3 by 1 – 1.5 cm, tapering to each end, margins sub-entire; the upper leaves sometimes without petioles. **Flowers** small, bisexual, combined into heads; heads turbinate 5 mm long, numerous, homogamous, purple, mostly combine into corymbs. Involucre campanulate, 4-seriate; bracts pubescent, linear-lanceolate acuminate. Flowers much exceeding the involucre; pappus filiform, white, numerous; corolla tubular, violet, 3 – 4 mm long, shortly 5-lobed. **Stamens** 5, anthers with sagittate base and acute apex; style-arms subulate. **Ovary** inferior, 1-loculed. **Fruit** achene, cylindric, 1.5 – 2 mm long, with 4 – 5 ribs, densely white-adpressed-hairy, 1.5 – 2.0 mm long, crowned by pappus.

Locality Found in every study sites.

Distribution Pantropical.

Ecology In open habitats, waste places; grows on a wide range of soils; altitude 20 –180 m. Flowering and fruiting throughout the year.

Uses The whole plant is crushed, mixed with a little amount of local whisky. Then a squeezed juice is taken to treat internal injury, contusion. It is also used as an ingredient in the formula F38 to treat herpes infection, (B).

Material studied BKF 55548

Reference Backer & Bakh.f., Fl. Java. 2 : 373. 1965.

***Vernonia elliptica* DC.**

Figure 78 B

Vernacular Tan mon (ตานหม่อน)

Sarmentose shrub; stem and branches densely covered with white hairs. **Stipules** absent. **Leaves** simple, alternate; petioles 0.5 cm long, densely white hairy; blades subcoriaceous, elliptic or oblong to obovate, 4 – 8 by 2 – 3.5 cm, apex acute, margins coarsely dentate, base obtuse, glabrous above, whitish silky hairy beneath;

nerves 6 – 8 pairs, usually forked at tip. **Inflorescence** small head, combined into paniculiform corymb, up to 15 cm long, terminal or axillary. Heads homogamous, 5 – 6 mm long, pale violet; involucre bracts many, pale green, elliptic or ovate, 2–3 mm long, ciliate. **Flowers** many. **Corolla** salver-shaped, tube slender 4 mm long, 5-lobed; lobes linear. Pappus many. **Stamens** 5. **Ovary** superior, 1-loculed, 1-ovuled. **Fruit** achene, ovoid, 1 mm long, black, truncate at top, with a tuft of pappus.

Locality	Ban Hua Yang, Rattaphum District, Songkhla Province.
Distribution	India, Burma, Laos, Cambodia, Vietnam, Malaysia, Singapore.
Ecology	In open places, edges of forest, river-banks; altitude 20 m. Flowering and fruiting February – March.
Uses	The whole plant combined with <i>Thunbergia fragrans</i> Roxb., <i>Schizaea digitata</i> (L.) Sw. and two unknown plant species are boiled in water. Then this decoction is used as a bath for children with chronic gastrointestinal ailments. The whole plant alone is fed to cattle to cure diarrhea, (B).
Material studied	UBON 694, BKF 49124

Connaraceae

***Cnestis palala* (Lour.) Merr.**

Figure 33 F – G

Vernacular Ngon kai (หงอนไก่)

Woody climbers, at first a shrub; young branches tomentose. **Stipules** absent. **Leaves** imparipinnate, alternate, pink when young; 20 – 25 cm long; petioles 4 – 7 cm; petiolules 1 – 2 mm; leaflets 19 – 31, subopposite, increasing in size from basal pair upwards; blades coriaceous, elliptic-oblong to lanceolate, 3.5 – 7.5 by 2.0 – 3.5 cm, apex obtuse to subacute, margins entire, base rounded to cordate, oblique, tomentose on both surfaces; nerves 5 – 6 pairs. **Inflorescences** panicle, 2 cm long, solitary or fascicled, arising from knobs on branches, tomentose. **Flowers** bisexual, small 8 mm across at anthesis, shortly pedicellate. **Sepals** 5, linear-lanceolate, 4–5 mm, pubescent on both sides, pale green. **Petals** 5, ovate-oblong, 5 mm long, pale green, pink at margin and base, glabrous except a hair tuft just above the base outside. **Stamens** 10, free, unequal, glabrous. **Ovary** of 5 carpels, free, superior, densely hairy, 1-loculed; ovules 2. **Fruit** follicles, 1–5 per flower, beaked, 3.0 – 4.0 by 1.0 – 1.5 cm, ripening red.

Localities	Found in every study sites.
Distribution	Burma, Andaman Islands, Laos, Vietnam, Malay Peninsula.
Ecology	In thickets, secondary evergreen forest; altitude near sea level to 100 m. Flowering November – February; fruiting February – April.

Uses The poisonous seeds are pounded and mixed into foodstuffs, and then used for poisoning dogs, (B).

Material studied UBON 635, BKF 135263

Reference Vidal , Fl. Thail. 2(2) : 118. 1972.

Convolvulaceae

Aniseia martinicensis (Jacq.) Choisy

Figure 26 C

Vernacular Chingcho (จิ้งจ้อ), Lidah batong (ลิ๊ะปะบัตง)

Twining or prostrate herbs, to 1.5 m long; stem terete, slender, 2 mm diam., sparsely pubescent. **Stipules** absent. **Leaves** simple, alternate; petioles 1.0 –1.5 cm long; blades herbaceous, glabrous above, pubescent on midrib and nerves beneath, narrowly oblong, 3 –7 by 1–3 cm, apex emarginate and mucronate, margin entire, base attenuate; nerves 4–5 pairs. **Flowers** solitary, axillary or in cymose; peduncles 2 – 3 cm long, pubescent. **Bracts** small, narrowly lanceolate. **Sepals** 5, free, imbricate, unequal, herbaceous. **Corolla** white, funnel-shaped, 2 – 3 cm long; limb shallowly 5-lobed, mid-petaline bands hairy. **Stamens** 5, adnate to corolla tube, filaments hairy at base. **Ovary** superior, globose, glabrous, 2-loculed; ovules 2 per locule. **Style** 1, filiform; **stigmas** 2, thick, globular. **Fruit** capsule, globose, brown outside, silvery white inside, seated on enlarged sepals. **Seeds** 4, black .

Localities Ban Lu Bo Sa Ma, Su-ngaikolok District, Narathiwat Province.

Distribution Pantropical.

Ecology In marshy grasslands, fresh water swamps, along river-banks, edges of pools; altitude near sea level. Flowering and fruiting throughout the year.

Uses The young leaves are eaten cooked, (B, M).

Material studied UBON 634

Reference Van Ooststroom , Fl. Mal. Ser.1. 4(4) : 435. 1953.

Operculina turpethum (L.) S. Manso

Vernacular Chingcho yan (จิ้งจ้อย่าน)

Perennial twiner, with milky latex. Stems longitudinally 3-winged; wing purplish, sparsely pubescent. **Stipules** absent. **Leaves** simple, alternate; petioles, 3–6 cm long, terete; blades thinly coriaceous, broadly ovate, 8 –11 by 9 –12 cm, apex acute, margin entire, base cordate, upper surface pilose, lower surface pubescent;

venation pinnate, nerves 8 –10 pairs. **Inflorescences** axillary, cymose with few-flowered; peduncles 6 cm long, terete, pubescent; pedicels 3 cm long, pubescent. Bracts elliptic-oblong, 1.5 – 2.0 cm long, green, pubescent, caducous. **Flowers** bisexual, 4 – 5 cm long. **Sepals** 5, free, imbricate, broadly ovate acute, subequal; outer ones 2.0 – 2.3 cm long, pubescent outside; inner ones 1.8 – 2.0 cm long, glabrous, enlarged in fruit. **Corolla** thin, white, broadly funnel-shaped, 4 cm long, shallowly 5-lobed, glabrous. **Stamens** 5, included; filaments adnate to corolla-tube, sparsely pubescent below. Disk annular, yellow. **Ovary** superior, glabrous, 2-loculed; ovules 2 in each locule; style 1, white, filiform, included; stigma biglobular, brown. **Fruit** depressed globose capsule, 1.0 –1.5 cm diam., epicarp circumscissile above the middle, the upper part of it or operculum fleshy, separating from the lower part and from the endocarp. **Seeds** 4, trigonous, 5 mm diam., black .

Locality	Ban Hua Yang, Rattaphum District, Songkhla Province.
Distribution	Tropical E. Africa, Seychelles, SE.Asia, Malay Peninsula, tropical Australia.
Ecology	In open waste places, along roadsides; restricted to regions with a medium or strong east monsoon; altitude 70 m. Flowering and fruiting August – September.
Uses	The young shoots are eaten raw or cooked as a vegetable, (B).
Material studied	UBON 945
Reference	Van Oostroom in Fl. Mal. Ser.1. 4(4) : 456. 1953.

Costaceae

***Costus speciosus* (Koen.) Sm.**

Figure 34 D

Vernacular Ueang mai na (เอื้องหมาขานา) , Ueang chang (เอื้องช้าง)

Perennial herb, 2 – 3 m tall; stem erect. **Leaves** simple, spirally arranged; petioles very short, hairy; sheath tubular, with long fine soft hairs at top edge; blades herbaceous, elliptic-oblong, 14 – 18 by 4 – 5 cm, apex acuminate, margins entire, base narrowly rounded, dark green and glabrous above, paler and densely hairy below. **Inflorescences** spike, at apex of leafy stem, 10 by 5 cm; peduncle short; bracts broadly ovate, acute, 3.5 by 2 cm, green, flushed with red, glabrous; bracteoles linear 2 cm long, keel pale green, red at tip. **Flowers** bisexual, 6 – 7 cm long. **Calyx** tubular, longer than the bracts, 3-lobed; lobes subequal, red. **Corolla** tube very short, white, 3-lobed; lobes linear elliptic, 4 –5 cm long, pubescent outside. Labellum 6 –7 cm long, thin, trumpet-shaped with overlapping edges, with yellow hairs near the base inside; edges often crisped. **Stamen** 5 cm long, white; filament

broad, petaloid, curve forwards, hairy on back, yellow at tip beneath. Staminode absent. **Ovary** inferior, 3-loculed; ovules numerous.

Locality	Ban Ton Panun, Khuan Kalong District, Satun Province.
Distribution	Indonesia, Malaysia.
Ecology	In lowland, peat swamp and upland evergreen forest; altitude 100 m. Flowering October – February.
Uses	A decoction of the rhizomes is used to wash a rash due to irritant hairy caterpillars, (B); it is also used as an aphrodisiac, (M).
Material studied	UBON 1326, BKF 59096
Reference	Holttum, Gard. Bull. Sing. 13(1) : 242. 1950.

Crypteroniaceae

Crypteronia paniculata Blume

Figure 36 D – E

Vernacular Ku wa (กุ่ม)

Tree, 20 – 30 m tall; young branches pubescent, slightly quadrangular. **Stipules** absent. **Leaves** simple, opposite; petioles 5 – 8 mm long, pubescent; blades chartaceous, elliptic, ovate, 8 – 17 by 5 – 10 cm, apex acuminate, margins entire, basecuneate or rounded; glabrous and glossy green above, pubescent and light green beneath. **Inflorescences** panicle, mostly terminal, also on leafless older nodes, 10 – 30 cm long, with a few to several racemes along the main axis; raceme 10 – 13 cm long, greenish- yellow; bracts triangular, 1 – 5 mm long, caducous; bracteoles narrowly triangular, 0.5 – 1 mm, persistent; pedicels 1 mm long, pubescent. **Flowers** many bisexual, small 2 – 3 mm across. **Calyx** shallowly cup-shaped, 5-lobed; lobes triangular 0.8 mm long, finely tawny pubescent outside, densely whitish-tomentose inside, persistent. **Corolla** absent. **Stamens** 5, free; filaments filiform, 2 mm long, persistent. **Ovary** superior, subglobose 1 mm long, 2-loculed, ovules numerous in each locule; style 0.5 mm long; stigma discoid. **Fruit** a loculicidal capsule, subglobose, 2–4 mm across, 2-valved, finely pubescent. **Seeds** many, very small, ellipsoid.

Locality	Ban Lu Bo Sa Ma, Su-ngaikolok District, Narathiwat Province.
Distribution	Burma, Cambodia, Laos, Malesia, S.Vietnam.
Ecology	In tropical evergreen forest, lowland rain forest; altitude 10 m. Flowering and fruiting April – August.

Uses A decoction of the bark is held in mouth as a gargle for a few minutes and then spit out to soothe toothache; this decoction is also used to wash the wounds, (B). The crushed young leaves are applied externally as a poultice to treat contusion, (M). Roots, stem bark, and leaves are used as a contraceptive; in this case, a handful of the roots, stem bark and leaves are boiled with water, sometimes a young fruit of *Ceiba pentandra* (L.) Gaertn. is added to make a decoction to be more powerful. Then a glass of this decoction is taken after breakfast every other days, (M). The timber is used for house building, (B, M).

Material studied UBON 752

Reference Van Beusekom-Osinga, Fl. Mal. Ser.1. 8(2):194. 1977;

Cucurbitaceae

Gynopetalum chinense (Lour.) Merr.

Figure 53 C

Vernacular Dom (ดอม)

Climbing herbs; stems slender 5-ribbed, scabrid, hairy, with tendrils. **Stipules** absent. **Leaves** simple, alternate; petioles scabrid, pubescent, 2.5 – 4.0 cm long; blades membranous, pubescent on both sides, reniform to triangular, 5.0 – 8.0 by 5.5 – 8.5 cm, 5-lobed; lobes triangular acute, margin dentate; base deeply cordate. **Flowers** unisexual, white. Male flowers in axillary raceme; calyx-tube 2.5 cm long, 5-lobed; lobes lanceolate 4 – 10 mm long, pubescent; corolla entirely white, funnel-shaped, widely spreading, 5-lobed, lobes obovate 2 – 3 cm long, pubescent on both sides. **Stamens** 3, anthers united into a column, included; anther-cells S-shaped. Female flowers solitary, axillary; calyx and corolla as of the male ones. **Ovary** inferior, 1-loculed; ovules numerous; style long; stigmas 3. **Fruit** pepo, ovate-oblong, acute at both ends, 3.5 – 4.0 cm long, 2 cm across, 10-ribbed, beaked, scabrid, ripening orange. **Seeds** many, suborbicular, compressed.

Locality Ban Hau Yang, Rattaphum District, Songkhla Province.

Distribution China, Malaysia.

Ecology In waste places, roadsides; altitude 70 m. Flowering and fruiting throughout the year.

Uses The young leaves are blanched and eaten as a vegetable, (B). The young fruits are cooked after they are boiled, and the water is changed 2 – 3 times to combat bitter taste, (B).

Material studied UBON 627

Reference Ridl, Fl. Mal. Pen. 1 : 846. 1967.

***Momordica cochinchinensis* (Lour.) Spreng.**

Figure 63 D – E

Vernacular Khi phra fai (ขี้พราไฟ)

Climbing perennial herbs, glabrous; tendrils simple. **Stipules** absent. **Leaves** simple, alternate; petioles 3 – 6 cm long, slender; blades herbaceous, cordate in outline, deeply 3-lobed, the central lobe elliptic, apex acuminate, base cuneate, margins coarsely dentate, 7–11 by 3 – 4 cm; the others two smaller, ovate, base oblique, apex and margins as those of the central lobe. **Flowers** pale yellow, unisexual, dioecious, solitary in leaf axils, subtended by cordate-reniform bracts. Male flowers 6 – 8 cm across; peduncles 5 – 7 cm long. Calyx campanulate, tube short, 5-lobed, coriaceous, dark brown, pubescent. Corolla rotate-campanulate, deeply 5-lobed; lobes creamy yellow, each with a purple spot at base. **Stamens** 3, in throat, filaments free, anthers free, orange, 1-celled, conduplicate, connective hairy. Female flowers 6 – 8 cm across; peduncles 2 – 5 cm long; calyx and corolla as those of the male ones; staminodes 3, scale-like. **Ovary** inferior, 1-loculed, ovules numerous; style slender; stigma deeply 3-lobed. **Fruit** berry, subglobose, 12 by 10 cm, with conical spines all over it, ripening red. Seeds many, sub-orbicular, flattened, dark brown, 2.5 by 2.0 cm .

Locality	Ban Hua Yang, Rattaphum District, Songkhla Province.
Distribution	India, Malaysia, China.
Ecology	River-banks, secondary forest, open places in the lowland. Flowering November – December; fruiting January – February.
Uses	The young fruits are cooked in various kinds of dishes as a vegetable, (B, M). The climbing stems are tied around a neck of cattle; it is said to get rid of worms from the skin of the cattle, (B).
Material studied	UBON 947
Reference	Ridl., Fl. Mal. Pen. 1: 848. 1969.

Cyperaceae***Kyllinga nemolaris* (J. R. & G. Forst) Dandy ex Hutch. & Dalziel**

Vernacular Ya nuai fai (หญ้าหนวยฝ้าย)

Rhizomatous perennial herb. Culms crowded or distant along rhizome, 15 – 30 cm tall, rigidulous, triquetrous, smooth. **Leaves** basal, 3-ranked; blades linear, very variable in length, up to 30 cm long, 2 – 5 mm wide, apex acute, margins scabrid in the upper part; sheath 1 – 9 cm long, purplish brown. **Inflorescences** capitate consisting of a terminal, ovoid-globose spike, 8 by 6 mm, white, usually accompanied by 1–3 much smaller, sessile heads at the base. Involucral bracts 3 – 4, spreading, the lowest up to 30 cm long. Spikelets closely packed, spreading, obliquely ovate, strongly compressed, 3 by 1.5 mm, 1-to2-flowered. Glumes 4 – 5, membranous, elliptic to boat-

shaped, strongly compressed, apiculate; keel broadly winged, serrate. **Stamens** 3; anthers linear. **Ovary** oblong-obovate, compressed. Stigmas 2, long, slender.

Locality	Ban Ton Sai, Srinakharin Subdistrict, Phattalung Province.
Distribution	Pantropical.
Ecology	In sunny or slightly shaded waste places, roadsides, edges of forest; altitude near sea level to 100 m. Flowering throughout the year.
Uses	The flowers together with a betel quid are chewed and then spat out near the aching ears to treat earache, (B).
Material studied	UBON 1398
Reference	Simpson & Koyama, Fl. Thail. 6(4) : 401. 1998.

***Lepironia articulata* (Retz.) Domin**

Vernacular Kra chut (กระจุต), Chut (จุต)

Perennial rhizomatous herb; rhizome short. Culms terete, 150 – 200 cm by 5 – 7 mm, stiff, smooth, transversely septate, crowded along the rhizome. **Leaves** reduced to bladeless tubular sheath. **Inflorescence** a single spike, from the top of the stem, overtopped by a tubular bract 3 – 8 cm long continuing the stem. Spikes elliptic 1 – 3 by 0.3 – 0.9 cm, comprising many glumes; glumes spirally arranged and very densely imbricate, chartaceous, shining brown, broadly ovate, 4 – 6 mm long and about as wide, apex obtuse and lacerate; each subtend a single naked female flower and many floral bracts. The floral bracts up to 15, linear lanceolate, thin, as long as the glumes; the lower ones subtend male flowers. Male flowers about as long as the floral bracts. **Stamen** 1. Female flower about as long as the glumes. **Ovary** superior, broadly obovate, 1-loculed, 1-ovuled; stigmas 2. **Fruit** nutlet, suborbicular, flattened, light brown, with longitudinal ribs. **Seed** 1.

Locality	Ban Thale Noi, Khuan Khanun District, Phattalung Province.
Distribution	Madagascar, India, Sri Lanka, Indo-China, China, Malesia, Australia, New Caledonia, Fiji.
Ecology	In open swampy places, open marshes, swamp forest, along stream, often near the coast and forming extensive communities; altitude sea level. Flowering and fruiting throughout the year.
Uses	Stems are woven into mats, baskets and other utensils, (B, M).
Material studied	UBON 1388, BKF 26982
Reference	Simpson & Koyama, Fl. Thail. 6(4) : 266. 1998.

Davalliaceae***Davallia solida* (Forst.) Sw.**

Vernacular Wan nakkharat (ว่านนาคราช)

Epiphytic fern; rhizome long-creeping, 6 – 10 cm diam., densely scaly throughout; scales on young rhizome oblong-subtriangular, imbricate, 3 – 4 cm long, apical part caducous; old part of rhizome dark brown to nearly black, densely covered by basal part of the scales. **Stipes** greenish-brown, 15 – 20 cm long, glabrous. **Fronds** glabrous, subdeltoid, 30 cm long and wide, tripinnate at basal portion; pinnae triangular with distinct stalk, basal pinnae the largest, up to 20 cm long and 15 cm wide; pinnules subtriangular to rhomboid, apex moderately acute, base cuneate, margin shallowly lobe. **Sori** terminal on veinlets, at margin of segments; indusia cup-shaped, 1.5 mm long, 0.7 mm wide.

Locality Ban Huay Ngo, Khok Pho District, Pattani Province.

Distribution Malesia north to Indo-China and S.China.

Ecology On tree-trunks, rocks in half-shaded place, dense evergreen forest; altitude 40 m.

Uses The rhizomes are used to treat itching; they are crushed and applied over the affected areas, (M). They are also used to treat toothache; in this case, they are boiled and mixed with a small amount of salt. Then a decoction is held in mouth as a gargle for few minutes, (B).

Material studied UBON 1335, BKF 095325

Reference Tagawa & Iwatsuki, Fl. Thail. 3(2) : 163. 1985.

Dicksoniaceae***Cibotium barometz* (L.) J.Sm.**

Vernacular Wan luk kai thong (ว่านลูกไก่ทอง)

Terrestrial fern; rhizome prostrate, often large, densely covered with golden yellow long hairs, bearing a tuft of large fronds. **Stipes** to 120 cm long, thick; base densely covered with hairs like those on the rhizome; on the upper part less densely hairy, and hairs becoming shorter upwards. **Fronds** bipinnate, coriaceous, large, up to 180 cm long and more than 100 cm wide. Pinnae many, the largest ones to about 80 cm long and 25 cm wide; rachis appressed-hairy beneath. Pinnules linear-lanceolate, 5 – 10 by 1 – 2 cm, apex acuminate, margins deeply pinnatifid throughout, base broadly cuneate to subtruncate, lower surface glaucous; the lower pinnules shortly stalked, the upper ones sessile. **Sori** 1–5 pairs on each lobe of fertile pinnules, at the ends of the lower veins, protected by two indusia.

Locality	Ban Ton Panun, Khuan Palong District, Satun Province.
Distribution	S.China, Taiwan, W.Malesia.
Ecology	In tropical evergreen forest; altitude 100 m.
Uses	The hair of rhizome are heated, mixed with a little amount of coconut oil, and then applied as a poultice onto the wounds to stop bleeding and to accelerate healing process, (B, M).
Material studied	UBON 1320
Reference	Tagawa & Iwatsuki, Fl. Thail. 3(1) : 109. 1979.

Dilleniaceae

Tetracera indica (Christm. & Panz.) Merr.

Figure 76 B

Vernacular Pod bai luen (ปดใบลิ้น)

Climber, 5 m long; branches smooth. **Stipules** absent. **Leaves** simple, spirally arranged; petioles 6 – 12 mm long; blades thinly coriaceous, elliptic, 6 – 10 by 3 – 5 cm, apex acute, margins serrate, base acute, slightly glossy above, glabrous on both surfaces; nerves 8 – 9 pairs. **Inflorescences** terminal panicle, 8 cm long, mostly 4- to 8-flowered; pedicels 8 – 15 mm long. **Flowers** bisexual, 2 – 2.5 cm across. **Sepals** 4, free suborbicular, 8 mm long and wide, green, persistent but not enlarged in fruit. **Petals** 4, free, obovate, 13 by 6 mm, white, fugacious. **Stamens** numerous, free; filaments slender, 7 mm long, white with pink at the tips. **Ovaries** 2 – 3, superior; ovules 10 – 15 in each ovary. **Fruit** follicle, globose, 10 mm across. **Seeds** 1 – 7, ovoid, with red aril.

Locality	Ban Ta Re Tai, Su - ngaipee District, Narathiwat Province.
Distribution	India, Burma, S. China, Malay Peninsula, Sumatra, Java.
Ecology	Common in scrub and open forest, also on waste ground; altitude near sea level. Flowering and fruiting throughout the year.
Uses	The roots or stems (at node) alone or combined with benzoin are rubbed against an earthenware pot. Then a mixture obtained is applied externally to treat aphthous ulcer, (M). The young leaves are eaten raw as a diuretic, (M).
Material studied	UBON 673, BKF 031262
Reference	Hoogland, Fl. Thail. 2(2):108. 1972.

Dioscoreaceae

Dioscorea cf. bulbifera L.

Figure 40 B

Vernacular Man loen (มันเส้น)

Slender twiner, with large tubers; tubers globose, weighing up to 1 kg. Stem slender, bearing numerous axillary bulbils which are often mistaken by the native for fruit. **Stipules** absent. **Leaves** simple, alternate, with subfoliaceous auricles occur at the base of the petiole and partly embrace the stem; petioles 8 – 9 cm long; blades herbaceous, broadly ovate, 15 – 28 by 10 – 26 cm, apex caudate acuminate, margins entire, base deeply cordate, light green, glabrous on both surfaces; 9-nerved from the base, secondary nerves very conspicuously ladder-like.

Locality Ban Khok Ok, Hat Samran Subdistrict, Trang Province.

Distribution Malaysia, China, Japan, Australia.

Ecology In margins of forest, waste places, wet areas; altitude 10 m. Flowering and fruiting November – December.

Uses The bulbils are cooked in curries, (B).

Material studied UBON 326

Reference Ridl., Fl. Mal. Pen. 4 : 315. 1967.

Dioscorea hispida Dennst.

Figure 40 C

Vernacular Kloi (กลอย)

Perennial herb; stem twining, at first pubescent, then glabrous, very long, woody at the base, and armed, with large tuber; tubers subglobose, lobed, flesh white to pale yellow. **Stipules** absent. **Leaves** 3-foliolate, alternate; petioles 10 – 25 cm long, densely pubescent; petiolules 0.5 – 1 cm long; blades thinly chartaceous. Middle leaflet elliptic or elliptic-oblong; the lateral ones obliquely ovate, 16 – 23 by 11 – 15 cm, apex caudate acuminate, margins entire, base oblique or acute, densely hairy on both surfaces, with 5-main nerved from near the base. **Male inflorescence** axillary panicle, to 50 cm long, pubescent. Male flowers minute, 1 mm across, pale brown, in small spikes racemously arranged along the branches of the main axis; bracts just overtopping the flowers, subsaccate and acuminate, densely hairy outside; tepals 6, in 2 whorls of 3, ovate acuminate, densely hairy outside. **Stamens** 6, shorter than the tepals; pistillode absent. Female plants not found.

Locality Ban Plak Plue, Mae Lan District, Pattani Province.

Distribution India, Malaysia to west New Guinea.

Ecology	In light forest, brushwood; near human habitations; altitude 20m. Flowering September – October.
Uses	The tubers are eaten after the poison is washed out by soaking the sliced ones in running water for a big while, and then they are boiled. They are usually eaten with steamed sticky rice together with coconut flakes and sugar, (B, M). The tubers are also used for the treatment of helminthes in children; a large tuber is split into two pieces; a cavity with diameter about 5 cm is made at the center of each piece, and then a fresh egg is placed in the cavity, the split pieces is jointed face to face, tied with a wire. Then it is roasted until the egg cooked. This egg is given to children with helminthes, (B). Sap from the fresh young shoots is sometimes dropped into a palm wine. It is said to accelerate severe drunk effects in person who drink it. In some areas, three rings made of roots of this plant are strung together and then worn as a necklace; it is believed to get rid of helminthes in children, (B)
Material studied	UBON 1004
Reference	Burkill, Fl. Mal. Ser.1. 4(3) : 318. 1951.

Dipterocarpaceae

Cotylelobium melanoxyton (Hook.f.) Pierre

Figure 34 E

Vernacular Khiam (เคี่ยม)

Big tree, up to 25 m tall, branchlets stellately hairy. **Stipules** minute, linear, densely tomentose, caducous. **Leaves** simple, alternate; petioles 1cm long; blades stiffy coriaceous, ovate-lanceolate, 7 – 9 by 2.5 – 4 cm, apex acuminate, margins entire, base broadly cuneate, glabrous above, stellately hairy beneath; nerves 10 –12 pairs. **Inflorescence** panicle, terminal and axillary, 8 – 15 cm long; peduncle and rachis densely pubescent; bracts and bracteoles elliptic, obtuse, 4 by 3 mm, densely pubescent outside; pedicels 5 mm. **Flowers** bisexual, creamy white, 8 mm long, 10 mm across. **Sepals** 5, connate at base; lobes subequal, narrowly triangular, 2.5 – 3 mm long, densely pubescent outside, sparsely so within. **Petals** 5, free, contorted in bud, narrowly oblong, obtuse, sparsely pubescent on part exposed in bud. **Stamens** 15, subequal; filaments short; anthers narrowly ovate, with prominent setose margin. **Ovary** superior, ovoid, densely hairy, 3-loculed; ovules 2 in each locule; style slender, 3 times as long as the ovary, pubescent towards base, otherwise glabrous. **Fruit** a nut, globular, 6 mm diam., densely pubescent, winged by the accrescent calyx; 2 larger wings spatulate, obtuse, 5 – 5.5 by 1–1.2 cm; 3 shorter ones ovate, 1 – 2 by 0.4 cm.

Locality Ban Tung Kai, Muang District, Trang Province.

Distribution Malaysia, Singapore, Sumatra, Borneo.

Ecology Locally scattered in lowland evergreen forest; altitude 20 m
Flowering September – October ; fruiting October – November.

Uses The bark chips are used as a preservative in a sweet fluid obtained from the cut inflorescence of *Borassus flabellifer* L. ; sometimes they are put in a palm wine for good taste and for preservation,(B). A hard durable timber is used for house building, (B, M).

Material studied UBON 1396, 1397, PBG 129434

Reference Ashton, Fl. Mal. Ser.1. 9(2) : 341. 1982.

***Hopea odorata* Roxb.**

Figure 55 D

Vernacular Khian (เคียน), Takhian thong (ตะเคียนทอง)

Tree, up to 40 m tall, usually buttressed base, with transparent resin. **Stipules** small, caducous. **Leaves** simple, alternate; petioles 1 – 1.5 cm long; blades coriaceous, elliptic, 8 – 13 by 4 – 5 cm, apex rather long acuminate, obtuse, margins entire, base slightly unequal, glabrous on both surfaces; nerves 8 – 10 pairs; only a few nerves with domatia in their axils; domatia glabrous. **Inflorescence** terminal and axillary panicle, compose of unilateral racemes, 10 – 12 cm long; rachis stellate pubescent. **Flowers** bisexual, yellow, 5 – 7 mm across, fragrant. **Sepals** 5, free, unequal; 2 longer, oblong, 2.5 by 1.0 mm; 3 smaller, ovate, 1.8 by 1.5 mm, pubescent outside, accrescent. **Petals** 5, coherent at base, densely stellate-tomentose on the part exposed in bud only, contort, apex unequal, 4 – 5 by 2.5 mm. **Stamens** 15, 2-whorled, basally coherent with corolla; filaments 0.8 mm long, dilated at base. **Ovary** superior, 3-loculed; ovules 2 per locule; style very short; stigma thick. **Fruit** an ovoid nut, conspicuously winged by the accrescent sepals; 2 outer wings narrowly spathulate, 4 – 5 cm long, pubescent; 3 inner ones not longer than the fruit, closely appressed to the nut.

Locality Ban Huay Ngo, Khok Pho District, Pattani Province.

Distribution Bangladesh, Burma, AndamanIslands, W. Bengal, Laos, Cambodia, Vietnam, Peninsular Malaysia.

Ecology In lowland evergreen dipterocarp, hillside evergreen dipterocarp forest, open forest near the beach, and swamp forest; altitude 40 m. Flowering February – March; fruiting May – July.

Uses A durable timber is used for house building, (B, M).

Material studied UBON 671

Reference Pooma & Newman, Thai For. Bull. (Bot.) 29:141. 2001.

***Vatica pauciflora* (Korth.) Blume**

Figure 78 A

Vernacular Sak (สัก), Rue so (ร้อยเอ็ด)

Tree, 10 – 20 m tall; twigs much branched, young branches sparsely stellately-hairy. **Stipules** linear, caducous. **Leaves** simple, alternate; petioles 1 – 1.5 cm long; blades thinly coriaceous, elliptic-lanceolate, 7 – 20 by 2.5 – 6 cm, apex bluntly short acuminate, margins entire, base cuneate, glabrous on both surfaces; nerves 7–10 pairs. **Inflorescences** terminal raceme or panicle, 6–10 cm long; peduncle 2–4 cm long; pedicels 3 mm long; bracts small, caducous. **Flowers** bisexual, white 1 cm long. **Sepals** 5, slightly connate at base, lobes deltoid, 2 by 1 mm, stellately-hairy. **Petals** 5, free, spirally twisted in bud, linear-oblong, apex blunt, 7 by 3 mm, pubescent outside. **Stamen** 15, free; anthers oblong, connectives extended into a sterile tip to the anthers. **Ovary** superior, obconical, pubescent; 3-loculed; ovules 2 in each locule; style stout; stigma globose. **Fruit** nut, ovoid-globose, 2 by 1.5 cm, subtended by persistent calyx; wall corky, light brown, with 3 grooves from the top to base. **Seed** 1 – 2.

Locality Ban Plak Plue, Mae Lan District, Pattani Province.

Distribution Malaysia, Sumatra.

Ecology Scattered in evergreen forest, on river banks, occasionally found in peat swamp forest; altitude 20 m. Flowering March – April; fruiting May – June.

Uses The bark chips are used to chew with betel leaf (leaf of *Piper betle* L.) as substitute for betel nut (seed of *Areca catechu* L.), (B).

Material studied UBON 1294, BKF 106936

Reference Pooma & Newman, Thai For. Bull. (Bot.) 29: 181. 2001.

Dryopteridaceae***Pleocnemia irregularis* (Presl.) Holtt.**

Vernacular Kut pa (กูดป่า)

Terrestrial fern, erect, up to 2 m tall; rhizome short, stout, densely scaly; scales linear, dark brown. **Stipes** stout, to 80 cm long, densely scaly at the base; scales dark brown. **Fronde** large, triangular in outline, 100 by 70 cm at base, bipinnate towards the base, with numerous opposite pinna; the lower most largest, asymmetrically subdeltoid, 70 by 20 cm. Pinnae at the base with few pairs of sessile and usually more or less adnate pinnules, the distal part deeply lobed; middle pinnae lanceolate, apex acuminate, with several free pinnules; apical portion large, pinnatifid. Rachis and rachilla glabrescent. Pinnules coriaceous, opposite, oblong-subdeltoid, falcate, 12 – 22 by 2 – 5 cm, apex long acuminate, base cuneate, margins pinnate lobed; lobes mostly falcate; glabrous above, sparsely hairy beneath. **Sori** small, rounded, scattered irregularly, exindusiate. Locality Ban Khao Khram, Srinakharin Subdistrict, Phattalung Province.

Distribution	Burma, Cambodia, Malesia throughout to Fiji.
Ecology	In dense evergreen forest; altitude 100 m.
Uses	The young leaves are eaten blanched as a vegetable. It is said to act as an antidote against poison food (in the case associated with black magic), (B).
Material studied	UBON 228, BKF 33441
Reference	Tagawa & Iwatsuki, Fl. Thail. 3(3) : 387.1988.

Ebenaceae

Diospyros buxifolia (Blume) Hiern.

Figure 40 D

Vernacular Sam tham (ส้มตำ)

Evergreen tree, up to 25 m tall; branchlets densely brown hairy. **Stipules** absent. **Leaves** simple, subsessile, alternate; blades thinly coriaceous, elliptic, sub-rhomboid, ovate lanceolate, 1.2 – 4 by 0.5 – 2 cm, apex obtuse, mucronate; margins entire, ciliate; base cuneate; young leaves sparsely hairy on both sides, adult appressed hairy on midrib and edges; nerves obsolete. Flower and fruit not found.

Localities Ban Khao Khram, Srinakharin Subdistrict, Phattalung Province.

Distribution India, Cambodia, Vietnam, Malay Peninsula, Indonesia.

Ecology In evergreen rain forest; altitude 100 m.

Uses The timber is used for house building. The leaves are used in the traditional ritual performed at the beginning of the rice - harvesting season, (B).

Material studied UBON 668

Reference Phengkhai, Fl. Thail. 2(4) : 305. 1981.

Diospyros malabarica (Desr.) Kostel.

Figure 40 E – F

Vernacular Phlap (พลับ)

Evergreen tree, up to 15 m tall; bark black, with fissured surface. **Stipules** absent. **Leaves** simple, alternate; petioles 1 – 1.3 cm, sparsely pubescent; blades coriaceous, oblanceolate-oblong, 10 – 20 by 2.5 – 7 cm, apex obtuse to rounded, margins entire, base obtuse, glabrous on both surface; nerves 8 – 10 pairs, faint

above, prominent beneath. **Flowers** unisexual; female flowers solitary in leaf axils, with short pedicels 2 mm long. **Calyx** broadly campanulate, 6 – 7 mm long, divided to middle; lobes broadly ovate acute, velutinous outside, sericeous inside, green. **Corolla** yellow, urceolate, 10 mm long, 4-lobed; lobes ovate acute, 3 by 4 mm, with only a line of hairs along mid-line of the lobes, glabrous inside. **Staminodes** 10–12, linear, pubescent at base. **Ovary** superior, ovoid, sericeous, 8-loculed; ovule 1 in each locule; style 4, short sericeous; stigma lobes 8 or more. **Fruit** a berry, globose, 3–4 cm diam., glabrous, ripening reddish-orange. Seeds 8, ovoid, flattened.

Locality	Ban Thale Noi, Khuan Khanun District, Phattalung Province.
Distribution	India, Burma, Malay Peninsula, Indonesia.
Ecology	Margins of evergreen forest; altitude near sea level. Flowering March – May; fruiting May – December.
Uses	The ripe fruits are eaten fresh. A sap from the unripe fruits is used as a sticky substance for joining pieces of paper or paper to wooden articles, (B).
Material studied	UBON 1228, BKF 076787
Reference	Phengkai, Fl. Thail. 2(4): 329. 1981.

Elaeagnaceae

Elaeagnus latifolia L.

Figure 42 A – B

Vernacular Som lod (ส้มหลอด)

Woody climber, up to 12 m long; branches thin, with silvery stellate scales, older parts usually armed with thorns. **Stipules** absent. **Leaves** simple, spirally arranged; petioles 1 – 1.5 cm; blades chartaceous, elliptic to obovate, 8 – 13 by 3.5 – 5 cm, apex acuminate, margins entire, base obtuse to acute, dark green and glabrous above, brown to silvery scaly beneath; nerves 4 – 6 pairs. **Inflorescences** axillary, many-flowered fascicle; bracts 2 mm long; pedicels 1 – 2 mm. **Flowers** bisexual, 1 cm long. **Perianth** trumpet-shaped, limb 4 – 5 mm long, 4-lobed; lobes valvate, broadly ovate acute, 2 – 2.5 by 2 mm, pale green, with densely stellate scales. **Stamens** 4, alternitepalous, inserted in the throat. **Ovary** superior, narrowly ovate, glabrous, 1-loculed, 1-ovuled; style terminal, 5 – 6 mm, stellate-scaly. **Fruit** a drupe, ellipsoid, 3–4.5 cm long, 2–2.5 cm wide, scaly, reddish-orange when ripe, juicy, very acid. **Seed** 1, ellipsoid, acuminate at both ends, 3 by 0.7 cm.

Locality Ban Ton Panun, Khuan Kalong District, Satun Province.

Distribution SE.Asia.

- Ecology Primary and Secondary rain forest; altitude 130 m. Flowering January – February; fruiting April – May.
- Uses The sourish ripe fruits are eaten fresh or cooked in sour curries, (B, M).
- Material studied UBON 1231
- Reference Veldkamp, Fl. Mal. Ser.1. 10(2) : 153. 1986.

Elaeocarpaceae

Elaeocarpus robustus Roxb.

Figure 42 C – E

Vernacular Pe yo (ปีเฮาะ)

Evergreen tree, up to 30 m tall; twigs glabrescent. **Stipules** minute, early caducous. **Leaves** simple, spirally arranged; petioles 2 – 6 cm long, glabrescent, geniculate and swollen at both ends; blades coriaceous, elliptic, 8 – 25 by 4 – 13 cm, apex acuminate, margins shallowly serrate, base rounded to obtuse, hairy along midrib on both surfaces; nerves 6 – 14 pairs. **Inflorescence** raceme, 7 – 17 cm long in axils of existing leaves or axils of leaf scars behind existing leaves; rachis pubescent. **Flowers** bisexual, white, 1 cm across; pedicels 1 cm long. **Sepals** 5, shortly connate at base, ovate-lanceolate, 5 by 2 mm, pubescent outside, hairy along limb and medial line inside. **Petals** 5, free, obovate, 6 by 4 mm, hairy in lower half, without basal ridge inside, laciniate, $\frac{1}{2}$ the length of the petals. **Stamens** 40 – 50, 3 mm long; anthers linear, not aristate, opening by a terminal pore. Disk distinctly 5-lobed, yellow. **Ovary** superior, ovoid, densely hairy, 3-loculed ovules 2 in each locule; styles stiffly hairy in lower half. **Fruit** a drupe, subglobose, 4 – 5 cm diam., sparsely pubescent, ripening yellowish-brown. **Seed** 1, subglobose.

Locality Ban To Wo, Su-ngaikolok District, Narathiwat Province.

Distribution Burma, Cambodia, Malay Peninsula, Indonesia.

Ecology In evergreen rain forest, lowland forest; altitude near sea level. Flowering and fruiting April – September.

Uses The ripe fruit are eaten fresh, (M). The bark combined with benzoin are rubbed against an earthenware pot, then a mixture obtained is applied to treat chronic ulcer, (M). The leaves are used for the treatment of herpes infection; in this case, the leaves which have numerous lumps appeared on their surfaces combined with the leaves of *Sandoricum koetjape* (Burm. f.) Merr. are pounded, into which a little amount of water is added. Then a squeezed juice is applied onto the affected area, (M).

Material studied UBON 723, BKF 075265

Reference Ng, Tree Fl. Mal. 4 : 94. 1989.

Euphorbiaceae

Antidesma ghaesembilla Gaertn.

Figure 26 D

Vernacular Mao na (เผ่านา)

Shrub, 3 – 10 m tall; young twigs tomentose; dioecious. **Stipules** small, lanceolate acuminate, caducous. **Leaves** simple, distichous; petioles 1 – 1.5 cm long, pubescent; blades thinly coriaceous, elliptic-ovate, 5 – 8 by 3.5 – 4.5 cm, apex obtuse, mucronate, margins entire, base rounded, upper surface glabrous except on the midrib and the nerves pubescent, lower surface pubescent throughout; nerves 4 – 5 pairs. **Inflorescence** spike, terminal or upper axillary, unisexual, solitary or in group. Male flowers small, 1 mm across, pale yellow, sessile. Sepals 5, free, orbicular, pubescent outside. Petal none. **Stamens** 5; filaments filiform, yellow turning red; anthers yellow; disk consisting of free 5 lobes, yellow hairy; pistillodes present. Female flowers small, pale green; pedicels 1 mm long. Sepals as in male but acute. Petal none. **Ovary** superior, slightly depressed ovoid, pubescent, 1-loculed, 2-ovuled; styles terminal; stigmas 4, recurved. **Fruit** a drupe, globose, sparsely pubescent, 4 – 5 mm diam., ripening dark red. **Seed** 1, orbicular, flattened.

Locality	Ban Thale Noi, Khuan Khanun District, Phattalung Province
Distribution	India, Bangladesh, Burma, Laos, Vietnam, S.China, Cambodia, Malaysia, Sumatra, Java, Borneo, Philippines, Molucca.
Ecology	In open forest, edges of mangrove, on roadsides and river-banks, on dry and swampy ground. Flowering and fruiting March – July.
Uses	The young leaves are eaten raw as a vegetable; the ripe fruits are eaten fresh, (B, M). The young leaves combined with turmeric rhizome and rice grains are crushed, and then applied externally as a poultice to treat abscesses, (B).

Material studied UBON 1213 , BKF 090551

Reference Hoffmann , Thai For. Bull.(Bot.) 28 : 139. 2000.

Baccaurea macrocarpa (Miq.) Mull.Arg.

Figure 29 A

Vernacular Lang khae (ลำแข)

Tree, 10 – 15 m tall; young parts densely brown hairy. **Stipules** narrowly triangular, 5 mm long. **Leaves** simple, spirally arranged; petioles 8 – 10 cm long, pubescent, broadened at distal end; blades coriaceous, elliptic-oblong, 25 – 40 by 14 – 20 cm, apex acuminate, margins entire, base blunt or subcordate, glabrous above, pubescent beneath; nerves 15 – 17 pairs, prominent beneath. **Fruit** depressed

globose, 3.5 – 7.5 cm diam., pericarp thick, yellow to brown when ripe. **Seeds** 3, with white to creamy aril.

Locality	Ban Ko Wiharn, Khok Pho District, Pattani Province.
Distribution	Malay Peninsula, Sumatra, Borneo.
Ecology	Evergreen rain forest, swamp forest; altitude 30 m. Flowering April – May; fruiting July – September.
Uses	The ripe fruits are eaten fresh, (B , M).
Material studied	UBON 600
Reference	Van Welzen <i>et al.</i> , Thai For. Bull. (Bot.) 28 : 70. 2000.

***Baccaurea motleyana* (Mull. Arg.) Mull. Arg.**

Figure 29 B

Vernacular Ra mai (ระไม), Ram bai (รำไบ)

Dioecious tree, 6 – 10 m tall; young parts pubescent. **Stipules** caducous. **Leaves** simple, spirally arranged; petioles 3–10 cm, pubescent; blades chartaceous, elliptic-obovate, 20 – 35 by 7 –17 cm, apex cuspidate or shortly acuminate, margins entire, base narrowly cordate, glabrous above, hairy beneath; nerves 13–16 pairs, prominent beneath, parallel. **Inflorescence** raceme, pendulous, from main branches or trunks, elongate, 13 – 35 cm long, hairy throughout. **Flowers** unisexual, small, yellowish-green. Male flowers minute, 2 – 3 mm across; pedicels up to 1.5 mm; perianth-lobes 4 – 6, ovate- oblong, acute, pubescent on both sides; **stamens** 4 – 6; rudiment of pistil short. Female flowers on longer raceme, 8 – 10 mm across; pedicels 2 mm; perianth-lobes 5, ovate, acute, persistent. **Ovary** superior, ovoid to globose, 3-loculed; ovule 1 per locule; stigma sessile. **Fruit** ovoid to globose, sparsely short hairy, 2.5 – 3.0 cm long, yellowish-brown when ripe, indehiscent. Seeds 2 – 3, 1.2 cm long, with transparent white sweet aril.

Localities	Ban Lu Bo Sa Ma, Su-ngaikolok District, Narathiwat Province. Ban Bon Khuan, Rattaphum District, Songkhla Province.
Distribution	Malaysia, Sumatra, Borneo, Molucca.
Ecology	Primary and secondary rain forest; often cultivated; soil : clay, sand or limestone; altitude near sea level to 120 m. Flowering April – May; fruiting October – November.
Uses	The ripe fruits are eaten fresh, (B , M).
Material studied	UBON 592 , BKF 084090
Reference	Whitmore, Tree Fl. Mal. 2:66. 1972 .

Baccaurea polyneura Hook. f.

Figure 29 C – D

Vernacular Cham pu ling (จำปูลิง)

Tree, 18 – 24 m tall; young twigs densely hairy. **Stipules** minute, hairy, caducous. **Leaves** simple, spirally arranged; petioles 4 – 6 cm long, slender, distinctly knee at the top, densely hairy; blades thinly chartaceous, elliptic to obovate, 14 – 20 by 6 – 10 cm, apex acuminate, margins entire, base rounded to cuneate, glabrous or sparsely pubescent above, hairy beneath; nerves 8 – 11 pairs. **Female inflorescences** ramiflora, denser racemes, pendulous, 10 cm long, 1 cm wide; peduncle 5 – 6 cm long; pedicels articulate, 2.5 mm long; bracteoles 3. **Flowers** small, yellowish-green. **Sepals** 4 – 5, ovate unequal, 2.5 – 3 by 1.5 – 2 mm, densely pubescent on both sides. **Petals** none. **Ovary** superior, ovoid, densely hairy, 3-loculed; ovules 2 in each locule; styles 3, bifid. **Fruit** capsule, globose, 2 cm diam., ripening yellowish-orange. **Seeds** 3; with a juicy, sour, pulpy aril.

Locality	Ban Khao Khram, Srinakharin Subdistrict, Pattalung Province.
Distribution	Malay Peninsula, Sumatra, Borneo.
Ecology	In evergreen rain forest, swamp forest; altitude 110 m. Flowering March – April; fruiting July – August.
Uses	The ripe fruits are eaten fresh, (B, M).
Material studied	UBON 1022, BKF 130941
Reference	Van Welzen, Thai For. Bull. (Bot.) 28 : 72. 2000.

Balakata baccata (Roxb.) Esser

Figure 29 E

Vernacular Yuea chong (เหี่ยวจง)

Tree, 30 – 35 m tall, glabrous; bark grayish-brown and deeply fissured with age; with white latex. **Stipules** minute, caducous. **Leaves** simple, spirally arranged; petioles 3 – 5 cm long; red, slender, slightly swollen at the ends; blades thickly membranous, elliptic or ovate, 9 – 17 by 4 – 8 cm, apex long acuminate, margins entire, base rounded; young leaves red-purple, mature ones dark green and glabrous above, glaucous beneath, with 2 dark knob-like glands on underside near the base of the blades; nerves 11 – 13 pairs. **Inflorescence** unisexual, spike, terminal or upper axillary, 7 – 10 cm long, combined into panicle to 20 cm long. **Male flowers** in groups of 6 in bract-axils, flanked by 2 large glands. Calyx cup-shaped, irregularly 2- to 3-lobed, 1 mm long, green. Petals none. **Female flowers** solitary. Calyx as the male ones but larger. Petals none. **Ovary** superior, compressed-obcordate, 2-loculed; ovule 1 in each locule; style 2, recurved. **Fruits** berry, 2-lobed, 7 – 10 mm across, ripening dark purple.

Locality Ban Khao Phra, Rattaphum District, Songkhla Province.

Distribution	India, Malay Peninsula, Sumatra, Borneo, S.China, Laos, Vietnam, Cambodia.
Ecology	In evergreen forest; altitude 100 – 300 m. Flowering and fruiting April – June.
Uses	The wood is used as firewood. The young leaves and fallen fruits are edible and very attractive to mouse deer, so the local people use the young leaves to bait traps, (B, M).
Material studied	UBON 1216, BKF 132870
Reference	Whitmore, Tree Fl. Mal. 2 : 129. 1972.

***Baliospermum montanum* (Willd.) Mull. Arg.**

Figure 29 F

Vernacular Thon di (หนดี)

Shrubs, 1 – 2 m tall, young parts pubescent. **Stipules** absent. **Leaves** simple, spirally arranged; petioles pubescent, 1 – 8 cm long, green to red; blades herbaceous; upper ones small, lanceolate, 7 – 10 by 3 – 5 cm; lower ones broad oblong-ovate, sometimes palmately, 3- to 5-lobed, 15 – 20 by 8 – 10 cm, apex acute, margins dentate, base obtuse-subcordate, with 2 glands near to top of petiole; pinnately nerved, 7 – 8 pairs, 3- to 5-nerved at base. **Inflorescence** axillary panicle, 10 – 20 cm long, rachis sparsely pubescent. **Flowers** small, unisexual, apetalous. Male flowers above, a few female ones at base of inflorescence. The male ones on pedicels 5 – 6 mm long; sepals 5, light green, orbicular, 1.5 – 2.0 mm long; disk glands 5, free. **Stamens** 15 – 20; anthers sub-reniform, adnate to a broad connective. Female flowers subsessile; sepals 5, light green to reddish, fleshy, ovate, glandular serrate, 1.5 mm long, disk cup-shaped; **ovary** superior, pubescent, subglobose, 3-loculed; ovule 1 per locule; styles 3, bifid; stigmas widened into wing, channelled, recurved at apex. **Fruit** a capsule, subglobose, 1.5 cm diam. **Seed** oblong, smooth mottled, 6 mm long.

Locality Ban Hua Yang, Rattaphum District, Songkhla Province.

Distribution India to Indo-China.

Ecology Common in evergreen forest, waste places; altitude 20 m. Flowering and fruiting January – March.

Uses A decoction of the roots is taken as a laxative, (B).

Material studied UBON 702, BKF 99440

Reference Whitmore, Tree Fl. Mal. 2 : 68. 1972.

***Breynia vitis-idaea* (Burm.f.) C.E.C. Fisch.**

Vernacular Kang pla (ก้างปลา), Sue mama (ซอ้มามา)

Shrub, 2 – 3 m tall, branches spreading, glabrous. **Stipules** triangular, 1 mm long. **Leaves** simple, alternate; petioles 2 mm long; blades thinly coriaceous, ovate, 2.5 – 3.5 by 1.5 – 2.0 cm, apex sub-acute, base rounded, margins entire, deep green above, glaucous beneath; nerves 4–5 pairs. **Flowers** unisexual, yellow, solitary or in clusters in leaf axils. **Male flowers** 2 mm long; calyx cup-shaped, with tiny 6 reflexed lobes; stamens 3, jointed in a column; pistillode absent. **Female flowers** pedicelled, with turbinate-shaped calyx, 1.5 mm long, 6-lobed; ovary superior, glabrous, 3-loculed; ovules 2 per locule; styles 3, erect. **Fruit** globose drupe, 7 – 8 mm diam., ripening red.

Locality Ban Plak Pla, Tak Bai District, Narathiwat Province.

Distribution India to Formosa, Ryukyu Is. and Philippines, south to Malay Peninsula.

Ecology Edges of forest, along path near beach forest; altitude 20 m. Flowering and fruiting throughout the year.

Uses The roots and leaves are used as an ingredient of the formula F32 given to women suffering from the harmful effects of a food they ate after giving birth, to relieve dizziness, (B). The leaves are also used in magical ritual by some Muslim Thais; they are chewed and then spat onto a patient in case of sickness due to sorcery. This magical ritual must be done in the evening, and it is also accompanied with an incantation. Sometimes, the young leaves are chewed and then spat onto a baby with colic; it is believed to drive off evil spirit.

Material studied UBON 929, BKF 111544

Reference Van WelZen, Thai For. Bull. (Bot.) 28 : 76. 2000.

***Claoxylon longifolium* (Blume) Endl. ex Hassk.**

Figure 33 D

Vernacular Phak wan chang (ผักหวานช้าง), Ta mat (ตาหมัด), A yae (อาเย)

Shrub, up to 8 m tall; young part pubescent; mostly dioecious. **Stipules** minute, triangular. **Leaves** simple, spirally arranged; petioles 2 – 8 cm long; blades thin, herbaceous, ovate-lanceolate, 14 – 20 by 4 – 9 cm, apex acute, margins dentate, base acute to obtuse, dark green, sparsely pubescent on both surfaces; nerves 7 – 12 pairs. **Inflorescences** unisexual, axillary; male inflorescence spiciform raceme, 5 – 8 cm long, short hairy; the female ones shorter. **Male flowers** white, minute, in fascicles of 2 – 3 flowers, closely spaced along inflorescence axis; pedicels 2–3 mm long; perianth lobes 4, valvate, pale green, linear ovate, acute, 3 – 4 mm; stamens

numerous, on a central receptacle mixed with linear scales, filaments free; anther cells divaricate. **Female flowers** mostly solitary; pedicels 1.5 mm long; perianth lobes 3, orbicular-triangular, pale green; ovary superior, ovoid-globose, pubescent, 3-lobed, 3-loculed; ovule 1 in each locule; stigma sessile, trifid. **Fruit** a capsule, 3-lobed. Seeds 3, subglobose, black, covered with a thin orange – red aril.

Locality	Ban Cho Kot, Su-ngai-padee District, Narathiwat Province.
Distribution	India, Indo-China throughout Malesia to New Guinea.
Ecology	In tropical rain forest, secondary forest; in lowlands to mountains; altitude 40 –120 m. Flowering and fruiting throughout the year.
Uses	The young leaves are eaten raw or blanched or cooked in various ways as a vegetable, with the side benefit to cure leucorrhoea, (B , M). A handful of the roots combined with three corn cobs and a handful of the black sticky rice mills within husks are boiled in water. Then this water is given to women to treat fever associated with menstruation, (B).
Material studied	UBON 598, BKF 42080
Reference	Shaw, Kew. Bull. 26(2) : 234. 1971.

***Croton cascarilloides* Raeusch.**

Figure 35 C

Vernacular Plao ngoen (เปล้าเงิน)

Shrub, up to 4.5 m tall, with slender branches, covered with brown scales. **Stipules** subulate, 4 mm long. **Leaves** simple, spirally arranged at the end of shoots; petioles 1.5 – 4.0 cm long; blades thin, chartaceous, oblong-lanceolate or oblong-ovate or rhomboid, 10 – 15 by 4 – 7 cm, apex acuminate, margins entire, base blunt, upper surfaces of mature leaves glabrous, beneath thickly covered with silvery peltate scales with some brown ones; nerves 7 – 8 pairs. **Inflorescences** terminal raceme, bisexual, 2 – 7 cm long. **Flowers** unisexual. Male flowers small, globose, white, 3 mm diam., towards apex; sepals 5, ovate; petals 5, obovate; stamens 10 – 12, filaments pubescent on basal part. Female flowers rather bigger, towards base; sepals 5, oblong, 5 mm long, apex blunt; petals none; ovary superior, globose; covered with brown scales, 3-loculed, ovule 1 per locule. Styles 3, bifid. **Fruit** a capsule, subglobose, brown.

Locality	Ban Ton Panun, Khuan Kalong District, Satun Province.
Distribution	Indo-China to Ryu kyu Islands, Burma, W. Malaysia.
Ecology	In evergreen forest, on limestone hill; altitude 50 m. Flowering and fruiting December – March.

Uses A decoction of the whole plant is given to women as a tonic and also as a remedy to cure hemorrhage after giving birth, (M).

Material studied UBON 704, BKF 109834

Reference Shaw, Kew Bull. 26(2) : 244. 1971.

***Croton caudatus* Geiseler.**

Figure 36 A

Vernacular Kura pria (กระปรียะ)

Scandent shrub; branches and racemes stellate-hairy, rough. **Stipules** linear, caducous. **Leaves** simple, alternate; petioles 3 – 5 cm long; blades thinly coriaceous, narrowly to broadly ovate, 5 – 15 by 3 – 7 cm, apex acuminate, margin serrulate with stalked glands, base subcordate with 2 stalked glands, scabrid, stellate-hairy on both surfaces; nerves 3 – 5 from the base, with 1 – 3 pairs from midrib and transverse nervules. **Inflorescence** a terminal raceme, 7 – 25 cm long. **Flowers** unisexual, small, white. **Male flowers** many at the top of the raceme; sepals 5, ovate, 2.5 cm long; petals 5, linear oblong, 2.5 cm long; stamens 18 – 30. **Female flowers** few at base of the raceme; sepals 5, ovate, 4 mm long, hairy; petals 5, minute, stellate-hairy on outer side, glabrous inside; ovary superior, globose, densely hairy, 3-loculed, ovule 1 in each locule; style 3, bifid, filiform. **Fruit** a woody capsule, yellowish-brown, globose, bluntly 6-ribbed, 1.5 – 2.0 cm diam., densely hairy. **Seeds** 3.

Locality Ban Lu Bo Sa Ma, Su-ngaikolok District, Narathiwat Province.

Distribution Himalayas, to Sri Lanka and S. China, SE. Asia, W. Australia.

Ecology Common in evergreen or deciduous forest, edges of peat swamp forest; altitude 20 m. Flowering January – March; fruiting February – June.

Uses The young leaves are eaten raw as a cardio tonic, (M). A decoction of the fruits is taken once a day, daily for the treatment of hemorrhoids, (M).

Material studied UBON 708, BKF 134570

Reference Shaw, Kew Bull. 26(2) : 245. 1971.

***Croton tiglium* L.**

Figure 36 B – C

Vernacular Salot (สลอด)

Shrub, 3 – 6 m tall, glabrous. **Stipules** caducous, subulate, 1.5 – 3.5 mm long. **Leaves** simple, alternate; petioles 2 – 5 cm long; blades herbaceous, ovate, 7 – 12 by 3 – 7 cm, apex acuminate, margins shallowly serrate, base round with 1 gland on

either side, glabrous above, with few stellate hairs beneath; 3-nerved at base. **Inflorescences** terminal raceme, 5 – 10 cm long. **Flowers** unisexual, male flowers and female ones on the same plant. **Male flowers** at upper part of the inflorescence; sepals 5, triangular, 2.0 by 15 mm, sparsely stellate-hairy, tip bearded; petals 5, narrowly oblong, edges woolly, shorter than the sepals; stamens 15 – 20, free; disk glands 5, small. **Female flowers** at lower part of the inflorescence, apetalous; sepals 5, linear lanceolate, 2.5 by 1.5 mm, villous at base; ovary superior, obovoid, 2 mm long, 1.5 mm across, pubescent, 3-loculed, ovule 1 in each locule; styles 3, bifid. **Fruit** a capsule on persistent calyx, oblong-globose, 3-lobed, 2 cm long 1.5 cm wide, stellately hairy, scabrid. **Seeds** 3, oblong, smooth, light brown .

Locality	Ban Hua Yang, Rattaphum District, Songkhla Province.
Distribution	Malaysia, China.
Ecology	In secondary forest; occasionally cultivated in villages; altitude 20 m. Flowering and fruiting January – March.
Uses	A decoction of the leaves is held in the mouth for a few minutes and then spit out, to soothe tooth ache. The crushed leaves are used to treat itching by applying it on the affected areas, (B). Very little amount of pounded seeds sometimes are taken to relieve constipation, (M).
Material studied	UBON 703, BKF 088674
Reference	Shaw, Kew Bull. 26(2) : 250. 1971.

***Elateriospermum tapos* Blume**

Figure 43 A – E

Vernacular Pra (ปฺระ)

Tree, 10 – 20 m tall, with white latex; young part with short hairs. **Stipules** small, caducous. **Leaves** simple, spirally arranged; petioles 3 – 5 cm long; blades thinly leathery, linear-oblong, 13 – 17 by 3 – 5 cm, apex acuminate, margins entire, base acute or obtuse, glabrous, shining bright red when young; nerves 12 – 15 pairs. **Inflorescence** a terminal panicle, consisting of many cymes, 8 – 13 cm long; main branches terminated by a female flower, the others male ones. **Male flowers** 5 – 7 mm across, creamy white; pedicels 6–8 mm; sepals 5, ovate-triangular, obtuse, 5 by 3 mm; stamens 10 – 20, free, filaments short. **Female flowers** 5 mm across; pedicels and sepals like those of the male ones; staminodes many; ovary superior, ovate, pubescent, 3-loculed; ovule 1 in each locule; style short; stigma lacinate. **Fruit** woody capsule, broadly oblong, longitudinally 3-grooved, 4.5 – 5 by 4 cm, glabrous, dull brown flushed pink. **Seeds** 3, oblong, sub-trigonous, 4 cm long, 1.5 cm wide, with thin crustaceous brown testa.

Locality	Ban La Lo, Su-ngai-padee District, Narathiwat Province.
Distribution	Sumatra, Java.

- Ecology In evergreen rain forests, hillsides; altitude 80 m. Flowering January – February ; fruiting July –August.
- Uses The seeds are eaten after roasted, boiled, or pickled, (B, M). The timber is used for house building, (B, M).
- Material studied UBON 1033 , BKF 106397
- Reference Backer & Bakh. f., Fl. Java. 1 : 49. 1963 ; Ridl., Fl. Mal. Pen. 3 : 252. 1967.

***Euphorbia hirta* L.**

Vernacular Nam nom ratchasi (น้ำมันราชสีห์)

Erect annual herb, up to 40 cm tall, laticiferous; stem terete, young parts light green to purple, covered with yellow multicellular hairs. **Leaves** simple, opposite; petioles very short; blades thinly chartaceous, oblong-lanceolate, 20 – 30 by 6 – 12 mm, apex obtuse, margins shallowly serrate, base oblique with one rounded side and one acute side, sparsely pubescent on both surfaces. **Inflorescence** cyathia, axillary, densely clustered on a stalk 3 mm long; cyathial cup green, 4-lobed, bearing 4 glands, glabrous. **Flowers** minute, unisexual; male and female ones in the same cyathia. **Male flowers** several per cyathia, naked; stamen 1. **Female flower** solitary, naked; ovary superior, broadly ovoid, pubescent, 3-angled, 3-loculed; ovule 1 in each locule; styles 3, bifid. **Fruit** capsule, ovoid, 3-lobed, pubescent. **Seeds** 3, ovoid, dull red.

- Locality Found in every study sites.
- Distribution Pantropical.
- Ecology In open, grassy places, roadsides; altitude 0 – 350 m. Flowering and fruiting throughout the year.
- Uses A decoction of the whole plant is used as a galactagogue given to a mother after giving birth, (M).
- Reference Shaw, Kew Bull. 26(2) : 262. 1971.

***Euphorbia thymifolia* L.**

Figure 46 D

Vernacular Nam nom ratchasi lek (น้ำมันราชสีห์เล็ก), La mo bue tae (ลาโมบือเต)

Prostrate annual herb, laticiferous, much branched, forming a tuft about 20 cm across; stem purple, with curved white hairs on upper side. **Stipules** frimbriate. **Leaves** simple, elliptic; petioles very short; blades thinly chartaceous, oblong, 2 –7 by 1.5 – 4 mm, apex rounded, margin at tip serrate, base rounded, slightly asymmetrical, glabrous above, sparsely pubescent beneath. **Inflorescence** cyathia, not densely clustered, in axil of one leaf at each node; cyathial cup 4-lobed,

bearing 4 glands, pubescent outside. **Flowers** minute, unisexual; male and female ones in the same cyathia. **Male flowers** several per cyathia, naked; stamen 1, anther cells globose. **Female flowers** solitary, naked; ovary superior, globose, pubescent, 3-angled, 3-loculed; ovule 1 in each locule; styles 3, bifid. **Fruit** capsule, globose, 3-lobed, pubescent, ripens within the cyathia causing it to split down one side. **Seeds** 3, ovoid, light brown.

Locality	Ban Sa Ko, Su-ngai-padee District, Narathiwat Province.
Distribution	Pantropical.
Ecology	In open, grassy places, roadsides, paths; altitude 50 m. Flowering and fruiting throughout the year.
Uses	A juice from the crushed whole plant is used as a galactagogue given to a mother after giving birth, (M).
Material studied	UBON 565, BKF 089074
Reference	Shaw, Kew Bull. 26(2) : 267. 1971.

***Excoecaria oppositifolia* Griff.**

Figure 46 H

Vernacular Fai duean ha (ไฟเดือนห้า)

Small tree, 4 – 10 m tall, all parts with white poisonous latex, glabrous; dioecious or monoecious. **Stipules** absent. **Leaves** simple, opposite; petioles 3 cm long, terete; blades coriaceous, lanceolate, 15 – 30 by 5 – 10 cm, apex acuminate, margins sharply serrate, base cuneate, upper surface shiny deep green, lower surface paler; nerves 15 – 20 pairs. **Flowers** unisexual, minute 1 mm long, sessile. Male flowers in axillary spike 7 cm long; rachis thick, glabrous; tepals 3, triangular unequal, 0.6 by 0.5 mm; stamens 3, free, 1 mm long; pistillode absent. Female flowers mostly solitary, terminal, 1.0 – 1.5 mm long; tepals 3, suborbicular, 2 by 2 mm; ovary superior, 3-loculed; ovule 1 per locule; styles 3, patent. **Fruit** capsule, globose, distinctly 3-lobed, 2 – 3 cm diam. **Seeds** 3, globose.

Locality	Ban Ton Panun, Khuan Kalong District, Satun Province.
Distribution	Burma, Indo-China.
Ecology	In evergreen forest, on limestone; altitude 100 m. Flowering February; fruiting May.
Uses	A glass of decoction of the roots is used for the treatment of urinary stones; it is taken once a day for 3 days, (M).
Material studied	UBON 616, BKF 125537
Reference	Shaw, Kew Bull. 26(2) : 270. 1971.

***Glochidion perakense* Hook. f.**

Figure 51 E

Vernacular Man pu (มันปู)

Tree, up to 7 m tall; branches glabrous; young shoot reddish-brown. **Stipules** broadly triangular, 1 by 1.5 mm. **Leaves** simple, alternate; petioles 6–7 mm long; blades chartaceous, oblong-lanceolate, 4–14 by 3–6 cm, apex sub-acute, margins entire, base narrowed, slightly oblique, glabrous on both surfaces, glossy above; nerves 7–8 pairs. **Inflorescence** axillary, fascicled. **Flowers** unisexual, male and female on the same plant. **Male flowers** yellow, 5–6 mm across; pedicels 8 mm long; sepals 3, free, ovate, 2.5 by 1.8 mm; petals 3, free, ovate, 3 by 2 mm; stamens 5, connate in oblong column; pistillode absent. **Female flowers** pale green, 3 mm across; pedicels 4 mm long; sepals 3, ovate, 1 by 1 mm; petals 3, ovate, 1 by 1 mm; ovary superior, globose, densely pubescent, 6-loculed; ovules 2 per locule; styles columnar, pubescent, lobed at tip. **Fruit** capsule, depressed-globose, pubescent, tipped by persistent style.

Locality Ban Nai Wang, Kongra District, Phattalung Province.

Distribution Malaysia, Indonesia.

Ecology Edges of forest, open places; mainly coastal, swamp places. Altitude 80 m. Flowering and fruiting April–November.

