

## CHAPTER I



### INTRODUCTION

*Cassia* is the largest genus of Caesalpinaceae (the Senna Family). It comprises of 500-600 species which distribute in tropical and warm temperate regions in the form of trees, shrubs, and herbs. <sup>(1)</sup> Thirteen species of *Cassia* of Thailand were reported by the Royal Forest Department. <sup>(2)</sup> *Cassia* genus is famous for its bio-aesthetic quality but the best known attribute common to *Cassia* species are the cathartic drugs prepared from them.

*Cassia timoriensis* DC. and *Cassia grandis* L. are used in domestic medicine, both of them are interesting in phytochemical study. According to phytochemical investigation, anthraquinone derivatives are reported to be present in leaves of *Cassia grandis* L. <sup>(14)</sup> but there is no previous report about chemical constituents in *Cassia timoriensis* DC.

*Cassia timoriensis* DC. is known in Thai as "Khi-lek-luead" (ชี้เหล็กเลือด) and also known in various local names such as Cha-khi-lek "ข้าชี้เหล็ก" (Southern), Maklua-luead "มะเกลือเลือด" (Rajchaburi), Khi-lek-daeng "ชี้เหล็กแดง" (Chiangmai), Khi-lek-phan-chang "ชี้เหล็กพันช้าง" or Khi-lek-pan-chang "ชี้เหล็กพันช้าง" (Lampang), Kalangngaen "กะแลงเง็น" (Narativas). <sup>(2)</sup> It is also known as Khi-Lek-Dong "ชี้เหล็กดง" in the South. <sup>(2b)</sup>

