

Effect of Ethanol and Perforations in Polyethylene Bags on the Postharvest and Antioxidant Quality of 'Thai Round Green' Eggplants

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Abstract

Eggplant is a horticulturally important crop that is also highly perishable. To delay the deterioration of eggplant fruit and antioxidant quality, the use of packaging with different perforations and ethanol in sachet were evaluated. Treatments included polyethylene bag (PEB, 0.04 mm) with 12 or 18 pin-prick perforations (0.5 mm) and with or without ethanol sachet (0 or 0.3 g). 'Thai Round Green' eggplants stored at 13 °C with average weight of 250.7±3.2 g per pack were evaluated every four days for twelve days. Antioxidants like 2,2-diphenyl-1-picrylhydrazyl (DPPH) radical scavenging activity, total phenolic content (TPC), and vitamin C were analyzed along with weight loss, respiration rate, and browning index. Browning increased while respiration rate decreased with storage. Ethanol was able to reduce fungal contamination only at eight days of storage. The use of PEB with 12 perforations for 'Thai Round Green' eggplants can maintain better fruit quality by reducing fungal contamination and weight loss. No consistent trend was shown for vitamin C. The use of PEB with 18 perforations decreased the TPC while addition of ethanol increased browning of fruit. Addition of ethanol in PEB with 12 perforations increased both the TPC of pedicel and DPPH of fruit at four days. Respiration of eggplant was initially higher in PEB with 12 perforations, but this decreased at eight days of storage. Ethanol and PEB with 12 perforations showed potential in maintaining the quality of eggplant at 13 °C for four to eight days.