

Title Changes in activities of ammonia-metabolizing enzymes in broccoli stored at low temperatures and subsequently exposed to room temperature

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Abstract

The exposure of a commodity to varying temperature during postharvest handling and marketing affects product quality. In this study, we investigated the physio-biochemical changes in broccoli heads held under simulated retail market conditions by keeping broccoli heads at 1degC for 7 and 14 days prior to exposure to 20degC. The visual quality and color of the heads were maintained during cool storage regardless of storage duration. Respiration rate abruptly increased after exposure to 20degC. One day after removal from cool storage, glutamine synthetase (GS ; EC 6.3.1.2) activity in the florets with prior 7-day cool storage was almost maintained whereas it slightly increased for 14-day storage. Thereafter, GS activity for both storage durations decreased continuously with corresponding ammonia accumulation. In the branchlet portion, GS activity and ammonia content slightly decreased with storage time. Furthermore, glutamate dehydrogenase (GDH ; EC 1.4.1.2) activity in this portion continuously decreased throughout the experimental period. Almost similar patterns of postharvest physio-biochemical changes were observed under both storage conditions.