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Comparison of Chemical and Thermal Treatments to Prevent Browning and Maintaining Quality of Fresh-Cut Pear

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One of the most important limiting factors for the postharvest life of many minimally processed fruits is enzymatic browning. In this study to evaluate the effects of heat and some chemical treatments on preventing cut pear browning, different time/hot water (45 ˚C) treatments were used including (40 min (T40), 80 min (T80), and120 min (T120)). Also, slices of pears were dipped in solutions of ascorbic acid 2% with N-acetyl-L-cysteine 0.75% (AA+NAC), ascorbic acid 2% with calcium chloride 1% (AA+$CaCl_2$), ascorbic acid 2% with calcium lactate 1% (AA+CaL) and ascorbic acid 2% with N-acetyl-L-cysteine 0.75% and calcium chloride 1% (AA+NAC+CaCl2) for 15 min prior to storage in air for up to 6 days at 4±2 °C. The results showed that post-cutting dip treatment of AA+NAC+$CaCl_2$ had the highest L*, firmness and total soluble solids and the lowest a* and peroxidase activity compared to the control and the other treatments. The hot water treatments, AA+NAC+$CaCl_2$ or AA+$CaCl_2$ significantly reduced weight losses compared to the control.

Keywords: Ascorbic acid, Calcium chloride, Pear, Phenolic compounds, Thermal treatment.

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