

CHAPTER I



INTRODUCTION

The species of *Blumea balsamifera* DC. is a member of the family Compositae, tribe Inuleae. This genus consists of 151 species distributed in the tropical regions of Africa, Asia and Australia (Hooker and Jackson, 1885 a). There are 13 species of *Blumea* growing in Thailand as follows (Smitinand, 1980) :-

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| <i>Blumea aurita</i> DC. | Saapraeng-saapkaa ส่าบแร้ง ส่าบกา (Bangkok). |
| <i>B. balsamifera</i> DC. | Kham phong คำพอง, Naat luang หนาดหลวง
(Northern); Cha-bo จะบอ (Malay-Pattani);
Tang-hong-sao ตังโฮงเซ้า (Chinese); Nae แน,
Phop-kwaa พ็อบกวา (Karen-Mae Hong Son);
Bai lom ใบหลม , Phakchee chaang ผักชีช้าง,
Phim-sen พิมเสน, Naat yai หนาดใหญ่ (Central);
Naat หนาด (Chanthaburi); Camphor Tree. |
| <i>B. clarkei</i> Hook. f. | (<i>B. elongata</i> DC. (Hooker and Jackson, 1885 a))
Kanaat กะหนาด (Surat Thani) |
| <i>B. fistulosa</i> Kurz | (<i>B. glomerata</i> DC. (Hooker and Jackson, 1885 a))
Phakkaat kheemaa ผักกาดขี้หมา, Naat Kham (หนาดคำ)
(Chiang Mai) |
| <i>B. glomerata</i> DC. | Khon bung ขนบุง, Pat hin บัดหิน, Phayaa roiraak
พญาร้อยราก (Loei) |
| <i>B. hymenophylla</i> DC. | (<i>B. membranacea</i> DC. (Hooker and Jackson, 1885 a))
Naat noi หนาดน้อย (Udon Thani) |

- B. lacera* DC. Naat wua หนาดวัว (Bangkok).
- B. membranacea* DC. Sa-mo-pho ละโมะโพ (Karen-Kanchanaburi).
- B. napifolia* (*B. lacera* DC. (Hooker and Jackson, 1885 a))
Kameng hom กะเม็งหอม, Phakkaat naa ผักกาดนา (Ayutthaya).
- B. oxydonta* DC. Pat nam ปัตน้ำ, Yaa dokmapat หยาดดอกมะปัด (Loei).
- B. riparia* DC. (*B. chinensis* DC. (Hooker and Jackson, 1885 a))
Kaamu maeng sang khaoo กามูแมงสังขาอ (Chumphon);
Mu ma sang มูมะสัง (Surat Thani).
- B. spectabilis* DC. Kiang phaa chaang เกียงพาช้าง, Kiang phaa chaang
เชียงพาช้าง (Chiang Mai).
- B. subsimplex* DC. Naat din หนาดดิน (Satun).

Blumea balsamifera DC. (Synonyms: *B. grandis* DC., *Baccharis salvia* Lour. (Perry, 1980)) is known in Thai as Kham phong คำพอง, Naat luang หนาดหลวง (Northern); Cha-bo จะบอ (Malay-Pattani); Tang-hong-sao ตั้งโองเข้า (Chinese); Nae แน, Phop-kwaa พ็อบกวา (Karen-Mae Hong Son); Bai lom ใบหลม, Phakchee chaang ผักชี่ช้าง, Phim-sen พิมเสน, Naat yai หนาดใหญ่ (Central); Naat หนาด (Chanthaburi) and in English as Ngai-Camphor plant. It is an evergreen shrub sometimes growing out into a small tree, all softer parts densely appressed-villous. Leaves lanceolate to oblong-lanceolate, pinnately 2-6 foliates on the densely pubescent petiole of 8-17 mm length, acuminate at both ends, the lower ones 7.5-12.5 cm long, repand toothed, membranous, but thickly silky-villous. Flower-heads rather small, shortly peduncled, forming smaller or larger panicles in the axils of the upper leaves and gradually transformed into terminal large tomentose panicles; involucral bracts silky pilose, linear-subulate, acuminate, about 6.3 mm long, the outer ones gradually shorter;

florets numerous, yellow. Achenes minute, glabrous, the pappus soft, 6.3-7.5 mm long, pinkish pale-coloured (Kirtikar and Basu, 1935).

Blumea balsamifera DC. has been used in the traditional medicine of some oriental cultures. The Chinese have used preparations of this plant as a carminative, mild stimulant, vermifuge, as a topical application for septic ulcers, and as a preventive medicament in times of epidemics. The ancient Chinese medical literature has recorded its use as an abortifacient.

Preparations of *Blumea balsamifera* DC. are used in the traditional medicine in Thailand, where they are available at local herbal drug shops. Cigarettes are prepared from the chopped, dried leaves of *B. balsamifera* DC. and smoked to relieve the pain of sinusitis. An infusion prepared from leaf material is used as a stomachic, carminative, diaphoretic, expectorant and emmenagogue. A decoction of fresh leaves is used alone or in combination with other plant preparations, as a bath for women after parturition.

Concerning to pharmacological action, an injection of the extract of leaves produces a drop in blood pressure, dilation of the vessels and inhibition of the sympathetic nervous system (Leclerc, 1940) and diuretic action (Vander Woerd, 1942). It is used in the treatment of excitement and insomnia (Leclerc, 1940).

The chemistry of *Blumea* constituents has been of some interest for at least 65 years. The essential oil was the first product to be studied (Simonsen and Rau, 1922). In the initial studies, *d*-carvotanacetone, *l*-tetrahydrocarvone, a mixture of butyric, isobutyric and

n-octanoic acids, and an unidentified phenol were isolated. Subsequently, 1-borneol, 1, 8-cineol, two carvotanacetone derivatives (Bohlmann *et al.*; 1979), a diester of coniferyl alcohol (Bohlmann and Zdero, 1969), some polyacetylenes and thiophene derivatives (Bohlmann *et al.*; 1973), campestrol (Pal *et al.*; 1972), stigmasterol (Desai; 1975), sitosterol (Desai *et al.*; 1976), xanthoxylin, erianthin and 5, 3', 4'-trihydroxy-3, 6,7-trimethoxyflavone (Bose and Dutt, 1940; Bose *et al.*; 1968 ; Rao *et al.*; 1977) other unidentified flavonoids (Rao *et al.*; 1977), coumarins and triterpenes and myristic acid have been isolated from *Blumea* species.

According to its widely uses in medicine, these studies were undertaken on isolation and separation of organic compounds containing in leaves in order to search for compounds which might exhibit therapeutic values.