PREVALENCE OF GRAM NEGATIVE AND OXIDASE POSITIVE BACTERIA IN TROUT PROCESSING FACTORY

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Abstract

Many factors from catch to processing influence the quality, e.g. the natural condition of the fish when it is captured and the handling on board and in the processing plant.

The main objective of this work was to study the possible ways of contamination of aquaculture processing surfaces by bacteria spread in water ecosystems, which affect on quality and safety of fish products.

Influence of washing and disinfection procedures on growth and survival of bacteria typical for fresh water aquaculture has been studied. 50 samples of rainbow trout have been analyzed by swabbing method in 2012, during 6 mount period. Swabs have been taken from gills and skin of rainbow trout during harvesting and processing of fresh chilled fish. Quantitative assessment of contamination of fish processing surfaces by Gram negative oxidase positive bacteria has been carried out. Fish contact surfaces in gutting and packaging areas have been swabbed separately. Swabbing of working surfaces has been carried out during work process after appropriate time periods.

Three morphological types of Gram negative and oxidase positive bacteria have been isolated and identified form fish contact surfaces. They are characterized by high frequency of occurrence. For identification of bacterial species biochemical tests, chromogenic agar media and molecular identification techniques have been used. Bacteria from *Enterobacter, Klebsiella, Citrobacter, Serratia, Pseudomonas, Aeromonas, Alcaligenes, Vibrio* genera have been identified. Bacteria form genera *Aeromonas and Pseudomonas* have been found in prevailing quantities. *Aeromonas* species possess highest frequency of occurrence comparing with some genera from *Enterobacteriaceae* family, which are typical for water ecosystems. Many fish spoilage bacteria are able to attach food contact surfaces and remain viable even after cleaning and disinfection.

The choice of surface treatment of stainless steel is an important factor to have in mind when food processing equipment for open process is designed. Influence of washing and disinfection steps on growth and viability of Gram-negative oxidase positive bacteria from genus *Aeromonas* has been studied in laboratory and industrial conditions.

***Key words**: Trout, Gram negative bacteria, Swabbing, Aeromonas, Food contact surface*.