Uses The young leaves are eaten raw as a vegetable, (B, M). The roots are used as an ingredient in the formula F4 taken as a tonic, (M).

Material studied UBON 607, BKF 49301

Reference Shaw, Kew Bull. 26(2) : 271. 1971.

***Hymenocardia punctata* Wall. ex Lindl.**

Figure 56 A – C

Vernacular Faep (แฟป), Hu ling (หูลิง)

Shrub, 2–4 m tall; young branches densely covered with hairs and yellow gland dots. Dioecious. **Stipules** absent. **Leaves** simple, alternate; petioles 1–1.5 cm, pubescent above; blades thinly coriaceous, elliptic, 5–8 by 3–5 cm, apex acute, margins entire, base rounded, glabrous above, densely yellow gland dotted beneath; midrib impressed above, prominent beneath; nerves 4–5 pairs. **Inflorescence** unisexual, axillary or in axils of fallen leaves. Male inflorescence catkin, 1–2 cm long, yellow, solitary or in group of 2–3. **Male flowers** numerous, minute. Calyx campanulate, 5-lobed; lobes minute, densely covered with hairs and yellow gland dots. Petals none. Stamens 5; filaments short; anthers large, red. Pistillode present. Female inflorescence raceme, 5–9 cm long. **Female flowers** few, subsessile. Calyx and petals as those of the male ones. Ovary superior, obovate, flattened, light green,

glabrous, 2-loculed; ovules 2 in each locule; styles 2, long, papillose all over, reddish-purple. **Fruit** a capsule, with 2 flat broad wing-like cocci separating from central axis, 1.5 by 2.3 cm.

Locality Ban Khao Khram, Srinakharin Subdistrict, Phattalung Province.

Distribution Burma, Sumatra .

Ecology In evergreen forest, hill forest, sometimes in marshy ground or swamps; altitude near sea level to 100 m. Flowering and fruiting January – May.

Uses The sourish young fruits are cooked in Thai-style vegetable soup,(B).

Material studied UBON 927

Reference Ridl., Fl. Mal. Pen. 3 : 251. 1967.

***Phyllanthus amarus* Schumach. & Thonn.**

Figure 68 C

Vernacular Tai bai khao (ใต้ใบขาว)

Herb, 30 cm tall, glabrous, branches very slender. **Stipules** triangular, 1 mm long. **Leaves** simple, distichous; petioles short; blades membranous, elliptic, 5 –12 by 3 – 4 mm, apex obtuse, base rounded, margin entire, glabrous on both sides; nerves 5 – 6 pairs. **Flowers** unisexual, monoecious. **Male flowers** pale yellowish-green, 1.5 –2 mm diam., 2 – 3 in short raceme, in lower leaf axils; sepals 6, connate at base; lobes obovate, 0.5 mm long; disk-glands 6, free; stamens 3, connate; anthers horizontally dehiscent. **Female flowers** solitary in higher axils, 2 mm diam.; sepals 6, connate at base, lobes oval-oblong, green, pale-margined, disk-glands connate into a shallow cup. Ovary superior, globose, 3-loculed, ovules 2 per locule; styles 3, free, bifid. **Fruit** capsule, depressed globose, hardly lobed, smooth, pale green. **Seeds** 6, trigonous .

Locality Ban Thung Phla, Khok Pho District, Pattani Province.

Distribution Pantropical.

Ecology Common in waste places, roadsides, damp sandy soil; altitude 40 m. Flowering and fruiting throughout the year.

Uses The whole plant combined with those of *Andrographis paniculata* (Burm.f.) Wall.ex Nees in equal proportion are boiled in water, it is boiled until the volume is 1/3 of original volume. Then a decoction is taken 1 cup daily to treat diabetes. The whole plant is used as an ingredient in formula F31 used in the treatment of malarial fever. Some villagers used this species alone to

treat chronic fever ; in this case, a handful of the whole plant is boiled with 3 cups of water until the volume is 1/3 of original volume. Then a cup of a decoction is taken 3 times a day, (B).

Material studied UBON 1106, BKF 130079

Reference Shaw, Kew Bull. 26(2) : 317. 1971.

***Phyllanthus elegans* Wall. ex Mull.Arg.**

Figure 67 G – H

Vernacular Phak wan chang (ผักหวานช้าง)

Shrub, to 3 m tall; branches slender, glabrous, terete. **Stipules** linear, 5 mm long. **Leaves** simple, distichous; petioles 2 – 3 mm long; blades herbaceous, broadly ovate, 7 – 11 by 3 – 5 cm, apex acuminate, base rounded, margins slightly reflexed, glabrous, pale or glaucous beneath; nerves very slender, 4 – 5 pairs. **Flowers** unisexual, monoecious, small. **Male flowers** in dense fascicles, axillary, at the lower part of the branches; pedicels slender, pink, 4 mm long; calyx deeply 4-lobed, lobes oblong fimbriate, rose-pink, 1.2 by 1.0 mm, with orbicular glands at the base; stamens 4, connate. **Female flowers** often solitary, born on leafless ends of the branches; pedicels 3 cm long, slender; sepals deeply 6-lobed, lobes ovate fimbriate, green, 5 – 6 mm long. Ovary superior, globose, glabrous, 3-loculed; ovules 2 per locule; styles 3, bifid. **Fruit** a capsule of 3 crustaceous cocci, inflated, smooth, pale green, 1.0 – 1.5 cm diam.

Locality Ban To Deang, Su-ngaikolok District, Narathiwat Province .

Distribution Burma, Malay Peninsula, Indonesia.

Ecology In evergreen forest, humid places; altitude near sea level. Flowering and fruiting throughout the year.

Uses The young leaves are eaten raw or cooked as a vegetable, (B, M). They are chewed to soothe toothache; the crushed leaves are used to brush teeth and gum once a month; it is said to strengthen the teeth and gum, (B). The Leaves are also used for the treatment of abscesses; in this case, the leaves combined with a small amount of turmeric rhizome and few rice grains, then they are pounded. The mixture obtained is used as a poultice applied over the affected areas until cured, (M). The leaves (3 leaves) are usually given to boxers to chew with a betel quid before the games begin. It is believed that it will strengthen the body of the boxers, (M)

Material studied UBON 574, BKF132371

Reference Shaw, Kew Bull. 26(2) : 318. 1971.

***Phyllanthus oxyphyllus* Miq.**

Figure 68 A – B

Vernacular Yai thip lan (ยาชถีบหลาน)

Shrub, 1 – 3 m tall, with slender spreading branches. Branches sharply quadrangular, glabrous. **Stipules** minute, 1.0 by 0.8 cm, reddish-brown when young. **Leaves** simple, distichous; petioles very short, 1 mm long; blades herbaceous, glabrous on both surfaces, lanceolate-oblong, 3 – 7 by 1 – 2 cm, apex acuminate, base rounded, margins entire; nerves 6 – 9 pairs, slender. **Flowers** unisexual, male and female flowers in the same axillary clusters. **Male flowers** small 3 mm across, yellow; pedicels very short; sepals 6, broadly oblong, blunt, subequal 1 by 2 mm, glandulars 6 at the base; stamens 3, filaments connate at base. **Female flowers** resembling the male ones. Ovary superior, globose, glabrous; 3-loculed, ovules 2 per locule; stigma 3, bifid. **Fruit** a capsule, depressed globose, shallowly 3-lobed, 9 mm across, dark brown, substended by persistent calyx, pendulous. **Seeds** 6, reniform, 9 mm long, 3 mm across, brown.

Localities	Ban Nai Wang, Kongra District, Phattalung Province. Ban Bon Khuan, Rattaphum District, Songkhla Province.
Distribution	Malay Peninsula, Sumatra.
Ecology	In evergreen rain forest, slightly shaded places; altitude 50 – 80 m. Flowering and fruiting throughout the year.
Uses	The young leaves are eaten raw as a vegetable, (M).
Material studied	UBON 622, BKF 075413
Reference	Shaw, Kew Bull. 26(2) : 321. 1971.

***Phyllanthus pulcher* Wall. ex Mull.Arg.**

Vernacular Thorani san (ธรณีสาร), Luk tai bai (ลูกใต้ใบ)

Shrub, 40 – 150 cm tall; stem terete, erect, puberulous. **Stipules** narrowly triangular, 2 – 3 mm long. **Leaves** simple, distichous, mostly on side branches; petioles very short; blades thinly coriaceous, obliquely oblong or ovate-oblong, 6 – 25 by 4 – 10 mm, apex acute, mucronate, margins entire, base obliquely cuneate, glabrous, glaucous beneath. **Flowers** unisexual, in leaf-axils of side branches. **Male flowers** fascicled in lower axils; pedicels 0.5 – 1 cm; perianth-lobes 4, triangular, strongly fimbriate, light green; disk-glands 4, round, free; stamens 4, filaments entirely connate into a short column. **Female flowers** solitary in higher axils, larger than the male ones; pedicels 2 cm long, slender, red; perianth-lobes 6, ovate to ovate-oblong, strongly fimbriate, 3 – 4 mm long, red with yellow margin; disk-glands connate into a shallow cup, 6-lobed, red; ovary superior, dark red, depressed globose

3-lobed, 3-loculed; ovules 2 in each locule; styles 3, bifid, divided near to the base.
Fruit capsule, subglobose, 3 mm diam., smooth, pale brown.

Locality	Ban Ton Panun, Khuan Kalong District, Satun Province.
Distribution	Burma, Indo-China, Malay Peninsula, Java, Sumatra, Borneo.
Ecology	In evergreen forest, more or less humid places; altitude 100 m. Flowering and fruiting throughout the year.
Uses	The whole plant combined with a small amount of turmeric rhizome and few rice grains are pounded. Then a mixture is used as a poultice applied over the affected areas to cure contusion, (B, M). The crushed whole plant of this species alone is applied externally to treat herpes infection, (M). The roots are used as an ingredient in the formula F36 to treat venereal diseases, (M).
Material studied	UBON 6, BKF 077170
Reference	Shaw, Kew Bull. 26(2) : 322. 1971.

***Phyllanthus urinaria* L.**

Vernacular Ya tai bai (หญ้าไต้ไบ)

Annual herbs, 30 cm tall, with ascending branches at base, stem slightly angular, glabrous. **Stipules** cordate, apex abruptly acuminate, 2 by 1 mm. **Leaves** simple, spirally arranged along the stem and larger branchlets, and distichous along the ultimate twigs; petioles very short; blades herbaceous, ovate-oblong, 5 – 15 by 2 – 5 mm, apex acute, mucronate, margins entire, base rounded, slightly oblique, glabrous above, hispidulous beneath near the margin; nerves 4 – 5 pairs, sharply raised beneath. **Flowers** minute, unisexual; male and female on the same branch. **Male flowers** in cluster of 2 – 3 in higher leaf axils; pedicels very short; perianth lobes 6, ovate-oblong, 0.8 by 0.3 mm, membranous, white with greenish central line; disk glands 6, orbicular; stamens 3, filaments connate into a column, anthers vertically dehiscent; pistillode absent. **Female flowers** solitary in lower leaf axils, resembling the male ones; staminode absent; disk glands connate into an annulus; ovary superior, bullate-rugose, 3-loculed; ovules 2 per locule; styles 3, bifid, spreading. **Fruit** a capsule, depressed globose, densely warty, 2 mm across, breaking up into 2-valved cocci. **Seeds** 6, trigonous, black.

Locality	Found in every study sites.
Distribution	Pantropical.
Ecology	Common on waste ground, also in clearing and pathsides in evergreen forest; altitude 40 m. Flowering and fruiting throughout the year.

Uses A handful of the whole plant is boiled in 3 cups of water. It's boiled until the volume is 1/3 of original volume. This decoction is taken 3 times a day before meals in the treatment of fever, diabetes, or high blood pressure, (B). A juice from the crushed leaves is applied over the affected areas once a day, for 1 – 3 days to treat itching, (M).

Material studied BKF 55035

Reference Shaw, Kew Bull. 26(2) : 325. 1971.

***Phyllanthus virgatus* G. Forst.**

Figure 68 D

Vernacular Tai bai khao (ไต้ใบขาว)

Annual herb, to 60 cm tall; stem slender, erect, slightly compressed and sharply angled on 2 sides, light green, glabrous. **Stipules** scaly, minute. **Leaves** simple, distichous, subsessile; blades membranous, linear-lanceolate, 1.5 – 2 by 0.4 – 0.6 cm, apex rounded and mucronate, margins entire, base rounded; midrib distinct; nerves inconspicuous. **Flowers** unisexual, male and female ones mixed together in the same leaf axil. **Male flowers** 1.5 – 2 mm long; pedicels short; perianth rotate, white with a pink center, 6-lobed; lobes suborbicular, subequal, 1 mm long; glands 6, cup-shaped, pale green, at base of the perianth lobes; stamens 3, free, 0.5 mm long; pistillode absent. **Female flowers** usually 1 in each leaf axil; pedicels red, longer than those of the male ones; tepals 6, free, narrowly triangular, acute, 1 mm long; staminode absent; ovary superior, globose, 3-loculed; ovules 2 in each locule; styles 3, bifid, reflexed. **Fruit** capsule, depressed globose, 3 mm diam., smooth, ripening dark brown, seated on the persistent perianth; stalk 7 – 8 mm long. **Seeds** 6, subglobose, 3-angled, dark brown.

Locality Ban Ta Se, Hat Samran Subdistrict, Trang Province.

Distribution India, SE. Asia, S.China, Malesia to Polynesia.

Ecology In waste ground, paddy field, secondary forest, rubber plantation; altitude 30 m. Flowering and fruiting throughout the year.

Uses A decoction of the whole plant is taken 3 times a day for the treatment of fever associated with menstruation, (B).

Material studied UBON 4 , BKF 077171

Reference Shaw, Kew Bull. 26(2) : 325. 1971.

Shirakiopsis indica (Willd.) Esser

Figure 72 D

Vernacular Ku ra (กุ่ม)

Tree, up to 18 m tall, with white latex, twigs slender; young leaves and inflorescences with yellowish hairs. **Stipules** minute, caducous. **Leaves** simple, alternate; petioles 1 – 1.5 cm; blades thinly leathery, oblong to elliptic to narrowly ovate, 7 – 14 by 3 – 4 cm, apex bluntly acuminate, margins serrate, base obtuse, glabrous on both surfaces, upper surface shiny dark green, paler beneath; nerves numerous, faint. **Inflorescence** a terminal spike to 5 cm long, solitary, rachis pubescent. **Flowers** unisexual, yellow, small, numerous. **Male flowers** in upper part the spike, several in a bract; pedicel 1 – 2 mm long; calyx cup-shaped, 0.5 – 0.8 mm long, shortly 3- to 5-lobed, ciliate; petal absent; stamens 3, 1 mm long; pistillode absent. **Female flowers** in lower part of the spike, one to a bract; pedicels slightly longer than those of the male ones; calyx cup-shaped, 1–1.5 mm long, 3-lobed, pubescent; ovary superior, globose, glabrous, 3-loculed; ovule 1 in each locule; style short; stigmas 3, undivided. **Fruit** a woody capsule, globose, smooth, 2.5 cm diam. **Seeds** 3, elliptic, 10 by 7 mm, pale brown.

Locality Ban Huay Ngo, Khok Pho District, Pattani Province.

Distribution Sri Lanka, India, Malay Peninsula, Borneo, Sumatra, Celebes, Moluccas, New Guinea.

Ecology Along rivers and seashores, mangrove forest; in primary and secondary forests of swampy places, also along up stream in rice fields near the sea; altitude near sea level to 40 m. Flowering and fruiting April – September.

Uses A few seeds are pounded, mixed with a cup of cooked rice, then given to children with helminthes to eat, (B). The leaves are used to treat vermin in livestock, to repel insect larvae in paddy field; the leaves are laid down on the floor of stall or livestock enclosure to get rid of vermin from skin of livestock when laying on these leaves. The leaves are also laid down on the ground in paddy field to repel the pests such as land crabs infesting paddy field, (B).

Material studied UBON 587

Reference Esser, Blumea. 44(1) :185. 1999.

Fagaceae

Castanopsis inermis (Lindl. ex Wall.) B. & H.

Vernacular Ko (ก่อ), Bue ra ngae (บือราแง)

Evergreen tree, 10 – 30 m tall; bark grey, rough, lenticulate; young branchlets tomentose then glabrous. **Stipules** triangular, caducous. **Leaves** simple, alternate; petioles 1 – 2 cm, glabrous; blades elliptic-ovate, coriaceous, 10 – 15 by 4 – 6 cm, apex more or less acute, base rounded to acute, margins entire, glabrous above, tiny scaly beneath; nerves 10–15 pairs, arched and anastomosing at margins, reticulation fine and obscure on both surfaces. **Inflorescence** axillary, subterminal, branched spikes, unisexual or bisexual. Male inflorescences 10 – 15 cm long, slender; bracts ovate-acute, tomentose. **Male flowers** tiny, creamy-yellow with 6-lobed perianth; lobes rounded, 0.5 mm long; stamens 12. Female inflorescences 10 – 15 cm long, stout. **Female flowers** tiny, creamy yellow as the male ones, surrounded by a cupule; perianth campanulate, 6-lobed; staminodes 12; ovary inferior, 3-loculed, ovules 2 in each locule; styles 3. **Fruit** a nut, ovoid-globose, silky, completely enclosed by cupule, 2 – 3 by 2 – 3 cm.

Locality	Ban Khok Mu Ba, Tak Bai District, Narathiwat Province.
Distribution	Malay Peninsula, Singapore, Sumatra.
Ecology	Common in lowland forest; altitude 20 m. Flowering April – June; fruiting May – September.
Uses	The fruits are eaten after roasted. The hard timber is used for general construction or make furniture, (B, M).
Material studied	UBON 654
Reference	Soepadmo, Fl. Mal. Ser.1. 7(2) : 315. 1972.

Flacourtiaceae

Flacourtia jangomas (Lour.) Rausch.

Figure 49 D – E

Vernacular Khrob (ขร็อบ)

Tree, 6 – 10 m tall, trunk and branches with woody thorns when young; bark light brown, young branches white-dotted by numerous suborbicular lenticels, glabrous. **Stipules** subulate, minute, red. **Leaves** simple, spirally arranged; petioles slender, 6 – 8 mm long; blades membranous to thinly chartaceous, pinkish when young, narrowly ovate, 7–12 by 3–5 cm, apex long-obtuse-acuminate, margins serrate-crenate, base cuneate, glabrous, shining above, dull beneath; nerves 4–5 pairs. **Inflorescence** raceme, axillary, 1.5–2 cm long, few-flowered; pedicels 3 mm long. **Flowers** unisexual, minute, pale green; sepals 4–5, free, broadly ovate; petals

absent; disk yellow. **Male flowers** with numerous stamens, pistillode absent. **Female flowers** without staminode; ovary superior, flask-shaped turning globose, 6-loculed; ovules 2 in each locule; styles connate into a short column, with 4–6 recurved arms free only at the tip. **Fruit** a drupe, globose, 2 – 2.5 cm diam., dark purple, with greenish-yellow pulp. **Seeds** 4 – 6, obovoid, compressed.

Locality	Ban Hua Yang, Rattaphum District, Songkhla Province.
Distribution	E.Africa, India, SE.Asia, Malay Peninsula, Sumatra, E.Java, Borneo.
Ecology	Cultivated as fruit tree; altitude 20 – 70 m. Flowering and fruiting March – October.
Uses	The ripe fruits are eaten fresh. (B, M)
Material studied	UBON 931
Reference	Sleumer, Fl. Mal. Ser.1. 5(1) : 72.1954 ; Back. & Bakh. f., Fl. Java. 1 : 285. 1963.

Gnetaceae

Gnetum gnemon L. var. *gnemon*

Figure 52 C – D

Vernacular Miang (เหมียง), Riang (เหียง), Li leng (ลิเลง)

Dioecious shrub, 3 m tall; branches with swollen joints, glabrous. **Stipules** absent. **Leaves** simple, opposite, reddish-brown when young; petioles 1–1.5 cm long. Blades thinly coriaceous, elliptic to elliptic-oblong, 10 – 20 by 4 – 10 cm, apex caudate acuminate, base cuneate, glabrous on both surfaces; pinnately nerved; nerves 6 – 9 pairs. The reproductive organs called “flowers” born in whorls on spike-like inflorescences (strobili); spike axillary, simple or one-branched, each one with 2 opposite basal scales and several collars; collar cup-like, membranous, green, 2 – 3 mm broad, containing densely moniliform hairs and sessile unisexual flowers. **Male spike** cylindrical, 4 – 5 cm long, 4 mm diam., greenish-yellow; male flowers spirally arranged in 2 – 5 rings below a ring of sterile female ones, small, with a stalk bearing 2 microsporangia and surrounding sheath-like perianth; sterile female flowers ovoid, tipped. **Female spike** similar those of the male ones, 3 – 4 cm long, 4 mm diam., bearing a whorl of 4 – 8 female flowers between adjacent collars; female flowers ovoid, gradually tapering to the tip, green, surrounded by three layers of envelopes. **Seed** ellipsoid, 1.5 – 1.8 cm long, 1.2 cm diam., ripening yellow.

Locality	Ban Sa Ko, Su-ngai-padee District, Narathiwat Province.
Distribution	Malay Peninsula, Borneo.
Ecology	In evergreen rain forest, along stream, moderate light intensity; altitude 40 m. Flowering October – December; fruiting February – April.

Uses The young leaves are eaten raw as a vegetable with the side benefit of getting rid of helminthes. Sometimes they are cooked in various kinds of dishes, and also used as a green colorant in authentic dessert of Muslim Thais, (B, M).

Material studied UBON 252

Reference Phengkhai, Fl. Thail. 2(3) : 205. 1975.

Gramineae

Centotheca lappacea (L.) Desv.

Figure 32 B

Vernacular Niao ma (เหนียวหมา)

Erect grasses, culms up to 1 m tall, perennial, usually with several tillers. **Leaves** narrowly ovate-acuminate, glabrescent, 8 –12 by 2 – 2.5 cm; cross-nerves prominent. **Inflorescences** terminal panicle, 20 – 25 cm long, 10 cm wide; primary branches angular with an orange swelling at the axil; otherwise more capillary. **Spiklets** numerous, 3-flowered; the lowermost-floret with glumes 2.5 – 3.0 mm long; lemma 3.5 mm, 5-nerved; palea 2 mm, 2-nerved. **Stamens** 2, anthers yellow. **Ovary** ovoid with 2 feathery pale stigma branching from its tip. Upper florets similar but shorter and lemma with 2 prominent rows of bulbous-based hairs on either side of the back.

Locality Ban Hua yang, Rattaphum District, Songkhla Province.

Distribution Africa, Tropical Asia.

Ecology In forest; shady, moderately dry to humid situation; altitude 20 m. Flowering throughout the year.

Uses A decoction of the whole plant is drunk frequently during the day as a substitute of drinking water for the treatment of shiver caused by malarial like fever, (B). The leaves are used for the treatment of herpes infection; in this case, the tender parts of the young leaves combined with an equal amount of a fallen leaf of *Sandoricum koetjape* (Burm. f.) Merr. and the roots of *Curculigo latifolia* Dryand. are chewed and then spat onto the affected areas at the early stage of infection, (B).

Material studied UBON 314 , BKF 55262

Reference Gilliland, Fl. Malaya. 3 : 53. 1971.

***Coix lachryma-jobi* L.**

Figure 34 A

Vernacular Dueai (เดื่อข)

Robust grass, 90 – 250 cm tall. Leaf sheath 4 cm long, loose, glabrous; ligules membranous, less than 1 mm long. **Leaves** linear, 40 – 50 by 2 – 4 cm, apex acuminate, margins scabrid, glabrous, with prominent midrib in the lower part. **Inflorescences** bisexual, 7.5 cm long, arising in group from the axils of the upper leaves, each consisting of an involucre which is a hard shining white bead-like structure 9 mm long, enclosing 3 spiklets (a single sessile spiklet and 2 pediceled neuter spiklets); and, exserted from the involucre, a male raceme. **Florets** with 2 glumes, lemma and palea. **Stamens** 3, anthers orange. **Ovary** superior, ovoid; stigmas 2, plumose, and long exserted out of the involucre.

Locality	Ban Ton Panun, Khuan Kalong District, Satun Province.
Distribution	Pantropical.
Ecology	In waste places near village, humid places; altitude 80 m. Flowering and fruiting throughout the year.
Uses	A decoction of the whole plant is taken as a tonic by women after giving birth. It is said to promote contraction of vagina and also to bring back youthfulness, (M).
Material studied	UBON 313, BKF 27477
Reference	Gilliland, Fl. Malaya. 3 : 304. 1971.

***Leptaspis cf. urceolata* (Roxb.) R.Br.**

Figure 59 A

Vernacular Lek mai phai (เหล็กไม้ไผ่)

Erect perennial forest grasses, culms to 1 m tall. **Leaves** simple, alternate; petioles 3 – 4 cm long; sheaths loose, 8 – 10 cm long, glabrous, short hairy on the back of the auricle; ligule minute, hairy; blades coriaceous, stiff, elliptic to oblong, ovate, 20 – 28 by 4 – 6 cm, apex acuminate, margins scabrous towards the apex, base cuneate, glabrous on both surfaces, with numerous small cross-veins visible on both surfaces. Flower and fruit not found.

Locality	Ban Ton Panan, Khuan Kalong District, Satun Province.
Distribution	Malaysia, Sri Lanka.
Ecology	In evergreen rain forest ; altitude 120 m.
Uses	A decoction of the whole plant is taken as a tonic to increase potency in men, (M).

Material studied UBON 910, BKF 9000

Reference Gilliland, Fl. Malaya. 3 : 47. 1971.

***Lophatherum gracile* Brongn.**

Figure 60 E

Vernacular Lek mai phai (เหล็กไม้ไผ่)

Tufted, erect perennial grasses, up to 90 cm tall. **Leaves** with sheath 6–10 cm long; ligule a minute membranous rim; blades lanceolate, quite glabrous on both sides, 15 – 20 by 2 – 3 cm, apex acuminate, base narrowed sharply to a distinct petiole. **Inflorescences** terminal panicle, 10 – 20 cm long , composing of many spikelets. **Spikelets** green, slender, 4 mm long, ciliate at base; glumes unequal shorter than the spikelet; only the lowest floret fertile, with lemma and palea; above this several neuter florets, each represented by a small lemma ending in a short rough awn; the awn forming a small tuft at the apex of the spikelets. **Stamens** 2. **Ovary** superior, with feathery stigma diverging from its tip.

Locality Ban Ton Sai, Srinakharin Subdistrict, Phattalung Province .

Distribution India, Burma, Malaysia, China, Indonesia, Australia.

Ecology In forest, open places; altitude 80 m. Flowering and fruiting throughout the year.

Uses The whole plant with tuberous roots is chopped and then boiled in water. Then a decoction is taken as a tonic to increase internal strength. Sometimes the whole plant is steeped in local whisky, and then a tincture is taken. They are also used as an ingredient in the formula F7 taken as a tonic for potency in men, (B).

Material studied UBON 308 , BK 53618

Reference Gilliland, Fl. Malaya. 3 : 55. 1971.

***Phragmites karka* (Retz.) Trin. ex Steud.**

Vernacular La pho (ลาโพ)

A reed with culms, up to 3 m tall and 1.5 cm diam., hollow; rhizome stout, creeping. **Leaves** simple; sheath glabrous, 15 – 25 cm long; ligule a minute rim, bearing prominent hairs; blades linear-lanceolate, glabrous, up to 50 cm long, apex acuminate, margins scabrid. **Inflorescence** a large terminal panicle, 30 cm long. **Spikelets** 1.3 cm long, 3- to 7-flowered; rachilla with silky hairs; glumes glabrous, membranous, lanceolate, unequal, 4 – 5 mm long, awnless; lemmas progressively shorter, the lowest ones 9 mm long, linear, concealing the palea; palea linear-acute, 2.8 mm long. **Stamens** 2 – 3. **Ovary** superior, 1-loculed, ovule 1, with 2 diverging feathery stigmas. Fruit oblong cylindrical.

Locality	Ban Thale Noi, Khuan Khanun District, Phattalung Province.
Distribution	India, Burma, Malaysia.
Ecology	Common on river banks, along slow-running streams, in thickets of wet ground; altitude near sea level. Flowering and fruiting throughout the year.
Uses	The young shoots are roasted and then cooked in curries as substitute for bamboo shoots, (B).
Material studied	UBON 318, BKF 61858
Reference	Gilliland, Fl. Malaya. 3 : 49. 1971.

Guttiferae

Garcinia atroviridis Griff.

Figure 50 C – E

Vernacular Som khaek (ส้มแขก), A sae kluko (อาแซ กลูโกะ)

Tree, 10 – 20 m tall, glabrous, with yellow latex; crown narrowed, with drooping branches; dioecious. **Stipules** absent. **Leaves** simple, opposite; petioles 1 – 2 cm. long; blades coriaceous, red when young later deep green, oblong, 10 – 25 by 4 – 7 cm, apex abruptly acuminate, margins entire, base cuneate, glabrous on both surfaces; nerves thin, numerous, close, parallel, straight. **Male inflorescence** a short raceme, terminal; peduncles 4 cm long; pedicels 1 – 1.8 cm long. **Male flowers** bright red, 3.5 – 4 cm across. Sepals 4, free, oblong to orbicular, unequal, 1 – 1.5 cm long, green or reddish-green. Petals 4, free, orbicular-obovate, 1.6 by 0.8 cm, fleshy, bright red. Stamens numerous, on a ring, forming a dense mass round a pistillode. **Female flowers** solitary, terminal. Sepals and petals as in the male ones, but slightly smaller. Staminodes in groups attached to an annulus. Ovary superior, globose, 10-to12-loculed; ovule 1 in each locule; stigma sessile, orbicular, pileate, consisting of small tubercles, reddish. **Fruit** berry, depressed globose, 8 – 10 cm across, broadly sunken apex, with many large ribs and grooves, pulpy, ripening yellow, seated on persistent calyx. **Seeds** 10 – 12, suborbicular, flattened.

Localities	Ban Sa Ko, Su-ngaipadee District, Narathiwat Province. Ban Lu Bo Sa Ma, Su-ngaikolok District, Narathiwat Province.
Distribution	Burma, Malay Peninsula.
Ecology	In evergreen rain forest, moist and slightly shaded places; often cultivated in villages for its fruit; altitude 20 – 40 m. Flowering February – March; fruiting May – June.

Uses The young leaves are eaten raw or cooked as a vegetable. The ripe fruits have acid juicy pulp which is often used as a seasoning or sour flavor in dishes. It may be used either fresh or dry. An infusion of the dried pieces of fruit pulp is taken daily as a tonic for good overall health, (B, M). A decoction of the dried roots or leaves is drunk daily as a substitute for tea to treat hypertension, (B, M). The timber is used for house building, making furniture, (B, M).

Material studied UBON 543, BKF 081142

Reference Ridl., Fl. Mal. Pen. 1 : 173. 1967 ; Whitmore, Tree Fl. Mal. 2 : 206. 1972.

***Garcinia cowa* Roxb. ex DC.**

Figure 51 A – B

Vernacular Muang (มวง), Ka ni (กานี)

Tree, 4 – 7 m tall; branches terete, glabrous, with yellow latex. **Stipules** absent. **Leaves** simple, opposite, red when young; petioles 0.5 – 0.8 cm, base clasping the twig; blades thinly leathery, lanceolate-elliptic, 5 – 11 by 3 – 5 cm, apex narrowly acuminate, margins entire, base cuneate, glossy and glabrous on both surfaces; nerves numerous, more or less straight and parallel, fine and faint, slightly raised on both surfaces. **Flowers** small in clusters, or behind the leaves, axillary, unisexual, pinkish-yellow; peduncles thick, 4 – 8 mm long. **Male flowers** 10 – 13 mm across at anthesis. Sepals 4, decussate, suborbicular fleshy, 4 – 5 by 4 mm. Petals 4, decussate, obovate-oblong, fleshy and thick, 10 by 8 mm. Stamens numerous, as a central globose mass, 4 mm high; anther cells 4. Pistilode absent. **Female flowers** mostly at axils of terminal leaves, in cluster or solitary, 1.2 – 1.5 cm across at anthesis. Sepals and petals similar those of the male ones. Staminodes about 14. Ovary superior, subglobose, 5 mm diam., glabrous, 7-to 9-loculed; ovule 1 in each locule; stigma sessile, conspicuous, discoid. **Fruit** a berry, depressed globose, 3 – 5 cm across, ripening yellow, with coarsely longitudinally grooved; seated on persistent calyx. **Seeds** 1 – 5, embedded in pale orange pulp.

Localities Ban To Wo, Su-ngaikolok District, Narathiwat Province.
Ban Bon Khuan, Rattaphum District, Songkhla Province.

Distribution Malaysia, Burma.

Ecology Scattered in evergreen forest, peat swamp forest; altitude 20 – 70 m. Flowering May – July.

Uses The young leaves are eaten raw or cooked as a vegetable, (B, M).

Material studied UBON 555, BKF 086097

Reference Whitmore, Tree Fl. Mal. 2: 208. 1972.

***Garcinia dulcis* (Roxb.) Kurz**

Figure 50 F

Vernacular Ma phut (มะพุด)

Tree, 10 m tall, polygamous; branches 4-angled, finely pubescent, with yellow latex. **Stipules** absent. **Leaves** simple, opposite; petioles stout, 1 – 2 cm long, finely pubescent; blades thickly coriaceous, oblong-ovate, 17 – 25 by 9 – 12 cm, usually widest near the base, apex narrowly acuminate, margins entire, base rounded to slightly cordate, shining dark green above, yellow-green and finely pubescent beneath; midrib stout, prominent on both surfaces; nerves 10 – 12 pairs, inconspicuous. **Flowers** unisexual or male and bisexual mixed, in dense many-flowered fascicles in the leaf axils and also in the axils of fallen leaves. Flowers of both sex globular, hardly expanding, 1 – 2 cm. across, greenish-yellow. **Sepals** 5, free, suborbicular, unequal. **Petals** 5 free, larger than the sepals, suborbicular. **Stamens** numerous, filaments connate into 5 fan-shaped groups. Disk lobes thick, corrugated, arising between the stamens. **Ovary** superior, 5-loculed; ovule 1 in each locule; stigma sessile, 5-rayed. Pistillode absent in male flowers. **Fruit** berry, globose or ovoid, 4 – 6 cm across, ripening yellow, pulpy, very acid. **Seeds** 4 – 5, ovoid, slightly flattened, smooth, brown, 2.5 by 1 – 7 cm.

Locality Ban Hua Yang, Rattaphum District, Songkhla Province.

Distribution Java, Borneo, Philippines, Malay Islands.

Ecology Cultivated in villages, in open places; altitude 20 – 70 m. Flowering March – April; fruiting June – July.

Uses The ripe fruits are used as a sour flavor in dishes as substitute for lime juice or tamarind, (B, M).

Material studied UBON 981, BKF 095453

Reference Whitmore, Tree Fl. Mal. 2 : 209. 1972.

***Garcinia prainiana* King**

Figure 51 C – D

Vernacular Chu pu (จู้ปู้)

Small tree, 10 m tall, crown narrow, dense, with milky latex; branchlets not angled, glabrous. **Stipules** absent. **Leaves** simple, opposite; petioles 3 mm long, stout; blades coriaceous, ovate-oblong, 15 – 23 by 7 – 15 cm, the slightly heart-shaped base often clasping the twig, apex acuminate, margins entire, deep green and glabrous on both surfaces; nerves 12 – 15 pairs. **Flowers** unisexual, in dense terminal cymes; male and female flowers on the same plant. **Male flowers** 2.5 cm across; sepals 5, free, the outer 2 smaller than the inner, orbicular, 5 mm long, red with green margin, fleshy; petal 5, free, sub-orbicular, 8 mm long, pink; stamens numerous, filaments red, anthers yellow, connate into 5 bundles around a pistillode;

pistillode globose, red, with numerous tubercles. **Female flowers** 3.5 cm across; sepals 5, free, orbicular, 7 mm long, pale green, with pink stripe at centre; petals 5, free, obovate, 10 mm long, red when young then creamy white; staminode none; ovary superior, globose, glabrous, pale green, 6 mm diam., 7-to 8-loculed; ovule 1 in each locule, pink; stigma sessile, red, 6–7 mm diam., dome-shaped, margin entire. **Fruit** a fleshy berry, depressed globose, 2.5–4.5 cm across, with a thin and smooth leathery rind, ripening golden yellow to orange yellow. Seeds 5–8, suborbicular, compressed, 1.3 by 1.0 cm, pale brown, embedded in fleshy orange pulp.

Locality	Ban La Lae, Su-ngaikolok District, Narathiwat Province.
Distribution	Malay Peninsula.
Ecology	Scattered in lowland forest, tropical rain forest; altitude near sea level to 30 m. Flowering March–May; Fruiting August–September.
Uses	The ripe fruits are eaten fresh. The full-grown but green ones are roasted, and then used as a sour flavor in dishes as substitute for tamarind or lime juice, with the side benefit of lowering of blood pressure, (M).
Material studied	UBON 556, BKF 66007
Reference	Whitmore, Tree Fl. Mal. 2 : 220. 1972.

Hanguanaceae

***Hanguana malayana* (Jack.) Merr.**

Figure 53 F

Vernacular Kong (กิง)

Perennial, swamp aquatic herbs, robust. Stem ascending, 50–120 cm tall, often with long creeping or floating stolons covered by the leaf sheaths; hairy when young, afterwards glabrescent. **Leaves** simple, crowded at the base of plant; petioles of the lower leaves 8–30 cm long, the upper ones subsessile. Leaf sheaths long and broad, gradually narrowed into the petiole. Blades thickly coriaceous, stiff, lanceolate, erecto-patent, 20–120 by 2–15 cm, apex acuminate, margins entire, base decurrent, with densely longitudinal nerves and numerous thin cross nervules. **Inflorescence** a large panicle, 30–60 cm long, 1–3 times patently branched; branches stiff, 5–15 cm long, tomentose, with leafy bracts. **Flowers** unisexual, male and female on separate plants. Perianth yellowish-green; on the inner side dotted with red. **Sepals** 3, suborbicular, 2–2.5 mm long. **Petals** 3, oblong-lanceolate, 2.5–3 mm long. **Male flowers** with 6 stamens inserted on the base of the perianth, about as long as the sepals; ovary rudimentary small. **Female flowers** with 6 short staminodes; ovary superior, broadly ovoid-globose, 3-loculed, with sessile stigma divide into 3 spreading short arms. **Fruits** a globose drupe, exocarp thick, fleshy, shining orange, 0.5 cm diam.

Localities	Ban Thale Noi, Khuan Khanun District, Phattalung Province. Ban Lu Bo Sa Ma, Su-ngaikolok District, Narathiwat Province.
Distribution	Sri Lanka, Indo-China, Malaysia.
Ecology	Along lake shore and river, in slowly moving fresh water, and in peat swamp forest; altitude near sea level. Flowering January – February; fruiting March – April.
Uses	The apical buds are cooked in curries, (B). The rhizomes are sliced, dried, and then boiled. Then this water is used as a bath for a patient to relieve fever, (M).
Material studied	UBON 303, BKF 25270
Reference	Larsen, Fl. Thai. 2(2) : 164. 1972.

Hydrocharitaceae

Blyxa aubertii A. Rich var. *echinosperma*

Figure 30 B

Vernacular Ruai (รูไย)

Monoecious, annual herbs of fresh water, submerged, stoloniferous. Stems short, 0.5 – 3.0 cm long. **Leaves** simple, basal, sheathing at the base; blades linear, thinly herbaceous, 10 – 60 by 0.5 – 1 cm, apex acute, glabrous; nerves 5 – 7, parallel, connected by very thin cross-veins. **Inflorescence** with peduncle to 50 cm long; spathe flattened, without wings or ribs. **Flowers** bisexual, mostly solitary, projected to water surface. **Sepals** 3, linear, 6 – 8 mm long. **Petals** 3, 13 mm long. **Stamens** 3, filaments 3 – 6 mm, anthers linear-lanceolate. **Ovary** inferior, filiform, 1-loculed, ovules numerous; style 1, compressed; stigmas 3. Fruit not found.

Locality Ban Thale Noi, Khuan Khanun District, Phattalung Province.

Distribution Tropical Asia.

Ecology In stagnant water of pools, lakes, rivers and streams; altitude near sea level. Flowering throughout the year.

Uses The young leaves are eaten raw or blanched as a vegetable, (B).

Material studied UBON 302, BKF 26352

Reference Haynes, Fl. Thai. 7(3) : 366. 2001.

***Ottelia alismoides* (L.) Pers.**

Figure 66 A

Vernacular Phak wa (ผักหา), Santawa (สันตะหา)

Annual herbs of fresh water, submerged, glabrous. Stem short, erect. **Leaves** simple, basal; petioles 3-angled, 15 – 20 cm long, basally broadened into a pale sheath; blades of adult plants broadly ovate, transparent, 15 by 10 cm, apex obtuse, margins entire, base cordate or truncate; nerves 7–11. **Flowers** solitary projected to surface of water, subtended by a spathe; spathe elliptic to ovate, 3 – 5 cm long, green, 3–10 longitudinal winged. Peduncles 4- to 5-angled, 10 – 30 cm long. **Sepals** 3, narrow-oblong, apex obtuse, 10 – 15 by 2 – 9 mm. **Petals** 3, obovate with rounded apex, white tinged pink, 2 – 3 cm long. **Stamens** 6; filaments with glandular hair, 4 mm long; anthers linear, 3 – 4 mm long, yellow. **Ovary** inferior, oblong, 6-loculed; ovules numerous; styles 6, bifid. Fruit not found.

Locality	Ban Thale Noi, Khuan Khanun District, Phattalung Province.
Distribution	India to S. & E. Asia, N. Australia.
Ecology	In slow streams and stagnant pools, often occurs as a weed in rice fields; altitude near sea level. Flowering all year round.
Uses	The young leaves are eaten raw or blanched as a vegetable, (B, M).
Material studied	UBON 300, BK 59627
Reference	Haynes, Fl. Thail. 7(3) : 380. 2001.

Hypericaceae***Cratoxylum arborescens* (Vahl.) Blume**

Figure 35 D – E

Vernacular Lo ngae (ลอแง)

Evergreen tree, up to 40 m tall, glabrous; bark with yellow resinous sap. **Stipules** absent. **Leaves** simple, opposite; petioles 3 – 12 mm long; blades leatherly, obovate-oblong to obovate-lanceolate or elliptic, 5 – 13 by 2–6 cm, apex acute to cuspidate, margins entire, base cuneate to attenuate, glabrous, dotted on the back; midrib sunken above, sharply keeled below; nerves numerous, fine, parallel, very faint below, visible above. **Inflorescence** a terminal panicle, 10 – 15 cm long; peduncles 5 cm long, glabrous. **Flowers** bisexual, pink, 10 – 12 mm diam. **Sepals** 5, unequal, ovate, 4.5 – 6.0 by 2.5 – 3.5 cm, persistent. **Petals** 5, obovate, rounded at apex, inside with lacinate basal scales. **Stamens** numerous, manifestly triadelphous, 6 mm long, with fleshy alternating glands. **Ovary** superior, ovoid, 3 by 2 mm, glabrous, 3-loculed; ovules many per locule; style 3, free; stigma capitate. **Fruit** a loculicidal capsule, 7 – 9 mm long. **Seeds** many, winged.

Locality	Ban Lu Bo Sa Ma, Su-ngaikolok District, Narathiwat Province .
Distribution	Burma, Sumatra, Malay Peninsula, Borneo.
Ecology	In peat swamp forest; altitude near sea level. Flowering March – April; fruiting May – June.
Uses	The stem barks are used for the treatment of itching and scabies; they are boiled in coconut oil, then a solution is applied on the affected areas once a day at night, (M).
Material studied	UBON 928
Reference	Robson, Fl. Mal. Ser.1. 8(1) : 11. 1974.

Hypoxidaceae

Curculigo latifolia Dryand.

Figure 37 B – C

Vernacular Phrao nok khum (พรวานกุ่ม), Yo lue mo (ยอลือมอ)

Perennial herb, up to 100 cm tall, with tuberous rhizome. **Leaves** simple, radical; petioles 15 cm long; blades firmly herbaceous, plicate, linear-elliptic to broadly-elliptic, 15 – 50 by 3 – 10 cm, apex acute, margins entire, base acute, glabrous above, appressed - pubescent beneath; lateral nerves numerous, subparallel to the midrib. **Inflorescence** axillary, spike, ovoid to cylindrical, compact, 2 – 7 cm long and wide; peduncle 2 – 10 cm long, robust, compressed, sparsely pubescent, its basal part usually concealed in the ground or in the ground-cover. **Flowers** bright yellow, bisexual, subsessile, 10 mm across, each in axil of a persistent large bract. **Perianth** salver-shaped; tube 1 cm long, 6-lobed; lobes narrowly ovate, acute, 5 mm long, pubescent on the back, glabrous on the inner side. **Stamens** 6; filaments short, inserted at the mouth of the perianth-tube. **Ovary** inferior, 3-loculed in the basal part, above the ovuliferous part produced into a long beak; ovules many. **Fruit** a berry, ovoid, 1–2 cm long, with a long beak, white. **Seeds** many, broadly ovate, black.

Locality	Ban Ton Panun, Khuan Kalong District, Satun Province.
Distribution	India, Burma, Malesia.
Ecology	In evergreen rain forest, shaded and humid places; altitude 100 m. Flowering and fruiting January – March.
Uses	The ripe sweet fruits are eaten fresh, (B, M). The crushed leaves are used as a poultice applied to the wounds to accelerate wound healing, (M). A decoction of the whole plant of this species and <i>Sida alnifolia</i> L. is taken by pregnant women before giving birth. It is considered to make the delivery more easil, (M). A decoction

of the whole plant of this species alone is taken daily, once a day to treat chronic gastrointestinal ailments in children, (B). The roots are used as a diuretic; in this case, the roots are bruised and soaked in water. Then this water is given to a patient with retention of urine caused by eating a large amount of the seeds of *Archidendron jiringa* (Jack) I. C. Nielsen, (B). A juice from the crushed leaves is used to mask a bitter taste of *Senna siamea* (Lam.) Irwin & Barneby in curries. The crushed whole plant mixed with a little amount of salt is used as an appetic stimulant fed to cattle, (M).

- Material studied UBON 1129, BKF 25659
 Reference Backer & Bakh.f., Fl. Java. 3 : 209. 1967.

Labiatae

Gomphostemma scortechinii Prain

Figure 52 E

Vernacular Lek khru (เหล็กครุ)

Perennial herbs, 60 – 150 cm tall, with small tuberous roots. Stems quadrangular, stellately pubescent, woody below. **Stipules** absent. **Leaves** simple, opposite; petioles 1.5 – 3 cm long; blades thickly herbaceous, elliptic-oblong, 8 – 10 by 3 – 5 cm, apex acute, margins serrate, base cuneate, sparsely hirsute above, densely tomentose beneath ; nerves 4 – 7 pairs. **Inflorescence** axillary, sessile cyme. **Flowers** yellow, 3.5 cm long. **Calyx** campanulate, 1.3 cm long, 5-toothed; teeth lanceolate, 6 – 7 mm long, hirsute on both sides. **Corolla** bilabiate, distinctly incurved, throat inflated; limb 2-lipped; the upper lip entire; the lower broadly 3-lobed, spreading; tomentose outside. **Stamens** 4, pubescent, unequal, anthers connivent in pairs. **Ovary** superior, densely pubescent, 4-loculed, ovule 1 per locule; style 2-branched , branches unequal. Fruit not found.

Locality Ban Ton Panun, Khuan Kalong District, Satun Province.

Distribution Burma, Malay Peninsula.

Ecology In tropical rain forest; altitude 50 m. Flowering December – March.

Uses A decoction of the whole plant is drunk daily; it said to increase potency in men. Sometimes the fresh tuberous roots are eaten raw with betel nut for the treatment of impotency, (M). The whole plant is used as an ingredient in the formula F3, F7 taken as a tonic also, (B, M).

Material studied UBON 527

Reference Keng , Fl. Mal. Ser.1. 8(3) : 323. 1978.

***Leucas zeylanica* (L.) R.Br.**

Vernacular Ya prik (หญ้าปรัก), Tu me (ตุเมะ)

Annual herb, 30 – 50 cm tall. Stem and branches hispid, 4-angled, green. **Stipules** absent. **Leaves** simple, opposite, decussate; petioles 0.4 – 0.8 cm; blades herbaceous, lanceolate, 3.5 – 5 by 1.5 – 2 cm, apex acute, margins remotely serrate, base attenuate, hirsute on both surfaces; nerves 5 – 7 pairs. **Inflorescence** dense head-like, sessile, in upper axillary, 2 – 2.5 cm across; bracts linear lanceolate, apex acute, resembling very reduced leaf blades. **Flowers** numerous, white, bisexual, sessile. **Calyx** turbinate, 5 – 6 mm long, 8-toothed, hispid, mouth slightly oblique. **Corolla** bilabiate, white, 8 mm long; tube with a hair ring near the middle; upper lip obovate, concave; lower lip 3-lobed, spreading; middle lobe largest. **Stamens** 4, didynamous, inserted in the upper part of the corolla tube, under the upper lip. **Ovary** superior, deeply 4-lobed, 4-loculed; top truncate; ovule 1 in each locule; style slender; stigma minute, unequally 2-lobed. **Fruit** nutlets, obovoid.

Locality	Ban Ka Lo Se La, Su-ngaikolok District, Narathiwat Province.
Distribution	S. and SE.Asia.
Ecology	Along sandy beaches and open wet places, roadsides, occasionally in open ground along peat swamp margin; altitude near sea level. Flowering and fruiting throughout the year.
Uses	The whole plant is crushed, mixed with a little amount of lime juice, and then applied on the abdomen of young children to relieve stomach-ache and flatulence, and to get rid of helminthes in young children, (M, B).
Material studied	UBON 1389, BKF 082338
Reference	Keng, Fl. Mal. Ser.1. 8(3) : 338. 1978.

***Plectranthus rotundifolius* (Poir.) Spreng.**

Figure 68 E – F

Vernacular Man khi nu (มันขี้หนู)

Herb, 30 cm tall; stem obtusely quadrangular, pubescent, lower half of the stem creeping, rooting from the nodes; adult roots often swollen in to oblong tubers, 2 – 4 cm long, 1 – 2 cm wide. **Stipules** absent. **Leaves** simple, opposite; petioles 1 – 2 cm long, pubescent; blades broadly ovate, thickly-membranous, bright green, 4 – 6 by 3 – 4.5 cm, apex obtuse, margins crenate, base cuneate, pubescent, copiously yellow gland-dotted on the lower surface; nerves 2 – 3 pairs. **Inflorescence** terminal, verticillaters, 10 – 20 cm long; bracts cordate, acutely acuminate, shortly pubescent and gland-dotted on the back, sparingly ciliate, caducous. **Flowers** bisexual, many; pedicels 1 – 2 mm long. **Calyx** campanulate, pubescent, persistent, 3 – 4 mm long, bilabiate; upper lip largest; lower ones 4-fid, lateral teeth truncate, very short. **Corolla** light violet, 7 – 12 mm long; tube sigmoid, 4 – 5 mm long; limb bilabiate,

sparsely pubescent and gland-dotted outside; upper lip 3 – 4 mm long, shallowly 4-lobed ; lower ones 7 mm long, boat-shaped, entire. **Stamens** 4, in the lower lip, connate in their lower parts, glabrous. **Ovary** superior, consisting of 2 carpels, each of which is 2-loculed by intrusion of the ovary wall; ovule 1 per locule; style gynobasic; stigma bifid. **Fruit** nutlet, enclosing in the persistent calyx. **Seeds** 1.

Locality	Ban Nai Wang, Kongra District, Phattalung Province.
Distribution	India, Madagascar, Sri Lanka, Continental Asia, Malesia.
Ecology	Cultivated only, in the lowland, humid places; altitude 80 – 100 m. Flowering September – October.
Uses	The tubers are boiled and eaten as a snack, or cooked in curries, (B, M).
Material studied	UBON 1281
Reference	Keng , Fl. Mal. Ser.1. 8(3) : 388. 1978.

Lauraceae

Cinnamomum iners Reinw. ex Blume

Figure 32 F

Vernacular Chiat (เจี๊ยต), Tae yo (เตยฮอ)

Tree to 24 m tall, with short thick stem; twigs slender; bark with strong fragrant smell. **Stipules** absent. **Leaves** simple, subopposite, pink when young; petioles 1 cm long; blades leathery, oblong to elliptic, 13 – 23 by 4 – 7 cm, apex obtuse, margins entire, base obtuse, upper surface glabrous, lower ones sparsely appressed hairy; nerves 3, from near base, side-ribs reaching to top; midrib without side nerves. **Inflorescence** terminal and axillary panicle, 10 – 18 cm long, lax, silky puberulous. **Flowers** bisexual, creamy, 5 mm across at anthesis. **Perianth** cup-shaped, 5- to 6-lobed; lobes ovate acute, 3 by 2 mm, densely silky hairy. **Stamens** 9. **Staminodes** 9, sagittate, stalked. **Ovary** superior, subglobose, 1-loculed; ovule 1 per locule; style slender; stigma discoid. **Fruit** a drupe, oblong, seated on enlarging perianth-cup.

Locality	Ban Hua Yang, Rattaphum District, Songkhla Province .
Distribution	Burma, Sumatra, Java, Borneo.
Ecology	In lowland and hill forest, secondary forest; altitude 40 – 100 m. Flowering and fruiting January – March.
Uses	The young leaves are eaten raw as a vegetable, (B).
Material studied	UBON 679, BKF 29007
Reference	Kochummen in Tree Fl. Mal. 4 : 126. 1989.

***Cinnamomum porrectum* (Roxb.) Kosterm.**

Figure 33 A – C

Vernacular Chuang (จวง)

Tree, up to 45 m tall, with strong aromatic smell; bark grayish-brown, deeply irregularly fissured. **Stipules** absent. **Leaves** simple, alternate; petioles 1–3 cm long, darkening on drying; blades coriaceous, elliptic to ovate, 5–15 by 2.5–6 cm, apex acuminate, margins entire, base cuneate, red when young, glabrous on both surfaces, glaucous beneath, pinnate-nerved; nerves 3–4 pairs, raised on both surfaces. **Inflorescence** panicle, upper axillary, 2–10 cm long. **Flowers** bisexual, small, pale yellow. **Perianth** funnel-shaped, tube very short enlarging in fruit, 6-lobed; lobes ovate-oblong, subequal, white villous inside, glabrous outside. **Stamens** 9, in 3 series; anthers 4-celled, opening by valves; the innermost staminodes, sagittate. **Ovary** superior, ovoid, 1-loculed, 1-ovuled. **Fruit** drupe, globose, 7 mm across, seated on the cup-shaped enlarged perianth-tube, ripening dark red. **Seed** 1.

Locality	Ban Bon Khuan, Rattaphum District, Songkhla Province.
Distribution	India, Malesia, China.
Ecology	In evergreen rain forest; altitude 100 – 180 m. Flowering and fruiting December – February.
Uses	The young leaves are eaten raw as a vegetable, with the side benefit of curing flatulence and stomach-ache, (M). The heart wood is used as an ingredient in the formula F39 taken to treat dropsy, (B). The wood is aromatic, and usually used to make furniture, items for household, decorations, etc, (B).
Material studied	UBON 833
Reference	Ng., Tree Fl. Mal. 4 : 128. 1989.

***Litsea elliptica* Blume**

Figure 60 C

Vernacular Thamang (ท่ามั่ง)

Dioecious tree, up to 45 m tall, with strong spicy smell; young part pubescent. **Stipules** absent. **Leaves** simple, spirally arranged; petioles slender, 2.5–3 cm long; blades thinly chartaceous, elliptic to narrowly obovate, 11–14 by 4–7 cm, apex acuminate, margins entire, base cuneate and slightly oblique, glabrous except on midrib and nerves beneath, aromatic; nerves 5–8 pairs. **Inflorescence** raceme of umbellules, 1.5–2 cm long and wide, arising from leaf axils or axils of fallen leaves; umbellules with 5–8 flowers enclosed by involucre bracts; bracts 5, orbicular, concave, glabrous. **Flowers** unisexual, pale yellow, small. **Perianth** lobes 5, slightly unequal, linear-oblong. **Stamens** 9 in male flowers, unequal; filaments villous at base; anthers 4-celled, opening by valves, introse; pistillode absent. Female flowers with staminodes 5–6. **Ovary** superior, subglobose, glabrous, 1-loculed, 1-ovuled;

style short, thick, curved; stigma peltate, conspicuous. **Fruit** berry, globose, 8 mm diam., ripening black, seated on slightly enlarged perianth. **Seed** 1.

Locality	Found in every study sites.
Distribution	Malaysia, Borneo, New Guinea.
Ecology	In evergreen forest, humid and slightly shady places; altitude 20 – 100 m. Flowering December – January; fruiting March – April.
Uses	The young leaves with strong spicy smell are eaten raw as a vegetable, (B, M).
Material studied	UBON 844, BKF 13335
Reference	Kochummen , Tree Fl. Mal. 4:155. 1989.

***Litsea grandis* (Wall. ex Nees) Hook. f.**

Figure 60 D

Vernacular Thang (ถัง) , Mue dae (มือแด)

Dioecious tree, up to 30 m tall, trunk up to 10 m tall. Young twigs densely brown hairy, angled. **Stipules** absent. **Leaves** simple, spirally aranged; petioles 2 – 5 cm long, pubescent; blades stiffly coriaceous, elliptic, 10 – 25 by 6 – 15 cm, apex rounded, base rounded to broadly cuneate, margin entire, glabrous above, densely brown tomentose beneath; nerves 12 – 20 pairs; midrib and nerves prominently raised beneath, inconspicuous or sunken above. **Inflorescences** in clusters of umbellules in axils of leaves or fallen leaves; umbellules before anthesis surrounded by 4 – 6 orbicular involucre bracts, strikingly resembling flower bud, yellow; peduncles 1.3 – 1.5 cm long. Flowers yellow, unisexual, 5 – 6 flowers in each umbellule. **Male flowers** shortly pedicelled; perianth funnel-shaped, tube short; lobes 5 – 6, 3.0 – 3.5 mm long, lanceolate, pubescent outside; stamens 10 – 12(–15), anthers 4-celled, filaments pubescent at base; pistillode absent. **Female flowers** 6–7 in each umbellule; perianth tube funnel-shaped, tube 1.3 mm long; lobes 4 – 5, 1.8 mm long, lanceolate, pubescent outside; staminode 10 – 12; ovary superior, ovoid, 1-loculed; ovule 1; style distinct; stigma peltate. **Fruit** berry, ovoid, 1.5 by 1 cm, seated on enlarged perianth tube, ripening dark red. **Seed** 1.

Locality	Ban Lu Bo Sa Ma, Su-ngaikolok District, Narathiwat Province.
Distribution	Burma, Malaysia, Java, Borneo, Sumatra.
Ecology	Common in lowland forest, peat swamp forest, mountain forest; altitude 20 m. Flowering and fruiting December – May.
Uses	The hard timber is used for house building. The leaves are usually used to wrap a fermented sticky rice; they considered to give nice special odor, (B, M).

Material studied UBON 755 , BKF 63543

Reference Kochummen , Tree Fl. Mal. 4:158. 1989.

Lecythidaceae

Barringtonia acutangula (L.) Gaertn.

Vernacular Chik (จิก) , Puta (ปู้ตะ)

Small tree, up to 8 m tall, glabrous. **Stipules** absent. **Leaves** simple, spirally arranged, crowded at the branch ends; petioles 7 – 8 mm long; blades chartaceous, oblanceolate, 10 – 22 by 4 – 10 cm, apex acute, margins closely regularly toothed, base attenuate, dark green, glabrous on both surfaces; nerves 10 – 14 pairs. **Inflorescence** a terminal spike, slender up to 60 cm long, pendulous; bracts small, caducous. **Flowers** bisexual, deep pink, numerous, sessile, 8 mm across. **Sepals** 4, slightly connate at the base; lobes ovate, obtuse, ciliate, 3 by 2 mm. Petals 4, connate at the base; lobes ovate, obtuse, 7 by 4 mm, glabrous. **Stamens** numerous, red, 1.3 cm long, jointed at the base and to the petals around a ring-like disk. **Ovary** inferior, 2-loculed; ovules 2 in each locule; style long and slender; stigma capitate. **Fruit** berry, subglobose, 2 – 3 cm diam., obtusely 8-ribbed, crowned by persistent calyx.

Locality Ban Thale Noi, Khuan Khanun District, Phattalung Province.

Distribution India, Indo-China, Malesia.

Ecology By rivers and streams, sometimes near the sea, and rice fields; altitude near sea level. Flowering and fruiting April–June.

Uses The young leaves are eaten raw as a vegetable, (B, M). A stem bark is used for the treatment of dermatitis irritated skin caused by irritant sap of *Semecarpus curtisii* King ; it is rubbed against an earthenware pot, using water as a solvent. Then a suspension is applied over the affected skin, (B). The young leaves together with the young leaves of *Microcos tomentosa* Sm. and a betel quid are chewed , and then spat onto the affected areas to treat herpes infection. The young leaves alone are eaten raw as a remedy to cure diarrhea both in humans and cattle, (M , B).

Material studied UBON 440

Reference Whitmore, Tree Fl. Mal. 2 : 1972.

Leeaceae

Leea indica (Burm. f.) Merr.

Vernacular Bangbai (บังบาย) , Mali (มาลี)

Shrub, 3 – 6 m tall, young part pubescent. **Stipules** obovate, 2.5 by 6 cm long. **Leaves** bipinnate or tripinnate, alternate, 45 – 60 cm long; petioles 10 – 20 cm long. Leaflets many, opposite; petiolules 0.5 – 1 cm long; blades chartaceous to subcoriaceous, ovate-oblong to ovate-lanceolate, 7 – 12 by 3 – 6 cm, apex acuminate, margins serrate, base obtuse, pubescent, pearl glands present on the under surface; nerves 10 – 13 pairs, prominent beneath. **Inflorescence** compound cymes, leaf-opposed, 10 – 25 cm long, broad and lax; peduncle up to 15 cm long; bracts deltoid, up to 4 mm long; pedicels short. **Flowers** bisexual, numerous, greenish-white, 6 mm across. **Calyx** campanulate, 5-lobed; lobes triangular, 1–2 by 1–2 mm, sparsely pubescent outside. **Corolla** tube short, 5-lobed; lobes narrowly triangular, 2.5 – 3.5 by 1.5 – 2.5 mm, the apical part of each ones form into a keel, reflexed at maturity. **Stamens** 5, united into a tube and epipetalous; tube consisting of thickened parts representing the filaments and thin parts or sinuses between the filaments. **Ovary** superior, discoid, 6-loculed; ovule 1 in each locule; style short; stigma slightly thickened. **Fruit** berry, depressed-globose, 0.7 – 1 cm diam., ripening dark purple. **Seeds** 6.

Locality	Ban Yai, Su-ngaipadee District, Narathiwat Province.
Distribution	Sri Lanka, India, Nepal, Bangladesh, Burma, Cambodia, Malesia, N. Australia, Solomon Islands, Fiji.
Ecology	In primary and secondary forest, wet areas; altitude near sea level to 100 m. Flowering and fruiting throughout the year.
Uses	The young leaves are eaten raw as a vegetable, (B, M). The bruised flowers are applied externally to treat burns and scalds,(M). The bruised fruits are applied externally to to treat warts, itching, (B). This species is one of many kinds of local plants of which the leaves are used in traditional ritual performed at the beginning of the rice - harvesting season; it is believed to bring a good luck to the harvesting, (B).

Material studied UBON 830, BKF 089940

Reference Ridsdale, Fl. Mal. 7(4) : 779. 1976.

Leea rubra Blume

Figure 57 F

Vernacular Bangbai daeng (บังบายแดง)

Small shrub, up to 3 m tall, glabrous. **Stipules** sheath-like, 2 – 4 cm long. **Leaves** 2- to 4-pinnate, alternate; petioles 5 – 10 cm long; rachis 5 – 25 cm

long. Leaflets many, opposite; petiolules 2 – 5 mm long; blades thinly chartaceous, elliptic to elliptic-lanceolate, 4 – 10 by 2 – 4.5 cm, apex acute to narrowly acuminate, margins serrate, base rounded to acute, glabrous on both surfaces; nerves 5 – 10 pairs, conspicuous. **Inflorescence** compound cymes, leaf-opposed, 8 – 14 cm long, rachis and branches red, compact; bracts small, inconspicuous; pedicels short. Flowers bisexual, numerous, red, small 3 – 4 mm across. **Calyx** campanulate, 1.5 mm long, 5-lobed; lobes triangular, glabrous. **Corolla** tube 2 – 3 mm long, 5-lobed; lobes triangular, 2 mm long, reflexed. **Stamens** 5, united into a tube and epipetalous. **Ovary** superior, globose, 4-loculed; ovule 1 in each locule; style 1 – 2 mm long. **Fruit** berry, globose, 8 – 10 mm diam., dark red, glabrous. **Seeds** 4.

Locality	Ban Toh Wo, Su-ngaikolok District, Narathiwat Province.
Distribution	India, Bangladesh, Burma, Cambodia, Laos, Vietnam, Malesia, Borneo, Philippines, Moluccas, New Guinea, Australia.
Ecology	In humid or swampy, sunny to moderately shady localities, watersides; altitude near sea level. Flowering and fruiting throughout the year.
Uses	The flowers together with a betel quid are chewed and then spat onto the affected areas to treat herpes infection, (B). The flowers are chewed, and spat on the affected areas to cure burns, scalds, (M).
Material studied	UBON 1132, BKF 088950
Reference	Ridsdale, Fl. Mal. Ser.1. 7(4) : 776. 1976.

Leguminosae – Caesalpinioideae

Caesalpinia bonduc (L.) Roxb.

Figure 30 F

Vernacular Wat (หวาด)

Climber, up to 15 m long; branches armed with prickles. **Stipules** large, 3 – 5 pinnatifid. **Leaves** bipinnate, spirally arranged; petioles and rachis up to 80 cm long; pinnae 6 – 11 pairs, 10 – 20 cm long; leaflets 6 – 12 pairs per pinna, opposite to subopposite, sessile; blades membranous, hairy, ovate to elliptic ovate, 2 – 4 by 1 – 2 cm, apex acute, margins entire, base rounded. Pods 6 – 9 by 3 – 5 cm, oblong, slightly flattened, apex rounded, with style-remnant to 8 mm long, base acute, densely set with 5 – 10 mm long hairy spines on the surfaces, dehiscent. Seeds 1 – 2, ovoid to globular, 15 – 20 mm long, smooth, grey. Flowers not found during the study.

Locality Ko Sukorn, Palian District, Trang Province.

Distribution Pantropic. In Asia : throughout India, SE. Asia and Malesia.

- Ecology Common in coastal regions, close to the beach and behind the mangrove; altitude at sea level.
- Uses A juice from the crushed young leaves is given to children to get rid of helminthes, (M).
- Material studied BKF 115639
- Reference Hou *et al.*, Fl. Mal. Ser.1. 12(2) : 541. 1996; Larsen *et al.*, Fl. Thail. 4(1) : 72. 1984.

***Caesalpinia major* (Medik.) Dandy & Exell**

Figure 31 A – B

Vernacular Wat (หวาด)

Climbers up to 15 m long; branches armed with prickles. **Stipules**, 1 – 3 mm. long, caducous. **Leaves** bipinnate, spirally arranged; petiole and rachis up to 75 cm long; pinnae 3 – 8 pairs. Leaflets 4 – 7 pairs per pinna, alternate or subopposite, pubescent on lower surface when young, membranous to subcoriaceous, elliptic to elliptic ovate, 4 – 10.5 by 2 – 4.5 cm; petiolules 2 – 4 mm long, apex acute-mucronate, margins entire, base acute to round. **Inflorescence** supra-axillary, simple or branched raceme, 10 – 50 cm. long; rachis densely hairy. Bracts lanceolate, 6 – 7 mm long, pubescent. Pedicels 6 – 10 mm long, articulated below the top. **Flowers** unisexual. **Sepals** 5, free, subequal, oblong, 6 – 7 by 2.5 mm, pubescent on both surfaces. **Petals** 5, free, yellow, subequal, 6 – 7 by 2–3 mm, sparsely pubescent. **Stamens** 10, free, alternately unequal, filaments hairy at the base. **Ovary** stalked, 3–4 mm long, hairy and densely spiny, 1-loculed, 3 - to 4-ovuled. **Pods** 5 – 13 by 4 – 6 mm, elliptic in outline, apex rounded, base acute; hairy together with densely hairy bristles, dehiscent, **Seeds** 2 – 4, subglobular, 15 – 25 mm in diam., smooth, greyish-green.

- Locality Ban Khao Khram, Srinakharin Subdistrict, Phattalung Province
- Distribution Pantropic; in Asia : Ceylon, India, Burma, Cambodia, Vietnam, Ryukyu Islands, Malay Peninsula and Archipelago.
- Ecology Beaches, sandy areas, thickets, primary forest and forest fringes, dense jungles; altitude 80 m. Flowering August – September; fruiting November – March.
- Uses A juice from the crushed young leaves is given to children to get rid of helminthes, (B, M). Seeds are used as an ingredient in the formula F35 to treat ringworm, (M).
- Material studied UBON 816, BKF 075415
- Reference Larsen, Larsen and Vidal, Fl. Thail. 4(1) : 74. 1984. ; Hou, Larsen and Larsen, Fl. Mal. 12(2) : 548. 1996.

Cynometra cauliflora L.

