

CHAPTER V

CONCLUSION

According to the study of chemical constituents from stem bark of *Croton oblongifolius* Roxb. from Amphoe Sai Yok, Kanchanaburi Province, it was found that the main components were different from those obtained from other places. The chemical constituents that found in *Croton oblongifolius* Roxb. could be categorized into two groups including labdane diterpenoid compounds and clerodane diterpenoid compounds.

In this research, concerning the chemical constituents found in the stem bark of *Croton oblongifolius* Roxb. from Amphoe Sai Yok, Kanchanaburi Province, A new clerodane compound was discovered (3) including crovatin, methyl *ent*-(18R,10 β)-3, 19S:15,16:12S,20R:19,20-tetraepoxy-cleroda-13(16), 14-dien-18 β -oate, (2) which was found to be the constituent in this plant. Furthermore, Two labdane diterpenes compounds, Labda-14-ene-8,13(S)-diol (1) and (7S,12Z)-12,14-Labdadiene-7,8-diol (4), were also found.

From ^1H , ^{13}C -NMR spectrum, and DEPT experimental data found that molecular formula of compound 1 was $\text{C}_{20}\text{H}_{36}\text{O}_2$. The comparison of those spectrum including IR, and other physical data of compound 1 to those data of Scareol compound (Labda-14-ene-8,13(S)-diol) could conclude that the compound 1 was

Sclareol compound. The Sclareol compound has been found since 1988 in *Polemonium viscosum* [20] and *Aristolochia* species. [13] In 1990, Sclareol was also found in *Salvia sclarea* and *Nicotiana glutinosa* [21] and in this research also found Sclareol in *Croton oblongifolius*.

The investigation of *Croton oblongifolius* was also found Compound 2. From ^1H , ^{13}C -NMR spectrum, and DEPT experimental data found that molecular formula of compound 2 was $\text{C}_{21}\text{H}_{26}\text{O}_6$. The comparison of those spectrum including IR, MS and other physical data of compound 2 to those data of Crovatin (methyl *ent*-(18R,10 β)-3,19S:15,16:12S,20R:19,20-tetraepoxy-cleroda-13(16), 14-dien-18 β -oate) found that compound 2 was Crovatin compound. Crovatin has been found first time in *Croton levatii* since 1992. [17]

From the investigation of *Croton oblongifolius* from Amphoe Sai Yok Kanchanaburi province could find a new clerodane compound, Croblongifolin (methyl *ent*-(18R,10 β)-19R benzoyl-15,16:12R,20R:19,20-triepoxy-cleroda-13(16),14-diene-4 β -hydroxy-3-one-18-oate). From ^1H , ^{13}C -NMR spectrum, DEPT and elemental analysis data found that molecular formula of compound 1 was $\text{C}_{28}\text{H}_{30}\text{O}_9$. Its structure was confirmed by HMBC, HMQC, COSY and NOESY correlations. From NOESY correlations, found that H at δ_H 6.26 was coupling to H at δ_H 5.28 and H at δ_H 5.28 was coupling to H at δ_H 6.52. That meant the configuration at C-19 and C-20 could be R-configuration. From NOESY correlations also found that H at δ_H 6.52 was coupling to H at δ_H 3.78 of methyl ester group, that meant the hydroxy group at C-4 could be axial and ester group could be equatorial. From NOESY correlations, found that H at δ_H 1.67 was coupling to H at δ_H 1.80 of C-7

and related with the COSY correlations which showed H at δ_H 2.24 was coupling to H at δ_H 1.67 and δ_H 3.08, H at δ_H 3.20 was coupling to H at δ_H 2.57. It meant proton at C-10 could be axial.

From this research, the compound 4 was found from 45 % ethylacetate-hexane system. To compare with (7S,12Z)-12, 14-Labdadiene-7, 8-diol, Nidorellol, by using ^1H , ^{13}C -NMR spectrum, DEPT experimental, IR, MS and other physical data found that the compound 4 was Nidorellol compound. From the spectroscopy data assigned that its molecular formula was $\text{C}_{20}\text{H}_{34}\text{O}_2$. The Nidorellol compound has been found in *Nidorella* species since 1978 [18], in *Porella perrottetiana* since 1979 [23] and in Tobacco since 1982. [22]

The isolated compounds (1 - 4) were tested cytotoxicic against 6 cell lines. From the result, showed that %survival of 5 cell lines which are KATO-3, BT 474, CHAGO, SW 620 and HEP-G2 were 8, 20, 5, 6, and 5 respectively. That meant the compound 3 gave the best inhibition to those 5 cell lines. In contrast with the compound 3, %survival of compound 1, 2 and 4 against 5 cell lines were very high that meant compound 1, 2 and 4 gave bad inhibition to those of cancer cell lines.

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