



## CHAPTER 1

### INTRODUCTION

It is estimated that the total number of species in the world is to be around 5 to 30 millions, however about 1.4 millions species have been described. It is likely that the actual number is on the order of 13 to 14 million, most of them are insects and microscopic organisms in tropical regions (Jones and Luchsinger, 1986). New plant species are described and named according to International Code of Botanical Nomenclature (ICBN). However, we may never know how many there are because many of them will become extinct before being counted and described. So it is really needed to carry out taxonomic study of the existing plants as soon as possible. To do this task we need to have effective system of plant classification.

The aim of plant classification is to sort out the vast array of plant biodiversity in some categories of relevant order. The first person who invented the system of plant classification is Theophrastus (372 - 287 B.C.), he did know the structure of plants that were important for modern plant classification and had described more than 500 species. He also recognized more specific botanical characteristics, such as ovary position. So far, his work, “*History of Plants*”, is the oldest botanical work. He was also the first person who classified plants by their habits or forms as trees, shrubs, undershrubs, and herbs (Lawrence, 1951; Jones and Luchsinger, 1986).

In 1758, when Linnaeus presented his “*Systema Naturae*”, the idea was simply to bring some sort of order out of the confusion of known living forms. However, Linnaeus' system was an artificial system of classification, since it assigned organisms on the basis of any convenient characteristics. Anyhow, it is important to realize that the only natural group in the system of biological classification is the “species”. Two species may be very similar, by justice of recent evolutionary descent from a common ancestor, causing us to group them into the same genus, but the concept of genus as well as higher taxa, *viz.* species,

family, order, class and division, are created by human and eventually being the artificial system of classification (Bhattacharyya and Johri, 1998 ).

In the last two decades, new approaches to classification have arisen. Many plant classification systems were set up, unfortunately the same group of plant were placed on different category and rank by botanists due to different evidence, i.e., morphology, anatomy, palynology, embryology, cytology, ecology, reproductive biology, chemistry, phylogenetic and molecular characters (Stuessy, 1989). It seems likely that some plant genera are still on the move to a more new relevant family according to an up-to-date taxonomic information.

*Cassia* L. is one of the large genus of flowering plants. This genus occurs naturally in the tropics around the world. The members of this genus have some economical values, they are being utilized in many purposes such as medicinal plant, cultivated plant and timber (Soralum et. al., 1992; Phumipamorn and Dumkong, 1997). According to Irwin and Barneby (1981) the genus was divided into three genera, namely *Cassia* sensu stricto, *Senna* and *Chamaecrista*. However, some plant taxonomists, for example, Larsen et al. (1984) treated all species in a single genus in the Flora of Thailand.

### **Aim of the thesis**

This thesis aims to investigate the important of morphological characters that will be useful to evaluate the taxonomic status of the *Cassia* sensu lato using numerical taxonomic analyses.