Title Determination of optimal ethylene concentration applied in postharvest mango fruit

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Abstract

Mango is a tropical evergreen tree that is suitable for areas with cool dry winters and hot wet summers. The interest in this culture is due to the excellent fruit, having exotic flavor, and is rich in vitamins and minerals. This research project aims to determine the optimal concentration of exogenous ethylene applied to mango fruits at post-harvest. The treatments were: T1 = fruits stored under uncontrolled conditions (25°C ± 5°C and 65% RH) without ethylene [control], T2 = fruit stored at 20°C ± 1°C and 90% RH with 10 ppm ethylene for 2 days, T3 = fruit stored at 20°C ± 1°C and 90% RH with 20 ppm ethylene for 2 days, T4 = fruit stored at 20°C ± 1°C and 90% RH with 40 ppm ethylene for 2 days, TS = fruit stored at 20°C ± 1°C and 90% RH with 60 ppm ethylene for 2 days, T6 = fruit stored at 20°C ± 1°C and 90% RH with 80 ppm ethylene for 2 days and T7 = fruit stored at 20°C ± 1°C and 90% RH with 100 ppm ethylene for 2 days. After treatments, fruits were stored at 20°C ± 1°C and 90% RH (T2 to T7) and uncontrolled environmental conditions (25°C ± 5°C and 65% RH) for T1. Changes in firmness (N), total soluble solids (°Brix), skin browning and rot (%) were evaluated at day 0, day 7 and day 14 after treatment. The fruits from T3 (20 ppm ethylene at 20°C for 2 days), have the least skin browning and rots until 7th day of storage at 20°C, and only this fruits could be marketed until this evaluation day. In conclusion, the best treatment that could help in the adequate ripening of mango 'Tommy Atkins' fruit was T3 (20 ppm ethylene at 20°C for two days).