

ABSTRACT

PRODUCTION PROCESS AND SHELF LIFE ESTIMATION OF SYRUP FROM OLD OIL PALM SAP IN GLASS BOTTLE PACKAGING USING THE ARRHENIUS MODEL OF ASLT METHOD

By

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The use of old oil palm trunks, waste from the rejuvenation of oil palm trees, was carried out by processing the pressed sap into syrup. The research was proposed to estimate the shelf life of syrup from oil palm sap in glass bottles. This syrup was made using the atmospheric evaporation treatment by heating palm sap at $\pm 90^{\circ}\text{C}$ with a gas stove. Estimation of the shelf life of syrup was carried out using the Accelerated Shelf Life Testing (ASLT) method with the Arrhenius model. 20 g syrup each was packed in glass bottles, then stored at temperatures of 5°C , 25°C , and 45°C for one month and observed every six days. The initial quality characteristics of this syrup were it had a water content of 39.53%, a pH level of 5.15, total dissolved solids of 66.5°Brix , with sensory characteristics of a dark brown color, a sweet and slightly sour taste, and a distinctive aroma of the palm trunk. Observation parameters include water content, pH, total dissolved solids ($^{\circ}\text{Brix}$), sensory quality (appearance and flavor), and fungal growth. The results show that the shelf life of syrup from oil palm sap based on pH parameters at temperatures of 5°C is 35 years 5 months 17 days and 25°C is 3 years 5 months 13 days, while the shelf life is based on total dissolved solids parameters namely 7 months 2 days (5°C) and 5 months 22 days (25°C).

Keywords: oil palm sap, syrup, shelf life, ASLT Arrhenius

ABSTRAK

PROSES PEMBUATAN DAN PENDUGAAN UMUR SIMPAN GULA CAIR DARI NIRA BATANG SAWIT TUA DALAM KEMASAN BOTOL KACA MENGGUNAKAN METODE ASLT MODEL ARRHENIUS

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Pemanfaatan batang kelapa sawit tua yang merupakan limbah dari peremajaan pohon kelapa sawit dilakukan dengan mengolah nira hasil ekstraksi batang sawit menjadi gula cair. Tujuan penelitian ini adalah menduga masa simpan gula cair dari nira batang sawit tua dalam kemasan botol kaca. Gula cair ini dibuat menggunakan metode penguapan atmosferik dengan cara memanaskan nira sawit menggunakan kompor gas dengan suhu pemanasan $\pm 90^{\circ}\text{C}$. Pendugaan umur simpan gula cair dilakukan menggunakan metode *Accelerated Shelf Life Testing* (ASLT) model Arrhenius. Gula cair dikemas sebanyak 20 g pada masing-masing botol kaca lalu disimpan pada suhu 5°C , 25°C , dan 45°C selama satu bulan dan diamati setiap enam hari sekali. Karakteristik mutu awal dari gula cair ini yaitu memiliki kadar air sebesar 39.53%, pH 5.15, total padatan terlarut sebesar 66.5°Brix , dengan sifat sensori berupa berwarna coklat gelap, rasa manis sedikit asam, serta beraroma khas batang sawit. Parameter pengamatan berupa kadar air, pH, total padatan terlarut ($^{\circ}\text{Brix}$), mutu sensori (penampakan, rasa, dan aroma), serta pertumbuhan jamur. Hasil menunjukkan bahwa umur simpan gula cair dari nira batang sawit tua berdasarkan parameter pH pada suhu 5°C ialah 35 tahun 5 bulan 17 hari dan 25°C ialah 3 tahun 5 bulan 13 hari, sedangkan umur simpan berdasarkan parameter total padatan terlarut yaitu 7 bulan 2 hari (5°C) dan 5 bulan 22 hari (25°C).

Kata kunci: nira sawit, gula cair, umur simpan, ASLT Arrhenius