

**Title** Effect of hot water treatment and storage duration on shelf life and quality of Pakistani mango (*Mangifera indica* L.) cv. Sindhri

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### Abstract

Mango distributors and exporters are now adopting quarantine technology of hot water treatment (HWT) as entailed by various importing countries but this only feasible when examined in terms of end consumer preferences like fruit softness, peel colour and organoleptic properties as well as food safety. Also, HWT regimes should be adjusted according to mango varieties. Till now, HWT protocols have not been set for Pakistani varieties. This study was aimed at determining the effect of HWT and storage duration on post storage biochemical & organoleptic properties of one of Pakistan's export quality mango varieties cv. Sindhri. Fruit were harvested from a commercial orchard of Sindh province at TSS level 7.0° Brix. Keeping in view HWT protocols of importing countries like Iran & China, mangoes were subjected to 45°C for 75 min., 48°C for 60 min. and 50°C for 30 min. To determine the effect of peel coating, Fresh Seal (2%) was applied along with HWT (48°C for 60 min.), Then, fruits were stored at 13±2°C at 85±5% relative humidity (RH). After 0, 7, 14 or 21 days fruit were removed and ripened at ambient temperature (24±1°C, 68-70% RH). The effects of HWT on fruit peel and pulp colour, softness, weight loss, total carotenoids (TC), TSS, total titratable acidity (TTA), sugars (reducing & non-reducing) and TSS/TTA ratio, were evaluated. TC level was highest in fruits following HWT at 45°C for 75 min. (62.7mg/100g) as compared to a minimum in control (49.3mg/100g). HWT (48°C for 60 min.) plus 'Fresh Seal' coating showed higher level (56.1mg/100g) than HWT alone (53.7mg/100g). Increase in storage duration decreased TTA & increased TC contents. HWT generally resulted in higher peel colour score but did not significantly affect fruit softness. Higher score for peel colour & organoleptic properties (taste, flavour, texture & aroma) along with increased TC content in treated fruit showed that HWT slightly affects the ripening process, but does not have any significant negative impact on its shelf life.