Figure 38 A – D

Vernacular Makham khang khok (มะขามคางคก)

Shrub or small tree, 3 – 15 m tall, glabrous. **Stipules** caducous. **Leaves** paripinnate, alternate; the young ones bright pink; petioles 2 – 8 mm. Leaflets 1 pair, opposite, subsessile, thinly coriaceous, asymmetric, ovate to ovate-lanceolate, 5 – 15 by 2 – 6 cm, apex obtuse, emarginate, margins entire, base oblique, glabrous on both surfaces; nerves 7 – 10 pairs. **Inflorescences** cauliflorous, 4-5 small racemes fascicled on hard knots on the trunk; rachis 0.5 – 3.0 cm long, glabrous; bracts 3–7 mm long, ciliate; bracteoles 1.5 mm long. **Flowers** bisexual, pale pink 1 cm across; hypanthium 1.2 mm long. **Sepals** 4, white, elliptic, subequal 2 – 4 mm long. **Petals** 4, linear, 3 – 4 mm long. **Stamens** 8 – 10, free. **Ovary** stipitate, densely hairy, with long and short hairs, 1-loculed, ovules 1 – 2. Style 5 – 6 mm, hairy on lower half. **Pod** fleshy, kidney-shaped, acute at both ends, pericarp thick, rugose, 5 – 7 by 2 – 4 cm, 2 – 3 cm thick, ripening pale yellow. **Seed** 1, suborbicular, compressed, dark brown.

Locality	Ban Huay Ngo, Khok Pho District, Pattani Province.
Distribution	Only known in cultivated state; cultivated in various places in Narathiwat for its edible fruits.
Ecology	Cultivate in places at low altitude, slightly shaded places; altitude 40 m. Flowering and fruiting throughout the year.
Uses	The fruits both unripe and ripe ones are eaten fresh or pickled, (B, M).
Material studied	UBON 425, BKF 129981
Reference	Hou, Fl. Mal. Ser.1. 12(2) : 601. 1996.

Dialium cochinchinense Pierre

Figure 39 F

Vernacular Yi (ยี่)

Tree, 15 – 25 m tall. **Stipules** small, caducous. **Leaves** imparipinnate, alternate, 10 – 20 cm long; leaflets 5 – 8, alternate; petioles 2 – 4 cm long, petiolules 3 – 4 mm long; blades chartaceous, glabrescent, broadly ovate, ovate, elliptic, 4 – 8 by 1.5 – 4 cm, apex obtuse, margins entire, base rounded to cuneate; nerves 6 – 9 pairs, prominent beneath. **Inflorescence** a panicle, terminal or at axils of the distal leaves, 10 – 30 cm long; branches pubescent. Bracts and bracteoles minute; pedicels 1 mm long. **Flower** numerous, bisexual white; buds ovoid, 3 mm long. **Sepals** 5, free, elliptic, pubescent, imbricate, 3.5 by 1.5 mm. **Petal** none. **Stamens** 2; anthers oblong, 2.5 mm long, filaments very short. **Ovary** superior, linear, 1.5 mm long, densely hairy, 1-loculed, 2-ovuled; style short, glabrous; stigma small. **Fruit** a pod; pod ovoid, indehiscent, 15 – 18 by 10 – 12 mm; exocarp brittle, ripening black; endocarp pulpy. **Seeds** usually 1, suborbicular, slightly flattened, 9 by 6 by 3 mm; testa very hard, shiny.

Locality	Ban Hua Yang, Rattaphum District, Songkhla Province.
Distribution	Cambodia, Laos, Vietnam.
Ecology	In lowland forest, cultivated in the villages; altitude 40 m. Flowering February – June; fruiting May – August.
Uses	The ripe fruits are eaten fresh or made into dessert, (B, M). The heart wood of the stem is used as an ingredient of the formula F39 used for the treatment of dropsy, (B). The timber is used for house building; making agricultural implements, furniture, etc.,(B,M).
Material studied	UBON 814, BKF 124660
Reference	Larsen <i>et al.</i> , Fl. Thail. 4(1) : 85. 1984.

***Senna alata* (L.) Roxb.**

Vernacular Chumhet thet (ชุมเห็ดเทศ)

Shrub, 1 – 3 m tall, pubescent, horizontally spread-branched. **Stipules** auriculate-deltoid, 6 – 8 mm long, persistent. **Leaves** paripinnate, alternate, 40 – 50 cm long, 15 – 35 cm wide; petioles robust, 2 – 3 cm long, gland absent; leaflets 8–20 pairs, opposite; petiolules 2–3 mm long; blades chartaceous, glabrous, oblong-elliptic, 5 – 15 by 3 – 4 cm, the upper pairs largest, apex and base rounded, margins entire; nerves 10 – 12 pairs. **Inflorescence** raceme, terminal or in axils of upper leaves, dense, robust, 20 – 50 cm long, 3 – 4 cm broad; peduncle stout, 7 – 14 cm long; bracts broadly ovate, pale yellow, caducous, 2 – 3 by 1 – 2 cm, at first enveloping the flowers; pedicels 5 –10 mm long. **Flowers** bisexual, bright yellow, many. **Sepals** 5, free, pale yellow, oblong, unequal, 10 – 20 by 6 – 7 mm, glabrous. **Petals** 5, free, ovate-orbiculate to spatulate, 16 – 24 by 10 – 15 mm, glabrous. **Stamens** 9–10, free, unequal; 2 larger 16 mm long, with stout filaments; 4 smaller 7 mm long; reduced stamens 3 or 4. **Ovary** superior, glabrous, pruinose; ovules many; style filiform; stigma small. **Fruit** a pod, sharply tetragonal, winged, glabrous, ripening black, 10 – 15 by 1.5 – 2 mm, wing 5 mm. **Seeds** many quadrangular, flattened, 7 – 8 by 5 – 8 mm.

Locality	Ban Khao Khram, Srinakharin Subdistrict, Phattalung Province.
Distribution	Pan tropical, indigenous to South America.
Ecology	In open places, wet areas, waste places, along river banks, along ditches between the rice-fields; altitude 80 m. Flowering and fruiting October – January.

Uses An infusion of the dried leaves, or fresh young leaves, or steamed leaves are taken as a laxative, (B, M). The crushed leaves mixed with kerosene, then a squeezed juice is applied onto the affected areas to cure scabies, (B). The semi-dried leaves are used to wrap cigarettes made of various kinds of medicinal plants that were chopped and dried; these cigarettes are smoked 3 times a day to relieve nasal polyp, (B). Branches and leaves are used as an ingredient in the formula F27 taken as a tonic for longevity, (B). This species is one of many kinds of plants that used in the traditional ritual performed at the beginning of the rice-harvesting season, (B).

Reference Hou, Larsen & Larsen, Fl. Mal. Pen. 12 (2) : 675. 1996.

***Senna hirsuta* (L.) Irwin & Barneby**

Vernacular Rang chued ton (รางจืดต้น)

Herb, up to 2 m tall, erect, hairy. **Stipules** linear, early caducous. **Leaves** paripinnate, alternate, 15 cm long and wide; petioles 3 – 4 cm long, with a gland above the base; Leaflets 3 – 5 pairs, opposite; petiolules 2 – 3 mm long; blades herbaceous, lanceolate, 3 – 9 by 2 – 4 cm, the upper pairs largest, hairy on both surfaces, apex acuminate, margins entire, base rounded; nerves 5 – 8 pairs. **Inflorescence** raceme, axillary 1 – 2 cm long, pubescent, few-flowered; bracts subulate, hairy, caducous; pedicels 13 mm long, hairy. **Flowers** bisexual, yellow. **Sepals** 5, free, green, unequal; 2 outer small, orbicular, 5 – 6 mm, pubescent; 3 inner larger, 7 – 9 mm, glabrous. **Petals** 5, free, unequal, obovate, 15 – 20 by 1 – 2 cm, glabrous. **Stamens** 10, free, unequal; 2 largest, 10 mm long, with flat filaments and curved anthers; 4 similar but only half as long; 1 equal to these but with narrow anther; staminodes 3. **Ovary** superior, falcate, hairy; style short, glabrous; stigma slightly enlarged. **Fruit** a pod, falcate to nearly straight, flat, hairy, 10 – 20 by 0.5 cm. **Seeds** numerous, orbicular, 3 mm diam., dark.

Locality Ban Nai Wang, Kongra District, Phattalung Province.

Distribution Pantropical.

Ecology Growing along roadsides and in plantation, around villages; altitude 80 m. Flowering and fruiting throughout the year.

Uses The leaves are crushed, into which water (only well water or tap water) is added. Then a squeezed juice (about 30 ml) is taken as an antidote against poisonous food, (B).

Material studied UBON 416

Reference Hou, Larsen & Larsen, Fl. Mal. Pen. 12(2) : 679. 1996.

***Senna sophera* (L.) Roxb.**

Vernacular Khi lek chued (ขี้เหล็กจืด)

Erect shrub, 1 – 2 m tall, almost glabrous. **Stipules** ovate, 5 mm long, caducous. **Leaves** paripinnate, alternate, 15 cm long, with 4 – 10 pairs of leaflets; petioles 3 – 5 cm long with narrowly clavate glands, 5 – 10 mm above the petiole joint; petiolules 1.5 mm long. Blades membranous, lanceolate, 2.5 – 5.0 by 1.0 – 1.5 cm, apex acute, base rounded, slightly oblique, margins entire; upper leaflets largest; nerves 10 – 12 pairs. **Inflorescence** axillary, few-flowered corymbs; peduncles 1 – 2 cm long; pedicels 1.0 – 1.5 cm long. **Flower** orange-yellow, 2 cm diam. **Sepals** 5, free ovate-rounded, green, 5 mm long. **Petals** 5, obovate, subequal, 1.4 – 1.8 by 0.8 – 1.5 cm. **Stamens** 9 – 10; 2 longer ones with filaments 5 – 7 mm long, anthers 5 – 6 mm long and opening by apical pores; 4 shorter, anthers opening the same way; staminodes 3 – 4, 2 mm long. **Ovary** superior, finely pubescent, ovules numerous; style thin, glabrous; stigma slightly dilated, strongly curved. **Fruit** an erect pod, 6 – 10 by 0.5 – 1 cm. **Seeds** many, ovoid, compressed.

Locality	Ban Ton Panun, Khuan Kalong District, Satun Province.
Distribution	Pantropical.
Ecology	In open, waste places; roadsides; altitude 40 m. Flowering and fruiting throughout the year.
Uses	A decoction of the whole plant is taken as a diuretic, 2 – 3 times a day, (M). A juice from the crushed leaves, or a decoction is taken as an antidote, (B) A juice from the crushed leaves, sometimes, is added to remedies that are applied to young children. It can mask the bitter taste of the remedies, (B, M).
Material studied	UBON 417

Reference Hou *et al.* in Fl. Mal. Ser.1 12(2) : 686. 1996.***Senna tora* (L.) Roxb.**

Vernacular Chumhet khwai (ชุมเห็ดควาย)

Herb, up to 1 m tall, nearly glabrous. **Stipules** setaceous, 8 mm long, caducous. **Leaves** paripinnate, spirally arranged; petioles 2 – 4 cm. Leaflets 3 pairs, with subulate gland between the 2 lower pairs of leaflets; petiolules c. 2 mm long; blades membranous, obovate, accrescent, 1.5 – 4 by 1.2 – 2.2 cm, apex broadly rounded, margins entire, base cuneate to rounded, glabrous above, sparsely pubescent beneath. **Inflorescence** axillary raceme, short, few-flowered; bracts linear-acute, 2 – 3 mm long. **Flowers** bisexual, yellow. **Sepals** 5, subequal, ovate, 5 by 3 – 4 mm. **Petals** 5, unequal, obovate, short-clawed, apex rounded, 10 by 5 mm. Fertile stamens 7, subequal; filaments 1.5 – 2 mm long; anthers opening by apical pores. **Ovary**

superior, sessile, densely pubescent, 1-loculed; ovule many; style glabrous; stigma truncate. **Pods** linear, slightly falcate, 10 – 15 by 0.5 cm. **Seeds** 20 – 30, rhomboidal, 5 by 3 mm, shining dark brown.

Locality	Ban Ton Sai, Srinakharin Subdistrict, Phattalung Province.
Distribution	Pantropical.
Ecology	In open places, waste ground, roadsides; altitude 100 m. Flowering and fruiting throughout the year.
Uses	The young leaves are eaten cooked as a vegetable, (B). An infusion of the roasted pods is taken as a mild laxative to relieve constipation, (B).
Material studied	UBON 1025, BKF 131237
Reference	Hou, Larsen & Larsen, Fl. Mal. Ser.1. 12(2) : 689. 1996.

Leguminosae – Mimosoideae

Acacia concinna (Willd.) DC.

Figure 19 B

Vernacular Som poi (ส้มป่อย)

Scrambling shrub, 7 – 18 m tall; branchlets armed with prickles, glabrescent. **Stipules** cordate, 8 by 7 mm, caducous. **Leaves** bipinnate, alternate, evenly scattered along the stem. Petioles 2 – 5 cm long, with gland above the base; rachis 10 – 16 cm long, glabrescent, armed by abaxial prickles, with glands between the 1–3 distal pairs of pinnae. Pinnae 4 – 10 pairs, 5 – 8 cm long, opposite, with minute glands between 1 – 3 distal pairs of leaflets. Leaflets 10 – 35 pairs per pinna, opposite, sessile, membranous, narrowly oblong, curved acroscopically, 6 – 11 by 1 – 3 mm; apex rounded, asymmetric, mucronate; base asymmetrically truncate; glabrous on both surfaces; main vein starting about the front margin, up to 1/4 of the width of the leaflet; nerves inconspicuous. Flowers and fruits not found.

Locality Ban Huay Ngo, Khok Pho Dictrict, Pattani Province.

Distribution Tropical Asia.

Ecology In rain forest, disturbed forest, open grassland; altitude 40 m.

Uses The young leaves are cooked in various ways as a vegetable, to give sour taste to the food, (B, M). The whole plant is used as an ingredient in the formula F13 that can be used to treat diabetes. A decoction of the whole plant alone is taken daily for the treatment of diabetes as well, (B). The roots and leaves are used as an ingredient in the formula F32 given to women

after giving birth to relieve dizziness, (B). The leaves play a part in preparing holy water used in religious ceremonies, (B).

Material studied UBON 1296, BKF 124610

Reference Nielsen, Fl. Thail. 4(1) : 169. 1985.

***Acacia merrillii* Nielsen**

Figure 19 C

Vernacular Hai (ฮาย)

Scandent shrub or woody climber; branchlet terete, spiny; ultimate parts of branches and inflorescences glabrescent. **Spitules** oblong-lanceolate, caducous. **Leaves** bipinnate, spirally arranged; petioles 4 – 5 cm, with gland 1 cm above the base, and below the junction of the 1 – 3 distal pairs of pinnae, raised, concave, circular to elliptic in outline; rachis 6 – 10 cm; pinnae 6 – 8 pairs, 5 – 7 cm long. Leaflets 15 – 20 pairs per pinna, opposite, sessile, oblong-subfalcate, 3 – 13 by 1.2 – 5 mm; apex asymmetrically acute, sharply pointed, bent forwards; base asymmetrically rounded-subtruncate; margin scarcely ciliate. **Inflorescences** consisting of pedunculate glomerules 7 – 10 mm diam.; floral bracts 1 – 1.5 mm, spatulate. **Flowers** sessile, white, male and bisexual in the same glomerule. **Calyx** cup-shaped, pale green, 1.6 mm, 5-lobed; lobes ovate acute, sparsely pubescent. **Corolla** narrowly funnel-shaped, glabrous, 2.5 mm, 5-lobed; lobes ovate-oblong, acute. **Stamens** numerous, white, 6 mm long. **Ovary** superior 1 mm long, puberulous; stipe 1 mm; ovules 8 – 10. Pod not found.

Locality Ban Khao Khram, Srinakharin Subdistrict, Phattalung Province.

Distribution Malesia.

Ecology Lowland rain forest, secondary forest, at river-banks, in cultivated areas; altitude 80 m. Flowering September; fruiting November.

Uses A juice of the crushed leaves is used to wash hair as a substitute for hair shampoo. It is considered to promote shiny-black hair, (B).

Material studied UBON 1299

Reference Nielsen and Hopkins, Fl. Mal. Ser.1. 11(1) : 51. 1992.

***Adenanthera pavonina* L.**

Figure 19 E

Vernacular Phai (ไผ)

Tree, up to 40 m tall, unarmed; branchlets glabrous. **Stipules** filiform, minute, caducous. **Leaves** bipinnate, spirally arranged; petioles 3 – 13 cm long, glandless; rachis 20 – 25 cm long, glandless; glabrous; pinnae 3 – 6 pairs; leaflets 4 – 9 on each side of the pinnae, alternate; petiolules 1.5 mm; blades thinly

chartaceous, elliptic to ovate, 1.5 – 3 by 1 – 2 cm, apex truncate, margins entire, base obliquely rounded, glabrous on both surfaces, dark green above, glaucous beneath; nerves 8–10 pairs. Inflorescence a terminal panicle of spiciform racemes, 15 cm long; bracts minute, pubescent. **Flowers** bisexual, minute, pale yellow; pedicels 3 – 5 mm. **Calyx** broadly cup-shaped, 1 mm, 5-lobed. **Petals** 5, free, narrowly lanceolate, 3 – 4 mm long, glabrous. **Stamens** 10, free, 3 – 5 mm; anthers with caducous stipitate gland on the apex of the connective. **Ovary** superior, shortly stipitate, 2 – 3 mm; ovules 15 – 20 per locule; style as long as the ovary. **Pods** dark brown, linear-falcate, 1.5 cm broad, spirally twisted after dehiscent; valves thinly coriaceous with white, loosening endocarp. **Seeds** up to 20, suborbicular, 6 mm diam., shining bright red.

Locality	Ban Khao Khram, Srinakharin Subdistrict, Phattalung Province.
Distribution	Throughout tropical Asia.
Ecology	Forest margins, primary and secondary rain forest; altitude 80 m. Flowering and fruiting throughout the year.
Uses	The young leaves are eaten raw as a vegetable, (B). The timber is used for house building, (B, M).
Material studied	UBON 808, BKF 121562
Reference	Nielsen, Fl. Mal. Ser.1. 11(1) : 173. 1992.

***Albizia myriophylla* Benth.**

Figure 21 A

Vernacular Oi chang (อ้อยช้าง)

Scandent shrub; branchlets puberulous, armed with prickles; prickles hook-like, emerging from the bases of the leaf-scars. **Stipules** filiform, 3 – 4 mm long. **Leaves** bipinnate, spirally arranged, with glandular rachis and pinnae; glands 5 mm above the base of the petioles, and between the junctions of the 1 – 6 distal pairs of pinnae; petioles 2 – 3 cm long, swollen at the base; rachis 15 – 20 cm long; pinnae 10 – 20 pairs, 2 – 7 by 0.7 – 1.3 cm. Leaflets 30 – 60 pairs, opposite, chartaceous, sessile, narrowly oblong, 3 – 7 by 0.5 – 1 mm, apex rounded to broadly acute, margins ciliate, base asymmetrical truncate, glabrous on both surfaces; veins inconspicuous. **Inflorescence** terminal panicle, composed of pedunculate glomerules. Flowers white, bisexual, sessile. **Calyx** campanulate, shortly 5-toothed, pubescent. **Corolla** funnel-shaped, 3 – 4 mm, 5-lobed, sparsely pubescent. **Stamens** numerous, united into a tube at base. **Ovary** superior, glabrous, stipitate; ovules 8 – 10. **Pods** oblong, flattened, chartaceous, 14 by 2 – 2.5 cm, with distinct marks over the seeds. **Seeds** 8–10, obovate, flattened, dark brown.

Locality	Ban Ton Panun, Khuan Kalong District, Satun Province.
Distribution	India, Himalaya, Burma, Cambodia, Laos, S.Vietnam, northern part of the Malay Peninsula.

Ecology Evergreen forest, forest margins, sandy riverbanks and beaches; altitude 100 m. Flowering April – May; fruiting May – June.

Uses A decoction of the stems is used as a refrigerant to be drunk frequently during the day, (B). A decoction of the stem bark is used as a gargle to treat aphthous ulcer, (M). The stem is used for the treatment of herpes infection; in this case, the stem is cut and rubbed against an earthenware pot, using water as a solvent. The suspension obtained is applied onto the affected areas, (M). A decoction of the roots is drunk, or the fresh roots are chewed and then ingested to relieve cough, (M).

Material studied UBON 1310, 1212; BKF 089983

Reference Nielsen, Fl. Thail. 4(2) :198. 1985 ; Nielsen , Fl. Mal. Ser.1. 11(1) : 77. 1992.

***Archidendron bubalinum* (Jack) I.C. Nielsen**

Vernacular Niang nok (เนียงนกก)

Figure 27 A

Small tree, to 20 m tall; branchlets terete, glabrescent. **Stipules** inconspicuous, caducous. **Leaves** bipinnate, with a pair of pinnae, each with a pair of leaflets; petioles 4 – 6 cm long, with gland above the base; petiolules 2 – 5 mm; blades chartaceous-coriaceous, slightly unequal-sided, ovate to ovate-elliptic, 5 – 15 by 3 – 7 cm, apex obtusely acuminate, base slightly asymmetrically cuneate, glabrous on both surfaces; nerves 4 – 5 pairs. **Inflorescence** terminal or axillary at the distal leaves, pubescent, consisting of pedunculate glomerules aggregated into panicles 10–15 cm long; glomerules consisting of 2 – 6 sessile flowers; bracteoles minute, tomentose. Flowers numerous, bisexual, white. **Calyx** campanulate, puberulous, 1.5 – 2 mm, 5-toothed; teeth broadly triangular. **Corolla** funnel-shaped, puberulous, 2.5 – 5 mm, 5-lobed, lobes triangular-ovate, reflexed. **Stamens** numerous, 9 mm long, at base united into a tube; staminal tube equaling the corolla-tube. **Ovary** superior, glabrous, 1-loculed; ovules 5 – 8; style filiform; stigma small. **Fruit** a pod; pod straight or slightly curved, turgid sausage-shaped, 3.5 – 10 by 1.5 – 2.5 cm, valves woody, dehiscent along both sutures. **Seeds** 5 – 8, filling the entire cavity of the pod; the central ones discoid 1.2 cm thick; terminal ones turbinately-truncate, 1.5 cm thick; testa black, thin, crustaceous.

Locality Ban Ton Panun, Khuan Kalong District, Satun Province.

Distribution Malay Peninsula, Sumatra.

Ecology Primary and secondary rain forest; altitude 100 m. Flowering and fruiting January-October.

Uses The seeds are eaten raw as a side dish with rice, (B, M).

Material studied UBON 977, BKF 084374

Reference Nielsen, Fl. Mal. Ser.1. 11(1) : 96. 1992.

***Archidendron jiringa* (Jack) I.C. Nielsen**

Figure 27 B – C

Vernacular Niang (เนียง)

Shrub or tree, up to 20 m tall; branchlets terete, glabrous. **Stipules** inconspicuous, caducous. **Leaves** bipinnate, with a pair of pinna, each with 2 – 4 pairs of leaflets; leaflets opposite, petioles 2–7 cm long, with gland above the base of the petiole; petiolules 4 – 5 mm long; blades chartaceous, slightly unequal-sided, ovate-elliptic, 5 – 15 by 2 – 5 cm, apex obtusely-acuminate, base slightly asymmetrically rounded to broadly cuneate, glabrous on both surfaces; nerves 7 – 9 pairs. **Inflorescence** either ramiflorous below the leaves or axillary at the distal leaves, glabrescent, consisting of glomerules aggregated into panicles to 30 cm long; glomerules composed of 4 – 7 sessile flowers; bracteoles minute. **Flowers** numerous, yellowish-white, bisexual. **Calyx** broadly campanulate, sparsely pubescent, 1 – 2 mm, 5-toothed. **Corolla** funnel-shaped, 4 – 5 mm, 5-lobed; lobes ovate elliptic, acute, 2 mm long, appressed-puberulous at the apex, reflexed. **Stamens** numerous, at base united into a tube; staminal tube equaling the corolla-tube. **Ovary** superior, 1 mm long, glabrous, 1-loculed; ovules many; style filiform; stigma small. **Fruit** a pod, twisted in a wide spiral, deeply lobed between the seeds along the ventral suture, 20 – 25 by 5 cm, dehiscent along the ventral suture, pericarp woody, ripening dark brown. **Seeds** many, orbicular, biconvex, 2.5 – 3 cm diam., 1–1.5 cm thick.

Locality Ban Nai Wang, Kongra District, Phattalung Province.

Distribution Bangladesh, Burma, Malay Peninsula, Sumatra, Java, Borneo.

Ecology Primary and secondary rain forest, evergreen forest. Cultivated around villages; altitude 80 – 100 m. Flowering March – April; fruiting May – July.

Uses The fresh young seeds and germinated seeds are eaten raw as a side dish with rice. The mature ones are boiled and eaten as a snack, served with grated coconut meat and sugar, (B, M). The roots of this plant species together with those of *Parkia speciosa* Hassk. and *Parkia timoriana* Merr. are boiled in water, and then a decoction is taken as remedy to treat diabetes. A decoction of the roots of *Archidendron jiringa* (Jack) I. C. Nielsen alone is taken as a diuretic, (B). A decoction of the stem bark alone or in combination with rhizome of *Musa sapientum* L. is taken to treat diabetes as well, (B, M).

Material studied UBON 811, BKF 130216

Reference Nielsen, Fl. Thail. 4(2) : 218. 1985.

***Entada rheedii* Spreng**

Figure 45 D

Vernacular Ba (ป่า), Saba (สะป่า)

Woody climber, at least 120 m long. **Stipules** inconspicuous. **Leaves** bipinnate, alternate; petioles 5 cm long; the terminal pinnae transformed into tendrils; pinnae 2 pairs, up to 15 cm, rachis pubescent on upper side; leaflets 4 pairs per pinna, opposite; petiolules short, pubescent; blades chartaceous, elliptic to obovate, 3 – 6 by 1.5 – 3.5 cm, apex emarginate, margins entire, base cuneate, slightly unequal, glabrous except on midrib above; nerves 7 – 10 pairs, faint. **Inflorescence** axillary spike, solitary, 18 – 20 cm long, rachis densely pubescent. **Flowers** bisexual and male, small, 5 mm across, sessile; bracteoles minute, subulate. **Calyx** cup-shaped, 0.8 mm, minutely 5-toothed, glabrous. **Petals** 5, free, narrowly elliptic, 3 by 1 mm, glabrous, pale green. **Stamens** 10, free, white turning yellow, 5 – 6 mm; anthers with a stipitate caducous gland at the top of the connective. **Ovary** superior, ellipsoide, 1 – 1.5 mm long, green, glabrous, stipitate, 1-loculed; ovules 15 – 22 in each locule. **Fruit** a straight pod, up to 2 m long and 15 cm wide; pericarp woody. **Seeds** suborbicular, flat, 3 – 4 cm diam., up to 1 cm thick, brown.

Locality Ban Ton Panun, Khuan Kalong District, Satun Province.

Distribution Africa, Tropical Asia, Australia.

Ecology Primary and secondary forest, especially along river; altitude 20 – 100 m. Flowering May – October; fruiting July – November.

Uses The seeds are used as an ingredient in the formula F35 for the treatment of ringworm, (M). The stem bark is mashed, dried, and then soaked in water. Then this water is used as a substitute for hair shampoo with the side benefit of getting rid of head lice, (B, M).

Material studied UBON 1234, BKF 101050

Reference Nielsen, Fl. Mal. Ser.1. 11(1):180. 1992

***Entada spiralis* Ridl.**

Vernacular Saba chang (สะป่าช้าง)

Large woody climber, unarmed; young parts short hairy. **Stipules** minute. **Leaves** bipinnate, spirally arranged, rachis and pinnae glandless; petioles 3 – 4 cm long, swollen at the bases; rachis 5 – 8 cm long; pinnae 2 pairs, the terminal ones transformed into tendrils. Leaflets 3 – 4 pairs per pinna, opposite, chartaceous, narrowly obovate-elliptic, slightly unequal-sided, 6 – 10 by 2 – 5 cm, apex rounded-truncate, slightly emarginate, margin entire, base slightly asymmetrical; upper surface dark green, glabrous, the lower ones glaucous. **Inflorescence** axillary spike,

10 –15 cm long. **Flowers** bisexual or male, 5 mm across. **Calyx** green, cup-shaped, glabrous, teeth inconspicuous. **Petals** 5, free, pale green, elliptic, acute, glabrous, 2.5 by 0.8 mm. **Stamens** 10, free, 5 mm, white turning pale yellow. **Ovary** glabrous, oblong, 1.2 mm; ovules 8 – 10. **Pods** large, woody, spirally twisted, 20 cm long and 6 cm broad. **Seeds** brown, irregularly compressed, 5 – 6 cm broad, 2 cm thick.

Locality	Ban Khao Phra, Rattaphum District, Songkhla Province.
Distribution	Malaysia, Sumatra.
Ecology	Evergreen rain forest; altitude 130 m. Flowering January – February.
Uses	The mature seeds are eaten after boiled. (M) The stem bark is used in a similar way as with the bark of <i>Entada rheedii</i> Spreng, (B, M).
Material studied	UBON 1237, BKF 111491
Reference	Nielsen , Fl. Thail. 4(2) :142. 1985. ; Nielsen , Fl. Mal. Ser.1. 11(1):180. 1992.

***Parkia speciosa* Hassk.**

Figure 66 D

Vernacular Sato (สะตอ)

Tree, up to 30 m tall; branchlets terete, puberulous. **Stipules** minute, caducous. **Leaves** bipinnate, alternate, 40 – 45 cm long, 12 – 18 cm wide; petioles 3 – 6 cm long, with gland above the base; primary rachis 30 – 40 cm long, with smaller glands between ultimate pairs of pinnae. Pinnae 14 – 18 pair, 6 – 8 cm long, opposite. Leaflets 30 – 40 pairs per pinna, opposite, coriaceous, oblong, 5 – 10 by 1.5 – 2 mm, apex rounded, margins finely ciliate, base strongly auriculate on proximal side, glabrous; midrib central; nerves inconspicuous. **Inflorescence** club-shaped pendulous head, solitary or racemose, peduncle 10 – 50 cm long; head 7 cm long, 4 cm diam. **Flowers** yellowish-white, minute, numerous; ones at the upper part of heads bisexual, in lower part male or sterile. Bracts spatulate, slightly longer than calyx. **Calyx** funnel-shaped, 6 – 7 mm long, 5-lobed; lobes unequal, 2 larger and 3 smaller, imbricate. **Corolla** tubular, slightly longer than the calyx, 5-lobed; lobes similar, narrowly spatulate, valvate, sparsely pubescent on outer surface. **Stamens** 10, exserted; the lower part of filaments united into a tube. **Ovary** superior, stipitate, glabrous, 1-loculed, many-ovuled. Style exserted as far as anthers. Stigma minute. **Fruit** a pod, strape-shaped, stipitate, 30 – 40 by 3 – 5 cm, straight or twisted; the valves coriaceous, prominently swollen over the seeds. Seeds many, broadly-elliptic, lying horizontal in the pod, 22 – 25 by 15–20 mm, with thin testa.

Locality Found in every study sites.

Distribution Malay Peninsula, Sumatra, Borneo, Philippines.

Ecology Scattered along edges of tropical rain forest and in secondary forest; often cultivated for its edible seeds; altitudes 20 – 350 m. Flowering August – September; fruiting October – November.

Uses The young leaves and mature green seeds are eaten raw as a vegetable. The green seeds are also cooked in various kinds of local dishes, (B, M). The roots are used as an ingredient of the formula F15 used in the treatment of diabetes, (B). The stem bark and benzoin are pounded, then a mixture is used as a poultice applied externally to treat mumps, (M).

Material studied UBON 1192, BKF 69258

Reference Hopkins, Fl. Mal. 11(1) : 198. 1992.

***Parkia timoriana* (DC.) Merr.**

Figure 66 E – F

Vernacular Rieng (เรียง)

Tree, up to 50 m tall, branchlets terete, puberulous; bark smooth, whitish. **Stipules** minute, caducous. **Leaves** bipinnate, alternate, 20 – 50 cm long, 15 – 20 cm wide; petioles 5–10 cm long, with gland 1.5–4 cm from the base; primary rachis 20 – 45 cm long, with smaller glands between ultimate pairs of pinnae. Pinnae 14 – 30 pairs, 9 – 10 cm long, opposite. Leaflets 50 – 71 pairs per pinna, opposite, coriaceous, glabrous, linear-falcate, 6 – 10 by 1 – 2 mm, apex acute, bent forwards, margins ciliate, base auriculate on proximal side; midrib central, sigmoid, and curved towards distal margin at apex; nerves inconspicuous. **Inflorescence** club-shaped pendulous head, solitary or racemose; peduncles 8 – 30 cm long; head 5.5 – 6.5 cm long and 3 – 4 cm diam. **Flowers** yellowish-white, minute, numerous; ones at the upper part of heads bisexual, in lower part male or sterile. Bracts spatulate, slightly longer than calyx. **Calyx** narrowly tubular, 7 – 9 mm long, 5-lobed; lobes unequal, imbricate. **Corolla** tubular, slightly longer than the calyx, 5-lobed; lobes narrowly-oblong, acute, valvate. **Stamens** 10, exserted; the lower part of filaments united into a tube, 12 mm long. **Ovary** superior, stipitate, glabrous, 1-loculed; ovules many. Style exserted, as far as anthers. Stigma minute. **Fruit** a pod, strape-shaped, stipitate, straight, 20 – 30 by 4 – 5 cm; the valves woody, inconspicuously swollen over the seeds. **Seeds** 12 – 20 per pod, elliptic, slightly biconvex, lying horizontally in the pod, 20 by 12 by 5 mm; testa hard, black.

Locality Ban Nai Wang, Kongra District, Phattalung Province.

Distribution India, Bangladesh, Burma, Malay Peninsula, Java, Sumatra, Borneo, Philippines, Celebes, Moluccas, New Guinea.

Ecology In evergreen rain forest; altitudes 100 m. Flowering November – December; fruiting February – March.

Uses The germinated seeds are eaten raw as a side dish with rice, cooked in curries. They are also valued as a mild laxative, (B, M). The roots are used as an ingredient of the formula F15 used for the treatment of diabetes,(B). The timber is used for light and temporary construction, boxes, and other household and kitchen utensils, (B , M).

Material studied UBON 1189, BKF 48786

Reference Hopkins , Fl. Mal. Ser.1. 11(1): 201. 1992.

Leguminosae – Papilionoideae

Cajanus cajan (L.) Millsp.

Vernacular Thua raet (ถั่วแระ)

Erect shrub, 2 – 4 m tall; young branches white-hairy. **Stipules** narrowly ovate, 2 – 3 mm, pubescent, persistent. **Leaves** 3-foliolate, spirally arranged; lateral leaflets opposite; petioles 2 – 4 cm long; blades elliptic, 5 – 7 by 1.5 – 2 cm, apex acute, margins entire, base cuneate, pubescent on both surfaces, lower surface with yellow gland-dotted; nerves 5 – 7 pairs. **Inflorescence** terminal and axillary raceme, 6 – 10 cm long, peduncles 1 – 7 cm, rachis 1 – 4 cm, densely white-hairy. **Flowers** bisexual, pairwise; pedicels 1 cm long. **Calyx** campanulate, 5-lobed; lobes acute, pubescent, unequal. **Petals** yellow, glabrous, standard 1.0 – 1.5 cm diam. **Stamens** 10, diadelphous, pubescent. **Ovary** superior, hairy, 1-loculed, ovules 4 – 6; styles pubescent on the lower half; stigma terminal. **Pods** linear, acute, 4.5 by 1.2 cm; valves between the seeds with oblique impression; beak 1 cm long. **Seeds** 4 – 6, orbicular.

Locality Ban Huay Ngo, Khok Pho District, Pattani Province.

Distribution India, SE. Asia.

Ecology Cultivated plants, in open places; altitude 40 m. Flowering and fruiting January – February.

Uses The young pods are boiled, and eaten as a snack,(B). The leaves are crushed, mixed with washing from uncooked rice. A juice is then squeezed out and taken by women to cure hemorrhage after childbirth, (B). The roots are used as an ingredient of the formula F32 for the treatment of dizziness in women after childbirth, (B).

Material studied UBON 420 , BKF 66287

Reference Van Thuan, Flore du Cambodge du Laos et du Vietnam. 17 : 108.1979.

***Canavalia cathartica* Thouars**

Figure 31 E

Vernacular Thua phi (ถั่วฝัก)

Climbers, glabrous; stem twining. **Leaves** imparipinnate, with 3 leaflets, alternate; petioles 4 – 11 cm long; petiolules 3 – 7 mm; stipules produced beyond their thick base, the top-part caducous; blades chartaceous, ovate, 8 – 11 by 4 – 6 cm, apex acuminate, margins entire, base rounded; nerves 5 – 6 pairs. **Inflorescence** axillary raceme, 10 – 15 cm long; rachis thick, pubescent. **Flowers** bisexual, pink, 3.5 cm long; pedicels 3 mm long. **Calyx** tubular, pale green, pubescent, 1.5 cm long; 2-lipped, upper lip emarginate, lower ones 3-toothed. **Corolla** much longer than the calyx, glabrous; standard suborbicular, 3.8 by 2.5 cm, white-veined, emarginate; keel blunt, incurved, subequalling the wings, 3 cm long, 0.5 cm wide. **Stamens** 10, diadelphous. **Ovary** superior, linear, pubescent; ovules 7 – 8; style curved; stigma terminal. **Pods** large, sword-shaped, inflated, turgid, with a ridge along each edge of upper suture, 10 – 12 by 3 – 3.5 cm. **Seeds** suborbicular, dark brown, 1.5 by 1.0 cm, with hilum 8 mm long .

Localities	Ban Thale Noi, Khuan Khanun District, Phattalung Province.
Distribution	Indo-China, Malaysia.
Ecology	Common on sandy seashores and adjacent localities. Flowering and fruiting throughout the year .
Uses	The flowers are eaten raw as a vegetable, (B).
Material studied	UBON 413, BKF 93273
Reference	Van Thuan, Flore du Cambodge du Laos et du Vietnam.17 : 76. 1979.

***Dalbergia parviflora* Roxb.**

Figure 38 E

Vernacular Khri (คหรี), La ko (ลากอ)

Scandent shrub up to 10 m long; young shoot and inflorescence puberulous, later glabrous. **Stipules** small, caducous. **Leaves** imparipinnate, alternate, 10 – 20 cm long; petioles 2 – 3.5 cm long; petiolules 3 – 5 mm long. Leaflets 5 – 7, alternate; blades coriaceous, elliptic to obovate-oblong, 3 – 9 by 2 – 5 cm, apex blunt acuminate retuse, base obtuse, glabrous on both surfaces; nerves 7–10 pairs. **Inflorescence** a panicle, terminal and in upper leaf axils, 7 – 10 cm long and wide; bracts ovate, minute, persistent; bracteoles oblong, 1.5 by 1 mm, caducous; pedicels 1.5 mm long, articulate. **Flowers** bisexual, secund. **Calyx** campanulate, 2 mm long, 5-lobed; lobes obtuse. **Corolla** greenish white; standard narrowly obovate-emarginate, 3.5 by 2 mm; wing 3 by 0.8 mm long; keel 3 by 1 mm long. **Stamens** 10, monadelphous. **Ovary** superior, stipitate, few-ovuled; style short; stigma small. **Fruit** indehiscent pod, falcate, 2.7 by 1.8 cm, glabrous. **Seeds** 1 – 2, reniform, 10 by 14 mm, reddish-brown.

Locality	Ban Lu Bo Sa Ma, Su-ngaikolok District, Narathiwat Province.
Distribution	Burma, Malaysia, Indonesia.
Ecology	Freshwater and brackish swamp forest; altitude 20 m. Flowering and fruiting April – May.
Uses	The young leaves are eaten raw as a vegetable, (B, M). The crushed leaves are mixed with lime juice, then applied round the abscesses, (M).
Material studied	UBON 408, 1040 ; BKF 62909
Reference	Niyomdham, Thai For. Bull.(Bot.). 30 : 151. 2002.

***Derris indica* (Lamk.) Benn.**

Vernacular Ka yi (กาหยี่)

Small tree, 3 –15 m tall; branches spreading, glabrous. **Stipules** hairy, fugacious. **Leaves** imparipinnate, alternate; petioles 3–4 cm long; leaflets 5 –7, accrescent towards the top of the leaf, opposite; petiolules 5 – 8 mm long; blades chartaceous to thinly coriaceous, ovate, oblong or elliptic-oblong, 4 –15 by 3 –7 cm, apex acute to obtusely acuminate, margins entire; base rounded, subobtuse or slightly cuneate; glabrous on both sides; nerves 7 – 9 pairs. **Inflorescence** raceme, upper axillary, 8 – 20 cm long; peduncle and rachis pubescent; pedicels 8 – 10 mm long. **Flowers** bisexual, numerous, purple, 1.5 cm long. **Calyx** cup-shaped, 4 mm long, finely pubescent, teeth obsolete. **Corolla** with suborbicular standard, 1–1.5 cm long, 8 – 10 mm wide, pubescent on the back, claws short with 2 distinct appendages; wings oblong, oblique; keel obtuse, slightly curved. **Stamens** 10, monadelphous, 12 mm long. **Ovary** superior, sessile, densely hairy, 1-loculed, 1-ovuled; style filiform, glabrous, curved; stigma small, terminal. **Pods** obliquely oblong, flattened, thickly coriaceous, shortly beaked at apex, indehiscent. **Seed** 1.

Locality	Ko Chap Pi Yai, Palian District, Trang Province.
Distribution	India, SE. Asia, Taiwan, Ryu kyu Islands.
Ecology	On sandy soil near seashores. Flowering January – May; fruiting July – December.
Uses	The leaves are crushed, then used as a poultice applied externally for the treatment of inflammation caused by jelly-fish allergy, (M).
Material studied	UBON 1075, BKF 133569
Reference	Chayamarit, Leguminous Plant in the Mangrove Formation in Thailand. 66. 1984.

***Desmodium heterocarpon* (L.) DC.**

Figure 39 D

Vernacular Me sa kuching (มีซาอุซิง)

Small erect shrub, up to 60 cm tall; stem and branches terete, young part densely hairy. **Stipule** ovate-lanceolate, acuminate rostrate at the tip 8 mm long. **Leaves** pinnately trifoliolate, spirally arranged, 3 – 9 cm long; petioles 1 – 1.5 cm long; petiolules very short. Leaflets thinly coriaceous, pubescent on both surfaces, more hairy underneath; terminal leaflet obovate to elliptic, 2 – 4 by 1 – 2 cm, apex rounded and slightly emarginate, margins entire, base cuneate; lateral leaflets opposite, elliptic, smaller than the terminal one, apex rounded and slightly emarginate, margins entire, base cuneate. **Inflorescence** a terminal raceme, ascending, 7 – 14 cm long. **Flowers** bisexual, violet, numerous, in cluster of 2 on the rachis, 5 – 6 mm long; pedicels 2 – 3 cm long, red, glabrous. **Calyx** campanulate, 2 cm long, 5-lobed; 2 upper lobes minute. **Petals** 5; standard suborbicular rounded at the tip, 5 by 4 mm; wing obovate-oblong, 3 by 2 mm; keel oblanceolate, ventrally connate in the upper part, 4 by 1.5 mm. **Stamens** 10, diadelphous 4 mm long. **Ovary** superior, linear 3.5 mm long, pubescent, 1-loculed; ovules up to 8; style at a right angle to the top of the ovary, glabrous; stigma capitate. **Pods** ascending, appressed against each other, linear, flat, transversely jointed between the seeds, margins densely hairy, 10 – 25 by 2.5 – 3 mm. **Seed** 6 – 8, kidney-shaped, slightly compressed, glossy dark brown, 2 by 1 mm.

Locality	Ban Lu Bo Sa Ma, Su-ngaikolok District, Narathiwat Province.
Distribution	Africa, India, Himalaya, Burma, Malaysia, Laos, Cambodia, Indo - China, China, Australia.
Ecology	In open places and waste ground, roadsides; altitude near sea level. Flowering and fruiting April – May.
Uses	A decoction of the whole plant is taken as an emmenagogue, (M).
Material studied	UBON 1338, BKF 075786
Reference	Phon <i>et al.</i> , Flore du Cambodge du Laos et du Vietnam. 27: 136. 1994.

***Milletia atropurpurea* Wall.**

Figure 63 A – B

Vernacular Sae (เสอ)

Tree up to 30 m tall; crown dense, dark green. **Leaves** imparipinnate, alternate, 30 cm long; petioles 6 cm long; petiolules 10 mm long; leaflets 9 – 11, opposite or subopposite; blades coriaceous, elliptic-lanceolate or oblong-elliptic, 6 – 13 by 2.5 – 4.5 cm, apex acuminate, base rounded, glabrous on both sides, shining dark green on upper surface; nerves 4 – 6 pairs. **Inflorescence** panicle, terminal, 14 – 20 cm long; rachis thick, densely tomentose; pedicels 5 mm long, reddish-purple, pubescent. **Flowers** bisexual, deep purple. **Calyx** campanulate, 1 cm long, 5-lobed; lobes minute, acute, unequal, deep purple, pubescent on both sides. **Petals** dark

reddish-purple, white at base; standard suborbicular, short-clawed, 2 by 1.5 cm; wings oblong semi-sagittate, adhering to the obtuse keel. **Stamens** 10, diadelphous, 2 cm long, white. **Ovary** superior, stipitate, 5 mm long, light purple, pubescent, 1-loculed; ovules 3 – 4. **Pod** thick, slightly flattened, dark brown, 8 – 10 by 4 – 5 cm, splitting open tardily when fallen on the ground. **Seeds** 1 – 3, orbicular, flattened.

Locality	Ban Khao Phra, Rattaphum District, Songkhla Province.
Distribution	Burma, Malaysia, Sumatra, Borneo.
Ecology	In evergreen forest, on river-banks; altitude 100 – 350 m. Flowering May – June; fruiting September – October.
Uses	The young leaves are eaten raw as a vegetable, (B, M). The crushed leaves are mixed with lime juice, and then applied as a poultice onto the wounds to accelerate healing process, (M).
Material studied	UBON 1264 , BKF 81466
Reference	Whitmore, Tree Fl. Malaya 1: 296. 1972.

***Tadehagi triquetrum* (L.) Ohashi**

Figure 75 B

Vernacular Puti bue le yong (ปู้ตี่บู้เอี๋ยง)

Shrub, 1 m tall; branchlets sharply triquetrous, long-hairy on the angles. **Stipules** lanceolate-acuminate, persistent, 1.0 – 2.0 by 0.5 cm. **Leaves** unifoliolate, alternate; petioles winged; blades coriaceous, puberulous, oblong-lanceolate, 5 – 15 by 2 – 5 cm, apex acute-acuminate, margins entire, base cordate-rounded. **Inflorescence** axillary and terminal raceme, narrow, 15 – 20 cm long; bracts persistent. **Flowers** bisexual, purple; pedicels 2 – 4 mm long. **Calyx** campanulate, 4-toothed, 2 – 5 mm long, pubescent, with 2 basal bracteoles. **Petals** 5; standard orbicular-obovate, 4 – 6 by 4 – 5 mm, apex emarginated, keel slightly shorter than wings. **Stamens** 10, diadelphous. **Ovary** superior, sessile, pubescent; ovules 5 – 8; style curved, glabrous. **Pod** oblong, flat, pubescent, joints 5 – 8.

Locality	Ban To Wo, Su-ngaikolok District, Narathiwat Province.
Distribution	India, Burma, Indo-China, Malaysia, Pacific Islands, Australia.
Ecology	Open places, secondary forest; altitude 20 m. Flowering and fruiting January – March.
Uses	The roots together with a little amount of benzoin are rubbed against an earthenware pot. The mixture obtained is used as a remedy given to women after abortion; it is given at a single dose of 1 teaspoonful once a day for 16 days, (M).

Material studied UBON 406

Reference Phon *et al.*, Flore du Cambodge du Laos et du Vietnam. 27 : 50. 1994.

Liliaceae

Dianella ensifolia (L.) DC.

Figure 40 A

Vernacular Ya nu ton (หญ้านูตัน), Se yo (ซีโยะ)

Erect herb, stem tufted; leafy part to about 60 cm tall, glabrous. **Leaves** simple, cauline and distichous; blades coriaceous, linear; distally dorsiventral, in the lower part laterally compressed and keeled, and forming a closed sheath at the base, with minute prickles along the margin and abaxial surface of the midrib; 40 – 45 by 3 – 3.5 cm. **Inflorescence** panicle, terminal, 30 – 50 cm long; rachis stiff; bracts linear-lanceolate, 1.5 – 4.5 cm long; bracteoles minute, triangular; pedicels 8–9 mm long. **Flowers** bisexual, yellow, 1 cm diam. **Perianth** segments 6, free, arranged in 2 whorls, spreading, 7 by 3 mm. **Stamens** 6, free, 7 mm long; filaments filiform, with glabrous swelling below the anther. **Ovary** superior, globose, 3-loculed; ovules 4 in each locule; style filiform, stigma minute. **Fruit** berry, subglobose, 1.2 cm diam., shiny violet. **Seeds** several, shiny black.

Locality Ban Bon Khuan, Rattaphum District, Songkhla Province.

Distribution Continental Africa, Madagascar, Continental Asia to S. China, Japan and Formosa, throughout Malesia to Australia, New Zealand.

Ecology Open grass land to primary forest; altitude 90 m. Flowering and fruiting throughout the year.

Uses A decoction of the whole plant is taken as a remedy to relieve asthma, (B). An alcoholic macerate of the roots is drunk as a tonic to increase internal strength ; a decoction of the roots is taken as a remedy to cure joint pain, (B). A squeezed juice from the ripe fruits is dropped into the ears 3 times a day to treat earache, (M).

Material studied UBON 291, BK 38719

Reference Jessop, Fl. Mal. Ser.1. 9(1) : 207. 1979.

***Peliosanthes teta* Andr.**

Figure 67 A – B

Vernacular Not din (โหนดดิน) , La mo (ลามอ)

Perennial herb, up to 60 cm tall; rhizome very short and horizontal; roots thick. **Leaves** simple, basal; petioles 20 – 30 cm long, slender; blades coriaceous, plicate, narrowly lanceolate, 15 – 26 by 3 – 6 cm, apex acute, margins entire, base cuneate, glabrous; prominent parallel main nerves 7 – 9. **Inflorescence** a simple raceme, 18–30 cm long, erect, arising from subterranean rhizome. **Flowers** bisexual, 2 – 3 in axil of a bract; pedicels 1 – 6 mm, articulated at the apex. **Perianth** campanulate; lobes 6, in 2 whorls of 3, suborbicular, 1.5 – 2 mm long, greenish-white. Corona forming a disk 3 mm diam., entire. **Stamens** 6, filaments very short, attached to a corona. **Ovary** semi-inferior, 3-loculed; ovules 1 – 5 in each locule; style 3-ridged; stigma 3-lobed. **Fruit** a capsule, splitting at top when young. **Seeds** 1–3, ellipsoid to pyriform, up to 10 mm long, blue.

Locality Ban Sa Ko, Su-ngaipadee District, Narathiwat Province.

Distribution SE.Asia.

Ecology In evergreen rain forest, humid places; altitude 50 m. Flowering January – February ; fruiting March – April.

Uses A decoction of the whole plant is given to women after giving birth, to drink as a tonic. This decoction is also given to children to treat gastro-intestinal ailments, (M, B).

Material studied UBON 747 , BKF 130917

Reference Jessop, Fl. Mal. Ser.1. 9(1) : 228. 1979.

Loganiaceae***Fagraea fragrans* Roxb.**

Figure 47 A – B

Vernacular Tamsao (ตำเสา)

Tree, 8 – 25 m tall; branchlets terete, glabrous; bark dark brown, with deep longitudinal fissures. Stipules connate into an ocrea, usually split into 2 axillary scales, 1 – 2 mm. **Leaves** simple, opposite; petioles 1 – 1.5 cm; blades thinly coriaceous elliptic, 4 –10 by 2.5 – 3.5 cm, apex caudate, margins entire, base attenuate, glabrous on both surfaces; nerves 5 – 9 pairs. **Inflorescence** a cymose panicle, in the higher leaf-axils, 7 – 10 cm long, rather dense, many-flowered; peduncles 3 – 5 cm; pedicels 4 – 6 cm; bracts minute. **Flowers** bisexual , creamy white turning dull-yellow, fragrant, 1 cm long. **Calyx** campanulate, 1.5 – 2 mm, 5-lobed; lobes ovate, obtuse. **Corolla** narrowly funnel-shaped, 5-lobed; lobes oblong, 3 – 5 mm. **Stamens** 5, inserted in the throat; filaments slender, 1.5 cm long. **Ovary** superior, ellipsoid, tapering into a filiform style; 2-loculed; ovules numerous; style

far exerted; stigma capitate. **Fruit** berry, broadly ellipsoid, 8–10 mm diam., shining red when ripe, glabrous. **Seed** numerous, minute, irregular angular, brown.

Locality	Found in every study sites.
Distribution	India, Andaman Islands, Southern Burma, Vietnam, Malay Peninsula, Sumatra, Java, Borneo, Philippines.
Ecology	Humid evergreen forest, sandy sea-shores, by roadsides; altitude from near sea-level up to 100 m. Flowering February –April; fruiting May – July.
Uses	The young leaves together with a small amount of turmeric rhizome and rice grains are pounded. Then a mixture is applied to the abdomen. It is said to relieve malarial fever, (M). The heart wood is used as an ingredient in the formula F31 for the treatment of malarial fever as well, (B). The whole plant is used as an ingredient of the formula F18 for the treatment of elephantiasis at the early stage, (B).
Material studied	UBON 531 , BKF 108890
Reference	Griffin & Parnell, Fl. Thail. 6(3) : 198. 1997.

***Fagraea racemosa* Jack ex Wall.**

Figure 47 C

Vernacular Phawa nam (พวน้ำ)

Shrub to small tree, 2 – 10 m tall; branches thick, cylindrical, glabrous. **Stipules** connate into an annular ocrea which clasps the twig. **Leaves** simple, opposite; petioles 0.5 –1.0 cm long, stout; blades broadly ovate, obovate-oblong, 5 – 20 by 4 – 10 cm, apex shortly acuminate, margins entire, base cuneate, glabrous on both surfaces; nerves 6 – 7 pairs, flat above, distinctly prominent beneath; reticulation lax. **Inflorescence** a terminal panicle, 10 cm long, erect; peduncles 5 cm long, robust, terete. **Flowers** bisexual, creamy white, 2 cm across; pedicels 4 mm long, stout, with 2-bracteolate at the base. **Calyx** campanulate, divided about halfway down into 5-lobed; lobes rounded, fleshy, glabrous. **Corolla** funnel-shaped; corolla tube 1.0 –1.5 cm long, 5-lobed; lobes obtuse, 8 by 5 mm, glabrous. **Stamens** 5, inserted in the throat of the corolla tube; anthers oblong, 3 mm long, cells free in their basal half. **Ovary** superior, ellipsoid, 1-loculed; ovules numerous; style about as long as the tube, purple, terete; stigma peltate, 1.5 mm diam. **Fruit** ovoid-globose berry, tipped by the very short but distinct style-base, 1.5 by 1.2 cm.

Locality	Ban To Daeng, Su-ngaikolok District, Narathiwat Province.
Distribution	Indo-China, S.Burma, the Andamans and Nicobars throughout Malaysia, N. Australia.

Ecology	Common in lowland and peat swamp forest, on muddy riverbanks; altitude near sea level. Flowering and fruiting in April – November.
Uses	The leaves together with the leaves of <i>Lygodium microphyllum</i> (Cav.) R.Br. are soaked in water, then this water is used to bath children with measles once a day, for 3 days, (B). A decoction of the roots of this plant species and the roots of <i>Melastoma malabathricum</i> L. is taken to relieve bodily discomfort. A decoction of the roots of this plant species alone is taken as a refrigerant, (B).
Material studied	UBON 530
Reference	Leenhouts, Fl. Mal. Ser.1.6(2) : 311.1962; Griffin & Parnell, Fl.Thai 6(3): 199. 1997.

Loranthaceae

Dendrophthoe incarnata (Jack) Miq.

Figure 39 B

Vernacular Kafak chang (กาฝากช้าง), Na lu ka yo (นาลูกาเยาะ)

Aerial stem-parasitic shrubs, robust; glabrous except for the young shoots, inflorescences and flowers with dense white stellate hairs which persists on the ovary, calyx and corolla. **Stipules** absent. **Leaves** simple, subopposite; petioles 1 cm long; blades coriaceous, broadly ovate, 20 – 25 by 5 – 15 cm, apex acute, base slightly cordate, margins entire; midrib and nerves prominent below; nerves 5 – 6 pairs; **Inflorescence** raceme, in axils of fallen leaves, 5 – 6 cm long; rachis densely pubescent. **Flowers** bisexual, showy 4 cm long. **Calyx** cup-shaped, 5-lobed; lobes short, triangular. **Corolla** tubular, slightly zygomorphic; tube slender, 2.0 – 2.5 cm long, distinctly narrowed above the base, gradually widened upwards, pink below and light green above, 5-lobed; lobes 6 by 2 mm, reflexed. **Stamens** 5, epipetalous, opposite the corolla lobes; anthers 3 – 4 mm long, equal to or slightly longer than the free part of filaments. **Ovary** inferior. Style terete, 3 cm long, glabrous, with a knob-like stigma. **Fruit** berry, ovoid, 10.0 by 7.0 mm, red, densely covered with stellate hairs. **Seed** 1.

Locality	Ban Ba Ngo Yaho, Su-ngai-padee District, Narathiwat Province.
Distribution	Peninsular Malaysia, Sumatra .
Ecology	Parasitic on <i>Citrus</i> spp., <i>Baccaurea</i> spp., in margin of peat swamp forest; altitude 20 m. Flowering during January–February; fruiting during March – April.
Uses	The leaves are used as an ingredient of the formula F21 used to cure chronic fever, (M).
Material studied	UBON 436
Reference	Barlow, Fl. Thai. 7(4) : 671. 2001.

***Dendrophthoe pentandra* (L.) Miq.**

Figure 39 C

Vernacular Kafak (กาแฟ)

Aerial stem-parasitic shrubs, young shoot covered with brown stellate hairs. **Stipules** absent. **Leaves** simple, alternate or subopposite; petioles 1 cm long; blades leathery, mostly elliptic, 6 – 12 by 4 – 6 cm, apex obtuse, margin entire, base attenuate; nerves 3 pairs. **Inflorescences** axillary raceme, few-flowered, 2 – 3 cm long; pedicels 3 mm long. **Flowers** bisexual, pale green. **Calyx** tube 0.5 – 1.0 mm long, membranous. **Corolla** narrowly campanulate, 6 – 12 cm long, green, pubescent outside, 5-lobed; lobes linear, reflexed. **Stamens** 5, filaments with scattered white stellate hairs, free part of filament 4 mm long; anthers 2 mm long. **Ovary** inferior; style simple 1.6 cm long, terete, glabrous, green; stigma knob-like. **Fruit** ovoid.

Locality Ban Huay Ngo, Khok Pho District, Pattani Province.

Distribution India, Burma, Indo-China, southern China, Malaysia, Philippines.

Ecology In humid forests, beach forests, mangrove forests, *Melaleuca* swamp forests; altitude 40 m. Flowering and fruiting June – November.

Uses The swollen stems are used for the treatment of herpes infection ; these that attach to the host together with the roots of *Mimosa pudica* L., in equal proportion, are crushed, into which a little amount of water is added. The juice is then squeezed out and applied to the affected areas, (B).

Material studied UBON 437

Reference Barlow, Fl. Thail. 7(4) : 675. 2001.

Lythraceae***Lawsonia inermis* L.**

Figure 57 E

Vernacular Henna (เฮนนา)

Erect shrub, up to 4 m tall, often much-branched; young branchlets acutely quadrangular, the old ones almost terete. **Stipules** absent. **Leaves** simple, opposite or subopposite; petioles 1 mm long; blades chartaceous, glabrous, obovate, 2.0 – 3.0 by 0.6 – 0.9 cm, apex mucronate, base cuneate, margins entire; nerves 6 pairs, inconspicuous on both surfaces. **Flowers** in terminal and axillary panicle, panicles 4 – 20 cm long. **Calyx** deeply divided, 4-lobed; lobes ovate, acute, 2.0 by 1.5 mm, patent, pale green with red margin. **Petals** 4, free, white or red, reniform, strongly plicate, longer than calyx, patent. **Stamens** 8, pairwise opposite the calyx lobes; filaments fleshy, white, glabrous, 4 mm long; anthers yellow; connectives dark

brown. **Ovary** superior, subglobose, glabrous, 3-loculed, ovules many. Style subterminal, filiform. **Fruit** subglobose capsule, 5 – 8 mm across, crowned by short style-base, with persistent calyx, indehiscent. **Seeds** many.

Locality	Ban Lu Bo Sa Ma, Su-ngaikolok district, Narathiwat Province.
Ecology	In open spaces; altitude near sea level. Flowering and fruiting throughout the year. Often cultivated in home garden as ornamental plant and for miscellaneous uses.
Uses	A juice from the crushed young leaves is given to children with asthma to drink, (M). The leaves together with a small amount of cooked rice and charcoal are pounded. Then a poultice is pasted on the fingernails, left overnight. When the poultice is washed out, it leaves the fingernails reddish-orange. This treatment is commonly done by the bride-to-be just before her wedding day, (M).
Material studied	UBON 431
Reference	Backer & Bakh.f., Fl. Java. 1: 256. 1963.

Malvaceae

***Abutilon indicum* (L.) Sweet**

Figure 19 A

Vernacular Phong pheng (โพงพพง)

Shrub, up to 3 m tall; stem terete, densely white hairy. **Stipules** narrowly triangular, 1.5 – 2 mm long, finely pubescent, reflexed. **Leaves** simple, alternate; petioles 2 – 6 cm long; blades broadly ovate, thinly coriaceous, 4 – 8 by 4 – 8 cm, apex abruptly acuminate, margins coarsely dentate, base cordate, stellately hairy on both surfaces, more densely beneath; palmately nerved; main nerves 5, red. **Flowers** solitary, axillary, bisexual, peduncles 6 – 7 cm long, densely stellately hairy. **Calyx** campanulate, 8 mm long, 13 mm across, deeply 5-lobed; lobes broadly triangular, densely pubescent on both surfaces. **Petals** 5, bright yellow, broadly obovate, apex rounded or truncate, 1.3 by 1.3 cm, glabrous, membranous, widely patent. **Stamens** numerous, monadelphous; staminal tube 7 mm long, pubescent at the base. **Ovary** superior, subglobose, densely pubescent, 22-loculed; ovules 3 in each locule; style terete, 8 mm long, branches as many as ovary-cells; stigma capitate. **Fruit** globose, flattened at the top, breaking up into 1-loculed dehiscent mericarps, densely pubescent, black. **Seeds** numerous, reniform, small.

Locality Ban Hua Yang, Rattaphum District, Songkhla Province.

Distribution Warm parts of Africa, Asia and Australia.

Ecology	In open waste places, roadsides; altitude 70 m. Flowering and fruiting throughout the year.
Uses	A decoction of the whole plant is taken daily to treat haemorrhoids, (B).
Material studied	UBON 1183 , BKF 128203
Reference	Backer & Bakh.f., Fl. Java. 1 : 424. 1963.

***Hibiscus macrophyllus* Roxb. ex Hornem.**

Figure 55 B

Vernacular Chong (ฉิ่ง)

Tree, 10 – 20 m tall; young branches, petioles, pedicels, bracteoles, and calyx bearing long yellow hairs. **Stipules** 6 – 10 cm long, pairwise amplexicaul with a broad base. **Leaves** simple, alternate; petioles 15 – 30 cm long; blades chartaceous, orbicular, 15 – 30 cm long and as wide, apex abruptly acuminate, margins entire, base cordate, coarsely brown stellate-pubescent above, densely white-stellately hairy beneath, with 7 central nerves bearing elongate glands beneath. **Inflorescence** axillary and terminal cymes. **Flowers** yellow, 8 cm across; pedicels 2.5 – 5.0 cm long. Epicalyx well-developed, 8- to 10-lobed; lobes long, linear-lanceolate. **Calyx** 5-toothed, valvate, pale brown. **Petals** 5, adnate at base to the staminal-tube, obovate, thinly membranous, 6 – 7 cm long, yellow with a maroon spot at base. **Stamens** numerous, monadelphous; staminal-tube 3.5 cm long, truncate, antheriferous throughout. **Ovary** superior, ovoid, hairy, 5-loculed, ovules many. Styles 5, connate below; stigma capitate, maroon. **Fruit** a loculicidal capsule, globose, 2.5 cm diam., hairy .

Locality Ban Huay Ngo, Khok Pho District, Pattani Province .

Distribution India, Pakistan, Indo-China, Malaysia, Java, Borneo.

Ecology Secondary forest; altitude 40 m. Flowering and fruiting March – May.

Uses The leaves are used locally for food wrapping, and usually placed at the bottom of a pot in which glutinous rice is steamed; they give nice special odor to this steamed glutinous rice. The inner barks is used for cordage, (B). The timber is used for house building. The outer barks are made into house walls, (B, M).

Material studied UBON 78 , BKF 109971

Reference Phuphathanaphong *et al.*, Thai For. Bull. 18 : 56. 1989.

***Hibiscus tiliaceus* L.**

Figure 55 C

Vernacular Pho thale (โพธิ์ทะเล)

Shrub, up to 10 m tall; apices of stems finely pubescent. **Stipules** lanceolate, 1–2 cm long, pubescent. **Leaves** simple, spirally arranged; petioles 6–10 cm long; blades coriaceous, cordate-orbicular, 8–10 by 8–10 cm, apex acute, margins entire, base cordate, dark green and glabrous above, whitish and pubescent beneath, palmately nerved with a linear gland near the base. **Flowers** solitary or 2–5 in raceme, in upper axillary, bisexual. Epicalyx cup-shaped, 10-lobed, 8–10 mm, green, pubescent on both surfaces. **Calyx** cup-shaped, 2.5 cm, 5-lobed; lobes narrowly triangular, 2 cm long, green, pubescent on both surfaces. **Petals** 5, free, yellow, then turn yellowish-orange, with a purple base, membranous, obovate, 6–6.5 by 4–5 cm, sparsely stellately hairy beneath. **Stamens** numerous, monadelphous; staminal column yellow, 3.5 cm long, entirely antheriferous. **Ovary** superior, incompletely 10-loculed by false partitions; ovules many; style long; stigmas 5, capitate, purple. **Fruit** capsule, globose, 2–2.5 cm diam., hairy. **Seeds** many.

Locality	Ban Ta Se, Hat Samran Subdistrict, Trang Province.
Distributio	Pantropical.
Ecology	Along sandy seashores, on river banks. Flowering and fruiting throughout the year.
Uses	The inner barks of the stems are used for cordage, (M).
Material studied	UBON 899, BKF 132631
Reference	Phuphathanaphong <i>et al.</i> , Thai For. Bull. 18 : 72. 1989.

***Sida alnifolia* L.**

Figure 72 E

Vernacular Khat mon (ขี้ดมอน)

Shrub, 50 cm tall, much-branched, stellate-pubescent. **Stipules** subulate, 3 mm long. **Leaves** simple, spirally arranged; petioles 2–5 mm long; blades thinly chartaceous 1–3 by 0.4–1.5 cm. The leaves at lower part of plant obovate, apex truncate-emarginate. The ones at upper part obovate to lanceolate, apex rounded, sub-acute, margins serrate except at basal part; nerves 4 pairs; densely covered with stellate hairs on lower side, sparsely pubescent on upper side. **Flowers** solitary, axillary, bright yellow, peduncle 8–10 mm long; **calyx** cup-shaped, green, 5-lobed; lobes triangular, 4 mm long, stellate pubescent outside; **petals** 5, slightly connate at base, obovate, membranous, glabrous, 9–10 by 6–7 mm. **Stamens** numerous, monadelphous, tube 2.5–3.0 mm long, pubescent. **Ovary** superior, 9- to 10-loculed, ovule 1 per locule. Style-branches 9–10. Stigmas capitate. **Fruit** depressed globose, ripening black, breaking up into 9–10 mericarps, stellate pubescent.

Localities	Ban La Lae, Ban ToWo, Su-ngaikolok District, Narathiwat Province.
Ecology	Waste places, along roadsides, open places; altitude near sea level. Flowering and fruiting throughout the year.
Uses	The roots or stems are used as an ingredient of the formula F23 given to women with fever associated with menstruation. A decoction of the roots or stems is drunk frequently during the day as a substitute of drinking water to relieve bodily discomfort, (B). The roots are rubbed against using earthenware, water as a solvent. Then a suspension obtained is taken as an antipyretic, (M). The roots are used to make delivery easier; in this case, a decoction of the roots is taken by pregnant women at 8 months of gestational age. It is taken 3 times a day daily, (M). The crushed leaves mixed with lime juice are used as a poultice applied to treat corns, (M).
Reference	Chayamarit & Phuphathanaphong , Thai Med. Plant. 7 : 86. 2002.

Marantaceae

***Donax arundastrum* Lour.**

Figure 41 B

Vernacular Khla (คล้า)

Erect, shrub-like herbs, up to 2 m tall, with true stem; stem erect, slender; branches dichotomous. **Leaves** simple, alternate; petioles 8 mm long; sheath 10–15 cm long; blades thinly coriaceous, elliptic, 12–19 by 7–9 cm, apex shortly acuminate, base rounded, glabrous on both surfaces; pinnatinerved, with numerous, thin, parallel lateral veins. **Inflorescences** panicle, arising from upper leaf axils, 15 cm long, with erect branches and narrow bracts; bracts linear, apex acuminate, 4 by 0.7 cm; peduncles fleshy, 2 cm long; pedicels very short with a yellow conic gland below. **Flowers** bisexual, white, in pairs, 3.5 cm long. **Sepals** 3, free, lanceolate, 7 by 2 mm, pale pink. **Petals** 3, white, oblong, 3 by 0.5 cm, joined into a short tube at the base. **Fertile stamen** 1; the others converted into petal-like structures, more conspicuous than the true petals. **Ovary** inferior, 3-loculed; ovule 1 in each locule. **Fruit** berry, obconic 3-lobed, 8–9 mm long, 1.5 mm wide, sparsely pubescent. **Seeds** 2–3, subglobose, 7 mm diam.