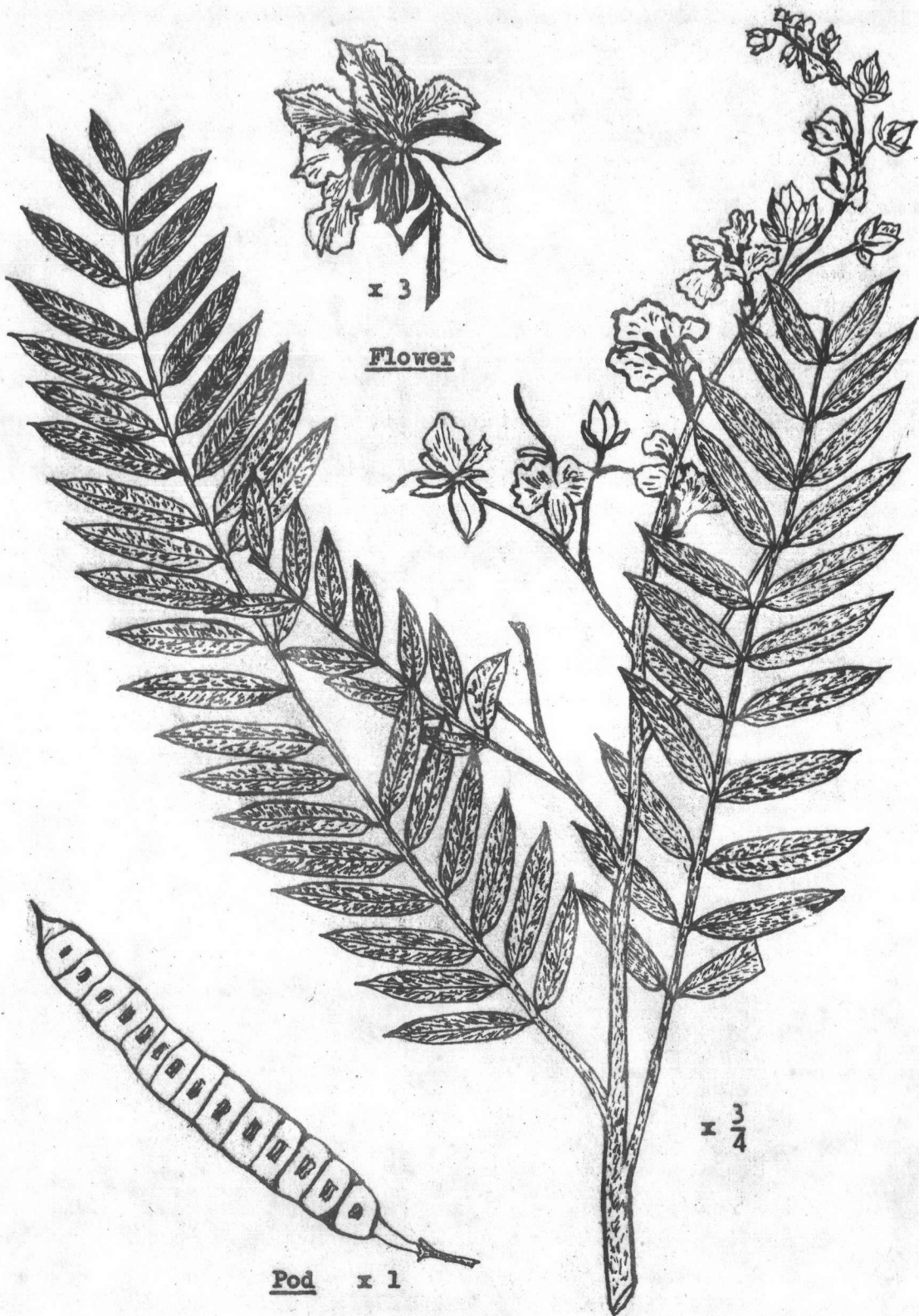
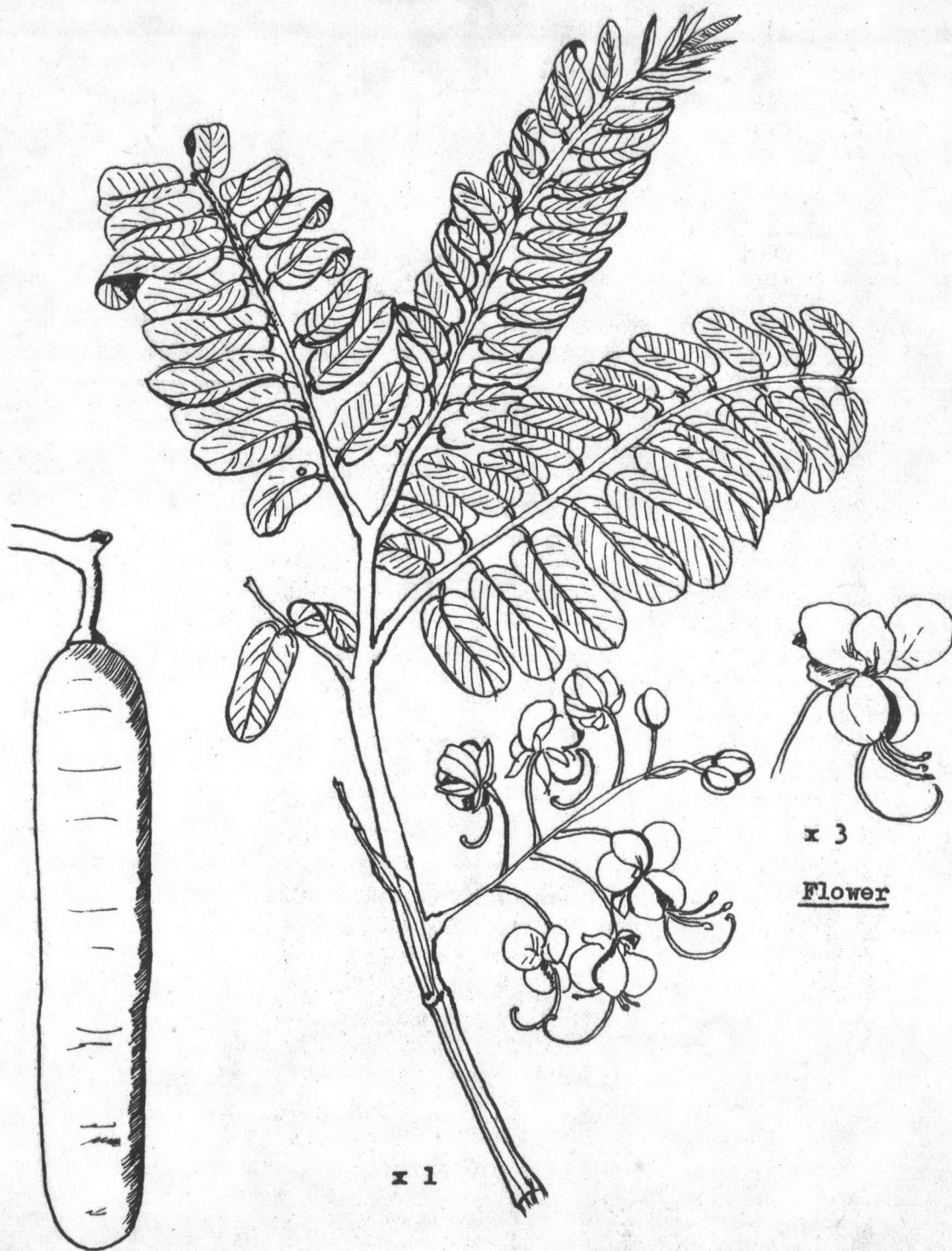


