## Performance of carnauba wax-nanoclay emulsion coatings on postharvest quality of 'Valencia' orange fruit

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## Abstract

For the first time, efficiency of the carnauba wax-nanoclay emulsions in preserving postharvest quality of 'Valencia' fruit was evaluated upon simulated storage and marketing. The different coatings containing nanoclay (i.e., 0.0, 0.5 and 1.0 w%) applied on orange and their performance were compared with uncoated fruit and two different commercial waxes. In general, the presence of nanoclay in the carnauba wax formulation greatly enhanced fruit sensory acceptability, nutritional quality and effectively prevented fruit weight loss during storage. Moreover, according to several statistical analyses such as cluster analysis, PCoA and Heat map-based surveys, the carnauba wax-nanoclay emulsions possessed similar behaviors with the maximum efficiency and placed accordingly in the same cluster, while the other four treatments were lonely occupied the next positions. Such nano-formulations could propose as a promising and cost-effective alternative avenue for commercial fruit waxes, towards sustainable postharvest management in retarding respiration rates and weight loss alongside preserving sensory and nutritional quality of fruits.