Title Efficacy of non-thermal technologies and sanitizer solutions on microbial load reduction and quality retention of strawberries

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Abstract

The effect of non-thermal technologies (ozone in aqueous solution, ultrasound and ultraviolet C radiation) and washings with chemical solutions (sodium hypochlorite and hydrogen peroxide) on safety and quality features of strawberries was studied. These treatments were applied before fruit storage at two different temperatures (4 and 15 °C). The overall impact on microbial loads (total mesophiles, and yeasts and moulds) and selected quality attributes (colour, firmness, pH, total anthocyanins and ascorbic acid content) was assessed.

During storage under refrigerated temperature, washing with hydrogen peroxide solutions resulted in strawberries with lower microbial loads, when compared to the other treatments. However, it produced significant key quality attributes losses, such as colour and total anthocyanins content.

The results presented show that ozone and ultrasound are promising alternatives to thermal treatments. The application of such technologies, before refrigerated storage of strawberries, allowed a satisfactory retention of all quality characteristics analysed, while being efficient in controlling microbial contamination.