

CHAPTER 5

CONCLUSIONS

The soybean varieties, coagulants and drying methods affected the qualities of tofu powder. The correlations between protein content of soybean and protein content of tofu powder was significant ($p < 0.05$). The tofu powder which obtained from CM 60 showed good functional properties and yield. Different coagulants gave different qualities of the tofu powder. CaCl_2 and CaSO_4 as coagulants gave tofu powder with high solubility and MgCl_2 and MgSO_4 as coagulants gave tofu powder with high emulsion properties. The drying methods affected the functional properties of tofu powder. The tofu powder obtained from low heat treatment had good solubility and emulsion activity.

The influence of the addition of tofu powder and carrageenan affected the functionality textural properties and microstructure of surimi emulsion gel. The WHC, emulsion stability and hardness of the emulsion gel increased with increasing amounts of tofu powder ($p < 0.05$). Microstructural observation supported the TPA and functionality results. Moreover, the addition of carrageenan caused a significant change in the gel ($p < 0.05$). Increasing the carrageenan concentration resulted in greater WHC, emulsion stability and hardness. Microstructural observation showed that increasing carrageenan levels resulted in a smoother, more compact gel matrix.

The product development of the surimi tofu emulsion gel formed by replacing 60% surimi with tofu powder was determined. The response surface methodology (RSM) was used in optimization of the gel formulation. That could explain the effect of soybean oil and carrageenan concentration on response variable. The soybean oil and carrageenan concentration affected on the flavor and texture of the gel. The model equation developed could be used for predicting the quality of the emulsion gel. The formulation with desired quality could be obtained by incorporation 9.36% soybean oil and 0.44% carrageenan. Consumer acceptance testing indicated that the gel was well accepted.