Locality Ban Khao Phra, Rattaphum District, Songkhla Province.

Distribution Burma, Borneo.

Ecology Common on river banks, swampy places; altitude 100 m. Flowering and fruiting throughout the year.

- Uses A sap from the cut terminal bud is applied as drops to the eyes to treat eye ache, (B). A decoction of the roots of this plant species and those of *Donax grandis* (Miq.) Ridl. is taken frequently during the day as a refrigerant, (B). The stems are made into mats, baskets and other household utensils, (B, M). The lower parts of this plant species together with those of *Jasminum sambac* (L.) Ait. and *Melastoma malabathricum* L. (white flower) are soaked in water. Then this water is used to bath person who have lost the morale. It is believed to return their spirit, (M).
- Material studied UBON 911, BK 48090
- Reference Ridl., Fl. Mal. Pen. 4: 286. 1967 ; Henderson, Malayan Wild Flower : Monocotyledon. 128. 1974.

***Phrynium capitatum* Willd.**

Figure 67 F

Vernacular Let (เล็ค)

Herbs, bearing about 3 – 6 long-petioled leaves from the base and a terminal inflorescence. **Leaves** simple; petioles and sheath of basal leaves 150 – 210 cm long; those of peduncular leaves 50 – 60 cm long. Blades coriaceous, elliptic, 50 – 60 by 10 – 15 cm, apex shortly acuminate, margins entire, base rounded, dark green and shining above with slightly prominent main veins, pale green beneath, glabrous except for pale silky hairs on either side of midrib. **Inflorescence** a compact rounded head, 5 – 8 cm diam., consisting of many sessile spikes, arising laterally at apex of peduncle in axil of a peduncular leaf. Bracts green ovate, acute, spirally arranged, the apex soon turning brown and decomposing to a group of fiber 2 – 3 cm long, enclosing 2 – 5 pairs of flowers. **Flowers** bisexual, pale pink, 3 mm long. **Sepals** 3, white, linear, 1 cm long, densely hairy outside. **Corolla** tube white, flushed slightly with pink, 5 mm long, 3-lobed; lobes lanceolate, 8 mm long, apex obtuse with sparsely pilose, flushed with dull purple. **Stamen** 1, creamy white, with narrow appendage; staminodes present; tube of stamens and staminodes longer than corolla-tube. **Ovary** inferior, densely pilose, 3-loculed; ovule 1 in each locule. **Fruit** capsule, oblong, 1.5 by 0.8 cm, short-stalked, deep red, pubescent, 3-lobed, the apex broad with a slightly depression, bearing the persistent sepals. **Seeds** 1 – 2, oblong, black, 1.5 by 0.8 cm, with a fleshy bilobed basal aril.

- Locality Ban Khao Khram, Srinakharin Subdistrict, Phattalung Province.
- Distribution India, S.China, Malaysia.
- Ecology In evergreen forest, humid places, along streams; altitude 100 m. Flowering and fruiting July – September.
- Uses The leaves are used as wrappers for rice before cooking in bamboo sections. It is commonly used by local people in the past during a long trek in forest, (B, M).
- Material studied UBON 1275, BKF 132702
- Reference Holttum, Gard. Bull. Sing. 13(1) : 287. 1950.

Marattiaceae***Angiopteris evecta* (G. Forst.) Hoffm.**

Figure 26 B

Vernacular Kip raet (กึบแรด)

Terrestrial fern; rhizome short, broad, bearing several large fronds in a tuft, young part covered with small brown scales and hairs. **Stipes** green, swollen at base, 100 – 150 cm long. **Fron**ds bipinnate, 200 – 300 cm long; pinnules lanceolate, 10 – 20 by 2.5 cm, apex acuminate, base slightly unequal, margin with small blunt teeth to each vein-ending. Veins simple or forked. **Sori** with two close rows of sporangia, 1 mm from the margin; sporangia ovate-oblong, indusium absent.

Locality Ban Nai Wang, Kongra District, Phattalung Province.

Ecology Terrestrial on wet ground or by stream in moderately open places; altitude 80 m.

Uses The rhizomes are used as an ingredient of the formula F5 taken as a general tonic, blood circulation tonic; and to relieve bodily discomfort. A decoction of the rhizomes alone is also taken as a tonic, (B).

Material studied UBON 243, BKF 115736

Reference Tagawa & Iwatsuki, Fl. Thail. 3(1) : 41. 1979.

Melastomataceae***Clidemia hirta* (L.) D. Don**

Vernacular Khlong khlang khon (โคลงเคลงขน)

Shrub, 1 – 1.5 m tall; branchlets hirsute with glandular hairs. **Stipules** absent. **Leaves** simple, opposite; petioles 1.5 – 2 cm long; blades thinly coriaceous, ovate to broadly ovate, 7 – 16 by 4 – 10 cm, apex shortly acuminate, margins dentate, base rounded, densely hairy on both surfaces; nerves 5 from the base and transverse nervules prominent. **Inflorescences** axillary cyme, usually few-flowered. **Flowers** bisexual, white. **Calyx** very hairy, tube-shaped; tube 4 mm long with long narrowly 5-toothed; teeth 4 mm long, green. **Petals** 5, free, white, obovate, 9 by 4 mm. **Stamens** 10, free; anthers 4 – 5 mm long, opening by a single pore; connective with a minute dorsal spur. **Ovary** half inferior, 5-loculed; ovules numerous. **Fruit** a berry, 5 – 7 mm diam., ripening black.

Locality Ban Kam Phaeng, Muang District, Narathiwat Province.

Distribution Mexico to Bolivia.

Ecology	Waste places, rubber plantations, roadsides; altitude 50 m. Flowering and fruiting throughout the year.
Uses	The branches and leaves of this plant together with young leaves of <i>Leucaena leucocephala</i> (Lam.) de Wit and <i>Mikania cordata</i> (Burm.f.) B.L.Rob. are boiled in water. Then this water is used to bath children with helminths. The treatment is taken once a day for 3 days in the morning, (M).
Material studied	UBON 72
Reference	Renner <i>et al.</i> , Fl. Thail. 7(3) : 419. 2001.

***Melastoma malabathricum* L.**

Figure 62 C – D

Vernacular Khlong khlang (โคลงเคลง), Ka du do (กาจู้จู้)

Shrub, 1 – 3 m tall; branches, petioles and pedicels densely covered with appressed scales; branchlets quadrangular, reddish. **Stipules** absent. **Leaves** simple, opposite; petioles 1 – 2 cm long; blades chartaceous, lanceolate, 5 – 14 by 2 – 5 cm, apex acute, margins entire, base acute, with 1 pairs of lateral primary veins that originate near the blade base and extend all the way to the leaf apex, strigose on both surfaces but more conspicuously so on the lower surface especially on the main nerves. **Inflorescences** terminal, compact cyme of 3 – 7 flowers. **Flowers** bisexual, opening out flat and 5 – 7 cm across; bracts 0.5 – 1.2 cm long; pedicels 0.5 – 1.0 cm long. Hypanthium campanulate, 0.5 – 1.0 cm long, densely covered with appressed scales. **Calyx** cup-shaped, 5-lobed; lobes ovate acute, 0.5 – 1.3 cm long, ciliate along the margin. **Petals** 5, free, obovate, purple or white, 2.5 – 3.5 cm long. **Stamens** 10, dimorphic; outer anthers 0.7– 1.0 cm long, lilac, connective prolongation 0.4 – 0.8 cm long; inner ones 0.5 – 0.7 cm long, yellow, connective prolongation short; anthers opening by a single pore, usually beaked. **Ovary** half inferior, 5-loculed and apically bristly; ovules numerous. **Fruit** a fleshy capsule, 0.5 – 1.2 cm long, rupturing transversely at maturity, dark purple. **Seeds** minute, numerous.

Locality Ban Sae, Su-ngai-padee District, Narathiwat Province.

Distribution SE.Asia, Malesia, New Guinea, Philippines, Australia.

Ecology Common in open places, waste places, evergreen forest; altitude near sea level. Flowering and fruiting throughout the year.

Uses *The plants with purple flowers*: The plants with alternate branching are chopped, dried, and then boiled in water. A decoction is drunk as a contraceptive; this treatment is taken 40 days of having childbirth, (M). This decoction is also taken by women to cure hemorrhage after giving birth, (B). The leaves are used for the treatment of umbilical wound of a new born baby, treatment of post partum; the young leaves are finely crushed, mixed with a small amount of lime juice,

and then applied as a poultice to a umbilical of a baby, to speed the drying and removing of the umbilical cord, (M). For the treatment of post partum, a handful of the young leaves of this plant together with a small piece of the rhizomes of turmeric and few rice grains are pounded, into which water is added. Then a squeezed juice is taken, (M). The leaves are also used to treat fresh wounds; they are finely crushed, mixed with a small amount of lime juice. Then a poultice is pasted onto wounds to speed the wound healing and to stop bleeding, (B, M). The roots are used as an ingredient in the formula F16 taken to cure diarrhea. A decoction of the roots of this plant species and those of *Fagraea racemosa* Jack ex Wall. is taken for the treatment of bodily discomfort, (B). Stamens are used to treat herpes infection; the stamens of three flowers of *Melastoma malabathricum* L. together with the roots of three plants of *Polygonum odoratum* Lour., few pepper seeds and a betel quid are chewed, and then spat on the affected areas, (M). Fruits are used to treat aphthous ulcer; the crushed fruits are applied as a poultice to the affected areas, (B).

The plant with white flowers : The whole plant is dried, boiled in water, and then a decoction is taken daily as a contraceptive. Its roots are used as an ingredient in a tonic given to mother after giving birth, (B). Roots are used to treat snake bites; the roots are crushed, into which a small amount of lemon juice is added. Then it is used as a an poultice applied on snake bites, (M). The leaves are crushed, into which a small amount of lime juice is added. Then a poultice is applied to the wound to speed the healing and to stop bleeding, (B). The fresh flowers are eaten raw as a refrigerant and for the treatment of internal injury, (M).

Material studied UBON 73

Reference Renner *et al.*, Fl. Thail. 7(3) : 441. 2001.

Osbeckia chinensis L.

Vernacular Ka du do ba dae (กาดูดูบาแด)

Erect herb, 20 – 60 cm tall, stem slender angular, covered with appressed white hair. **Stipules** absent. **Leaves** simple, opposite, subsessile; blades subcoriaceous, narrowly lanceolate, 2 – 4 by 0.2 – 0.5 cm, apex acute, margins entire, base rounded, hairy on both sides, with 2 pairs of lateral primary veins. **Inflorescences** terminal cyme. **Flowers** few, bisexual, 4-merous; pedicels short. Hypanthium urceolate, 0.5 – 0.7 cm long, with scattered hairs. **Calyx** lobes 4, triangular, 5 mm long. **Petals** 4, purple, obovate, 10 – 15 mm long. **Stamens** 8, isomorphic; anthers 0.4 – 0.7 cm long, yellow, opening by a single apical pore. **Ovary** half inferior, 4-loculed, ovules numerous, apically crowned with bristles. **Fruit** not found.

Locality	Ban Ka Lo Se La, Su-ngaikolok District, Narathiwat Province.
Distribution	From China throughout SE.Asia, Borneo, Sumatra, Java, Philippines, New Guinea, N. Australia.
Ecology	Often in grassy areas, moist sites, evergreen forest; altitude 20 m. Flowering January – February.
Uses	A decoction of the roots is used as a contraceptive and for the treatment of bodily discomfort; it is taken 3 times a day daily, (M).
Material studied	UBON 70
Reference	Renner <i>et al.</i> in Fl. Thail. 7(3):451. 2001.

Meliaceae

Aglaia korthalsii Miq.

Figure 20 D – E

Vernacular Sang khriat (สังเครีชด)

Tree up to 26 m tall; twigs slender, with dense reddish-brown peltate scales. **Stipules** absent. **Leaves** imparipinnate, spirally arranged; petioles 7 – 12 cm long; petioles, rachis and petiolules with dense scales like those on the twigs. Leaflets 3–5, opposite; petiolules 5 mm; blades coriaceous, ovate to elliptic, 10 – 15 by 3 – 5 cm, apex acuminate, margins entire, base cuneate, with scales like those on the twigs, few on the upper surface, and numerous on the lower surface at fairly regular intervals; nerves 13 – 15 pairs. **Inflorescences** axillary panicles, occasionally ramiflorous, 10 – 20 cm long; peduncle, rachis and branches densely covered with scales. **Flowers** unisexual, male and female ones born on the same plant, at separate inflorescence. Both of them with developed rudiments of the opposite sex, small, 2 mm long and wide, subsessile. **Sepals** 5, unequal, suborbicular, membranous, with numerous peltate scales. **Petals** 5, yellow, unequal, obovate, slightly larger than the sepals, with peltate scales on the outside. **Stamens** 5; filaments connate into tube; staminal tube cup-shaped; anthers 5, protruding beyond the aperture and pointing towards the center of the flower. **Ovary** superior, ovoid with dense peltate scales, 2-loculed; ovule 1 in each locule. **Fruit** berry, ellipsoid, 2.5 by 1.5 cm, ripening orange, indehiscent. **Seeds** 2, with translucent, yellow juicy aril.

Locality Ban Kam Paeng, Muang District, Narathiwat Province.

Distribution India, Nicobar Islands, Burma, Vietnam, Malay Peninsula, Sumatra, Borneo, Philippines.

Ecology In primary and secondary forest, margin of peat swamp forest, often cultivated in villages; on clay, loam, limestone; altitude 20 – 40 m. Flowering October – November; fruiting January – February.

Uses The ripe fruits are eaten fresh, (B, M).

Material studied UBON 65

Reference Mabberley *et al.*, Fl. Mal. Ser.1. 12(1) : 251. 1995.

***Azadirachta excelsa* (Jack) Jacobs**

Figure 28 E – G

Vernacular Thiam (เทียม), Sadao chang (สะเดาช้าง)

Tree, up to 50 m tall; young shoot finely pubescent, soon glabrous. Barks of large trees becoming longitudinally fissured and scaling. **Stipules** absent. **Leaves** paripinnate, alternate, tufted at ends of twigs, 20 – 60 cm long; petioles 5 – 9 cm long; petiolules short. Leaflets 10 – 20, opposite; blades thinly coriaceous, lanceolat-elliptic, asymmetric, slightly falcate, 6 – 8 by 2.5 – 3 cm, apex acute, margins entire, base unequal acute, glabrous on both surfaces; nerves 6 – 9 pairs. **Inflorescences** panicle, consisting of many cymes, upper axillary, erect, 20 – 30 cm long, with 3 or 4 orders of branching, finely pubescent; bracts minute; pedicels 1 – 3 mm, articulate. **Flowers** bisexual, numerous, small, white. **Calyx** campanulate, 5-lobed; lobes 1 mm long, ovate, green, edges ciliate, pubescent outside. **Petals** 5, free, oblong, 6 by 2 mm, pubescent on both sides. **Stamens** 10; filaments connate into cylindrical staminal tube, 4 mm long, white, pubescent inside; anthers slightly exerted. Disk annular. **Ovary** superior, glabrous, 3-loculed; ovules 2 in each locule. **Fruit** a drupe, ellipsoid, 2.5 – 3 by 1.5 cm, mesocarp fleshy, ripening yellow. **Seed** 1, ellipsoid.

Locality Ban Khao Khram, Srinakharin Subdistrict, Phattalung Province.

Distribution Malay Peninsula, Sumatra, Borneo, Philippines, Celebes, Moluccas, New Guinea.

Ecology In evergreen rain forest; altitude 80 – 100 m. Flowering January – February; fruiting April – May.

Uses The young leaves and inflorescences are eaten raw or blanched as a vegetable. The timber is used for house building, (B, M).

Material studied UBON 1314, BKF 09145

Reference Mabberley *et al.*, Fl. Mal. Ser.1. 12(1) : 337. 1995.

***Azadirachta indica* A. Juss.**

Vernacular Sadao (สะเดา)

Tree, up to 16 m tall, glabrous; bark fissured and flaking in old trees. **Stipule** absent. **Leaves** paripinnate or imparipinnate, alternate, 15 – 35 cm long; petioles 6 – 7 cm long. Leaflets 7–14, opposite or subopposite; petiolules 5–8 mm long; blades thinly coriaceous, falcate-lanceolate, 5 – 9 by 1.5 – 3.5 cm, apex acuminate, margin serrate, base asymmetric, narrow, glabrous on both surfaces; nerves 15 pairs. **Inflorescences** cymose panicle, axillary or in axils of fallen leaves, 30 cm long; branches 7–10 cm long, bearing branchlets to 2 or 3 more orders. **Flowers** bisexual, numerous, small, white; pedicels 2 mm long. **Calyx** campanulate, 5-lobed; lobes ovate, obtuse, 1.5 mm long; margin ciliate. **Petals** 5, free linear spatulate, sparsely pubescent outside, 5 – 6 mm long. **Stamens** 10; staminal tube cylindric, 3.5 mm long, slightly expanded at mouth; anthers inserted near the mouth, hardly exerted. **Ovary** superior, glabrous, 3-loculed; ovules 2 in each locule. **Fruit** a drupe, ellipsoid, 1 – 2 cm long, ripening yellow. **Seed** 1, ovoid.

Locality	Ban Hua Yang, Rattaphum District, Songkhla Province.
Distribution	Probably native in Burma but widely and long cultivated in tropical Asia and Africa.
Ecology	In open places, cultivated along roadsides, altitude 40 m. Flowering January – February; fruiting April – May.
Uses	The young leaves and inflorescences are eaten raw or blanched as a vegetable, (B, M). The stem bark is used as an ingredient in the formula F31 used as a remedy to relieve malarial fever, (B).
Material studied	UBON 1016, BKF 109497
Reference	Mabberley <i>et al.</i> , Fl. Mal. Ser.1. 12 (1) : 341. 1995.

***Sandoricum koetjape* (Burm.f.) Merr.**

Vernacular Kraton (กระต่อน), Ton (ต่อน)

Tree, up to 50 m tall, sometimes with buttress; young part pubescent. **Stipules** absent. **Leaves** trifoliolate, alternate; petioles 7 – 16 cm long, densely pubescent; blades thinly coriaceous, ovate, apical leaflets 8 – 20 by 5 – 15 cm, lateral ones usually smaller and narrower, apex acuminate, margins entire, base acute, glabrous above, sparsely brown pubescent beneath; nerves 10–14 pairs, lobed near margin. **Inflorescences** axillary panicle, 10 – 20 cm long, fragrant; rachis pubescent; primary branches to 8 cm long, squarrose, bearing secondary branches of glomerules of 1 – 5 flowers; bracts narrowly triangular, caducous; pedicels 4 mm. **Flowers** bisexual, 8–10 mm long. **Calyx** cupular, shallowly 5-lobed, 2.5 – 3 mm long, pubescent outside. **Petals** 5, free, imbricate, oblanceolate, 8 by 2 mm, apex rounded, yellowish-green, pubescent outside, reflexed at anthesis. **Stamens** 10;

filaments connate into tube or staminal column, 6.5 mm long, pale yellow, sparsely pubescent outside, pilose inside; anthers minute, weakly exerted; disk tubular, membranous, surrounding the ovary and the base of the style, dentate. **Ovary** slightly sunken in receptacle, glabrous, 5-loculed; ovules 2 in each locule; stigma 5-lobed. **Fruit** a drupe, depressed globose, 5 – 12 cm diam., velvety, brownish when ripe; pericarp with milky latex. **Seeds** 5, kidney-shaped, 2 – 3 by 1 – 2 cm, 1 – 1.5 cm thick.

Locality	Found in every study sites.
Distribution	Malay Peninsula, Sumatra, New Guinea.
Ecology	Cultivated plant; altitude 0 – 100 m. Flowering January – February; fruiting July – October.
Uses	The ripe fruits are eaten fresh, or pickled, or used in flavouring some curries, (B, M). The stem barks are chopped, dried, and then boiled in water. Then this water is used as a contraceptive given to a mother to drink after 20 days of having childbirth. (B) The timber is usually used for house building, (B, M).
Material studied	UBON 1287
Reference	Mabberley <i>et al.</i> , Fl. Mal. Ser.1. 12(1) : 345. 1995.

***Xylocarpus granatum* Koen.**

Figure 78 E

Vernacular Tabun khao (ตะบูนขาว)

Shrub, 6–15 m tall, glabrous; bark thin, smooth, scaling as irregular flakes. Pneumatophores present. **Stipules** absent. **Leaves** paripinnate, spirally arranged; petioles 1.5 – 2.5 cm long; leaflets 1 – 2 pairs opposite; petiolules 2 mm long; blades thickly coriaceous, obovate, 5 – 7 by 2 – 3 cm, apex rounded or obtuse, margins entire, base cuneate, glabrous on both surfaces; nerves 9 – 11 pairs. **Inflorescences** axillary panicle, 3 – 6 cm long; bracts and bracteoles minute, caducous; pedicels 2 – 3 mm long, red. **Flowers** bisexual or unisexual, small. **Calyx** shallowly cup-shaped, 4-lobed; lobes short. **Petals** 4, free, oblong, 3 – 5 by 2 – 3 mm, pink. **Stamens** 8, around the disk; filaments connate into an urceolate tube 2 – 3 cm diam., margin with 8 shallowly divided lobes; anthers 8, included. **Ovary** superior, globose, enveloped by the fleshy cupular disk; locules 4; ovules 3 – 4 in each locule; style short; stigma discoid, margins crenulate, upper surface with four radiating grooves. **Fruit** capsule, globose, 12 cm diam., tardily dehiscent by 4 woody valves. **Seeds** 12 – 16, pyramidal, 4 – 6 cm long.

Locality	Ban Ta Se, Hat Samran Subdistrict, Trang Province.
Distribution	E.Africa, Sri Lanka, India, SE.Asia.
Ecology	In mangroves, and often associated with <i>Nypa</i> and <i>Sonneratia</i> . Flowering and fruiting throughout the year.

Uses The seeds are rubbed against an earthenware pot, using water as a solvent. Then a suspension is taken to treat diarrhea,(B,M).

Material studied UBON 1098 , BKF 103345

Reference Mabberly *et al.*, Fl. Mal. Ser.1. 12(1) : 378. 1995.

***Xylocarpus moluccensis* (Lamk) Roem.**

Figure 78 F

Vernacular Tabun dam (ตะบันดำ)

Tree, 6 – 18 m tall, glabrous; bark rough, with longitudinal fissures, falling as oblong flakes. Pneumatophores present. **Stipules** absent. **Leaves** paripinnate, spirally arranged; petioles 5 – 7 cm long; leaflets 1 – 2 pairs, opposite; petiolules 1 – 3 mm long, swollen; blades coriaceous, obovate, 5 – 7 by 2 – 4 cm, apex obtusely acuminate, margins entire, base broadly rounded, glabrous on both surfaces; nerves 8 – 9 pairs. **Inflorescences** axillary panicle, lax, 3 – 10 cm long; bracts and bracteoles minute, semipersistent; pedicels 3 – 8 mm long. **Flowers** bisexual or unisexual. **Calyx** shallowly cup-shaped, 4-lobed; lobes 1–1.5 mm long. **Petals** 4, free, oblong, 3.5 – 5 by 2 – 3 mm, creamy white. **Stamens** 8 around the disk; filaments connate into an urceolate tube, 2–3 mm diam., margin with 8 shallowly divided lobes; anthers 8, included. **Ovary** superior, globose, enveloped by the fleshy and cupular disk; locules 4; ovules 3 – 4 in each locule; style short; stigma discoid, margin crenulate, upper surface with 4 radiating grooves. **Fruit** capsule, slightly depressed globose, 8 – 10 cm diam., dehiscent by 4 leathery valves from apex. **Seeds** 5 – 16, pyramidal, 4 – 5 cm long.

Locality Ban Ta Se, Hat Samran Subdistrict, Trang Province.

Distribution Tropical Asia from India, Indo-china, throughout Malesia to tropical Australia.

Ecology In mangrove forest. Flowering and fruiting throughout the year.

Uses The seeds are used in a similar way as the preceding Species, (B, M).

Material studied UBON 1385, BKF 119056

Reference Mabberly *et al.*, Fl. Mal. Ser.1. 12(1) : 377. 1995.

Menispermaceae

***Cyclea barbata* Miers.**

Figure 37 D

Vernacular Krong mao (กรงหมา)

Slender climber, up to 5 m long; stems terete, 2 – 3 mm diam., herbaceous, hispid when young, later glabrescent. **Leaves** simple, alternate; petioles slender, hispid, 3 – 6 cm long, inserted 5 – 15 mm above the base of blades; blades papyraceous, hispid above, tomentose beneath, deltoid-ovate, 4 – 11 by 3 – 8 cm;

apex acuminate, mucronate; margins entire, hispid; base slightly emarginate; palmately nerved; nerves 9 – 12. **Male inflorescences** thyrsoid, axillary, 10 – 20 cm long; rachis and peduncle covered with white hairy. Male flowers numerous, small, pale green. **Calyx** campanulate, pubescent, 4-lobed; lobes triangular. **Corolla** cupular, 4-lobed; lobes truncate, shorter than the calyx, glabrous. **Stamens** connate into synandrium, exserted, 2 mm long; anthers 4.

Locality	Ban Ton Panun, Khuan Kalong District, Satun Province
Distribution	Assam, Burma, Vietnam, Sumatra, Java.
Ecology	In primary and secondary forest, sometimes on limestone; altitude 20 – 100 m. Flowering in September.
Uses	The roots of this species together with those of <i>Clidemia hirta</i> D. Don are chopped, boiled in water, and then a decoction is drunk frequently during the day to treat hemorrhoids, (B). The roots are also used for the treatment of hemorrhage, dysmenorrhea, and insect bites. They are used as an ingredient of the formula F17 taken as a remedy to treat hemorrhage, dysmenorrhea. For the treatment of insect bites; the roots are rubbed against earthenware pot, into which a small amount of lime juice is added. Then a mixture is used as a poultice applied to the insect bites, (M).
Material studied	UBON 675, BKF 134730
Reference	Forman, Fl. Thail. 5(3) : 328. 1991.

***Fibraurea cf. tinctoria* Lour.**

Figure 47 E

Vernacular Mae khamin (แม่ขมิ้น), Ae lae (แอแล)

Woody climber, glabrous, with white sap; young stem smoothly and finely striate, with yellow wood. **Stipules** absent. **Leaves** simple, alternate; petioles 3 – 7 cm long, swollen at base, drying black; blades thinly coriaceous, elliptic ovate or oblong-elliptic, 12 – 27 by 4 – 8 cm, apex acuminate, margins entire, base round, tri-nerved with the main basal laterals running alongside the midrib for 5 – 10 mm before curving outwards, with 2 – 4 pairs of distal lateral nerves, glabrous on both surfaces. Flower and fruit not found.

Locality	Ban To Daeng, Su-ngaikolok District, Narathiwat Province.
Distribution	India, Burma, Indo-China, Malay Peninsula, Sumatra, Celebes, Philippines.
Ecology	In evergreen forest, rubber plantations, edges of forest, slightly shady places; altitude 20 m.

Uses The roots together with the whole plant of *Eurycoma longifolia* Jack are boiled in water, and a decoction is drunk daily as a substitute for tea to relieve bodily discomfort, (B, M). A decoction of the roots is also drunk daily as a substitute for tea to relieve bodily discomfort and for the treatment of wasting disease.

Material studied UBON 727, BKF 078958

Reference Forman , Fl. Thail. 5(3) : 343. 1991.

***Stephania venosa* (Blume) Spreng.**

Figure 73 C – D

Vernacular Sabu lueat (สบู่เลือด)

Slender climber, glabrous, with red sap; dioecious; stem herbaceous, slender, arising from a large exposed tuber; tubers subglobose up to 40 cm diam. **Stipules** absent. **Leaves** simple, spirally arranged; petioles 6 – 9 cm long, swollen at base; blades submembranous, peltate, broadly triangular-ovate, 6 – 11 by 7 – 12 cm, apex obtuse and mucronulate, margins entire or slightly lobed, base truncate or slightly cordate, upper surface glabrous, lower one minutely palillose, glaucous; palmatinerved at base, reticulation reddish-brown. **Male inflorescence** umbelliform cyme, axillary, solitary, 7 cm long, peduncle slender 5 – 6 cm long. Male flowers small, 4 mm across; pedicels 2 – 3 mm long. Sepals 6, free, in 2 whorls, imbricate, elliptic or oblanceolate, 2 – 3 mm long. Petals 3, free, obdeltoid-obovate, 1.5 mm long, light brown. Stamens connate into a peltate synandrium, 2 mm long; anthers in a horizontal ring. **Female inflorescence** umbelliform cyme, axillary, 0.8 – 1 cm diam., peduncles 3 cm long. Female flowers small, asymmetrical; pedicels short. Sepal 1, greenish-orange, elliptic. Petals 2, orange, suborbicular, larger than the sepals 0.7 mm long. Ovary superior, sub-ellipsoid 5 mm long, glabrous, 1-loculed, 1-ovuled; stigma sessile, divaricately lacinate.

Locality Ban Ton Sai, Srinakharin Subdistrict, Phattalung Province.

Distribution Vietnam, Malaysia, Sumatra, Sabah, Celebes, Philippines.

Ecology In evergreen forest, sometimes between limestone rocks; often cultivated for medicinal purposes; altitude 100 m. Flowering February – May.

Uses A small piece of the fresh or dried tuber is eaten daily as a blood circulation tonic; treatment of bodily discomfort, (B). Alcoholic macerate of the tubers of this plant species combined with other medicinal plants is also used as a tonic, (M). The leaves are eaten raw ; it is believed to give invulnerability to a person who eat it. Red sap from the cut stems is locally used in tattooing for an invulnerable purpose also, (B).

Material studied UBON 1023 , BKF 11982

Reference Forman , Fl. Thail. 5 (3) : 317. 1991 .

***Tiliacora triandra* (Colebr.) Diels**

Figure 76 E

Vernacular Ya nang (ย่านาง)

Dioecious climber; stems terete, glabrescent. **Stipules** absent. **Leaves** simple, alternate; petioles 5 –15 mm long, rugulose, pubescent; blades thinly coriaceous, elliptic to lanceolate, 6 –12 by 3 – 4 cm, apex acuminate, margins entire, base cuneate to rounded, glabrous on both surfaces; nerves 3 – 6 pairs. **Female inflorescence** axillary raceme, 2 – 8 cm long; rachis and rachilla pubescent. Female flowers pale yellow, small. **Sepals** 6 – 12, the outermost smallest; the 3 innermost much larger, broadly elliptic, 2 mm long, fleshy, glabrescent. **Petals** 6, ovate emarginate, 1 mm long. Staminode absent. **Ovary** superior, of 6 – 8 free carpels; style curved. Fruit drupe, subglobose, 5 – 7 mm diam., glabrous, shiny reddish-orange.

Locality Ban Hua Yang, Rattaphum District, Songkhla Province.

Distribution Burma, Cambodia, Laos, Vietnam, Malay Peninsula.

Ecology In limestone hills, evergreen forest near the sea; altitude 50 m. Flowering and fruiting December – July.

Uses The young leaves are eaten raw or cooked as a vegetable, (B, M). Juice from the crushed leaves is used to mask bitter taste in a curry cooked with *Senna siamea* (Lam.) Irwin & Barneby, (M). The roots together with those of *Lepisanthes rubiginosa* (Roxb.) Leenh. or roots of *Clerodendrum petasites* (Lour.) S. Moore Moore and *Sauropus androgynus* (L.) Merr. in equal proportion are chopped, boiled in water. Then a decoction is taken as arefrigerant, (B).

Material studied UBON 59, BKF 61260

Reference Forman, Fl. Thail. 5(3) : 346. 1991.

Moraceae

***Artocarpus elasticus* Reinw. ex Blume.**

Figure 28 B

Vernacular Ka – o (กะเอาะ)

Tree, up to 40 m tall, with white latex; twigs stout, pubescent, with prominent stipular scars. **Stipules** lanceolate, acute, 7 – 20 cm long, densely pilose outside. **Leaves** simple, spirally arranged; petioles 3 – 7 cm long; blades thickly leathery,

ovate or broadly elliptic, 20 – 40 by 15 – 25 cm, apex acute, margins entire, base cuneate; rough hairy on the upper surface, more densely hairy on the lower surface; nerves 12 – 15 pairs. **Inflorescences** unisexual, head, on the leafy twigs; male and female heads on the same plant. **Male head** cylindrical, 15 cm long, 2.5 – 3 cm wide, with many deeply longitudinal grooves, yellow becoming brown; peduncle 4 – 6 cm long; male flowers with obconical perianth; 2-lobed; stamen 1. **Female head** globose or ellipsoid, 10 by 7.5 cm, shaggy with hairy recurved spines, with smaller conic spines inter-mixed. **Fruit** syncarp, oblong, 12 – 16 by 6 – 9 cm, with recurved hairy spines, ripening deep yellow. **Seeds** ellipsoid, 10 by 6 mm, shiny white.

Locality	Ban Khao Khram, Srinakharin Subdistrict, Phattalung Province.
Distribution	Burma, Malaysia, Sumatra, Borneo, Java, Philippines.
Ecology	In evergreen rain forest, river-banks; altitude 150 m. Flowering and fruiting July – October.
Uses	The pulp of ripe fruit is eaten fresh. The seeds are eaten after boiling or roasting, (B, M). The timber is used for house building, making furniture, (B, M).
Reference	Backer & Bakh. f., Fl. Java. 2 : 18. 1965.

***Artocarpus integer* (Thunb.) Merr.**

Vernacular Champada (จำปาดะ), Chamda (จำดะ)

Tree, to 24 m tall; with white latex; twigs slender with prominent stipular scar, young parts densely hairy. **Stipules** ovate, acute, 2 – 5 cm long, pubescent outside. **Leaves** simple, spirally arranged; petioles 1–3 cm long, hairy; blades leathery, elliptic to oblong-elliptic, 8–15 by 3–6 cm, apex pointed, margins entire, base cuneate, pubescent on both surfaces; juvenile leaves with 2 – 3 pairs lateral lobes; nerves 6 – 10 pairs. **Inflorescences** unisexual, head, solitary in leaf-axils, cauliflorous and ramiflorous, flowering on short leafy shoots. Male and female heads on the same tree. **Male head** cylindrical, 3 – 5 by 1 – 1.5 cm, creamy white; peduncles 3 – 6 cm; male flowers with a tiny perianth of 4 lobes; stamen 1. **Female heads** cylindrical; female flowers with a tiny perianth tube, 4-lobed; staminode absent; ovary superior, 1-loculed, 1-ovuled; style filiform, exserted; stigma entire. **Fruit** syncarp, cylindrical, set with flat warts, 20 – 35 by 10 – 15 cm, with stalk 7 – 12 cm long, ripening brownish-yellow, strong foetid. **Seeds** many per syncarp, subglobose, 3 by 2 cm, with a very thin papery testa, rounded by custard-slimy pulp.

Locality	Ban Bon Khuan, Rattaphum District, Songkhla Province.
Distribution	Malaysia, Sumatra, Borneo.

Ecology In evergreen rain forest, in lowland and mountain. Often cultivated in the lower Southern Thailand and throughout the Malay Archipelago; altitude 70–100 m. Flowering and fruiting September – October.

Uses The pulp of ripe fruit is eaten fresh; sometimes dipped in a mixture of rice-flour, sugar, coconut milk, grated coconut meat and water, then deep fried, and eaten as a delicacy. The seeds are eaten boiled or roasted and have a nutty flavor. Strong and durable wood is commonly used for house building, (B, M).

Reference Kochummen, Tree Fl. Mal. 3 : 127. 1978.

***Artocarpus rigidus* Blume**

Figure 28 C

Vernacular Khanun pan (ขนุนปาน)

Tree, up to 40 m tall; twigs pubescent, with white latex. **Stipules** ovate-lanceolate, 2 – 3 cm long, pubescent outside. **Leaves** simple, spirally arranged; petioles 1.5 – 2.5 cm, densely pubescent; blades leathery, elliptic to obovate, 9 – 12 by 4.5 – 6 cm, apex blunt, slightly pointed, margins entire, base cuneate, glabrous on both surfaces except on midrib and veins; juvenile leaves pinnatifid; nerves 10 – 18 pairs. **Inflorescences** unisexual, head, solitary in leaf axils. **Male head** globose, 13 – 20 mm across; peduncles 2 – 5 by 2.5 mm; perianth tubular, 1 mm long. **Fruit** syncarp, globose, 6 – 8 cm diam., with stiff conical spines, greenish-yellow.

Locality Ban Khao Phra, Rattaphum District, Songkhla Province.

Distribution Burma, Indo-China, Sumatra, Borneo, Malaysia.

Ecology In evergreen rain forest; altitude 350 m. Flowering and fruiting April – June.

Uses The wood is used for general construction, furniture, boat and cabinet making, (B).

Material studied UBON 1311, BKF 115440

Reference Kochummen, Tree Fl. Mal. 3 : 131. 1978.

***Ficus apiocarpa* Miq.**

Figure 47 F

Vernacular Duea thao (เดื่อเถา), Duea nae da ko (เดื่อแนดากอ)

Stout climber, 20 – 35 m tall, with milky latex, glabrous. **Leaves** simple, alternate; petioles 4 – 5 cm long; stipules 3 cm long, enveloping the terminal bud, caducous, leaving an annular scar. Blades thickly leathery, broadly obovate to oblong, 10 – 20 by 6 – 10 cm, apex shortly acuminate, margins entire, base cuneate

to rounded, glabrous on both surfaces, tessellate beneath; nerves 4 – 5 pairs, reticulation nerves prominently distinct beneath. **Flowers** unisexual, small, set inside hollow fleshy receptacle (fig). **Figs** solitary in leaf-axils, only on the higher part of plants, glabrous, elliptic-oblong to obovate, 6 by 4 cm, deep orange when mature, with stalk 2 – 3 cm long. Male and female flowers on the separate figs. **Perianth** in all kinds of flowers thinly membranous, 3-lobed; lobes pinkish at margin. **Stamen** 1. **Ovary** superior, oblique, 1-loculed, 1-ovuled; style 1, excentric; stigma orbicular, flattened.

Locality	Ban Lu Bo Sa Ma, Su-ngaikolok District, Narathiwat Province.
Distribution	Malay islands.
Ecology	On tree trunk in peat swamp forest; at altitude near sea level. Flowering and fruiting April – August.
Uses	A small amount of achenes of a ripe fig is ingested by local people for the prevention of blood-sucking by leech. One dose will be affective for 4 – 5 days, (M).
Material studied	UBON 52 , BKF 089479
Reference	Ridl., Fl. Mal. Pen. 3 : 338. 1967 ; Ng., Tree Fl. Mal. 3 : 140. 1978.

***Ficus deltoidea* Jack var. *angustifolia* (Miq.) Corner**

Figure 48 A

Vernacular Ma juteh (มาจู้เต๊ะ)

Shrub, up to 120 cm tall, glabrous, with white latex. **Leaves** simple, alternate; petioles 1 – 4 cm long. Blades coriaceous, stiff, spatulate, 4 – 8 by 2 – 3.5 cm, apex rounded, margins entire, base narrowed, glabrous, dark green above, yellowish-brown beneath, midrib usually forking halfway, with a black spot at the fork on the underside. **Flowers** unisexual, male and female in separate figs. **Figs** solitary, axillary, fusiform-elliptic, 7 by 5 mm; stalk 1 cm long; bracts 3 – 4 at the base of the figs. **Perianth** in all kinds of flowers thinly membranous, 3-lobed; lobes triangular in the male ones; oblong, pink in the female ones. **Stamens** 2. **Ovary** superior, straight, rugose, pale brown.

Locality	Ban Ta Se Tai, Su-ngaipadee District, Narathiwat Province.
Distribution	Malaysia.
Ecology	Cultivated for medicinal purposes; altitude near sea level. Flowering and fruiting throughout the year.
Uses	A decoction of the dried leaves is given to a woman after giving birth to drink as a tonic for 40 days. It is said to warm the body, (M).
Material studied	UBON 1142, BKF 108612
Reference	Ng., Tree Fl. Mal. 3:145. 1978.

***Ficus deltoidea* Jack var. *kunstleri* (King) Corner**

Figure 48 B

Vernacular Li ngo buloh (ลี้ งอ บูล้อะ)

Shrub, up to 150 cm tall, glabrous, with white latex. **Leaves** simple, alternate; petioles 1 – 1.5 cm long. Blades fleshy-coriaceous, broadly obovate to slightly obtriangular, 4 – 5 by 4 – 5 cm, apex broadly rounded to truncate, margins entire, base cuneate, glabrous, green with white spots on the upper side, yellowish-green below; midrib forked, with a black spot at the fork on the underside. **Flowers** unisexual, small, male and female in separate figs. **Figs** solitary, axillary, ovoid 1 – 1.5 by 0.9 – 1.2 cm, glabrous, with short stalk, pale pink when mature; bracts 4 at the base of the figs. **Perianth** in all kinds of flowers thinly membranous, 3-lobed. **Stamens** 2. **Ovary** superior, oblique; style excentric, bifid; stigma filiform.

Locality	Ban Ta Se Tai, Su-ngaipadee District, Narathiwat Province.
Distribution	Malaysia.
Ecology	Cultivated as ornamental plant as well as for medicinal purposes; altitude near sea level. Flowering and fruiting throughout the year.
Uses	This plant species are used as a tonic in a similar way as <i>F. deltoidea</i> Jack var. <i>angustifolia</i> , (M).
Material studied	UBON 1399, BKF 125468
Reference	Ng., Tree Fl. Mal. 3:145. 1978.

***Ficus fistulosa* Reinw. ex Blume**

Vernacular Ching (ชิง), Dueai (เดื่อย)

Tree, 5 – 10 m tall, with white latex. **Stipules** ovate-lanceolate, 1 – 2.5 cm long, caducous. **Leaves** simple, opposite; petioles 1 – 6 cm long; blades coriaceous, elliptic to obovate, 12 – 20 by 4 – 8 cm, apex acuminate, margins entire, base rounded or cuneate, glabrous on both surfaces, pale pink when young; nerves 5 – 9 pairs. **Flowers** small, unisexual, set inside the fleshy figs. Male and female flowers in separate figs. Figs born in clusters on woody knob on the trunk and main branches, pear-shaped, 2.5 diam., on 1.5 – 2 cm long stalk, glabrous, green with white dots, ripening greenish yellow. **Male flowers** with 1 stamen, perianth thin-membranous. **Female flowers** with perianth similar those of the male ones; ovary superior, 1-loculed, 1-ovuled; style short. **Fruit** small achene, numerous and densely set inside the fig.

Locality	Ban Khao Khram, Srinakharin Subdistrict, Phattalung Province.
Distribution	India, S.China, Malesia.
Ecology	Common in the secondary forest, by stream in the forest in lowland and mountains; altitude 110 m. Flowering and fruiting throughout the year.

Uses The young figs are eaten raw as a vegetable , or cooked in curries, (B, M).

Material studied BKF 130933

Reference Backer & Bakh.f., Fl. Java. 2:32. 1965 ; Ng, Tree Fl. Mal. 3:146. 1978.

***Ficus ischnopoda* Miq.**

Figure 48 D

Vernacular Kho ton (คอโตน)

Shrub up to 5 m tall, with white latex, glabrous. **Stipules** conical, enveloping terminal bud, caducous. **Leaves** simple, spirally arranged; petioles 7 mm long; blades thinly leathery, narrowly lanceolate, 10 – 15 by 1.5 – 2 cm, apex obtuse, emarginate, margins entire, base narrowed, glabrous; nerves 15 – 18 pairs. **Flowers** unisexual, small, set inside the inner wall of a fleshy receptacle (fig). Male and female flowers in separate figs. **Figs** solitary in leaf axils, pear-shaped, 1 – 2 cm long and wide, with 5 – 10 longitudinal ribs, green flushed pink, ripening dark purple, stalk 1.4 cm long.

Locality Ban Ton Panun, Khuan Kalong District, Satun Province.

Distribution Malay Peninsula, India, China.

Ecology In humid evergreen forests, by rocky streams; altitude 120 m. Flowering and fruiting September – October.

Uses The young leaves are eaten raw as a vegetable; the ripe figs are also edible, (M).

Material studied UBON 854 , BKF 97712

Reference Kochummen , Tree Fl. Mal. 3 :149. 1978.

***Ficus obpyramidata* King**

Vernacular Pho (โพะ)

Small tree, up to 9 m tall, branchlets hairy at first. **Stipules** enveloping the terminal bud, caducous. **Leaves** simple, spirally arranged; petioles 4 – 5 cm long, hairy; blades coriaceous, hairy on both sides, elliptic-obovate, 10 – 25 by 5 – 12 cm, apex acute, margins sparsely toothed, base subcordate, unequal; nerves 8 – 9 pairs. **Flowers** minute, unisexual on the inner walls of a fleshy receptacle (fig). Male and female flowers in separate figs. **Figs** arranged in clusters on the trunk and main branches, pear-shaped, stalked, 3.5 – 5.0 cm diam., depressed above, ripening yellow to brown, containing numerous achenes.

Locality Ban Ton Panun, Khuan Kalong District, Satun Province.

Distribution Malay Peninsula.

Ecology In humid evergreen forest, by the rivers; altitude 80 m. Flowering and fruiting November – January.

Uses The young figs are eaten raw as a vegetable, (B, M).

Material studied UBON 58

Reference Kochummen, Tree Fl. Mal. 3:152. 1978.

***Ficus oligodon* Miq.**

Figure 48 E

Vernacular Ma duea mua (มะเดื่อมั่ว)

Tree, up to 12 m tall, with white latex. **Leaves** simple, spirally arranged; petioles 6 – 10 cm long; blades chartaceous, glabrous, broadly ovate, 12 – 25 by 10 – 15 cm, apex acuminate, margins coarsely serrate, base cuneate to rounded, tri-nerved at base; nerves 5 – 6 pairs, prominent beneath. **Figs** arranged in big clusters on the stem and thick branches, stalk 5 – 7 cm long, pear-shaped, ripening red, short hairy, 4 – 6 cm across; bract at base of fig 1, ovate, 5 by 5 mm. **Flowers** small, unisexual; male and female flowers in separate figs. **Perianth** present, thinly membranous. **Stamens** 2. **Ovary** superior, ovoid, compressed; style lateral; stigma widened.

Locality Ban Khao Khram, Srinakharin Subdistrict, Phattalung Province.

Distribution E.Himalaya, Burma, Indo-China, S.China, Malaysia.

Ecology By streams and rivers in the lowland, evergreen forest; altitude 110 m. Flowering and fruiting May – June.

Uses The young figs are eaten raw as a vegetable, or cooked in curries; the ripe sweet ones are eaten fresh, (B, M).

Material studied UBON 1058, BKF 085872

Reference Kochummen, Tree Fl. Mal. 3:152. 1978.

***Ficus punctata* Thunb.**

Figure 48 C

Vernacular Duea thao (เดื่อเถา)

Woody climber, with milky latex, glabrous. **Leaves** simple, alternate; petioles 1 cm long. Blades leathery, oblanceolate, 4 – 6 by 2.5 – 4 cm, apex blunt or sub-acute, margins entire, base sub-acute and slightly unequal, glabrous on both surfaces, tessellate beneath; nerves 3 – 5 pairs, reticulation nerves prominently distinct beneath. **Flowers** small, unisexual; male and female flowers on the separate figs. **Perianth** membranous, deep pink. **Stamen** 1. **Figs** globose or pear-shaped, 5 by 4 cm, glabrous, velvety, orange to dark red, with pale yellow marbling.

Locality Ban Lu Bo Sa Ma, Su-ngaikolok District, Narathiwat Province.

- Distribution Malaysia, Sumatra, Java, Borneo, Celebes.
- Ecology On tree trunk in peat swamp forest; altitude near sea level. Flowering and fruiting January – February.
- Uses Achenes of this species are used to prevent leech bites in a similar way as *F. apiocarpa* Miq., (M).
- Material studied UBON 1402
- Reference Ridl., Fl. Mal. Pen. 3 : 338. 1967 ; Ng., Tree Fl. Mal. 3 : 154. 1978.

***Ficus racemosa* L.**

Figure 48 F

Vernacular Ma duea chenoi (มะเดื่อจีน้อย)

Tree, up to 25 m tall, with white latex. **Stipules** lanceolate, densely pubescent outside, 7 by 3 mm. **Leaves** simple, spirally arranged; petioles 2 – 6 cm long; blades coriaceous, glabrous, slightly glaucous below, elliptic, 10 – 13 by 4 – 6 cm, apex bluntly pointed, margins entire, base cuneate, distinctly tri-nerved at base; nerves 6 – 7 pairs, prominent beneath. **Figs** arranged in big clusters on the trunk and main branches, stalk 7 – 10 mm long, pear-shaped, 2 – 4 cm across, ripening rose-red with pale maculate, short hairy; bracts at base of fig 3, ovate-triangular. **Flowers** small, unisexual. **Perianth** present, thinly membranous, pale pink. **Stamens** 2, slightly unequal. **Ovary** superior, ovoid, slightly compressed; style lateral; stigma widened, yellow.

- Locality Ban Nai Wang, Kongra District, Phattalung Province.
- Distribution Sri Lanka, Pakistan, India, Malesia, S.China.
- Ecology Common by the rivers, in open forest; altitude 100 m. Flowering and fruiting throughout the year.
- Uses The young figs are eaten raw as a vegetable, (B, M).
- Material studied UBON 1352

Reference Backer and Bakh.f., Fl. Java. 2 : 27. 1965 ; Kochummen, Tree Fl. Mal. 3 : 154. 1978.

***Ficus semicordata* Buch.–Ham. ex Sm.**

Vernacular Kuat (กวัด)

Shrub, up to 12 m tall with rough brown hairs on leaves and twigs. **Stipules** 4 cm long, enveloping the terminal bud, caducous. **Leaves** simple, spirally arranged; petioles 1.5 cm long, hairy; blades chartaceous, elliptic, 17 – 35 by 7 – 13 cm, apex arcuminate, base markedly unequal, with a broad round lobe, on one side appearing semicordate, margins entire, pubescent on both surfaces; midrib and nerves red, prominent below; nerves 10 – 15 pairs. **Flowers** unisexual; male and female flowers in separate figs. **Figs** on fruiting branches arising from the main branches and

base of stem, pendulous and often creeping along the ground. The ripened ones globose, 2–3 cm diam., glabrous, red with white speckles, with numerous achenes.

Locality	Ban Nai Wang, Kongra District, Phattalung Province .
Distribution	India, Burma, N.Malaysia, S.China.
Ecology	Cultivated; by roadsides, stream sides; altitude 80 m. Flowering and fruiting throughout the year .
Uses	The ripe figs are eaten fresh, (B , M).
Material studied	UBON 55 , BKF 095921
Reference	Kochummen, Tree Fl. Mal. 3:156. 1978.

***Ficus superba* Miq.**

Figure 49 A – C

Vernacular Leab (เลียบ)

Tree, 5 – 10 m tall, with white latex, many branches. **Stipules** enveloping the terminal bud, pink, glabrous. **Leaves** simple, spirally arranged; petioles 5 – 7 cm; blades thinly coriaceous, ovate, 6 – 16 cm by 3 – 7 cm, apex acute, margins entire, base rounded, glabrous on both surfaces; nerves 13 – 15 pairs, tri-nerved at base. **Flowers** unisexual; male and female flowers in the same fig. **Figs** globose, glabrous, 1–1.3 cm diam., stalk 4 – 5 mm; usually in pairs, nearly all along ultimate twigs, in axils of present leaves or fallen leaves; ripening greyish-white with a pinkish tinge.

Locality	Ban Hua Yang, Rattaphum District, Songkhla Province.
Distribution	Malaysia, Sumatra, Java, Borneo.
Ecology	Moist forest edges, near stream; altitude near sea level to 70 m. Flowering and fruiting January – February.
Uses	The young leaves are eaten raw as a vegetable, (B , M).
Material studied	UBON 1245 , BKF 97720
Reference	Backer & Bakh. f ., Fl. Java. 2:35. 1965 ; Kochummen ,Tree Fl. Mal. 3:161. 1978.

***Streblus taxoides* (Heyne ex Roth) Corner**

Vernacular Khi raet nam nom (ขี้แรตน้ำมัน)

Shrub, 2 – 4 m tall, spinous; spine straight; young internode with a dense row of short hairs on one side; without latex. **Stipules** ovate, 4 – 6 mm long. **Leaves** simple, distichous; petioles 2 – 3 mm long, pubescent; blades thinly coriaceous,

elliptic-lanceolate, 4 – 12 by 1 – 7 cm, apex acuminate, margins slightly toothed towards the apex, base narrowly cordate, glabrous on both surfaces, lower surface with strongly prominent midrib and arcuate lateral nerves; nerves 7 – 9 pairs. **Flowers** unisexual. Female flowers solitary, axillary; peduncles 5 mm long, slender. **Sepals** 4, ovate acuminate, 4 by 1 mm, accrescent, leafy. **Petals** none. Ovary superior, compressed ovoid, 1-loculed, 1-ovuled; style excentric, 2-branched, pubescent. Fruit a drupe, with thick fleshy base, seated on accrescent sepals. Seed 1, subglobose.

Locality	Ban Huay Ngo, Khok Pho District, Pattani Province.
Distribution	Sri Lanka, India, Indo-China, Malesia.
Ecology	In open places, forest edges; altitude 40 m. Flowering and fruiting September – October.
Uses	The young leaves are cooked in Thai-style vegetable soup; the ripe fruits are eaten fresh, (B). The roots are used as an ingredient in the formula F17 used as a remedy to treat hemorrhage and dysmenorrheal, (M). The roots are also used to cure wounds by rubbing against an earthenware pot, using water as a solvent. Then, a suspension is applied onto the wounds to stop bleeding and to accelerate the wound healing, (B).
Material studied	UBON 891 , BKF 075156
Reference	Backer & Bakh.f., Fl. Java. 2 : 16. 1965; Ng., Tree Fl. Mal. 3 : 167. 1978.

Musaceae

Musa acuminata Colla.

Figure 64 C

Vernacular Kluai thuaen (กล้วยเถื่อน) , Kluai pa (กล้วยป่า)

Perennial herb; rhizome short, stout. Leaf sheath purplish-green, convolute, forming pseudo-stem about 3 – 4 m tall. **Leaves** simple, spirally arranged; petioles 45 – 50 cm long; blades oblong, herbaceous, 80 – 200 by 20 – 40 cm, apex rounded, margins entire, base acute, glabrous on both surfaces, glaucous beneath, green but often streaked with purple in young plants; pinnatinerved with many close-set, parallel lateral nerves. **Inflorescence** spike, arising from the rhizome, born on an erect and long peduncle which is for the great part include in the pseudo-stem, drooping. Bracts boat-shaped, herbaceous, brownish-red, 10 – 25 by 5 – 10 cm, closely congested into ovoid bud, caducous soon after anthesis. **Flowers** mostly unisexual, in the axils of bracts, biserial; lower ones female or bisexual, upper ones male. **Tepals** connate, in 2 rows; outer tepals tubular, 3.5 cm long, 3-lobed; 2 anterior tepals of the inner cohering with the outer ones into a 5-lobed syntepalum; lobes yellow, reflexed; posterior inner tepal free, 2 cm long membranous, broadly

ovate. **Stamens** 5, 3.5 cm long; anthers linear, 1.5 cm long. **Ovary** inferior, 3-loculed, many-ovuled; style filiform; stigma thickened, subglobose. **Fruit** baccate, oblong, curved, 8 by 2 cm, glabrous, ripening yellow. **Seeds** numerous, crowded throughout the pulp.

Locality	Ban Nai Wang, Kongra District, Phattalung Province.
Distribution	Malaysia.
Ecology	In open forest, forest edges, hills; altitude 50 – 120 m. Flowering and fruiting throughout the year.
Uses	The central part of pseudo trunk, young inflorescence and young fruits are eaten cooked, (B, M).
Material studied	BKF 134296
Reference	Backer & Bakh.f., Fl. Java. 3:37. 1963.

Musa sp.

Vernacular Kluai nam fat (กล้วยน้ำฟ้า)

Perennial herb; rhizome short, stout. Leaf sheath long, green, convolute, forming pseudo-stem about 3 – 5 m tall. **Leaves** simple, spirally arranged; petioles 30 – 60 cm long; blades, herbaceous, oblong, 100 – 250 by 30 – 45 cm, apex rounded, margins entire, base acute, glabrous on both surfaces, glaucous beneath; pinnatinerved with many close-set, parallel lateral nerves. **Inflorescences** spike, arising from the rhizome, born on an erect and long peduncle which is for the great part include in the pseudo-stem, drooping. Bracts boat-shaped, herbaceous, purplish-brown, 40 by 15 cm, closely congested into ovoid bud. **Flowers** unisexual, sessile in rows in bract-axils; lower ones female, upper ones male. **Tepals** connate, in 2 rows; outer tepals tubular, 4 cm long, 3-lobed, split on one side, yellow; 2 anterior tepals of the inner cohering with the outer ones into a 5-lobed syntepalum; posterior inner tepal free, membranous, 2.5 cm long. **Stamens** 5, 10 mm long; anthers linear, 2.7 mm. **Staminodes** 5, 1 cm long in female flowers. **Ovary** inferior, ovoid, 3-loculed, many-ovuled; style filiform; stigma thickened, subglobose. Pistillode present in the males ones. **Fruit** baccate, oblong and straight, 9 by 3 cm, ripening yellow.

Locality	Ban Nai Wang, Kongra District, Phattalung Province.
Ecology	In damp, slightly shady places; altitude 80 – 120 m. Flowering and fruiting throughout the year.
Uses	The ripe fruits are eaten fresh, (B, M). A decoction of the green fruit (3 pieces) and a handful of leaves of <i>Melodorum siamense</i> (Scheff.) Bân is taken as an antidiarrheic, (M).

Myristicaceae

Knema globularia (Lam.) Warb.

Figure 57 A – B

Vernacular Han (หัน)

Dioecious tree, up to 20 m tall, with red sap; twigs slender, at first brown stellately hairy, later glabrescent. **Stipules** absent. **Leaves** simple, distichous; petioles 1 – 1.5 cm long, slender, scurfy; blades coriaceous, oblong or lanceolate, 8 – 18 by 2 – 4 cm, apex acute, margins entire, base cuneate, shining dark green and glabrous above, greyish-green and sparsely stellately hairy beneath; nerves 15 – 18 pairs. **Inflorescences** sub-umbell, axillary and in axils of fallen leaves, 1.3 – 1.5 cm long and wide; peduncles 4 – 6 mm long, stout; pedicels 5 mm. **Male flowers** 5 – 7 per inflorescence, globose trigonous in bud; bracts small. Perianth 3-lobed; lobes broadly ovate acute, spreading, 4 by 4 mm, thick, fleshy, scurfy pubescent outside, glabrous pinkish inside. Stamens 12 – 13; filaments united into a short staminal column; apical forming a trigonous staminal disk, red, with anthers stellately attached to margins. Pistillode absent. **Female flowers** broadly ellipsoid in bud; pedicels 5 mm, densely brown hairy. Perianth 3-lobed; lobes linear ovate, 4 mm long, scurfy pubescent outside, glabrous inside. Staminode absent. Ovary superior, ovoid, densely hairy, 1-loculed, 1-ovuled; style short; stigma 2-lobed. **Fruit** berry, ellipsoid, 2 by 1.5 cm; pericarp yellow, splitting into 2 halves at maturity, glabrescent. **Seed** 1, ellipsoid, shining black, entirely covered with bright red aril.

Locality	Ban Hua Yang, Rattaphum District, Songkhla Province.
Distribution	India, China, Burma, Vietnam, Laos, Cambodia, Malay Peninsula, Singapore, Sumatra, W.Java.
Ecology	Primary and secondary evergreen forest, river banks; at altitude 80 m. Flowering November – January; fruiting January – December.
Uses	The pounded seeds are boiled in coconut oil, and then the mixture is applied over the affected areas to treat scabies, (B, M). The timber is used for house building, (B, M).
Material studied	UBON 887, BKF 127044
Reference	De Wilde, Fl. Thail. 7(4) : 757. 2002.

Myristica fragrans Houtt.

Figure 64 E

Vernacular Chan thet (จันทน์เทศ)

Evergreen tree, up to 20 m tall, bark brown, red sap. **Stipules** absent. **Leaves** simple, alternate; petioles 1 cm long, glabrous; blades thinly coriaceous, glabrous, elliptic-oblong, 7 – 13 by 2.5 – 5 cm, apex acuminate, base cuneate, margins entire, dark shiny green above, pale green beneath; nerves 6 – 11 pairs.

Inflorescences axillary raceme; peduncles 0.5 – 2 cm. **Flowers** unisexual, pale yellow, small 7 – 10 mm long; pedicels glabrous, 1.5 cm. **Male flowers** slightly smaller than the female ones; perianth urceolate, 3-lobed; lobes triangular acute. **Stamens** 9, connate into a cylindrical column. **Ovary** superior, densely hairy, 1-loculed, with a single ovule; stigma sessile, bi-lobe. **Fruit** peach-shaped berry, yellow, 4 – 5 cm by 3 – 4 cm; pericarp thick, fleshy, splitting open into 2 halves when ripe, showing an ovoid dark brown and shiny seed which surrounded by a lacinate red aril attached to the base of the seed. **Seed** 1, 1.5 – 2 cm long.

Locality	Ban Ta Se, Hat Samran Subdistrict, Trang Province.
Distribution	SE.Asia.
Ecology	Tropical rain forest mainly the lowlands. Flowering and fruiting throughout the year. Often cultivated in home garden for its fruits.
Uses	The mature fruits are edible; they are usually pickled in salt water or sugar water, and also made into dessert, (B, M).
Material studied	UBON 881
Reference	Backer & Bakh.f., Fl. Java. 1:139. 1963.

Myrsinaceae

Ardisia crenata Sims var. *crenata*

Figure 27 D

Vernacular Tapet takai (ตาเป็ดต่าไถ่), Ma ta a yae (มาตาอาเย)

Erect shrub, 1 – 2 m tall; branches slender, terete, glabrous, generally bearing few leaves close to the apices. **Stipules** absent. **Leaves** simple, spirally arranged; petioles 4 – 10 mm; blades thinly coriaceous, elliptic-lanceolate or oblanceolate, 6 – 12 by 2 – 4 cm, apex acute to acuminate, margins shallowly crenate with gland in each marginal sinus, base cuneate, glabrous on both surfaces; glandular dots many, scattered, black; nerves 12 – 18 pairs. **Inflorescences** sub-umbellate, terminal on flowering branches, 3-to12-flowered; peduncles very short; pedicels 0.5 – 1 cm. **Flowers** bisexual. **Calyx** connate at base, 5-lobed; lobes ovate, acute, 1.5 mm, pale green, punctuate, glabrous, persistent. **Corolla** more or less fleshy, pink with dark dots, deeply 5-lobed; lobes ovate acute, 4 – 6 mm. **Stamens** 5, adnate to the corolla-tube and opposite the lobes, shorter than the corolla; anthers triangular-lanceolate, dehiscing apical pores, punctuate on back. **Ovary** superior, ovoid, glabrous, punctuate, 1-loculed, ovule1 in each locule; style slender, 5 mm long; stigma small. **Fruit** a drupe, globose, shining bright red, tipped by the style-base, 6 – 8 mm diam.

Locality	Found in every study sites.
Distribution	India, Burma, through S.China, Vietnam to Japan and Philippines, and southwards to the Malay Peninsula.

Ecology In evergreen forest, slightly shaded and humid places; altitude near sea level to 180 m. Flowering and fruiting throughout the year.

Uses The young leaves are eaten raw as a vegetable, with the side benefit of getting rid of helminthes. The ripe fruits are eaten fresh, (B, M). The stems together with benzoin are rubbed against earthenware pot, then a mixture obtained is applied to the affected areas to treat a disease of the fingernails, (M).

Material studied UBON 876 , BKF 65608

Reference Larsen & Hu , Fl. Thail. 6(2) : 135. 1996.

***Ardisia elliptica* Thunb.**

Vernacular Ram (ราม) , Pue na (ปือนา)

Shrub, 2 – 3 m tall, glabrous throughout; branchlets terete, reddish-brown. **Stipules** absent. **Leaves** simple, alternate; petioles 1.2 – 2 cm long; blades fleshy coriaceous, obovate, 8 – 13 by 3 – 6 cm, apex bluntly acute, base cuneate, margins entire, glandular dots many; nerves 13 –18 pairs. **Inflorescences** corymbose raceme, in axils of normal leaves on the upper parts of branches, 3 – 4 cm long; peduncles 2 cm long; pedicels 7 mm long. **Flowers** bisexual, rose-pink, 9 mm long, 1.5 cm across. **Calyx** 3 mm, split to 2/3 of its length, 5-lobed; lobes orbicular, 2.5 mm wide, green, dotted with dark red glands, margins ciliate. **Corolla** deeply 5-lobed; lobes lanceolate, acuminate, 9 mm long and 3 mm wide, pink, with purple glandular lines. **Stamens** 5, inserted near the base of the corolla; anthers lanceolate, 5 mm long, punctate on back; filaments 1 mm long. **Ovary** superior, glabrous, 1-loculed, ovules many; style 9 mm long. **Fruit** a drupe, slightly depressed globose, at first red then black, pulpy, 6 mm diam. **Seed** 1.

Locality Ban Lu Bo Sa Ma, Su-ngaikolok District, Narathiwat Province.

Distribution India, Cambodia, Malay Peninsula, Indonesia, New Guinea.

Ecology In beach forest behind mangrove, also in evergreen forest; altitude near sea level. Flowering May – July; fruiting September – October.

Uses The young leaves are eaten raw as a vegetable. The ripe fruits are eaten fresh, (B, M).

Material studied UBON 119 , BKF 077331

Reference Larsen & Hu , Fl. Thail. 6(2) : 128. 1996.

***Ardisia fulva* King & Gamble**

Figure 27 E

Vernacular Phirang kasa (พื้ริงกาสา)

Shrub, 1–3 m tall; young branches terete, densely tawny-villose. **Stipules** absent. **Leaves** simple, alternate; petioles 1.0 – 1.5 cm, hairy; blades coriaceous, elliptic, 9 – 18 by 3 – 5 cm, apex acuminate, margins entire, base narrowed, glabrous above, tawny-villose beneath; glandular dots many, black; nerves 20 – 22 pairs. **Inflorescences** axillary, short raceme, villose; peduncle 3 cm long; pedicels 15 mm long. **Flowers** bisexual. **Calyx** deeply 5-lobed; lobes ovate, 2.0 by 1.5 mm, puberulous outside, dotted with black glands, distinctly ciliate. **Corolla** pink, glabrous, with scattered dark purple or black dots and lines, deeply 5-lobed; lobes obovate, 5 by 4 mm, blunt. **Stamens** 5; anthers lanceolate, sagittate, 2.5 – 3.0 mm long, apiculate, punctate on back; filaments short, 1 mm long. **Ovary** superior, ovoid, glabrous, with black dots, 1-loculed, ovules numerous; styles filiform, 3.5 – 5.0 mm long. **Fruit** a depressed globose drupe, 6 – 7 mm diam., dark purple. **Seed** 1.

Locality	Ban Hua Yang, Rattaphum District, Songkhla Province .
Distribution	Malaysia, Burma.
Ecology	In evergreen forest, along streams; altitude 70 m. Flowering November – February; fruiting February – June.
Uses	The ripe fruits are eaten fresh, (B, M).
Material studied	UBON 871 , BKF 42222
Reference	Larsen & Hu , Fl. Thail. 6(2) : 119. 1996.

***Embelia coriacea* Wall. ex A. DC.**

Figure 45 C

Vernacular Wua hai (ว้าหยา)

Large climber, up to 20 m long, glabrous; old branches striate and verruculose, brown. **Stipules** absent. **Leaves** simple, alternate; petioles thick, 1 – 2 cm long; blades stiff coriaceous, oblong-elliptic, 15 – 25 by 4 – 10 cm, apex acute, margins entire, base rounded or slightly cordate, glabrous, glandular dots many; nerves very fine and numerous. **Inflorescences** a terminal pyramidal panicle, 20 – 30 cm long and broad; rachis thick, pubescent. **Flowers** small, numerous, white. **Calyx** deeply 5-lobed; lobes triangular, acute, dotted with few dark glands, pubescent outside. **Petals** 5, free, ovate, acute, 1 mm long, glabrous, dotted with dark gland within. **Stamens** 5, adnate to middle of the petals. **Ovary** superior, ovoid, glabrous, red punctate, 1-loculed, ovules 2; style very short; stigma capitate. **Fruit** a globose drupe, 2 mm diam., dark purple when ripe.

Locality	Ban Khao Khram, Srinakharin Subdistrict, Phattalung Province.
Distribution	Malaysia, Sumatra, Java, Borneo.

Ecology Climbing on big trees in humid forest; altitude 100 m. Flowering and fruiting December – February.

Uses The stem bark is steeped in water, then this water is used as an antidote fed to the cattle that suffer from feeding on pesticide contaminated grasses, (B).

Material studied UBON 129 , BKF 116256

Reference Larsen & Hu, Fl. Thail. 6(2) : 156. 1996.

