

Comparison Between Red and Yellow Sweet Pepper (*Capsicum annum* L.) Cultivar in Extended Storage at Sub-Optimal Temperature

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Abstract

Sweet pepper (*Capsicum annum* L.) is an important fruit crop, mostly available in red and yellow, but also in green when harvested unripe. During the cold storage of fruits, overall quality could be impaired on the basis of fruit color and cultivars. In this study, red sweet pepper cv. Cannon and yellow sweet pepper cv. Dinamo fruits were stored at 1.5 and 7°C with Xtend® plastic bag packaging for 3 weeks followed by 3 days of shelf-life simulation to compare selected quality traits and aroma-related volatiles with a Gas Chromatograph-Mass Spectrometer. Notably, red and yellow sweet pepper fruits had no significant differences in weight loss, total soluble solids content and firmness. However, decay, chilling injury and chilling injury index were noticed significantly higher in yellow sweet peppers compared to red ones at 1.5°C storage temperature ($p < 0.05$). Vitamin C, total phenolic and hydrophilic antioxidant contents were found higher in stored red sweet pepper fruits, but not significantly different compared to yellow ones. In total, 37 aroma-related volatiles were observed in both cultivars, which create fruity, spicy, pungent, floral sweet, floral green and sweet pepper-like odor notes. In particular, 2-isobutyl-3-methoxypyrazine – the source of sweet pepper-like aroma notes, was not found significantly higher in red sweet pepper fruits compared to yellow ones at 1.5 and 7°C storage temperature. Thus, the external quality of red sweet peppers showed better compared to yellow ones in extended storage at sub-optimal temperature, with similarities in nutritional quality and aroma-related volatile content.

Keywords: Sweet pepper, Quality, Postharvest, Shelf-life, Cultivar