

CHAPTER VI

CONCLUSION

From the study of chemical constituents found in the stem bark of *Croton oblongifolius* Roxb. from various locations in Thailand, it was found that the main components were different. The chemical constituents found in *Croton oblongifolius* Roxb. could be categorized into four groups including cembrane diterpenoid, clerodane diterpenoid, labdane diterpenoid, and halimane diterpenoid compounds.

In this research, on the chemical constituents found in the stem bark of *Croton oblongifolius* Roxb. from Vicheinburi, Petchaboon province, three new cembranoid compounds were discovered; crotocebraneic acid (1), neocrotocebraneic acid (2), and neocrotocebranal (3). The derivatives of this compounds were synthesized. Three new halimane diterpenoid compounds were found; crotohalimaneic acid (7), benzoyl crotohalimanic acid (8), and crotohalimoneic acid (9), in *Croton oblongifolius* Roxb. from Pakchong, Nakornrachsim province, and its derivatives were synthesized.

From modification of crotocebraneic acid (1) and neocrotocebraneic acid (2), carboxylic acid was changed into methyl ester, alcohol or aldehyde group. Their derivatives of crotocebraneic acid (1) containing, methyl crotocebraneate (1a), crotocebraneol (1b), and crotocebranal (1c), and their derivatives of neocrotocebraneic acid (2) containing, methyl crotocebraneate (2a), crotocebraneol (2b), and crotocebranal (2c) were new compounds.

The isolated compounds and their derivatives were tested for inhibition of cyclic adenosine 3,5-monophosphate phosphodiesterase (PDE) which normally be used as a screening method for detecting biologically active compounds. The inhibition activity of cembranoid diterpene of compound 1, compound 2, and compound 5 exhibited high inhibitory activity. However, the derivatives of these compounds exhibited low potency to cyclic AMP phosphodiesterase. All compounds showed cytotoxic activity against 6 cell lines. Moreover, compound 1a, and 3, which consisted of methyl ester and an aldehyde group, respectively, showed significantly cytotoxic activity against 6 cell lines. Compound 3 exhibited cytotoxic activity against P 388 cells *in vitro*, with an IC₅₀ value of 6.48 µg/ml.

Suggestion for future work

The future studies should identify new compounds from various sources of *Croton oblongifolius* Roxb. in Thailand. Investigation of the chemical diversity of this plant should be done in parallel to DNA profiling study in order to further classify *Croton oblongifolius* Roxb. into subspecies.