***Labisia pumila* (Blume) F.-Vill. & Naves**

Figure 57 C

Vernacular Ga chi ti mo (กาจิติเมาะ)

Herb, 20 – 30 cm tall, stem ascendent. **Leaves** simple, spirally arranged; petioles winged, 2 – 6 cm long; blades chartaceous, glabrous, elliptic to elliptic-lanceolate, 25 – 30 by 10 – 12 cm, apex acuminate, margins entire, base decurrent on the petiole; lower surface with scattered rusty scales especially on the raised midrib; nerves numerous, thin and widely patent. **Inflorescences** axillary raceme of small corymbs, 3 – 4 cm long 1.5 – 2 cm wide; corymbs bearing 4 – 6 flowers. Bracts subulate, 1 – 2 mm long. **Flowers** bisexual, subsessile. **Calyx** tubular, very short, deeply split, 5-lobed; lobes triangular, acute, pubescent outside. **Corolla** rotate, pink, 2 – 3 mm, 5-lobed; lobes ovate, acute, with glandular lines and small dots. **Stamens** 5; anthers sessile, shorter than the corolla. **Ovary** superior, globose, glabrous, 1-loculed, ovule 1; style slender, 1.5 mm long. **Fruit** a drupe, globose, 6 mm diam., ripening red, with vertical elongate glands. **Seed** 1.

Locality Ban La Lo, Su-ngai-padee District, Narathiwat Province.

Distribution Cambodia, W.Malaysia, Java, Sumatra.

Ecology In evergreen forest, on moist sites and along streams; altitude 100 m. Flowering October – November; fruiting November – February.

Uses The rhizome are boiled in water, and then a decoction is given to a mother to drink as a tonic after giving birth. It is said to promote uterine involution, (M).

Material studied UBON 1249 , BKF 108936

Reference Larsen & Hu, Fl. Thail. 6(2) : 151. 1996.

Myrtaceae

***Melaleuca cajuputi* Powell.**

Figure 62 A – B

Vernacular Met (เหมือด) , Samet khao (เส้มคขาว)

Tree or large shrub, up to 24 m tall; bark greyish-brown, fissured and papery, flaky in coarse elongate shaggy pieces. Branches slender, pendulous. **Stipules** absent. **Leaves** simple, alternate or spirally arranged; petioles 0.5 – 1 cm long; blades coriaceous, lanceolate, often slightly curved, 5 – 10 by 1.5 – 3 cm, apex acute or acuminate, margins entire, base acute, with 5 – 7 longitudinal nerves, both surfaces more or less glabrous when mature, silky hairy when young. **Flowers** bisexual, white, sessile, in groups of three arranged in pseudo-spike, 7 – 15 cm long which ending in a vegetative bud growing into a new leafy branch. **Calyx** ovoid 2 mm, pubescent, 5-lobed; lobes minute. **Petals** 5, 1.5 – 2 mm long, triangular. **Stamens** numerous grouped into 5 fasciculate bundles, white; filaments slender, 10 mm long. **Ovary** inferior, 3-loculed; ovules many. **Fruit** a capsule, cylindrical, 2 – 3 mm long and wide, crowned by persistent calyx.

Locality	Ban Lu Bo Sa Ma, Su-ngaikolok District, Narathiwat Province.
Distribution	Burma, Cambodia, Vietnam, Malesia, Australia.
Ecology	In swampy ground near coast, margin of peat swamp forest; altitude 20 m. Flowering and fruiting throughout the year.
Uses	Whole plant is used for the treatment of post partum, bodily discomfort ; it is chopped, dried and then boiled in water. A decoction is drunk daily to relieve bodily discomfort , and used as a tonic for women after giving birth. It is said to accelerate the uterine involution, (B). The young leaves are boiled in water, and a decoction is drunk daily as a tonic to promote longevity, (B, M). The stem barks are used for roof , house walls, and also made into torches. Its wood burns well , so it is commonly used as fire-wood. The timber which is very durable in contact with wet ground and sea water so that it is used to make posts, piles, implements, etc, (B, M).
Material studied	UBON 1150 , BKF 71317
Reference	Parnell & Chantaranothai, Fl. Thail. 7(4) : 801. 2002.

***Rhodomyrtus tomentosa* (Aiton) Hassk.**

Figure 69 E – F

Vernacular Tho (โทะ) , Kue mu ting (กีอุมติง)

Shrub, up to 4 m tall, with opposite branches, tomentose. **Leaves** simple, opposite; petioles 3 – 8 mm, angled, tomentose; stipules absent. Blades thinly leathery, elliptic, 3 – 10 by 2 – 4.5 cm, apex blunt, margins entire, base cuneate, glabrous or sparsely pubescent above, densely short-hairy beneath, trinerved with an

intramarginal vein. **Flowers** axillary or terminal, usually solitary, or in dichasia (3-to7-flowered cymes), 3 cm across, with a pair of bracts at the base of each flower. Peduncles 1 – 2 cm, densely tomentose, hispid. Pedicels 1 – 3 cm, tomentose. **Calyx** funnel-shaped, 6 – 7 mm, 5-lobed; lobes obtuse, subequal, 3 – 5 mm, densely tomentose, persistent. **Petals** 5, free, patent, elliptic-obovate, 1.5 – 2 by 0.9 – 1.2 cm, rose-pink turning white or pale pink, white-tomentose on outside. **Stamens** numerous, free; filaments pink, 10 mm long, anthers yellow. **Ovary** inferior, 3-loculed; ovules numerous; style slender, 1.5 cm long. **Fruit** berry, broadly ellipsoid, 1.2 by 0.9 cm, purple, densely tomentose, crowned with the persistent calyx. **Seeds** numerous, small, reniform, light brown.

Locality	Ban Plak Chang, Tak Bai District, Narathiwat Province.
Distribution	Burma, Laos, Cambodia, Vietnam, China, Malaysia, Sumatra, Java, Borneo, Molucca, Celebes, Philippines.
Ecology	Common in open sandy ground on the seashore, also in secondary forest and by roadsides; altitude near sea level. Flowering and fruiting throughout the year.
Uses	The ripe fruits are eaten fresh; they also act as a blood circulation tonic, (B, M). A decoction of the roots is taken to cure diarrhea,(B). The roots are also used to treat abscesses; in this case, they are rubbed against an earthenware pot, using water as a solvent, then a suspension obtained is applied onto the abscesses once a day until cured, (M). The leaves are used as an ingredient in the formula F34 given to a mother after giving birth for the involution of uterus, and to accelerate the lochial discharge; this treatment is taken once a day for 7 days, (M).
Material studied	UBON 930
Reference	Parnell & Chantaranonthai, Fl. Thail. 7(4) : 809. 2002.

***Syzygium gratum* (Wight) S.N. Mitra**

Figure 74 A – B

Vernacular Met chun (เหม็ดชุน)

Shrub or small tree, up to 20 m tall, glabrous; twigs terete; bark pale brown. **Stipules** absent. **Leaves** simple, opposite; petioles 5 – 10 mm; blades coriaceous, lanceolate, 4 – 10 by 2 – 4 cm, apex acute, margins entire, base acute; midrib impressed on the upper surface; nerves 8 – 10 pairs; intramarginal vein 1. **Inflorescences** panicle, both terminal and upper axillary, up to 12 cm long; rachis and branches 4- angled; bracts ovate, 3 – 4 mm. **Flowers** numerous, bisexual, sessile, white, 1.5 cm long; hypanthial cup narrowly funnel-shaped, 6 mm; pseudostipe short. **Sepals** 5, semiorbicular, membranous, 1 – 1.5 mm; **petals** 5, orbicular membranous, 1.5 – 4 mm, with gland dots 20 – 25. **Stamens** numerous, free, white, 2 – 7 mm long. **Ovary** inferior, 2- loculed; ovules 7 – 16 in each locule; style white, 9 mm. **Fruit** a berry, globose, white, 7 mm diam. **Seed** 1, globose.

Locality	Ban Ta Se, Hat Samran Subdistrict, Trang Province.
Distribution	India, Burma, Malesia.
Ecology	Secondary evergreen forest, river-banks, edges of mangrove forest; altitude near sea level to 40 m. Flowering and fruiting January – March.
Uses	The young leaves are eaten raw as a vegetable, (B, M).
Material studied	UBON 1290 , BKF 72196
Reference	Parnell & Chantaranonthai, Fl. Thail. 7(4) : 861. 2002.

***Syzygium polyanthum* (Wight) Walp.**

Vernacular Phae (ฝพ) , Sa mo (ชาโมะ)

Tree, up to 30 m tall; twigs terete; bark smooth sometimes flaky, whitish-grey; glabrous. **Stipules** absent. **Leaves** simple, opposite; petioles 0.6 – 1.0 cm long; blades thinly coriaceous, elliptic, 7 – 14 by 3 – 6 cm , apex caudate acuminate, margins entire, base cuneate, glabrous on both surfaces; midrib impressed on the upper surface, faint above, distinct below; nerves 7 – 11 pairs. **Inflorescences** cymose panicle, axillary or from twigs below leaves, 4 – 5 cm long; rachis and branches slender, striate; bracts triangular, 0.7 by 0.4 mm. **Flowers** bisexual, white, 4 mm across. Hypanthial cup 2.0 – 2.5 mm, funnel-shaped. Pseudostipe 1.5 – 2.0 mm. **Sepals** 4, lobes ovate rounded, 1.5 mm. **Petals** 4, free, orbicular, 2 mm, with many gland dots. **Stamens** numerous, 2.0 – 2.5 mm long. **Ovary** inferior, 2-loculed; ovules many in each locule; style 1.5 – 2.0 mm, not exceeding the stamens. **Fruit** a berry, globose to depressed globose, 1 cm diam., ripening dark scarlet to purplish-black, with persistent calyx lobes. **Seeds** 1 – 2.

Locality	Ban Po No, Su-ngai-padee District, Narathiwat Province.
Distribution	Burma, Indo-China, Malaysia, Java.
Ecology	Scattered in lowland and peat swamp forest, evergreen forest, paddy fields; altitude 20 m. Flowering March – June; fruiting April – August.
Uses	The young leaves are eaten raw as a vegetable; the ripe fruits are eaten fresh, (B, M). The young leaves as vegetable in the daily diet have been observed to promote contraction of the vagina. It is also considered as an aphrodisiac, (M). The leaves are also used as traditional medicines for the treatment of hemorrhage, leucorrhoea, skin diseases, and insect bites. A handful of the leaves is cut at the tip and the base, and then crushed and squeezed. A juice obtained is taken to treat

hemorrhage, and also for the treatment of leucorrhoea. For the treatment of skin diseases, the crushed leaves are steeped in water, and then this water is used as a bath daily. A juice from the crushed leaves of this plant species and *Psidium guajava* L. is used to treat insect bites by applying it over the bites. (M). The roots are used as an ingredient of the formula F16 taken to treat diarrhea, (B). The stem bark together with fruits of *Mimusops elengi* L. are boiled in water, and then this water is used as a dye for fish-net, (B).

Material studied UBON 100 , BKF 54142

Reference Parnell & Chantaranonthai, Fl. Thail. 7(4) : 887. 2002.

***Syzygium cf. skiophilum* (Duthie) Airy Shaw**

Figure 74 C – E

Vernacular Ta khrai ton (ตะไคร้ต้น) , Samo sue ka (ซาโมะซือกา)

Tree, 3 – 5 m tall; twigs terete, glabrous; bark brown, smooth. **Stipules** absent. **Leaves** simple, opposite; petioles 3 – 10 mm long; blades thinly coriaceous, elliptic or obovate, 4 – 15 by 2 – 7 cm, apex caudate acuminate, margins entire, base cuneate, shining green above, paler beneath, glabrous on both surfaces; midrib impressed on the upper surface, and prominent beneath; nerves very fine and close, numerous, inconspicuous; intramarginal vein 1. **Inflorescences** cymose, terminal and axillary, few-flowered, 8–10 mm long; peduncles very short; bracts and bracteoles triangular, minute, 0.3 – 0.5 by 0.5 mm. **Flowers** creamy white, with pedicels 1.5 mm long. Hypanthial cup 3.5 mm long, and 2 mm diam.; funnel-shaped. Pseudostipe absent. **Sepals** 4-lobed; lobes dentate, minute. **Petals** 4, free, suborbicular, 1 by 1 mm, about 10 gland dots per petal. **Stamens** 6 – 7, arrange in 1 row, 0.5 – 0.7 mm long; anthers ovate, dorsifixed, minute. **Ovary** inferior, 2-loculed; ovules many. Style 1.5 mm, exceeding the stamens. **Fruit** a berry, oblong or subglobose, ripening bright red, smooth, glabrous, 1 by 0.8 cm. **Seed** 1, subglobose.

Locality Ban La Lo, Su-ngai-padee District, Narathiwat Province.

Ecology In slopes of hills in evergreen rain forest; altitude 90 m. Flowering and fruiting throughout the year.

Uses The young leaves are regionally eaten raw as a vegetable. The ripe fruits are also edible. A decoction of the roots is taken daily, it has been observed to reduce high blood pressure, (M).

Material studied UBON 92, BKF 57997

Reference Parnell & Chantaranonthai, Fl. Thail. 7(4) : 899. 2002.

***Syzygium zeylanicum* (L.) DC.**

Vernacular Hua ngok (หัวหงอก)

Tree, 10 – 15 m tall, with pale brown flaky bark; branches slender, young twigs slightly angled. **Stipules** absent. **Leaves** simple, opposite; petioles 2 mm long; blades leathery, elliptic or lanceolate, 3 – 6 by 1 – 3 cm, apex long acuminate, margins entire, base broadly cuneate, glabrous on both surfaces, glossy above; midrib impressed on the upper surface; nerves 10 – 14 pairs; intramarginal vein 1. **Inflorescences** cyme, up to 3 cm long, several together, both terminal and upper axillary. **Flowers** bisexual, numerous, rather dense, white, sessile. Hypanthial cup narrowly funnel-shaped, 5 mm long. **Sepals** 4 – 5, triangular, 0.5 mm. **Petals** 5, orbicular, membranous, 1.5 – 2 mm, caducous. **Stamens** numerous; filaments slender, 6 – 9 mm long. **Ovary** inferior, 2-loculed; ovules many; style and stigma 6–7 mm long. **Fruit** berry, globose, 7 mm diam., shiny white. **Seed** 1, globose.

Locality	Ban Lu Bo Sa Ma, Su-ngaikolok District, Narathiwat Province.
Distribution	India, Sri Lanka, Burma, Laos, Cambodia, Vietnam, China, Malesia.
Ecology	In peat swamp forest, evergreen forest; altitude near sea level. Flowering April – June ; fruiting July – August
Uses	The young leaves are eaten raw as a vegetable; the ripe fruits are eaten fresh, (M).
Material studied	UBON 750 , BKF 36783
Reference	Parnell & Chantaranothai, Fl. Thail. 7(4) : 908. 2002.

Nepenthaceae***Nepenthes gracilis* Korth.**

Figure 64 F

Vernacular Mo kaeng ling (หม้อแกงลิง)

Terrestrial climber, 2 m long; climbing stems triangular. **Stipules** absent. **Leaves** simple, sessile, spirally arranged; blades chartaceous, glabrous on both surfaces, narrowly lanceolate, 8 – 15 by 2 – 3 cm, apex acute, margins finely serrate, base decurrent; longitudinal nerves 4 – 6 from the base on each side of midrib; midrib extended into tendril, the distal part expanded into pitcher containing digestive fluid. **Pitchers** up to 12 cm long and 3 cm wide, with two fringed wings; basal half ellipsoid, gradually and slightly constricted in the middle; upper half sub-cylindrical; green, tinged reddish; mouth subovate; peristome cylindrical in section; lids orbicular, flat, 1 – 3 cm diam., with scattered glands.

Locality	Ban Lu Bo Sa Ma, Su-ngaikolok District, Narathiwat Province.
Distribution	Sumatra, Malay Peninsula, Singapore, Borneo, Sulawesi.

- Ecology In lowland peat-swamp forest, waste places near the sea, often in poor soil; altitude near sea level.
- Uses Fluid in the pitchers is used externally to treat urticaria, (M). Pitchers are commonly used as containers for a special kind of local dessert made from sticky rice; the pitchers give special fragrance to the sticky rice, and they can be eaten as well as the sticky rice in after steamed, (B, M).
- Material studied UBON 1153 , BKF 088503
- Reference Cheek & Jebb, Fl. Mal. Ser.1. 15 : 67. 2001.

Olacaceae

Erythralum scandens Blume

Figure 45 E

Vernacular –

Slender scandent shrub, glabrous; with axillary shortly bifid tendrils. **Stipules** absent. **Leaves** simple, distichous; petioles 3 – 6 cm long, thickened and wrinkled on both ends; blades triangularly ovate, slightly peltate, chartaceous, 15 – 20 by 5 – 9 cm, apex acuminate, acute, margins entire, base broadly truncate, deep green above, glaucous beneath; basal nerves 1 pair, widely divergent and ascendent, 3 – 6 upper pairs spreading, prominent beneath. **Inflorescences** axillary, repeatedly dichotomous and many-flowered cymes, lax, slender, up to 15 cm long; pedicels slender; bracts minute. **Male flowers** small, greenish-yellow. **Calyx** campanulate, 5-toothed; teeth distant, minute. **Petals** 5, free, pale greenish-yellow, ovate-triangular, acute, 2 mm, with a tuft of short white hairs inside at the base. **Stamens** 5, inserted at the base of the petals; filaments much shorter than the petals. Disk 5-lobed, fleshy, bright yellow, 2 mm diam., elevated in the center to form the short conical style. **Ovary** rudimentary present.

- Locality Ban Ton Panun , Khuan Kalong District , Satun Province.
- Distribution India, Burma, the Andaman Islands, Indo-China, SW.China, Malay Peninsula, Sumatra, Borneo, Java, Philippines.
- Ecology Scattered in primary and secondary rain forest; altitude 180 m. Flowering February – March.
- Uses The young leaves are cooked as a vegetable, (B, M). A decoction of the whole plant is taken to allay convulsions, (M).
- Material studied UBON 1346 , BKF 089123
- Reference Sleumer, Fl. Mal. Ser.1. 10(1) : 17. 1984.

***Olox scandens* Roxb.**

Figure 65 D

Vernacular Jok thok (จอกทอก)

Scandent shrub, 2 – 20 m long, old branches with slightly curved thorns; branchlets often horizontally spreading, young parts pubescent. **Stipules** absent. **Leaves** simple, distichous; petioles 0.5 – 1 cm long; blades thinly coriaceous, ovate-elliptic, 2 – 9 by 1 – 3 cm, apex obtuse, base slightly unequal, obtuse, glabrous on both surfaces; nerves 5–8 pairs, inconspicuous. **Inflorescences** axillary raceme, 1 – 3 per axil, simple or branched, obliquely ascending 3 cm long; peduncles and pedicels short; rachis pubescent; bracteoles minute, caducous. **Flowers** bisexual, 8 mm long, 8 – 9 mm across. **Calyx** cup-shaped, mm high, truncate dentate, after anthesis enlarged. **Petals** 3, white, 2 of them 2-partite, linear-oblong, apex acute and incurved, 12 by 1 – 2 mm. **Stamens** 8, 3 of them fertile, and 5 staminodial; anthers oblong, 1.5 mm long. **Ovary** superior, ovoid, glabrous, imperfectly 3-loculed, ovule 1 in each locule; style long; stigma obscurely 3-lobed. **Fruit** a drupe, broadly ovoid, light orange-coloured, apiculate, covered for the lower 2/3 by the enlarged firmly membranous calyx, 1.5 by 1 cm. **Seed** 1, subglobose, 9 by 6.5 mm.

Locality	Ban Plak Plue, Mae Lan District, Pattani Province.
Distribution	Sri Lanka, India, Burma, Indo-China, Malay Peninsular, Java.
Ecology	Mostly in scrub, hedge of forest, often close to the sea; altitude 20 m. Flowering and fruiting throughout the year.
Uses	The young leaves are cooked as a vegetable. The leaves are also used for the treatment of abscesses, itching; the crushed young leaves are mixed with a small amount of lime juice, and then applied as a poultice onto the affected areas, (B). In addition, the leaves or fruits are crushed, mixed with coconut oil, then the oil is applied externally to treat itching, (M).

Material studied UBON 869 , BKF 086160

Reference Backer & Bakh.f., Fl. Java. 2 : 64. 1965 ; Sleumer, Fl. Mal. Ser.1. 10(1) : 7. 1984.

***Scorodocarpus borneensis* Becc.**

Figure 72 A – B

Vernacular Ku lim (กุหลิม)

Tree, 10 – 40 m tall, glabrous, reeking of garlic from the cut or bruised parts. **Stipules** absent. **Leaves** simple, spirally arranged; petioles 1.5 – 2 cm long, swollen distally; blades coriaceous, elliptic, 7 – 15 by 4 – 7 cm, apex abruptly acuminate for 1–2 cm, base cuneate to rounded, glabrous, shining deep green above, paler beneath; nerves 5 – 6 pairs, distant, curving upward towards margin, prominent below. **Inflorescences** raceme; raceme solitary or 2–3 in a group, 5 – 7 mm long, arising

from the leaf axils. **Flowers** bisexual, 1–1.5 cm long, 1 cm across; pedicels 5 mm long. **Calyx** small, cupular, shortly 5-toothed. **Petals** 5, white, narrowly oblong, 8–10 by 2 mm, coherent by their edges until full anthesis, finally reflexed, hairy within. **Stamens** 8, in pairs on petal base; anthers yellow, 2–3 mm long. **Ovary** superior, ovoid, glabrous, 2 by 1.5 mm, 3-loculed; ovule 1 in each locule; style slender, 6 mm long, with 3-lobed stigma. **Fruit** drupe, subglobose, 3–4 cm diam., glabrous with numerous vertical stripes in the dry state. **Seed** 1, subglobose.

Locality	Su-ngaipadee District, Narathiwat Province.
Distribution	Malay Peninsula, Sumatra, Borneo.
Ecology	In primary and secondary lowland forest; altitude 40 m. Flowering March–April; fruiting July–August.
Uses	The young leaves are eaten raw as a vegetable, (M). The stem bark and seeds have a strong smell which is similar to that of garlic; local people sometimes use them as condiment in dishes as a substitute for garlic, (M).
Material studied	UBON 988, BKF 18191
Reference	Whitmore, Tree Fl. Mal. 2 : 303. 1972. ; Sleumer, Fl. Mal. Ser.1. 10(1) : 15. 1984.

***Strombosia javanica* Blume**

Figure 73 F

Vernacular Man mu (มันหมู), Kae mo (แกมอ)

Tree, 10–25 m tall, crown dense; branches slender. **Stipules** absent. **Leaves** simple, distichous; petioles 2 cm long, slightly swollen distally; blades subcoriaceous, glabrous, shiny dark green above, ovate-oblong, 12–18 by 4–8 cm, apex acuminate, base broadly rounded, margins entire; nerves 6–7 pairs, flat above, raised beneath. **Inflorescence** axillary, cyme, with 3–7 flowers; peduncle 7 mm long, puberulous; bracts caducous. **Flowers** bisexual, greenish-white, 5–6 mm long, pedicels short. **Calyx** cup-shaped, 5-toothed, tube rather inconspicuous, 3 mm diam. **Petals** 5, ovate-lanceolate, 7.0 by 2.5 mm, reflexed at apex, hairy inside, glabrous outside. **Stamens** 5, filaments flat, adnate to the petals except for their uppermost part. Disk yellow, 5-lobed. **Ovary** superior, almost entirely covered by the fleshy disk, 2.5 mm long, 5-loculed; ovule 1 per locule. Style thick-columnar, 2.5 mm long; stigma subglobular. **Fruit** not found.

Locality	Ban Khao Khram, Srinakharin Subdistrict, Phattalung Province.
Distribution	Malay Peninsula, Sumatra, Java, Borneo.
Ecology	Scattered in evergreen rain forest; altitude 80–100 m. Flowering March–April.
Uses	The young leaves are eaten raw as a vegetable, (B).

Material studied UBON 84

Reference Sleumer, Fl. Mal. Ser.1. 10(1) : 21. 1984.

Oleandraceae

Oleandra pistillaris (Sw.) C.Chr.

Figure 65 E

Vernacular Phaya nakkharat (พญานาคราช)

Terrestrial fern, 1 – 1.5 m tall; stem erect, stiff, 7 – 10 mm diam., branched; branches bearing fronds in groups of 4 – 15 close together; the groups separated remotely; stem and branches densely covered with scales; scales appressed, imbricate, base peltate 1 mm wide, dark brown; the edges paler; apical part long narrowly acuminate, ciliate when young, 5 mm long. **Stipes** 4 – 5 mm long, on phyllopodia 2 – 5 mm long, scaly. **Fronds** simple, chartaceous, oblanceolate, 25 – 30 by 3 – 4 cm, apex acuminate, margins entire or slightly undulate, base narrow, finely hairy on both surfaces, deep green; veins close, straight, at a very broad angle to the midrib, simple or forked near midrib, all free. **Sori** arranged in one row on each side of the midrib and close to it; indusia reniform.

Locality Ban Ton Sai, Srinakharin Subdistrict, Phattalung Province.

Distribution Pantropic.

Ecology Common on the mountains, in tropical rain forest ; cultivated for the uses based on the belief of local people.

Uses The stem is cut into small pieces, and then a piece of them is strung on a chain, worn round the wrist. Local people have believed that this species possess magical powers; it is believed to ward off dangerous animals, (B).

Material studied UBON 1273, BKF 46075

Reference Tagawa & Iwatsuki , Fl. Thail. 3(2) : 182. 1985.

Ophioglossaceae

Helminthostachys zeylanica (L.) Hook.

Figure 54 F

Vernacular Tin nok yung (ตีนนกยูง) , Tunjuk la nget (ตุนจุกลาจิง)

Small, terrestrial fern, 30 – 40 cm tall; rhizome fleshy, creeping, bearing numerous fleshy root and 1 – 2 fronds. **Stipes** erect, fleshy, green, 20 – 30 cm long. **Fronds** consisting of a tripartite lamina and an erect fertile spike or sporophyll; all these four parts separating at the apex of the stipe. Lamina 20 by 30 cm, each

partite usually consisting of a terminal leaflet and one or two pairs of sessile lateral ones below it. Leaflets softly herbaceous, oblong to oblong-lanceolate, 10 – 20 by 2 – 4 cm, apex acute, margins entire to slightly and irregularly toothed, base cuneate to decurrent, glabrous on both surfaces; nerves numerous, fine, forked once or twice, free. Spike 1 on each plant, with stalk 7 – 12 cm long, cylindrical, narrow to the tip, pale yellow when mature, 10 – 15 by 0.7 – 1 cm ; bearing crowded short lateral branches, each with rounded sessile sporangia.

Locality	Ban Po No, Su-ngai-padee District, Narathiwat Province.
Distribution	Sri Lanka, India, Malaysia, New Caledonia, Queensland.
Ecology	In slightly shaded places in the lowland, in rubber plantations; altitude 20 m.
Uses	The young shoots are eaten blanched as a side dish with rice, sometimes cooked in Thai-style vegetable soup with the side benefit of relieving bodily discomfort, (B, M). A decoction of this plant species and <i>Elephantopus scaber</i> L. is drunk daily for the treatment of impotency, (M). The leaf stalk is used to treat aphthous ulcer in children ; it is slightly heated on fire until they become soft, and then squeezed. A squeezed juice is applied onto the affected areas, (B).
Material studied	UBON 234, BKF 69257
Reference	Tagawa & Iwatsuki, Fl. Thail. 3(1) : 38. 1979.

Opiliaceae

Champereia manillana (Blume) Merr.

Figure 32 E

Vernacular Phak pa (ผักป่า), Do dae (ไต่เต้)

Shrub, 4 m tall, glabrous, polygamous. **Stipules** absent. **Leaves** simple, alternate; petioles 3 – 5 mm long; blades thinly coriaceous, lanceolate, 6 – 11 by 2.5 – 4 cm, apex acuminate, margins entire, base cuneate, glabrous on both surfaces; nerves 5 – 7 pairs. **Inflorescences** panicle, axillary, often also on older branches; the panicles solitary or in groups of 2 – 4; rachis 10 – 20 cm long; bracts minute. **Flowers** bisexual and female, solitary or fascicled along the branches of inflorescence. **Bisexual flowers** yellowish-green; pedicels 4 mm long. Tepals 5, oblong, reflexed, 1 – 1.5 mm long, 0.8 mm wide. **Stamens** 5, filaments as long as the tepals. Disk annular, crenulate. Ovary small, conical, half immersed in the disk. **Female flowers** green, smaller than the bisexual ones; pedicels 0.5 mm long, thick. Tepals 5, deltoid, 0.5 mm long. **Stamens** rudimentary. Disk lobed. **Ovary** superior, cylindrical to ovoid, glabrous, 1 mm long, 1-loculed; ovule 1. **Fruit** a drupe, ellipsoid, 8–16 mm long, 5 –10 mm across, glabrous, ripening yellowish-orange. **Seed** 1.

Locality Ban Yai, Su-ngai-padee District, Narathiwat Province.

Distribution	Burma, Andamans, Malesia, Philippines, Taiwan.
Ecology	In evergreen forest; altitude 20 m. Flowering December – March; fruiting January – April.
Uses	The young leaves are eaten raw or cooked as a vegetable, (B). The leaves together with a small amount of turmeric rhizome and rice grains are pounded, then a poultice is applied externally as a scabicide. (M).
Material studied	UBON 80 , BKF 57477
Reference	Hiepko, Fl. Mal. Ser.1. 10(1) : 35. 1984; Hiepko, Fl. Thail. 5(1) : 94 1987.

***Lepionurus sylvestris* Blume**

Figure 58 A

Vernacular Mak mok (หมากหมก)

Shrub, usually less than 1 m tall; entire plant glabrous. **Stipules** absent. **Leaves** simple, distichous; petioles 3 – 5 mm long; blades fleshy, thinly coriaceous, ovate, lanceolate, elliptic, 10 – 16 by 3 – 6 cm, apex acuminate, base cuneate, margins entire; nerves 7 – 9 pairs. **Inflorescences** axillary raceme, 2 – 4 cm long. Bracts broadly ovate, pale green; margin hyaline, shortly ciliate; densely imbricate, caducous before anthesis. **Flowers** bisexual, small 2 – 4 mm across, flowers 3 in axil of a bract; pedicels 1 – 2 mm. **Perianth** yellow, urceolate, tube 0.5 mm long, resting on the cupular hypanthium, deeply 4-lobed; lobes ovate, patent. **Stamens** 4, opposite to the perianth-lobes; filaments as long as the tube, flattened; anther-cells 2, introse. **Ovary** superior, ovoid, 1-loculed, ovule 1 per locule; stigma shallowly 4-lobed, subsessile. **Fruit** a drupe, ellipsoid, orange-red, juicy. **Seed** 1.

Locality	Found in every study sites.
Distribution	Nepal, Burma, S.China, Vietnam, Malay Peninsula, Sumatra, Java, Borneo.
Ecology	In evergreen forest, shady localities, humid places; altitude near sea level to 70 m. Flowering and fruiting throughout the year.
Uses	The young leaves are eaten raw or cooked as a vegetable, (B, M). The roots are used as an ingredient of the formula F7 used as a tonic and also for the treatment of impotency, (M). They are also used as an ingredient in the formula F20 for the treatment of fever, (B). The roots and stems and those of <i>Smilax perfoliata</i> Lour. are chopped, dried, and macerated in local whisky. Then a tincture is drunk to treat lumbago, (B).
Material studied	UBON 936 , BKF 089104
Reference	Hiepko, Fl. Thail. 5(1) : 100. 1987.

Orchidaceae

Corymborchis cf. veratrifolia Blume

Figure 34 C

Vernacular Tuga ali (ตุกะอาลี)

Erect, large terrestrial orchid, 1.5 – 2 m tall, with short rhizome; leafy stem, hard, slightly spirally twisted. **Leaves** simple, alternate; petioles short; sheath 7 – 8 by 1.5 – 2.5 cm, enclosed the stem; blades thinly coriaceous, elliptic, lengthwise plaited, 30 – 45 by 7 – 10 cm, apex acuminate, base cuneate; main nerves 12 – 13, parallel from the base to the tip of the leaves. Inflorescence terminal panicle, erect, short, widely branched. Flower and fruit not found.

Locality Ban La Lo, Su-ngai-padee District, Narathiwat Province.

Distribution Malaysia, Singapore.

Ecology In evergreen forest, shady localities; altitude 90 m.

Uses A decoction of the roots is drunk as a tonic, (M).

Material studied UBON 287, BKF 136353

Reference Backer & Bakh.f., Fl. Java. 3 : 278. 1967.

Cymbidium atropurpureum (Lindl.) Rolfe.

Figure 37 E

Vernacular Ka re ka ron (กะเรกะรอน), Ba kong (บางกง)

Epiphytic orchid, usually forming a dense large mass; pseudo-bulbs short, erect, hidden by leaf sheaths. **Leaves** simple, alternate; blades stiff coriaceous, oblong-linear, 30 – 70 by 3 – 3.5 cm, apex round, unequal notched. **Inflorescences** raceme, pendulous, 60 – 65 cm long, many-flowered, lax; pedicels 3 – 3.5 cm long, slender. **Flowers** 3.5 – 4 cm across. Sepals and petals subequal, oblong-lanceolate, 2.8 – 3 by 0.7 – 0.9 cm, brownish-yellow flushed purple at the base and the median. Lip 3-lobed; the side-lobes small, triangular, acute 6 mm long, purple; midlobe obovate, down-curved at the tip, with 2 longitudinal ridges on the center part of the lip, white with a yellow patch near the distal part of the ridges and a purple patch at the tip and other parts, 2.5 cm long. **Column** stout, purple, 1.6 cm long. **Pollinia** 2. **Ovary** inferior, 1-loculed; ovule numerous. **Fruit** a capsule, ellipsoid, 5 by 2.5 cm.

Locality Ban To Wo, Su-ngai-kolok District, Narathiwat Province.

Distribution Burma, Sumatra, Philippines.

Ecology In lowland forest near sea coast, peat swamp forest; altitude near sea level. Flowering June – August; fruiting January – April.

Uses The pseudo bulbs are heated, pounded, into which coconut oil is added. The solution obtained is applied externally to cure pimples on the children's heads. The leaves are used to treat; they are warmed on a fire, and then squeezed. The juice obtained is dropped to the aching ears. The immature green fruits are also used to treat earache; in this case, the fruit and benzoin are rubbed against an earthenware pot. The juice obtained is dropped to the aching ears, (M).

Material studied BK 26114

Reference Backer & Bakh.f., Fl. Java. 3: 396. 1968.

***Dendrobium crumenatum* Sw.**

Figure 39 A

Vernacular Nok krayang (นกกกระชาย), Ta nga tue ri (ตางาตือรี)

Epiphytic orchid, stem at the base swollen into fusiform pseudo-bulb about 8–10 cm long and 2 cm wide. Stem often branched, 100 – 120 cm long, plurifoliate, upper part of stem leafless. **Leaves** simple, sessile, alternate; blades stiff coriaceous, glabrous, elliptic, 5 – 9 by 1.8 – 2.7 cm, apex blunt retuse, margins entire, base obtuse. **Inflorescences** raceme, few-flowered; pedicels 1.8 cm long. **Flowers** white fragrant, ephemeral, 4.5 cm across, singly from tuft of dry bracts on terminal nude part of the stem. Upper sepal 2.5 cm long, lanceolate obtuse; lateral ones forming a mentum 3 cm long, curved. Petals wider and shorter, elliptic. Lip 3-lobed; side-lobes round; mid-lobe ovate with yellow papillose patch, and 5 longitudinal ridges at the lower half on the inner side of the mid-lobe. **Column** short, broad with short arms. **Pollinia** 4. **Ovary** inferior, 1-loculed; ovules numerous. **Fruit** a capsule, elliptic, 2.5 – 3 cm long, 1.5 cm wide.

Locality Ban To Wo, Su-ngaikolok District, Narathiwat Province.

Distribution Burma, S.China, Malay Islands.

Ecology Common on trees in the lowlands in open places, secondary forest; altitude near sea level. Flowering and fruiting throughout the year.

Uses The pseudo bulbs are used for the treatment of earache, centipede bites, (M); the pseudo bulbs and benzoin are rubbed against an earthen were pot, then a juice obtained is dropped into the aching ears. For the treatment of centipede bites, a pseudo bulb together with a shallot bulb and a little amount of benzoin are pounded, into which a little amount of lime juice is added. Then this mixture is used as a poultice applied to the bites.

Material studied UBON 1225 , BK 26658

Reference Backer & Bakh.f., Fl. Java. 3 : 349. 1968.

***Grammatophyllum speciosum* Blume**

Figure 53 A

Vernacular Wan phet cha hueng (ว่านเพชรหึง), Wan hang chang (ว่านหางช้าง)

Robust, epiphytic orchid, pseudo-bulbs none; stem thick, terete, up to 3 m tall, 3 – 4 cm diam., with many leaves, green turning pale yellow. **Leaves** simple, distichous, linear, 30 – 40 by 2.5 – 3 cm, apex acute, sub-coriaceous. **Inflorescences** raceme, arising from the base of the stem, erect-drooping up to 2 m long, many-flowered; pedicels 8 cm long, slender. **Flowers** large, 6 – 8 cm across. Sepals and petals subequal, oval-oblong, undulate, apex blunt, light greenish-yellow, with reddish-brown spots; sepals 4 by 2 cm; petals slightly shorter and broader. Lip 3 cm long; side-lobes sub-acute, yellow, brown striped; mid-lobe much shorter, oblong, pubescent, reddish-brown, with 3 longitudinal ridges at the median part of the lip. Column 2 cm long, curved. **Pollinia 2. Ovary** inferior, 1-loculed; ovules numerous. **Fruit** a capsule, oblong-pyriform, 10 by 4 cm. **Seeds** numerous.

Locality Ban Ton Panun, Khuan Kalong District, Satun Province.

Distribution Borneo, Java, Solomon Islands.

Ecology In lowland evergreen forest, oftencultivated as ornamental; altitude 100 m. Flowering in September; fruiting in January.

Uses The peduncle and rachis are sliced and macerated in spirit for 7 – 10 days. Then alcoholic macerate is taken as a tonic, (B). The Stems are used as an ingredient in the formula F 8 taken as a tonic and a remedy to treat lumbago, (B). A decoction of the stems together with the whole plant of *Eurycoma longifolia* Jack is also taken as a tonic, (M). It is the largest orchid, and usually planted as an ornamental, (B, M).

Material studied UBON 1390, BKF 120074

Reference Ridl., Fl. Mal. Pen. 4 : 149. 1967 ; Backer & Bakh.f., Fl. Java. 3 : 397. 1968.

Palmae***Arenga pinnata* (Wurmb.) Merr.**

Figure 28 A

Vernacular Chok (ชอก)

Monoecious tree palms, 20 m tall, unarmed; monocarpic. Stem solitary, 10 – 20 m tall, 30–65 cm diam., covered by bases of broken-off leaves to ground or nearly so; crown dense, with 20 – 30 erect to spreading leaves. **Leaves** imparipinnate, 6 – 12 m long; petioles 1.5 – 2 m long, stout, with sheath at base; sheath 0.5 – 1 m long. Leaflets about 150 on each side of rachis, clustered in groups of 2 or 3 and arising from the rachis in more than one planes; blades linear, 140 – 180 by 8 – 11 cm, with auricles at base, toothed at apex, glabrous and shining dark green above, scabrous and

glaucous white beneath. **Inflorescence** unisexual, simply branched, in axil of old or fallen leaf, 100 – 200 cm long, pendulous; peduncle stout, 60 – 90 cm long; spathes 4 – 5, coriaceous; rachis 1 – 1.5 m long; rachillae spiciform, 1 – 1.5 m long; spikes bearing many flowers. The highest on the stem entirely or partly female; the lower ones male. **Male flowers** with 3 sepals; sepals orbicular-ovate, imbricate, 4 mm long, 9 mm wide, coriaceous. Petals 3, ovate-oblong, valvate, 10 mm long, 4 mm wide. Stamens numerous, 6 – 7 mm long, linear. Pistillode absent. **Female flowers** globose. Sepals 3, broadly ovate, imbricate, 10 mm long, coriaceous. Petals 3, ovate-cordate, 20 mm long, coriaceous, valvate. Staminode absent. Ovary superior, globose, 3-loculed; ovule 1 per locule. **Fruit** a drupe, oblong or subglobose, 5 cm long, ripening yellow. **Seeds** 2–3, narrowly ovoid-trigonal, flattened, 2 – 3 cm long, 2 cm wide.

Locality	Ban Ton Panun, Khuan Kalong District, Satun Province.
Distribution	India through SE. Asia to Indonesia.
Ecology	In evergreen forest, shaded places, hill side; altitude 100 – 300 m. Flowering and fruiting throughout the year.
Uses	The apical bud are cooked in various ways as a vegetable. The cut young inflorescences yield palm syrup which can be made into sugar. The seeds are edible, can be eaten raw or boiled in light syrup, (B, M).
Reference	Backer & Bakh.f., Fl. Java. 3 : 188. 1968.

***Calamus palustris* Griff.**

Vernacular Wai khring (หวายขริง)

Clustered, climbing palm, to 20 m long, spiny. **Leaves** simple pinnate, spirally arranged, ending in a clawed cirrus; sheaths tubular, spiny; spines 1 – 3 cm long; petioles 10 – 30 cm long; rachis 2 – 3 m long, spiny. Leaflets up to 20, mostly in group of 2, irregularly arranged on each side of the rachis; blades coriaceous, sessile, linear-elliptic, 20 – 30 by 5 – 6 cm, apex bristly, margins scabrid, base acute; main nerves 5 – 7. **Inflorescences** compound spikes, unisexual. Female inflorescence 50–130 cm long, stiff; lateral branches 3 – 5 cm long, bearing numerous spiklets; flowers small, distichous. Female ones accompanied by sterile male flowers. **Calyx** tubular, coriaceous, 3-toothed; teeth minute acute. **Petals** 6, lanceolate acute, stiff; staminodes present; pistillode present in sterile male ones. **Ovary** superior, stiff, scaly, 3-loculed; ovules 1 in each locule. **Fruit** a drupe, subglobose, scaly, light brown.

Locality	Ban Don Sai, Pa Pha Yom District, Phattalung Province.
Distribution	Burma to S.China, Laos, Cambodia, Vietnam, Malay Peninsula and the Andaman Islands.
Ecology	In moist, seasonary wet or wet forest; altitude 70 m. Flowering and fruiting throughout the year.

Uses The ripe fruits are eaten fresh, (B, M). The climbing stems are used for wickerwork to make household items or furniture, (B, M).

Material studied UBON 273, BKF 118013

Reference Ridl., Fl. Mal. Pen. 5: 61. 1967.

***Caryota mitis* Lour.**

Vernacular Tao rang (เต่าร้าง)

Clustered, feather palm, 5 – 10 m tall, unarmed. Monoecious. Stem often with leaves to the ground. Sheaths 50 – 150 cm long, deeply split, margins with reddish-brown to black fiber. **Leaves** bipinnate, 1.5 – 3 m long, 1 – 2 m wide; petioles 50 – 150 cm long; pinnae 7 – 20 on each side of rachis, 50 – 120 cm; leaflets 7 – 15 on each side of pinna rachis; blades thinly coriaceous, glabrous, obliquely rhomboid, 7–20 by 3 –15 cm, apex jaggedly toothed, base acute, often unequal. **Inflorescence** terminal, then in leaf axils and gradually downwards, panicle, 50 cm long, composing of many spikes; spikes 20 or more, pendulous, densely arranged. **Flowers** small, unisexual, solitary or 3 together (one female between two males). **Male flowers** subglobose; sepals 3, roundish, ciliate, 4 by 3 mm, green; petals 3, ovate, 4.5 by 3 mm, pale violet; stamens numerous; anthers linear, sessile, 2–3 mm long; pistillode none. **Female flowers** smaller than the male ones; sepals and petals little different in shape and size; staminodes 3; ovary superior, 3-loculed; ovule 1 in each locule. **Fruit** subglobose, red to dark purple, 1 – 1.5 cm diam. **Seed** 1.

Locality Ban Khao Khram, Srinakharin Subdistrict, Phattalung Provinc

Distribution Andaman and Nicobar Islands through S.China, SE. Asia, Malay Peninsula, Borneo, Java , Sumatra, Celebes.

Ecology In varieties of habitats; including lowland, peat swamp area, disturbed and secondary forest; altitude from sea level to 110 m. Flowering and fruiting throughout the year.

Uses The heart of young shoots are cooked in various ways as a vegetable, (B, M).

Reference Ridl., Fl. Mal. Pen. 5 : 20. 1967 ; Backer & Bakh.f., Fl. Java. 3 : 187. 1968.

***Eleiodoxa conferta* (Griff.) Burret.**

Figure 44 A – E

Vernacular Lum phi (หลุมพี), Ka lu bi (กาลูบี)

Dioecious, acaulescent, caespitose palms, 8 m tall, fiercely armed, monocarpic. **Leaves** imparipinnate, 4 – 8 m long. Sheath 60 – 80 cm long, armed with neat reflexing partial whorls of needle-like spines 3 – 4 cm long; spines white, black-tipped. Petioles 3 m long, armed as the sheath. Rachis to 4 m long, armed as

the sheath. Leaflets numerous, arranged in one plane on each side of the rachis, alternate or subopposite; blades induplicate, linear acute, 40 – 60 by 5 – 7 cm, margins armed with short spines; more or less spinulose in the costae above, smooth below. **Inflorescences** crowded into a head, born among leaf bases at ground level, 30 – 50 cm wide; peduncle short, stout. Male and female inflorescence rather similar. Rachis thick, 25 – 35 cm long, branching to 1 order; rachillae numerous, cylindrical catkin-like, 10 – 15 cm long, 1.5 cm diam., each subtended by persistent spathe; spathe boat-shaped, 6 – 10 cm long. Flowers of both sexes similar, small, 4 – 5 mm long, 2 – 3 mm across. **Male flowers** in pairs, embedded among hairy bracteoles; calyx tubular, 4 mm long, shallowly 3-lobed, yellowish-white; petals 3, free, triangular, acute, 4 mm long, 1.5 – 2 mm wide, yellowish-white with pink-dotted; stamens 6, free, 2 mm long; pistillode present. **Female flowers** larger; calyx tubular, 4 mm long, deeply 3-lobed, yellowish-white; petals 3, free, triangular, acute, 4 – 5 mm long, 2 – 3 mm wide, yellowish-white, pink-dotted; staminodes 6; ovary superior, broadly ovate, 4 by 3 mm, scaly, deep pink at distal end, 3-loculed; ovule 1 in each locule; stigmas 3, linear, 3.5 cm long, deep pink. **Fruit** a drupe irregularly rounded or depressed obovoid, 3 – 4 cm diam. Covered by imbricate, cartilaginous scales; reddish-brown to brown, 1-seeded. **Seeds** subglobose, bony, dark brown, with conspicuous wide chalazal pit and thick sarcotesta; sarcotesta pulpy, brownish-orange, very acid.

Locality	Ban Lu Bo Sa Ma, Su-ngaikolok District, Narathiwat Province.
Distribution	Malay Peninsula, Borneo, Sumatra.
Ecology	In peat swamp forest, slightly shaded and humid places; altitude near sea level to 100 m. Flowering October – November; fruiting March – April.
Uses	The ripe sour fruits are eaten fresh or pickled, (B, M). A decoction of the young shoots together with the grass leaves (unknown species) is taken daily for the treatment of diabetes, (M). The leaves are used locally for roof thatching. The stripped leaf stalks and rachis surfaces are used for mat Making, (B, M).
Material studied	UBON 1154
Reference	Hodel & Vatcharakorn, The Palms and cycads of Thailand. 96. 1998.

***Licuala paludosa* Griff.**

Figure 59 B

Vernacular Ka pho daeng (กะพ้อแดง), Pho (พ้อ)

Densely clustered palm, 3 – 4 m tall, armed; stem often with persistent leaf sheaths. **Leaves** palmate, plicate, 9 – 10 per stem; sheaths deeply split, margins coarsely fibrous-netted, brown; petioles 1 – 2.5 m long, orange-yellow, stiff, margins armed in basal half with reflexed dark brown thorns; blades coriaceous, nearly orbicular in outline, 100 – 150 by 100 – 150 cm, divided to base into 6 – 15 segments; segments narrowly obtriangular, the center ones largest, 40 – 60 by 3.5 – 10 cm, tip truncate, jaggedly toothed. **Inflorescences** interfoliate, compound spike, 2 – 2.5 m long; spathe 15 cm long or more. **Flowers** small, bisexual, creamy white. **Calyx**

campanulate, glabrous, irregular split at top. **Corolla** glabrous, deeply divided, 3-lobed; lobes ovate. **Stamens** 6; filaments connate. **Ovary** superior, composing of 3 free carpels, united by the common style. Fruit a drupe, globose, orange, 7 – 8 mm diam. **Seed** 1.

Locality	Ban Lu Bo Sa Ma, Su-ngaigolok District, Narathiwat Province.
Distribution	SE. Asia, Malay Peninsula, Sumatra, Borneo.
Ecology	In peat swamp forest; altitude near sea level. Flowering and fruiting throughout the year.
Uses	The hearts of young shoots are eaten as a vegetable after soaked in salt water, and then cooked, (M).
Material studied	UBON 1037
Reference	Ridl., Fl. Mal. Pen. 5: 25. 1967; Hodel, The Palms and Cycads of Thailand. 118. 1998.

***Licuala peltata* Buch.-Ham.**

Figure 59 C

Vernacular Ching (ชิง), Kajing-kajing (กาจิง กาจิง)

Small to moderate solitary tree palm, armed. Stem erect, 3 m tall, 10 – 12 cm diam., obscurely ringed, often with persistent leaf sheaths. **Leaves** 12–15, palmate, plicate; petioles about 2 m long, green to brownish, stiff, margins thorny throughout; thorns 1 cm long, reflexed; sheaths deeply split, margins coarsely fibrous-netted, dark brown; blades coriaceous, orbicular, 150 – 200 cm across, divided to base into 18 – 20 segments; segments narrowly obtriangular, 80 by 18 cm; tip truncate, 4- to 6-lobed; lobes 5 cm long. **Inflorescences** interfoliate, compound spike, 2.5 – 3 m long, arching, composing of spikes 3 – 5, 15 – 20 cm long. **Flowers** small, bisexual, pale green. **Calyx** cupular, 8 mm long, pubescent, 3-toothed; teeth unequal, acute. **Corolla** deeply divided into 3 lobes, linear-lanceolate acute, 8 by 3 mm, stiff, pubescent outside. **Stamens** 6; filaments short, connate at base. **Ovary** superior, composing of 3 free carpels, sparsely pubescent at top, united by the common style and stigma. **Fruit** a drupe, subglobose, 1 cm across, orange. **Seed** 1.

Locality	Ban Po No, Su-ngaipadee District, Narathiwat Province.
Distribution	India, Bhutan, Bangladesh through Burma to Peninsular Malaysia and the Andaman and Nicobar Islands.
Ecology	In moist to wet evergreen forest, cultivated as ornamental and for medicinal purposes; altitude 20 m. Flowering and fruiting throughout the year.
Uses	The roots together with various kinds of medicinal plants are taken as a remedy to cure urine retention. The young leaves are used to wrap some local food, (M).
Reference	Hodel, The Palms and Cycads of Thailand. 118. 1998.

***Licuala spinosa* Thunb.**

Figure 59 D

Vernacular Ka pho khiao (กะพ้อเขี้ยว), Pho (พ้อ)

Densely clustered palm, 3 m tall, armed; stems often with persistent leaf sheaths. **Leaves** palmate, plicate, 10 – 15 per stem; sheaths deeply split, margins coarsely fibrous-netted, brown; petioles 1 – 2 m long, stiff, spiny the entire length; blades orbicular in outline, 70 – 100 by 70 – 100 cm, divided to base into 12 – 17 segments; segments narrowly obtriangular, the center ones largest, 40 – 52 by 8 – 10 cm; tip truncate, dentate. **Inflorescences** interfoliate, compound spike, 1.5 – 2 m long; spathe lanceolate acuminate, 30 – 35 cm long. **Flowers** small, bisexual, creamy white. **Calyx** cylindrical, 3-lobed; lobes ovate, unequal, green, pubescent. **Corolla** cupular, 3-lobed; lobes triangular acute, pubescent. **Stamens** 6; filaments connate, cup-shaped. **Ovary** superior, consisting of 3 free carpels, obovate, apex truncate, glabrous, united by the common style. **Fruit** a drupe, ellipsoid, orange, 7 – 8 mm diam. **Seed** 1.

Locality	Found in every study sites.
Distribution	SE.Asia to Malay Peninsula, the Andaman and Nicobar Islands, Sumatra, Java, Borneo and Philippines.
Ecology	In varieties of habitats; including beach forest, swamp fringes, secondary forest, also on limestone. It is one of few small palms tolerant of intense disturbance, even complete forest clearing, and often seen around farms, homes; altitude near sea level to 180 m. Flowering and fruiting throughout the year.
Uses	A decoction of the roots is drunk as an antidote to the poison from food or other toxicants, (M). The young unexpanded leaves are used to wrap desserts made of glutinous rice before boiling. This meal is traditionally famous among the local people, especially for religious ceremonies, (B, M).

Material studied UBON 1160

Reference Backer & Bakh.f., Fl. Java. 3 : 173. 1968; Hodel, The Palms and Cycads of Thailand.120. 1998.

***Metroxylon sagu* Rottb.**

Figure 62 E – G

Vernacular Sagu (สาอู)

Large monoecious palms, up to 15 m tall, monocarpic. Stem prostrate-ascending, unarmed, 30 – 60 cm diam. **Leaves** paripinnate, spirally arranged, crowded at apex of trunk, 5 – 7 m long; petioles robust, dilate into stem-clasping sheath, 50 – 100 cm long; sheath 75 – 125 cm long; leaflets about 60 – 90 on each side of rachis, linear acuminate, with a strong midrib, 50 – 160 by 3 – 6 cm, with

small spines along the margin and on the midrib. **Inflorescences** a terminal panicle, 4 m high, much-branched, wide-spreading; peduncles short, rust-coloured. Primary branches of the inflorescence 6 – 9, erect; the lower ones largest, up to 2 m long. Secondary lateral ones numerous, 30 – 60 cm long, spadix-like, cylindric, 7 – 13 cm long, 1.5 – 2 cm wide, densely packed with spirally arranged pairs of flowers that were in axils of bracts, each pair consisting of one male and one bisexual flower. **Male flower** small, sessile; calyx sub-campanulate, 3-lobed; lobes ovate, obtuse, 5 – 6 mm long; corolla lobes 3, oblong, 7 – 9 mm long; stamens 6, filaments in throat of corolla, anthers narrow; pistillode present. **Bisexual flower** small, perianth as those of the male ones; staminodes 6, filaments connate into a tube; ovary superior, cylindric, scaly, incompletely 3-loculed, 3-ovuled; style conical; stigmas 3. **Fruit** a drupe, depressed-globose, 2.5 – 4.5 cm diam., covered by imbricate cartilaginous scales, ripening yellowish-brown, 1-seeded. **Seed** subglobose, 2 – 3 cm diam., bony.

Locality	Ban Lu Bo Sa Ma, Su-ngikolok District, Narathiwat Province.
Distribution	New Guinea, Malaysia, Indonesia.
Ecology	Common in swampy areas, seasonally flooded places; altitude 20 m. Flowering and fruiting throughout the year.
Uses	The apical buds are usually made into traditional dish eating in the religious ceremonies of Muslim people. The stems or trunks contain a lot of starch that is used as an ingredient in various kinds of food and dessert that need stickiness property. Starch in the trunks is also used directly to feed animals such as chickens or ducks, (B, M). The roots are used for the treatment of diabetes, fever; a handful of the roots of this plant species together with those of <i>Oroxylum indicum</i> (L.) Kurz. and garlic are boiled with water, then a decoction is drunk daily to treat diabetes. Water in which the roots of <i>Metroxylon sagu</i> Rottb. are soaked is used to bath and pour over the head of the patient to relieve fever, (M). The leaves are used for roof thatching. The stripped surfaces of leaf rachis are woven into mats and other utensils. Sap from the cut leaf stalk is sometimes used to eliminate dark spots and acne on the faces; it is smeared on the faces for 4 – 5 minutes, and then rinsed out, (B, M).
Material studied	UBON 926
Reference	Ridl., Fl. Mal. Pen. 5 : 31. 1967 ; Backer & Bakh.f., Fl. Java. 3:178. 1968.

Nypa fruticans Wurm.

Figure 65 A – B

Vernacular Chak (จก)

Clustered, acaulescent palm, 2 – 3 m tall, unarmed; stem subterranean, stout, prostrate, creeping, branching dichotomously. **Leaves** 10 – 15 per stem, pinnate, erect; sheath deeply split, glabrous; petioles 30 – 100 cm long, base often persistent as a conical stub; rachis 5 – 9 m long, with 2 ranks of leaflets; leaflets numerous, pointing upwards and slightly forwards, 100 – 150 by 5 – 8 cm, stiff, linear-lanceolate, apex acuminate, margins entire, glabrous. **Inflorescences** interfoliar, near stem apex, composing of female head surrounded by male spikes, 1 – 1.5 m long; peduncles 80 – 100 cm long; spathes numerous. Male spikes cylindrical, 10 – 15 cm long. **Male flowers** numerous, small; perianth segments 6, hardly differentiate into calyx and corolla; stamens 3, filaments entirely connate; pistillode absent. **Female flowers** numerous, larger than the male ones; perianth segments 6, minute; staminode absent; ovary superior, composing of 3 free carpels; ovule 1 in each carpel. **Fruit** drupelets, densely packed in a spherical head; fruiting head 30 – 40 cm diam., drooping; individual fruits obovoid, 10 by 7 cm, woody, blackish-brown. **Seed** 1.

Locality Ban Ta Se, Hat Samran Subdistrict, Trang Province.

Distribution Sri Lanka, E.India, Burma, SE. Asia, Malesia, New Guinea, Solomon Islands to N.Australia.

Ecology In soft mud of estuarine habit, including mangrove forest, coastal fringes of brackish water swamp, salt marches, bays, and river mouths. Flowering and fruiting throughout the year.

Uses Stalks of the young inflorescences are eaten after boiling and then cooking. The young seeds are eaten fresh; sometimes they are put into syrup and prepared as a dessert. The cut stalks of the fruit bunches yield a sweet fluid which is a good beverage, either fresh or boiled. This fluid is sometimes fermented into vinegar, alcoholic beverage or a palm wine. It can be dried and made into sugar bars which can be kept for a long time to be used in cooking or dessert making, (B, M). The young shoot is used as an ingredient in the formula F14 to treat diabetes, (M). The young and unexpanded leaves, after sun drying, are commonly made into cigarette wrappers. The mature leaves are used locally for roof thatching, and also used to wrap local desserts, (B, M).

Reference Ridl., Fl. Mal. Pen. 5 : 71. 1967 ; Backer & Bakh. f., Fl. Java. 3 : 198. 1968.

***Oncosperma tigillarum* (Jack) Ridl.**

Figure 65 C

Vernacular La own (หลาโอน), Ni bong (นึ่ง)

Monoecious, tall palms, up to 25 m tall, polycarpic, usually clustered and many-stemmed, forming dense clumps. Stems grey, 10 – 15 cm diam., straight, with many black prickles of 2 – 6 cm or more length. **Leaves** paripinnate, spirally arranged, up to 3 – 4 m long; with numerous, drooping leaflets; petioles 30 – 60 cm long, spiny; sheath 75–100 cm long, forming a conspicuous crownshaft, spiny; rachis 4 m long, unarmed, at first densely scaly. Leaflets many on each side of the rachis, linear, acuminate, 60 – 100 by 2 – 3 cm, elegantly pendulous. **Inflorescence** intrafoliar, panicle of many long spikes, 60 – 80 cm long; peduncle aculeate, 10 – 12 cm long; spike up to 40 cm long; spathe large, boat-shaped. **Male flower** yellow; sepals 3, ovate, shortly acuminate, imbricate, 3 mm long; petals 3, oblong, subulately acuminate, valvate, 8 – 10 mm long; stamens 6, 5 mm long; filaments broad; anthers linear, longer than the filaments; pistillode columnar. **Female flowers** subglobose; sepals 3, suborbicular, like the petals, imbricate; petals 3, slightly larger than the sepals, 3 – 4 mm long; staminodes 6; ovary superior, 3-loculed; ovule 1 in each locule; stigmas 3, sessile. **Fruit** a drupe, globose, 1 cm diam., ripening dark purple. **Seed** 1, globose.

Locality Ban Sae, Su-ngaipadee District, Narathiwat Province.

Distribution Malaysia, Java, Borneo, Sumatra.

Ecology Along the inland fringes of mangrove forest and other low, wet, swampy places; altitude 20 m. Flowering and fruiting throughout the year.

Uses The apical buds are cooked in various ways as a vegetable, (B, M). The long and straight stems, with hard and durable wood are used in construction, for piling, rafters and flooring, (B, M). The leaves are used for roofing; leaf sheaths are made into water buckets. This plant is also an elegant ornamental, (B, M).

Reference Backer & Bakh.f., Fl. Java. 3: 191. 1968.

***Phoenix paludosa* Roxb.**

Vernacular Peng (เพ็ง)

Clustered palm, growing in dense clumps, up to 5 m tall, armed, dioecious; stem erect, 4 – 7 cm diam. **Leaves** pinnate, 2 – 3 m long, drooping; sheaths greyish-black, persistent as a stiff, fibrous network; petiole short; leaflets 50 – 65 on each side of rachis, more or less irregularly arranged in more than one plane, linear acuminate, 25 – 30 by 1 – 1.5 cm, pale green above, conspicuous greyish beneath; lower leaflets modified into stiff, needle-like spines. **Fruit** ovoid-ellipsoid, with persistent perianth, maturing from yellow-green to orange then black, 10 – 12 by 7 – 10 mm.

Locality	Ban Ta Se, Hat Samran Subdistrict, Trang Province.
Distribution	India, Bangladesh, Andaman Islands, SE.Asia, Malay Peninsula N.Sumatra.
Ecology	In coastal areas along the inland sides of mangrove forest, on stiff soil, always in open habitats; altitude near sea level. Flowering February – April ; fruiting June – December.
Uses	The apical buds or fleshy terminal parts of stems are cooked as a vegetable, (M).
Reference	Ridl., Fl. Mal. Pen. 5 : 21. 1967.

***Salacca wallichiana* Mart.**

Figure 70 C – D

Vernacular Kam (กำ)

Dioecious, shrubby palm up to 12 m tall. Stems 20 – 30 cm diam., creeping, with very spiny leaves. **Leaves** 12 – 18 per stem, pinnate, ascending, 3 – 5 m long; sheaths 1 m long; armed with dense, partial whorls of spines; spines flat, linear-triangular, almost perpendicular to the sheaths, some pointing downwards; petioles 1 m long, armed with spines as the sheaths; rachis 2 – 3 m long. Leaflets 40 – 50 pairs, irregularly arranged and fanned in groups of 2 – 5, end pair with truncate and jaggedly toothed tips, linear, 60 – 75 by 6 – 8 cm. **Female inflorescence** interfoliar, 1 – 2 m long, pendulous, usually lying on the ground, with few branches each with up to 4 reddish spikes; spikes cylindric, 10 by 3 – 4 cm. Female flowers in axils of bracts, accompanied by hairy bracteoles. **Calyx** tubular, 3-fid, 10 mm long. **Petals** 3, connate at base; lobes ovate, acute, 7 by 5 mm, yellow, red at tip. **Staminodes** 6. **Ovary** superior, setose, 3-loculed; ovule 1 in each locule; style short; stigmas 3, red. **Fruit** a drupe, occurring in dense heads, obovoid, 6 by 3 – 4 cm; exocarp thin, entirely covered by reddish-brown scales. **Seed** 1 – 3, ovoid.

Locality	Ban Ta Se, Hat Samran Subdistrict, Trang Province.
Distribution	Burma, Malay Peninsula.
Ecology	Commonly found under shade, humid places; altitude near sea level to 100 m. Flowering November – December; fruiting June – August.
Uses	The sourish ripe fruits can be a substitute for lime juice in cooking, whereas the ripe sweet ones are eaten fresh or pickled, (B, M). A decoction of the leaf rachis is taken to treat urticaria, (M).
Material studied	UBON 1361, BKF 32273
Reference	Hodel , The Palms and Cycads of Thailand .164. 1998.

Pandanaceae

***Freycinetia cf. angustifolia* Blume**

Vernacular Ka pria (กะเปรียะ)

Climber on tree trunk, with adventitious roots; stem slender, 6 – 12 mm diam., very long. **Leaves** simple, spirally arranged; blades thin, narrowly linear, 17–30 by 0.5 – 0.8 cm, glabrous, unarmed except at extreme apex, serrate-dentate along the margins and on the midrib dorsally; apex gradually attenuate-filiform; leaf base sheathing the stem, with membranous auricles; auricles 15 – 20 mm long, caducous, entire, fragile. Flowers and fruit not found.

Locality Ban Cho Kot, Su-ngaipadee District, Narathiwat Province.

Distribution Malaysia, Sumatra, Java, Burma, Philippines.

Ecology In peat swamp forest; altitude near sea level.

Use A handful of the stems and leaves are boiled with three glasses of water. They are boiled until the volume is 1/3 of original volume. Then a glass of the decoction is taken as an abortifacient; the treatment is done repeatedly 3 times, (B).

Material studied UBON 685, BKF 089497

Reference Stone, Gard. Bull. Sing. 25 : 193. 1972.

***Pandanus immersus* Ridl.**

Figure 66 C

Vernacular Toei nam (เตยน้ำ), Ku wa ai (กัวไ้อ)

Stout, dioecious pandan, 2 – 3 m tall; growing immersed in water; the stem hardly rising above. **Leaves** simple, close, spirally arranged, 3-ranked; sheath of leaf-base short; blades linear, erect, thickly coriaceous, 100 – 300 by 10 – 15 cm, apex long acuminate, margins and midrib at the adaxial surface sharply aculeate. **Inflorescence** terminal, at first erect but often soon nodding. **Male inflorescence** a branched spike, solitary, 50 – 80 cm long, with pale large bracts; **male flowers** naked, minute, numerous; stamens numerous; pistillode absent. **Female inflorescence** a terminal spike, ellipsoid, solitary; flowers naked; staminode absent. Ovaries densely congested. **Fruit** a globose mass of woody angular drupes; drupes small with a very short curved style.

Locality Ban Lu Bo Sa Ma, Su-ngaikolok District, Narathiwat Province.

Ecology In humid, open places; by streams, forming dense thickets; altitude near sea level.

Uses A decoction of the roots is drunk frequently during the day as drinking water with side benefit to relieve debility, (M). The dried stripped leaves are woven into mats, hats, baskets and other utensils, (B, M).

Reference Ridl., Fl. Mal. Pen. 5 : 76. 1967.

Parkeriaceae

Adiantum flabellulatum L.

Figure 19 F

Vernacular Kut kan dam (กูดก้านดำ), Rue bo tue la ko (รื้อ โป ตื้อ ลา โก)

Terrestrial fern, rhizome short-creeping, 4 mm diam., covered with brown linear scales. **Stipes** distinctly grooved on upper surface, blackish-brown, basal portion covered with scales, hairy in grooves and glabrous elsewhere, 20 – 30 cm long, 1.5 mm diam. **Lamina** pinnately compound, triangular, 10 – 20 cm long and wide, the main rachis rather short, bearing 2 – 3 **pinnae** on each side, the lower pinnae usually the largest and often once or twice branched. Leaflets fan-shaped to subquadrangular, up to 2.0 by 1.3 cm, base broadly cuneate, apex moderately acute, sterile fronds with toothed margins; fertile fronds with lobes and sinus; glabrous on both surfaces; **sori** at margins of the leaflets, reflexed soral flaps elongate, 2 – 3 mm long.

Locality Ban Ta Se Tai, Su-ngai-padee District, Narathiwat Province.

Distribution India, Burma, SW. and S.China, Taiwan, throughout Malesia and northwards to S.Japan.

Ecology On humus-rich soil in dense forest at low altitude; altitude 20 m.

Uses The whole plant is used as an ingredient in the formula F29 used to relieve severe lumbago, (M).

Material studied UBON 249, BKF 083029

Reference Tagawa & Iwatsuki, Fl. Thail. 3(2) : 215. 1985.

Hemionitis artifolia (Burm.f.) Moore.

Figure 55 A

Vernacular Phang kran (พังคราน)

Terrestrial fern; rhizome short, bearing a tuft of fronds, scaly; scales narrow, concolorous, brown, 2 – 3 mm long, entire. **Stipes** dark brown, grooved on adaxial surface, up to 20 cm long in fertile, and up to 8 cm long in sterile fronds, pubescent. **Sterile fronds** simple, chartaceous, narrowly ovate, 5 – 10 by 2.5 – 5.5 cm, apex obtuse, base deeply cordate, margins entire, sparsely hairy on lower surface; veins reticulate, obscure. **Fertile ones** simple, subdeltoid, 3 – 5 by 2 – 3 cm, apex

moderately acute, base cordate, margins entire, thinner than the sterile ones, glabrous above, pubescent beneath. Sporangia placed along veins, forming a network all over the lower surface.

Locality	Ban Huay Ngo, Khok Pho District, Pattani Province.
Distribution	Sri Lanka, India, S.China, Indo-China, Malaysia, Philippines.
Ecology	On muddy soil in dense forest; altitude 40 m.
Uses	The whole plant is used as an ingredient of the formula F12 taken as a remedy to relieve chest complaints, (B). A decoction of the whole plant alone is taken as a refrigerant, (M).
Material studied	UBON 242, BKF 116343
Reference	Tagawa & Iwatsuki, Fl. Thail. 3(2) : 191. 1985.

Piperaceae

Piper caninum Blume

Vernacular Phrik nok (พริกนก)

Slender climber; branchlets pubescent. **Leaves** simple, alternate; petioles 1 – 2 cm long, pubescent; blades thinly coriaceous, variable in shape and size, narrow lanceolate to ovate, 5 – 12 by 3 – 6 cm, apex acuminate, base rounded or cuneate, margins ciliate, entire, sparsely pubescent on nerves and veins beneath, 3- to 5-nerved at base. **Inflorescence** spike, leaf-opposed, unisexual; rachis pubescent; bracts peltate, densely white hairy above, 0.5 – 1.5 mm wide; peduncles 0.5 – 1.0 cm long. **Male spikes** slender, 1.5 – 2.0 cm long; male flowers very small, perianth absent; stamens 2. **Female spikes** thicker and blunter; female flowers very small, perianth absent; ovary superior, 1-loculed, ovule 1; stigmas 3 – 5, sessile. **Fruit** subglobose drupe, 3 mm diam., stipitate, bright red.

