Abstract

The goal of this work was to evaluate the external, internal and sensory traits of 'Galia'-type melon fruit coated with three polyethylene-based waxes with different solid matter and shellac contents ('Zivdar', 'Tag' and 'Tag-A') or with natural beeswax ('Beeswax').

After 14 days at 5 °C plus 3 days at 20 °C, the polyethylene-based wax 'Tag' was found to maintain both external and internal fruit quality as evaluated by weight loss, firmness, colour development, decay incidence, and soluble solids content. Tag-treated melons also had better sensory quality, as evaluated by organoleptic tests and aroma volatiles. Treatment with the waxes 'Zivdar' and 'Tag-A', which contain high amounts of shellac in proportion to 'Tag' and 'Beeswax', significantly increased off-flavour in the melon fruit due to high-internal levels of CO_2, ethanol, acetaldehyde and ethyl acetate. Untreated fruit, or fruit that were coated with 'Beeswax' had the best taste and enhanced ethyl butanoate—(responsible for fruity-pleasant notes), butyl acetate and 2-methyl propyl acetate. Despite the improved organoleptic quality, control and 'Beeswax'-treated fruit suffered from high-decay incidence and soft texture.

Overall good quality and sensory attributes of 'Galia'-type melon can be achieved by using waxes that contain no, or very low amounts, of shellac. These waxes reduce water loss, improve the general appearance and maintain pleasant, sweet and fruity aroma notes of the fruit even after prolonged storage.