

The Impact of Low-Concentrated Acidic Electrolyzed Water on Foodborne Pathogens

Authors : Ewa Brychcy, Natalia Ulbin-Figlewicz, Dominika Kulig, Żaneta Król, Andrzej Jarmoluk

Abstract : Acidic electrolyzed water (AEW) is an alternative with environmentally friendly broad spectrum microbial decontamination. It is produced by membrane electrolysis of a dilute NaCl solution in water ionizers. The aim of the study was to evaluate the effectiveness of low-concentrated AEW in reducing selected foodborne pathogens and to examine its bactericidal effect on cellular structures of Escherichia coli. E. coli and S. aureus cells were undetectable after 10 minutes of contact with electrolyzed salt solutions. Non-electrolyzed solutions did not inhibit the growth of bacteria. AE water was found to destroy the cellular structures of the E. coli. The use of more concentrated salt solutions and prolonged electrolysis time from 5 to 10 minutes resulted in a greater changes of rods shape as compared to the control and non-electrolyzed NaCl solutions. This research showed that low-concentrated acid electrolyzed water is an effective method to significantly reduce pathogenic microorganisms and indicated its potential application for decontamination of meat.

Keywords : acidic electrolyzed water, foodborne pathogens, meat decontamination, membrane electrolysis

Conference Title : ICFNT 2014 : International Conference on Food and Nutrition Technology

Conference Location : Paris, France

Conference Dates : August 28-29, 2014