

ABSTRACT

DETERMINATION OF THE SHELF LIFE OF COOKIES BY ADDING CASSAVA LEAF FLOUR USING THE ACCELERATED SHELF LIFE TESTING (ASLT) METHOD WITH THE ARRHENIUS MODEL

BY

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Cookies were a type of dry baked pastry that were small in size, flat in shape, and had a sweet taste. This study aimed to determine the shelf life of cookies formulated with the addition of cassava leaf flour, using the Accelerated Shelf Life Testing (ASLT) method based on the Arrhenius model. The cookies were prepared using 94% mocaf flour and 6% cassava leaf flour, and were packaged in OPP plastic and aluminum foil. The products were stored at 25°C, 35°C, and 45°C for 30 days. Observations were conducted on changes in moisture content, color, and free fatty acid levels. The critical parameter used to determine shelf life was the free fatty acid content, as it was directly related to the product's rancidity level. The results showed that the free fatty acid content increased during storage, following zero-order reaction kinetics. The estimated shelf life of the cookies at 25°C, based on the free fatty acid level, was 154 days for aluminum foil packaging and 141 days for OPP packaging. These findings indicated that aluminum foil was more effective in maintaining product quality stability during storage. Therefore, the choice of packaging type and storage temperature played a significant role in preserving the quality and extending the shelf life of cookies made with cassava leaf flour.

Keywords: cookies, cassava leaf flour, shelf life, ASLT, Arrhenius model.

ABSTRAK

PENENTUAN UMUR SIMPAN *COOKIES* DENGAN PENAMBAHAN TEPUNG DAUN SINGKONG METODE *ACCELERATED SHELF LIFE TESTING* (ASLT) DENGAN MODEL ARRHENIUS

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Cookies merupakan jenis kue kering yang berukuran kecil, berbentuk datar, dan memiliki cita rasa manis karena diolah dengan cara dipanggang. Penelitian ini dilakukan untuk menentukan umur simpan *cookies* yang diformulasikan dengan penambahan tepung daun singkong, menggunakan metode *Accelerated Shelf Life Testing* (ASLT) berdasarkan model Arrhenius. *Cookies* dibuat dengan formulasi 94% tepung mocaf dan 6% tepung daun singkong, kemudian dikemas menggunakan plastik OPP (*Oriented polypropylene*) dan *aluminium foil*. Produk disimpan pada suhu 25°C, 35°C, dan 45°C selama 30 hari. Pengamatan dilakukan terhadap perubahan kadar air, warna, dan asam lemak bebas setiap 10 hari sekali secara berkala. Parameter kritis yang digunakan dalam penentuan umur simpan adalah asam lemak bebas, karena merupakan indikator utama terjadinya kerusakan oksidatif lemak yang menyebabkan penurunan mutu dan ketengikan. Hasil menunjukkan bahwa *cookies* mengalami peningkatan asam lemak bebas selama penyimpanan, dengan pola kinetika reaksi mengikuti orde nol. Umur simpan *cookies* pada suhu 25°C berdasarkan parameter asam lemak bebas adalah 154 hari untuk kemasan *aluminium foil* dan 141 hari untuk kemasan kemasan OPP. Hasil ini menunjukkan bahwa *aluminium foil* lebih efektif dalam mempertahankan kestabilan mutu produk selama penyimpanan. Oleh karena itu, pemilihan jenis kemasan dan suhu penyimpanan berperan penting dalam menjaga kualitas dan memperpanjang umur simpan *cookies* berbasis tepung daun singkong.

Kata kunci: *cookies*, tepung daun singkong, umur simpan, ASLT, model Arrhenius