CHAPTER 6

CONCLUSION

1) Oxygenation of cod and herring hemoglobin declined in a sigmoidal fashion as pH decreased from 8.0 to 5.5. At pH 7.0, addition of 1 mM ADP increased de-oxygenation of cod hemoglobin.

2) Exposure of hemoglobin to pH 6.0 in washed and unwashed mince decreased its extractability significantly, compared with that observed at pH 7.2. Extractability of hemoglobin exposed to pH 6.0 could be increased by extraction at an elevated pH and/or with NaCl solution. The muscle soluble fractions either as a whole, high-, or low-molecular-weight fractions could prevent loss of hemoglobin extractability at pH 6.0. At pH 7.0, low extractability of hemoglobin was found if it was exposed to ADP before mixing into the mince.

3) At pH 6.0, the hemoglobin bound to SR whereas the presence of NaCl or muscle soluble fractions decreased the binding. The binding occurred at higher degree if hemoglobin and SR were obtained from same fish species.

4) Alkaline solubilization process decreased the extractability of hemoglobin. Exposure of hemoglobin at pH 10.8 before readjustment to pH 7.0, 6.0 or 5.5 decreased its extractability to a greater extent compared with the samples whose pHs were brought directly to those identical final pH values. The results suggested that the hemoglobin could be co-precipitated with the muscle components. The result revealed that the binding between hemoglobin and SR could occur at alkaline pH. Alkalinizing hemoglobin and readjusting pH to 7.0 made it more potent to bind to the untreated SR. The presence of myosin decreased hemoglobin solubility significantly at pH 6.0.

5) Herring extractable heme proteins decreased by iced storage. Extraction at pH 7.0 or 8.0 and addition of NaCl showed no effect on the extractability of heme proteins. Removal capability of herring heme proteins by homogenization with water, washing with water, or extraction by the alkaline solubilization process was significantly different. However, color values of washed mince or protein isolated obtained by each treatment

were not different. Pre-washing of herring mince before the alkaline solubilization process increased total removable heme proteins by the process.