

Title Post-harvest behaviour of Assam lemon (*Citrus limon* Burm) under different storage conditions

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Abstract

Assam lemon (*Citrus limon* Burm.) is one of the commercial cultivars of northeastern hill region of India. Limited post-harvest studies on this cultivar has been carried out with reference to prolonging the shelf life and, thereby, stretching the period of fresh fruit and availability. Attempts were made to study the changes in fruit qualities of Assam lemon (PWL - physiological weight loss, juice content, TSS - total soluble solids, titrable acidity, total sugar, and vitamin-C assessed at weekly interval for 5 weeks) in response of post-harvest treatment (M₁ - no packing, M₂ - polyethylene packing, M₃ - perforated polyethylene packing, M₄ - cling film packing and M₅ - edible wax coating) under varying storage conditions (S₁ - ambient conditions 22-25°C ± 2°C, S₂ - zero energy cool chamber, and S₃ - refrigerated conditions). PWL was minimum (1.17-7.19%) under refrigerated conditions compared to PWL (2.83-13.69%) under ambient conditions up to 5 weeks which reduced further significantly with post harvest treatment of waxing coating (0.50 to 2.97). Juice after 5-weeks of storage remained statistically unchanged (25.8-27.9%) compared to significant increase under ambient conditions (21.77 to 38.02%), which reduced with wax coating (24.46%). Marginal increase in TSS (3.50-3.8°brix) compared to much higher increase (4.71-5.51%) at ambient conditions remained almost unchanged (4.32-4.74°brix) with fruits coated with wax. Interestingly, juice acidity improve from initial value of 5.44% under refrigerated conditions to high as 7.14% compared to increase from initial value of 6.08 to 7.90% under ambient conditions up to 3 weeks, but thereafter reduced to 4.70% and 5.49%, respectively. Similar pattern of changes in concentration of total sugar was observed up to 3-weeks, 90.48 to 0.67% vs 0.51 to 0.61% under ambient vs refrigerated conditions). The wax coating on the other hand maintained these changes to minimum (0.50-0.52%) up to 5 weeks of storage. The same coating treatment likewise produced minimum variation in vitamin-C (141.9-175.5 mg/100 ml juice) as compared to either control (116.1-177.4 mg/100 ml juice) or polythene pack (132.8-205.3 mg/100 ml juice). Studies, hence, suggested that wax coating of fruits stored under refrigerated conditions produced the best shelf life of fruits.