CHAPTER 1
INTRODUCTION

Currently, the demand for medicine within Thailand is continuously increasing. However, Thai pharmaceutical industry relies mainly on the utilization of raw materials from abroad. Under these circumstances, the ministry of public health has encouraged and supported the use of domestic medicinal herbs under the national economic and social development plan issue 4 (1977-1981) by introducing a herbal development plan for primary health care (Office of the national economics and social development board, 1977). In addition, the ministry of public health has also introduced policy campaigns for the explicit use of herbal medicine. A national goal has been set for state hospitals to use herbal products for medications in substitution for modern medicine of not less than 10 percent of the allocated budget, likely to increase to 25 percent in the future (Office of economic industry, 2007). This policy will be successful only the research and development on the large-scale production of herbal formulations is seriously promoted to adequately supply the huge demand for the whole country, particularly in the form of herbal medicine tablets which have a higher production capacity and lower production cost than the herbal capsules popularly used at present. However, the use of herbal medicines on Thailand's national list of essential drugs remains limited. In 2007, only 400 million bahts were spent on the use of Thai herbal medicines when compared to the import value of modern medicines in the same year, about 27,000 million bahts.

An important reason for the limited use of herbal products is lack of research, lack of seriously and continuously published knowledge and lack of utilization of appropriate and modern pharmaceutical technology. Herbal medicines have a variety of formulations such as herbal powder, herbal pills, boiled herbal, herbal liquor, etc. and might not be accepted by consumers because of the smell, bad taste and inconvenience of use. Therefore, the development of products with modern formulations that are convenient to use, more effective and cost effective for consumers will result in the increase of use of herbal products by consumers.

The tablets formulation responds the requirement of consumers because of several advantages: (Siripriwan et al., 1982)

1) There are physical, chemical and microbial stability, higher than in other formulations because it is in a dry condition.

2) The dose is correct. The drugs that the patients receive are accurate and regular. Patients can receive medicine in treatment size (unit dose) without dividing or measuring.

3) They can be coated to cover up the smell and bad taste.

4) They are convenient portable, well packaged, able to be stored and transported.

5) Production cost per unit is lower and has a higher production capacity than other prepared drug patterns, such as capsules.

Each part of the medicinal plant is generally composed of fiber, volatile oil and starch of different contents. This factor tends to affect fundamental pharmaceutical properties for tablet formulation, i.e. flow and compaction properties. At present, there seems to be no study that clarifies the effects of basic composition on the development of tablet formulation. At this time, the research takes herbal powder that has been made from parts of the plant's fruit, leaf, stem, and underground part (root or rhizome) to investigate basic components, then the results will be applied for the preformulation and formulation studies. Criteria for the selection of herbal were as follows:

1) There is evidence of effectiveness and safety.

2) They contain a standard of macroscopic and microscopic characteristics and are able to be verified and identified, to the quality control standard of raw materials used in pharmaceutical manufacturing.

3) They are currently widely used, and/or supported the use by the government.

4) They are listed on the Thai national list of essential drugs (herbal drugs list).

5) There are products on the market in other dosage forms.

The results from this research will be beneficial as basic fundamental information for the development of herbal tablet formulations. In addition, this will

help promote the extensive use of Thai herbal products and increase the value-added to herbal medicine of Thailand.

Objectives

1.1 To study the effect of physical properties and components of herbal powder from each part of the plant, including fruit, leaf, stem, and underground part (root or rhizome) that affect the fundamental properties of tablet formulation.

1.2 To develop formulation tablets from the herbal powder that have standard properties according to the definition of the tablets formulation.