



## CHAPTER I

### INTRODUCTION

The plants locally named as "Cha-aem" in Thai has substantial synonymy with several botanical sources as the following list (Phya Winit Wanandorn, 1933 ; Tem Smithinand, 1980).

Cha-aem, Cha- aem Thai	from	<i>Albizia myriophylla</i> Benth. (Leguminosae)
Cha-aem, Cha-aem thet	from	<i>Glycyrrhiza glabra</i> Linn. (Leguminosae)
Cha-aem, Cha-aem chene	from	<i>Glycyrrhiza uralensis</i> Fischer. (Leguminosae)
Cha-aem, Oi-saam-suan	from	<i>Streptocaulon extensum</i> Wight Syn. <i>Myriopteron extensum</i> K. Schum (Asclepiadaceae)
Cha-aem thet, Ma-klam-taa-noo	from	<i>Abrus precatorius</i> Linn. (Leguminosae)
Cha-aem nuea	from	<i>Derris reticulata</i> Craib (Leguminosae)

In this particular investigation, the species of interest among the name "Cha-aem" has been focussed to *Derris reticulata* Craib.

The genus *Derris* belongs to the family Leguminosae, sub-family Papilionaceae and tribe Dalbergieae. It contains over 80 species which are chiefly distributed in the tropical region of South-East Asia, but a few species occur also in the warmer areas of Australia, Africa and America. Representatives of the genus are mostly shrubs or woody climbers, but some are trees (Robinson, 1965). The species found in Thailand (Tem Smithinand, 1980) are listed as followed.

- Derris alborubra* Hemsl.      เถาตาปลา Thao taa plaa (Nakhon Ratchasima)
- D. amoena* Benth.      ย่านสาวคำ Yaan saao Kham (Peninsular)
- D. dalbergioides* Bak.      ค่างเต็น Khaang ten (Prachuap Khiri Khan) ; ติ่ง Dee ngu (Surat Thani) ; แปรงป็น Praeng puen, มะนามจาย Ma naam chaai (Chumphon) ; พันแต Phantae (Narathiwat) ; มะตาชะจิง Ma-taa ha-ching, มะแตฮาจิง Ma-tae haa-ching (Malay-Narathiwat)
- D. elliptica* Benth.      กะลำพะาะ Kalamphoh (Phetchaburi) ; เครือไหลน้ำ Khrua lai nam, หางไหลแดง Haang lai daeng, ไหลน้ำ Lai nam (Northern) ; โปตะโกส้า Pho-ta ko-saa (Karen-Mae Hong Son) ; อวดน้ำ Uat nam (Surat Thani); Tuba Root, *Derris*.
- D. indica* Bennet      ขี้ Khayee (Chumphon) ; เพาะตะปาก็ Phoh-da paa-kee (Malay-Songkhla) ; มะปาก็ Ma-paa-kee (Malay-Pattani) ; รាយัด Raa yot (Pattani) ; หยน้ำ Yee nam (Peninsular)
- D. kerrii* Craib      กางขี้มอด Kaang Khee mot (Northern)
- D. reticulata* Craib      ชะเอมเหนื่อ Cha-aem nuea (Kanchanaburi)

- D. robusta* Benth. ขางไส้ช้าง Khaang sai chaang, คู่ Khuu, เตื่อคู่ Duea Khuu (Phitsanulok) ; ซีมอด Kheemot (Saraburi) ; ลาวิต Laa-wit (Chong-Chanthaburi, Trat) ; ฮางคาว Haang Khaao (Northern)
- D. scandens* Benth. เครือเขาหนั่ง Khrueta Khao nang, เกา ตาปลา Tho taa plaa (Nakhon Ratchasima) ; เกาวัลย์เป็รียง Thaowan priang (Central) ; ฟานไสน Phaen sanai (Chumphon)
- D. thorelii* Craib ชี้ข้างเต่า Khee chaang thao, เครือตับ ปลา Khrueta tap plaa (Northern) ; ออดอ้อ Ot o (Loei) ; เครือตาปลา Khrueta taa plaa, เครือไหล Khrueta lai (Chiang Rai)
- D. thyrsiflora* Benth. ตังเม Tang me (Chanthaburi)
- D. trifoliata* Lour.  
(*D. uliginosa* Benth.) แควบทะเล Khwaep thale, ถอบแถบทะเล Thopthaep thale, ถอบแถบน้ำ Thopthaep nam, ผักแถบ Phak thaep (Central) ; ถอบแถบทะเล Thopthaep thale (Phetchaburi) ; ทับแถบ Thapthaep (Samut Songkhram)

