CHAPTER 4
CONCLUSION

In the study on biologically active constituents of *Sphaeranthus africanus.* nine compounds were isolated from bioactive fractions (chloroform and buthanol crude extract) The chemical structures were characterized by means of spectroscopic studies and biological activities have been examined, the isolated compounds are summarized as follow.

1. friedelan-3β-ol (compound **1**) 50 mg ; 0.017 % wt. by wt.
2. a mixture of steroids (mixture **2**) 45 mg ; 0.064 % wt. by wt.
3. quercetagetin-3, 6, 7-trimethyl ether (compound **3**) 138 mg ; 0.197 % wt. by wt.
4. 3α, 5β-diangeloxoyloxy-7-hydroxycarvotacetone (compound **4**) 168 mg ; 0.24 % wt. by wt.
5. 2,4,6-triangeloxoyloxy-5-(sec-propyl)-2-cyclohexanone (compound **5**) 45 mg ; 0.064 % wt. by wt.
6. quercetagetin-3, 3′, 7-trimethyl ether (compound **6**) 60 mg ; 0.100 % wt. by wt.
7. quercetagetin-3, 7 -dimethyl ether (compound **7**) 80 mg ; 0.933 % wt. by wt.
8. 2-*O*-*n*-buthyl-β-fructopyranose(compound **8**) 48 mg ; 0.08 % wt. by wt.
9. quercetin (compound **9**) 35 mg ; 0.058 % wt. by wt.

Proposal for Future work

As previously described, bioactive metabolites from *Sphaeranthus africanus* could be classified into two main groups, flavonoids and carvotacetones. Flavonoid compounds revealed significant cAMP inhibiting effect, quercetin inhibited against cAMP-PDE enzyme more strongly than quercetagetin-3,6,7-trimethyl ether quercetagetin-3,3′,7-trimethyl ether and quercetagetin-3,,7-dimethyl ether. Owing to its ability to soluble in water, it could be served as an alternative cAMP-PDE inhibitor for treating allergic patients in clinical trial stage after toxicity test.

Two carvotacetone derivatives were isolated from this plant which are a new carvotacetone. 3α, 5β-diangeloxoyloxy-7-hydroxycarvotacetone the most noxious agent toward *Artemia salina*, should be tested with various carcinoma cell lines to confirm the tendency of this compound as an anticancer agent. Although the naturally relative amount of 3α, 5β-diangeloxoyloxy-7-hydroxycarvotacetone was tiny, it may be synthesized from various monocyclic monoterpene such as carvone which can be obtained from essential oil. In the next few years, if phytochemical and phamarcological study of tropical weeds are widely investigated, weed will be admitted being potentially alternative medicinal plants.