

**Title** Combination effect of hot water, salicylic acid and vacuum packaging on shelf life and control of postharvest diseases of fresh seedless barberry

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### Abstract

This study was conducted to evaluate the efficacy of hot water treatment alone or in combination with salicylic acid (SA) to control the postharvest diseases and extend shelflife of fresh Barberry fruits packed in polyethylene bag. Fruits were heat-treated in a water bath (65 or 80°C) for 40 s and then dipped in cold water (20°C) for 40 s. After that, they were treated with SA at 1 mM/L for 60 s. Control fruits were treated with distilled water (20°C) for 40 s. After treatment, the fruit were packed in small polyethylene bags and were stored at 3 °C for 8 weeks. Storage life, colour, brix, juice pH, titratable acidity and decay were assessed. Hot water in both temperatures had a significant improvement in fruit colour and appearance and also significantly increased shelf life of treated fruit (5 weeks) compared with the control (2 weeks). However, combination of hot water and SA was more effective in shelflife extension and reduction of fungi infection by 8 weeks evaluation compared with the control as reduced fungal decay caused by *Penicillium digitatum*, *Penicillium italicum* and *Alternaria* sp. The most effective combination was hot water (80°C) for 40 s followed dipping in SA at 1mM/L for 60 s that inhibited the spore germination of different fungi when they were vacuum-packed in low density polyethylene bag and stored by 8 weeks. There were no significant difference in other quality parameters of treated and control fruit. In general, combination of these two treatments followed vacuum-packed condition not only improved quality and increased shelf life of fresh fruits significantly, but also reduced fungi infection compared with the control.