

CHAPTER 1

INTRODUCTION

For thousands years, plants have been of central significance to human welfare all over the world, and they always will be. All members of human kind, especially those in developing countries, depend on plants for their survival in a myriad of different ways including for food, fuel and medicine, as well as for materials for construction and the manufacture of crafts and many other products. Even nowadays we still depend on plants for many of our opportunities to improve the quality of human life in the future. Indigenous knowledge of plant use is an important component of the world's cultural heritage which has been transmitted from generation to generation.

Ethnobotany is the study of the interactions and relationships between plants and people over time and space. Ethnobotany can strengthen our links to the natural world and is an essential key to preserving the diversity of plants as well as to understanding and interpreting the knowledge by which we are, and will be, enabled to deal with them effectively and sustainably throughout the world. Ethnobotany is thus the science of survival (Kauai Declaration, 2007).

Nan province is located in northern Thailand and most parts (85%) of the area in the province are mountain ranges. Nan is one of the important biodiversity hotspots of Thailand, evidenced by seven national parks established in the province. The population in Nan province is a mixture of the large group of Lanna people “Kon Muang” with other ethnic groups including the Tai Lue, Hmong, Mien (also known as the Yao), Lua (officially known as H'tin), Khamu, and Mlabari. Most of these ethnic groups live in highland habitats. Nan province can therefore be called the land of biological and cultural diversity.

Like indigenous people elsewhere in the world who live close to nature on high mountains, these ethnic groups have based their subsistence largely on the use of wild plants and therefore have considerable knowledge concerning their surroundings. This indigenous knowledge is a reflection of their intellectual and cultural heritage

accumulated over many centuries. In many cases, they can convey much information about their local plants; for example, whether they are poisonous, good for roofing material (*i.e.*, waterproof), or good fuels. They also know how to prepare the plants for these uses, when and how to harvest them and which parts they should harvest, and also when and where they grow. Residing in the isolated mountains, these ethnic groups have limited access to western health-care. Consequently, they have accumulated a rich experience, arising primarily from trial and error, related to preventing and treating diseases with herbal remedies, and they have developed a distinctive traditional medicine. However, this valuable traditional ethnobotanical knowledge is orally transmitted and therefore remains poorly documented and knowledge about the ways the plants are used is often not available.

Since the beginning of the discipline, ethnobotanists have been concerned with the threat to traditional cultures and their knowledge of plant uses and relationships (Ramirez, 2007; Salick and Ross, 2009). In the present situations in which rapid social change and modernization over the last few decades have led to the neglect of indigenous and local knowledge, many ethnic communities abandon their traditional ways of living. Such situations have happened to many indigenous communities all over the world, and this is also true for the ethnic groups in Nan province. As most of their traditional knowledge has been orally transmitted from one generation to the next via lifestyle, it is therefore a matter of concern that this traditional knowledge may be gradually disappearing and that it is vulnerable to extinction in the near future. Ethnobotany can therefore play a very important role in rescuing disappearing knowledge and returning it to local communities. In this way local ethnobotanical knowledge can be conserved as part of living cultural-ecological systems, helping to maintain a sense of pride in local cultural knowledge and practices, and reinforcing links between communities and the environment, which are essential for conservation. Also, ethnobotanical data may provide a valuable short-cut for searching new potentially economic plants and locating biologically active compounds of new drugs as an additional advantage.

