

Title Efficacy of neutral and acidic electrolyzed water for reducing microbial contamination on fresh-cut fruits

Author Ana Graça, Miguel Salazar and Carla Nunes

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Abstract

Consumption of fresh-cut fruit has increased in the latest years. This type of product is more susceptible to microbial contamination, for this reason disinfection is a very important step in fresh-cut processing. Chlorine is the most common disinfectant in fresh-cut industry but due to environmental and health risks caused by the use of this disinfectant there is a demand to develop new sanitizers. Electrolyzed water appears to be a promising alternative to chlorine sanitizers showing to be a broad spectrum microbial decontamination agent. Neutral electrolyzed water (NEW) and acidic electrolyzed water (AEW) can be used as microbial decontamination agents on fresh-cut fruits. The biocidal activity of NEW, AEW and sodium hypochlorite were evaluated to inactivate pure cultures of foodborne pathogens on the surface of fresh-cut apples, pears and oranges. Fruits were inoculated with *Listeria innocua* or *Escherichia coli* O157:H7 and treated with NEW, AEW at different concentrations and different times of exposure. The NEW and AEW treatments were compared with a standard hypochlorite treatment, sodium hypochlorite and deionised water (control). Results will be discussed considering the effect of the different types of water in relation to free chlorine concentration and exposure time. As conclusions NEW and AEW seems to be a promising disinfection technique to reduce the amount of free chlorine used for the disinfection of fresh-cut fruits representing a safer way to ensure food safety in these products.