

Quality and biochemical changes of navel orange fruits during storage as affected by cinnamaldehyde -chitosan coating

Yang Gao, Chaonan Kan, Chunpeng Wan, Chuying Chen, Ming Chen and Jinyin Chen

Scientia Horticulturae 239: 80-86. (2018)

Abstract

Quality and biochemical changes of navel orange (*Citrus sinensis* L., Osbeck) fruits in response to cinnamaldehyde-chitosan coating were studied during 120 day of storage at 10 ± 1 °C and 80–90% RH. The results showed that the coating significantly reduced the decay rate and weight loss of the navel orange fruits, delay the decrease of the content of total soluble solids (TSS), titratable acidity (TA) and vitamin C (Vc), effectively inhibited the content of MDA. Furthermore, the coatings maintaining enhanced the activity of SOD, CAT, POD and PPO, delay the senescence of fruits. The high performance liquid chromatography analysis showed that coating treatment inhibited the decrease of total sugar content of fruits and slowed down the decline of total organic acids by slowing down the degradation of sucrose, fructose and citric acid content. Compared with chitosan coating, cinnamaldehyde- chitosan coating could significantly reduce the decay rate and had no adverse effects on fruit quality. Meanwhile, it could improve CAT, SOD and POD activity, induce the activity of PPO to increase, and improve the disease resistance of navel orange fruits. This study suggests that cinnamaldehyde-chitosan coating can extend the storage time and maintain quality of citrus fruit.