SUMMARY

- 25 seaweeds were screened initially for in vitro antidiabetic activity.
- Four samples (U. reticulata, S. polycystum, C. anteninna & T. ornata) were selected for in vivo antidiabetic activity in rat model.
- Among them, U. reticulata (46.21%) showed maximum reduction in FBG level.
- Further, methanolic extract of U. reticulata were selected for purification and characterization.
- Five individual compounds were identified and characterized from active fraction (F4):
  - Nonane
  - Hexadecanoic acid
  - 1-dodecanol
  - Cyclodecane methyl
  - Phenol 3,5-Bis(1,1-Dimethylethyl)
- Active fraction (F4) showed highest insulin secretagogue activity (1.03 μg/l) and inhibitory activity against α-amylase (60.58%) and α-glucosidase (47.18%).
- Active fraction (F4) showed 61% reduction in FBG level and serum insulin level were near to normal rats.
CONCLUSION

In conclusion, the research work described in this thesis gives solid scientific evidence about the traditional value of seaweeds for the effective management of DM. Further knowledge on specific inhibitory mechanisms (α-amylase, α-glucosidase and DPP-IV) associated with DM will open the possibilities of creating new antidiabetic agents. This study explores the possible antidiabetic mechanisms of individual compounds isolated from seaweeds as well as its mixture or crude extracts. Therefore, the results presented here could also open an emerging alternative for synthetic drugs for the treatment of DM.