

**Title** Effect of fatty acid type and amount of hydroxypropyl methylcellulose edible coatings based on postharvest quality of mandarins cv. Ortanique

**Author** M.B. Pérez-Gago, M.L. Navarro and M.A. del Río

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### **Abstract**

‘Ortanique’ mandarins were coated with hydroxypropyl methylcellulose (HPMC)–beeswax (BW) composite coatings. Glycerol and fatty acid were added as plasticizer and emulsifier, respectively. The emulsion coatings had 4% total solid content and 40%BW content (dry basis). Stearic, palmitic or oleic acid were studied at two different BW: fatty acid ratios (2:1 and 5:1). After coating, the fruits were stored for 3 and 6 weeks at 5°C, followed by one additional week at 20°C. Another set of samples was also stored for 2 weeks at 20°C, simulating retail handling conditions. The coatings were effective reducing weight loss and maintaining texture of mandarins compared to the control. Coatings with oleic acid were more effective reducing weight loss than coatings with palmitic acid, and these ones more effective than those with stearic acid. However, oleic acid increased the gas barrier, ethanol level and off-flavor of coated mandarins in a greater extend that palmitic and stearic. Levels of internal CO<sub>2</sub> were lower in coatings with a BW:fatty acid ratio 2:1 than in coatings with 5:1 ratio, which translated in lower ethanol level in juice. This could be due to the lower amount of HPMC in the 2:1 ratio-coatings, since hydrophilic materials, such as HPMC, are known to present low oxygen permeability. The results suggest the importance of controlling coating composition in order to extend shelf-life of citrus fruits with good quality.