*Derris reticulata* Craib is a medicinal plant locally known in Thai as Cha-aem nuea. The characteristic feature of *Derris reticulata* Craib is described as follows (Kew Bulletin, 1927) :- *Derris reticulata* Craib [Leguminosae-Dalbergieae] ; Species nova ramulis lenticellatis, folliis 5-foliolatis, leguminibus brevibus oblongis ambitu alatis ad semina incrassatis et reticulatis distincta.

*Frutex scandens* ; ramuli annotini glabri, conspicue lenticellati, cortice cinereo vel stramineo-cinereo obtekti, mox prominenter lenticellati, pallide brunneo-corticati. *Folia* 5-foliolata, petiolo 1.5-4 cm. longo basi incrassato incluso ad 18 cm. longa,



petiolo cum rhachi supra canaliculato glabro ; stipulae deciduae ; foliola opposita, oblongo-ovata, ovato-lanceolata vel oblongo-lanceolata, lateralia saepissime parum inaequilateralia, acuminata, summo apice retusa vel rotundata, basi rotundata vel cuneata, 5-10 cm. longa, 2-4 cm. lata, subcoriacea vel chartaceo-coriacea, supra subnitida, viridia, subtus pallidiora, matura pagina utraque glabra vel inferiore pilis perpaucis ad costam nervosque laterales instructa, nervis lateralibus utrinque 6-8 intra marginem anastomosantibus supra conspicuis subtus prominulis, nervulis rete gracil pagina utraque efficientibus, petiolulo ad 4 mm. longo supra canaliculato suffulta, terminali a lateralibus ad 1.5 cm. distante ; stipellae non visae. *Legumen* substramineum, oblongum vel anguste oblongum, ad 4 cm. longum, 1.7-2 cm. latum, glabrum, ambitu alatum, ala altera ad 7 mm. lata altera ad 3 mm. lata, ad semina incrassatum et prominenter reticulatum, pedicello circa 7 mm. longo suffultum. Kanburi, 50 m., climbing on bamboo by stem.

Utilization of this genus has been reported in many countries. Throughout the Far East, several species of the genus are used as fish poisons or insecticides, e.g. *Derris chinensis* Benth., *D. elliptica* Benth., *D. heptaphylla* Merr., *D. heterophylla* (Willd.) Backer, *D. malaccensis* Prain, *D. philippinensis* Merr., *D. scandens* Benth., *D. trifoliata* Lour., *D. elegans* Benth. these are poisonous in varying degrees and have very little medicinal use. The pounded roots or bark of *D. dalbergioides* Baker are made into a poultice to treat itch. Likewise the root of *D. elliptica*, in some form, is mentioned as a remedy for scabies and suicides. Ridley mentions use as an abortifacient. The water from soaking the slightly bruised leaves of *D. heptaphylla* Merr. has been used as a gentle sudorific to break fever, especially of children. The stem of *D. reticulata* has been use as an expectorant, an antitussive, a remedy for throat diseases and as a tonic. *Derris* is probably best known for its use as an insecticide (rotenone) (Perry, 1980 ; Sangeam Pongboonrod, 1971).

Up to the present time, there have been no reports on either the phytochemical, chemotaxonomic, or pharmacognostic studies of the *Derris reticulata* Craib (Cha-aem nuea). Although the crude drug from this plant has been used in Thai traditional medicine since the old days, no scientific description and identification are available.

Therefore, *Derris reticulata* Craib was selected for this investigation. The objectives of which were :

1. Phytochemical study on the chemical constituents.

2. Establishment of the specifications of the crude drug "Cha-aem nuea."

In order to clarify the confusion concerning the correction of botanical origin of Cha-aem-Thai sole in various local traditional drug distributors. Identification for the correct species from each source was made by the comparison of the pharmacognostic characters of the crude drug and the Thin-layer chromatography pattern of the extract with those of the authentic plant (*Derris reticulata* Craib, Cha-aem nuea).



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