

APPLICATION OF BIO WAX TO EXTEND THE STORAGE LIFE OF MANGO

K.M.A. Priyangani¹, W.A.H. Champa², W.V.V.R. Weerasingha¹ and N.W.I.A Jayawardana¹

¹*Department of Animal and Food Sciences, Faculty of Agriculture, Rajarata University of Sri Lanka, Puliyankulama, Anuradhapura*

²*Research and Development Center, Institute of Post Harvest Technology, Jayanthi Mawatha, Anuradhapura*

Mango (*Mangifera indica* L.) is a climacteric fruit that ripens rapidly after harvest. Its production is highly seasonal and there is an urgent need to develop methods to extend its postharvest life to meet the year-round demand. This study was conducted to evaluate the effect of a carnauba and cinnamon oil based bio wax formulation on extending the shelflife of mango variety, *Karthakolamban*. Two hundred fruits of mangoes, free from visible defects at their mature green stage (weight 337.0 ± 11.0 g, diameter 7.4 ± 0.3 cm, peel colour $L^*45.6 \pm 2.5$, $a^* -12.3 \pm 1.5$, $b^* 15.5 \pm 2.7$, total soluble solids [TSS] 7.0 ± 0.1 % and titratable acidity [TA] 0.2%), were selected. Hundred fruits were treated with the wax solution and the rest was kept as the control. Waxed and control fruits were stored at both ambient (32 ± 2 C, 68-70% RH) and cold room conditions (13 C and 90-95% RH). Physicochemical parameters (peel and pulp colour, firmness, pH, TA, TSS, carotenoids) and other quality parameters (weight loss, disease index [DI] and visual quality rating [VQR]) were taken until they show the limit of marketability. Mangoes were analysed for the sensory attributes at table ripen stage by an untrained in-house panel. The weight loss, VQR, carotenoids, pulp color and firmness of waxed fruits stored under ambient condition did not change significantly ($p > 0.05$) while peel colour, TA, and pH showed significant differences ($p < 0.05$) after 6 days compared to the control. Weight loss, firmness, pH, TSS, peel colour and b^* value of pulp colour and carotenoids of waxed fruits stored under cold room condition showed a significant difference ($p < 0.05$) after 14 days compared to the control. Even after 28 days, waxed fruits stored under cold room condition showed a significant difference ($p < 0.05$) in weight loss, firmness, pH, TSS, carotenoids, DI and TA compared to the control. In conclusion, the bio wax coating is effective for extending the postharvest life of mango variety *Karthakolamban* when stored under cold room condition for 45 days.

Keywords: Mango, Physicochemical parameters, Postharvest life, Quality