Locality	Ban Khao Khram, Srinakharin Subdistrict, Phattalung Province.
Distribution	Java.
Ecology	Climbing on trees in evergreen forest, shady places; altitude 80 m. Flowering and fruiting throughout the year.
Uses	The mature green fruits are cooked in curries, (B).
Material studied	UBON 85, BKF 121463
Reference	Backer & Bakh.f., Fl. Java. 1:171. 1963.

Plantaginaceae

Plantago major L.

Vernacular Ya en yuet (หญ้าเอ็นชืด)

Annual herb, 10 – 30 cm tall; stem very short, erect. **Stipules** absent. **Leaves** simple, in a radical rosette; petioles 3 – 8 cm long, sheathing at the base; blades herbaceous, spatulate, 5 – 20 by 1 – 10 cm, apex obtuse, margins shallowly to coarsely dentate, base attenuate, glabrous, strongly 5-nerved from the base. **Inflorescence** spike, upper axillary, slender, erect, 10 – 20 cm long, with flowers on the upper half; bracts 1 – 3 mm long. **Flowers** small, 3 mm long, bisexual, pale green, sessile. **Sepals** 4, oval-oblong, acute, scarious, persistent. **Corolla** white, salver-shaped, 4-lobed; lobes ovate acute, scarious. **Stamens** 4, inserted in the middle of the tube, far exserted. **Ovary** superior, ovoid, 2-loculed; ovules numerous; style filiform, 4 – 6 mm; stigma minute. **Fruit** a small capsule, thin-walled, dehiscent transversally.

Locality Ban Ton Panun, Khuan Kalong District, Satun Province.

Distribution Europe, Asia.

Ecology In open waste ground, roadsides, agricultural field; altitude near sea level. Flowering and fruiting throughout the year.

Uses The whole plant together with the leaves of *Orthosiphon aristatus* (Blume) Miq. in equal proportion are boiled in water, and then a decoction is taken 1 cupful once a day as a diuretic, (B). Whole plant is also used for the treatment of fever associated with menstruation; in this case, 5 plants together with a central part of a dried corn cop are chopped, boiled in water, and then a decoction is taken 3 times a day, (M).

Material studied UBON 1278, BKF 104193

Reference Backer & Bakh. f., Fl. Java. 2 : 446. 1965.

Plumbaginaceae

Plumbago indica L.

Vernacular Chetta mun phloeng daeng (เจตมูลเพลิงแดง)

Herb, 1 m tall, much-branched near the base. **Stipules** absent. **Leaves** simple, spirally arranged; petioles short; blades herbaceous, ovate-oblong, 5 – 11 by 2 – 5 cm, apex acute, margins entire, base acute, glabrous on both surfaces; nerves 8 – 10 pairs. **Inflorescence** a terminal raceme, 10 – 30 cm long; rachis glabrous;

bracteoles 3 subtending each flower. **Flowers** red, bisexual, sessile. **Calyx** red, tubular, 8 – 9 mm long, 5-lobed, outer surface covered with stalked glands. **Corolla** salver-shaped, tube 2 – 4 cm long, 5-lobed; lobes obovate spreading 1 cm long, manifestly apiculate, glabrous. **Stamens** 5, free, opposite the corolla segments. **Ovary** superior, glabrous, 1-loculed, 1-ovuled; style short, hairy at base, 5-branched. Fruits not found.

Locality Ban Pa Ye, Su-ngai-padee District, Narathiwat Province.

Distribution SE.Asia.

Ecology Cultivated as ornamental and for medicinal purposes; altitude 20 m. Flowering throughout the year.

Uses The young leaves are used as a condiment in curries, (B). They are also used as an anthelmintic in cattle; they are mixed with *Blumea balsamifera* (L.) DC leaves, pickled in salt water, and then fed cattle, (B). A decoction of the whole plant (a handful of it boiled in one litre of water) is taken daily as a contraceptive, (M). A decoction of the roots is taken as a diaphoretic, 1–2 times a day, (B).

Material studied UBON 1400 , BKF 127250

Reference Van Steenis , Fl. Mal. Ser.1. 4(2) : 111. 1954.

Plumbago zeylanica L.

Figure 69 A

Vernacular Chetta mun phloeng khao (เจตมูลเพลิงขาว)

Herb, 1 m tall. **Stipules** absent. **Leaves** simple, spirally arranged; petioles 0.2 – 1 cm long; blades herbaceous, ovate, 5 – 9 by 3.5 – 4.5 cm, apex acuminate, margins entire, base attenuate, glabrous on both surfaces; nerves 8 – 10 pairs. **Inflorescence** a terminal raceme, 6 – 30 cm long; rachis with sessile glands; bracteoles 3, subtending each flower. **Flowers** white, bisexual, sessile. **Calyx** green, tubular, 9 – 12 mm long, 5-lobed, outer surface covered with stalked glands. **Corolla** salver-shaped, tube 1.8 – 2 cm long, 5-lobed; lobes obovate, spreading, 7 by 4 mm, mucronate, glabrous. **Stamens** 5, free, opposite the corolla segments; anthers bluish-violet. **Ovary** superior, glabrous, 1-loculed, 1-ovuled; style short, 5-branched. **Fruit** oblong, acute, 8 mm long, with 5 furrows, enclosed in persistent calyx. **Seed** 1.

Locality Ban Ton Sai, Srinakharin Subdistrict, Phattalung Province.

Distribution SE.Asia.

Ecology In open or slightly shady places; roadsides; dry localities. Often cultivated as ornamental and for medicinal purpose; altitude 90 m. Flowering and fruiting throughout the year.

Uses A decoction of the whole plant is taken as an antipyretic, (B). A decoction of the roots is taken as a blood circulation tonic, and to treat numbness, (M).

Material studied UBON 1391, BKF 66062

Reference Van Steenis, Fl. Mal. Ser.1. 4(2) : 109. 1954.

Polygonaceae

Polygonum odoratum Lour.

Vernacular Hom chan (หอมจันทน์), Chan hom (จันทน์หอม), Kue song (กือซง)

Herb, 30 – 40 cm tall, glabrous, aromatic. **Stipules** membranous, forming a tube encircling stem, ciliate. **Leaves** simple, alternate; petioles 2 mm long; blades herbaceous, lanceolate, 4 – 6 by 1.5 – 2 cm, apex acuminate, margins ciliate, base cuneate, glabrous above, sparsely pubescent beneath; nerves 13 – 15 pairs. **Inflorescence** spiciform raceme, terminal, 8 – 10 cm long, slender, hardly branching; bracts tubular, membranous, ciliate; pedicels 5 mm long, slender. **Flowers** bisexual, pink, 7 mm across, 3- to 4- flowered in axil of a bract. **Perianth** lobes 5, subequal, elliptic to suborbicular, 3 – 4 by 2 – 3 mm. **Stamens** 8, white. **Ovary** superior, trigonous, 1-loculed, 1-ovuled; style trifid nearly to base; stigmas capitate. **Fruit** a nut.

Locality Ban Lu Bo Sa Ma, Su-ngaikolok District, Narathiwat Province.

Ecology Common in moist places, slightly shade; often cultivated for its edible leaves; altitude near sea level. Flowering and fruiting throughout the year.

Uses The young leaves are eaten raw as a vegetable, (B, M). The roots are used as an ingredient in the formula F37 used to treat herpes infection; they are chewed and then spat onto the affected areas, (M).

Material studied UBON 169, BKF 55101

Reference Hook.f., Fl. Br. Ind. 5 : 45. 1885.

Polygonum tomentosum Willd.

Vernacular Ueang (เอื้อง)

Herbs, 30 – 40 cm tall, almost covered with hairs; stem usually unbranched. **Stipules** membranous, forming a sheath encircling the stem, hairy. **Leaves** simple, alternate; petioles 5 mm long; blades herbaceous, lanceolate, 13 – 17 by 3 – 5 cm, apex long-acuminate, margins entire, base attenuate, soft hairy on both sides.

Inflorescence a spike-like raceme, axillary, 5 – 8 cm long; bracts tubular, ciliate; pedicels 2 mm long. **Flowers** bisexual, white, 5 mm across, 4- to 6- flowered in axil of a bract. **Perianth** lobes 5, ovate, acute, 3.0 by 2.5 mm. **Stamens** 5 – 8, unequal. **Ovary** superior, lenticular, glabrous, 1-loculed; ovule 1; styles bifid. **Fruit** a nut, orbicular, biconvex, shiny black, 2.0 by 2.5 mm.

Locality	Ban Thale Noi, Khuan Khanun District, Phattalung Province.
Distribution	Tropical Asia, Africa.
Ecology	Common in ditches, swamps and other wet places; altitude near sea level. Flowering and fruiting throughout the year.
Uses	The young leaves are cooked in a sour curry, (B). The young leaves are eaten raw to treat diarrhea, (B).
Material studied	UBON 1284 , BKF 085299
Reference	Ridl., Fl. Mal. Pen. 3 : 11. 1967.

Polypodiaceae

Drymoglossum piloselloides (L.) Presl.

Vernacular Klet nakkharat (เกล็ดนาคราช) , Pi ti (ปีติ)

Epiphytic fern; rhizome long creeping, slender, densely covered with small scales; scales dark brown, ovate, irregularly toothed. **Fronds** distinctly dimorphic. Sterile fronds with short stipes 2 – 8 mm long, laminae nearly circular, coriaceous, 1 – 4 by 1 – 2 cm, apex rounded, margins entire, base rounded to cuneate, sparsely stellately hairy on both surfaces. Fertile fronds with stipes 5 – 10 mm long, laminae linear-lanceolate, coriaceous, 3 – 15 by 0.5 – 1 cm, apex round, gradually narrowing towards attenuate base, margins entire. **Sori** forming a continuous marginal lines 2 mm wide, dark brown.

Locality	Ban Plak Pla, Kosit District, Narathiwat Province.
Distribution	Himalaya, Indo-China, S.China, Malesia.
Ecology	Common on tree-trunks in forests; altitude near sea level.
Uses	The whole plant together with a small amount of turmeric rhizome and rice grains are crushed, and then a mixture is applied over the affected areas to treat urticaria, (M). The leaves are pounded, mixed with white egg, and then this mixture is applied externally to obliterate the scars, (B).
Reference	Tagawa & Iwatsuki , Fl. Thail. 3(4) : 490. 1989.

***Drynaria quercifolia* (L.) J.Sm.**

Figure 41 E

Vernacular Hua wao (หัวว่าว)

Epiphytic fern; rhizome creeping, 1.5 – 2 cm diam., densely covered with scales; scales dark brown, peltate, ovate, 3 by 2 mm, apex acuminate, base rounded, margin fimbriate, apical part caducous. **Fronds** in 2 kinds, distinctly dimorphic; nest-leaves sessile, ovate-oblong, 17 – 23 by 16 – 22 cm, shallowly lobes; lobes rounded at apex, entire, subdeltoid, up to 6 by 4 cm; normal leaves stalked, stipes 12-18 cm long; laminae coriaceous, pinnatifid, oblong, 40 – 50 by 25 – 35 cm, apex acute, base narrowly winged; lobes oblong-lanceolate, apex caudate acuminate, 20 by 5 cm; veins raised on both surfaces, anastomosing. **Sori** rounded, naked, placed on the whole lower surface of the normal leaves.

Localities	Ban Huay Ngo, Khok Pho District, Pattani Province. Ban Ton Panun, Khuan Kalong District, Satun Province.
Distribution	Malesia , tropical Australia.
Ecology	On tree-trunks, or on stones in dense evergreen forest; altitude 40 - 80 m.
Uses	The rhizomes are used as an antihypertension, and a remedy to treat herpes infection. A decoction of the rhizomes is drunk daily as a substitute for tea in the treatment of hypertension, .For the treatment of herpes infection, a small piece of rhizome together with betel quid are chewed, and then spat onto the affected areas 2 – 3 times a day for 3 – 4 days, (M).
Reference	Tagawa & Iwatsuki , Fl. Thail. 3(4) : 546. 1989.

***Myrmecophila sinuosa* (Wall. ex Hook.) Nakai ex H. Ito**

Vernacular Tan mangkorn (ตานมังกอร์), Karong (การัง)

Epiphytic ferns with creeping, hollow ant-inhabited rhizomes. Rhizomes thick, 1.0 – 1.5 cm diam., scaly; scales peltate, rounded, bi-coloured with dark central portion and pale edge, 2 mm diam. **Stipes** up to 5 cm long, 1 – 2 mm diam. **Fronds** simple, in 2 kinds; fertile fronds linear, 15.0 cm by 3.5 cm; sterile ones linear, narrower, 15.0 by 0.7 – 1.5 cm; both fertile and sterile ones thickly chartaceous, apex acute, base cuneate, margins entire, midrib raised on both surfaces; veins visible, copiously anastomosing. **Sori** rounded, orange, arranged in one row at each side of the midrib, naked in distinct hollow which raised on upper surface,

Localities	Ban Ta Se Tai, Su-ngaipadee District, Narathiwat Province.
Distribution	Malaysia, Sumatra, Cambodia, Vietnam.
Ecology	On tree trunks in partly shaded area in tropical rain forest; altitude near sea level to 100 m.

Uses The whole plant is used to treat venomous bites; it is rubbed against an earthenware pot, using water or a washing from uncooked rice as a solvent. Then a mixture obtained is applied to the bites, (M).

Material studied UBON 901, BKF 34945

Reference Tagawa & Iwatsuki, Fl. Thail. 3(4) : 535. 1989.

***Platycerium coronarium* (D. Koenig ex O. F. Mull.) Desv.**

Vernacular Khao ho sida (ข้าวห่อสีดา)

Epiphytic fern; rhizome short-creeping, more than 1 cm diam., fleshy, apex covered by brown scales; scales triangular, 1.5 by 1.0 mm. **Fron**ds close, in two kinds. **Scale-leaves** (or nest-leaves) erect, sessile, persistent, 30 – 40 cm long, dichotomously lobed; lobes round at apex; basal portion thick and fleshy; main veins raised on both surfaces, dichotomous. Normal leaves pendulous, 100 – 200 cm long, several times dichotomously branching; branches 2 – 4 cm wide; lower branch unequal, bearing short sterile branch and a single fertile lobe, upper branching almost equal. **A fertile lobe** almost circular, 10 – 15 cm broad, stalked, the whole concave lower surface covered with densely stellate hairs and sporangia .

Locality Ban Huay Ngo, Khok Pho District, Pattani Province.

Distribution Burma, Vietnam, Cambodia, Malesia.

Ecology On trunk of large tree in evergreen forest, secondary forest; altitude 40 m.

Uses A decoction of the fertile leaves is taken daily as an Antihypertension, (B). The stem together with benzoin are rubbed against an earthenware pot, using water as a solvent, then a suspension is applied onto the affected areas to treatment of aphthous ulcer, (M).

Material studied UBON 1401

Reference Tagawa & Iwatsuki, Fl. Thail. 3(4) : 489. 1989.

Pontederiaceae

***Monochoria elata* Ridl.**

Figure 64 A

Vernacular Phlong (พลอง), Phak top (ผักตบ)

Aquatic herb, up to 100 – 150 cm tall, rooting in the mud, glabrous; stem erect. **Leaves** simple, rosulate, emersed; petioles up to 60 cm long, sheathing at the base; blades coriaceous, narrow lanceolate-hastate, 10 – 13 by 2 – 3 cm, apex

acuminate, margins entire, base hastate, glabrous on both surfaces. **Inflorescence** terminal raceme, erect, 8 – 12 cm long, 15 – 60 flowers, with a large bract. **Flowers** bisexual, actinomorphic, pale blue; pedicels slender, 1.5 cm long. **Tepals** 6, almost free; 3 outer ones ovate-lanceolate, 12 by 4 mm; 3 inner ones obovate, 13 by 7 mm. **Stamens** 6 inserted on the base of the perianth, unequal; 5 with smaller, yellow anthers; the sixth with larger blue ones. **Ovary** superior, ovoid, 3-loculed, ovules numerous; style filiform; stigma minutely 6-lobed, short hairy. **Fruit** capsule, ellipsoid 1 cm long. **Seeds** many, small, oblong.

Locality	Ban Thale Noi, Khuan Khanun District, Phattalung Province .
Distribution	Malay Peninsula.
Ecology	In rice fields, on canal-banks, on mud-flats in river; altitude near sea level. Flowering November – January .
Uses	The young shoots and young inflorescences are eaten raw or cooked as a vegetable, (B).
Material studied	UBON 282
Reference	Ridl., Fl. Mal. Pen. 4 : 345. 1967.

Proteaceae

***Helicia robusta* (Roxb.) R.Br. ex Wall.**

Figure 54 E

Vernacular Niang rok (เนียงรอก) , Hang rok (หางรอก)

Small tree, 6 – 10 m tall; branchlets rufous pilose. **Stipules** absent. **Leaves** simple, spirally arranged; petioles very short; blades subcoriaceous, obovate, 15 – 25 by 7 – 12 cm, apex shortly acuminate, margins coarsely and sharply serrate, base narrowly and slightly cordate, upper surface glabrous, lower surface sprinkle with finely appressed hairs; midrib and nerves conspicuous on both surfaces; nerves 12 – 14 pairs. **Inflorescence** raceme, in the axils of the present or fallen leaves, 12 – 25 cm long; rachis and pedicels in bud densely covered with appressed hairs, later very laxly hairy; bracts triangular, minute. **Flowers** in pair, slender, bisexual; pedicels 5 – 7 mm long, connate above the base. **Perianth** light yellow or white, puberulous outside, 2 – 2.3 cm long, before anthesis narrow and straight; perianth segments 4, during anthesis free, initially erect, afterwards revolute, narrow with a broadened top. **Stamens** 4, nearly sessile, inserted at the base of perianth-segments, anthers oblong, connective apiculate. Disk well-developed of 4 separate glands, white c. 0.5 mm high. **Ovary** superior, ovoid, 1.5 by 1 mm, glabrous, 1-loculed; ovules 2 in each locule; style slender, 1.8 cm long; stigma clavate. **Fruit** a drupe, subglobose, 2 – 3 cm diam. **Seeds** 1 – 2, subglobose.

Locality	Ban Khao Khram, Srinakharin Subdistrict, Pattalung Province.
Distribution	India, Bangladesh, Burma, Malaysia, Philippines.

- Ecology In lowland evergreen forest, rubber plantations; altitude 80 m. Flowering January – April; fruiting May – September.
- Uses The young leaves and young inflorescences are eaten raw as a vegetable, (B).
- Material studied UBON 858 , BKF 3305
- Reference Backer & Bakh.f., Fl. Java. 1 : 275. 1963 ; Na-Songkhla, Fl. Thail. 5(1) : 115. 1987.

Pteridaceae

Stenochlaena palustris (Burm.f.) Bedd.

Figure 73 E

Vernacular Lam theng (ลำเทิ่ง)

Terrestrial or epiphytic fern, scrambling over swampy ground or climbing on tree-trunk. Rhizome terete, 5 – 8 mm diam., green, glabrous, only scaly at the apex; scales peltate, brown. **Stipes** 15 – 20 cm long, glabrous; rachis slightly grooved on the upper surface. **Fron**ds simply pinnate, distinctly dimorphic, red when young, 40 – 70 cm long, with about 5 – 18 pairs of pinnae and a similar terminal pinna. Sterile pinnae shortly stalked, coriaceous, oblong, 10 – 15 by 2 – 3 cm, apex acuminate, margins sharply and irregularly serrate, base cuneate, glabrous, shiny green above; veins close, straight at a broad angle to the midrib, simple or forked. Fertile pinnae as many as the sterile ones, 15 – 20 by 0.3 – 0.5 cm, with sporangia on the whole lower surface.

- Locality Ban To Daeng, Su-ngaikolok District, Narathiwat Province.
- Distribution India, Indo-China, Malesia, Australia.
- Ecology Common in rather wet ground in open places; climbing on tree in secondary forest, forest edges in the lowland; at altitude near sea level.
- Uses The young leaves are cooked in various ways as a vegetable, (B, M); they are also eaten raw to treat biliuria, (B). A piece of young stem (4 cm long) together with few flowers of *Microcos tomentosa* Sm. and a small piece of a young leaf of *Licuala spinosa* Thunb. are chewed, and then spat to the affected areas to treat herpes infection, (M).
- Material studied UBON 1171
- Reference Tagawa & Iwatsuki , Fl. Thail. 3(2) : 259. 1985.

Rhamnaceae***Zizyphus mauritiana* Lam.**

Vernacular Phut sa (พุทรา)

Small tree, up to 7 m tall; young branches densely hairy; branchlets usually drooping. **Leaves** simple, distichous; petioles 0.5 – 1.5 cm long, with 2 stipular prickles at node near the base; blades coriaceous, ovate-elliptic, 3 – 6 by 2 – 4 cm, apex rounded or obtuse, margins shallowly serrate, base obliquely cuneate, shining dark green and glabrous above, except on nerves, tomentose beneath; tri-nerved at base, with marginal veins conspicuous. **Inflorescence** cymose, axillary, 1.5 cm long; peduncles 5 mm long; pedicels 8 mm long. **Flowers** bisexual, small, 4 mm across. **Calyx** greenish-yellow, funnel-shaped, tube very short, 5-lobed; lobes triangular acute, densely pubescent outside. **Petals** 5, free, shortly clawed, yellowish-white. Disk filling the calyx-tube, slightly lobed. **Stamens** 5, inserted within petals. **Ovary** half-inferior, 2-loculed; ovule 1 in each locule; styles 2, connate at the base. **Fruit** a drupe, globose, glabrous, 1.5 – 2 cm. diam., ripening yellow. **Seed** 1.

Locality Ban To Daeng, Su-ngaikolok District, Narathiwat Province.

Distribution Tropical Africa, India.

Ecology In dry areas, open places, roadsides; altitude near sea level. Flowering May – July; fruiting August – February.

Uses The mature green fruits and the ripe ones are eaten fresh or Pickled, (B, M). The leaves are soaked in water, and then this water is used to bath a corpse before being buried, (M).

Material studied UBON 1382

Reference Ng., Tree Fl. Mal. 4 : 300. 1989.

Rhizophoraceae***Bruguiera cylindrica* (L.) Blume**

Figure 30 E

Vernacular Thua khao (ถั่วขาว)

Tree, up to 23 m tall, with knee-like pneumatophores. **Stipules** lanceolate, 2.5 – 3.5 cm long. **Leaves** simple, opposite; petioles 1 – 4 cm long; blades coriaceous, elliptic, 7 – 12 by 2 – 5 cm, apex acuminate, margins entire, base cuneate, glabrous on both surfaces, dark green above, paler beneath. **Inflorescence** cyme, 3-flowered, in axil of the upper leaf; peduncles 6 – 8 mm long; pedicels 1 – 4 mm long. **Flowers** bisexual, pale green. **Calyx** campanulate, tube 4 – 6 by 2 mm, 8-lobed; lobes subulate-lanceolate, half length of the calyx. **Petals** 8, free, 3 – 4 mm long, obovate, 2-lobed with 2 or 3 bristles at the apex, caducous. **Stamens** 10, 1.5 – 2.5 mm long. **Ovary** inferior, 2 – 4 locules; ovules 2 in each locule; style filiform;

stigma 2 – 4 lobes. **Fruit** included in the calyx tube. **Seeds** germinating and hypocotyl growing from the fruit while on the tree; hypocotyl cylindrical, slightly curved, 8 – 15 by 0.5 cm.

Locality	Ban Ta Se, Hat Samran Subdistrict, Trang Province.
Distribution	SE.Asia, N.Australia.
Ecology	In mangrove forest, on stiff clay. Flowering and fruiting throughout the year; altitude at sea level.
Uses	A juice form the crushed fruits is taken to treat diarrhea, (M).
Material studied	UBON 1097, BKF 62310
Reference	Hou, Fl. Thail. 2(1) : 9. 1970.

***Ceriops tagal* (Perr.) C.B. Rob.**

Figure 32 C – D

Vernacular Prong daeng (ไปรงแดง) , Mae (เหมม)

Tree, up to 20 m tall; stem with stilt roots , up to 1 m tall. Pneumatophores present. **Stipules** lanceolate, 1.5 – 2.5 cm long. **Leaves** simple, decussate, clustered at the end of the twigs; petioles 1.5 – 3.5 cm long; blades thickly coriaceous, obovate to ovate-oblong, 5 – 10 by 2 – 5 cm, apex obtuse or sometimes slightly emarginated, margins entire, base cuneate, glabrous; midrib prominent beneath; nerves inconspicuous. **Inflorescence** condensed cyme, in axils of the upper leaves, 2 – 3 cm long ; bracts and bracteoles 2 at the base of the flowers; pedicels short. **Flowers** bisexual, 7 mm long, 1 cm across. **Calyx** deeply 6-lobed; lobes ovate, acuminate, 4 mm long, reflexed in fruit. **Petals** 5, free, white turning light brown, oblong, coherent at the base with uncinat hairs, 3.5 by 2 mm, with 3 clavate appendages at the apex. **Stamens** 10, 3 mm long, alternately longer and shorter. **Ovary** semi-inferior, 3-loculed; ovule 2 in each locule; style short; stigma minute. **Fruit** ovoid. Seed germinating and hypocotyl growing from the fruit while on tree; hypocotyl 15 – 25 cm long, clavate, tapering to the apex, ridged and sulcate.

Locality	Ban Ta Se, Hat Samran Subdistrict, Trang Province.
Distribution	E. Africa, Madagascar, Tropical Asia, Malesia, Australia.
Ecology	In mangrove forest; altitude at sea level. Flowering and fruiting throughout the year.
Uses	The young fruits are eaten raw as a vegetable, (M).
Material studied	UBON 1094
Reference	Hou, Fl. Thail. 2(1) : 11. 1970.

***Rhizophora apiculata* Blume**

Vernacular Kong kang (โกงกาง), Phangka bai lek (พังกาใบเล็ก)

Tree, up to 30 – 40 m tall, with stilt roots arising at close to right angles to the main trunk; crown narrow, pyramidal. **Stipules** lanceolate, 4 cm long, red. **Leaves** simple, decussate; petioles 2–2.5 cm long; blades coriaceous, elliptic, elliptic-oblong, 7 – 18 by 4 – 8 cm, apex acute, margins entire, base cuneate, glabrous on both surfaces; midrib raised beneath; nerves inconspicuous. **Inflorescence** stiff, 2-flowered, symmetrically paired, in the axils of leaf-scars; peduncles very short, thick; bracteoles cupular, fleshy. **Flowers** bisexual, sessile, 3 cm diam. at anthesis. **Sepals** 4, free, fleshy, ovate, acute, concave, brownish-yellow, 1.5 by 0.7 cm. **Petals** 4, free, oblong, shorter than the sepals, white, membranous, caducous. **Stamens** 8–12, sessile. **Ovary** semi-inferior, 2-loculed; ovules 2 in each locule. **Fruit** berry, obpyriform, 2 – 2.5 cm long, brown, rough, bearing the persistent calyx. **Seed** 1. Seeds germinating in the fruit attached to the tree; hypocotyls protruding from the fruit, cylindrical club-shaped, blunt, purplish-green, 30 – 40 cm long, 10–12 mm diam.

Locality	Ban Ta Se, Hat Samran Subdistrict, Trang Province.
Distribution	Sri Lanka, SE.Asia, throughout Malaysia to Micronesia and N.Australia.
Ecology	Common in mangrove forest; altitude at sea level. Flowering and fruiting throughout the year.
Uses	The wood is used as fuel and for the production of charcoal; it is also used for construction of furniture and implements, (B, M).
Material studied	UBON 1064, BKF 130435
Reference	Hou, Fl. Mal. Ser. 1. 5(4) : 452. 1985.

***Rhizophora mucronata* Lamk**

Vernacular Kong kang (โกงกาง), Phangka bai yai (พังกาใบใหญ่)

Tree, up to 27 m tall, with stilt roots similar to those of *R. apiculata* but curve somewhat more as they seek the muddy substratum. **Stipules** lanceolate, 7 mm long, red. **Leaves** simple, decussate; petioles 3 – 4 cm long; blades coriaceous, broadly elliptic to oblong, 11–18 by 5 –10 cm, apex acute, margins entire, base cuneate, glabrous on both surfaces; nerves inconspicuous. **Inflorescence** 2 – 3 times forked, 2- to 8- flowered, in leaf axils; peduncles 3 – 5 cm long; pedicels 4 – 8 mm; bracteoles connate at their base, 2-lobed; lobes deltoid, acute. **Flowers** bisexual, 2 – 2.5 cm diam. at anthesis. **Sepals** 4, free, fleshy; lobes triangular, 1.2 by 0.6 mm, pale yellow. **Petals** 4, free, white, membranous, lanceolate, caducous, 12 by 4 mm, densely hairy along the margins. **Stamens** 8, sessile. **Ovary** semi-inferior, 2-loculed; ovules 2 in each locule. **Fruit** berry, elongate-ovoid, 3 – 8 by 2 – 3.5 cm, brown,

rough, bearing the persistent calyx. **Seed** 1. Seeds germinating in the fruit attached to the tree; hypocotyls cylindrical, strongly rugose, 35 – 60 cm long, 1.5 – 2 cm diam.

Locality	Ban Ta Se, Hat Samran Subdistrict, Trang Province.
Distribution	E. Africa through Asia and Malaysia to NE. Australia and the Pacific Islands.
Ecology	Common in mangrove forest; altitude at sea level. Flowering and fruiting throughout the year.
Uses	The wood is used as fuel and for the production of charcoal, (B, M).
Material studied	UBON 1067, BKF 076424
Reference	Hou, Fl. Mal. Ser. 1. 5(4) : 453. 1958.

Rosaceae

Rubus moluccanus L.

Figure 70 B

Vernacular Fa laep (ฟ้าแลบ)

Climbing shrub; branches grey-tomentose, covered with minute hooked prickles. **Stipules** joined to the stem, pinnatifid, segments lanceolate. **Leaves** simple, alternate; petioles 5 – 6 cm long; blades suborbicular, 10 – 14 by 8 – 11 cm, 3- to 8-palmatilobed; lobes acute, denticulate; base deeply cordate; sparsely hairy above, tomentose beneath; nerves 5 – 7 pairs. **Inflorescence** terminal and axillary panicles, 5 – 10 cm long; pedicels 1 cm long; bracts ovate, incised. **Flowers** bisexual, white, 1.5 cm across. **Calyx** campanulate, tomentose outside, 5-lobed; lobes ovate acuminate, incised, 5 – 9 mm long. **Petals** 5, free, ovate, 4.5 by 3.0 mm. **Stamens** numerous, free; filaments flattened; anthers hairy at apex. **Ovary** superior of 40 free carpels, on convex receptacle; styles filiform, longer than the filaments; stigma bilobed. **Fruit** globose, 1.5–2 cm diam., reddish, consisting of numerous drupelets .

Locality	Ban Ton Sai, Srinakharin Subdistrict, Phattalung Province.
Distribution	Burma, Laos, Vietnam, Malay Peninsula, Indonesia.
Ecology	In open places, roadsides; altitude 80 m; cultivated for medicinal purpose. Flowering and fruiting throughout the year.
Uses	The young leaves are cooked as a vegetable, (B). The stems and leaves are used as ingredients in the formula F1 used as a blood circulation tonic, and for the treatment of bodily discomfort, (B).

Material studied UBON 1048 , BKF 99070

Reference Vidal, Fl. Thail. 2(1):57. 1970.

Rubiaceae

Chassalia curviflora (Wall.) Thwaites

Vernacular Plai sarn (ปลายสาร)

Erect shrub up to 2 m tall, glabrous. **Stipules** broadly triangular, each pair slightly fused at the base. **Leaves** simple, opposite; petioles 8–10 mm long; blades elliptic, 10 – 13 by 4 – 6 cm, apex acuminate, margins entire, base narrowed, glabrous, shining dark green; nerves 6 – 7 pairs. **Inflorescence** terminal cyme, 2.5 – 5.0 cm long, branches succulent and white. **Flowers** bisexual, small, white. **Calyx** campanulate with 5 short triangular lobes. **Corolla** tubular, 2 cm long, slightly curved at tip, pubescent inside, 5-lobed; lobes short, ovate, valvate, white, hardly expanded, mouth yellow. Disk purple, conic truncate. **Stamens** 5, subsessile, inserted at the upper part of the corolla tube, included. **Ovary** inferior, 2-loculed; ovule 1 per locule; style bifid. **Fruit** a globose drupe, ripening black, born on the thicken white fleshy branches. **Seeds** 2.

Locality Ban Mai, Su-ngai-padee District, Narathiwat Province.

Distribution India, Sri Lanka, Malay Islands.

Ecology In evergreen rain forest; altitude near sea level. Flowering and fruiting throughout the year.

Uses The young leaves and young inflorescences are eaten raw as a vegetable. It is said to increase potency in men; for this purpose, it can be taken alone or used in combination with fresh leaves of *Polyscias fruticosa* (L.) Harm. The roots are rubbed against an earthenware pot, using water as a solvent, and then a suspension is taken as a poison antidote, (B, M).

Material studied UBON 360 , BKF 084604

Reference Wong, Tree Fl. Mal. 4 : 344. 1989.

Gynochthodes sublanceolata Miq.

Figure 53 D

Vernacular Phan samo (พันสมอ), Nang dam (นางดำ), Pe tae (เป้แต)

Slender woody climber, stem terete, 3 – 5 m long, glabrous. **Stipules** small, ovate acuminate. **Leaves** simple, opposite; petioles 0.4 – 0.7 cm long; blades thinly coriaceous, elliptic-lanceolate, 5 – 9 by 1 – 4 cm, apex pointed, acute to acuminate,

margins entire, base cuneate, glabrous on both surfaces; nerves 5 – 6 pairs. **Inflorescence** axillary umbell. **Flowers** bisexual, white, small. **Calyx** cup-shaped, very short, truncate. **Corolla** salver-shaped, tube short 3 mm long, hairy inside, deeply 5-lobed; lobes broadly lanceolate, acute. **Stamens** 5. **Ovary** inferior, 4-loculed; ovule 1 in each locule; style bifid. **Fruit** a drupe, globose, 0.8 cm in diam., ripening black. **Seeds** 2 – 4.

Locality Ban Pa Ye, Su-ngai-padee District, Narathiwat Province.

Distribution Borneo, Sumatra.

Ecology In secondary forest, slightly shady places, wet places and along peat swamp margins; altitude near sea level. Flowering and fruiting throughout the year.

Uses The young leaves are eaten raw as a vegetable with the side effect of relieving flatulence; a juice from the crushed leaves is used in traditional rice cooking, this cooked rice becomes dark purple and it is usually made into a favorite authentic dish “Khaw Yam”, (B, M).

Material studied UBON 1172, BKF 132808

Reference Ridl., Fl. Mal. Pen. 2 : 122. 1967.

***Hedyotis capitellata* Wall. ex G. Don**

Figure 54 C

Vernacular Tong haeng yan (ตองแหงย่าน) , Ne ma ka koh (นีมากาโก้)

Climbing herb; stem slender, much-branched. **Stipules** of each pair of leaves connate at base and adnate to base of petioles, forming a sheath with small coarse teeth. **Leaves** simple, opposite; petioles 0.5 – 1.0 cm long; blades thinly coriaceous, elliptic, 6 – 10 by 1.5 – 4 cm, apex acuminate, base cuneate, margins entire, glabrous on both surfaces; nerves 3 – 4 pairs, curving upwards. **Inflorescence** panicle consisting of many heads, axillary and terminal, 8 cm long; head 1.5 cm diam. **Flowers** bisexual, small, white. **Sepals** 4, shortly connate; lobes acute. **Petals** 4, shortly connate, 5 mm long, lobes linear, apex obtuse, pubescent inside. **Stamens** 4, filaments pubescent. **Ovary** half-inferior, 2-loculed, ovules many in each locule. **Fruits** loculicidal capsule, crowned by calyx-limb.

Locality Ban Lu Bo Sa Ma, Su-ngai-ko-lok District, Narathiwat Province.

Distribution Burma, Laos, Vietnam, Malay Islands.

Ecology Common in lowland and secondary peat swamp forest; altitude near sea level. Flowering and fruiting July – October.

Uses The whole plant is used as an ingredient in the formula F26 used to treat insect bites and contusion, (M). The roots together with benzoin are rubbed against an earthenware pot, then a mixture obtained is used to cure venereal sores; it is applied externally onto the affected areas, (M).

Material studied UBON 366 , BKF 088237

Reference Fukuoka , The Southeast Asian Studies. 8(3) : 326. 1970.

***Hedyotis corymbosa* (L.) Lamk**

Vernacular Ya lin ngu (หญ้าลิ้นงู)

Erect herb, up to 30 cm tall, branches from base; stem quadrangular, glabrous, pale green. **Stipules** interpetiolar, membranous, with several marginal bristles up to 2 mm long. **Leaves** simple, opposite; petioles often indistinct; blades thinly herbaceous, linear-lanceolate, 1.0–2.5 by 0.3 – 0.4 cm, apex acute, base narrowed, margins finely denticulate; midrib distinct, other veins obscure. **Inflorescence** axillary, cymose, 1.5 – 2.5 cm long; pedicels 9 mm long. **Flowers** few, bisexual, 2 mm long. **Calyx** campanulate, 4-lobed; lobes triangular, 1 mm long, green. **Corolla** campanulate, white with pale purple patch, 4-lobed; lobes elliptic, very finely papillose inside, throat with a ring of white bristles which close the the throat. **Stamens** 4, minute, inserted slightly above the base of corolla tube. **Ovary** inferior, 2-loculed, ovule numerous; style bifid. **Fruit** a capsule, ellipsoid, slightly compressed, flat-topped, crowned with the calyx lobe, ripening pale brown, 1.5 by 2.0 mm.

Locality Ban Huay Ngo, Khok Pho District, Pattani Province.

Distribution Tropical and subtropical region of the World.

Ecology Common in open place, sandy places; altitude 40 m. Flowering and fruiting throughout the year .

Uses A decoction of the whole plant is taken as a remedy for the treatment of cancer, (B).

Material studied UBON 1355, BKF 35556

Reference Fukuoka , The Southeast Asian Studies. 8(3) : 333. 1970.

***Hedyotis pachycarpa* Ridl.**

Vernacular Tong haeng (ตองเหียง)

Erect herb, up to 60 cm tall, stem and branches terete, glabrous, green. **Stipules** comb-shaped, with spiny lobes, 1.0 by 0.6 cm. **Leaves** simple, opposite; petioles 3 mm long; blades thickly membranous, lanceolate, 9 –11 by 2.5 – 4 cm, apex

acuminate, base long narrowed, margins entire, glabrous on both surfaces; nerves 7 – 8 pairs, distinctly raised on the lower surface. **Inflorescence** axillary cyme, sessile, 1.5 cm across. **Flowers** small, 4 mm long. **Calyx** campanulate, 4-lobed; lobes lanceolate, rather broad acute, 2 mm long, pubescent outside. **Corolla** campanulate, white, 2.5 mm long, 4-lobed; lobes ovate, 1 mm long, pubescent inside. **Stamens** 4, white. **Ovary** inferior, 2-loculed, ovules numerous; style bifid. **Fruit** a globose capsule.

Locality	Ban Ton Panun, Khuan Kalong District, Satun Province.
Distribution	Malay Peninsula, S.Vietnam, Cambodia.
Ecology	Common in open places or in light forest, humid forest; altitude 70 m. Flowering and fruiting throughout the year.
Uses	A decoction of the roots is taken as a remedy to stop post partal hemorrhage, (M).
Material studied	UBON 378 , BKF 52051
Reference	Fukuoka , The Southeast Asia Studies. 8(3) : 314. 1970.

***Hydnophytum formicarum* Jack**

Figure 55 E – F

Vernacular Hua roi ru (หัวร้อยรู)

Epiphytic shrubs, 30 – 60 cm tall; stem at base markedly thickened to large superterraneous tubers which tunnelled and perforated forming an ant's nest; tuber large, irregularly lobed, brown fleshy, with roots from its base. **Stipules** triangular, cuspidate. **Leaves** simple, opposite; petioles 2 – 3 mm long; blades thickly coriaceous, glabrous, elliptic, 4 – 8 by 2 – 5 cm, apex blunt, base cuneate, margins entire; nerves 4 – 5 pairs, slightly raised on upper surface, inconspicuous beneath. **Flowers** few together in axils of leaves, bisexual, sessile, 3 mm long. **Calyx** small, ovoid cylindrical, limb truncate, sparsely pubescent outside. **Corolla** salver-shaped, white; tube 2 mm long, glabrous outside, hairy inside, 4-lobed; lobes fleshy, elliptic obtuse, 2 mm long. **Stamens** 4, exserted. **Ovary** inferior, 2-loculed; ovules 2 per locule; style 2.5 mm long, glabrous; stigma 2-branched. **Fruit** narrowly ovoid, constricted at tip, orange-red, pulpy.

Locality	Ban Khao Khram, Srinakharin Subdistrict, Phattalung Province.
Distribution	Borneo.
Ecology	On trees, both near the sea and in mountain forest; altitude 110 m. Flowering and fruiting December – February.
Uses	The whole plant is chopped, dried, and then pounded. Then 1 teaspoonful of the powder is mixed with a glass of water, and drunk as a blood circulation tonic. The whole plant is also

used as an ingredient in the formula F5 taken as a tonic and to relieve lumbago, (B). The swollen bases of the stems are used to relieve fever; they are chopped, and soaked in water. Then this water is used as a bath for a patient. The stem is also used as an ingredient in the formula F11 to treat cancer, (M).

Material studied UBON 397, BKF 089459

Reference Ridl., Fl. Mal. Pen. 2 : 172. 1965.

***Ixora javanica* (Blume) DC.**

Figure 56 F

Vernacular Khem thong (เข็มทอง)

Shrub, up to 3 m tall, glabrous. **Stipules** interpetiolar, connate at base into a short sheath, needle-like acuminate. **Leaves** simple, opposite; petioles 5 – 8 mm long; blades coriaceous, elliptic-oblong, 7 – 13 by 3 – 5 cm, apex broadly acuminate, base cuneate, margins entire; nerves 6 – 8 pairs. **Inflorescence** terminal, compound cyme, 8 cm across; peduncles red, sparsely pubescent. **Flowers** bisexual, orange. **Calyx** campanulate, small, 4-lobed, red. **Corolla** orange, salver-shaped, tube 3 cm long, 4-lobed; lobes ovate, blunt, 9.0 by 5.5 mm. **Stamens** 4, filaments much shorter than the corolla-lobes. **Ovary** inferior, 2-loculed; ovule 1 per locule; style slightly exserted; stigma 2-branched, orange. **Fruit** a globose drupe, 8 mm diam., ripening black.

Locality Ban Ton Panun, Khuan Kalong District, Satun Province.

Distribution Malaysia.

Ecology Common in secondary forest, edges of forest; altitude 50 m. Flowering and fruiting throughout the year.

Uses A decoction of the roots is taken daily as a blood circulation tonic, (M).

Material studied UBON 381, BKF 106699

Reference Backer & Bakh.f., Fl. Java. 2 : 325. 1965.

***Lasianthus hirsutus* (Roxb.) Merr.**

Figure 57 D

Vernacular Ruesi som (ฤๅษีสอม)

Erect shrubs, 2 – 3 m tall, hairy. **Stipules** triangular, pubescent, 5 – 10 mm long, not connate into a tube. **Leaves** simple, opposite, mostly all in one plane; petioles 0.8 – 1.0 cm long, densely pubescent; blades coriaceous, obovate-lanceolate, 20 – 24 cm by 4 – 7 cm, apex acuminate, margin entire, base slightly unequal (on one side acute, on the other side obtuse-rounded), distinctly pubescent on both sides; nerves 7 – 13 pairs. Bracts dissimilar, numerous, densely covered with long rough hairs on both sides; the outer one foliaceous, ovate, 2.0 – 2.5 cm by 0.8 – 0.1 cm, inner ones lanceolate, slightly shorter than the outer ones. **Inflorescences**

fascicles, axillary and opposite, sessile. **Flower** bisexual, white. **Sepals** 5, connate at base, 2.8 mm long, densely pubescent. **Corolla** funnel-shaped, 1.5 cm long, tube short, glabrous outside, pilose inside in the widened part, glabrous towards base; lobes 5, acuminate, 4 mm long. **Stamens** 5, in throat of corolla; anthers 2-locular, longitudinal dehiscent; filaments short, glabrous. **Ovary** inferior, 5-loculed; ovule 1 in each locule; style 8 mm long; stigma 5-lobed. **Fruit** a drupe, obovoid, blue, pulpy, sparsely pubescent; crowned by a conspicuous, pubescent calyx. Pyrenes 5, 1-seeded .

Locality	Ban Bon Khuan, Rattaphum District, Songkhla Province.
Distribution	India, Bangladesh, Malaysia, Indonesia, China, Indo-China, Burma, Philippines.
Ecology	Common in hill forest, on limestone; altitud 120 m. Flowering and fruiting throughout the year.
Uses	The whole plant is usually added to various traditional remedies used to treat various ailments and diseases ; it is believed to promote the remedies more powerful. A decoction of the roots is taken as a tonic, (M). The crushed leaves mixed with a little amount of lime juice, and then used as a poultice applied over the affected areas to cure a rash due to irritant hairy caterpillars,(B).
Material studied	UBON 798 , BKF 94470
Reference	Backer & Bakh.f., Fl. Java. 2 : 339. 1965.

***Mitragyna speciosa* (Roxb.) Korth.**

Figure 63 C

Vernacular Thom (ท่อม)

Tree, up to 25 m tall, glabrous. **Stipules** lanceolate, 4.5 by 2 cm. **Leaves** simple, opposite; petioles 4 – 5 cm long; blades elliptic, oblong-ovate, 19 – 22 by 10 – 12 cm, glabrous above, glabrous to slightly hairy beneath; apex acuminate, margins entire to serrate near the apex, base rounded; nerves 15 – 17 pairs, midrib and nerves red and prominent beneath, with pale-hairy domatia at the nerve axils. **Inflorescence** globose head, terminal, 2.5 – 3.5 cm across; peduncles 5 mm long, with 2 petioled leafy bracts; inter floral bracteoles many, spatulate, 6 mm long, pale green. **Flowers** bisexual, small, dense. **Calyx** tubular, 1 – 2 mm long, truncate, membranous. **Corolla** deep yellow, salver-shaped, tube 6 mm long, glabrous outside, densely hairy inside at the throat, 5-lobed; lobes lanceolate, 5 by 2 mm, thickened at tip, glabrous. **Stamens** 5, filaments short, inserted at the corolla throat; anthers lanceolate cordate, 2 mm long. **Ovary** inferior, 2-loculed; ovules numerous; style exserted, 1 cm long; stigma mitriform. **Fruiting** heads globose, 3 – 4 cm across, black; fruitlets ellipsoid, dehiscent from the apex downwards. **Seeds** small, numerous.

Locality Ban Lu Bo Sa Ma, Su-ngaikolok District, Narathiwat Province.

- Distribution Malaysia, Sumatra, Borneo, Philippines, New Guinea
- Ecology In secondary forest, near streams and swamps; cultivated; altitude near sea level. Flowering September – October; fruiting December–February.
- Uses The leaves are eaten raw to treat diarrhea and abdominal pain. A decoction of the leaves of this plant species and young shoot of *Nypa fruticans* Wurm. is drunk daily for the treatment of diabetes, (M). They are used as an ingredient in the formula F30 used to relieve lumbago, (B).
- Material studied UBON 794
- Reference Ridl., Fl. Mal. Pen. 2 : 6. 1967 ; Ng., Tree Fl. Mal. 4 : 375. 1989.

***Morinda citrifolia* L.**

Vernacular Yo ban (ยอบ้าน), Yo (ยอ)

Tree, up to 9 m tall; branchlets obtusely quadrangular, glabrous; bark greyish-brown, shallowly fissured. **Stipules** interpetiolar, broadly triangular. **Leaves** simple, opposite; petioles 1 – 1.5 cm long; blades thickly herbaceous, broadly elliptic or elliptic-lanceolate to obovate, 20 – 30 by 14 –16 cm, apex acute or obtuse, margins entire, base acute, glabrous on both surfaces, glossy dark green above, paler beneath, with hairy domatia in nerve-axils underside; nerves 6 – 8 pairs. **Inflorescences** axillary head; heads subglobose, 1.5 by 1.5 cm; peduncles 3 – 4 cm long, slender. **Flowers** bisexual. **Calyx** tubes cohering forming the flowering head, green, fleshy. **Corolla** white, salver-shaped, tube 1 cm long, glabrous outside, hairy at the throat inside, 5-lobed; lobes oblong acute, 5 mm long, reflexed. **Stamens** 5, inserted just below the throat, included. **Ovary** inferior, 4-loculed; ovule 1 in each locule; style slender, 2-branched. **Fruit** syncarp, ovoid, fleshy bullate, 10 by 5 cm, ripening pale yellow.

Locality Ban Hua Yang, Rattaphum District, Songkhla Province.

Distribution India to Indo-China and Malesia.

Ecology Cultivated in villages; altitude 70 m. Flowering and fruiting throughout the year.

Uses The young leaves are cooked as a vegetable, (B, M). A cupful of a decoction of the fruits is drunk daily as a Tonic, (M). The fruits are pickled in rice water, into which a little amount of salt is added, and then the fruits are fed to cattle as a tonic for good overall health, (B).

Material studied UBON 1270 , BKF 59110

Reference Ng., Tree Fl. Mal. 4 : 377. 1989.

***Morinda elliptica* (Hook. f.) Ridl.**

Figure 64 B

Vernacular Yo pa (ยอป่า), Yo (ยอ)

Tree, to 16 m tall. Bark greyish-brown. **Stipules** interpetiolar, broadly triangular. **Leaves** simple, opposite; petioles 1 – 2 cm long; blades coriaceous, narrowly elliptic, often slightly folded up along the midrib, 10 – 19 by 3.5 – 7 cm, apex acute, margins entire and slightly undulate, base cuneate, glabrous on both surfaces, dark green above, paler beneath with hairy domatias in nerve-axils underside; nerves 6 – 9 pairs. **Inflorescences** head, terminal, subglobular or ovoid, 0.8 – 1 cm long, many-flowered; peduncles 2 – 5 cm long, slender. **Flowers** bisexual. **Calyx** tubes cohering forming the flowering heads, green. **Corolla** white, salver-shaped, tube 6-9 mm long, slender, glabrous on both sides; lobes 4 – 5, linear triangular, 9 by 2–3 mm, reflexed. **Stamens** 4 – 5, inserted in the throat, exserted. **Ovary** superior, 2-loculed; ovule 1 in each locule; style 2-branched. **Fruit** syncarp, globose to ovoid or oblong, 2.5 – 3.5 by 2 – 2.5 cm, ripening black.

Locality	Ban Hua Yang, Rattaphum District, Songkhla Province.
Distribution	Burma, throughout Malaysia.
Ecology	Common in the open places and secondary forest in the lowlands, on rock by the sea; altitude 70 m. Flowering and fruiting throughout the year.
Uses	The young leaves are eaten cooked; local people usually use a juice from the crushed leaves for rice cooking, (B, M). A decoction of the fruits is drunk to relieve hiccough, nausea, (B). The stem is cut and then soaked in water until the water becomes yellow, and then this water is used to dye fabric, (B).
Material studied	UBON 1267, BKF 081089
Reference	Ng., Tree Fl. Mal. 4 : 377. 1989.

***Mussaenda glabra* Vahl.**

Vernacular Balix a-da (บาลิกอด้ะ)

Climber, glabrous. **Stipules** bifid, narrow-lanceolate, 2 – 3 mm long, puberulous. **Leaves simple**, opposite; petioles 8 mm long; blades coriaceous, elliptic, 9 – 11 by 3 – 4.5 cm, apex acuminate, margins entire, base tapered, glabrous or puberulous on nerves beneath; nerves 5 – 6 pairs. **Inflorescences** compound cyme, terminal, spreading. **Flowers** bisexual, 2 cm long. **Calyx** campanulate, 4 – 5 mm long, 5 hairy teeth; in one to several flowers in an inflorescence with one lobe distinctly enlarged, white, glabrous, broadly ovate, 8 by 6 cm, apex acute, base rounded, with long stalk. **Corolla** orange, narrowly funnel-shaped, hairy, 5-lobed; lobes ovate, 5 mm long, expanded. **Stamens** 5, inserted below the throat. **Ovary**

inferior, 2-loculed, ovules numerous; style filiform, bifid, 2 cm long. **Fruit** green, berry, oblong, glabrous. **Seeds** many.

Locality	Ban Lu Bo Sa Ma, Su-ngaikolok district, Narathiwat Province.
Distribution	Malay Islands.
Ecology	Common in the lowland in open places, edges of forest, primary forest, secondary forest; altitude 20 m. Flowering and fruiting throughout the year.
Uses	The young leaves are eaten raw as a vegetable with the side benefit of curing flatulence, (M).
Material studied	UBON 370, BKF 36592
Reference	Ridl., Fl. Mal. Pen. 2 : 61. 1967.

***Mussaenda wallichii* G.Don**

Figure 64 D

Vernacular Bao mamuet (ป่าวม้าเม็ด)

Shrub, 2 m tall, erect, glabrous. **Stipules** interpetiolar, bifid, pubescent. **Leaves** simple, opposite; petioles 1 – 2 cm long; blades herbaceous, elliptic-ovate or lanceolate, 10 – 17 by 5 – 7 cm, apex long acuminate, margins entire, base attenuate, glabrous above, finely pubescent beneath; nerves 6 – 9 pairs. **Inflorescences** compound cyme, terminal, 6–10 cm long, lax-flowered; bracts subulate; pedicels short. **Flowers** bisexual. **Calyx** tubular, 5-lobed, lobes linear acute, 2 mm long, glabrous; one lobe of the central flower in a cyme enlarged, petaloid, white, broadly ovate. **Corolla** salver-shaped, tube elongate, 2 – 2.5 cm long, throat villous, 5-lobed; lobes narrowly lanceolate, acute, 6 – 7 mm long, bright yellow, glabrous. **Stamens** 5, inserted below the throat; filaments short. **Ovary** inferior, 2-loculed; ovules numerous; style filiform, bifid. **Fruit** a berry, oblong, 1 by 0.6 cm. **Seeds** numerous, minute, subglobose.

Locality	Ban Khoa Khram, Srinakharin Subdistrict, Phattalung Province.
Ecology	In evergreen forest, by the streams; altitude 100 m. Flowering and fruiting throughout the year.
Uses	The whole plant is used as an ingredient in the formula F6 used by men as a tonic; it is said to increase potency, (B).
Material studied	UBON 1059, BKF 48228
Reference	Hooker, Fl. Brt. Ind. 3 : 88. 1880

Paederia foetida L.

Figure 66 B

Vernacular Yan pha hom (ย่านพาโหม)

Slender twiner, stem terete, young parts pubescent. **Stipules** interpetiolar, triangular, entire, caducous. **Leaves** simple, opposite, foetid when bruised; petioles 0.5 – 2.0 cm long; blades membranous, ovate to lanceolate, 6 – 10 by 2 – 4 cm, apex acute, base rounded, margins entire, upper surface glabrous, lower surface pubescent only on midrib and veins; nerves 4 – 5 pairs. **Inflorescences** axillary cymose panicle, much-branched, up to 30 cm long. **Flowers** bisexual, 8 mm long, 7 mm through. **Calyx** campanulate, 2 – 5 mm long, 5-toothed; teeth triangular, green. **Corolla** funnel-shaped, 5-lobed, densely white-floccose outside, dark purple inside; tube within in upper half with numerous long, claviform, and purple hairs; lobes recurved, 2.5 mm long and 3 mm wide, margins crispy, glabrous, white. **Stamens** 5, inserted in corolla-tube at different levels. **Ovary** inferior, 2-loculed; ovule 1 per locule. Stigmas 2, filiform, twisted, 1 cm long. **Fruit** a drupe, globose, shiny orange-yellow, 4–6 mm diam. **Seeds** 2.

Locality	Ban Khao Khram, Srinakharin Subdistrict, Phattalung Province.
Distribution	Burma, Malay Islands, China, Japan.
Ecology	Common in open places, edges of forest; altitude 80 m. Flowering and fruiting December – February.
Uses	The young leaves are eaten raw as a vegetable, (B, M). The crushed leaves is used as a poultice applied over the affected areas to relieve joint pain, (B, M).
Material studied	UBON 387, BKF 120229
Reference	Backer & Bakh.f., Fl. Java. 2 : 347. 1965.

Prismatomeris tetrandra (Roxb.) K. Schum.

Vernacular Duk kai (ดูกไก่อ)

Shrub, 2 – 3 m tall, glabrous, branches 4-angled. **Stipules** interpetiolar, subtriangular, bifid. **Leaves** simple, opposite; petioles 0.5 – 1 cm long; blades chartaceous, ovate to elliptic, 5 – 15 by 1.8 – 6 cm, apex acuminate, margins entire, base cuneate, glabrous; nerves 5 – 7 pairs; tertiary veins on lower surface of dry leaves darker than the blade and distinct. **Inflorescences** terminal umbel, 4 – 5 cm long; peduncle 0.5 – 2 cm long; pedicels 1 – 1.5 cm long, slender. **Flowers** bisexual, c.10 per inflorescence, white. **Calyx** cup-shaped with 5 minute teeth, green, glabrous, 2 mm long. **Corolla** salver-shaped, tube cylindrical 7 mm long, glabrous, 5-lobed; lobes narrowly triangular, acute, 6 by 2 mm, valvate. **Stamens** 5, inserted slightly below throat, included; anthers 2.5 mm long. **Ovary** inferior, 2-loculed; ovule 1 in each locule; style filiform, bifid, 5 mm long. **Fruit** not found.

Locality	Ko Chap Pi Yai, Palain District, Trang Province.
Distribution	Malaysia, Indo-China.
Ecology	In open areas, secondary forest, rocky seashores; altitude at sea level. Flowering March – April.
Uses	The whole plant is used as an ingredient in the formula F28 taken to relieve lumbago, (M). A decoction of the roots is taken as a tonic. The roots are also used as an ingredient in the formula F20 for the treatment of fever, (B).
Material studied	UBON 1084, BKF 134817
Reference	Wong , Tree Fl. Mal. 4 : 395. 1989.

***Psychotria viridiflora* Reinw. ex Blume**

Figure 69 D

Vernacular Khem (เข็ญ)

Shrub, 1.0 – 1.5 m tall, glabrous. **Stipules** ovate, glabrous, with finely ciliate margins, caducous. **Leaves** simple, opposite; petioles 1.5 – 2.0 cm long; blades submembranous, elliptic to linear lanceolate, glabrous, lower side with domatias in axils of nerves, 13 – 20 by 4 – 5 cm, apex narrowed, base attenuate, margins entire; nerves 8 – 10 pairs, prominent beneath. **Inflorescences** terminal panicle, 4 – 6 cm long; peduncles short; rachis and pedicels sparsely pubescent. **Flowers** bisexual, small, 5 mm long, greenish-white. **Calyx** cupular, 5-lobed; lobes truncate, 1.5 mm long, sparsely pubescent outside. **Corolla** wide tubular; tube 1.5 mm long, glabrous on both sides; throat densely hairy; lobes 5, 2 mm long and 1 mm wide, ovate-oblong, glabrous. **Stamens** 5, exserted. **Ovary** inferior, 2-loculed; ovule 1 per locule; style 3 mm long, thickened towards apex, glabrous. **Fruits** baccate, ellipsoid, 3 mm long. **Seeds** 2, plano-convex, innerface smooth, back 5-ridged.

Locality	Ban Khao Khram, Srinakharin Subdistrict, Phattalung Province.
Distribution	Burma, Java, Sumatra, Borneo.
Ecology	In evergreen rain forest, rubber plantations; altitude 80 m. Flowering and fruiting January – February.
Uses	The young inflorescences are cooked in Thai-style vegetable soup, (B).
Material studied	UBON 395
Reference	Backer & Bakh.f., Fl. Java. 2 : 332. 1965.

***Saprosma indicum* Dalz.**

Figure 71 A

Vernacular Tud (ตุต)

Shrub, up to 2 m tall, foetid when bruised, glabrous. **Stipules** broadly triangular, 3-to 5- fid. **Leaves** simple, opposite, usually markedly unequal in size; petioles 3 mm long; blades membranous, glabrous, elliptic or lanceolate; larger leaves 9 – 12 cm long and 4 – 5 cm wide; smaller ones 5 – 7 cm long and 3 – 3.5 cm wide, apex acute to acuminate, margins entire, base cuneate; nerves 7 – 9 pairs, raised on both sides. **Inflorescences** terminal cyme, few-flowered. **Flowers** bisexual, small, sessile, white. **Calyx** funnel-shaped, short, with 4 triangular lobes. **Corolla** funnel-shaped, 8 mm long, throat villous, 4-lobed; lobes ovate, acute 3 by 2 mm. **Stamens** 4, inserted at the throat; filaments 0.5 mm long; anthers linear lanceolate, 1 mm long. **Ovary** superior, 2-loculed, ovule 1 per locule; style filiform bifid. **Fruit** small drupe, obovate-oblong, up to 1 cm diam., smooth, ripening blue. **Seed** 1.

Locality Ban Khao Khram, Srinakharin Subdistrict, Phattalung Province.

Distribution India.

Ecology Tropical rain forest, slightly shady places; altitude 100 m. Flowering and fruiting October – February.

Uses The young leaves are eaten raw or cooked in curries as a vegetable, with the side benefit of curing flatulence, (B). The stems and leaves are chopped, dried, and then pounded. The powder obtained is mixed with hot water, and then taken as a remedy to relieve flatulence, (B).

Material studied UBON 392

Reference Ridl., Fl. Mal. Pen. 2 : 170. 1967.

***Uncaria sclerophylla* (Hunt.) Roxb.**

Figure 77 C

Vernacular Ka he (กาเห)

Woody climber; branches 4-angled, ferruginous pubescent, with strong and downward-curving hooks from the leaf-axils. **Stipules** interpetiolar, caducous. **Leaves** simple, opposite; petioles 1 – 1.5 cm long; blades coriaceous, elliptic, 10 – 14 by 6–7 cm, apex blunt or subacute, base rounded or slightly cordate, margins entire, glabrous above, hairy on veins beneath; nerves 10 pairs. **Inflorescences** axillary, globose head, 4 – 5 cm across; peduncles 5 – 6 cm long, pubescent. **Flowers** bisexual, yellow, slender, 1.5 cm long; pedicels 1 – 1.3 cm long. **Calyx** cylindrical, ferruginous pubescent, 4 mm long, tube short, 5-lobed, lobes triangular. **Corolla** salver-shaped, tube slender, slightly widened at apex, 1 cm long, 5-lobed; lobes oblong 2.5 mm long, appressed long hairy outside, glabrous inside. **Stamens** 5, inserted at apex of corolla-tube. **Ovary** inferior, 2-loculed, ovules numerous; style filiform, glabrous, exserted; stigma claviform.

Locality	Ban Ka Lo Se La, Su-ngaikolok district, Narathiwat Province.
Distribution	Malaysia, Indonesia.
Ecology	Common in lowland, peat swamp and upland forest, along roadsides, open places; altitude near sea level. Flowering September – March.
Uses	The roots and benzoin are rubbed against an earthenware pot, then a mixture obtained is used as a scabicide applied to the affected areas. A juice from the crushed leaves is used as a scabicide as well, (M).
Material studied	UBON 362 , BKF 191220
Reference	Backer & Bakh.f., Fl. Java. 2 : 300. 1965.

Rutaceae

Clausena excavata Burm. f.

Vernacular Mui (หมุย)

Shrub, 2 – 4 m tall, pubescent, aromatic. **Stipules** absent. **Leaves** imparipinnate, alternate, 15 – 30 cm long; petioles 2 – 3 cm long. Leaflets 15 – 30, alternate; petiolules 2 mm long; blades herbaceous, ovate, slightly unequal-sided, 2 – 7 by 1 – 3 cm, apex acuminate, margins rather entire, base oblique; mature ones glabrous above, thinly hairy beneath especially on midrib and nerves, densely dotted with pellucid glands. **Inflorescences** terminal panicle, 15 – 20 cm long; rachis and rachilla pubescent. **Flowers** bisexual, creamy white; pedicels 1 – 2 mm. **Calyx** cup-shaped, 1 mm, shallowly 4-lobed, glabrous. Petals 4, free, oval, concave, 5 by 3.5 mm, glabrous. **Stamens** 8, free; anthers ovate-oblong, 2 mm; filaments short, abruptly much broadened towards the base. **Ovary** globose, pubescent, 4-loculed; ovules 2 in each locule; style short; stigma capitate, 4-lobed. **Fruit** berry, ellipsoid, 1 by 0.6 cm, pulpy pale pink, translucent.

Locality	Ban Khao Khram, Srinakharin Subdistrict, Pattalung Province.
Distribution	Himalaya, China, throughout SE. Asia.
Ecology	In humid forest, rubber plantations, forest edges; altitude 90 m. Flowering and fruiting February – May.
Uses	The young leaves are eaten raw as a vegetable, (B, M). The leaves are used to accelerate fruit ripening by keeping them in the container in which the unripe fruits are kept. Sometimes, the stems is cut and sharpened at one end, and then used to gore along the axis of some fruits, such as jackfruit, to ripen it, (B).

Material studied UBON 787 , BKF 34984

Reference Backer & Bakh.f., Fl. Java. 2 : 104. 1965 ; Stone, Gard. Bull. Sing. 46(1) : 122. 1994.

***Euodia roxburghiana* (Cham.) Benth. ex Hook. f.**

Figure 46 C

Vernacular Ya khong (ยาคอง)

Small tree, 10 – 20 m tall; bark greyish-brown, smooth; branches glabrescent; young twigs, leaves and flower stalks pubescent. **Stipules** absent. **Leaves** digitately 3-foliolate, opposite; petioles 3 – 9 cm long; petiolules 0.5 – 1.6 cm long; blades thinly leathery, elliptic, 6 – 20 by 2 – 6 cm, apex pointed acuminate, margins entire, base cuneate, glabrous on both surfaces, with translucent punctate glands, aromatic when crushed; nerves 10 –16 pairs. **Inflorescences** a cymose panicle, axillary, 8 – 10 cm long. **Flowers** bisexual, white. **Sepals** 4, green, ovate, 1.5 mm long, puberulous outside. **Petals** 4, oblong-acuminate, 3.0 by 1.5 mm, glabrous, with pellucid dots. **Stamens** 4, free, 3 – 4 mm long. **Ovary** superior, puberulous, 4-loculed; ovules 2 in each locule; style short; stigma 4-lobed. Disk yellow, sparsely hairy. **Fruits** 3- to 4- follicled; follicles unequal sides, obovoid, 5 – 6 by 3 – 4 mm, opening lengthwise. **Seeds** 4 – 8, ovoid, shiny black.

Locality Ban Pa Ye, Su-ngai-padee District, Narathiwat Province.

Distribution Indo-China, Malesia.

Ecology Common in lowland near sea coast, peat swamp forest, primary and secondary forest; altitude 10 – 20 m. Flowering and fruiting December – May.

Uses The young leaves are eaten raw as a vegetable, with the side benefit of decreasing high blood pressure, (B, M). The crushed leaves mixed with lime juice are used as an anthelmintic in children by applying it over the children's abdomen, (B).

Material studied UBON 147, BKF 82643

Reference Stone, Tree Fl. Mal. 1 : 379. 1972.

***Feroniella lucida* (Scheff.) Swingle**

Figure 47 D

Vernacular Sang (สัง) , Masang (มะสัง)

Tree, up to 15 m tall; top of branchlets pubescent; branches armed with axillary thorns; thorns up to 4 cm long. **Stipules** absent. **Leaves** imparipinnate, spirally arranged or fascicled in axils of fallen leaves; petioles 2 cm; rachis 4 cm, short hairy; leaflets 5 – 9, opposite, sessile or subsessile, thinly coriaceous,

pellucid-dotted, obovate, 1 – 3 by 0.5 – 2.5 cm, apex emarginated, margins finely crenulate, base acute, pubescent on both surfaces; upper surface shining dark green; the lower dull; nerves 3 – 4 pairs. **Inflorescences** axillary panicle, 6 – 7 cm long; pedicels 1 – 1.5 cm, sparsely pubescent. **Flowers** bisexual and male on the same plant, pure white, open long before anthesis. **Sepals** 5 – 6, connate, segments narrowly triangular, green, pubescent on both sides, caducous. **Petals** 5 – 6, free, oblong, acute, 1.5 by 0.6 cm. **Stamens** 16 – 24, free; the base of filaments widen into a scales, hairy and cohering, white; anthers oblong, yellow. **Ovary** superior, depressed globose, glabrous, 1-loculed; ovules many. **Fruit** a berry, depressed globose, 4 – 5 cm diam.; pericarp thick, hard. **Seeds** many, embeded in pulp.

Locality	Ban Thale Noi, Khuan Khanun District, Phattalung Province.
Ecology	Cultivated in villages, in slightly shady and moist places; altitude near sea level. Flowering and fruiting December – February.
Uses	The leaves and flowers are eaten raw as a vegetable, (B, M).
Material studied	UBON 1240
Reference	Backer & Bakh.f., Fl. Java. 2 : 107. 1965.

