Suitability of Pre-ozonated Water and H_2O_2 as Disinfection Treatments for Producing Minimally Processed and Refrigerated Coconut Haustoria

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Coconut haustoria are underutilized, thus their disposal is a challenge faced by coconut processing industries. As coconut haustorium contains health beneficial compounds, this study focused on finding out a disinfection treatment for producing minimally processed and refrigerated (MPR) coconut haustoria. The washed and wiped samples were cut into wedge-shaped slices (8 mm), and dipped for two min in water as the control (TW) and in solutions containing 5% H_2O_2 (HPS), and citric acid (1 $g.L^{-1}$) and 5% H_2O_2 (CA&HPS) as treatments in triplicate. The samples packaged in polypropylene trays and covered with polyvinylidene chloride films were refrigerated (4 ± 1 °C and 48 ± 17% RH) for two weeks. Total soluble solids (TSS), pH, and inner and outer firmness values of the control samples were not significantly different ($P>0.05$) from the treatments. TPC (total plate counts) of the control samples was significantly higher ($P<0.05$) than that of HPS and CAS&HPS, resulting in reduction of microbial load by 36%. The slices prepared as before were dipped for 2 min in a 5% HPS as the control, and for ten min in pre-ozonated water containing 100 and 200 $mg.L^{-1}$ of ozone as treatments in triplicate. Afterwards, the slices stored for two weeks under similar conditions as above. TSS, pH and inner firmness of the control samples after two weeks in storage were not significantly different ($P>0.05$) from the treatments. However, outer firmness of the treatments was significantly higher ($P<0.05$) than the control. TPC was significantly higher ($P<0.05$) in the control samples than those treated with water containing 100 and 200 $mg.L^{-1}$ of ozone, resulting in a reduction of microbial load by 2 and 14%, respectively. Therefore, treating with pre-ozonated water containing 200 $mg.L^{-1}$ of ozone can be recommended as a disinfection treatment, instead of dipping in H_2O_2, for producing MPR coconut haustoria.

Keywords: Coconut haustoria, Hydrogen peroxide treatment, Ozonation

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