S15SC3 Improving the Storage of Fresh-Cut Mangoes by Hot Water Treatment

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Mango (Mangifera indica. L) is considered as a source of antioxidants including ascorbic acid and carotenoids. Producing minimally processed mangoes could be a great opportunity to increase the consumption of this healthy fruit. However, degradation of fresh cut products limits the marketability. Thus, it is important to control deterioration processes in order to maintain the quality and increase the shelf-life.
This work aimed to propose a natural method to improve the storage of minimally processed mangoes. Heat treatments, applied by immersion in hot water, were analysed. During the past few years, heat treatments were used to control insect pests, prevent fungal rots and increase resistance to chilling injury. Few study have analysed the effect on quality.
In this work, whole 'Keitt' mangoes were dipped in hot water at 46°C or 50°C for 30 or 75 min, cooled for 15 min, minimally processed and stored at 6°C for 9 days at high relative humidity and ambient atmosphere. Sensorial analysis, firmness, color, acidity, pH, total soluble solids (TSS), ascorbic acid, carotenoids, malondialdehyde (MDA) and respiration rate (RR) were investigated. A global beneficial effect of the treatment 50°C/30 min was observed. Indeed, it was the only one that maintained acceptability of fresh-cut mangoes for 6 days. Moreover, the yellow color expressed by b* value, and the firmness were maintained during 9 and 3 days, respectively. After 3 days, ascorbic acid content was unchanged and carotenoids level was increased as compared to the control. Furthermore, the respiration rate values indicated that it could be a good indicator of the potential shelf-life of products after heat treatment. Heat treatments were also applied on 'Kent' mangoes and same results were obtained. Consequently, these studies suggested that the treatment 50°C/30min can be an effective, inexpensive and environmentally safe method to improve the quality of fresh-cut mangoes.