

# CHAPTER I

## INTRODUCTION



*Melodorum* is a genus of Annonaceous plants of which, in 1790, Loureiro had proposed for two species from Cochinchina, *Melodorum fruticosum* Lour. and *Melodorum arboreum* Lour., whereas the first is manifestly the type of this genus. The genus *Melodorum* has two authorities, Dunal and Loureiro.<sup>1</sup> The genus *Melodorum* Lour. should be retained as a genus closely allied to *Popowia*, for which the names *Mesneya* Pierre and *Sphaerocoryne* Scheffer are exact synonyms.<sup>1</sup> The genus contains only four species: *M. arberrans* (Maingay) Sinclair, *M. arboreum* Lour., *M. blanfordianum* (C. E. C. Fischer) Sinclair and *M. fruticosum* Lour.<sup>2,3</sup>. The species found in Thailand is *M. fruticosum*.

*Melodorum fruticosum* Lour. Fl. Cochinch. (1790) 351<sup>4</sup>

Synonyms: *M. clavipes* Hance.

*Sphaerocoryne clavipes* Craib

*Popowia Mesnyi* Craib

*P. aberrans* Pierre ex Finet et Gagnep.

*P. diospyrifolia* Pierre ex Finet et Gagnep.

*Polyalthia siamensis* Boerl.

*Unona Mesnyi* Pierre

Shrub. Young twigs slender, glabrous, black, finely striate. Leaves membranous, oblong-lanceolate, acute or acuminate, base slightly cuneate, glabrous, shining above, glaucous beneath; main nerves 14-18 pairs, fine, the secondary quite as well as marked; reticulations rather lax, fine on both surfaces; length 9-12 cm.; breadth 3.5-4.5 cm.; petiole 5-7 mm. long.; pale brown beneath in herbarium material. Flower solitary, axillary or terminal. Pedicels 2 cm. long, thickened below calyx, 3-3.5 cm. long, lengthening in fruit, bearing 2-3 minute bracts at base and another slightly below the middle. Sepals broadly triangular, connate 3-4 mm. long, puberulous or glabrous outside,

glabrous inside. Petals coriaceous, nearly orbicular, acute with broad base, tomentose outside, puberulous inside except the base, concave inside; outer about 1 cm. long and 1.1 cm. broad, the inner slightly smaller, thicker and more concave. Stamens 2 mm. long, connectives flat-topped, pollen grains large, visible under a lens. Torus depressed in centre. Ovaries 2 mm. long, elongate, tomentose, with short style, grooved on the inner side from the stigmatic portion downwards, stigma small, not thickened, expanded or distinct from style. Ripe carpels ovoid, slightly apiculate, glabrous, 8 mm. long and 7 mm. in diam.; stalks slender, glabrous, 1.8-2.5 cm. long. Seeds 1, occasionally 2, pale brown, smooth, shining.

Distribution: Indo-China

*Melodorum fruticosum* Lour. is an indigenous plant known in Thailand as "Lamduan". Thai traditional medicine uses the flower of this plant as an ingredient in the tonic formulation called "Gaesorn Thung Gao". Other constituents of this formulation are the flowers of *Jasminum sambac* Ait., *Mimusops elengi* Linn., *Mesua ferrea* Linn., *Mammea siamensis* Kosterm., *Nelumbo nucifera* Gaertn., *Michelia champaca* Linn., *Cananga odorata* Hook. f. & Thoms., and *Pandanus odoratissimus* Linn.. It is used as refreshment and cardiogenic.

Heptene derivatives have been isolated from the bark, leaves, and branches of *M. fruticosum*<sup>5,6,7</sup>. Structurally, these compounds, first described by Jung et al. (1990)<sup>5</sup> are C<sub>7</sub> dienone or lactone connected to a benzoyl moiety. Over all, ten heptene derivatives have been obtained from this plant<sup>5,6,7</sup> and some of these have demonstrated cytotoxicity against human tumor cell lines. However, although its use in Thai traditional medicine is well-known, no phytochemical investigation of *M. fruticosum* flowers has been performed. Thus, the aim of this study was to isolate and elucidate the structures of chemical compounds from the flowers of *M. fruticosum*.



Figure 1: *Melodorum fruticosum* Lour.<sup>8,9</sup>