

PENDUGAAN UMUR SIMPAN *MILK TEA* INSTAN PROBIOTIK
***Lactobacillus plantarum* Dad-13 KEMASAN VAKUM**
MENGGUNAKAN METODE *ACCELERATED SHELF LIFE TEST*

Abstrak

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Milk tea merupakan minuman kekinian berbahan dasar utama susu dan teh hitam dengan bahan tambahan krimer nabati, gula cair (*High Fructose Syrup*), susu kental manis (SKM), air, dan gula pasir. Salah satu inovasi untuk mengubah minuman kekinian tersebut menjadi minuman dengan nilai fungsional yaitu dengan penambahan probiotik *Lactobacillus plantarum* Dad-13 tanpa diikuti proses fermentasi sehingga tetap menjaga sensoris asli minuman *milk tea*. *Lactobacillus plantarum* Dad-13 merupakan probiotik yang berfungsi untuk menyeimbangkan mikrobiota usus dan memberikan efek kesehatan yang positif bagi inangnya jika memiliki viabilitas sel antara 7 – 9 log CFU/g. Untuk mempertahankan sensoris produk dalam waktu yang cukup lama, dilakukan proses pengeringan menggunakan *spray dryer* untuk mengubah fase *milk tea* menjadi serbuk ($A_w = 0,2$) yang memberikan potensi besar sebagai karier probiotik terbaik. Setelah menjadi serbuk minuman, dilakukan penambahan probiotik.

Pada prosesnya, diperlukan penelitian lebih lanjut untuk mengetahui penurunan viabilitas sel probiotik selama penyimpanan untuk menduga umur simpan produk Milk Tea Instan Probiotik *Lactobacillus plantarum* Dad-13 yang dikemas secara vakum dan non vakum. Pendugaan umur simpan dilakukan dengan metode *Accelerated Shelf Life Testing* (ASLT) menggunakan variasi suhu penyimpanan sebesar 20°C, 30°C, dan 37°C. Hasil penelitian menunjukkan bahwa terdapat penurunan viabilitas sel probiotik selama penyimpanan mengikuti orde 1 dan memiliki umur simpan paling lama 712 hari pada suhu penyimpanan 20°C.

Kata kunci : *milk tea* instan probiotik, viabilitas sel probiotik, umur simpan, *Lactobacillus plantarum* Dad-13

ESTIMATED SHELF LIFE OF INSTANT MILK TEA PROBIOTIC

Lactobacillus plantarum Dad-13 VACUUM PACKAGING

USING ACCELERATED SHELF LIFE TEST METHOD

Abstract

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Milk tea is a contemporary drink based on milk and black tea with additional ingredients of vegetable creamer, liquid sugar (High Fructose Syrup), sweetened condensed milk (SKM), water, and granulated sugar. One of the innovations to turn the current drink into a drink with functional value is with the addition of *Lactobacillus plantarum* Dad-13 probiotics without being followed by the fermentation process to maintain the original sensory milk tea drink. *Lactobacillus plantarum* Dad-13 is a probiotic that serves to balance the gut microbiota and provide positive health effects for its host if it has cell viability between 7 – 9 log CFU/g. To maintain product sensory for a long time, the drying process is carried out using a spray dryer to convert the milk tea phase into powder ($A_w = 0.2$) which gives great potential as the best probiotic carrier. After becoming a beverage powder, probiotics are added.

In the process, further research is needed to determine the decrease in viability of probiotic cells during storage to estimate the shelf life probiotic of *Lactobacillus plantarum* Dad-13 instant milk tea products that are vacuum-packed and non-vacuum-packed. The estimated shelf life is carried out by the Accelerated Shelf-Life Testing (ASLT) method using storage temperature variations of 20°C, 30°C, and 37°C. The results showed that there was a decrease in the viability of probiotic cells during storage following order 1 and had a shelf life of at least 712 days at a storage temperature of 20°C.

Keyword : probiotic instant milk tea, probiotic cell viability, shelf life, *Lactobacillus plantarum* Dad-13.