Figure 1 ชี้เหล็กเลือด *Cassia timoriensis* DC.



Pod x  $\frac{1}{3}$

x 3

Flower

x 1

Figure 2 กัลปพฤกษ์ *Cassia grandis* L.

*Cassia timoriensis* DC. is a small tree about 6-9 meters in height, pubescent. Leaves 30-45 cm long, leaflets 16-24 pairs and less than 5 cm long, narrow membranous, glabrescent to densely pubescent above, sparsely pubescent to tomentose beneath, lanceolate oblong. Shoots golden hairy, stipules large, wild and cultivated. Flowers in a large terminal panicle, sepals unequal oblong-obtuse, pubescent, larger ones. Petals oblong, orange-yellow. Pods straight linear, flat thin, valves coriaceous, 13-15 cm long, 1.3 cm wide. Seeds biserrate, 16-20 oval obtuse, 0.6 cm long. <sup>(3,4)</sup> This Caesalpiniaceous plant found from the Tenasserim to Timor, in the Malay Peninsula it is widely spreaded, chiefly where limestones occurred. Koorders and Valetton say that the timber is like that of *Cassia siamea* Lamk. <sup>(5)</sup> It is distributed in India, China, Malaya and Philippines. <sup>(6)</sup> In domestic medicine, its heartwood is used as emmenagogues, and diuretic. Young leaves and flowers can be used as vegetable in the same manner as *Cassia siamea* Lamk. after proper preparation by boiling in water, and water extract is discarded. <sup>(7)</sup> In Indo-china, the bark is used for itch. <sup>(5)</sup> It is expected that the leaves of *Cassia timoriensis* DC. might contain some chromone-like compounds as in leaves of *Cassia siamea* Lamk., <sup>(119,120)</sup> so the present work is undertaken for such chromone.

*Cassia grandis* L. is known in Thai as "Kalaprüg" (กาลพรุกษ์), "Kalapaprüg" (กาลปพรุกษ์). It is often referred to as "Horse Cassia", "Coral Shower" or sometimes as the "Pink-shower" or "Pink Shower Senna". <sup>(8)</sup>

It is a native American tree, sometimes up to 30 meters tall. Flowers in long spikes, pink, sometimes fading to buff, orange or

white. Bracts of inflorescences falling before the flowers open. Pods are cylindrical, large, black to dark brown, <sup>(4,8,9,10)</sup> usually shorter, thicker and heavier than that of *Cassia fistula* Linn., its surface is rough. <sup>(11)</sup> Leaflets 12-20 pairs, oblong, almost parallel sided. Shoots with brown woolly hairs. <sup>(4)</sup> In the cool season, all the leaves fall, and in February-March, from the axils of the old leaves rise fine sprays of rose pink flowers. It blooms from February to May and the flower buds are particularly attractive. <sup>(10,12)</sup> In Thailand, this plant is widely distributed throughout the country as ornamental plant. In Guatemala, it is used as a remedy for colds. <sup>(13)</sup>

According to British Pharmaceutical Codex 1949, the pods of *Cassia grandis* L. are used as substitutes and adulterants for pods of *Cassia fistula* Linn. which contain anthraquinone compounds. In the screening test for anthraquinones, pods of *Cassia grandis* L. gave negative result but the leaves showed marked positive. So the present work was carried on extraction, isolation and identification of anthraquinone compound(s) occurring in leaves of this plant.