Title Biochemical and physicochemical changes of farmed giant catfish muscle during refrigerated storage

Author Saroat Rawdkuen, Manat Chaijan, Suttirug Phatcharat and Soottawat Benjakul

Citation Abstracts, 14th World Congress of Food Science & Technology, October 19-23 2008, Shanghai, China. 721 pages.

Keyword catfish; biochemical change

Abstract

Introduction: Fish is considered to be among the most perishable of food stuffs. After death, several biochemical changes are triggered, especially with improper handing. Those changes are involved in the deterioration of fish muscle which causes the loss of nutritive value, acceptability and the functionality. Low temperature storage is one of the primary preservation methods to maintain fish freshness or delay the deteriorative processes because the rates of physicochemical biochemical and microbiological changes are reduced. The objectives of this study were to determine the changes in biochemical and physicochemical properties of farmed giant catfish muscle during refrigerated storage for 14 days. **Materials and Methods:** Farmed giant catfish (25-30 kg) was obtained from Charun farm in Chiang Rai. The flesh was excised into dorsal and ventral muscles and cut into 0.5 kg pieces, packaged in polyethylene bags individually, and stored in a refrigerator (4°C) for 14 days. During storage, 3 pieces of fish were randomly taken at days 0, 2, 4, 7, 10, and 14 for analyzes. Assessment of meat cuts was done by the monitoring of total volatile base nitrogen (TVB-AN), Ca^{2+}-ATPase, hydrophobicity, sulfhydryl, proteins degradation, water loss, textural properties and muscle microstructure. **Results and Discussion:** No changes in Ca^{2+}-ATPase activity with a gradual decrease in hydrophobicity and reactive sulfhydryl content in both dorsal and ventral meats was found during the first 10 days of storage. A slight increase in TVB-B and TCA-soluble peptide content with a concomitant decrease in expressible water and cooking loss was observed throughout the storage period. Shear force and toughness of both muscles was highest at day 2 of storage and then decreased up to 14 days. Fresh fish had the well organized structure of myofibrils. After 7 days of storage, the myofibrils were less attached as indicated by the noticeable gaping between bundles.