

THE EFFECT OF ANTIBACTERIAL AGENTS ON BIOCHEMISTRY AND MORPHOLOGY OF MUSCLE TISSUE OF PRE-COOKED FISH PRODUCTS

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Abstract

The problem of the biological safety of fish products is actual nowadays. The development of the safe antibacterial agents and fish processing methods and their integration in manufacturing line allows to prolong the expiring date of the product. The goal of the work is to research the organic acids based on antibacterial agents' impact on the biochemical and morphological indicators of the fish products quality during their cold storage.

Our research used antibacterial agents "Dilactopolydon" (DLP) and "Dylactin Forte Plus" (DLFP). These agents contain the solutions of the lactic acid, sodium lactate and auxiliary substances (acetic acid and propionic acid and polyvinylpyrrolidone) with various buffer capacity. Chilled salmon carcasses were treated with 2% DLP solution, pH 5.0 and injected the fillet with 2% DLFP solution, pH 5.8 under the pressure 1.5 bar. The content of the protein (marker amino acids - leucine, glycine, glutamine acid) and lipids necrosis was measured using the gas chromatography method. Morphological indicators of the fish muscle tissue were estimated by histo-cuts microscopy.

The antibacterial agents used in precooked fish products allows to reduce the amount of the free lipid acids by 5 times and the degree of the protein proteolysis twice. In the control the degradation of the longitudinal and transverse myofibrils structure was observed. We have found the mass focal accumulations of the yeast and bacterial cells in the zone of muscle, fat and connective tissues necrosis. We have found the partly disenchanted muscle fiber and the presence of the contraction node in the precooked fish products treated with the antibacterial agents. There were no necrosis zones in the muscle tissue and microorganism mass focal accumulations.

Treatment of fish with 2% DLP solution and the further injection of the 2% DLFP solution in the fillet, allows to prolong the chilled precooked fish product shelf-life, at the storage temperature (4+/- 2) C up to 10 days, as compared to 2 days for the control.

Key words: *Organic acid, Sodium lactate, Shelf-life, Precooked fish product.*