

Abstract

There has been an increase in flavoring utilization in the food industry, particularly on lychee, due to the increasing demand for flavored beverages. Propylene glycol (PG) is a common solvent that makes up the majority of the component. However, due to the limiting consumption and the possible contamination with ethylene glycol, the consumption that is generally recognized as safe shall be reduced using ethanol that was employed in this study; but with the concern that it is more prone to loss of volatile compounds. Thus, this research will focus on estimating the shelf-life of reduced propylene glycol content lychee flavors through the analysis of their physical characteristics and sensorial properties using the Arrhenius approach. Additionally, a comparative evaluation of the storage temperature (27°C, 33°C, and 37°C) on deterioration would be conducted, and three different formulations (100% PG, 50% PG:50% Ethanol, and 100% ethanol) were prepared and compared with each other. Physical analysis, including the specific gravity and refractive index was performed, where there are no substantial changes in the value obtained throughout time. However, the sensory evaluation shows changes throughout time, particularly on aroma and taste attributes. Thus, this study has successfully revealed that the reduction of PG content does give a profound impact on the shelf-life of the lychee flavors, with aroma as the crucial factor. The results show that the longest shelf-life of 124.7 days was found in formulation 1 when stored at 5°C, while higher storage temperature was preferable for lychee flavors with ethanol solvent to achieve a longer shelf-life.

Keywords: *ASLT, Ethanol, Flavor, PG, Sensory evaluation*