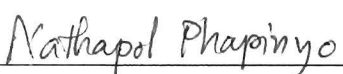



Nathapol Phapinyo 2007: Quality and Shelf- Life Extension of Soft Shell Crab (*Scylla serrata* Forskäl) by Ozone, Acetic Acid, Lactic Acid, Ascorbic Acid and Storage under Modified Atmosphere Packaging. Doctor of Philosophy (Fishery Products), Major Field: Fishery Products, Department of Fishery Products. Thesis Advisor: Assistant Professor Wanchai Worawattanamateekul, Ph.D. 137 pages.

The study was conducted in 3 stages; the first part was studied the microorganism counts of soft shell crab washed by cold water, acetic acid 0.1, 0.2 and 0.3% , lactic acid 1.0, 1.5 and 2.0%, ascorbic acid 0.5, 0.75 and 1.0% and ozone water 0.5, 0.75 and 1.0 ppm for 10, 15 and 20 min at 4 °C, respectively. The results indicated that the soft shell crab were prepared by soaking with ozone water 1.0 ppm for 20 min could be kept for 9 days. The second part was studied on quality change of soft shell crab stored under modified atmosphere packaging (MAP) at different ratio of carbon dioxide (CO<sub>2</sub>) and, nitrogen (N<sub>2</sub>), vacuum and air. The soft shell crab were placed in polyethylene (PE)/ polyvinylidene chloride (PVDC)/ polyethylene polymer/ nylon bag and compared the shelf life at 60%CO<sub>2</sub>: 40%N<sub>2</sub> and 80%CO<sub>2</sub>: 20%N<sub>2</sub> at 4 °C. The results showed that 80%CO<sub>2</sub>: 20%N<sub>2</sub> and vacuum were the most suitable conditions giving shelf life of 7 days, while under air condition and 60%CO<sub>2</sub>: 40%N<sub>2</sub> were 3 and 4 days, respectively. For the third part, soft shell crab were soaked in 1.0 ppm ozone water for 20 min prior to packing in a bag and compared the shelf life, which increased by applying the ratio of CO<sub>2</sub>: N<sub>2</sub> as follows; 80%CO<sub>2</sub>: 20%N<sub>2</sub>, under vacuum and normal air at 4 °C. Microbial count, gas concentration, % weight loss, pH and sensory evaluation were monitored. The results of this research showed that the shelf life of soft shell crab was lengthened whilst increasing the percentage of combined soaking with ozone water which was determined the criteria of microbial counts, physical, chemical and sensory methods. The concentration of CO<sub>2</sub> and N<sub>2</sub> at 80% and 20%, respectively and under vacuum were found the most suitable condition giving shelf life of 11 days (P>0.05), while normal air condition was 8 days.

  
Student's signature

 28 / 02 / 2007  
Thesis Advisor's signature