***Glycosmis pentaphylla* (Retz.) DC.**

Figure 51 F

Vernacular Nam khao (น้ำข้าว), Na pae (นาแพ)

Erect shrub, unarmed, 1 – 2 m tall. Buds densely covered by short rusty-red hairs. **Stipules** absent. **Leaves** imparipinnate, spirally arranged; petioles 2 – 3 cm long. Leaflets 5 (–7), alternate; petiolules short; blades subcoriaceous, glabrous, pellucid-dotted, elliptic-lanceolate, 5 – 11 by 2 – 4 cm, apex obtuse, margins entire, base acute; nerves numerous, fine. **Inflorescences** axillary panicle, 3 – 7 cm long. **Flowers** many, bisexual. **Sepals** 5, connate at base, triangular, acute, 5 – 7 mm long, pale green, pubescent. **Petals** 5, free, oblong-lanceolate, obtuse, 4 by 2 mm, white, glabrous, gland-dotted; disk cushion-shaped. **Stamens** 10, free, unequal; filaments subulate, 2 – 3 mm long. **Ovary** superior, glabrous, 5-loculed; ovule 1 in each locule; style very short; stigma broadened, flat. **Fruit** a berry, depressed globose, 8 mm diam., juicy, pale pinkish-white. **Seeds** 1 – 2.

Locality	Ban Ro Tan Ba Tu, Muang District, Narathiwat Province.
Distribution	India, Sri Lanka, Burma, Malaysia, SW.China, Indo-China.
Ecology	Edges of forest, in secondary forest; altitude 30 m. Flowering and fruiting throughout the year.
Uses	The leaves are used as a contraceptive; a handful of the them is cut at the tip and base, and then crushed and squeezed. A squeezed juice obtained is given to women after days of giving

birth to drink 3 times a day for 2 weeks (every other weeks), (M). The roots are used for the treatment of herpes infection; they are rubbed against an earthenware pot, using a washing from uncooked rice as a solvent, and then a suspension is applied to the affected areas, (B). The leaves of this plant species and those of *Eurycoma longifolia* Jack are crushed, and then smeared on the body of a patient with sickness due to sorcery, and accompanied with an incantation. It is believed to ward off bad spirits from the body, (M).

Material studied UBON 791 , BKF 68292

Reference Stone, Gard. Bull. Sing. 46(1) :124. 1994.

***Micromelum hirsutum* Oliv.**

Vernacular Lam phi phai (ลำผีฟ้า)

Shrub, 2 – 4 m tall, almost all parts tawny tomentose. **Stipules** absent. **Leaves** imparipinnate, alternate, 15 – 25 cm long; petioles 1 – 3 cm long; petiolules 3 – 7 mm long; leaflets 7 – 13, alternate or subopposite, membranous, lanceolate, slightly unequal-side, 3 – 10 by 2 – 4 cm, accrescent towards the top of the rachis, apex acuminate, margins shallowly dentate-crenate, base oblique, densely pubescent on both surfaces, pellucid-dotted; nerves 5 – 10 pairs. **Inflorescences** terminal cymose panicle, densely tomentose. **Flowers** bisexual, greenish-white, 8 mm across; pedicels 4 mm. **Calyx** cupular, shallowly dentate, 5-toothed. **Petals** 5, free, oblong-lanceolate, 5.0 by 1.8 mm, densely appressed-pubescent outside. **Stamens** 10, inserted round a disk; filament linear-subulate, alternate ones shorter. **Ovary** ovoid, superior, densely hairy, 5-loculed; ovules 2 per locule; style columnar, short, thinly hairy; stigma capitate. **Fruit** a berry, ovoid to oblong, densely pubescent, ripening deep orange, pulpy, 1.2 cm long, 7 mm wide.

Locality Ban Huay Ngo, Khok Pho District, Pattani Province.

Distribution Indo-China, Burma, Andamans.

Ecology In shaded secondary forest, edges of forest, humid places; altitude 40 m. Flowering and fruiting December – May.

Uses The young fruits are cooked in curries, (B). The stems and leaves of this plant species are pounded, and then the powder is usually used to accompany those of various kinds of plants which will be sprinkled around the house; it is believed to drive evil spirits away, (B).

Material studied UBON 159 , BKF 37272

Reference Ridl., Fl. Mal. Pen. 1 : 352. 1967.

Zanthoxylum nitidum (Roxb.) DC.

Figure 79 A – B

Vernacular Pha grut (พาดรุ้ด)

Dioecious climbing shrub, armed with short curved thorns. **Stipules** absent. **Leaf** imparipinnate, alternate, up to 40 cm long; petioles 7 cm long; rachis slender, strongly armed. Leaflets 7 – 9, petiolules 2 – 4 mm long; blades coriaceous, elliptic, 5 – 11 by 2 – 5 cm, apex bluntly cuspidate, margins glandular crenate, base rounded, glabrous and shining above, short pubescent beneath; nerves 8 – 15 pairs. **Inflorescences** axillary panicles, 5 – 10 cm long. **Flowers** unisexual. Female flowers small, 2 – 3 mm long; pedicels 1 – 3 mm long. **Sepals** 4, broadly triangular, green with red margin, 1 mm long. **Petals** 4, pale yellow with red margins, ovate, 3 by 2 mm. **Ovary** superior, consisting of 4 carpels, free, globose, glabrous; each carpel with 2 ovules. Stigmas coherent at anthesis, peltate. **Fruit** aggregate of 1 – 4 follicles; follicles subglobose, 5 – 7 mm diam., 2-valved; ripening red, pericarp pellucid. **Seeds** 1.

Locality Ban Huay Ngo, Khok Pho District, Pattani Province.

Distribution India, Ryukyu Islands, S.Vietnam, Sumatra, Malay Peninsula, Java, Philippines, New Guinea.

Ecology In evergreen rain forest, slightly shady places; altitude 40 m. Flowering and fruiting March – May.

Uses The young leaves are eaten raw as a vegetable, with the side benefit of a laxative,(B). A decoction of the whole plant is drunk as a substitute of drinking water to treat hemorrhoids, (M). The roots are used for the treatment of wounds; they are rubbed against an earthenware pot, using water as a solvent. Then a suspension is applied over the wounds daily until cured. In addition, the crushed leaves are also used as a poultice applied onto the wounds, (B).

Material studied UBON 741, 1395 ; BKF 121679

Reference Hartley, J. Arnold Arboretum. 47(3) : 180. 1966.

Salicaceae**Salix tetrasperma Roxb.**

Vernacular Sanun (สนุ่น), Dalu (ดาลู)

Dioecious tree, up to 10 m tall; branches more or less drooping, young shoot glabrescent. **Stipules** small, subulate, caducous. **Leaves** simple, spirally aranged; petioles 2 cm long, red; blades chartaceous, ovate-lanceolate, 14 – 16 by 2.5 – 3.5 cm, apex acuminate, base narrowed to rounded, subequal, margins finely serrate,

glabrous and shining on the upper surface, glaucous beneath; midrib prominent, lateral nerves numerous, distinct. **Male inflorescence** 8 cm long, catkin; rachis densely pubescent. **Male flowers** sessile, with suborbicular bract; perianth absent. Stamens 10 – 12, free, filaments 2.5 – 3.0 mm long, thin. Disk fleshy. Female plant not found.

Locality	Ban Ton Panan, Khuan Kalong District, Satun Province.
Distribution	Tropical Asia.
Ecology	Along stream in evergreen forest; altitude 70 – 100 m. Flowering December – January.
Uses	A juice of crushed leaves is used to wash hair as a substitute for hair shampoo. The durable wood is used for house building, (M).
Material studied	UBON 146, BKF 108481
Reference	Larsen, Fl. Thail. 5(1) : 121. 1987.

Sapindaceae

Amesiodendron chinense (Merr.) Hu

Figure 23 C – E

Vernacular Khan (ข่าน)

Tree up to 25 m tall; with buttress up to 1.8 m tall, crown dense, widely spreading. **Stipules** absent. **Leaves** paripinnate, alternate, 25 – 30 cm long; petioles 3 – 5 cm; petiolules 3 – 5 mm long. Leaflets 6 – 12, opposite; blades chartaceous, ovate to falcate, 7 – 19 by 2 – 4 cm; apex long-tapering, acuminate; margins coarsely serrate; base acute; glabrous on both surfaces; nerves 10 – 15 pairs. **Inflorescences** terminal and in the upper leaf axils, panicle; widely and laxly branched, 10 – 20 cm long; rachis thick, stiff, pubescent. **Bracts** caducous; bracteoles minute. **Flowers** unisexual, pink; female and male flowers on the same panicles. **Female flowers** minute, 2 mm across. Sepals 5, slightly connate at base, triangular, 1 mm long, pubescent, light brown. Petals 5, free, elliptic to orbicular, with triangular scale; scale woolly. **Staminodes** 7 – 8. Ovary superior, globose, pubescent, 3-loculed; ovule 1 per locule; style pink, pubescent, 2 mm long. **Male flowers** slightly larger than the female ones. Sepals and petals like those of the female; stamens 6 – 8, red; filaments hairy, 5 mm long, distinctly exerted. **Fruit** capsule, dark brown, usually with 2 partly connate globular lobes; 2 – 2.5 cm diam., loculicidally dehiscent; pericarp thick and woody, glabrous on both surfaces. **Seeds** 1 – 2, globose, 1.5 – 2 cm diam., smooth, shining reddish-brown, with conspicuous sarcotesta around the hilum.

Locality Ban Nai Wang, Khongra District, Phattalung Province.

- Distribution China, Indo-China, Malay Peninsula, Sumatra.
- Ecology In primary rain forest, on well-drained soil; altitude 120 m. Flowering April – June; fruiting September – October.
- Uses The seeds are eaten after cooked. Seed oil is used as a hair tonic, to give shiny-black hair. It is applied externally to cure cracked and inflamed soles, (M).
- Material studied UBON 1029 , BKF 078357
- Reference Adema, Leenhouts and Welzen, Fl. Mal. Ser.1. 11(3) : 467. 1994.

***Guioa pleuropteris* (Blume) Radlk.**

Figure 53 B

Vernacular Som ling (ส้มลิง) , Taet ling (แตตลิง)

Tree, up to 30 m tall; young twigs pubescent. **Stipules** absent. **Leaves** paripinnate, alternate, rachis winged especially when young; petioles 1 –10 cm long; leaflets 4 – 10, subopposite, subsessile; blades coriaceous, ovate or elliptic to obovate, 5 – 15 by 3 – 6 cm, lower ones much smaller than upper ones, asymmetrical especially the base and the apex, apex obtuse to acuminate, often mucronate, base cuneate , margins entire, pubescent on both surfaces; nerves 5 – 6 pairs. **Inflorescences** axillary to terminal panicle, up to 20 cm long, pubescent. **Flowers** bisexual, white to pink, small, 3 – 5 mm across. **Sepals** 5, free, ovate, 1 – 2 mm long, unequal, margins ciliate. **Petals** 5, free, elliptic to obovate, white, 2.5 by 1.0 mm, apex rounded, with 2 scales at the base inside; scales 1 – 2 mm high, apex not broadened, bifid. Disk glabrous, yellow. **Stamens** 8, filaments hairy, white; anthers pink. **Ovary** superior, hirsute at base, 3-loculed; ovules 1 per locule. **Fruits** loculicidal capsules, obcordate, with 3 well-developed lobes, stipitate, 1 – 2 by 1 – 2.5 cm, glabrous, ripening red. **Seeds** 3, orbicular, completely covered by an orange aril.

- Locality Ban Khao Khram, Srinakharin Subdistrict, Phattalung Province.
- Distribution Burma, S.Cambodia, S.Vietnam, Malay Peninsula, Sumatra, Borneo, Philippines.
- Ecology Primary and secondary forest, edges of forest, along river-banks; on a variety of soils; altitude near sea level to 110 m. Flowering and fruiting January – April
- Uses The ripe fruits are eaten fresh and also used as sour flavor in some local dishes. The young leaves are eaten raw as a diuretic, (B).
- Material studied UBON 137, BKF 122456
- Reference Van Welzen, Fl. Thail. 7(1) : 205. 1999.

***Lepisanthes alata* (Blume) Leenh.**

Figure 58 B – E

Vernacular Ya ho (ยะโฮ)

Shrub, up to 6 m tall; twigs glabrous. **Leaves** paripinnate, spirally arranged, 20 – 40 cm long; petioles and leaf-rachis on either side with a 2 – 4 mm broad wing; pseudo-stipules oblique ovate, 2 – 3 by 3 – 2 cm, base deeply cordate, apex acuminate, penninerved. Leaflets sessile, 8 – 12, opposite, thinly chartaceous, glabrous, lanceolate, 10 – 20 by 1.8 – 4 cm, apex tapering long acuminate, base oblique, margins entire, purple when young then turn green; nerves 10 – 13 pairs. **Inflorescences** in the axils of fallen or present leaves, panicle, often drooping, 40 – 50 cm long; rachis dark red, puberulous when young. **Flowers** dark red to purple, 8 mm diam., on 2 – 7 mm long pedicels, mostly unisexual, male and female ones on the same plant. **Sepals** 5, ovate, dark red, 3 – 6 by 2 – 3 mm, outer ones slightly smaller than inner, the inner partly petaloid with crenulate margin. **Petals** 5, suborbicular, up to 4 by 3 mm, sessile, sparsely short-hairy outside in the basal half; scale at base of each petal erect, slightly hood-shaped, 1/3–1/5 as long as the petal. Disk glabrous, yellow. **Stamens** 7 – 8; anthers 1.5 mm; filaments 0.5 mm, pubescent. **Ovary** superior, ellipsoid, red, glabrous, 3-loculed; ovule 1 per locule; style very short; stigma dome-shaped, slightly 3-lobed. **Fruit** trigonous-obovoid drupe, 3 by 2 cm, dark purple to nearly black when ripe; pulp rather thick, fleshy. **Seeds** 1 – 3, ellipsoid, flattened, 1.5 by 1.0 cm.

Locality Ban Ka Lo Se La, Su-ngaikolok District, Narathiwat Province.

Distribution Malay Peninsula, Java, Borneo.

Ecology Cultivated for its fruits, in slightly shady and humid places; altitude near sea level. Flowering December – February; fruiting April– May.

Uses The young leaves are eaten raw as a vegetable. The ripe fruits are eaten fresh, (M).

Material studied UBON 134

Reference Adema *et al.*, Fl. Mal. Ser.1. 11(3) : 646. 1994.

***Lepisanthes fruticosa* (Roxb.) Leenh.**

Figure 58 F – G

Vernacular Phum riang (พุ่มเรียง)

Small tree, 6 – 10 m tall, glabrous. **Leaves** imparipinnate with strongly reduced terminal leaflet, spirally arranged; petioles 6 cm long; petiolules 0.5 – 1.0 cm long; pseudo-stipules present, suborbicular, sometimes very oblique, 3.0 by 2.8 cm. Leaflets 3–14 pairs, opposite; rachis terete to laterally flattened, in the upper part often marginate to exceptionally narrowly winged, glabrous; blades narrowly lanceolate, coriaceous, glabrous on both surfaces, 9 – 25 by 2 – 8 cm, apex obtuse to

acuminate, margins entire, base oblique acute. **Inflorescence** panicle, ramiflorous and cauliflorous, solitary or in fascicle, pendulous, 15 – 20 cm long, glabrous. **Flower** bisexual, red, scentless, 9 mm across. **Sepals** 5 – 6, unequal, elliptic, glabrous, 2 – 4 by 1.5 – 3 mm. **Petals** 5 – 6, free, broad ovate, 1.5 – 3 by 1 – 2 mm, glabrous, with short claw; claw ciliate. **Stamens** 8, free, filaments red, hairy; anthers yellow. **Ovary** superior, ovoid, 2-loculed; ovule 1 per locule; stigma sessile. **Fruits** ovoid drupe, dark red, 1 – 3 by 0.5 – 2 cm; pulp fleshy, sweet. **Seeds** mostly 2, subglobose, flattened.

Locality	Ban Hau Yang, Rattaphum District, Songkhla Province .
Distribution	Burma, Indo-China, Malesia, Moluccas, Lesser Sunda Islands.
Ecology	Cultivated for its fruits; altitude 30 m. Flowering February – March; fruiting April – May.
Uses	The young leaves are eaten raw as a vegetable. The ripe fruits are eaten fresh; the seeds are also eaten after boiled, (B, M). The leaves of this plant are used in ceremony performed before rice – harvesting season,(B).
Material studied	UBON 144 , BKF 88785
Reference	Van Welzen , Fl. Thail. 7(1) : 213. 1999.

***Lepisanthes rubiginosa* (Roxb.) Leenh.**

Figure 60 A

Vernacular Kam cham (กำชำ)

Shrubs to small trees, up to 16 m tall; branches terete, densely short hairy when young. **Leaves** paripinnate, spirally arranged; petioles 7 – 10 cm long, not winged; petiolules up to 5 mm long; rachis not winged. Pseudo-stipules absent. Leaflets 6 – 12, subopposite, ovate (mainly lower ones) to obovate (upper ones), stiff chartaceous, 6 – 15 by 3.5 – 8 cm, apex obtuse to acute or acuminate, margins entire, base rounded to broadly cuneate, pubescent on both surfaces mainly beneath; nerves 8 – 12 pairs. **Inflorescences** terminal panicles, to 50 cm long, erect, with many branches, densely ferruginous tomentose. **Flowers** unisexual, white to yellow, sweet-scented; pedicels 1 – 2 mm long. **Sepals** 5, free, orbicular-ovate, 1.2 – 2.8 by 1.2 – 3 mm. **Petals** 4 – 5, free, obovate, 2 – 4 by 1.5 – 2.2 mm, crenulate in upper half; scale single with two apical clavate crests, 1.5 – 3 mm long. **Stamens** 8, filaments flattened with long white hairy, 3 – 5 mm long. **Ovary** superior, densely appressed hairy, 3-loculed; ovules 1 per locule. **Fruits** drupe, 3-lobed; lobes spreading, 8 – 13 by 7 – 8 mm, dark purple to nearly black when ripe, subglabrous. **Seeds** oblong-ellipsoid, 9 – 11 by 4 mm, shiny brown to black.

Locality Ban Ton Panun, Khuan Kalong District, Satun Province.

Distribution S. and SE.Asia, China, Malesia, N.Australia.

Ecology In secondary forest, waste land, along roads, river banks, forest edges; altitude 40 – 80 m. Flowering February – April; fruiting May – July.

Uses The ripe fruits are eaten fresh, (B, M). The roots are used as an ingredient in the formula F17 used to treat hemorrhage and dysmenorrheal, (M). They are also used as an ingredient in the formula F24 for the treatment of fever, nausea, (B). An extract of the crushed leaves is applied to the face to reduce the appearance of dark spots. The leaves are also used for the treatment of burns, fever and cold. The young leaves are chewed, and then spat on the burns. The crushed leaves are pasted on the forehead of children to cure fever and cold, (B).

Material studied UBON 781 , BKF 122234

Reference Van Welzen, Fl. Thail. 7(1) : 214. 1999.

Sapotaceae

***Ganua motleyana* Pierre ex Dubark**

Figure 50 A – B

Vernacular Sa tieo (สะเตี้ยว)

Tree, up to 40 m tall; stem columnar, laticiferous; young leaves reddish-brown; pneumatophores knee-like. **Stipules** minute. **Leaves** simple, spirally arranged; petioles 1.5 cm long; blades coriaceous, elliptic to oblong, 6 – 15 by 4 – 7 cm, apex acuminate, base cuneate, glabrous on both surfaces, shining dark green above, pale green beneath; midrib raised on both surfaces; nerves 10 – 17 pairs; intramarginal vein present. **Flowers** in cluster of 10 – 16, arising from axils of leaves or their scars; pedicels 1 – 1.2 cm long. **Sepals** 4, ovate, 3 – 4 by 3 – 4 mm. **Corolla** white, cupular, 6 mm long, 8-lobed; lobes obovate-oblong, 3 by 1.5 mm, reflexed, glabrous outside, pubescent inside at the throat of the corolla tube. **Stamens** 16, inserted in a ring of hairs on the corolla tube; filaments 1 mm long; anthers lanceolate, 1.5 mm long, pubescent. Ovary superior, glabrous, 6-loculed; ovule 1 in each locule; style twice as long as the corolla; stigma minute. **Fruit** ovate-oblong, glabrous, 3 by 2 cm, with persistent style. **Seeds** 1 – 2, obovate-oblong, flattened, brown, 2 by 1 cm.

Locality Ban Lu Bo Sa Ma, Su-ngaikolok District, Narathiwat Province.

Distribution Malaysia, Indonesia.

Ecology Common in swampy lowland and peat swamp forest; altitude near sea level. Flowering July – August; fruiting October – December.

Uses The young leaves are eaten raw as a vegetable, (M). A handful of the chopped stem bark of this plant species together with

those of *Cratoxylum arborescens* (Vahl) Blume are soaked in coconut oil, and then the oil is used as a massaging oil to relieve joint pain, (M). The timber is used for house building, (B, M).

Material studied UBON 998 , BKF 089249

Reference Whitmore, Tree Fl. Mal. 1 : 399. 1972.

Selaginellaceae

Selaginella willdenowii (Desv.) Baker

Vernacular Ya rang kai (หญ้ารังไก่)

Herbaceous; stems scandent, usually forming bushes of more than 2 m long, 1 – 3 mm diam; the main stem glabrous, sparsely bearing leaves and rhizophores. Rhizophores geotropic, dichotomously branching, bearing root in the ground. **Leaves** simple, herbaceous, dimorphic, densely arranged in 4 rows on the lateral branches of the stems; the ventral two sessile, patent, oblong, slightly falcate, 2.5 – 3 by 1–1.5 mm, apex acute, margins entire, base rounded to subtruncate, with small auricles at acroscopic base, glabrous on both surfaces; dorsal leaves much smaller than the ventral ones, 1 – 1.8 by 0.5 – 0.8 mm, falcate, apex acute, appressed to the stems, directed distally; strobili squarroid, solitary at apex of the lateral branches, 6 – 8 by 2 mm; sporophyll uniform, ovate, herbaceous, 1 by 1 mm, apex acute. **Spores** heterosporous.

Locality Ban Ton Panan, Khuan Kalong District, Satun Province.

Distribution Burma, Indo-China, Malaysia, Sumatra, Java, Philippines.

Ecology In moist evergreen forest, shady places; altitude 100 –120 m.

Uses The young leaves are eaten raw as a vegetable, (B).

Material studied BKF 35592

Reference Tagawa & Iwatsuki, Fl. Thail. 3(1) : 19. 1979.

Schizaeaceae

Lygodium microphyllum (Cav.) R.Br.

Vernacular Li phao yung (ลิเภ่ายุง) , Libu chue ning (ลิบูชื่อนิ่ง)

Terrestrial fern; rhizome creeping, densely covered with dark brown hairs. **Stipes** 8 – 10 cm long, glabrous, shining dark brown, with narrowly wing in the upper part. **Fronde**s pinnately compound, twining to several meters. Rachis like the

upper part of the stipes, long, slender; primary rachis-branches short, 4 – 5 mm long, the apex densely covered with brown hairs, dormant; each one bearing a pair of secondary rachis-branches 7 – 15 cm long, with 4 – 5 alternate pinnately arranged pinnules on each side, and a simple or forked terminal pinnules; pinnules herbaceous, light green, glabrescent, with distinct slender stalk about 2 – 3 mm long. Sterile pinnules deltoid to oblong-subdeltoid, 2 – 3 by 0.5 – 1 cm, apex acute to obtuse, margins entire, base truncate to slightly cordate. Fertile pinnules usually shorter than the sterile ones, oblong or triangular, 1 – 3 by 0.8 – 1.5 cm, apex obtuse, base truncate, margins fringed with narrow lobes; lobes 2 – 4 mm long, 1 mm wide, bearing two rows of sporangia; **Sporangia** indusiate.

Locality	Found in every study sites.
Distribution	Africa, Polynesia, Australia, the Ryukyu Islands.
Ecology	Climbing on bushes or on branches of tall trees in open places, in swamp and fairly dry places; altitude near sea level to 100 m.
Uses	A decoction of the whole plant is drunk daily as a substitute of drinking water to treat numbness, (M). The rhizomes of this plant species and those of <i>Lygodium salicifolium</i> Presl. are boiled in water, and then a decoction is taken as a refrigerant, and for the treatment of anorexia, (B). The leaf stalks and rachis are used for wickerwork, to make small articles such as hats, hand bags, etc, (B, M).
Material studied	UBON 232, BKF 130169
Reference	Tagawa & Iwatsuki, Fl. Thail. 3(1) : 60. 1979.

***Lygodium salicifolium* C.Presl.**

Figure 60 F

Vernacular Li phao (ลิฟาอ), Libu bue sa (ลิบูบือซา)

Terrestrial fern; rhizome short, densely covered with dark brown hairs. **Stipes** 20 cm long, sparsely finely pubescent. **Fronde**s pinnately compound, twining, to several meters. Primary rachis-branches very short, the apex densely covered with brown hairs, dormant; each one bearing a pair of secondary rachis-branches 7 – 15 cm long, with 4 – 5 alternate pinnately arranged pinnules on each sides, and a simple or forked terminal pinnules; pinnules herbaceous to soft papyraceous, light green, glabrous, oblong-lanceolate, 8 – 10 by 1.5 – 2 cm, apex acute or obtuse, margins minutely dentate, base cordate, with very short stalk. **Sporangia** indusiate, arranged in two rows along lobes protuding at margins of the pinnules; indusia glabrous.

Locality	Ban Pa Ye, Su-ngai-padee District, Narathiwat Province.
Distribution	Assam to Yunnan, Indo-China, Taiwan, Malesia, New Guinea

Ecology	Common in light shaded damp places, in tropical evergreen forest; altitude 20 m.
Uses	It is used in a similar way as the preceding species, (B, M).
Material studied	UBON 1177, BKF 59861
Reference	Tagawa & Iwatsuki, Fl. Thail. 3(1) : 64. 1979.

***Schizaea dichotoma* (L.) Sm.**

Figure 71 C

Vernacular Tan phrao (ตานพั่ว)

Small terrestrial fern, erect, up to 35 cm tall; rhizome creeping, densely covered with shiny brown hairs. **Stipes** 10 – 25 cm long, narrow, winged above. **Fronds** 7 – 10 cm long and wide, dichotomously branched, branching 2 – 6 times. Distal branches with wider wings to form narrow laminae of about 2.0 mm wide. Sporangia-bearing lobes at apex of the distal branches, 7 – 10 pairs, forming distinct sorophores of 2 – 4 mm long, pinnately arranged. **Sporangia** covered by the reflexed edges of the lamina part, exposed at maturity, sessile, ovoid, with apical annulus. Spores kidney-shaped.

Locality Ban To Daeng, Su-ngaikolok District, Narathiwat Province.

Distribution Tropical Asia, Australia, New Zealand.

Ecology In secondary forest, rubber plantations, humid and slightly shady places; altitude near sea level .

Uses The whole plant of this species together with those of *Schizaea digitata* (L.) Sw., and mushroom (unknown species) are burned to ashes, into which coconut oil is added, and then a mixture is applied to the abscesses and pustules on the heads of children, (B).

Material studied UBON 235, BKF 095962

Reference Tagawa & Iwatsuki , Fl. Thail. 3(1) : 57. 1979.

***Schizaea digitata* (L.) Sw.**

Figure 71 D

Vernacular Tan (ตาน)

Small terrestrial fern, erect, grass-like, 20 – 25 cm tall. Rhizome short, bearing many crowded fronds. **Fronds** simple, linear erect, 20 – 35 cm long, 2 – 4 mm wide, with prominent midrib, bearing at the apex a group of sporangia-bearing lobes; lobes 7 – 20, erect, all equal, 2 – 5 cm long, c. 1 mm wide; sporangia arranged in two double rows and almost covering the lower surface of the lobes.

Locality	Ban To Daeng, Su-ngaikolok District, Narathiwat Province.
Distribution	Tropical Asia to Polynesia.
Ecology	In rather dry ground in slightly shady places, often in rubber plantations; altitude near sea level.
Uses	It is used in a similar way as the preceding species, (B).
Material studied	UBON 239, BKF 130153
Reference	Tagawa & Iwatsuki, Fl. Thail. 3(1):58. 1979

Scrophulariaceae

Lindernia crustacea (L.) F. Muell.

Vernacular Kerak nasi (กีร์กนาซี)

Prostrate to decumbent annual herb, 5 – 20 cm tall; stem quadrangular, sparsely pubescent on the angles and the nodes, green to dull dark violet. **Stipules** absent. **Leaves** simple, opposite; petioles 1 – 2 mm long; blades thinly herbaceous, broadly ovate, 5 – 8 by 4 – 8 mm, apex subacute or obtuse, margins distinctly subacute-serrate, base subtruncate to rounded; glabrous except for pubescent on the margin and the nerves beneath; pinnately nerves, 3-pairs. **Flowers** bisexual, violet, solitary and axillary; pedicels 5 – 10 mm long. **Calyx** tubular, 4 mm long, glabrous, prominently 5-angled, shortly 5-lobed; lobes triangular, acute. **Corolla** bilabiate, 8 mm long; upper lip erect, ovate, tip with a pair of rounded lobes; lower lip with three rounded lobes, spreading. **Stamens** 4, didynamous; anterior pair with arched filaments; each with a blunt linear spur, arising near the base. **Ovary** superior, ellipsoid, glabrous, 2-loculed; ovules numerous; style filiform; stigma with 2 unequally flat lobes. **Fruit** a capsule, ellipsoid, 4 – 5 mm long, 2 mm diam., glabrous, enclosed within persistent calyx. **Seeds** numerous, small, ellipsoid, with very minutely papillate.

Locality	Ban Lu Bo Sa Ma, Su-ngaikolok District, Narathiwat Province.
Distribution	India, Ceylon, Burma, China, Japan, Malesia, Philippines, Australia, Polynesia.
Ecology	In waste ground, roadsides, riversides, rice-field, swamp areas; altitude near sea level. Flowering and fruiting throughout the year.
Uses	A whole plant together with two leaves of <i>Hedyotis capitellata</i> Wall. ex G. Don and few rice grains are grounded, and then a poultice is applied on the bites of venomous insects, or applied as a scabicide to the affected areas, (M).
Material studied	UBON 1255 , BKF 080972
Reference	Yamazaki, Fl. Thail. 5(2) : 193. 1990.

***Scoparia dulcis* L.**

Vernacular Kratai cham (กระต่ายจาม), Ya tai bai (หญ้าใต้ใบ)

Erect annual herb, 20 – 50 cm tall, glabrous, much-branched; branchlets 6-angled. **Stipules** absent. **Leaves** simple, opposite; petioles very short; blades thinly coriaceous, obovate to ovate-oblong, 7 – 20 by 5 – 10 mm, apex obtuse, margins irregularly serrate in the upper part, lower part entire, base attenuate to the petiole, densely gland-dotted on both surfaces. **Flowers** solitary or in fascicles, axillary, bisexual, white, ebracteolate; pedicels slender, 4 – 6 mm long. **Calyx** campanulate, 4-lobed, 1.5 mm long; lobes elliptic, subacute, ciliate. **Corolla** rotate, 3 mm long, 6 – 7 mm across, 4-lobed; lobes elliptic, 2 mm long, obtuse, white hairy at lower part inside. **Stamens** 4, subequal, inserted on the base of the corolla tube. **Ovary** superior, globose, 2-loculed; ovules numerous; style filiform; stigma capitate. **Fruit** capsule, globose, slightly emarginate at the top, ripening brown. **Seeds** numerous, small, ellipsoid, light brown.

Locality Ban Cho Kot, Su-ngaipadee District, Narathiwat Province.

Distribution Pantropical.

Ecology Common weed on waste ground, roadsides, dried up rice-field, sandy river-banks; altitude 10 m. Flowering and fruiting throughout the year.

Uses A decoction of the whole plant is taken to relieve flatulence. Sometimes, the crushed leaves mixed with lime juice, and then applied over the abdomen of children to relieve flatulence as well, (B, M).

Material studied UBON 220 , BKF 091981

Reference Yamazaki, Fl. Thail. 5(2) : 218. 1990.

Simaroubaceae

***Brucea javanica* (L.) Merr.** Figure 30 D

Vernacular Mai dat (ไม้คัด), Rachadat (ราชคัด), Cha da (ชาดะ)

Shrub, 3 – 5 m tall, pubescent; stem terete. **Stipules** absent. **Leaves** imparipinnate, alternate, 20 – 25 cm long; petioles 15 cm long. Leaflets 3 – 15, opposite; petiolules 4 – 5 mm long; blades membranous, ovate to lanceolate, 4 – 10 by 2 – 5 cm, apex acuminate, margins bluntly serrate, base rounded, sparsely pubescent above, densely pubescent beneath; nerves 9 – 10 pairs. **Inflorescences** panicle, upper axillary, 10 – 60 cm long; peduncles short; bracts small. **Flowers** unisexual, red, 2 – 3 mm across. **Sepals** 4, ovate, 0.5 mm long, green, red and hairy at the tip. **Petals** 4, oblong, 1 by 0.5 mm, red, sparsely pubescent. Disk thick, 4-lobed. **Stamens** 4, with short filaments, inserted between the lobes. **Staminodes** 4 in the female ones. **Ovaries** superior, 4, free, ovate glabrous, 1-

loculed, 1-ovuled; styles free, short, subulate, widened in club-shaped stigma, bent outward. **Fruit** drupe, ovoid, with 2 ribs, 5 mm long, 1 – 4 together.

Locality Ban La Lo, Su-ngai-padee District, Narathiwat Province.

Distribution Sri Lanka, SE.Asia, China, N.Australia.

Ecology In secondary forest, rubber plantations, forest edges, slightly shady places; altitude 40 m. Flowering and fruiting throughout the year.

Uses The ripe fruits are pounded, mixed with coconut oil, and then a mixture is applied as a scabicide on the affected areas, (B). They are also used as an agent to avoid boils and acne by swallowing a ripe fruit daily, (M). In addition, the ripe fruits together with garlic and mushroom are pounded and mixed with coconut oil. Then a solution is applied externally to cure sores, (B).

Material studied UBON 766, BKF 2580

Reference Nootboom, Fl. Thail. 2(4) : 442. 1981.

***Eurycoma longifolia* Jack.**

Figure 46 E – G

Vernacular Lai phueak (ไหลเฟือก), Trueng badan (ตริงบาดาล)

Shrub, 5 – 6 m tall, slender, often unbranched. **Stipules** absent. **Leaves** imparipinnate, up to 1 m long, spirally arranged, crowded at the tip; petioles 5 – 10 cm long; leaflets numerous, sessile, opposite; blades coriaceous, ovate-lanceolate, 5 – 10 by 1.5 – 3 cm, apex acute, margins entire, base oblique cuneate, glabrous on both surfaces; nerves inconspicuous. **Inflorescences** panicle, axillary, 30–35 cm long, pendulous, lax; rachis, pedicels, sepals, and petals covered with glandular hairs; bracts very small, caducous; pedicels 6 – 7 mm long. **Flowers** small, unisexual, red; male and female ones on the same plant. **Calyx** small, 5-lobed, lobes triangular acute, longer than the tube. **Petals** 5, free, lanceolate, larger than the calyx, 4 – 5 by 2 – 3 mm. **Stamens** 5, 1.5 – 2.5 mm long, alternating with staminodes; staminodes 5, yellow. Pistillode present in the male flowers. **Ovaries** 5, free, superior, 1-loculed, 1-ovuled; style attached adaxially near the top and mutually connate; stigma peltate, 5-lobed. **Fruit** a nut, 1 – 5, spreading, ellipsoid, 10 – 15 by 5 – 10 mm, glabrous, ripening yellowish-brown.

Locality Ban Pluk Plue, Mae Lan District, Pattani Province.

Distribution Burma, Laos, Cambodia, Indo-China, Malesia.

Ecology	In primary and secondary evergreen forest, beach forest; on sandy soil; altitude 20 – 40 m. Flowering and fruiting throughout the year.
Uses	The whole plant is used as a tonic; it is chopped and mixed with the sliced stems of <i>Grammatophyllum speciosum</i> Blume, boiled in water. Then a decoction is taken, (M). A decoction of the root is taken daily as a tonic, antihypertension, and to treat urinary stone (M). The roots are also used as an ingredient in the formula F8 used as a tonic to relieve bodily discomfort and lumbago, (B). The stems are used as an ingredient in the formula F6 used as a tonic to increase potency in men, (B). The leaves are used for the treatment of sickness due to sorcery; the leaves of this plant together with those of <i>Glycosmis pentaphylla</i> (Retz.) DC. are ground, and then the mixture is smeared on the body of the patient. It is believed to get rid of evil spirits from the body, (M).
Material studied	UBON 978 , BKF 106539
Reference	Nooteboom , Fl. Thail. 2(4) : 444. 1981.

Smilacaceae

Smilax myosotiflora A. DC.

Figure 72 F

Vernacular Lek thong daeng (เหล็กทองแดง)

Perennial climber, 2 – 5 m long; stem slender but rigid, smooth, internodes 10 cm long, 1 – 2 mm thick. Root thickened, forming round storage roots, pale yellow inside. **Stipules** absent. Tendrils 6 – 13 cm long, slender, often becoming brownish. **Leaves** simple, alternate; petioles 1.5 – 3.0 cm long, slightly twisted and sheathing at base; blades herbaceous, glabrous, ovate – lanceolate, 8 – 15 by 3 – 7 cm, apex acuminate, base rounded or slightly cordate, margins entire; 3-nerved, separate from the base, finely reticulate. **Inflorescence** a single axillary umbel, globose, 1.5 cm across; peduncles 2 – 3 cm long. **Flowers** unisexual, yellowish-green. **Female flowers** small, 5 mm across; perianth 6, free, outer tepals ovate-elliptic, apex subobtusate; inner ones linear-oblong, apex obtuse; staminodes 3, needle-like; ovary superior, ovoid, 2 – 2.5 mm long, 1.2 mm wide; stigma 3, recurved. **Fruit** subglobose berry, ripening dark purple, 7 – 9 mm across. **Seeds** 1.

Locality Ban Pa Ye, Su-ngai-padee District, Narathiwat Province.

Distribution Malay Peninsula.

Ecology In evergreen rain forest, humid and shady places; altitude 20 m. Flowering and fruiting November – February.

Uses The tubers are used as an ingredient of the formula F7 taken as a tonic for the treatment of impotency. They are also used as an ingredient of the formula F8 taken to treat lumbago, bodily discomfort, (B).

Material studied UBON 262 , BKF 7813

Reference Koyama , Fl. Thail. 2(3) : 243. 1975.

Solanaceae

Solanum indicum L.

Vernacular Waeng (แฉ่ง)

Erect shrub, 2 m tall, tomentose, prickly. **Stipules** absent. **Leaves** simple, alternate; petioles 2 cm long, stellately hairy; blades membranous, ovate, 4 – 8 by 3 – 5 cm, apex acute, base oblique truncate, margins pinnately lobed, lobes blunt; stellately hairy on both surfaces; nerves 4 – 5 pairs. **Inflorescence** axillary raceme or terminal, 5 – 8 cm long. **Flowers** bisexual, tomentose. **Calyx** campanulate, densely tomentose outside, 5 mm long, 5-lobed; lobes lanceolate acute. **Corolla** rotate, blue-violet, 12 mm long, densely tomentose outside. **Stamens** 5, filaments short, anthers narrowed upward, with terminal pores. **Ovary** superior, glabrous, 2-loculed, ovules numerous; style columnar, pubescent; stigma small. **Fruit** globose berry, glabrous, ripening shiny orange, 7 – 9 mm across. **Seeds** numerous, discoid.

Locality Ban Ton Panun, Khuan Kalong District, Satun Province.

Ecology In open places, waste ground, roadsides; altitude 80 m. Flowering and fruiting throughout the year.

Uses A decoction of the whole plant is taken as an antidiabetes, it is drunk at one cupful, 1– 2 times a day daily, (B, M).

Material studied UBON 216 , BKF 52706

Reference Zhi-yun *et al.*, Fl. China. 17 : 322. 1994.

Solanum involucreatum Blume

Figure 73 A

Vernacular Uek muak (อี๊กหมาก)

Herb, 30 – 40 cm tall, armed with straight prickles, stellately hairy almost all parts. **Stipules** absent. **Leaves** simple, alternate; petioles 5 – 7 cm long, hairy and prickles; blades membranous, ovate, stellately hairy all over, and armed along main veins on both surfaces, 18 – 20 by 10 – 15 cm, apex acute, margins triangular-lobed, base subcordate; nerves 4 – 5 pairs. **Inflorescence** axillary, short-peduncled racemes, 4 cm long. **Flowers** bisexual, white; pedicels 1 – 1.5 cm. **Calyx**

campanulate, 1 cm long, 5-lobed; lobes ovate-lanceolate, 6 by 4 mm, hairy and prickly as on the stems. **Corolla** rotate, 9 mm across, 5-lobed; lobes 7 by 4 mm, pubescent on outer surface. **Stamens** 5, 4 mm long, filaments very short; anthers yellow, dehiscent by apical pores, glabrous. **Ovary** superior, densely pubescent, 4-loculed; ovules numerous. **Fruits** berry, globose, 2.5 cm diam., densely pubescent, almost entirely enclosed in enlarged calyx. **Seed** numerous, reniform.

Locality	Ban Ton Sai, Srinakharin Subdistrict, Phattalung Province.
Distribution	Java.
Ecology	Cultivated for medicinal purpose; altitude 100 m. Flowering and fruiting throughout the year.
Uses	The whole plant is used as an ingredient in the formula F1 taken as a blood circulation tonic and to relieve bodily discomfort, (B).
Material studied	UBON 994
Reference	Ridl., Fl. Mal. Pen. 2 : 465. 1967.

Stemonaceae

Stemona tuberosa Lour.

Vernacular Non tai yak (หนอนตยหยาก)

Climbing herb; stem slender, glabrous, with tuberous roots. **Stipules** absent. **Leaves** simple, alternate; petioles 5 – 7 cm long; blades thinly chartaceous, ovate-cordate, 10 – 16 by 6 – 9 cm, apex acuminate, margins entire, base deeply cordate, glabrous on both surfaces; prominent nerves 13–15, with parallel cross nervules. **Inflorescence** axillary raceme, few-flowered, pendulous; peduncles slender, 5 – 7 cm long. **Flowers** unisexual, 3 – 4 cm long. **Perianth** 4, in 2 series, subequal, lanceolate, acute, slightly connate at base, pink, backs green. **Stamens** 4, petaloid; filaments short; connective broad. **Ovary** superior, 1-loculed; ovules many; stigma sessile. **Fruit** a capsule, oblong, 2 – 2.5 cm long.

Locality	Ban Hua Yang, Rattaphum District, Songkhla Province.
Ecology	In primary and secondary evergreen forest; altitude 20 m. Flowering and fruiting throughout the year.
Uses	The tuberous roots are crushed and soaked in water. Then this water is applied on the affected areas to cure scabies, and also used to wash hair; it is considered to kill head-lice, (B).
Material studied	UBON 920, BKF 115925
Reference	Ridl., Fl. Mal. Pen. 4: 320. 1967.

Sterculiaceae

Heritiera littoralis Dryand.

Figure 54 D

Vernacular Du hun (ดูหุน)

Tree, to 20 m tall; bark grey to brown with longitudinal fissures. **Stipules** caducous. **Leaves** simple, spirally arranged; petioles 1 – 2 cm long, stout; blades coriaceous, elliptic, oblong-ovate to ovate-elliptic, 10 – 20 by 4 – 10 cm, apex broadly acute, margins entire, base obtuse, dark green and glabrous above, densely silvery-grey scaly beneath; nerves 5 – 8 pairs, faint. **Inflorescence** panicle, in upper axillary, 5 – 8 cm long, densely pubescent; pedicels 3 – 4 mm. **Flowers** small, unisexual. **Calyx** campanulate, 4 mm, pale green with a purple center, 4-lobed; lobes triangular 1 – 2 mm, pubescent on both sides. **Petal** none. **Stamens** 4, on a globose head at the end of a slender staminal column. **Fruits** samara, ellipsoid, woody, 6 by 4 mm, with a longitudinal ridge, glabrous, shiny brown.

Locality	Ban Ta Se, Hat Samran Subdistrict, Trang Province.
Distribution	India, Burma, Cambodia, Vietnam, Malay Peninsula, Indonesia, Australia.
Ecology	In mangrove forest; altitude at sea level.
Uses	The wood is used for house building, making household items, and other construction. The fruits are used as a toy for children, (M).
Material studied	UBON 1358
Reference	Phengklai, Fl. Thail. 7(3) : 578. 2001.

Taccaceae

Tacca chantrieri Andre

Figure 75 C – D

Vernacular Nang khruan (นางครวญ), Khang khao (ค้างคา)

Herb, up to 40 cm tall; rhizome cylindrical, 1.5 cm diam. **Leaves** simple, 3 – 12 together, rosulate; petioles erect, 15 – 25 cm long, 5 – 7 mm diam., sheath 3 – 10 cm long; blades herbaceous, glabrous, elliptic, oblong to lanceolate, 25 – 40 by 9 – 15 cm, apex acuminate, margin entire, base oblique, obtuse; nervation pinnate; nerves 8 – 12 pairs. **Inflorescences** umbellate, up to 40 cm long. Involucral bracts 4, decussate, green to dark purple; 2 outer bracts ovate or lanceolate, 4 – 6 by 2 – 3 cm; 2 inner bracts thinner, ovate to oblong, 4.5 – 6.5 by 4 – 6 cm. Floral bracts 6 – 12, filiform, 10 – 15 cm long, pale green or greenish-violet. **Flowers** bisexual, greenish to dark purple, 1 – 2.5 cm long and 0.6 – 2 cm across. Pedicels 1.5 – 3 cm long. **Perianth** 6-lobed, mostly reflexed during anthesis and persistent as a small remnant;

3 outer lobes ovate or triangular, 5 – 12 by 3 – 8 mm; 3 inner ones broadly ovate or triangular, 4 – 11 by 4 – 12 mm. **Stamens** 6, epipetalous, greenish-yellow. **Ovary** inferior, obpyramidal, 6-ribbed, 1-loculed, ovules numerous; style single; stigma 3-fid, reflexed. **Fruit** berry-like, triangular oblong, 2 – 4 by 1 – 2 cm, green or dark purple, each side with longitudinal ridges, crowned by persistent perianth. **Seeds** many, reniform.

Locality	Ban Khao Khram, Srinakharin Subdistrict, Phattalung Province.
Distribution	S.China, India, Bangladesh, Burma, Malay Peninsula, Laos, Vietnam.
Ecology	In evergreen forest, shaded and humid places; altitude 50 – 100 m. Flowering and fruiting February – August.
Uses	The rhizomes are sliced, dried, and then macerated in local whisky. Then this alcoholic macerate is taken as an aphrodisiac, and also for good overall health. Sometimes these sliced rhizomes in local whisky are ingested for that purposes as well, (B). The whole plant is used as an ingredient of the formula F2 taken as a blood tonic and to relieve bodily discomfort, (B, M).
Material studied	UBON 921, BKF 29734
Reference	Phengklae, Fl. Thail. 6(1) : 3. 1993.

***Tacca integrifolia* Ker Gawl.**

Figure 75 E – F

Vernacular Nang khruan (นางครวญ), Khang khao dam (ค้างคาวดำ)

Herb, up to 80 cm tall; rhizome cylindrical, 3 cm diam. **Leaves** simple, 3 – 12 together, rosulate; petioles erect, 50 cm long, sheath 3 – 10 cm long; blades herbaceous, glabrous, oblong to lanceolate, 15 – 60 by 15 – 20 cm, apex acuminate, margins entire, base attenuate; nervation pinnate; nerves 8 – 12 pairs. **Inflorescences** umbellate, up to 60 cm long. Involucral bracts 4; 2 outer bracts opposite, elliptic to lanceolate, 1.5 – 14.0 by 0.5 – 7.0 cm, green to purple, veined black; 2 inner ones implanted together more or less in the axil of one of the outer bracts, thinner than the outer ones, oblanceolate or spatulate, 2.5 – 22.0 by 1.0 – 11.0 cm, white, shaded purple. Floral bracts filiform 6 – 12, white or greenish-yellow, 12 – 15 cm long. **Flowers** greenish-violet, 1.5 – 3.0 cm long and 0.5 – 3.0 cm across. Pedicels 0.5 – 4.0 cm. **Perianth** 6-lobed, mostly reflexed during anthesis; 3 outer lobes elliptic, triangular or oblong, 6 – 15 by 4 – 9 mm; 3 inner ones ovate to obovate, 5 – 15 by 5 – 16 mm. **Stamens** 6, epipetalous, greenish-yellow. **Ovary** inferior, obpyramidal, 6-ribbed, 1-loculed, ovules numerous; style single; stigma 3-fid, reflexed. **Fruit** a berry-like, slightly 6-ribbed, green to black, 2.5 – 5 cm long, 2 – 3 cm wide, crowned by persistent perianth. **Seeds** many, ovoid, concave.

Locality	Ban Khao Khram, Srinakharin Subdistrict, Phattalung Province.
Distribution	China, India, Bangladesh, Burma, Malay Peninsula, Borneo, Java, Sumatra.
Ecology	In evergreen forest, shaded and humid places; altitude 50 – 100 m. Flowering and fruiting February – August.
Uses	This plant is used in a similar way as <i>Tacca chantrieri</i> Andre, (B, M).
Material studied	UBON 935, BKF 088379
Reference	Phengkhlai, Fl. Thail. 6(1) :1. 1993.

Thymelaeaceae

Linostoma pauciflorum Griff.

Figure 60 B

Vernacular Pha mi (พามี่)

Woody climber, up to 10 m long; branches slender, glabrous. **Stipules** absent. **Leaves** simple, opposite; petioles 1.5 – 2 mm; blades thinly coriaceous, broadly elliptic, 1 – 4 by 1.8 – 2 cm, apex obtuse and mucronate, margins entire, base obtuse to rounded, glabrous, rather glaucous beneath. **Inflorescence** terminal or axillary, umbelliform, on 5 – 10 mm long peduncle, pendulous, few-flowered, provided with 2 opposite leafy bracts; bracts usually smaller than but sometimes as large as the ordinary leaves, ovate-oblong, 2 – 4 by 1– 2 cm, creamy white, membranous, with less lateral nerves than the leaves; pedicels short. **Flowers** bisexual, pale yellowish-green. **Calyx** tube slender, 6 – 10 mm long, slightly narrowed towards both ends, 5-lobed; lobes elliptic, 3 – 10 by 1 – 3 mm, glabrous, spreading. Petaloid appendages 10, filiform, 5 mm long, fleshy. **Stamens** 10, unequal, exserted. **Ovary** superior, ellipsoid, 4 – 6 mm long, sericeous, 1-loculed; ovule 1; style filiform, 1 – 1.5 by 6 – 7 mm. Seed 1, globose.

Locality	Ban Hat Sung, Pa Pha Yom District, Phattalung Province.
Distribution	Burma, Malay Peninsula, Sumatra, Borneo.
Ecology	Evergreen forest, secondary forest, rubber plantations; altitude 40 m. Flowering and fruiting September – October.
Uses	The roots are cut, and then mashed, into which a proper amount of urine is added, then dried. They are wrapped by the leaves of <i>Senna alata</i> (L.) Roxb., and it is smoked as a cigarette to relieve nasal polyp, (B). The whole plant is chopped, and scattered over a fish pond to poison fish, (B, M). It is also used as an insecticide; in this case, it is pounded, into which water is added. Then a squeezed juice is sprayed on the plants, (B).

Material studied UBON 211 , BKF 125572

Reference Peterson , Fl. Thail. 6(3) : 236. 1997.

Tiliaceae

Corchorus capsularis L.

Figure 34 B

Vernacular Po kra chao (ปอกระเจา) , Ka ching ba yu (กาจิงบายู)

Annual herb, erect, up to 2 m tall; branches glabrescent, red. **Stipules** linear-subulate, 3.5 mm long. **Leaves** simple, spirally arranged; petioles slender, 1 – 3 cm long, red, pubescent on the upper sides; blades thinly coriaceous, lanceolate oblong, 5 – 10 by 2 – 4 cm, apex acuminate, margins serrate, base rounded with a pair of filiform appendages and 3-nerved, glabrescent; secondary nerves 3 – 6 pairs. **Flowers** bisexual, small, yellow, solitary or in cymes, opposite the leaf. **Sepals** 5, free, lanceolate, red, 3 by 1 mm, glabrescent at base. **Petals** 5, free, yellow, spathulate, 4 by 1 mm, glabrescent at base. **Stamens** many, free. **Ovary** superior, 6-to 9- loculed; locules 2-ovuled; style subulate; stigma pointed. **Fruit** a capsule, subglobose, with 10 – 13 longitudinal ridges, 0.9 by 1.2 cm , red when ripe .

Locality Ban Ka Lo Se La, Su-ngaikolok District, Narathiwat Province.

Distribution India, Burma, China, Vietnam, Malay Peninsula, Indonesia, Philippines.

Ecology In open places, swamp areas; altitude near sea level. Flowering and fruiting October – December.

Uses The leaves together with few rice grains are pounded, and then a poultice is applied onto the affected areas to treat abscesses, contusion, and ulcer, (M).

Material studied UBON 207, BKF 105350

Reference Phengkai, Fl. Thail. 6(1) : 32. 1993.

Ulmaceae

Trema cannabina Lour.

Figure 76 F

Vernacular Kira (กีรา)

Shrub, up to 6 m tall, much-branched; branchlets slender, spreading, often drooping, densely silvery-hairy when young. **Stipules** linear lanceolate, caducous. **Leaves** simple, alternate; petioles 8 – 10 mm long; blades thinly coriaceous, narrow

ovate-lanceolate, 4 – 8 by 2 – 3.5 cm , apex caudate acuminate, base rounded, margins serrulate, glabrous on both surfaces except for the midrib and nerves which sometimes sparsely hairy when young; 3-nerved at base, nerves 4 – 5 pairs, sunken above, raised beneath. **Inflorescence** axillary panicle, lax, 1.5 – 2 cm long. **Flowers** unisexual, male and female flowers on the same plant. **Male flowers** 1.2 mm diam., perianth 5-lobed; lobes oblong-lanceolate, 1 – 1.5 mm long, membranous; stamens 5; pistillode present. **Female flowers** 1.5 mm diam.; perianth 5-lobed ; lobes, ovate acute, 1.5 mm long, membranous; staminode absent; ovary superior, ovoid, glabrous, slightly compressed, 1-loculed, 1-ovuled; styles 2, short. **Fruit** a drupe, ovoid, slightly compressed, 2.5 by 2.0 mm, ripening orange.

Locality	Ban Ka Lo Se La, Su-ngaikolok District, Narathiwat Province.
Distribution	Burma, China, Indo-China, Malesia , Australia.
Ecology	Common in lowland secondary forest, edges of forest, roadsides; altitude near sea level to 20 m. Flowering and fruiting throughout the year.
Uses	A chip of the bark is bruised, and then kept in mouth for 30 minutes to treat aphthous ulcer, (M).
Material studied	UBON 199 , BKF 079665
Reference	Soepadmo in Fl. Mal. Ser. 1. 8(2) : 50. 1977.

***Trema tomentosa* (Roxb.) Hara.**

Vernacular Kira (กึ๊รา)

Shrub, up to 10 m tall; branches spreading, more or less horizontal; young parts densely covered with silvery hairs. **Stipules** linear-lanceolate, 5 mm long, pubescent. **Leaves** simple, alternate; petioles 1.0 – 1.5 cm long; blades thin- to thick - coriaceous, ovate-lanceolate, 8 – 15 by 4 – 6 cm, apex acuminate-caudate, margins serrate throughout, base cordate, asymmetrical; upper surface sparsely hairy, rough; under surface densely covered with silvery simple hairs; 3-nerved at base, nerves 5 – 6 pairs. **Inflorescences** axillary panicle, condensed, 1.5–2.0 cm long. **Flowers** unisexual; male and female ones on the same plant. **Male flowers** 1.5 – 2.0 mm long, perianth 5-lobed; lobes membranous, ovate, 1 mm long, margin hairy; stamens 5, filaments 1 mm long, flat, glabrous; pistillode present. **Female flowers** 1 mm long; staminode absent; ovary superior, subglobose, glabrous, 1-loculed, 1-ovuled; styles 2, densely hairy. **Fruit** a drupe, subglobose, 4 by 3 mm, ripening black.

Locality Ban To Wo, Su-ngaikolok District, Narathiwat Province.

Distribution East tropical Africa, Madagascar, SE.Asia.

- Ecology Common in the lowland, peat swamp forest, hills, as a pioneer plant invading and occupying newly opened up habitats on various kinds of soils, including limestones; altitude near sea level. Flowering and fruiting throughout the year.
- Uses This plant is used in a similar way as *Trema cannabina* Lour, (M).
- Material studied UBON 204, BKF 26988
- Reference Soepadmo in Fl. Mal. Ser.1. 8(2) : 53. 1977.

Urticaceae

Laportea interrupta (L.) Chew

Vernacular Kalang tang kai (กะลั่งตังไก่อ)

Monoecious annual herb, up to 60 cm tall, with slightly stinging hairs; stem weak, often woody at base. **Stipules** intrapetiolar, bifid, 3 mm long. **Leaves** simple, alternate; petioles slender, 5 – 8 cm long, pubescent; blades thinly chartaceous, broadly ovate, 6 – 7 by 5 – 6 cm, apex pointed, margins serrate, base rounded to truncate, sparsely irritant hairy on both surfaces especially on the midrib and veins underneath; nerves 4 – 6 pairs, prominent, the basal pair reaching to more than half the length of the blades. **Inflorescences** axillary spike, bisexual, up to 18 cm long, sometimes with short branches. **Flowers** unisexual, green, crowded in groups along the spike and branches. **Male flowers** minute; sepals 4, cymbiform, with few irritant hairs at the apex; petal none; stamens 4, opposite the sepals; pistillode minute. **Female flowers** minute; sepals 4, unequal; the two lateral ones larger, almost enclosing the ovary, glabrous; petal none; ovary ovoid, asymmetric; stigma linear, trifid, greatly reflexed, the central branch longest. **Fruit** achene, asymmetrically ovoid, flattened, small.

- Locality Ban Huay Ngo, Khok Pho District, Pattani Province.
- Distribution Africa, India, Sri Lanka, Japan, China, SE.Asia and Malesia to Queensland and the Pacific Islands.
- Ecology In waste ground, open places, garden beds; altitude near sea level. Flowering and fruiting throughout the year.
- Uses The roots are rubbed against earthen pot, using the washing from uncooked rice as a solvent. Then the suspension is applied to the affected areas to treat herpes infection, (B).
- Material studied UBON 1254, BKF 104700
- Reference Chew, Gard. Bull. Sing. 25 : 147. 1972.

***Poikilospermum suaveolens* (Blume) Merr.**

Figure 69 B

Vernacular Mu ru (มูรู)

Dioecious woody climbers; with many, long adventitious roots. Twigs glabrous; periderm splitting into transverse brown flakes. **Stipules** boat-shaped, caducous. **Leaves** simple, alternate; petioles 8 – 10 cm long, terete; blades coriaceous, glabrous, broadly ovate, 10 – 12 by 8 – 10 cm, apex obtuse, margins entire, base round or subcordate; nerves 9 – 11 pairs, very straight and prominent. **Male inflorescence** axillary, 4 – 6 cm long, solitary, branched dichotomously 2–3 times; peduncular bracts paired, foliaceous, boat-shaped, 5 – 8 by 4 – 6 mm, persistent. **Male flowers** purple, sessile, 1–2 mm long, as broad, born crowded together on swollen peduncular receptacle, forming floral capitula; floral capitula many, 0.5 cm diam.; tepals 2 – 3, pubescent outside; stamens 2, 1 mm long. **Female inflorescence** axillary, 5 – 7 cm long, solitary, branched once or twice; peduncular bracts paired, boat-shaped, slightly longer than those of the male or the same; floral capitula 3 – 4 cm diam., normally 2 in each inflorescence. **Female flowers** purple, pedicellate; pedicels 1 cm long, white. Perianth tubular, glabrous, 2 – 3 mm long, 1 – 2 mm across, 4-lobed; lobes very short, imbricate, obtuse and strongly incurved at the apex. Ovary superior, glabrous, 1 – 2 mm long, 1-loculed; ovule 1. **Fruits** achene, ellipsoid, 3 – 5 by 1 mm, entirely covered by the persistent perianth. **Seed** 1.

Locality	Ban Khao Khram, Srinakharin Subdistrict, Phattalung Province.
Distribution	India, China, Indo-China, Nicobar Islands, Malay Peninsula, Sumatra, Java, Borneo, Philippines, Celebes and Moluccas.
Ecology	In tropical rain forest, slightly shady places; altitude 90 – 110 m. Flowering and fruiting April – August .
Uses	The roots are used as cordage. The climbing stems especially the large ones, when cut, yield quite amount of drinking water for emergency use by thirty trekkers. This sap is considered to treat helminthes in children. The cut stem that is lighted at one end is usually used as a torch for honey - collecting on a tall tree, (B, M).
Material studied	UBON 1026
Reference	Wee-Lek , Gard. Bull. Sing. 20(1) : 88. 1963.

Verbenaceae

Avicennia alba Blume

Vernacular Pi pi (ปีปี)

Tree, up to 20 m tall; twigs terete, pendulous; bark grey to black, smooth. Pneumatophore present. **Stipules** absent. **Leaves** simple, opposite; petioles 1–2 cm long; blades coriaceous, elliptic-lanceolate to lanceolate, 7–12 by 2–5 cm, apex acuminate, margins entire, base narrowed, glossy dark green above, silvery grey beneath; nerves inconspicuous. **Inflorescences** spike-like cymes, 3–6 cm long, tawny tomentose, terminal and upper axillary; bracteoles 3. **Flowers** bisexual, yellow, sessile, 5–6 mm across. **Sepals** 5, connate at base, suborbicular, slightly unequal, 2 mm long, imbricate. **Corolla** campanulate, 4-lobed; lobes ovate, 3 mm long, densely hairy outside. **Stamens** 4, inserted in the throat of corolla tube, short. **Ovary** superior, ovoid, densely hairy, 1-loculed, 4-ovuled; style 2-lobed, lobes linear, acute, erect. **Fruit** not found.

Locality Ko Sukon, Palian District, Trang Province.

Distribution India, Burma, Indo-China, Malesia to N.Australia.

Ecology In mangrove forest; in newly well-drained mud banks often on the sea-face, associated with *Sonneratia alba* J. Sm., *Rhizophora mucronata* Poir. Flowering February – April.

Uses The leaves are burned, and then smoke obtained is used as an antidote to fumigate the inflamed areas caused by poisonous marine fish, (M).

Material studied UBON 1089, BKF 63449

Reference Kochummen, Tree Fl. Mal. 3 : 299. 1978.

Avicennia marina (Forsk.) Vierh.

Figure 28 D

Vernacular Pi pi (ปีปี)

Shrub, 5–8 m tall, much branched; twigs 4-angled; stem often bifurcated, bark greyish-white. Pneumatophores present. **Stipules** absent. **Leaves** simple, opposite; petioles 4–14 mm long; blades coriaceous, ovate to elliptic, 3–8 by 2.5–4.5 cm, apex obtuse, margins entire, base cuneate, glossy dark green above, greyish-white beneath; nerves inconspicuous. **Inflorescences** cymose head, 3–4 cm long, terminal and upper axillary; peduncles 1–5 cm long; bracteoles 3. **Flowers** bisexual, orange-yellow, sessile, 8–10 mm across. **Sepals** 5, free, suborbicular, edges ciliate, slightly unequal, 3–4 mm long, imbricate. **Corolla** campanulate, 4-lobed; lobes ovate, 3.5–4 mm long, densely hairy outside. **Stamens** 4, inserted in the throat of corolla tube, short. **Ovary** superior, ovoid, densely hairy, 1-loculed, 4-ovuled; style 2-lobed; lobes linear, acute, recurved. **Fruit** not found.

Locality	Ko Sukon, Palian District, Trang Province.
Distribution	Along shores of the Red Sea and the western Indian Ocean to the Cape of Good Hope, eastward along the coasts of tropical Asia, Malesia, Australia, Taiwan, Ryukyu and the Pacific Islands.
Ecology	In mangrove forest; a pioneer species colonizing the fringe of mangroves facing the sea-face in directly exposed situations; most gregarious on sandy soil, commonly associated with <i>Bruguiera cylindrica</i> (L.) Blume. Flowering February – June.
Uses	The leaves of this plant are used in a similar way as <i>Avicennia alba</i> Blume, (M).
Material studied	UBON 1092, BKF 119805
Reference	Kochummen, Tree Fl. Mal. 3 : 300. 1978.

***Callicarpa candicans* (Burm.f.) Hochr.**

Figure 31 C

Vernacular Tamo bue si (ต้ามื้อบือชี)

Shrub, 1 – 3 m tall; branches densely stellate-hairy. **Stipules** absent. **Leaves** simple, opposite; petioles 1 – 2 cm long; blades herbaceous, oval-elliptic, 10 – 18 by 5 – 8 cm, apex acuminate, margins finely serrate-dentate, base attenuate, glabrous above, except on the midrib stellate-hairy; lower surface densely stellate-hairy, densely yellow gland-dotted; nerves 6 – 8 pairs. **Inflorescence** panicle consisting of many cymes, terminal or in upper axillary, 2 cm long; peduncles and pedicels short; bracts inconspicuous, pubescent. **Flowers** bisexual, pale violet, numerous, small, 2.5 mm long. **Calyx** campanulate, 1.5 mm long, densely stellate-hairy, minutely 4-toothed. **Corolla** campanulate, 2.5 mm long, 4-lobed; lobes rounded. **Stamens** 4, 4.5 mm long, exserted. **Ovary** superior, glabrous, 2-loculed; ovules 2 in each locule; style slender 5–6 mm long; stigma widened. **Fruit** a drupe, globose, 4 mm diam., ripening dark violet, glabrous, substened by persistent calyx. **Seeds** 4.

Locality	Ban La Lo, Su-ngai-padee District, Narathiwat Province.
Distribution	Malay Islands to Australia.
Ecology	In open places, edges of forest; altitude 50 m. Flowering and fruiting throughout the year.
Uses	The leaves are used as a contraceptive; a handful of the young leaves are boiled with two litre of water. It is boiled until the volume is ½ of original volume. Then this decoction is taken; carried out for 4 – 5 days, (M). The roots are used for the treatment of post partum; its decoction is given to a mother to drink after giving birth. It is considered to accelerate uterine involution, (M).

Material studied UBON 194

Reference Backer & Bakh.f., Fl. Java. 2 : 601. 1965

***Callicarpa longifolia* Lam.**

Figure 31 D

Vernacular Tok khao (ดอกขาว)

Shrub, 2 – 3 m tall; branches densely stellate-hairy. **Stipules** absent. **Leaves** simple, opposite; petioles 0.5 – 1.5 cm long; blades herbaceous, oblong-lanceolate, 8 – 16 by 3 – 7 cm, apex long acuminate, margins finely serrate-dentate, base cuneate, thinly stellate-hairy above with the exception of the midrib and large nerves, stellate-hairy beneath, sparsely yellow gland-dotted on both surfaces; nerves 10 – 12 pairs. **Inflorescences** panicle consisting of many cymes, in upper axillary, branching dichotomously; peduncles and pedicels short; bracts inconspicuous. **Flowers** bisexual, numerous, pale violet, small, 2.5 mm long. **Calyx** campanulate, minutely 4-toothed, 1.2 mm long, stellate-hairy. **Corolla** campanulate, 2 mm long, 4-lobed; lobes rounded, stellate-hairy outside. **Stamens** 4, 5–6 mm long, exserted. **Ovary** superior, glabrous, 2-loculed; ovules 2 in each locule; style slender, 6 mm long, violet at the tip; stigma broad, flattened. **Fruit** a drupe, globose, small, ripening white.

Locality Ban To Wo, Su-ngaikolok District, Narathiwat Province.

Distribution Java, Borneo, Sumatra to N.Australia.

Ecology In edges of forest, open places, roadsides; altitude near sea level. Flowering and fruiting throughout the year.

Uses The crushed leaves, mixed with lime juice, and then applied as a poultice to cure wounds, (B). The leaves are also used for the treatment of post partum and fever. The young leaves together with turmeric rhizome and rice grains are crushed, mixed with water. Then a squeezed juice is given to a mother to drink after giving birth 3 days in the morning. It is considered to accelerate uterine involution. For the treatment of fever, the leaves of this plant species together with those of *Dendrophthoe incarnata* (Jack) Miq. and *Syzygium polyanthum* (Wigh) Walp. are boiled with water, and then this water is used to bath patient with chronic fever once a day in the morning, for 3 days, (M). The roots are used as an ingredient in the formula F 24 to treat fever and nausea, (B).

Material studied UBON 198

Reference Ridl., Fl. Mal. Pen. 2 : 616. 1976.

***Clerodendrum serratum* (L.) Moon**

Figure 33 E

Vernacular Mata kesing (มาตาคีซิง)

Erect shrub; upper part herbaceous, pubescent; branches angled. **Stipules** absent. **Leaves** simple, whorled; petioles 3 – 4 cm long; blades rigidly herbaceous, obovate or oblanceolate, 10 – 20 by 5 – 8 cm, apex shortly acuminate, margins serrate, base narrowed, glabrous; nerves 8 – 9 pairs. **Inflorescences** a terminal panicle, erect, 15 – 28 cm long, densely pubescent; branches and flowers many; bracts foliaceous, ovate acuminate, densely pubescent. **Flowers** bisexual. **Calyx** campanulate, green, 4 mm long, minutely 5-toothed; teeth triangular. **Corolla** bilabiate, 2-lipped; upper lip creamy white, lower pale violet; corolla-tube cylindric 5 mm long, far exceeding the calyx, villous inside. **Stamens** 4, didynamous, curved, villous at base, exserted. **Ovary** superior, 4-loculed; ovule 1 per locule; style filiform; stigma short, bifid. **Fruit** a drupe, obovate, ripening black, 5 mm long.

Localities Ban To Wo, Su-ngaikolok District, Narathiwat Province.

Distribution India, Burma, Cambodia, Sumatra, Java, Celebes.

