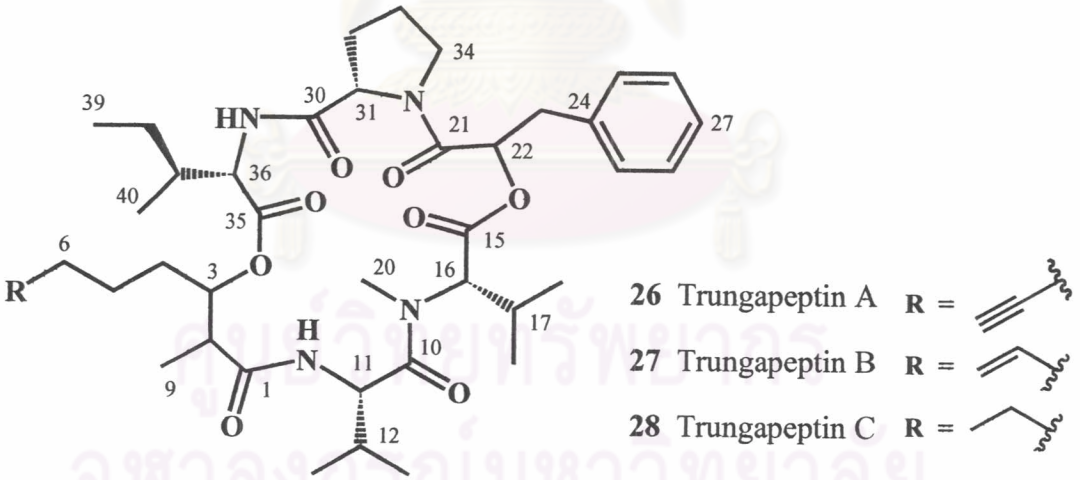
CHAPTER 5

CONCLUSION

The chemical investigations of *Lyngbya majuscula* collected from Ratchamonkol Beach, Trung Province provided three new bioactive depsipeptides, trungapeptins A (31.6 mg, **26**), B (4.6 mg, **27**) and C (4.4 mg, **28**). The structures were determined using spectroscopic methods and the absolute configuration of α-amino acids were determined using Marfey's analyses which demonstrated the L-stereochemistry of alanine, N-Me-valine, proline, and allo-isoleucine residues. These compounds include the unique 3-hydroxy-2-methyl-7-octynoic acid (Hmoya), the 3-hydroxy-2-methyl-7-octenoic acid (Hmoea), and 3-hydroxy-2-methyl-7-octanoic acid (Hmoaa) residues, respectively.



26 Trungapeptin A **R** =

27 Trungapeptin B **R** =

28 Trungapeptin C **R** =

Trugapeptin A (**26**) showed brine shrimp toxicity LD_{100} at 10 ppm and strong ichthyotoxicity at LD 6.25 ppm (20 min). However, trungapeptin A did not exhibited cytotoxicity against KB and LoVo cells. Due to limited supply of compounds **27** and **28**, their biological activities were not evaluated.

Proposal for the Future Work

Each of trungapeptins consists of six partial structures. Four of these partial structures are α-amino acids, which the absolute stereochemistries were determined using Marfey's method. For the non-amino acid portion of the molecules including 3-hydroxy-2-methyl-7-octynoic acid in trungapeptin A, 3-hydroxy-2-methyl-7-octenoic acid in trungapeptin B, 3-hydroxy-2-methyl-7-octanoic acid in trungapeptin C and 3-phenyllactic acid have not been determined yet. The future work is to assign the absolute stereochemistry of these units.

The stereochemistry of phenyllactic acid will be achieved by the hydrolysis of trungapeptin A, followed by the isolation of the phenyllactic acid and compared its optical rotation to that of the L-3-phenyllactic acid and D-3-phenyllactic acid standards. The stereochemistry of Hmoya will be accomplished by doing methanolysis on trungapeptin A and isolate the Hmoya by HPLC technique and followed by derivertization with Mosher's acid. The derivertized product will be analyzed using ^{1}H NMR to determine the absolute configuration at position 3 of Hmoya. Once the absolute configuration of C-3 is known, it can be used to determine the absolute stereochemistry at C-2 position by measuring the $^{3}J_{CH}$ using NMR experiment called HETLOC.[38]