

Combined Effect of Calcium Salt Treatments and Chitosan Coating on Quality and Shelf Life of Carved Fruits and Vegetables

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ABSTRACT

This study analyzed the combined effect of three types of calcium salts (CaCl₂, Ca lactate, and Ca propionate) and chitosan coating on the quality and shelf life of carved fruits and vegetables (pumpkin, cantaloupe, carrot, Chinese radish, and Japanese cucumber). The best concentration of each salt was compared with chitosan (0.25 or 0.5%) coating combined with 0.5% CaCl₂. The quality and shelf life of the five carved fruits/vegetables in rose-shape were investigated during storage in a clamshell container at 5±1°C. The study simulated the use of the carved samples as decorative food by transferring them daily between storage and room/display temperature (5 and 25°C). The combination of 0.5% CaCl₂ + chitosan (0.25% or 0.5%) was the most effective for carved (rose shape) pumpkin, cantaloupe, and carrot. Chitosan coating helped delay dehydration and maintained the color of the carved samples better than the calcium salt alone. The shelf life of the carved (rose and carnation shapes) pumpkin and carrot was 6 and 12 days, respectively. The shelf life of the carved cantaloupe as rose and carnation shapes was 9 and 6 days, respectively; the shelf life of the carved Chinese radish (rose shape) and carved Japanese cucumber (lotus shape) was 9 and 6 days, respectively.

Keywords: Calcium salts, Carved fruit and vegetable, Quality and shelf life, Chitosan coating

INTRODUCTION

Fruit and vegetable carving has become popular across the globe and can be found in restaurants, hotels, catering halls, exhibitions, and cruise ships (Siam Carving Academy, 2011). The carvings decorate plates of food, enhancing their beauty and edibility (Suwannaruk, 2004). Fruit and vegetable carving is a delicate and highly skilled art. Given the effort to create, the carvings are often used more