

DEVELOPMENT OF A PROTOCOL FOR ARTIFICIAL RIPENING OF *EMBUL BANANA (Musa spp.)* IN SRI LANKA

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Banana (*Musa spp.*) ripening is generally practised using artificial ripening methods. However, problems are created due to overuse, time of exposure and method of application of artificial ripening agents. An experiment was carried out to develop a protocol for artificial ripening of *Embul* banana by optimizing the chemical usage and exposure time. Two-factor factorial experiment in a completely randomized design and peel appearance, flesh appearance, taste, odour and overall acceptability were assessed using a sensory evaluation using thirty untrained panelists were conducted. *Embul* banana at correct maturity were treated using three ethephon concentrations; 100, 150 and 200 ppm combined with three exposure durations; 12, 18 and 24 hours (h) in a ripening chamber. The untreated banana was used as the control. All banana was kept for 6 days at the storage temperature of $30^{\circ}\text{C} \pm 2$. Firmness, pH, total soluble solids (TSS), ascorbic acid content (AAC), colour and total chlorophyll content (TCC) of banana were assessed in the initial day and in one-day interval basis at the storage. TSS was significantly ($p < 0.05$) higher at the 2nd day of storage in 200 ppm treated for 24 h (24.80 ± 0.44) followed by 200 ppm treated for 18 h (21.73 ± 1.32) compared to control (9.32 ± 0.97). Firmness was significantly ($p < 0.05$) lower at the 2nd day of storage in 200 ppm treated for 24 h and 18 h ($7.39\text{N} \pm 0.73$ and $12.43\text{N} \pm 3.06$ respectively) compared to control ($38.47\text{N} \pm 4.17$). The samples treated with 200 ppm for 18 h and 24 h had 6 and 5 days of shelf life respectively, where 75% of the fruits were over ripen. Results of the sensory analysis revealed that 200 ppm treated for 18 h had the significantly ($p < 0.05$) higher consumer acceptance. Consequently, it is concluded that the ethephon concentration of 200 ppm for 18 h could be recommended dosage to accelerate ripening of *Embul* banana with longer shelf life.

Keywords: Ethephon, Exposure time, Storage duration