CHAPTER V

CONCLUSION

In this research, dried powder of roots of *Butea superba* Roxb.(5.5 kg) was extracted with hexane, chloroform, water and methanol, respectively and obtained three different crude extracts; hexane crude extracted (1.16 g, 0.03% wt/wt of the dried powder), methanol crude extracted (40.01 g, 0.73% wt/wt of the dried powder) and water crude extracted (476.15 g, 8.66% wt/wt of the dried powder). The chemical constituents of roots of *Butea superba* were investigated.

The investigation of chemical constituents of methanol crude extract of *Butea superba* from Lumpang Province was separated from silica gel column chromatography using dichloromethane-methanol gradient system, to obtain a mixture of steroids; including campesterol, stigmasterol and β-sitosterol **(1)** (762.3 mg, 0.014% yield from dried powder), a 3-hydroxy-9-methoxypterocarpan (Medicarpin)**(2)** (5 mg, 0.00013% yield from dried powder), four isoflavones; 5,4′-dihydroxy-7-metoxy-isoflavone (Prunetin) **(3)** (6 mg, 0.00009% yield from powder), 7-hydroxy-4′-methoxy-isoflavone (Formononetin) **(4)** (6 mg, 0.00013% yield from dried powder), 7-hydroxy-6-4′-dimethoxyisoflavone **(5)** (4 mg, 0.00007% yield from dried powder) and 7,4′-dimethoxyisoflavone **(6)** (1.2 mg, 0.000009% yield from dried powder), and hexacosanoic acid 2,3-dihydroxy-propyl ester **(7)** (6 mg, 0.00013% yield from dried powder), respectively. This represents the first recorded of four isoflavone and a hexacosanoic acid 2,3-dihydroxy-propyl ester from *Butea superba*.

The isolated compounds were tested for their anti-cancer activity against three cell lines; KB (Human epidermoid carcinoma of cavity, ATCC CCL-17), BC (Breast cancer cell line) and NCI-H 187 (Human small cell lung carcinoma, ATCC CRL-5804) from Bioassay Laboratory, National Center for Genetic Engineering and Biotechnology (BIOTEC). The biological activity test of chemical constituents of *Butea superba* found that compound **(2)** showed anti-cancer activity against BC cell line and KB cell line at IC_{50} 12.9±0.3 and 19.2±0.8 μg/ml. Compound **(3)** showed anti-cancer activity against BC cell line and KB cell line at IC_{50} 8.8±1.5 and 10.0±2.5 μg/ml. They were active against NCI-H 187 cell line at concentration more than 20 μg/ml. Compound **(1)**, **(4)**, **(5)** and **(6)** were active against BC cell line, KB cell line and NCI-H 187 cell line at concentration more than 20 μg/ml, respectively.