Over the last three decades, the need to catalogue knowledge of plant use of indigenous people who live in ecosystems suffering fast disappearance of natural resources, primarily tropical forest, have been central in ethnobotanical studies. It has

been clear that there is causality between destruction of tropical forests and other ecosystems and decrease of biological diversity as well as cultural loss (Ramirez, 2007; Salick and Ross, 2009). In this regard, one of the facts which should be of concern is that these ethnic groups practice shifting cultivation by mean of slash and burn. This form of cultivation has been thought to be destructive to natural resources and biological diversity and have led to the disappearance of natural ecosystems over the last few decades. The disappearance of environments related to the traditional lifestyle erodes the connections between indigenous knowledge systems and local environments which eventually also threatens the existence of traditional knowledge (Huai and Pei, 2004; Toledo, 2001 in Salick and Ross, 2009). Once the traditional knowledge is lost, it is lost forever (Pei, 2012) and the lack of systematic documentation for traditional botanical knowledge may contribute to the loss of plant knowledge, particularly for those that are neglected or non-preferred. Such a situation appears to occur in southern Ecuador where a study showed that informants had substantial traditional knowledge of plants in their surroundings, but that much original plant knowledge had already been lost and there was a deficiency of systematic knowledge transmission (Bussmann and Sharon, 2006).

Based on this globally growing concern, this research aims to study the ethnobotany of the four ethnic groups: the Hmong, the Mien, the Khamu and the Lua, in Nan province of northern Thailand in order to preserve such knowledge before it become extinct during the course of contemporary socio-economic changes. The study has utilized three different approaches that are qualitative ethnobotany, quantitative ethnobotany and comparative ethnobotany.

Qualitative ethnobotany here involves exhaustive documentation of traditional ethnobotanical knowledge belonging to the four ethnic groups. Information for particular plant species used includes their vernacular name (s), scientific name, plant part used, plant preparation, ways to use, and route of administration. These ethnobotanical data will be disseminated to the young generation of each tribe in order to raise awareness of and appreciation for their traditional cultural plant use heritage.

Quantitative ethnobotany includes the use of ethnobotanical indices and statistical methods including multivariate analysis of the qualitative ethnobotanical

data gathered in the field. This is done to capture the importance of particular plant taxa used by an ethnic group and test of hypotheses regarding plant uses. The interpretation of the results from incorporation of ethnobotanical indices is helpful for determining which plants are culturally important, widely used or effective for particular use-categories. In this way, the results would not be only useful for sustainable management and further conservation of some plant species being threatened by over-exploitation but also for discovery of economic plants and effective medicinal plants.

As a part of this, traditional knowledge erosion was also investigated. In many cases, researchers have made the assumption that all plants mentioned as useful are also actually being used. However, ethnobotanical knowledge gathered from a community may not reflect the present-day use of plants. As such, it turns out that the *local knowledge*, represented by what the informants tell the researcher, is not always equal to *local use*, which refers to which plants and which uses are actually practiced (Byg and Balslev, 2001). Such a situation may also be true for the ethnic communities in this study. A gap between people's knowledge of plant uses and their actual use of plants can be taken as the first sign of knowledge erosion (Reyes-García *et al.*, 2005). Based on this assumption, in order to determine whether actual use of plants in each community correspond to people's knowledge of such uses, the loss of actual uses of plants was used as a proxy variable representing the loss of traditional plant use knowledge (Reyes-García *et al.*, 2005). The incongruity between knowledge and actual use may represent a situation in which traditional plant use knowledge is being eroded in a community.

By name itself, comparative ethnobotany refers to intra- and inter-cultural comparisons of plant use by the ethnic groups studied, both in the context of species used and pattern of uses. As conceptions of plant uses differ among different peoples, the result of this part provides better understanding about whether the uses of plants for particular ethnic group are cultural coherence or ecological divergence.

Overall, the research presented here is aimed at answering the following specific questions:

