

Combined Effect of Calcium Chloride and Peroxyacetic Acid on Quality and Shelf Life of Minimally Processed Longan Fruit

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ABSTRACT

Efficacies of calcium chloride solution (CaCl₂, 0.25-1.0%), a texture-improving agent, and peroxyacetic acid (PAA) solution, a microbial population reducing sanitizer, on the peel and aril of two whole longan fruit cultivars, “Daw” and “Beawkeaw,” were investigated. A solution of 0.5% CaCl₂ increased aril firmness by 29.4 and 18.2% for cv. Daw and Beawkeaw, respectively, and did not cause any undesirable bitter taste. A dip of whole longan or peeled aril in 100 or 50 mg/L PAA solution for 3 min, respectively, efficiently reduced microbial load (total bacteria, yeast and mold) in comparison to unwashed controls. Longan aril were processed and stored in clear clamshell containers at 4±1°C for 8 days. The aril firmness, L value and TA content decreased but weight loss, pH level, reducing sugar, total bacteria and yeast-mold count increased while the TSS and total sugar content only slightly changed throughout the storage period. The immersion of longan aril in PAA and CaCl₂ solutions resulted in the decrease in pH, TSS, total sugar and reducing sugar contents while firmness, weight loss and L* value increased. The treatment had no effect on TA content but could delay microbial growth when compared with the control. The shelf lives of longan aril at 4±1°C of the control and the treatments were 3 and 5 days for cv. Daw and 3 and 4 days for cv. Beawkeaw, respectively.*

Keywords: Minimally processed longan fruit, Peroxyacetic acid, Calcium chloride

INTRODUCTION

Longan (*Dimocarpus longan Lour.*) is grown commercially in Thailand with increasing acreage because it can be produced, both during the traditional season and the off-season with use of chemicals. The major factors reducing the storage