

Estimation of Shelf Life of Pegagan Tea (*Centella asiatica* (L) Urban) using Accelerated Shelf Life Testing (ASLT) Method with Arrhenius Model

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Abstract	<p>This research aimed to evaluate the shelf life of pegagan (<i>Centella asiatica</i> (L) Urban) tea using the Accelerated Shelf Life Testing (ASLT) method by applying the Arrhenius Model since its widely known for its various health benefits, including its ability to enhance cognitive function and exhibit antioxidant effects. The ASLT method was employed to accelerate the chemical and physical changes in the product, thereby enabling a shorter estimation of shelf life compared to conventional methods. In this research, samples of pegagan tea were packaged in paper sacks, aluminum foil, and vacuum-sealed plastic and stored at temperatures of 15, 30, and 45 °C for 28 days, with observations conducted every 7 days. The Arrhenius Model was utilized to predict the rate of chemical reactions in the product, taking into account the temperature's influence on these changes. The data were analyzed using Analysis of Variance (ANOVA) at a 5% confidence level. If the ANOVA results showed significant differences, Duncan Multiple Range Test (DMRT) was further conducted. The results of the observations indicated that storage temperature and packaging type significantly influenced the yield value and pH value, but had no significant effect on the moisture content of pegagan tea. The estimated shelf life of pegagan tea for 28 days using paper sack packaging at temperatures of 15, 30, and 45 °C was 173, 616, and 195 days, respectively. For aluminum foil packaging, the estimated shelf life was 189, 661, and 205 days at the same temperatures. As for vacuum-sealed plastic packaging, the estimated shelf life was 551, 192, and 597 days at the respective temperatures. The findings of this research are expected to provide valuable information for manufacturers and consumers regarding the shelf life of pegagan Tea. Additionally, the research aims to offer a scientific basis for appropriate packaging and storage practices to better maintain the product's quality.</p>
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