

王 娟,陈平生,孟祥春.复合涂膜结合紫外处理对鲜切木瓜冷藏品质的影响[J].农业工程学报,2012,28(2):273-278

复合涂膜结合紫外处理对鲜切木瓜冷藏品质的影响

Effects of compound coating combined with ultraviolet treatment on quality of cold storage fresh-cut papaya

投稿时间: 3/16/2011 最后修改时间: 10/28/2011

中文关键词: [涂膜](#)、[紫外灯](#)、[优化](#)、[木瓜](#)、[鲜切](#)、[保鲜](#)

英文关键词: [coatings](#) [ultraviolet lamp](#) [optimization](#) [papaya](#) [fresh-cut](#) [preservation](#)

基金项目: 广东高校优秀青年创新人才培养计划项目 (LYM10016); 广州市农业科技项目 (GZCQC080FG06001)

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中文摘要:

为了延长鲜切木瓜的保鲜时间, 利用尼辛、那他霉素、薄荷油、氯化钙、香兰素、壳聚糖制成复合保鲜涂膜液, 考察涂膜及紫外线处理对木瓜鲜切块贮藏品质(包括色泽、可溶性固形物含量、失水率、维生素C含量、可滴定酸、霉菌酵母数、菌落总数)的影响。由均匀设计试验优化涂膜液配方以及紫外线处理参数。研究表明: 涂膜及紫外线处理可较好地保持鲜切木瓜的色泽, 抑制褐变, 保持较高的可溶性固形物含量, 减少贮藏过程中的水分损失, 抑制霉菌、酵母菌和细菌的增长。采用SAS软件建立各参数与菌落总数关系的回归方程。利用非线性规划法得到较佳的复合涂膜配方与紫外线处理参数为: 壳聚糖质量分数1.0%, 氯化钙质量分数0.6%, Nisin 0.10 g/kg, 那他霉素14.0 mg/kg, 香兰素质量分数0.3%, 薄荷油1.5 mL/L, 紫外照射时间22 min, 紫外照射距离范围44~66 cm。此复合涂膜配方与紫外线处理可使货架期至少达到6天, 为鲜切木瓜保鲜提供技术参考。

英文摘要:

A compound coating was prepared by chitosan, nisin, natamycin, mint oil, calcium chloride and vanillin. The effects of compound coating combined with ultraviolet treatment on the quality (including color, soluble solid content, water loss, Vitamin C content, titratable acid, counts of moulds, yeasts and bacteria) of storage fresh-cut papaya were investigated. The formula of compound coating and the parameters of ultraviolet treatment were optimized by uniform design experiment. The results showed that the coating and ultraviolet treatment were able to protect the color of the fresh-cut papaya, inhibit browning, maintain high soluble solid content, reduce water loss during storage time and restrain the growth of moulds and yeasts as well as aerobic bacteria. A regression equation reflecting the relationship of the factors and the aerobic bacterial count was built by SAS software. And optimal compound coating formula and ultraviolet treatment parameters were obtained by means of nonlinear programming, which were chitosan 1.0%, nisin 0.10 g/kg, natamycin 14.0 mg/kg, mint oil 1.5 mL/L, calcium chloride 0.6%, vanillin 0.3% and ultraviolet treatment time 22 min, the distance of ultraviolet irradiation ranged from 44 to 66 cm. The shelf life of fresh-cut papaya was at least 6 days by this compound coating and ultraviolet treatment.

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