CHAPTER I

INTRODUCTION

The use of natural medicines is a persistent aspect of present-day health care. A remarkable feature of it is the belief of the people that naturalness is a guarantee of harmlessness. Medicine of natural origins must be safer than synthetic drugs. Therefore, natural medicine is regarded as the best medical option for mankind.

Medicinal plant is one of the natural origins. Research on plant secondary metabolites has been extensively conducted. The terpenoids constitute the largest class of natural products. A large number of terpenoids possessing biological activities have been found.

For instance, the well known bioactive terpenoids from plants are shown as follows.

(I) Artemisinin (Qinghao su), an antimalarial sesquiterpenoid lactone from Chinese medicinal herb *Artemisia annua* L. (Asteraceae) (Bruneton, 1993).

(II) Ginkgolides, a group of diterpenoids, bitter constituents of *Ginkgo biloba* L. (Ginkgoaceae) used in the treatment of neurological disorder (Funfgeld, 1988).

(III) Adaptogenic substances Ginsenosides, steroidal saponins from *Panax ginseng* C. A. Mayer. and other species (Araliaceae) (Bruneton, 1993).

(IV) Azadirachtin, a tetranortriterpenoid from neem tree *Azadirachta indica* Juss. (Meliaceae), a potent insect antifeedant (Hanson, 1992).

(V) A sweetening agent stevioside, *ent*-kaurane diterpene glycoside from *Stevia rebaudiana* Bertoni.(Asteraceae) (Hanson, 1988).

(VI) Taxol, an anticancer agent diterpenoid with a taxane nucleus from yews *Taxus* sp. (Taxaceae) (Hanson, 1988).

(VII) Plaunotol, an acyclic diterpenoid with antipeptic ulcer activity from Thai medicinal plant Plao noi (เปล้าน้อย) *Croton sublyratus* Kurz. (Euphorbiaceae) (Kitazawa, 1979).

In Thailand, Plao yai (เปล้าใหญ่) *Croton oblongifolius* Roxb., other species of the genus *Croton*, was often used with Plao noi. According to indigenous medicinal herb pharmacopoeia (Kittikhajorn, 1983), all part of Plao yai are useful. For instance, barks are both taken orally and applied topically to inhibit chronic enlargements of the liver and cure remittent fever, as an application to sprains, bruises, rheumatic swellings, etc.; leaves are used externally for liver complaints, and scabies; fruits and seeds are purgative and used in treatment of snake-bite; flowers are used to kill parasite; alburnum are used as digestive and in treatment of leprosy; heartwood are used in remedy of faint, pus and used as laxative; roots are remedy in dysentery, chronic rheumatism; and root barks are given in small dose as a purge; a larger quantity is poisonous.

Croton oblongifolius Roxb. is widely distributed in Thailand. Even though it has been intensively investigated by Seshadri *et al*, it was reported that this same plant collected in Thailand contains different chemical constituents possibly due to geographic variation (Roengsumran *et al*., 1998). This interests the author to investigate the chemical compounds in this plant. Further interesting compounds can be expected.

This investigation deals with purification and identification of chemical compounds present in the stem bark of this plant. The data obtained in this study should contribute to knowledge of chemical constituents in this species. The results of this work should provide valuable information in the fields of chemotaxonomy and phytochemistry.

The main objectives in this investigation are as follows:

1. to isolate and purify the chemical compounds from the stem bark of *Croton oblongifolius* Roxb.

2. to determine the chemical structure and physical properties of each isolated compound.

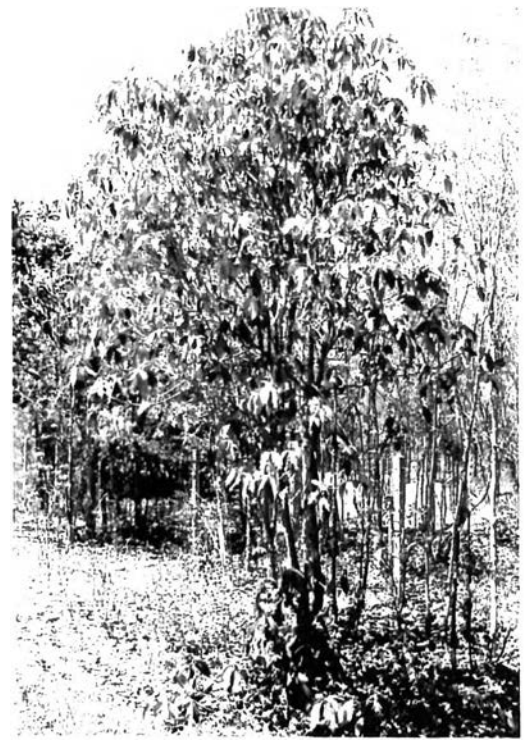

Figure 1. *Croton oblongifolius* Roxb.