

CHAPTER 5

CONCLUSIONS

Twenty plants in the Rubiaceae family collected from the Northern part of Thailand were studied for their cytotoxic activity against MCF-7 and KB-3-1 carcinoma cell lines. According to their cytotoxic activity, these plants were divided into three groups as the plants with active, moderately active, and inactive activities. *Gardenia obtusifolia* and *Gardenia sootepensis* were the species bearing highest activity ($IC_{50} \leq 20 \mu\text{g/ml}$) against both cell lines. Other three plants categorized as the moderately active species were *Ixora cibdela*, *Mussaenda parva*, and *Psychotria ophioxybides* ($20 \mu\text{g/ml} < IC_{50} < 100 \mu\text{g/ml}$). The results from this study revealed 25% success rate in discovering plants with cytotoxic activity. The usefulness of taxonomy in plant selection was confirmed in this study.

Due to the scarce reports about the active components obtained from *G. obtusifolia*, this plant was chosen for the study in details. Two flavones (GO.1 and GO.2) were isolated from this plant by using bioassay-guided fractionation technique. The GO.1 was isolated with higher yield (0.03% yield from dried leaves powder) than the GO.2 (<0.01% yield from dried leaves powder). Using the evidence from spectral data and direct comparison with literature data, GO.1 structure was proposed to be 5,3'-dihydroxy-3,6,7,8,4'-pentamethoxyflavone, which exhibited moderately cytotoxic activity against MCF-7 cell line ($IC_{50} = 7 \mu\text{g/ml}$). The GO.2 displayed high cytotoxic activity against KB-3-1 ($IC_{50} = 2.5 \mu\text{g/ml}$). Unfortunately, its structure could not be proposed due to a limit quantity of sample.