Effects of additives on the lipid oxidation of fish mince from Asian Carp

Lingyu Huang and Changzheng Wang

School of Education and Consumer Science, College of Agriculture, Communities, and the Sciences, Kentucky State University

Fish mince from deboned Asian carp can be made into fish meat balls, sausages and other value added products. However, polyunsaturated fatty acid in fish mince is susceptible to oxidation leading to quality deterioration of fish mince and products made from it. There is a growing interest in using natural ingredients rich in antioxidants in the protection of food products. The objective of this project was to determine the effects of natural ingredients on the lipid oxidation in fish mince from Asian carp.

Fish mince was prepared from Asian carp by deboning through 3 mm orifice. Fish mince was mixed with cryoprotectants (40 g sucrose, 40 g sorbitol, and 3g tripolyphoshate per Kg) or natural ingredients (powdered ginger, sage and rosemary) at 0.5 %, 1%, and 2%, respectively. Fish mince with no additives was used as the control. The samples were stored at -20 C for one month before the thiobarbituric acid reactive substances (TBARS) were determined after the samples were placed on ice for up to 16 days. During refrigerated storage, the TBARS values of the fish mince increased from 0.013 increased to mg 0.048 MDA/kg after 16 days (Control group) and from 0.014 to 0.039 mg MDA/kg (Cryoprotectant group), respectively. However with the addition of natural ingredients, the TBARS value of mince remained relatively low (0.008-0.013 mg MDA/kg). Use of natural ingredients, such as, ginger, sage or rosemary powders may be used to help to maintain the quality of fish mince from Asian carp.