

Effect of an edible, fungistatic coating on the quality of the 'Valencia' orange during storage and marketing

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Abstract

Generally, citrus fruits are waxed in the postharvest stage to restore the natural wax removed in the washing procedure and to improve the appearance of the fruit, providing luster. Nowadays, in Colombia, the waxes employed in this step of citrus fruits are imported, which represents a high cost for producers and marketers. On the other hand, the citrus industry generates about 50,000 tons of waste annually just in the coffee region of Colombia, which is undervalued and put to limited use. In this regard, an edible coating, based on pectin and essential oils, would be a solution to the under-utilization of the waste and the import of waxes and would also provide a safe product for consumers and reduce the impact on the environment. In this study, the effect of an edible coating (EC) made of pectin and essential oils on the postharvest quality of 'Valencia' oranges was evaluated. The fungistatic activity of the coat was evaluated at 0.5, 1.0, and 1.5% of essential oils (EO) in fruits inoculated with *Penicillium* sp. in three conditions of storage: direct marketing, cold storage and USA quarantine simulation. The EC at 1% of EO was also applied in a commercial packing line of citrus and studied after different storage conditions. The EC with 1.5% of EO extended the shelf life of the fruits at 23°C with a controlled decay of 83%. Nevertheless, at low temperatures, there was no control of the fungus, as with the other commercial waxes studied. The EC did not affect the internal fruit quality in a detrimental way, although the control of weight loss must be improved. In general, the EC could be applied in a commercial packing line and the fruits could be stored for 1 week at 25°C with an acceptable weight loss and for 2 weeks at 7°C plus 7 days at 25°C with a weight loss control of 0.9%.