



## **VIABILITAS SEL, SIFAT FISIKOKIMIA, DAN SENSORIS MINUMAN AIR KELAPA MUDA PROBIOTIK**

### **INTISARI**

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Banyak masyarakat Asia tidak dapat mengkonsumsi produk fermentasi susu karena intoleransi laktosa. Namun, minuman probiotik *non-dairy* berbasis lokal masih jarang dikembangkan sebagai alternatif. Penelitian ini bertujuan mengkaji karakteristik biologis, kimiawi, sensoris, dan fungsional dari fermentasi air kelapa muda dengan variasi kadar sukrosa (2% dan 3%) menggunakan *L. plantarum* Dad-13 selama 0, 12, 24 dan 48 jam. Sampel dianalisis terhadap viabilitas, pH, total asam, aktivitas antioksidan (DPPH), total fenolik (Folin-Ciocalteu), total gula (DNS), dan uji sensoris.

Hasil menunjukkan bahwa waktu fermentasi berpengaruh signifikan terhadap seluruh parameter kecuali aktivitas antioksidan. Viabilitas bakteri tertinggi (8,27 log CFU/mL) diperoleh pada 3% sukrosa di jam ke-48. Nilai pH mengalami penurunan dari 7,62 menjadi 5,84 pada 2% sukrosa di jam ke-48, sedangkan total asam meningkat dari 0,14% menjadi 0,63% pada 3% di jam ke-48. Aktivitas antioksidan meningkat dan memiliki nilai tertinggi di sampel 3% sukrosa jam ke-48 (43,78%). Kadar total fenolik tertinggi diperoleh pada sampel 3% sukrosa jam ke-48 (0,3006 mg GAE/mL). Total gula menurun signifikan dari 57,06 mg/mL menjadi 32,73 mg/mL pada sampel dengan 2% sukrosa jam ke-12. Uji sensoris menunjukkan bahwa sampel dengan 3% sukrosa di jam ke-12 fermentasi lebih disukai secara keseluruhan.

Fermentasi air kelapa muda berpotensi menghasilkan minuman probiotik *non-dairy* dengan karakteristik fungsional baik, serta menjadi alternatif inovatif bagi konsumen dengan intoleransi laktosa. Namun, perlu dilakukan peningkatan formulasi yang optimal untuk meningkatkan karakteristik sensoris produk.

**Kata kunci:** Fermentasi kelapa, *L. plantarum*, Probiotik, Sukrosa, Antioksidan



## **CELL VIABILITY, PHYSICOCHEMICAL PROPERTIES, AND SENSORY EVALUATION OF PROBIOTIC YOUNG COCONUT WATER BEVERAGE**

### **ABSTRACT**

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Many Asian communities are unable to consume fermented dairy products due to lactose intolerance. However, locally-based non-dairy probiotic beverages are still rarely developed as an alternative. This study aimed to examine the biological, chemical, sensory, and functional characteristics of young coconut water fermentation with sucrose variation (2% and 3%) using *L. plantarum* Dad-13 for 0, 12, 24, and 48 hours. Samples were analyzed for viability, pH, total acidity, antioxidant activity (DPPH), total phenolic content (Folin-Ciocalteu), total sugar (DNS), and sensory attributes.

The results showed that fermentation time significantly affected all parameters except antioxidant activity. The highest bacterial viability (8.27 log CFU/mL) was observed in the 3% sucrose sample at 48 hours. The pH decreased from 7.62 to 5.84 in the 2% sucrose sample at 48 hours, while total acidity increased from 0.14% to 0.63% in the 3% sucrose sample at 48 hours. Antioxidant activity increased over time, reaching its highest value (43.78%) in the 3% sucrose sample at 48 hours. The highest total phenolic content was also found in the 3% sucrose sample at 48 hours (0.3006 mg GAE/mL). Total sugar decreased significantly from 57.06 mg/mL to 32.73 mg/mL in the 2% sucrose sample at 12 hours. Sensory evaluation showed that the 3% sucrose sample at 12 hours was the most preferred in terms of overall acceptance.

Young coconut water fermentation shows potential as a non-dairy probiotic beverage with promising functional characteristics and may serve as an innovative alternative for consumers with lactose intolerance. However, further formulation improvements are needed to enhance its sensory quality.

**Keywords:** Coconut fermentation, *L. plantarum*, Non-dairy probiotic, Sucrose, Antioxidant