Ecology Wet and open places; altitude near sea level. Flowering and fruiting throughout the year.

Uses A juice of the crushed leaves is applied onto the affected areas to cure cracked and inflamed soles, (M).

Material studied UBON 188

Reference Backer & Bakh.f., Fl. Java. 2 : 608. 1965.

***Gmelina elliptica* Sm.**

Figure 52 A – B

Vernacular Ching jai (จิง جای), Bu ngo kue ta (บุงอเกีอตา)

Spiny scrambling shrub, up to 8 m tall; spines sharp, 2 – 4 cm long. **Stipules** absent. **Leaves** simple, opposite, petioles 0.5 – 4 cm long; blades herbaceous, ovate-elliptic, 2–8 by 2–5 cm, apex acute, margins entire, base acute, sparsely hairy above, densely hairy beneath; nerves 5–8 pairs. **Inflorescences** paniced cymes, terminal, 15– 20 cm long; bracts ovate lanceolate; pedicels 1.5 cm long. **Flowers** bisexual, bright yellow, 2 – 4 cm long. **Calyx** campanulate, coriaceous, 6 mm long, with few external glands, minutely 5-toothed. **Corolla** bilabiate, tube much-widened above, 2-lipped; upper lip entire; lower one larger, 3-lobed, hairy on the outside. **Stamens** 4, didynamous, included. **Ovary** superior, glabrous, 4-loculed; ovule 1 in each locule; style filiform, 2.5 cm long; stigma capitate. **Fruit** a drupe, subglobose, 2.5 cm diam., fleshy, glabrous, ripening yellow.

Locality Ban Hua Yang, Rattaphum District, Songkhla Province.

Distribution	Nicobars, Malaysia.
Ecology	In open places, hedges; altitude 70 m. Flowering and fruiting throughout the year.
Uses	The young leaves are eaten raw to treat leucorrhoea; eaten blanched as a vegetable to treat hemorrhoids, (M). The crushed fruits mixed with lime juice are applied on the children's neck to relieve cough, (M). The fruits are also used to treat earache; the mature ones are slightly heated until they become soft, and then squeezed. A squeezed juice is dropped into the aching ears, (B).
Material studied	UBON 507 , BKF 081657
Reference	Backer & Bakh.f., Fl. Java. 2 : 606. 1965.

***Peronema canescens* Jack.**

Figure 67 C – E

Vernacular Su ka (ซูกา)

Tree, up to 20 m tall; branches densely pubescent, 4-angled. **Stipules** absent. **Leaves** imparipinnate, opposite; petioles 5–15 cm long; rachis 30 – 90 cm long, winged; leaflet 4 –10 pairs, subopposite or opposite, accrescent towards the apex of the leaves, subsessile, chartaceous, elliptic-lanceolate, 4.0 –20.0 by 1.5 –3.5 cm, apex acuminate, base narrowed and slightly unequal, margins entire, upper surface glabrous, pubescent beneath, the young ones purple; nerves 10 –13 pairs, closely spaced, distinctly raised below. **Inflorescence** a large corymbose panicle, terminal, 30 – 60 cm long, widely branched. **Flowers** bisexual, small, subsessile, greenish-white. **Calyx** 5-lobed almost halfway down; lobes triangular, acute, 2 – 3 mm long, densely pubescent outside. **Corolla** bilabiate, tube 1 –2 mm long, minutely 5-lobed; lobes 1.5 – 2.5 mm, appressed-pubescent outside. **Stamens** 2, inserted at the base of the widen part of the corolla-tube, filaments 5 mm, far exserted. **Ovary** superior, globose, densely hairy, 4-loculed; ovule 1 per locule. **Fruit** a small drupe, globose, 3 mm diam., pale brown, hairy. **Seeds** 4, small.

Locality	Ban To Wo, Su-ngaikolok District, Narathiwat Province.
Distribution	Malay Peninsula, Java, Sumatra, Borneo.
Ecology	In secondary forest, swampy river edges; altitude near sea level. Flowering and fruiting November – January.
Uses	The leaves are used for the treatment of symptosis, and to get rid of helminthes in children. They are dried and pounded. Then a powder obtained is made into infusion, and taken for the treatment of symptosis. For the getting rid of helminthes, the crushed leaves mixed with lime juice, and then applied over a child's abdomen, (M). The wood is used for house building, making hedge, (B, M). Local people sometimes use the leaves

for special magic treatment to ward off bad spirit from their houses, (M).

Material studied UBON 1186

Reference Ridl., Fl. Mal. Pen. 2 : 636. 1965.

***Stachytarpheta jamaicensis* (L.) Vahl**

Figure 73 B

Vernacular Phan ngu khiao (พั่นงูเขียว)

Herb, 100 – 150 cm tall; stem 4-angled, sparsely pubescent, green. **Stipules** absent. **Leaves** simple, opposite; petioles 2 cm long; blades ovate-elliptic, herbaceous, dark green, bullate between the secondary lateral nerves, 7 – 10 by 4 – 5 cm, apex acute, base decurrent on petiole, margins serrate to base, shortly ciliate, short-hairy on the lower surface of the larger nerves; nerves 3 – 4 pairs, prominent beneath. **Inflorescences** terminal, slender spike, 20 – 22 cm long, glabrous. Bracts ovate acuminate, 6 mm long, ciliate. **Flowers** bisexual, arising from hollows of rachis. **Calyx** elongate cylindric, 4-toothed, pale green. **Corolla** dark violet, salver-shaped, tube cylindric 1 cm long; limb 5-lobed, 1.3 cm across. **Stamens** 2, enclosed. **Ovary** superior, 2-loculed, ovule 1 per locule; style long exserted; stigma capitate. **Fruit** not found .

Locality Ban Ton Sai, Srinakharin Subdistrict, Phattalung Province.

Distribution S.America.

Ecology In grass-field, young forest, roadsides, watersides; altitude 80 m. Flowering January – February.

Uses The leaves (6 – 7 leaves) are eaten raw to relieve stomach ache, (B).

Material studied UBON 183, BKF 086855

Reference Ridl., Fl. Mal. Pen. 2 : 613. 1967.

***Vitex negundo* L.**

Vernacular Khon thi (คนที) , Ku ning (กุนนิง)

Shrub, 1–2 m tall; branchlets 4-angled, pubescent. Stipules absent. Leaves 3- to 5-foliolate, opposite; petioles 5 – 8 cm long; petiolules 1.0 – 1.5 cm long. Blades chartaceous, lanceolate, unequal, the middle one largest, 6 – 12 by 2 – 4 cm, apex acute, base cuneate, margins entire, dark green and sparsely pubescent above, pale and more densely pubescent beneath; nerves 6 – 12 pairs. Inflorescence terminal panicle, 15 – 30 cm long, 10 – 20 cm wide, white-tomentose. Flowers numerous, bisexual, 6 mm long, 5.5 mm diam. Calyx campanulate, 2 – 3 mm long, shortly 5-toothed; teeth acute. Corolla bilabiate, tube 3 – 4 mm, tomentose inside, 2-

lipped, with 2 lobes on the upper lip and 3 lobes on the lower ones, pale violet. Stamens 4, didynamous, inserted on corolla-tube, exserted. Ovary superior, 2-loculed; ovules 2 per locule; style filiform, 4.5 mm long; stigma bifid. Fruit a drupe, globose to broadly ovoid, 5 mm diam., ripening purple or black, subtended by the enlarged calyx. Seeds 4.

Locality	Ban Hua Yang, Rattaphum District, Songkhla Province.
Distribution	E.Africa, Madagascar, Iran, Afganistan, Pakistan, India, Sri Lanka, Burma, Indo-China, China, Japan, Malesia.
Ecology	In humid places, water sides, waste places; altitude 40 m. Flowering and fruiting throughout the year.
Uses	A decoction of the whole plant is drunk daily as a substitute of drinking water to relieve bodily discomfort, (B). The leaves are soaked in water that used as holy water in religious ceremonies, (B).
Material studied	UBON 848
Reference	Backer & Bakh.f., Fl. Java. 2 : 605. 1965.

***Vitex pinnata* L.**

Figure 78 C

Vernacular Non (นน), Lue bae (ลือแบ)

Tree up to 20 m tall; bark pale yellowish-grey, fissured and flaky in thin long pieces, young part pubescent. **Stipules** absent. **Leaves** 3-to 5-foliolate, opposite; petioles 3.5 – 10.5 cm long; petiolules 2 – 8 mm long; blades chartaceous, obovate or elliptic, leaflets unequal, the outer leaflets often small, middle one largest, 6–20 by 3–10 cm, apex acuminate, base cuneate, margins entire, nearly glabrous above, pubescent beneath; nerves 13–20 pairs. **Inflorescences** panicle, terminal and in the upper leaf-axils, 8–25 cm long, 15 cm wide, ovoid or pyramidal, dense; bracts greenish-brown, persistent. **Flowers** bisexual. **Calyx** campanulate, 5-toothed, 4 – 5 mm long, tomentose. **Corolla** bilabiate, tube 8 mm, 2-lipped with 2 lobes on the upper lip and 3 on the larger lower ones, violet. **Stamens** 4, didynamous, exserted. **Ovary** superior, glabrous, 2-loculed, ovules 2 per locule; style filiform; stigma bifid. **Fruit** a drupe, globose, 8 mm diam., ripening purple and finally black, subtended by the enlarged calyx. **Seeds** 4.

Locality	Found in every study sites.
Distribution	SE.Asia
Ecology	Secondary forest, peat swamp forest; altitude from near sea level to 180 m. Flowering and fruiting January – May.

- Uses A decoction of the stem barks and leaves is used as an abstergent. The ripe fruits (2 – 3 fruits) are eaten raw for the prevention of abscesses, (M). The wood is used to make household items, agricultural equipments , etc, (B, M).
- Material studied UBON 847
- Reference Kochummen, Tree Fl. Mal. 3 : 311. 1978.

Violaceae

Rinorea bengalensis (Wall.) O.K.

Figure 70 A

Vernacular Phak wan chang khlong (ผักหวานช้างโขลง)

Shrub, 2 m tall, young parts with yellow-brown pubescent. **Stipules** triangular, 1.5 mm long, caducous. **Leaves** simple, alternate; petioles 1–2 cm long; blades thickly membranous, elliptic, 7–17 by 3–7 cm, apex acuminate, base cuneate, margins shallowly serrate, sparsely pubescent; nerves 7 – 8 pairs. **Inflorescence** axillary corymb, on the young twigs, 1 cm long; peduncles short. **Flowers** bisexual, small, pale green; pedicels 4 mm, articulate, jointed near the base of the peduncle. **Sepals** 5, ovate, fleshy, 2 by 1 mm. **Petals** 5, 3.0 by 1.5 mm, thin, margins hairy. **Stamens** 5, filaments connate into a tube, anthers longer than the filaments. **Ovary** superior, ovoid, hairy, 1-loculed, ovules 3; style thick, straight, with terminal subglobose stigma. **Fruit** subglobose capsule, 12 mm diam., subtended by the persistent sepals and petals, green when ripe, sparsely pubescent. Seeds 3, light brown.

Locality Ban Ton Sai, Srinakharin Subdistrict, Phattalung Province .

Distribution Sri Lanka, S. India, Burma, Malaysia.

Ecology In primary forest, forest edges; on various soils but often on steep limestone hills; altitude 80 m. Flowering and fruiting January – March.

Uses The young leaves are eaten cooked, (B).

Material studied UBON 225 , BKF 129298

Reference Jacops and Moore, Fl. Mal. Ser.1. 7(1) : 184. 1971.

Vitaceae

Ampelocissus arachnoidea (Hassk.) Planch.

Figure 25 F – G

Vernacular Som kung (ส้มกุ้ง)

Climbing herb, up to 10 m long, pubescent. Roots tuberous, large. **Stipules** broadly ovate, 2–3 mm long, red. **Leaves** simple, alternate; petioles slender, 6 – 15

cm long, pubescent; blades thickly herbaceous, suborbicular, 10 – 20 by 9 – 18 cm, apex acute, margin coarsely dentate, base deeply cordate; upper surface shiny green, pubescent; lower surface paler, densely arachnoid. **Inflorescence** leaf-opposed panicle, 5–20 cm long, consisting of small racemes, cirrhiferous. **Flowers** many, dense, bisexual, greenish-yellow; pedicels short. **Calyx** cupular, short, obscurely 5-lobed. **Petals** 5, free, oblong, glabrous, 2 mm long, apex acute, with minute red spots at the tip. **Stamens** 5, free; filaments white, slender, 2 mm long. **Ovary** superior, surrounded by the tubular disk, shallowly 10-grooved, 2-loculed; ovules 2 in each locule; style short, thick; stigma small.

Locality	Ban Ta Se, Hat Samran Subdistrict, Trang Province.
Ecology	Insecondary forest, slightly shady places, rubber plantations; altitude 30 m. Flowering April – May.
Uses	The sourish young leaves are cooked in various way as a vegetable, (B, M).
Material studied	UBON 1210
Reference	Backer & Bakh.f., Fl. Java. 2 : 87. 1965.

***Cayratia japonica* (Thunb.) Gagnep.**

Figure 31 F

Vernacular La kong (ลาคอง)

Climbing herbs; stem angled, sparsely pubescent; tendrils branched. **Stipules** triangular. **Leaves** 5-foliolate, spirally arranged, partly opposite; petioles 4 cm long; blades herbaceous, ovate, 3.5 – 4.0 by 2.0 – 3.5 cm, apex acute to acuminate, margins serrate, base cuneate, glabrous except on midrib; nerves 7–9 pairs. **Inflorescences** axillary, corymbose cyme, long-peduncled. **Flowers** small, bisexual, pale green. **Calyx** cup-shaped, truncate. **Petals** 4, free, sparsely pubescent on outer sides. **Stamens** 4, opposite to petals. Disk cupular, adnate to the base of ovary, thin-margined, yellow. **Ovary** superior, ovoid, 2-loculed; ovules 2 in each locule; style terete; stigma small. **Fruit** berry, globose.

Locality	Ban To Wo, Su-ngaikolok District, Narathiwat Province.
Distribution	Java, Australia, Japan, China.
Ecology	Edges of peat swamp forest, moderately shaded localities; along roadsides; altitude near sea level. Flowering and fruiting throughout the year.
Uses	The leaves together with turmeric rhizome are crushed, and then a mixture is used as a poultice applied externally to relieve swellings, (M).
Material studied	UBON 224
Reference	Backer & Bakh.f., Fl. Java. 2 : 93. 1965.

***Cayratia trifolia* (L.) Domin**

Figure 32 A

Vernacular Thao khan (เถาคั่น)

Climbing herb, glabrous, with tendrils. **Stipules** absent. **Leaves** trifoliolate, alternate; petioles 6 – 8 cm long; petiolules of the terminal leaflets 15 mm, and those of the lateral ones 7 mm; blades herbaceous, ovate, 5 – 8 by 4 – 5 cm, apex acuminate, margins entire, base rounded, often slightly oblique in lateral leaflets; glabrous on both surfaces; nerves 6 – 8 pairs. **Inflorescences** umbellate cyme, leaf-opposed; peduncles 8 – 10 cm long; pedicels 4 mm. **Flowers** bisexual, 2 mm across. **Calyx** cupular, very short, truncate, green. **Petals** 5, free, valvate, triangular, 2 by 2 mm, apex acute, green. **Stamens** 4, opposite the petals. Disk cupular, thick, fleshy, adnate to the base of ovary. **Ovary** superior, 2-loculed; ovules 2 in each locule; style terete; stigma minute. **Fruit** berry, depressed globose, 1.5 cm diam., shining black. **Seeds** 4, trignonous, black.

Locality	Ban Hua Yang, Rattaphum District, Songkhla Province.
Distribution	India, Java.
Ecology	In waste places, roadsides in lowland; altitude 70 m. Flowering and fruiting throughout the year.
Uses	The sourish young fruits are cooked in sour curry; they become inedible upon ripening, (B, M).
Material studied	UBON 1219
Reference	Backer & Bakh.f., Fl. Java. 2 : 93. 1965.

***Cissus hastata* Miq.**

Vernacular Som khao (ส้มข้าว), Som podee (ส้มพอด้), La kong da ra (ลากงดาไร่)

Climbing herb; stem 4-angled, narrowly winged, glaucous, with bifid tendrils. **Stipules** absent. **Leaves** simple, alternate; petioles 2.5–5.0 cm long; blades herbaceous, oblong-triangular, 5–11 by 3–5 cm, apex acute, margins obscurely dentate, base sagittate, glabrous on both surfaces. **Inflorescences** cyme, leaf-opposed; petioles 4 – 6 cm long. **Flowers** bisexual, 3 mm long; pedicels 2 mm long. **Calyx** cupular, its rim distinctly raised above the insertion of the petals, truncate. **Petals** 4, free, ovate-oblong with a cucullate, pale green with reddish-purple apex. Disk cupular, adnate to the base of ovary. **Stamens** 4, petal-opposed; anthers 2-celled, red. **Ovary** superior, glabrous, 2-loculed; ovules 2 in each locule; style thin; stigma small, capitate. **Fruit** a berry, globose, 5 mm across, ripening black. **seed** 1.

Locality	Ban Ton Panun, Khuan Kalong District, Satun Province.
Distribution	Borneo, Java.

Ecology	Found in lowland to montane forest, secondary forest, waterside; altitude 100 m.
Uses	The sourish young leaves are cooked in sour curry, or slightly roasted and then eaten as a side dish with rice, (B, M). The leaf shoots are cut into small pieces, and then put in palm wine for sour taste, (B).
Material studied	UBON 223 , BKF 101441
Reference	Backer & Bakh.f., Fl. Java. 2 : 92. 1965.

Zingiberaceae

Alpinia conchigera Griff.

Figure 22 C

Vernacular Kha ling (ข่าลิง), Ku wa kue ting (กุวาเกือตึง)

Herbs, stem slender, growing close together, leafy shoots up to 100 cm tall. **Leaves** simple; petioles 3 – 5 mm long; ligules broadly ovate, 4 mm long, glabrescent. Blades coriaceous, glabrous except on midrib of under surface, oblong, 17 – 20 by 3 – 5 cm, apex acuminate, edges ciliate, base decurrent. **Inflorescences** panicle, from the end of leafy shoot, 10 – 20 cm long, rachis slender, short-hairy. **Flowers** arising in group of 2 or more from the axis of the inflorescence. Primary bracts 3 – 5 cm long, caducous, lanceolate. Secondary bracts at the base of each group of flowers, broadly funnel-shaped, 4 – 6 mm long, obliquely truncate with a hairy edge. Pedicels 5 mm long. **Calyx** cup-shaped, glabrous, 3 mm long and wide, 3-lobed, pale green. **Corolla** tube pale yellow, as long as calyx, sparsely pubescent outside, 3-lobed; dorsal lobe elliptic, concave, 7 by 4 mm; lateral ones broadly ovate, 6 by 5 mm. Labellum obovate, emarginate, 0.7 by 0.9 cm, cream or pinkish white with 4 – 5 red streaks on each side; and a raised, wrinkled band down the center. **Stamen** 1, filament slender, curved, yellowish, 5 mm long; anther 2 mm long. **Staminode** red, triangular, 2 by 1.5 mm. **Ovary** inferior, globose, glabrous, 2 – 3 mm diam., 3-loculed; ovules 2 in each locule; stigma cup-shaped. **Fruit** a capsule, globose, 7 mm diam., glabrous, bright red, with remains of flower at apex. **Seeds** 3 – 5, strongly aromatic, with white aril.

Locality Ban Hua Yang, Rattaphum District, Songkhla Province.

Distribution E.Bengal to Indo-China and south to Malaysia and Sumatra.

Ecology In open places, especially in rather wet ground; altitude near sea level. Flowering and fruiting throughout the year.

Uses The hearts of young shoots are eaten raw as a vegetable, and also used as a condiment in local dishes, (B, M).

Material studied UBON 925, BKF 083982

Reference Holttum, Gard. Bull. Sing. 13(1) : 142. 1950.

Alpinia javanica Blume

Figure 22 A – B

Vernacular Put nu (ปุดหนู)

Herb, 2 – 3 m tall; rhizome short, fleshy. **Leaves** simple, distichous; leaf sheath smooth, with finely nerves; ligules 1 – 3 cm long, bilobed apex, fimbriate; petioles 5 – 6 cm long, finely pubescent; blades coriaceous, oblong, 40 – 70 by 7 – 13 cm, apex cuspidate, base slightly unequal acute, finely pubescent. **Inflorescence** a pendulous panicle, born on leafy terminal shoot, 15 – 20 cm long; rachis red, pubescent, shortly branched; when young surrounded by large, lanceolate bracts, 8 – 10 by 3 cm; bracteoles cup-shaped, persistent, 1.5 – 2 by 2 – 3 cm, apex truncate, hairy base, thin, brittle when dry, enclosing 2 – 3 exerted flowers. Pedicels hairy, up to 5 mm long. **Flowers** bisexual. **Calyx** funnel-shaped, shallow cleft, pink, glabrous, 2 cm long. **Corolla** tube white, 1.3 – 1.5 cm long; lobes 3, unequal, white at margin, pink at middle; posterior lobe largest, up to 2.5 by 1.5 cm. Labellum broadly obovate, 4.7 by 4.5 cm, bright orange with a broad white margin, margin denticulate. **Stamen** with distinct filament, 1.5 cm long, pubescent; anther yellow, 1 cm long. **Staminodes** 2, red, 3 mm long. **Ovary** inferior, 3-loculed, ovules numerous; stigma infundibuliform, white. **Fruit** a globose capsule, tipped by persistent calyx, hairy, 2.5 cm diam. **Seeds** numerous.

Locality	Ban La Lo, Su-ngai-padee District, Narathiwat Province.
Distribution	Java, Sumatra.
Ecology	In tropical rain forest, rubber plantations; altitude 90 m. Flowering and fruiting throughout the year .
Uses	A juice of the crushed rhizome mixed with water which is used in rice cooking, and then this cooked rice is used as an ingredient in some local dishes. The flowers are eaten raw as a vegetable, (M).

Material studied UBON 258, BKF 126709

Reference Backer & Bakh.f., Fl. Java. 3 : 48. 1968.

Alpinia mutica Roxb.

Vernacular Put (ปุด), Kae nae (แกแน)

Herbs; rhizome short, thick. Leafy shoots close together, up to 1.5 – 2 m tall. **Leaves** simple; petioles 1 – 2.5 cm long; ligules red, 0.8 – 1 cm long, obtuse, ciliate. Blades coriaceous, lanceolate, 35 – 50 by 6 – 8 cm, apex caudate, 2 cm long, base tapered, margins ciliate. **Inflorescences** arising from the end of the leafy shoot, panicle, 15 – 20 cm long. Peduncular bract boat-shaped, 8 – 10 long. Rachis thick, densely pubescent. Flowering branches about 4 cm long; bracts oblong, white, 2 by 1.5 cm. **Flowers** bisexual. **Calyx** white, tubular, dilate above, 2 – 3 cm long, 3-

lobed, pubescent outside. **Corolla** white, tubular; tube 1.5–1.8 cm long, 3-lobed; lobes oblong, apex obtuse. Labellum 3.5 – 4 by 3.5 cm, concave, yellow with numerous red dots and veins, 2-lobed, with a dark red swelling at the base on each side. **Stamen** 1, fleshy, filament 1.3 cm long, anther 0.8 cm long. **Ovary** inferior, subglobose, pubescent, 5 – 6 mm diam., 3-loculed; ovules numerous. **Fruit** a capsule, globose, 2 – 2.5 cm diam., pubescent, orange-red. **Seeds** numerous, dark brown, with translucent white aril.

Locality	Ban Lu Bo Sa Ma, Su-ngaikolok District, Narathiwat Province.
Distribution	Malay Islands.
Ecology	In open and wet places, in village; altitude 20 m. Flowering and fruiting throughout the year.
Uses	The heart of young shoots and the young fruits are eaten raw as a vegetable, (B, M). A decoction of the mature rhizome is drunk daily for the treatment of urinary stones, (M).
Material studied	UBON 257, BKF 084832
Reference	Ridl., Fl. Mal. Pen. 4 : 279. 1967.

***Amomum testaceum* Ridl.**

Figure 24 A – C

Vernacular Krawan (กระวาน)

Herbs, rhizome just below surface of the ground. Leafy shoots 2 – 3 m tall; petioles none; ligules 5 mm long, bilobed, ciliate. **Leaves** simple; blades lanceolate to oblong-linear, thinly coriaceous, 50 – 60 by 7 – 10 cm, apex acuminate acute, base tapered, glabrous on both surfaces except for hairs on edges towards apex. **Inflorescences** arising from the rhizome, spiciform, oblong in outline, 10 – 15 cm long, 3 – 4 cm wide; peduncles 5 – 15 cm long, 5 – 8 mm through; bracts papery, buff coloured, narrowly triangular, 3–3.5 by 1.5 cm, ciliate, persistent; bracteoles buff coloured, ovate, 1.5 by 0.8 cm, soft hairy, tubular at the base, 2-lobed, split to the base. **Flowers** bisexual. **Calyx** tubular, pubescent, 2 cm long, 3-lobed. **Corolla** tube a little longer than calyx, pubescent, 3-lobed; lobes white, oblong, 1.3 by 0.3 cm. Labellum, white, obovate, concave, 1.8 by 1.5 cm; apex broadly rounded, crinkled and shortly reflexed; purple lines at the median; hairy at the base. **Stamen** 1, filament white, glabrous, 1.2 cm long, 2 mm wide; anther 3 mm long; connective 2-lobed; lobes spreading. **Ovary** inferior, tomentose, 3 – 4 by 2.5 mm, 3-loculed; ovules many in each locule. Fruit a capsule, globose 1 cm diam., pale brown, thin-walled, slightly ribbed, slightly pubescent, covered with persistent bracts in a compact infructescence. Seeds many, brown, subtriangular, flattened, with thin translucent white aril.

Locality Ban Khao Phra, Rattaphum District, Songkhla Province.

Distribution Borneo.

Ecology	Occurs wild in shady places, thick woods, local but wide-scattered, chiefly near limestone rocks; altitude 350 m. Flowering and fruiting May – June.
Uses	The hearts of young shoots are cooked in curries. The aromatic seeds are commonly used as a condiment in various dishes, (B, M). The seeds are also used as an ingredient in various traditional remedies, such as a carminative, stomachic, etc, (B).
Material studied	UBON 1204
Reference	Holttum, Gard. Bull. Sing. 13(1) : 205. 1950 ; Ridl., Fl. Mal. Pen. 5 : 266. 1967.

***Elettariopsis curtisii* Baker**

Figure 45 A – B

Vernacular Put sing (ปลูตสิงห์) , Nga ka sing (งากาซิ่ง)

Small herb up to 80 cm tall. Rhizomes slender, wide-creeping, bearing leaf-shoots at intervals of 10 – 25 cm. Leaf-shoots with 1 – 5 leaves; petioles 5 – 18 cm long. **Leaves** simple; blades herbaceous, lanceolate to elliptic, 25 – 40 by 4 – 10 cm, apex acuminate to slightly caudate, base decurrent, glabrous. **Inflorescences** arising from the base of leaf-shoot, horizontal, just below the ground surface, extending to about 10 cm long, with sterile sheath along non-floriferous portion. Floral bracts on distal part of the inflorescence, 1.5 cm long, ovate, glabrous, white, bearing in its axil a flower on a pedicel 0.5 – 1.5 cm long. Bracteoles 0.5 – 1.5 cm long, split to the base on one side, apex broadly rounded, white, glabrous. **Flowers** bisexual. **Calyx** 3 – 4 cm long, white, cleft a third of its length down one side, apex with 3 short blunt teeth. **Corolla** tube 4.5 cm long, slender, white, 3-lobed; lobes white, 1.5 cm long; upper lobe strongly concave at distal part, 5 – 6 mm wide, other ones narrower. Labellum white, 2.5 by 2 cm, base narrower and widening abruptly, apex reflexed and crinkled at edges; median band thickened and yellow, bordered by a lateral red stripe on either side towards the base. **Stamen** 1; filament 4 mm long and broad; anther 4 mm long. **Staminodes** small, 5 mm long. **Ovary** inferior, glabrous, 3-loculed; ovules many. Stigma with broad triangular mouth fringed with short hairs. **Fruit** unknown.

Locality	Ban Lu Bo Sa Ma, Su-ngaikolok District, Narathiwat Province.
Distribution	SE.Asia.
Ecology	In lowland forest, damp open places and edges of forest; altitude near sea level. Flowering March – May.
Uses	The young rhizomes and leaves are eaten raw as a vegetable with the side benefit of relieving flatulence, (M). A decoction of the whole plant is taken to relieve flatulence, stomach ache, (B, M).
Material studied	UBON 255 , BKF 082645
Reference	Holttum, Gard. Bull. Sing. 13(1) : 217. 1950.

***Etilingera elatior* (Jack) R.M.Sm.**

Figure 46 A – B

Vernacular Kala (กาหลา), Dala (ดาหลา)

Large rhizomatous herb; rhizomes just below ground, stout, 3 – 4 cm diam. Leafy shoots up to 5 – 6 m tall. Petioles 2 – 3 cm long, surface longitudinally ribbed; ligules 2 cm long, apex slightly lobed, margin with short hairs. **Leaves** simple; blades coriaceous, oblong, 30 – 60 by 10 – 15 cm, apex acuminate, margins entire, base rounded, glabrous on both surfaces. **Inflorescences** arising from the base of the leafy shoot, raised well above the ground; peduncle 40 – 200 cm long. Receptacle of inflorescence elongating markedly during flowering, forming a cone-shaped flower-head, 10 – 12 cm long, bearing numerous flowers. Inflorescence bracts waxy, red, dark pink or light pink, rarely white; outer ones sterile, deflexed or spreading, oblong-elliptic, 5 – 10 by 2 – 3 cm; inner ones fertile, resembling the sterile ones but smaller, decreasing in size towards the center of the flower-head, rising in a cone, each one producing one flower. Bracteoles tubular, 2–2.5 cm long, 0.8 cm across, 2-lobed, deeply split down the opposite side, glabrous, translucent with a pink median band. **Flowers** bisexual. **Calyx** tubular, 2.5 cm long, 1 cm across, 3-lobed, each lobes with an apical tuft of hairs, deeply split down the opposite side, glabrous, white, deep pink at apex. **Corolla** tubular, tube 2 cm long, shortly 3-lobed, apex rounded, white with pink tips. Labellum oblanceolate, 2 by 1 – 1.5 cm, white with a yellow margin, apex rounded. **Stamen** 1; filament short, adaxially hairy. Anthers 8 – 9 mm long, dark red with white hair. Staminode absent. **Ovary** inferior, globose, 0.5 cm diam., 3-loculaed; ovules numerous. Style white, hairy. Stigma red. **Fruit** subglobose, 2.5 cm diam., densely covered with appressed short hairs; apex with remnant of calyx; ripening green. **Seeds** irregularly angular and truncate; surrounded by thin, whitish, and translucent pulp.

Locality Ban La Lo, Su-ngai-padee District, Narathiwat Province.

Distribution Malay Peninsula, Java, Sumatra.

Ecology Commonly cultivated as ornamental plants; in humid and slightly shady places; altitude 90 m. Flowering throughout the year.

Uses The young shoots and inflorescences are eaten raw as a vegetable with the side benefit of curing flatulence and stomach ache, (B, M). A decoction of the inflorescences is taken; it is said to decrease high blood pressure, (M). The whole plant is boiled with water. Then this water is used as a bath for children to get rid of helminthes, (M).

Material studied UBON 1182, BKF 118474

Reference Khaw, Gard. Bull. Sing. 53(1) : 206. 2001.

***Etlingera littoralis* (Koenig) Giseke**

Figure 45 F

Vernacular Put khang khok (ปลูดคางคก)

Herb, rhizome deeper in the ground. Leafy shoots up to 5 m tall; sheaths conspicuously ribbed longitudinally, white hairy; ligules triangular, acute, 1.3 by 1 mm, pubescent; petioles 2–3 cm long. **Leaves** simple; blades coriaceous, oblong-linear, 60–70 by 10–12 cm, apex caudate, base tapered, glabrous above, finely pubescent beneath. **Inflorescences** subterranean except for apices of sterile bracts and flowers, arising at base of leafy shoot, 10–15 cm long; peduncle very short, horizontal, then erect, entirely subterranean. Bracts of lower part of inflorescence sterile, fleshy, white with pink at margin, broadly ovate, 5 by 2–2.5 cm. Fertile bracts or floral bracts white, with red at tip, ovate-oblong, fleshy, 5–6 by 1–1.5 cm, pubescent outside. Bracteoles pale pink, tubular, 4.5 cm long, 2-lobed. **Flowers** bisexual. **Calyx** membranous, tubular, 3-lobed, 3–4 cm long, greenish-white with pink at tip, pubescent outside. **Corolla** tubular, tube white, 3 cm long, 3-lobed; lobes pink, linear, apex obtuse. Labellum held horizontal, 3-lobed; middle lobe elongate, 3–4 cm long; lateral lobes short, 0.5 cm long; each lobe reddish with yellow margin, apex rounded. **Stamen** 1; filament short, 0.5 by 0.4 cm; anther 1 by 0.3 cm, red. Staminode none. **Ovary** inferior, 0.4 cm long, pubescent, 3-loculed; ovules numerous; stigma subglobose, red. Fruit not found.

Locality	Ban Khao Phra, Rattaphum District, Songkhla Province.
Distribution	China, Malay Peninsula, Borneo, Java, Sumatra.
Ecology	In evergreen forest, humid and shady places; altitude near sea level to 350 m. Flowering May–June.
Uses	The tender central parts of the shoots and young rhizomes are eaten cooked, (B).
Material studied	UBON 1351, BKF 118474

Reference Khaw, Gard. Bull. Sing. 53(1) : 235. 2001.

***Hedychium ellipticum* Hamm ex Smith**

Figure 54 A–B

Vernacular Khing haeng (ขิงแห้ง)

Epiphytic; rhizome strongly aromatic, leafy stem 1.5–2 m tall. **Leaves** simple, distichous, subsessile; ligules membranous, narrowly triangular, acuminate, 2.5 cm long. Blades coriaceous, narrowly elliptic, 30–45 by 4–6 cm, apex acuminate, margins entire, base cuneate, glabrous on both surfaces except on the midrib of the lower surface covered with sparsely appressed hairs. **Inflorescences** spike, from the end of the leafy stem, rather dense, 20 cm long and 10 cm wide; peduncle 6–7 cm long, thick, curved, bringing the inflorescence upright; bracts triangular, obtuse, sparsely pubescent outside, 1.2 cm long, green; bracteoles ovate, obtuse, sparsely pubescent outside, 6 mm long. **Flowers** bisexual, one to each bract,

yellow, fragrant, 8 cm long. **Calyx** tubular, slender, 2.2 cm long, apex shallowly 3-lobed, greenish-yellow. **Corolla** tube slender, 3.3 cm long, greenish-yellow, pubescent inside, glabrous outside, 3-lobed; lobes linear-lanceolate, 4–5 cm long, 2 cm wide, white turning deep yellow, glabrous. Lateral staminodes petaloid, oblanceolate-linear, 3.5 cm long, 4–5 mm wide; labellum obovate, 2.8 by 1–3 cm, apex deeply divided, white turning yellow. **Stamen** 1; filament slender, 4 cm long, deep yellow; anther 1 cm long, red. **Ovary** inferior, globose, 3-loculed; ovules numerous, pale pink; style filiform, 8 cm long, pale yellow; stigma slightly enlarged, concave. **Fruit** capsule, subglobose, 3-lobed, 1.3 cm diam., sparsely pubescent, crowned by calyx remnants. **Seeds** numerous, oblong, 4 by 2 mm smooth, shining pink, with yellow lacerated aril.

Locality	Ban Ton Sai, Srinakharin Subdistrict, Phattalung Province.
Ecology	Cultivated for medicinal purposes. Flowering and fruiting August – September.
Uses	The aromatic rhizomes are used as an ingredient in a stomachic and a remedy to relieve bodily discomfort, (B).
Material studied	UBON 1246
Reference	Sirirugsa & Larsen, Nord. J. Bot. 15 : 303. 1995.

***Scaphochlamys biloba* (Ridl.) Holtt.**

Vernacular Sala thang (ซาลาทัง)

Rhizome slender, 4 – 5 mm diam., greenish-white, creeping. Stem above the ground often bearing only 1 leaf; sheath 2, violet; petioles 3 – 7 cm long. **Leaves** simple; blades herbaceous, lanceolate, 10 – 13 by 3 – 5 cm, apex acute, margins entire, base rounded and slightly unequal, upper surface dark green with two white strips at both sides of mid vein, lower surface violet. **Inflorescence** a spike about 7 cm long; bracts and bracteoles violet, lanceolate. **Flowers** bisexual, spirally arranged on rachis. **Calyx** white, tubular, 1 cm long, shallowly 3-lobed; lobes unequal. **Corolla** white, tubular, 3 cm long, 3-lobed; lobes linear, 1.5 by 0.5 cm. Labellum obovate, 2.5 by 1.5 cm, 2-lobed; lobes rounded, white, base yellowish inside. **Stamen** 1; filament white, 4 mm long; anther yellow, 4 mm long, back pale pink. Staminodes oblong, white, 2.0 by 0.6 cm. **Ovary** inferior, 3-loculed, ovules numerous; style filiform; stigma globose. Fruit not found.

Locality	Ban La Lo, Su-ngai-padee District, Narathiwat Province.
Ecology	In humid, shady places; altitude 70 m. Flowering March – April.
Uses	A decoction of the whole plant is taken as a contraceptive; it is taken one cupful once a day, daily, (M).
Reference	Sirirugsa, P. A Taxonomic Survey of Zingiberaceous Species in Southern Thailand. 34. 1987.

***Zingiber montanum* (Koenig) Theilade**

Figure 79 C

Vernacular Phlai dam (ไพลดำ)

Herb, 1.5 m tall, rhizome yellowish-orange inside. **Leaves** simple, distichous; petioles short; leaf sheaths glabrous; ligules minute, 2-lobed, pubescent outside. Blades linear, 18 – 35 by 3.5 – 5.5 cm, apex acuminate, margins entire, base obtuse, glabrous on both surfaces or hairy on midrib beneath. **Inflorescences** arising from the rhizome, spiciform, narrowly ovoid or fusiform, 8 – 11 by 3 cm, apex acute; peduncle 15 – 20 cm. Bracts narrowly-obovate, brownish-green with papery edges, 4 by 2 cm, apex acute, flat, finely pubescent outside; bracteoles triangular acute, convolute, 2–3 cm long, light green, purple at apex, finely pubescent outside. **Flowers** bisexual. **Calyx** tubular, membranous, white, 1.5 cm long, split on one side, 3-dentate. **Corolla** pale yellow, narrowly funnel-shaped, tube 2.5 cm long, 3-lobed; lobes oblong, apex acute, 2.5 by 1 cm; the posterior lobe slightly larger than the anterior ones. Labellum light yellow, obovate, 2.5 by 2 cm, shallowly 2-incised at the apex, margins slightly undulate dentate. **Stamen** 1; anthers linear-oblong, 1 cm long; apical appendages of connectives 1 cm long. **Staminodes** pale yellow, ovate, entire, 1 by 0.5 cm. **Ovary** inferior, 3-loculed; ovules many.

Locality	Ban Khao Khram, Srinakharin Subdistrict, Phattalung Province.
Distribution	India, SE.Asia.
Ecology	Cultivated for medicinal purpose; altitude 100 m. Flowering October – November.
Uses	The crushed rhizome mixed with local whisky, then it is squeezed. A juice obtained is applied over the affected areas to treat urticaria, (B).
Material studied	UBON 1370, BKF 090744
Reference	Theilade, Gard. Bull. Sing. 48(1,2) : 225. 1996.

***Zingiber ottensii* Val.**

Figure 79 D

Vernacular Phlai dam (ไพลดำ)

Herb, 1.5 m tall; rhizome stout, pale greyish-purple inside. **Leaves** simple, distichous; leaf sheaths broad, slightly hairy near base and apex; petioles stout, 5 mm long, finely hairy; ligules membranous, apex obtuse, 1 cm long, sparsely pubescent outside. Blades elliptic, widest above the middle, 25 – 40 by 6 – 8 cm, apex acuminate, margins slightly undulate, base obtuse, glabrous above, white hairy beneath. **Inflorescences** arising from the rhizome, spiciform, ellipsoid to cylindrical with truncate apex, 10 – 16 by 5 cm; peduncles rather robust, 20 – 30 cm long. Bracts thinly fleshy, broadly obovate, apex involute, truncate, 3.5 by 3 cm, greenish-red when young, dark red when mature. Bracteoles membranous, finely pubescent outside, triangular, white, with apex and margin purplish, 3 cm long,

convolute. **Flowers** bisexual. **Calyx** tubular, membranous, white, 1.7 cm long, glabrous, split on one side, 2-dentate, **Corolla** pale yellow, narrowly funnel-shaped, 3-lobed; lobes subequal oblong, 2–2.5 by 1 cm. Labellum obovate, pale yellow with small faint purple blotches, 2.4 by 1.8 cm, apex rounded, shallowly 2-lobed. Stamen 1; anther linear-oblong, 1.2 cm long, apical appendage of connective 1 cm long. Staminodes with colour as in the labellum, 1 cm long. Ovary inferior, globose, sparsely hairy, 3-loculed; ovules many.

Locality	Ban Bon Khuan, Rattaphum District, Songkhla Province.
Distribution	Malaysia, Java, Sumatra.
Ecology	Cultivated; altitude 120 m. Flowering October–November.
Uses	The young inflorescences are eaten raw or steamed as a vegetable, (M). A decoction of the rhizomes is taken as a carminative and for the treatment of numbness; it is drunk daily as a substitute of drinking water, (B, M). Sometimes, a piece of the rhizome is steeped in water which is used as a bath for the dead, (B).
Material studied	UBON 1373, BKF 090712
Reference	Theilade, Gard. Bull. Sing. 48(1,2) : 223. 1996.

***Zingiber spectabile* Griff.**

Figure 79 E

Vernacular Dak ngo (ดากนง)

Herb, 2–3 m tall; rhizome stout, pale yellow. **Leaves** simple, sessile, distichous; leaf sheaths sparsely pilose, margin scarious; ligules membranous, apex 2-lobed. Blades oblong or oblong-lanceolate, 20–40 by 5–9 cm, apex acuminate, margins entire, based rounded, glabrous above, sparsely hairy beneath. **Inflorescences** arising from the rhizome, spiciform, cylindric, 12–30 by 7–9 cm; peduncles 20–40 cm long, with green or reddish sheaths. Bracts obovate; apex blunt or rounded, involuted and pouched, 3–3.5 by 3.5–4 cm, at first yellow, often turning red or reddish-orange, fleshy, finely pubescent outside. Bracteoles membranous, triangular, convolute, apex acute, 2.5–3 by 1 cm. **Flowers** bisexual. **Calyx** creamy-white, tubular, membranous, 2–3 cm long, 2-lobed. **Corolla** white, narrowly funnel-shaped, tube 1.5 cm long, 3-lobed; lobes linear, slightly induplicate; the posterior lobe 2.5 by 1 cm, slightly larger than the others. Labellum obovate, dark purple with pale yellow spots, 1.7 by 1.2 cm, apex cleft. **Stamen** 1; anther yellow, linear oblong, 1 cm long; apical appendages of connectives purple, 1.5 cm long. Staminodes linear-elliptic, 1.5 by 0.5 cm, with same colour as the labellum. **Ovary** inferior, subglobose, sparsely hairy, 3-loculed; ovules many; style slender, 5.5 cm long; stigma ciliate. **Fruit** a capsule, ovoid, 2 by 1 cm. **Seeds** many, ovoid, dark brown, with white aril.

Locality Ban La Lo, Su-ngai-padee District, Narathiwat Province.

Distribution	Malaysia, Sumatra.
Ecology	In primary and secondary rain forest, edges of forest; altitude 40 – 100 m. Flowering July – September; fruiting November.
Uses	The tender central parts of the young shoots are cooked in curries; the young inflorescences are blanched, and to be eaten as a side dish with rice, (B, M). Local people sometimes hang leaves and inflorescences of this plant species in their houses. They believe that it can ward off bad spirits, (M).
Material studied	UBON 1376, BKF 46629
Reference	Theilade, Gard. Bull. Sing. 48(1) : 222. 1996.

***Zingiber zerumbet* (L.) Sm.**

Figure 79 F

Vernacular Thue phrao (ท้อพร้าว)

Herb, up to 1.5 m tall; rhizome thick, yellow inside, aromatic. **Leaves** simple, distichous; leaf sheaths sparsely hairy; petioles 5 mm long, hairy; ligules membranous, broadly triangular, obtuse, pubescent outside, 1.3 cm long. Blades broadly lanceolate, 25 – 30 by 5 – 7 cm, apex acuminate, margins entire, base obtuse, glabrous above, white hairy beneath. **Inflorescences** arising from the rhizome, spiciform, ellipsoid or ovoid, 6 – 15 by 4 – 5 cm; peduncles 15 – 25 cm long. Bracts closely appressed, obovoid-rhomboid, apex obtuse, broadly rounded with a thin papery margin, green turning red, 3.5 by 3.7 cm, sparsely pubescent outside. Bracteoles membranous, white, narrowly triangular, 3 by 1.5 cm. **Flowers** bisexual. **Calyx** tubular white, membranous, 2 cm long, split on one side, 3-dentate. **Corolla** light yellow, narrowly funnel-shaped; tube 3 cm long, 3-lobed; the posterior one largest, 2.3 by 1 cm. Labellum light yellow, suborbicular, 2 cm wide, deep yellow at the median, shallowly 2-incised at apex. **Stamen** 1; anther elliptic-oblong, 1.2 cm long, connective prolonged into a narrow appendage, with its inflexed edges clasping the upper part of style, 8 mm long. **Staminodes** obovate, light yellow, 0.7 cm wide. **Ovary** inferior, 3-loculed; ovules numerous; style slender, 5 cm long; stigma ciliate.

Locality Ban Khao Khram, Srinakharin Subdistrict, Phattalung Province.

Distribution India, China, SE.Asia.

Ecology On margin of forest or waste ground near village; in rubber plantations, evergreen forest; altitude 80 m. Flowering June – September.

Uses The young rhizomes are usually cooked in curries, (B).

Material studied UBON 1379, BKF 132107

Reference Theilade, Gard. Bull. Sing. 48(1, 2) : 227. 1996.

4.8 Study of the selected plants

4.8.1 Plant used for food

There are many kinds of local plants in the studied areas which are considered to be popular and capable of developing into economic plants. Some of the plants that yield favourite edible fruit were selected for analysis of nutritional composition. These are shown in Table 8. For the economic importance of the selected plants, the market values of the plants including sellers, consumers, products to sell. The status of the plants are observed. These are shown in Table 9.

Table 8 Nutritional composition of 6 selected plant species.

Plant	Moisture (%)	Dietary fiber (%)	Ash (%)	Total Sugar (%)	Vitamin C mg/100g
<i>Aglaia korthalsii</i> Miq.	77.9	3.2	1.2	6.7	10
<i>Baccaurea motleyana</i> (Mull.Arg.)Mull.Arg.	80.7	2.1	0.7	15.1	4
<i>Cynometra cauliflora</i> L.	88.6	3.5	0.4	5.3	9
<i>Eleiodoxa conferta</i> (Griff.)Burret	85.2	4.1	0.6	1.6	1
<i>Garcinia prainiana</i> King	81.1	3.6	0.6	9.1	1
<i>Lepisanthes alata</i> (Blume)Leenh.	77.7	9.5	0.8	9.8	16

Table 9 Market values and some concerning information of the selected plant species sold at local markets in Narathiwat Province (in 2003).

Plant	Market value (in Thai Baht)	Seller	Consumer	Product to sell	Status of plant
<i>Aglaia korthalsii</i> Miq.	12 / kg	Farmers	Local people	Fresh	Wild , cultivated
<i>Baccaurea motleyana</i> (Mull.Arg.) Mull.Arg.	15 / kg	Farmers , middlemen	Local people, visitors	fresh	Wild , cultivated
<i>Cynometra cauliflora</i> L.	15 / kg	Farmers	Local people	Fresh	Cultivated
<i>Eleiodoxa conferta</i> (Griff.) Burret	25/kg (fresh) 30/kg (pickled)	Farmers , middlemen	Local people, visitor	Fresh	Cultivated
<i>Garcinia prainiana</i> King	20 / kg	Farmers	Local people	Fresh	Wild
<i>Lepisanthes alata</i> (Blume) Leenh.	10 / kg	Farmers	Local people	Fresh	Cultivated

4.8.2 Preliminary identification of chemical constituents of the plants used for medicinal purposes.

1) Chemical constituents of *Acacia merillii* Nielsen

¹H NMR spectra of thirteen fractions from the CH₂Cl₂ extract are shown in Figure 7

Fractions 1 – 8 : The ¹H NMR spectra indicated that it might be a mixture of long chain hydrocarbon.

Fractions 9 –11 : The ¹H NMR spectra showed signals of aromatic protons at δ_{H} 7.3 – 7.6, suggesting that it might be a mixture of phenolic compounds such as flavonoid groups.

Fractions 12–13 : The ¹H NMR spectra showed signals of aliphatic protons at δ_{H} 0.5 – 2.8 and anomeric protons at δ_{H} 3.3 – 4.5 indicated that it might be a mixture of triterpenoid glycoside groups.

2) Chemical constituents of *Linostoma pauciflorum* Griff.

¹H NMR spectra of seven fractions from the CH₂Cl₂ extract are shown in Figure 8

Fraction 1 : The ¹H NMR spectrum showed many high field signals at δ_{H} 0.5 – 2.6, suggesting that it might be a mixture of triterpenoid compounds.

Fractions 2 – 5 : The ¹H NMR spectra showed signals of aromatic protons at δ_{H} 7.3 – 7.8 and aliphatic protons at δ_{H} 0.5 – 2.1, suggesting that it might be a mixture of phenolic and triterpenoid compounds.

Fractions 6 – 7 : The ¹H NMR spectra showed signals of aliphatic protons at δ_{H} 0.5 – 2.3 and anomeric protons at δ_{H} 3.2 – 4.8, suggesting that it might be a mixture of triterpenoid glycoside compounds.

3) Chemical constituents of *Lophatherum gracile* Brongn.

¹H NMR spectra of seven fractions from the CH₂Cl₂ extract are shown in Figure 9

Fractions 1 – 3 : The ¹H NMR spectra indicated that it might be a mixture of a long chain fatty acids.

Fractions 4 – 6 : The ¹H NMR spectra showed many signals of aliphatic protons at δ_{H} 0.7 – 2.8 and anomeric protons at δ_{H} 3.4 – 4.5, suggesting that it might be a mixture of triterpenoid glycoside compounds.

Fraction 7 : The ¹H NMR spectrum showed signals of aromatic protons at δ_{H} 6.8 – 7.6, suggesting that it might be a mixture of phenolic compounds.

4) Chemical constituents of *Tacca integrifolia* Ker Gawl.

¹H NMR spectra of seven fractions from the CH₂Cl₂ extract are shown in Figure 10

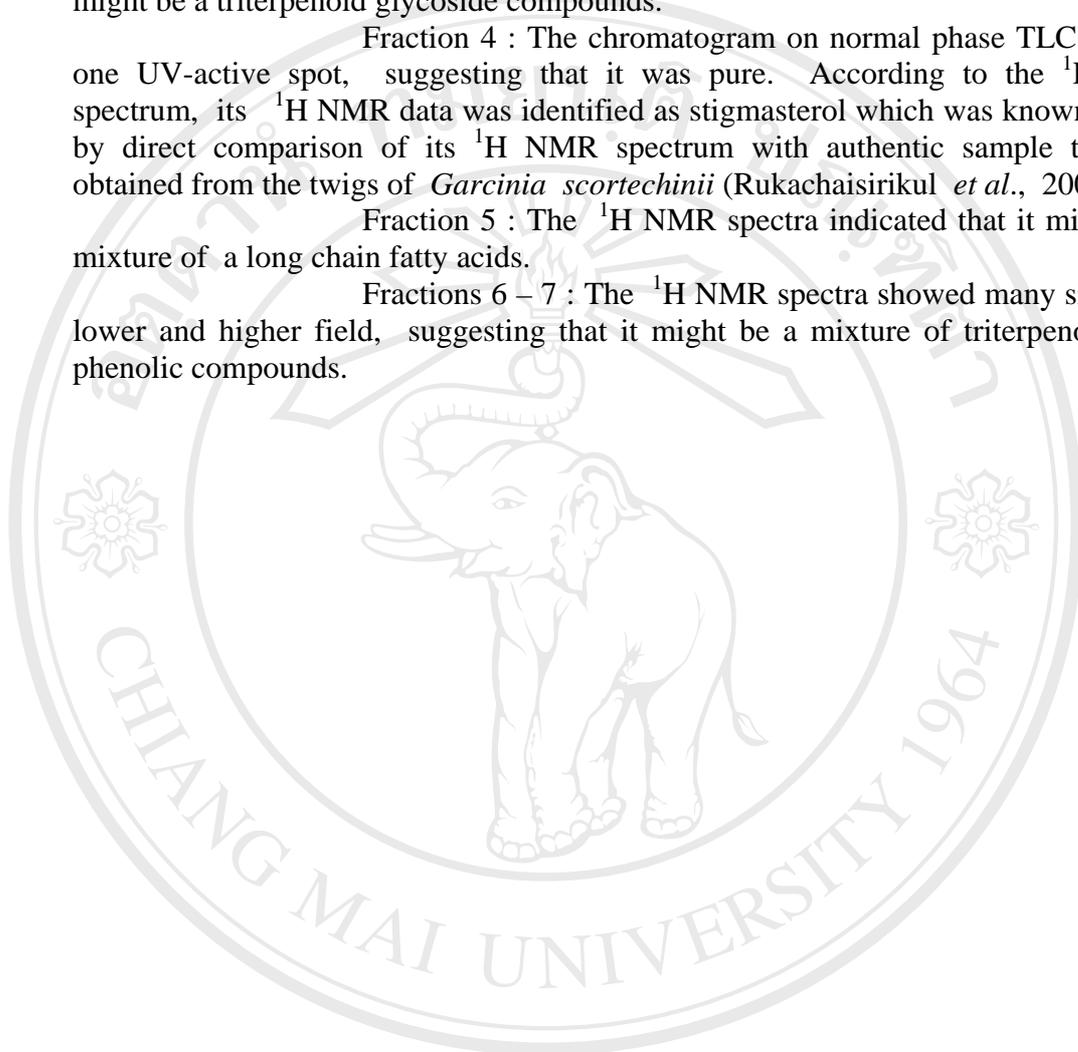
Fractions 1 – 2 : The ¹H NMR spectra indicated that it might be a mixture of a long chain hydrocarbons.

Fraction 3 : The ^1H NMR spectrum showed many high field signals at δ_{H} 0.3 – 2.8, suggesting that it contained triterpenoid compounds. Furthermore, the presence of anomeric proton signals at δ_{H} 3.3 – 4.9 suggesting that it might be a triterpenoid glycoside compounds.

Fraction 4 : The chromatogram on normal phase TLC showed one UV-active spot, suggesting that it was pure. According to the ^1H NMR spectrum, its ^1H NMR data was identified as stigmaterol which was known steroid by direct comparison of its ^1H NMR spectrum with authentic sample that was obtained from the twigs of *Garcinia scortechnii* (Rukachaisirikul *et al.*, 2000).

Fraction 5 : The ^1H NMR spectra indicated that it might be a mixture of a long chain fatty acids.

Fractions 6 – 7 : The ^1H NMR spectra showed many signals at lower and higher field, suggesting that it might be a mixture of triterpenoids and phenolic compounds.



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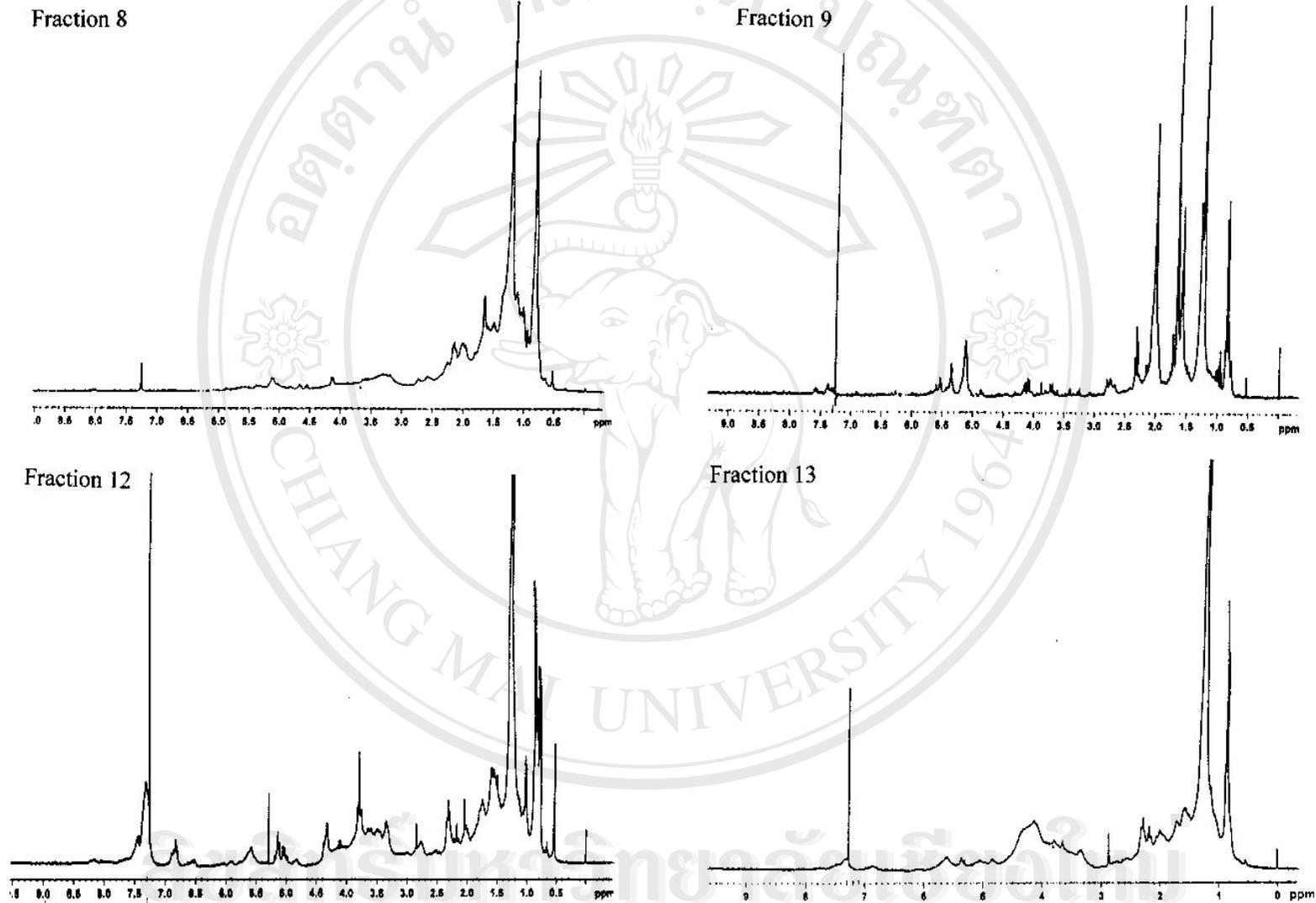
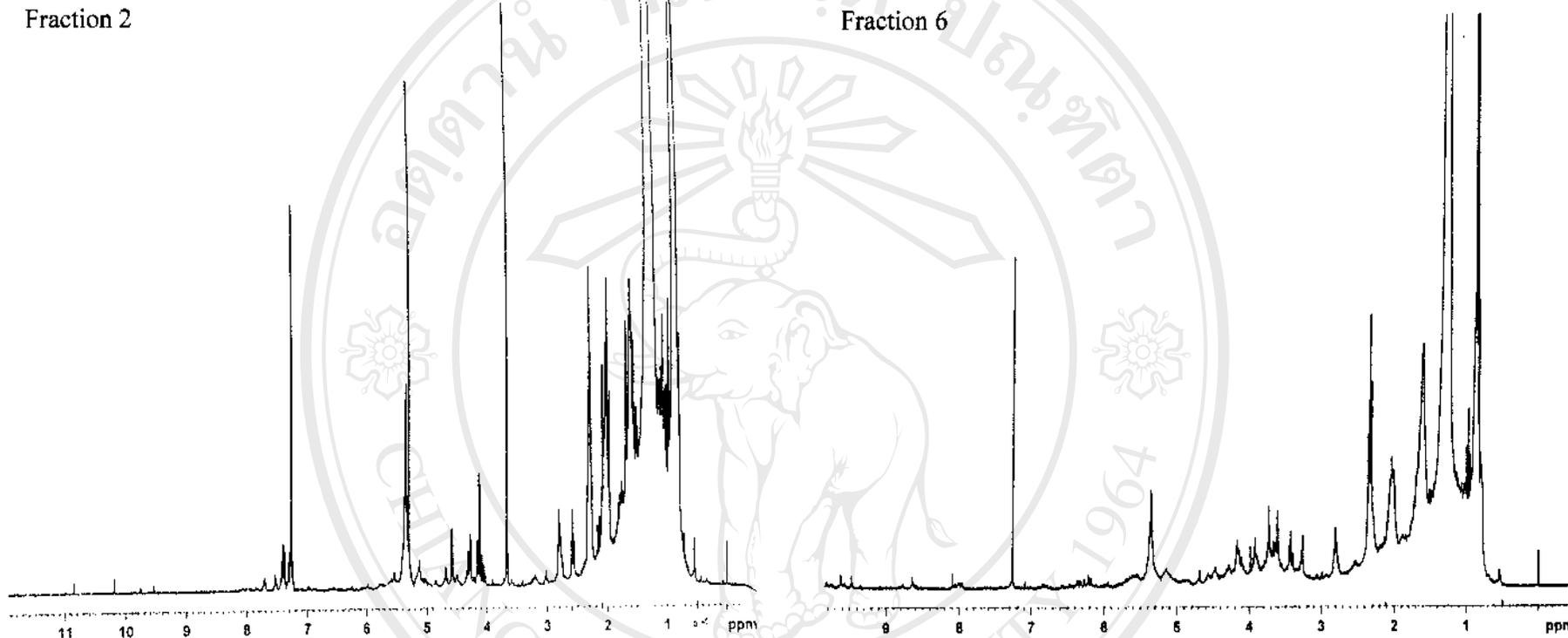


Figure 7. ¹H NMR (300 MHz., CDCl₃) spectra of *Acacia merillii* Nielsen from CH₂Cl₂ extract

Fraction 2

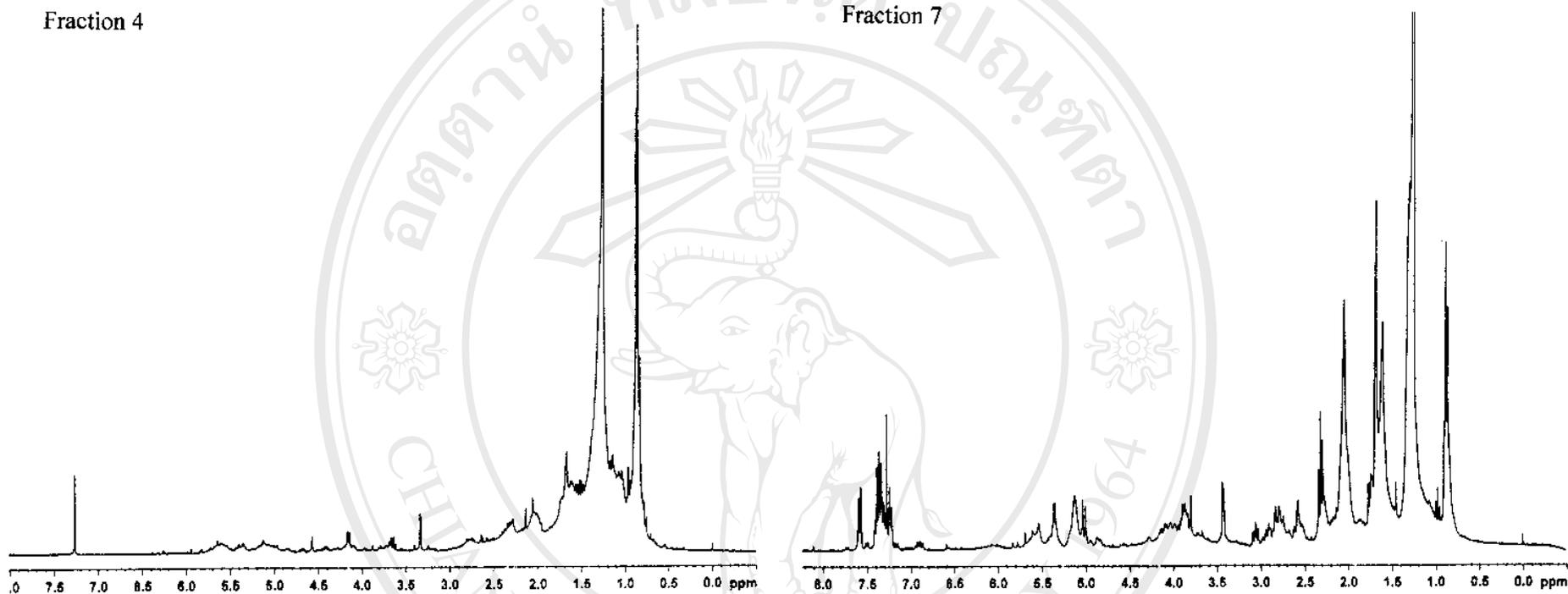
Fraction 6



366

Figure 8. ¹H NMR (300 MHz., CDCl₃) spectra of *Linostoma pauciflorum* Griff. from CH₂Cl₂ extract

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367

Figure 9. ¹H NMR (300 MHz., CDCl₃) spectra of *Lophatherum gracile* Brongn. from CH₂Cl₂ extract

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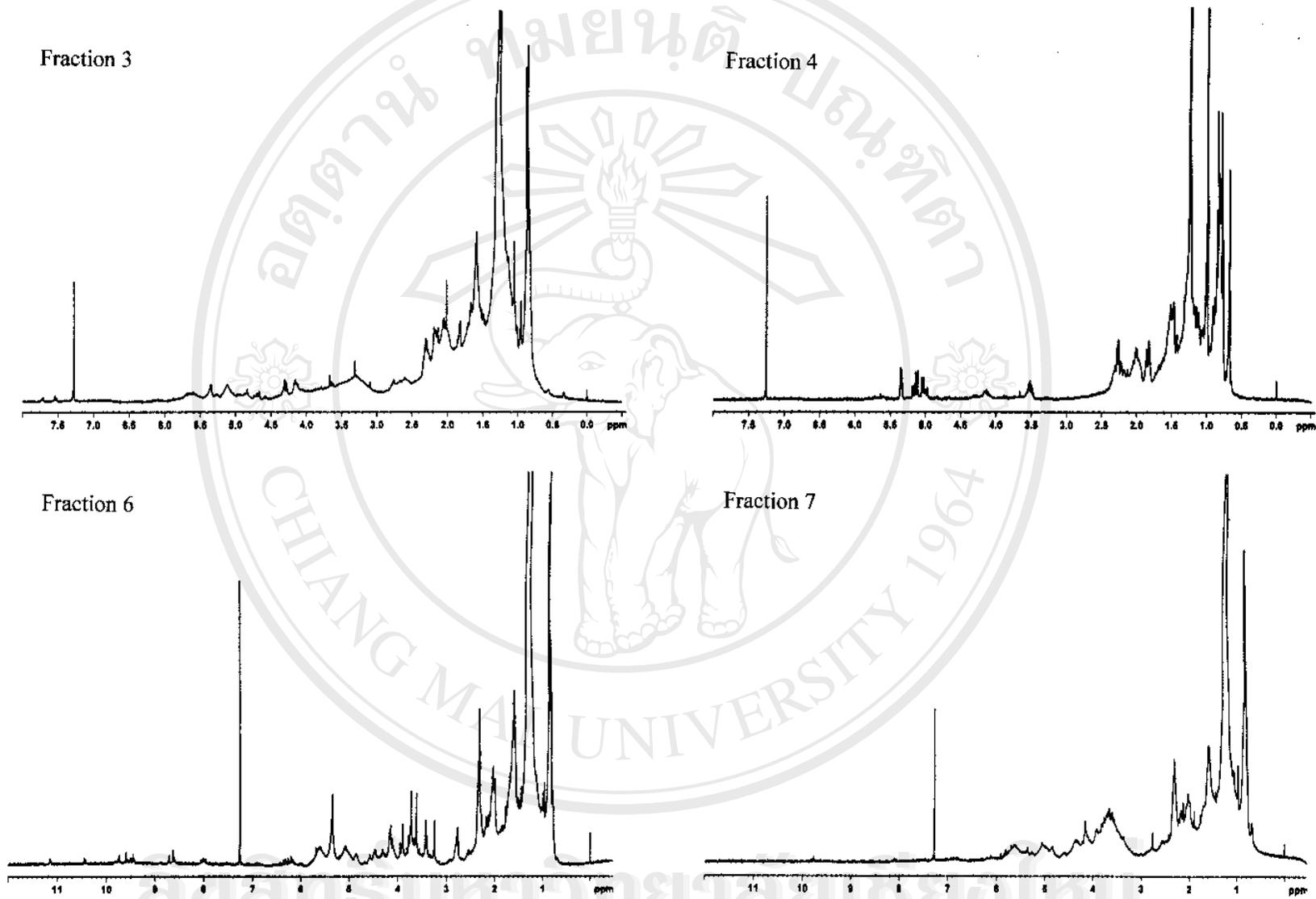


Figure 10. ¹H NMR (300 MHz., CDCl₃) spectra of *Tacca integrifolia* Ker Gawl. from CH₂Cl₂ extra

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