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### 中草药淀粉壳聚糖复合膜对椪柑的保鲜效果

## Effects of Chinese herbal medicine-starch-chitosan composite coating on fresh-keeping of ponkan

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中文摘要:

为探讨可食性涂膜保鲜剂取代化学保鲜和套袋保鲜椪柑的可能性,研究了中草药淀粉壳聚糖复合涂膜剂对椪柑果实保鲜效果及衰老生理的影响。结果表明:复合涂膜可以明显降低椪柑贮藏期间病害指数,保持较高的好果率,其效果与化学保鲜无明显差异,但显著高于单一套袋处理,贮藏第90d时,其好果率和病情指数分别是单一套袋的1.2倍和50.0%;复合涂膜能减少维生素C、可滴定酸的损失。与单一套袋相比,复合涂膜明显提高过氧化氢酶活性,降低过氧化物酶和多酚氧化酶活性,抑制丙二醛积累,在贮藏第90d时,过氧化氢酶是单一套袋的2.2倍,过氧化物酶、多酚氧化酶和丙二醛含量分别是单一套袋的60.9%、80.7%和76.7%。在贮藏期间除过氧化物酶外,复合涂膜过氧化氢酶、多酚氧化酶和丙二醛含量与化学保鲜相比无明显差异。通过成本核算,处理1kg椪柑需0.16元。由此可知,中草药淀粉壳聚糖复合涂膜在抗病和防止果实衰老方面已达到化学保鲜效果,并在品质方面明显优于化学保鲜,成本低且安全,可以替代椪柑果实的化学保鲜和套袋。

英文摘要:

To explore possibilities of using edible film as a substitute for chemical preservation and bagging, effects of fresh-keeping and physiological characteristics of Chinese herbal medicine-starch-chitosan film on citrus fruits (*Citrus reticulata* cv. ponkan) were investigated. The results showed that composite coating significantly decreased the disease index of citrus fruits and kept a higher percentage of healthy fruit, compared with bagging treatment. However, no difference was found between composite coating and chemical preservation during storage period of citrus fruits. Compared with bagging treatment, the percentage of healthy fruit of composite coating was increased by 20.0% at storage of 90 days, but the disease index was decreased by 50.0%. Composite coating could reduce the loss of vitamin C and titratable acid contents. Composite coating significantly enhanced the activity of catalase and decreased activities of peroxidase and polyphenol oxidase and the accumulation of malondialdehyde. After storage for 90 days, catalase activity of composite coating was 2.2 times as much as that of bagging treatment. Peroxidase and polyphenol oxidase activities and malondialdehyde content were 60.9%, 80.7% and 76.7% of bagging treatment, respectively. Except from peroxidase activity, there was no marked difference on catalase and polyphenol oxidase activities and malondialdehyde content between composite coating and chemical preservation during the storage period. The cost of processing one kilogram of ponkan was 0.16 Yuan. These results suggest that composite coating not only has the same effects on disease resistance and delaying senescence as chemical preservation, but also it gives better fruit quality than chemical preservation. Therefore, composite coating could be used as a substitute for chemical preservation and bagging preservation.

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