

Title Storage temperature and packaging determine the physiological behaviour and quality attributes of round-shaped baby carrots

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Abstract

The quality of baby carrots is dramatically influenced by factors such as preparation of raw material, packaging, and storage conditions. Recently, Embrapa has developed a new technology to process round-shaped baby carrots (*Daucus carota*). A study was conducted to evaluate the physiological behaviour and the quality attributes of round-shaped baby carrots during storage. Carrot cultivar Alvorada were harvested at Embrapa Vegetables experimental fields, taken to the postharvest laboratory and minimally processed as round-shaped baby carrots. After processing, the material was packed in two packaging systems (low density polyethylene (LDPE) and multilayer nylon) and stored at 5 and 10 deg C for 20 days. Respiratory activity was evaluated for 4 h after processing. Every 5 days, beta -carotene, total soluble solids and the development white blush were assessed. It was verified that at the fourth hour after processing, round-shaped baby carrots stored under 10 deg C had a respiratory activity that was 110% higher than the intact material stored at the same temperature. White blush increased dramatically during the first five days of storage. At the end of the storage period, white blush index of the material stored in LDPE films was 32% higher than the same index for the carrots stored in multilayer nylon, for both temperatures. The reduction in beta -carotene content was more pronounced in round-shaped baby carrots stored under 10 than 5 deg C. Despite storage temperature, baby carrots stored in LDPE plastic films showed a higher content of total soluble solids, what is a clear indication that the material packed in this type of plastic film lost more water than the other treatments.