

CHAPTER 4

CONCLUSION

The investigation of the biologically active agents from the Thai sponge *Ciocalapata* sp. guided by antimalarial assay led to the isolation of four isonitrile diterpenes and two sterol peroxides. Among these, a new diterpene, 8-isocyanoamphilecta-11(20),15-diene (1), and a new sterol peroxide, 5,9-*epi*-dioxyergostan-6,22-dien-3,8,14-triol (5), were first reported, along with the known compounds; 7-isocyanoamphilecta-11(20),15-diene (2), 8-isocyanoamphilecta-11(20),14-diene (3), 8,15-diisocyano-11(20)-amphilectene (4), and 5,8-*epi*-dioxyergostan-6,22-dien-3-ol (6).

The antimalarial and cytotoxic activities of the isolated compounds were evaluated to show the good antimalarial activity from both isonitrile diterpenes and sterol peroxides, while the cytotoxicity of isonitrile diterpenes was lower than the sterol peroxides. Of particular interest was compound 4, which was the most potent antimalarial agent with an IC_{50} in a comparable range to that of standard dihydroartemisinin and the selectivity of compound 4 was similar to artemisinin, the current antimalarial drugs that use in clinical therapy. The extensive studies focusing on the selectivity and comparative toxicity are now in progress. Also, the further chemical investigation of the targeted sponge to obtain the minor derivatives compounds will extend the chemical libraries of the isonitriles so that the structure-activity relationship and targeting mechanisms will be concluded.

It has been long known that marine natural products are one of the most promising sources for biologically active agents that could be applicable in the pharmaceutical and medical areas. The chemistry and biological activities of all the isolated compounds discussed in this report clearly demonstrated such potentials. It is still a long way until all the information is gathered to prove the application values of all the targeted compounds. Nevertheless, it is hoped that all the results from this investigation will ultimately lead to the better and more sustainable managements, both for bioresource utilization and for pharmaceutical industry development, to be incorporated into the national policy.