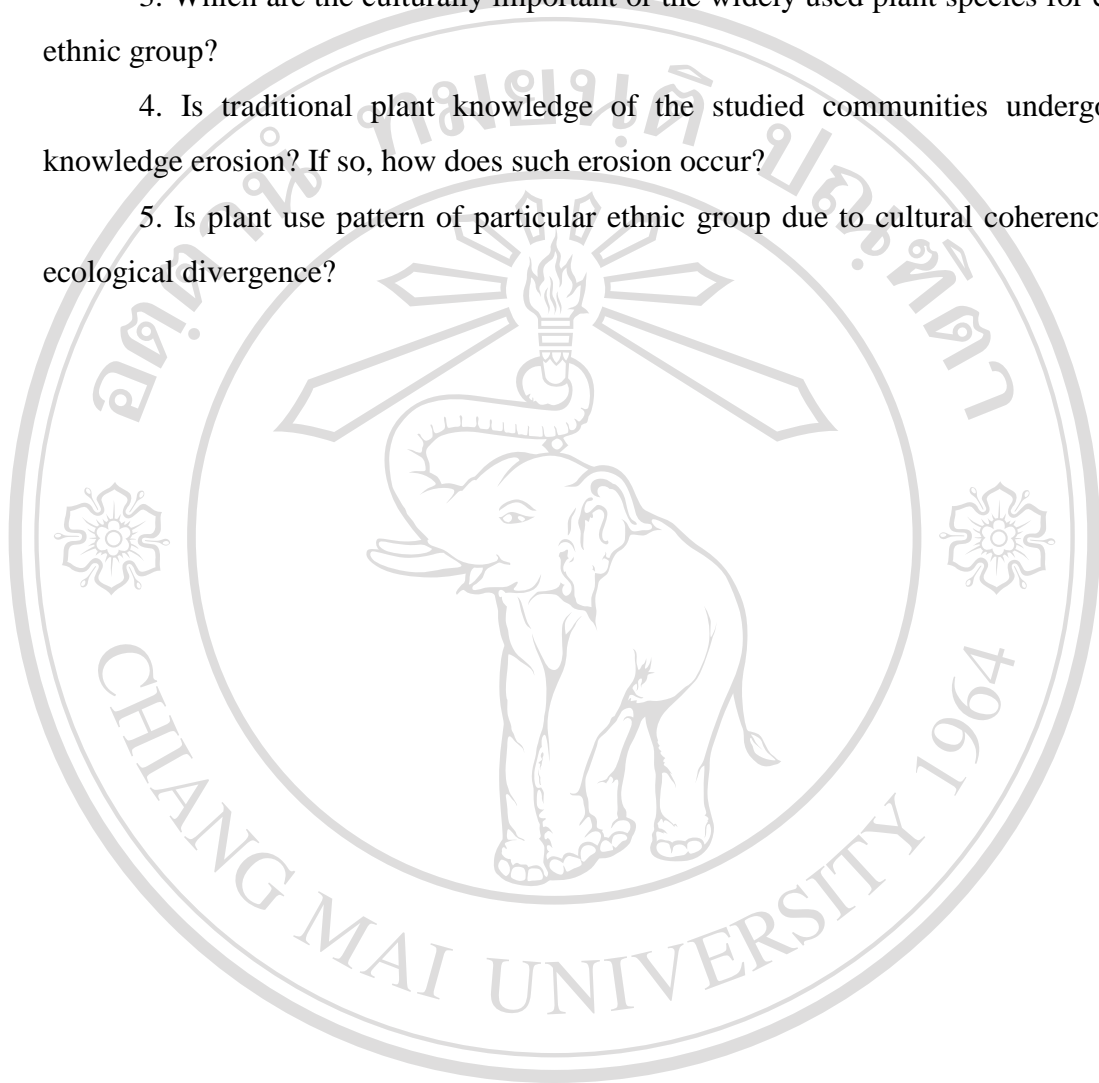
1. Which are the plant species used by the Hmong, Mien, Khamu and Lua in Nan province?

2. Is there any similarity or shared culture reflected in the plant uses among the different ethnic groups? If so, what contributes to such similarity?

3. Which are the culturally important or the widely used plant species for each ethnic group?

4. Is traditional plant knowledge of the studied communities undergoing knowledge erosion? If so, how does such erosion occur?

5. Is plant use pattern of particular ethnic group due to cultural coherence or ecological divergence?



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