

RINGKASAN

Permintaan terhadap makanan siap saji meningkat seiring perubahan gaya hidup masyarakat urban yang menginginkan produk praktis dan bergizi. Nasi ayam balado merupakan salah satu produk *ready to eat* berbasis nasi dan olahan ayam yang memiliki umur simpan terbatas akibat kandungan air dan nutrisi tinggi, sehingga rentan terhadap kerusakan mikrobiologis. Penambahan bahan pengawet alami seperti bubuk bunga kecombrang (*Etlingera elatior*) yang kaya akan senyawa fenolik, flavonoid, dan antioksidan berpotensi menghambat pertumbuhan mikroba dan memperpanjang umur simpan. Penelitian pendugaan umur simpan produk nasi dan lauk *ready to eat* sudah pernah diteliti. Namun penelitian mengenai umur simpan dari nasi dan lauk *ready to eat* yang ditambahkan pengawet alami berupa bubuk kecombrang belum pernah diteliti. Penelitian ini bertujuan untuk menduga umur simpan produk nasi ayam balado *ready to eat* dengan penambahan bubuk kecombrang dalam kemasan *retort pouch* menggunakan metode *Accelerated Shelf-Life Testing* (ASLT) model Arrhenius, serta mengevaluasi perubahan karakteristik mikrobiologi, kimia, dan sensoris produk selama penyimpanan pada suhu 27°C, 35°C, dan 55°C.

Metode yang digunakan dalam penelitian ini adalah metode *Accelerated Shelf-Life Testing* (ASLT) model Arrhenius untuk menentukan umur simpan nasi ayam balado dengan penambahan 0,25% bubuk kecombrang. Faktor yang diuji adalah suhu penyimpanan. Parameter yang digunakan dalam penelitian ini adalah total mikroba, kadar FFA, mutu sensori berupa warna, aroma, tekstur, rasa, dan *overall liking*. Nasi ayam balado dengan penambahan bubuk kecombrang disimpan selama 35 hari pada suhu 27°C, 35°C, dan 55°C dan dilakukan pengujian pada hari ke-0, ke-7, ke-14, ke-21, ke-28, dan ke-35. Hasil data pengujian total mikroba dan kadar asam lemak bebas dianalisis menggunakan uji ANOVA. Sementara itu, data hasil uji sensori dianalisis menggunakan *Kruskall Wallis* dan *Mann Whitney*.

Hasil penelitian menunjukkan bahwa hasil perhitungan model Arrhenius dipilih parameter kadar FFA sebagai parameter kritis untuk menentukan umur simpan nasi ayam balado dengan penambahan bubuk kecombrang karena energi aktivasinya terkecil dibandingkan parameter lainnya. Pendugaan umur simpan nasi ayam balado dengan penambahan bubuk kecombrang dalam kemasan *retort pouch* memiliki pendugaan umur simpan selama 83,71 minggu jika disimpan pada suhu 27°C, umur simpan 38,57 minggu jika disimpan pada suhu 35°C, dan umur simpan 6,55 minggu jika disimpan pada suhu 55°C. Pada parameter mikrobiologis dan kimia terjadi peningkatan *total plate count* dan kadar asam lemak bebas selama pengamatan lama penyimpanan. Sementara itu, parameter sensori mengalami penurunan di akhir penyimpanan dengan kesukaan panelis terbaik pada nasi ayam balado dengan penambahan 0,25% bubuk kecombrang yang disimpan pada suhu 27°C.

SUMMARY

*The demand for ready-to-eat meals is increasing in line with changes in the lifestyle of urban communities who want practical and nutritious products. Chicken balado rice is one of the ready to eat products based on rice and chicken processed foods that have a limited shelf life due to their high water and nutrient content, making them susceptible to microbial spoilage. The addition of natural preservatives such as torch ginger flower powder (*Etlingera elatior*), which is rich in phenolic compounds, flavonoids, and antioxidants, has the potential to inhibit microbial growth and extend shelf life. Research on estimating the shelf life of ready to eat rice and side dish products has been conducted. However, research on the shelf life of ready to eat rice and side dish products with the addition of natural preservatives in the form of torch ginger powder has not been conducted. This study aims to estimate the shelf life of ready to eat chicken balado rice products with the addition of torch ginger powder in retort pouch packaging using the Arrhenius model of Accelerated Shelf-Life Testing (ASLT), as well as to evaluate changes in the microbiological, chemical, and sensory characteristics of the product during storage at temperatures of 27°C, 35°C, and 55°C.*

The method used in this study was the Arrhenius model Accelerated Shelf-Life Testing (ASLT) method to determine the shelf life of balado chicken rice with the addition of 0.25% kecombrang powder. The factor tested was storage temperature. The parameters used in this study were total microbes, FFA content, and sensory quality in the form of color, aroma, texture, taste, and overall liking. Chicken balado rice with the addition of kecombrang powder was stored for 35 days at temperatures of 27°C, 35°C, and 55°C, and testing was conducted on days 0, 7, 14, 21, 28, and 35. The test results for total microbial count and free fatty acid content were analyzed using ANOVA. Meanwhile, the sensory test results were analyzed using the Kruskal-Wallis and Mann-Whitney tests.

The results of the study indicate that the Arrhenius model calculation selected FFA content as the critical parameter for determining the shelf life of balado chicken rice with the addition of kecombrang powder because it has the lowest activation energy compared to other parameters. The estimated shelf life of balado chicken rice with the addition of kecombrang powder in retort pouch packaging is 83.71 weeks when stored at 27°C, 38.57 weeks when stored at 35°C, and 6.55 weeks when stored at 55°C. In microbiological and chemical parameters, there was an increase in total plate count and free fatty acid content during the extended storage period. Meanwhile, sensory parameters showed a decrease at the end of storage, with the best panelist preference for chicken balado rice with the addition of 0.25% kecombrang powder stored at 27°C.