



## CHAPTER 1 INTRODUCTION

*Glyptopetalum sclerocarpum* Laws. is a plant belonging to the family Celastraceae. The genus *Glyptopetalum* comprises 32 species which entirely distribute in tropical region from Sri Lanka to Philippine<sup>1-9</sup>. In Thailand, there are 3 valid species as listed below<sup>9-10</sup>:

<i>Glyptopetalum quadrangulare</i> Prain	Tap laam ตับหลาม (Trang)
<i>G. sclerocarpum</i> Laws.	Kae khaang แคคาง, Kae khaang แคค่าง (Petchabun); Chong naang ช้างนาง, Pong nok ปังนอ (Lampang); Duu dong ดูดอง (Chiang Mai); Madoh มะเดาะ (Phrae); Tum kaa daeng ตูมกาแดง (Loei, Chiyaphum)
<i>G. subcordatum</i> Ding Hou	no local name (Kanchanaburi)

*G. sclerocarpum* Laws. (synonym : *Euonymus sclerocarpus* Kz.) is an evergreen tree with compressed branchlet and red bark. Leaves are oblong- to elliptically lanceolate, 6-8 inches long acuminate at both ends, with serrate margin and coriaceous texture. Flowers are greenish purple on long slender pedicels, forming lax, glabrous, solitary or more usually clustered peduncled cymes in the axils of the leaves or above the scars of the fallen ones. Sepals are white, broadly semi-orbicular. Petals are almost concave-orbicular, green outside, purplish green inside. There are four stamens with sessiled anthers on the obsoletely 4-gonous green broad disk. Stigma is sessile, obsoletely 4-cornered. Fruits are capsules, more or less globular or 2-lobed, very rough from scurfy fissures and warts. Aril is blood-red in color<sup>11-12</sup>.

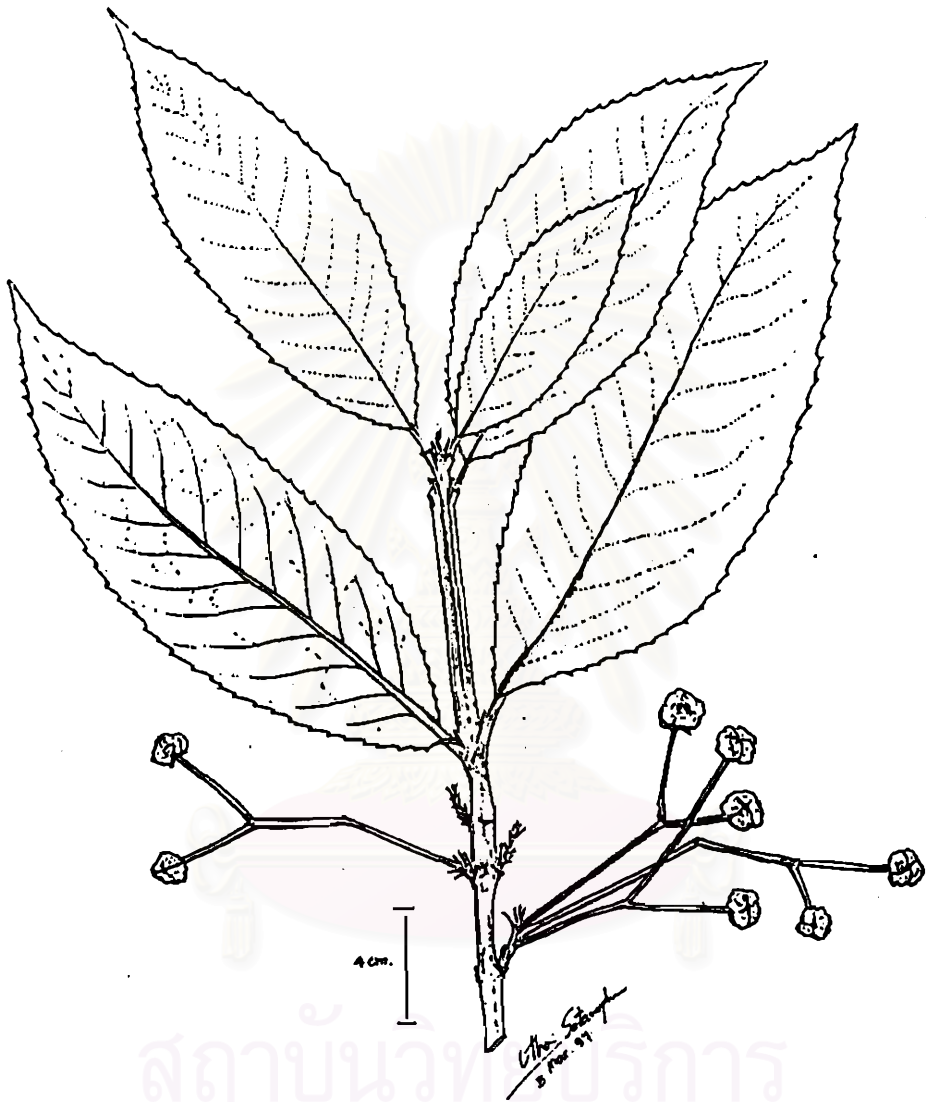
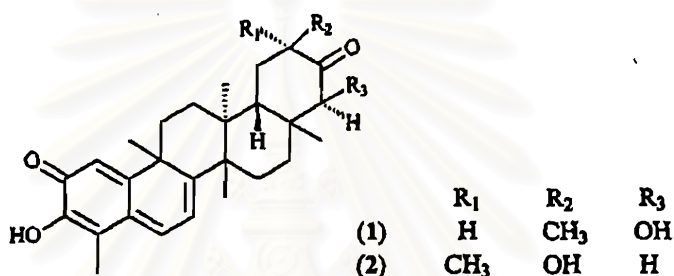


Figure 1. *Glyptopetalum sclerocarpum* Laws. fruiting branch.

In Loei province, Thailand, *G. sclerocarpum* Laws. is used as folk medicine to cure malaria and dermatological infectious diseases. It is the only *Glyptopetalum* species that has been studied on the chemical constituents. Two quinone-methide triterpenes, 22 $\beta$ -hydroxy-tingenone (1)<sup>13</sup> and 20-hydroxy-20-epi-tingenone (2)<sup>14</sup>, were reported as present in its stem bark. They exhibit cytotoxic activity<sup>13,15,16</sup>, and 22 $\beta$ -hydroxy-tingenone (1) was also shown to have certain effects on mitochondria<sup>17</sup>. Both of them are classified as the quinone-methide triterpenes.



Preliminary chemical and chromatographic screening indicated that not only 22 $\beta$ -hydroxy-tingenone (1) and 20-hydroxy-20-epi-tingenone (2), but also several other compounds were present in the stem bark of *G. sclerocarpum* Laws. Therefore, this investigation was carried out in order to isolate those compounds using technique of bioassay-directed fractionation. All compounds, including the previously reported ones, were also examined for their antimicrobial activity to support the indigenous use of this plant.

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