CHAPTER 6
CONCLUSIONS

The present study has shown that the selected seaweeds collected from Port Dickson, namely *Turbinaria conoides* and *Cladophora patentiramea* have yielded compounds that could potentially serve as PDT compounds against HL60 cells.

Based on the findings from this study, the following conclusions can be made:

1. MTT screening of fourteen seaweeds collected from Port Dickson yielded five species of seaweeds that showed photo-cytotoxicity at 20 µg/mL.
2. Bioassay-guided isolation has yielded nine compounds that are chlorophyll degradation products of chlorophyll-*a* and chlorophyll-*b* types.
3. All nine compounds exhibited > 50% HL60 cells-killing under light treatment at 5 and 10 µg/mL
4. All nine compounds are of tetrapyrrole chromophore with the derivatization occurring at C-13^2 position (ring E) of the structure. Further allomerization of the β ketoester group in isocyclic ring E produced the derivatives with six-membered anhydride ring.
5. The methylation of crude extracts reduced the complexity of content in the extracts and resulted in the isolation of methyl ester derivatives from the treated extracts, as opposed to the isolation of both the free acids and the methyl ester form in the unmethylated samples.
6. This is the first report of the isolation of 13^2-methoxyl-pheophorbide-*a* methyl ester **(5)**, 15^1-methoxypurpurin-7-lactone methyl diester **(6)** and 7-formyl-15^1-methoxy-7-lactone methyl diester **(9)** from the natural resources, suggesting that there is still potential in obtaining new compounds from the nature.

The screening effort should sustain to include more variety of algae of different ecosystems to broaden the opportunity of obtaining photosensitisers with novel chromophores for further *in vitro* and *in vivo* characterization. Meanwhile, some strategies were recommended to enhance the efficacy of the isolation process.

Finally, this study accepted the hypothesis where the seaweeds of Malaysia produce photosensitising compounds with potential as PDT agents.