

CHAPTER I

INTRODUCTION

Medicinal plants are one of the natural products evolved from man's desperate attempt to conquer physical suffering, coupled with overwhelming desire for an eternal life. There is a worldwide trend towards the use of drugs of natural origin since they are believed to possess less harmful side effects than synthetic drugs. The search of natural products for cancer therapy represents an area of great interest in which plants have been the most important source. In Thai traditional medicine, the uses of plants is widespread practiced and in various methods such as powdered, solution extracted by water or alcohol. Their uses throughout urban and rural communities in Thailand could be considered as a good evidence of their efficacy. Many medicinal plants in Thai traditional medicine are claimed for their activity to treat cancer. On the other hand, there are few experiments which validate the possible anticancer properties of the plants. Besides, there are still no medicines, which affect exactly to treat any one kind of cancer. Bioassay screening of cytotoxic activity against human tumor cell *in vitro* which is performed by the MTT (3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide) colorimetric method. The most interesting plant with strong anticancer activity will be selected to extract and identify the active compounds.

Preliminary screening test for cytotoxicity against cancer cell lines of selected plants used as anticancer in Thai traditional medicine showed that the ethanol crude extract from the stem barks of *Croton oblongifolius* Roxb. from Amphur Vicheinburi, Petchaboon Province had the interesting anticancer activity compared to other selected plants suggesting that there were active compounds in this plant. Consequently, it was decided to re-investigate the active compounds of the stem barks of *Croton oblongifolius* Roxb. from Amphur Vicheinburi, Petchaboon Province.

***Croton oblongifolius* Roxb.**

From the Thai medicinal plant literature, plao-yai (*Croton oblongifolius* Roxb.) was often used with plao-noi (*Croton sublyratus* Kurz.) in an effort to develop a medicine that was safe and effective such as an antipeptic ulcer drug.

Plao Yai belongs to the Euphorbiaceae family (เต็ม สมิตินันท์, 2523). The scientific name of Plao Yai is *Croton oblongifolius* Roxb. This plant is an important Thai medicinal plant because it is believed that all parts can be used as a tonic, the flower is used as a teniacide, the fruit is used to treat dysmenorrhea, the seed is used as a purgative, the root is used to treat dysentery and the bark is used to treat dyspepsia. Furthermore, the hot water extract of the bark of *Croton oblongifolius* Roxb. can be used as an antipyretic, myalgia, arthralgia and treatment of hepatitis (เสงี่ยม พงษ์บุญรอด, 2502). From the information, the stem barks of *Croton oblongifolius* Roxb. can be used as drug and the previous studies in chemical constituents of the stem barks of *Croton oblongifolius* Roxb. had found some biologically active compounds.

Besides, recent study in our research group had reported that compounds isolated from the stem barks of *Croton oblongifolius*, had an activity against cancer cell lines. Nevertheless, there are diversity of main chemical constituents in the stem bark of this plant depend on different location.

Therefore, the objectives of this research are summarized as follows :

1. To test the cytotoxicity against cancer cell lines of selected plants used as anticancer in Thai traditional medicine.
2. To extract and isolate the active compounds of the stem barks of *Croton oblongifolius* Roxb. from Amphur Vicheinburi, Petchaboon Province.
3. To identify the structural formula of the isolated substances.
4. To test biological activity of the isolated substances.