

Abstract:

'Fortune' mandarins were coated with edible hydroxypropyl methylcellulose-lipid composite coatings. The coatings consisted of beeswax (BW), at 2 lipid contents (20% and 60% dry basis) and 4% total solids content (TSC). At 4% TSC, 60% BW emulsions had lower viscosity than 20% BW emulsions. An emulsion with 60% BW content at 8% TSC was also prepared, with a viscosity similar to the 20% BW-4% TSC emulsion. Weight loss of coated mandarins decreased significantly as lipid content increased. However, TSC and viscosity did not influence weight loss of mandarins at 60% BW content. Coated fruit had higher internal CO₂, lower internal O₂, and higher ethanol contents than uncoated fruit. Levels of O₂ were significantly lower for 20% BW than for 60% BW content at 4% TSC. An increase in TSC and emulsion viscosity of 60% BW coatings (8% TSC), decreased internal O₂ to values close to 20% BW-4% TSC coatings. 20% BW coatings gave higher ethanol levels than 60% BW coatings at 4% TSC. When TSC and viscosity were increased, ethanol levels were also increased. The results suggest the importance of considering not only TSC, but also emulsion viscosity when preparing edible coatings, since it influences coating thickness and, therefore, internal atmosphere. Weight loss, on the other hand, is only influenced by BW content.