



## CHAPTER I

### INTRODUCTION

Rutaceae is a large, unique family with about 150 genera and perhaps 1600 species, classified into 7 subfamilies and 12 tribes. Its members occur throughout tropical and subtropical or warm-temperate regions and are often abundant in rather arid zones (Stone, 1985). Rutaceae belongs to a botanical family in which many important species, useful as a source for timber or drugs. The family is characterized also by a rich alkaloid content. A large number of the isolated alkaloids also have very important physiological actions and are of use in medicinal practice (Mester, 1973).

Subfamily Aurantioideae in tribe Clauseneae consists of four genera ; *Clausena*, *Glycosmis*, *Micromelum*, and *Murraya* (Murray, Méndez, and Brown, 1982). The number of the species in each genus and their distribution are as follows:-

*Clausena*, a genus of about twenty-three species, distributed in tropical Asia, Africa and Australia (Sastri, 1950; Stone, 1985).

*Glycosmis*, a genus of about forty species, distributed in tropical and sub-tropical parts of Asia and Australia (Sastri, 1956; Stone, 1985).

*Micromelum*, a small genus of about nine species, distributed from India to Australia (Sastri, 1962; Stone, 1985).

*Murraya*, a genus of about eleven species, distributed from South and East Asia to Australia (Sastri, 1962; Stone, 1985).

The genus *Murraya* has been widely used in traditional medicine in East Asia (Kong et al., 1986b). According to Index Kewensis and its supplements, the species of the genus *Murraya* are listed as the following:-

- Murraya amoena* Salisb. = *Murraya exotica*
- Murraya brevifolia* Thw. = *Murraya exotica*
- Murraya burmanni* Spreng. = *Clausena excavata*
- Murraya cerasiformis* Blanco = *Glycosmis pentaphylla*
- Murraya crenulata* Oliver
- Murraya elongata* A.DC. ex Hook.f.
- Murraya exotica* Blanco = *Glycosmis pentaphylla*
- Murraya exotica* Linn.
- Murraya exotica* Reinw. ex Miq. = *Aglaia odorata*
- Murraya foetidissima* Teijsm. & Binn.
- Murraya gleinei* Thw. ex Oliver = *Murraya exotica*
- Murraya heptaphylla* Span.
- Murraya japonensis* Raeusch. = *Murraya exotica*
- Murraya koenigii* Spreng.
- Murraya lobata* Blanco
- Murraya longifolia* Blume

*Murraya odorata* Blanco = *Feronia elephantum*  
*Murraya paniculata* Jack. = *Murraya exotica*  
*Murraya sumatrana* Roxb. = *Murraya exotica*  
 (Hooker and Jackson, 1895).

*Murraya alata* Drake  
 (Durand, 1906).

*Murraya caloxylon* Ridley  
 (Prain, 1913).

*Murraya banati* Elmer  
*Murraya omphalocarpa* Hayata  
 (Prain, 1921).

*Murraya euchrestifolia* Hayata  
*Murraya scandens* Hassk. : *Murraya paniculata*  
 (Hill, 1926).

*Murraya flava* E.G. Baker  
 (Hill, 1929).

*Murraya chinensis* Pav.ex Tanaka : *Chalcas paniculata*  
*Murraya ovatifoliolata* Domin : *Murraya exotica* var.  
*ovatifoliolata* Engl.

\* *Murraya siamensis* Craib  
*Murraya tavoyana* A.DC.ex Tanaka : *Chalcas paniculata*  
 (Hill, 1933).

*Murraya sorsogonensis* Elmer ex Tanaka: *Murraya crenulata*  
 (Hill, 1938).

*Murraya microphylla* (Merrill & Chun) Swingle :

*Clausena microphylla*

(Salisbury, 1947).

*Murraya alternans* (Kurz) Swingle : *Limonia alternans*

*Murraya glabra* (Guillaumin) Swingle : *Micromelum glabrum*

*Murraya stenocarpa* (Drake) Tanaka : *Atalantia stenocarpa*

(Salisbury, 1953).

*Murraya tetramera* Huang

(Taylor, 1966).

*Murraya kwangsiensis* (C.C.Huang) C.C.Huang :

*Clausena kwangsiensis*

*Murraya kwangsiensis* var. *macrophylla* C.C.Huang

(Davies, 1987).

Only three species of *Murraya* in Thailand (Smitinand, 1980) have been reported and these are:-

1. *Murraya koenigii* Spreng. : ส้มต Samat, หมอนแขก Hom khaek (Bangkok) ; โสม Som, หมอฉ้อ Mo noi (Central) ; Curryleaf Tree.

2. *Murraya paniculata* Jack : กระมูญิง Kamuu-ning (Malay-Pattani), แก้ว Kaeo, แก้วขาว Kaeo khaao (Central) ; แก้วไข่ Kaeo khee kai (Yala) ; แก้วพริก Kaeo phrik, ตะไคร้แก้ว Talai kaeo (Northern) ; แก้วลา Kaeo laai (Saraburi) ; จำพริก Chaa phrik (Lampang) ; China Box Tree, Orange Jasmine, Andamand Saintwood.

\* 3. *Murraya siamensis* Craib : ฝรั่งฟ้า Prong faa (Prachin Buri) ; ลอดฟ้า Lot faa (Central, Nakhon Ratchasima) ; Andamand Saintwood.

The species of *Murraya siamensis* Craib is the only member of this genus which is native to Thailand. The characteristic features of *Murraya siamensis* Craib is described as follows:-

Small tree; stem covered with dark or dark brown bark, branchlet minutely pubescent, small lenticel. Leaf; 15-24 cm long (include petiole 1-2.5 cm long), leaflet 17-25, alternate or rarely subopposite, unequal side, oblanceolate or lanceolate, base subtruncate, apex obtuse or subacuminate, 2-7 cm long, 1-2.7 cm wide, papery, curled pubescent covered on the upper side, quickly alter to more glabrous, the lower side especially at midrib pubescent, nerve lateral on both sides 5-7, anastomosing, remarkable, margin entire or subcrenulate, petiolule 2 mm long. Inflorescence; terminal panicle, subcorymb, 1.5 cm long, pedicel 3-4 mm long, shortly curled pubescent. Sepal; 5, ovate-oblanceolate or deltoid, obtuse, 1.25 mm long, external shortly curled pubescent. Petal; 5, linear-oblanceolate, 6.5 mm long, 1.75 mm wide, glabrous, imbricate, disc fleshy and glabrous. Stamen; 10, alternate, filament 4-5 mm long, anther 1 mm long, papillose. Ovary; suboblong shape, 1.5 mm long, glabrous, style 3.5 mm long, base articulate, glabrous, stigma capitate. Fruit; raped 1 cm diameter (Craib, 1926).



**Figure 1** *Murraya siamensis* Craib

The powdered root of this species, mixed with water, is claimed to be applied externally and taken internally for eye-sore, snake bite and tuberculosis (Pongboonrod, 1950). There have been two phytochemical reports on *Murraya siamensis* Craib recently (Fiebig et al., 1985; Kong et al., 1986b). This investigation deals with the isolation, purification and characterization of components occurring in this species. The result is expected to contribute to our knowledge on chemotaxonomy and phytochemistry of the genus *Murraya*.