

Title Sensory and analytical comparison of orange-fleshed honeydew to cantaloupe and green-fleshed honeydew for fresh-cut chunks

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Abstract

Maintaining the sensory, microbial and postharvest quality of fresh-cut fruit after processing and throughout distribution and marketing is a major challenge facing the fresh-cut fruit industry. Fresh-cut chunks of orange-fleshed honeydew ('Honey Gold', 'Orange Dew', 'Temptation' and three breeding lines) and green-fleshed honeydew ('Honey Brew') and an orange-fleshed cantaloupe ('Cruiser') harvested at commercial and full-slip maturities were compared after storage for 0–11 days in air at 5 °C. Fresh-cut cantaloupe had higher respiration and ethylene production rates, aromatic volatile concentrations, and β -carotene/chroma and orange hue (except 'Orange Dew') than those of honeydew whereas honeydew chunks generally had higher soluble solids content (SSC), Kramer firmness and lower microbial counts than cantaloupe chunks. All genotypes had similar ascorbic acid levels. During storage, analytical quality characteristics of fresh-cut chunks from all genotypes were well maintained even though microbial populations increased especially on cantaloupe chunks. Consumers liked the flavor, texture, sweetness and overall eating quality of the orange-fleshed honeydew genotypes as well as or better than those of cantaloupe and green-fleshed honeydew. 'Orange Dew' scored highest in appearance and had the highest β -carotene concentration, chroma and orange hue among orange-fleshed honeydew genotypes whereas 'Temptation' generally scored highest for flavor intensity and acceptability and overall eating quality; and it had the highest aromatic volatile concentrations among the orange-fleshed honeydews. Many individual volatiles were identical in cantaloupe and honeydews; however, honeydew genotypes, particularly 'Temptation', were distinctive from cantaloupe and green-fleshed honeydew in having relatively high levels of various nonenyl and nonadienyl acetates having honeydew-like or uncharacterized aromas. Fresh-cut chunks from full-slip melons generally had higher analytical and sensory quality characteristics but higher microbial counts and lower shelf stability compared to those from commercially mature fruit. The results indicate that orange-fleshed honeydews are a promising new melon type for fresh-cut processing.