Alleviating Chilling Injury and Extending the Shelf Life of Pomegranate Fruit cv. Rabab-e-Neyriz by Pre-Storage Heat Treatment

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Efficiency of the pre-storage hot water dip to prolong storability and maintain the quantitative and qualitative traits of the cold-stored ‘Rabab-e-Neyriz’ pomegranate was evaluated. Fruits were stored at 2 ± 0.5 ºC and 90 ± 5% relative humidity for 90 days. The experiment was factorial based on a complete randomized design with 4 replicates in each treatment. Experimental factors included pre-storage heating for 4 min (at two levels: dip in water at 45 ºC, and distilled water at 25 ºC as control) and sampling time (day 0 followed by 30 days intervals). The weight loss and skin characteristics assessed remained unchanged for up to 1 month, which was related to the internal ability of the fruit skin to acclimate to chilling temperature conditions. Afterwards, significant increase in chilling injury indices was happened. After 90 days of storage, treated fruits had higher (63%) total phenol (as a non-enzymatic antioxidant index) and lower (42.53%) malondialdehyde (MDA) contents in their skin compared to controls. Furthermore, the treated fruits had a 23.63% lower weight loss and lower chilling injury symptoms, but their quality characteristics were the same as the control. 

Keywords: Hot water, Pomegranate, Cold storage, Storability indices, Fruit quality.

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