Hydro-cooling as means to retain fresh sweet corn ears quality

ABSTRACT

Sweet corn ear is a highly perishable produce with short postharvest life due to its high respiration rate which depletes sugar concentration in kernel. As a result, ear loses its sweetness and quality within 1 to 2 days under room temperature. Hydro-cooling after harvest is a good practice as it can reduce the metabolism and respiration rate of the produce. Thus, the objective of this study was to determine the effectiveness of hydro-cooling in retaining quality of sweet corn ears. Freshly harvested sweet corn ears were immersed in hydro-cooler to achieve its half and seven-eighth cooling time. Pre-cooled and non-pre-cooled ears were then stored at 12±2 and 25±2 °C for 8 days and quality index, weight loss, pH, soluble solids concentration, titratable acidity and ascorbic acid of ears were evaluated at 2 days interval. The experiment was arranged in randomized complete block design with factorial arrangement (three cooling times two storage temperatures five storage days) and then repeated thrice. Differences between cooling time storage temperature, cooling time storage day, storage temperature x storage day and cooling time storage temperature storage day were significant on quality index of ears. Storage temperature storage day was also significant on ears weight loss, soluble solids concentration and pH. Seven-eight cooling time and storage at 12±2 °C provide the best quality index of ears; retain higher soluble solids concentration and pH with significantly lower weight loss compared to other cooling time treatment and 25±2 °C storage temperature. In short, temperature management is crucial in manipulating sweet corn ears quality.

Keyword: Cooling time; Pre-cooling; Quality index; Storage day; Storage temperature