

## CHAPTER VI

### CONCLUSION

In the course of this research work, the stem barks of *Croton oblongifolius* Roxb. from Chachoengsao province are selected for investigating their chemical constituents and their bioactivities. The preliminary <sup>1</sup>H-NMR screening of hexane crude extract indicated that the main component was clerodane type diterpenoid compound. Using chromatographic separation and recrystallization techniques, 6 compounds and a mixture were isolated. They were shown in Table 21.

The hexane crude extracted of *C. oblongifolius* stem bark was separated on silica gel column chromatography using hexane-ethyl acetate gradient system, to obtained the mixture of steroids, stigmasterol,  $\beta$ -sitosterol and campesterol, two clerodane diterpenoids; (-)-hardwickiic acid (2) and (-)-20-benzoyloxyhardwickiic acid (7), four labdane diterpenoids; labda-7,12(*E*),14-triene-17-oic acid (1), 2-acetoxy-labda-8(17),12(*E*),14-triene-3-ol (3), 3-acetoxy-labda-8(17),12(*E*),14-triene-2-ol (4) and labda-8(17),12(*E*),14-triene-2,3-diol (6).

The ethyl acetate crude extracted of *C. oblongifolius* gave similar compounds as in hexane crude extract including compound 2 and compound 6.

Table 21 Isolated compounds from the stem barks of *C. oblongifolius*

Compounds	Physical appearance	Weight (g)	% wt/wt from starting material
1	colorless needle crystal	0.05	$8.00 \times 10^{-4}$
2	white solid	13.40	0.21
3	white solid	0.08	$1.30 \times 10^{-3}$
4	white solid	0.06	$9.00 \times 10^{-4}$
Mixture 5	white needle crystal	1.73	$2.66 \times 10^{-3}$
6	white solid	8.49	0.13
7	viscous transparent oil	0.11	$1.70 \times 10^{-3}$

The isolated compounds were tested for their cytotoxic activity against 6 cell lines. From the result, Compound 3 and 6 showed significant cytotoxicity against all human tumor cell lines, Kato-3, BT 474, Chago, SW 620 and Hep-G2. Compound 4 exhibited moderate cytotoxicity against Hep-G2 and Kato-3. Furthermore, this represents the first report of cytotoxicity test of (-)-hardwickiic acid (Compound 2) which was the main product.

