

## ABSTRAK

**Zuhair Abdullah : Pengembangan Yoghurt Substitusi Santan Kelapa dengan Penambahan *Puree* Buah Nipah (*Nypa fruticans*). Skripsi. Fakultas Teknik Universitas Negeri Medan. 2026.**

Yoghurt merupakan produk fermentasi yang mengandung bakteri asam laktat dan dikenal sebagai minuman probiotik yang mampu menjaga kesehatan sistem pencernaan. Saat ini yoghurt yang beredar dipasaran umumnya terbuat dari susu sapi. Padahal produksi susu sapi di Indonesia rendah dan dikhawatirkan tidak dapat memenuhi kebutuhan untuk pembuatan yoghurt. Pemanfaatan buah nipah (*Nypa fruticans*) sebagai bahan pangan lokal juga masih terbatas, meskipun buah ini memiliki potensi sebagai bahan tambahan dalam pembuatan yoghurt. Pengembangan produk yoghurt substitusi santan kelapa diperlukan sebagai upaya diversifikasi pangan. Santan kelapa memiliki karakteristik fisik dan kimia yang menyerupai susu serta mengandung asam lemak rantai sedang yang bersifat anti mikroba. Buah nipah dipilih sebagai bahan tambahan karena mengandung karbohidrat, serat pangan, serta senyawa fenolik yang berpotensi sebagai antioksidan alami, sehingga dapat meningkatkan nilai gizi dan memberikan karakteristik sensori yang berbeda. Penelitian ini bertujuan untuk mengetahui hasil produk yoghurt substitusi santan kelapa dengan penambahan *puree* buah nipah terhadap tingkat kesukaan penelis serta karakteristik fisikokimia, mikrobiologi, dan aktivitas antioksidan.

Tempat penelitian dilakukan di Laboratorium Gizi Universitas Negeri Medan, dan Balai Standarisasi dan Pelayanan Jasa Industri Kota Medan pada Agustus-November 2025. Desain penelitian yang digunakan dalam penelitian ini adalah eksperimental dengan metode Rancangan Acak Lengkap (RAL) dengan tiga perlakuan, yaitu penambahan *puree* buah nipah 20% (F1), 25% (F2), dan 30% (F3), masing-masing dua kali ulangan sehingga jumlah menjadi 6 sampel. Parameter yang diamati meliputi uji organoleptik (hedonik dan mutu hedonik), fisikokimia, mikrobiologi (Angka Lempeng Total), dan aktivitas antioksidan. Untuk penentuan formula terpilih menggunakan Uji Indeks Efektivitas metode De Garmo.

Hasil penelitian menunjukkan bahwa terdapat perbedaan nyata pada parameter hedonik tekstur dan mutu hedonik rasa asam dan tekstur. Hasil uji fisikokimia formula F1, F2, dan F3 secara berurutan memiliki kadar lemak 8,18%, 8,59%, dan 8,40%, total padatan bukan lemak 12,71%, 13,82%, dan 14,01%, kadar protein 1,47%, 1,43%, dan 1,58%, kadar abu 0,81%, 0,77%, dan 0,75%, keasaman 1,44%, 1,61%, dan 1,88%, pH 4,33, 4,30, dan 4,31, viskositas 8,50cP, 10,53cP, dan 11,55cP, ALT  $8,2 \times 10^2$ ,  $8,0 \times 10^2$ , dan  $3,0 \times 10^4$ , terakhir aktivitas antioksidan 280ppm, 210ppm, dan 197ppm. Formula F3 merupakan formula terpilih pada aspek warna, rasa, tekstur, uji fisikokimia, uji mikrobiologi, dan uji aktivitas antioksidan. Meskipun hasil uji mikrobiologi belum memenuhi standar SNI, yoghurt substitusi santan kelapa dengan penambahan *puree* buah nipah berpotensi sebagai produk yoghurt nabati fungsional yang aman bagi penderita intoleransi laktosa.

**Kata kunci:** yoghurt, santan kelapa, buah nipah, intoleransi laktosa.

## ABSTRACT

**Zuhair Abdullah: Development of Coconut Milk Substitute Yogurt with the Addition of Nypa Palm (*Nypa fruticans*) Puree. Thesis. Faculty of Engineering, State University of Medan. 2026.**

Yogurt is a fermented product containing lactic acid bacteria and is widely recognized as a probiotic beverage that supports digestive health. Currently, most yogurt available on the market is made from cow's milk. However, milk production in Indonesia remains low and is considered insufficient to meet the growing demand for yogurt production. In addition, the utilization of nipa palm fruit (*Nypa fruticans*) as a local food ingredient is still limited, despite its potential as an additive in yogurt processing. The development of yogurt using coconut milk substitution is therefore needed as an effort toward food diversification. Coconut milk has physical and chemical characteristics similar to those of milk and contains medium-chain fatty acids with antimicrobial properties. Nipa palm fruit was selected as an additional ingredient due to its carbohydrate, dietary fiber, and phenolic compound contents, which have potential as natural antioxidants, thereby enhancing nutritional value and providing distinctive sensory characteristics. This study aimed to evaluate the acceptability level of panelists and the physicochemical, microbiological, and antioxidant characteristics of coconut milk-based yogurt with the addition of nipa palm fruit puree.

The research was conducted at the Nutrition Laboratory of Universitas Negeri Medan and the Industrial Standardization and Service Center of Medan City from August to November 2025, using a Completely Randomized Design (CRD) with three treatments: the addition of nipa palm fruit puree at 20% (F1), 25% (F2), and 30% (F3), each in duplicate. The parameters analyzed included organoleptic properties, physicochemical characteristics, Total Plate Count, and antioxidant activity. The selected formulation was determined using the De Garmo Effectiveness Index method.

The results indicated significant differences in hedonic texture and hedonic quality of sour taste and texture. The physicochemical analysis of formulations F1, F2, and F3 showed fat contents of 8.18%, 8.59%, and 8.40%; total non-fat solids of 12.71%, 13.82%, and 14.01%; protein contents of 1.47%, 1.43%, and 1.58%; ash contents of 0.81%, 0.77%, and 0.75%; acidity values of 1.44%, 1.61%, and 1.88%; pH values of 4.33, 4.30, and 4.31; viscosities of 8.50 cP, 10.53 cP, and 11.55 cP; total plate counts of  $8.2 \times 10^2$ ,  $8.0 \times 10^2$ , and  $3.0 \times 10^4$  CFU/mL; and antioxidant activities of 280 ppm, 210 ppm, and 197 ppm, respectively. Formulation F3 was selected as the best formulation based on color, taste, texture, physicochemical properties, microbiological analysis, and antioxidant activity. Although the microbiological results did not fully meet the Indonesian National Standard (SNI), coconut milk-based yogurt with the addition of nipa palm fruit puree has potential as a functional plant-based yogurt product that is safe for individuals with lactose intolerance.

**Keywords:** yogurt, coconut milk, *Nypa fruticans*, lactose intolerance.