CHAPTER 10

SUMMARY AND FUTURE WORKS

10.1 Summary

1. Addition of chicken plasma protein directly affected the rheological and textural property of surimi gel produced from both tropical and temperate fish.
2. The gel enhancing effect was most likely due to the inhibition of degradation caused by endogenous proteinase in the surimi as well as the filler effect on surimi gel. However, chicken plasma protein addition causes decreased whiteness, especially with increasing levels of protein addition.
3. Chicken plasma protein was more effective in proteolysis prevention and showed higher gel strengthening effect than soy protein isolate but those effects were lower than bovine, porcine plasma and egg white protein.
4. Cysteine proteinase inhibitor from chicken plasma fractionated by using 200-400g PEG/L was stable to various pHs, temperature ranges as well as salt (0.5-3%). The cysteine proteinase inhibitor fraction effectively inhibited the autolytic activity of myofibrillar proteins and increased gelling properties of surimi from Pacific whiting and arrowtooth flounder with no adverse effect on the whiteness.
5. Cysteine proteinase inhibitor from chicken plasma had a molecular weight of about 122 kDa. It was quite stable to the heat treatment and was also stable at salt concentration ranging from 0.5 to 3%. It effectively inhibited the autolysis of myofibrillar proteins from both Pacific whiting and arrowtooth flounder in a concentration dependent manner.

10.2 Future works

1. To purify and characterize cysteine proteinase inhibitor from chicken plasma in terms of molecular and kinetic studies.

2. To isolate and characterize other bioactive components from chicken plasma including alpha-2-macroglobulin, serine proteinase inhibitor, plasma transglutaminase etc. and to study their mode of action.
3. To study the functional properties of chicken plasma protein in comparison with other protein sources and to investigate the application of plasma proteins in other food products.