

CHAPTER I

INTRODUCTION



As a tropical country, Thailand has a large abundant of medicinal plants. Medicinal plants are used to cure diseases since the former time. Nowadays, they are widely accepted as a replacement option for synthetic drugs because they are easy to find and very cheap.

“ Plao ” (genus *Croton*) belongs to the euphorbiaceae family. It is a local medicinal plant which has therapeutic effects. In Thailand, most of the researches had concentrated on chemical constituents of varieties of Plao, especially Plao Yai (*Croton oblongifolius* Roxb.), Plao Noi (*Croton sublyratus* Kurz.), Plao Ngoen (*Croton cascarilloide* Raeusch.) and Plao Pae (*Croton hutchisonianus* Hoss.).

According to the study of Plao Yai from different sources, it is found that chemical constituents are differently affected according to biological activities [1-7]. For Plao Noi, Plaunotol from Plao Noi is an effective anti-peptic Ulcer drug available commercially. The barks and leaves of Plao Noi can be used as anti-ulceric agent [8-10]. Moreover, it finds plenty of interesting chemical constituents in Plao Ngoen [11] and Plao Pae [12]. Plao Ngoen can also be used as an antifebrile.

“Plao Lueat” (*Croton robustus* Kurz. or *Croton siamensis* Craib.) is an interesting Thai medicinal plant because it is believed that all parts of the plant can be used as drugs, such as the woods can be used as an antianemic agent. The barks and leaves can be used for stopping bleeding, the leaves are used to treat a skin disease [13].

In Thailand, there is no research on *Croton robustus* which belongs to one of genus *Croton*. It is expected that Plao Lueat will have interesting chemical constituents and biological activities. Therefore, it will be useful to investigate chemical constituents in the stem barks of *Croton robustus* Kurz., anti-cancer, anti-platelet aggregation. These will fulfill the completion study of chemical constituents of genus *Croton*.

General Characteristic of Plant in the Genus *Croton*. [1-7]

The genus *Croton* comprises 700 species of trees or shrubs. Leaves are usually alternate with 2-glandular stipule at the base. The plant is monoecious. Their flowers are solitary or clustered on the rachis of a terminal raceme and bracts are small. Male flowers contain 5-calyx, 5-petals. There are many stamens inserted on a hairy receptacle. In female flowers, sepals are usually more ovate than the male, petals are smaller than the sepals or missing and disk annular of 4-6 glands are opposite the sepals. There are three ovaries with solitary ovule in each cell. Seeds are smooth, albumen copious and broad cotyledons.

General Characteristic of *Croton robustus* Kurz. [13]

Croton robustus Kurz. is a medium-sized tree. Branches have brown scales. Leaves are a kind of simple leaf and alternated. The size of leaves is 5-8 by 12-20 cm. The shape of leaf blade is elliptic oblong or oblong. The upper side of leaves has dark green while the lower side of leaves has gray-green. Inflorescences blossom at leaf axial at terminal. It has many florests, yellow-white, which are monoecious plants. The shape of dry fruits is globose-ovate and the septicidal capsule of dry fruits has 3 capsules. When the branches or leaves are cut off, the red gum will flow out from them.

