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Response of Post-harvest Treatments on Shelf Life, Biochemical and Microbial Quality of Banana Variety Red Banana

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Abstract : Red Banana is a popular variety of banana with strong market demand. Its ripe fruits are less resistant to transportation, complicating logistics. Moreover, as it is a climacteric fruit, its post-harvest shelf life is limited. The current study aimed to increase the postharvest shelf life of Red Banana fruits by adopting different postharvest treatments. Fruit bunches of Red Banana were harvested at the mature green stage, separated into hands, precooled, subjected to 12 treatments, and stored in Corrugated Fibre Board boxes till the end of shelf life under ambient conditions. Fruits coated with 10% bee wax + 0.5% clove oil (T_4), fruits subjected to coating with 10% bee wax and packaging with potassium permanganate (T_9), and fruits dipped in hot water at 50°C for 10 minutes and packaging with potassium permanganate (T_{11}) registered the highest shelf life of 18.67 days. The highest TSS of 26.33°Brix was noticed in fruits stored with potassium permanganate (T_8) after 12.67 days of storage, and lowest titratable acidity of 0.19%, and the highest sugar-acid ratio of 79.76 was noticed in control (T_{12}) after 11.33 days of storage. Moreover, the highest vitamin C content (7.74 mg 100 g^{-1}), total sugar content (18.47%), reducing sugar content (15.49%), total carotenoid content (24.13 µg 100 g^{-1}) was noticed in treatments T_7 (hot water dipping at 50 °C for 10 minutes) after 17.67 days, T_{10} (coating with 40% aloe vera extract and packaged with potassium permanganate) after 13.33 days, T_4 (coating with 10% bee wax + 0.5% clove oil) after 18.67 days and T_9 (coating with 10% bee wax + potassium permanganate) after 18.67 days of storage respectively. Furthermore, the lowest fungal and bacterial counts were observed in treatments T_2 (dipping in 30ppm sodium hypochlorite solution), T_7 (hot water dipping at 50 °C for 10 minutes), T_9 (coating with 10% bee wax + potassium permanganate), and T_{10} (coating with 40% aloe vera extract + potassium permanganate).

Keywords : bee wax, post-harvest treatments, potassium permanganate, Red Banana, shelf life
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