

Effect of Plant Extracts and Packaging Materials on Prolonging Shelf Life and Maintaining Quality of Mandarin (*Citrus reticulata* Blanco.)

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Abstract

An experiment was conducted in Complete Randomized Design with four replications and seven treatments, from Jan-Mar 2019 at ambient room condition ($14.42 \pm 1.28^\circ\text{C}$, $58.46 \pm 3.46\%$ RH) to evaluate the effect of different postharvest treatments on maintaining shelf life and quality of mandarin. The seven treatment used during experiment were Control, Titepati leaf extract (10% w/v), Marigold flower extract (10% w/v), Asuro leaf extract (10% w/v), Neem leaf extract (10% w/v), Newspaper wrapping and Perforated plastic. The parameters like juice recovery percentage, total soluble solid (TSS) and pH were taken from destructive sample at every 5 days interval and other parameters like physiological weight loss, pathological disorder, marketability and shelf life were observed from non-destructive at every 4 days interval. Post-harvest treatment with perforated plastic had minimum physiological loss in weight (16.32%) whereas control had highest physiological loss in weight (35.47 %). Highest juice recovery percentage was recorded in perforated plastic (36.12%) whereas lowest juice recovery percentage was recorded in treatment control (26.70%). At the end of storage period, the highest TSS content (16.03°Brix) was recorded in treatment control which was statistically at par with treatment Marigold flower extract (15.30°Brix) whereas lowest TSS was recorded in perforated plastic (13.43°Brix) which was statistically at par with treatments Newspaper wrapping (14.18°Brix) followed by Neem (14.53°Brix), Asuro (14.33°Brix) and Titepati leaf extract treated (14.53°Brix). The pH was found highest in control throughout the storage period whereas low marketability rating (2.25), low pathological disorder rating (2.75) and longest postharvest life (62 days) was found in perforated plastic.

Keywords: Mandarin, Post-harvest, Plant extracts, Perforated Plastic.