The picture of *Croton robustus* Kurz. is shown in Fig.1

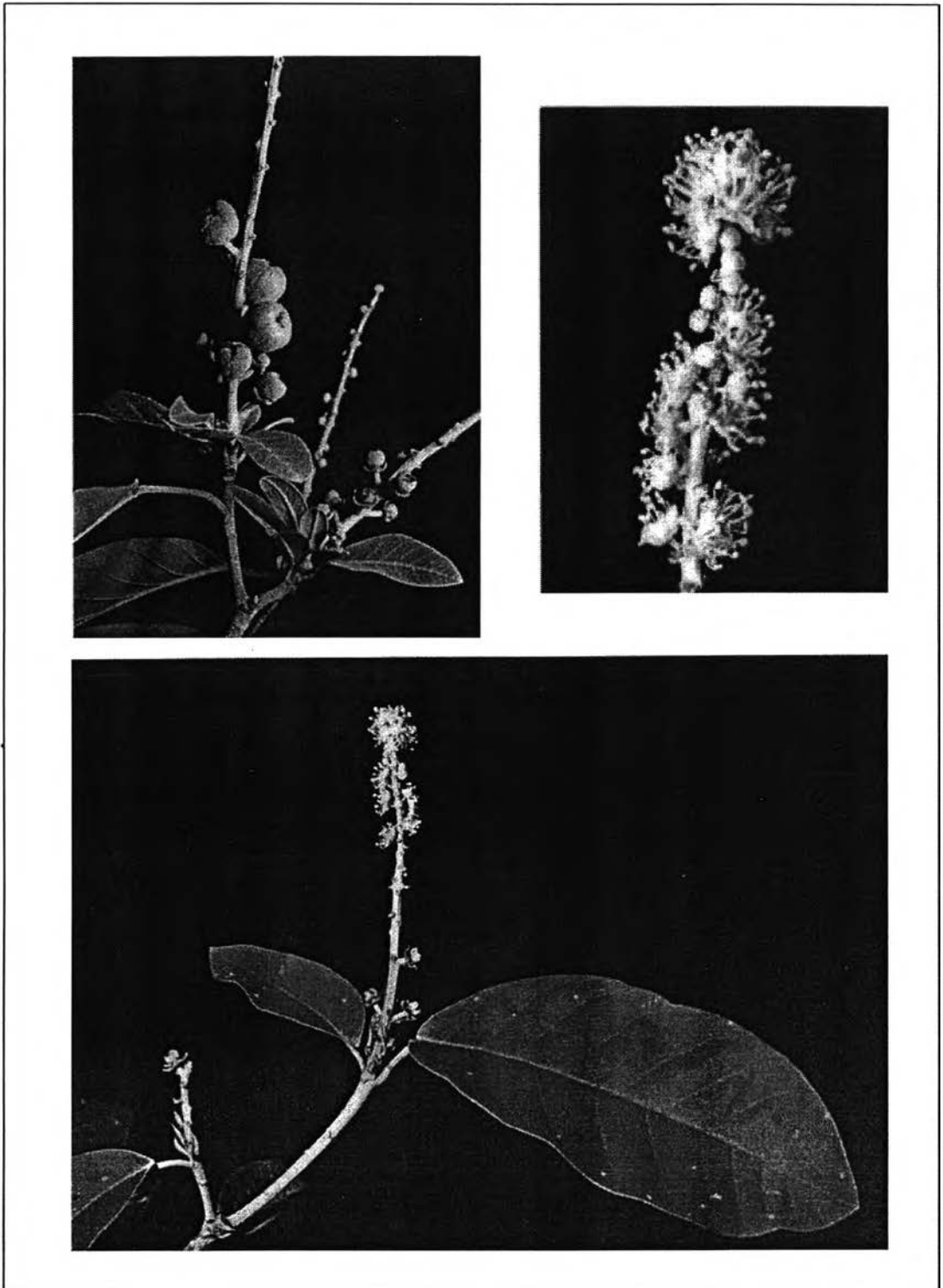


Figure 1 The picture of *Croton robustus* Kurz.

From the information above, the chemical constituents of the stem barks of *Croton robustus* Kurz. have not yet been studied. Therefore it was interesting to investigate diterpenoid compounds of the stem barks of *Croton robustus* Kurz.

Thus, the objectives of this research could be summarized as follows:

1. To extract, isolate and purify the organic constituents of the stem barks of *Croton robustus* Kurz.
2. To identify the structure of the isolated compounds obtained from the stem barks of *Croton robustus* Kurz.
3. To study the bioactivities of isolated compound obtained from the stem barks of *Croton robustus* Kurz.