ABSTRACT

DEVELOPMENT AND SHELF-LIFE STUDY OF FRUIT AND VEGETABLE SANITIZER FROM HERBAL EXTRACTS

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In the past 3 years, The Centers for Disease Control and Prevention (CDC) reported that there were at least 7 outbreaks in fresh produce. So, cleaning of fresh produce is the first step in order to prevent foodborne outbreaks. Therefore, this research was aimed to develop and study the shelf life of fruit and vegetable sanitizer from Thai herb crude extracts including Chili (Capsicum annuum), Lemongrass (Cymbopogon citratus), Kaffir lime (Citrus hystrix), Chrysanthemum (Chrysanthemum indicum L) and Som-poi (Acacia concinna (Willd.) D.C.). The fruit and vegetable sanitizer was prepared by adding 1.5% of each 0.2 mg/ml crude herb extracts into Som-poi pod water and was sterilized at 121 °C for 15 min. The percentage of antimicrobial efficiency was used for evaluating the antimicrobial activity and studying shelf-life comparing with 2 commercial brands (Jirada and Veggie). Lettuce (Lactua sativa) as vegetable model was soaked in 1% fruit and vegetable sanitizer for 20 min and was swabbed for total plate count. The total plate count was done every 4 weeks for 3 months to test the antimicrobial activity efficiency as the shelf-life study. The results showed that the fruit and vegetable sanitizer had the highest percentage of antimicrobial efficiency in week 4 and 8; 87.00±13.58, 78.70±25.01, respectively. The antimicrobial efficiency of fruit and vegetable sanitizer was significantly decreased after week 8. This indicated that the fruit and vegetable sanitizer from Thai herb crude extracts has antimicrobial activity and its shelf-life was only 2 months. For antibrowning activity, apple (Malusdomestica), as fruit model, was soaked in 0.1% fruit and vegetable sanitizer after 2 minutes then, was measured color by using color meter to measure the color of apple and every 10 minutes for 50 minutes. The different color (ΔE*) was used to evaluate the antibrowning activity. The result showed that fruit and vegetable sanitizer had no antibrowning activity.