

Microbial Survival and Sensory Properties of Intermediate-Moisture Apple and Cantaloupe Impregnated with *Lactobacillus acidophilus* during Storage

Hathaitip Rongkom, Aphirak Phianmongkhol and Tri Indrarini Wirjantoro*

Division of Food Science and Technology, Faculty of Agro-Industry, Chiang Mai University, Chiang Mai 50100, Thailand

**Corresponding author. E-mail: triindrarini.w@cmu.ac.th*

ABSTRACT

*The sensory properties and bacterial viability of intermediate-moisture apple and cantaloupe supplemented with *Lactobacillus acidophilus* and packed in vacuum packaging were monitored during eight weeks of storage at refrigerated and room temperatures. The intermediate-moisture apple and cantaloupe had higher lightness value and better bacterial survival when the fruit samples were stored at refrigerated temperatures. The numbers of total microorganisms and lactic acid bacteria in the fruit samples reduced significantly to below 1.0 log cfu/g after eight weeks of storage at room temperature. On the other hand, refrigerated storage maintained high numbers of lactic acid bacteria – 7.94 ± 0.02 and 9.44 ± 0.38 log cfu/g, in the apple and cantaloupe samples, respectively, at the end of the storage period. A sensory panel preferred the intermediate-moisture fruits stored at chilled temperatures compared to room temperatures.*

Keywords: *Lactobacillus acidophilus*, Apple, Cantaloupe, Microbial viability, Storage period

INTRODUCTION

Development of functional food products is driven by the market potential for food and beverage products that can improve the health and well being of consumers (Prado et al., 2008). These food products are recognised to contain a component (which may or may not be a nutrient) that affects one or a limited number of functions in the body in a targeted way so as to have positive effects on health (Roberfroid, 2000). The presence of probiotics and prebiotics in food products creates functional food products (Mattila-Sandholm et al., 2002). In supplementing food with probiotics, the safety, sensory properties and viability of probiotics during storage must be considered (Saarela et al., 2000). Maintaining probiotic viability at functional levels during storage is a challenge in the production of probiotic functional food products. Aureli et al. (2010) reported that 87% of the commercial probiotic food supplements in Italy did not conform to the Italian guidelines and the differences were both quantitative and qualitative (number determination, purity, types and viability of microorganisms). The results