

KARAKTERISTIK DAN UMUR SIMPAN BISKUIT DARI TEPUNG MILLET (*Setaria italica* (L) Beauv.) DAN KENARI (*Canarium indicum* L.) DIPERKAYA KRIM PROBIOTIK *Lactiplantibacillus plantarum* Dad-13

INTISARI

Millet (*Setaria italica* (L) Beauv.) dan kenari (*Canarium indicum* L.) merupakan pangan lokal yang berasal dari Provinsi Maluku yang memiliki kandungan gizi yang baik untuk tubuh manusia. Studi ilmiah tentang pemanfaatan millet dan kenari masih sangat kurang. Biskuit yang diperkaya krim probiotik merupakan salah satu alternatif kudapan yang dapat meningkatkan gizi dalam tubuh manusia dan dapat meningkatkan keseimbangan mikrobiota usus jika dikonsumsi dalam jumlah yang cukup (10^7 log CFU/g). Penelitian ini bertujuan untuk mengevaluasi karakteristik kimia, fisik, dan organoleptik, serta mengevaluasi viabilitas produk selama masa simpan dan perhitungan umur simpan biskuit probiotik *Lactiplantibacillus plantarum* subsp. *plantarum* Dad-13. Penelitian ini menggunakan rancangan acak lengkap (RAL) dengan tiga perlakuan formulasi tepung millet dan kenari (40%:10%, 35%:15%, dan 30%:20%) serta untuk viabilitas dan umur simpan dianalisis pada suhu 20 °C, 37 °C, dan 45 °C.

Hasil penelitian menunjukkan bahwa antar perlakuan tidak memberikan pengaruh signifikan terhadap kadar air, abu, dan protein. Namun, kadar lemak, karbohidrat, energi dan total gula memberikan pengaruh signifikan antar perlakuan seiring dengan bertambahnya proporsi kenari. F3 (30%:20%) memiliki angka kecukupan gizi yang baik; Energi 151 kkal, lemak 10%, protein 4,41%, karbohidrat 5,20%, gula 9 g. Hal ini didukung oleh hasil uji sensoris yang menyatakan bahwa pada perlakuan F3 (30%:20%) lebih disukai dan memberikan pengaruh signifikan dibandingkan perlakuan yang lain dengan nilai rata-rata; warna (5,38), rasa (6,13), aroma (5,13), daya patah (5,86), kerenyahan (6), *aftertaste* (5,02) dan *overall* (6,03). Viabilitas sel untuk semua perlakuan lebih tinggi pada 20°C yaitu masih di atas 10^7 log CFU/g. Umur simpan pada perlakuan 30%:20% pada suhu 20 °C mencapai 1 bulan, 5 hari.

Kata Kunci : Millet, Kenari, Biskuit, Probiotik, *Lactiplantibacillus plantarum* Dad-

**CHARACTERISTICS AND SHELF LIFE OF BISCUIT FROM MILLET
FLOUR (*Setaria italica* (L) Beauv.) AND WALNUT (*Canarium indicum* L.)
ENRICHED PROBIOTIC CREAM *Lactiplantibacillus plantarum* Dad-13**

ABSTRACT

Millet (*Setaria italica* (L) Beauv.), and walnuts (*Canarium indicum* L.) are local foods from Maluku Province, Indonesia, that have high nutritional value for the human body. Although millet and walnuts have great potential to benefit human health. There is still a lack of scientific studies on the use of hotong and walnuts. Probiotic cream-enriched biscuits are a recommended snack that can significantly improve nutrition and promote balance of the intestinal microflora, with a sufficient quantity having 10^7 log CFU/g. This study aims to objectively evaluate the chemical, physical, and organoleptic characteristics, as well as assess the product's viability during shelf life and determine the shelf life of the probiotic cream *Lactiplantibacillus plantarum* subsp. *plantarum* Dad-13. The methodology applied a completely randomized design (CRD) with three different formulation treatments containing millet and walnut flour (40%:10%, 35%:15%, and 30%:20%). The product viability and shelf life were analyzed at temperatures of 20 °C, 37 °C, and 45 °C.

The study indicates that there was no significant effect on water, ash and protein content between treatments. However, it was found that fat, carbohydrate, energy and total sugar levels increased as the proportion of walnuts increased, exerting a significant influence between treatments. F3 has a favorable nutritional adequacy rate with energy at 151 kcal, fat at 10%, protein at 4.41%, carbohydrates at 5.20%, and sugar at 9 g. According to sensory test results, the 30%:20% treatment is significantly more preferred compared to other treatments, with average scores of 5.38 for color, 6.13 for taste, 5.13 for aroma, 5.86 for breakability, 6 for crispness, 5.02 for aftertaste, and 6.03 overall. Cell viability for all treatments was above 10^7 log CFU/g at 20°C. The 30%:20% treatment also had a longer shelf life at 20°C, reaching 1 month and 5 days.

Keywords: Millet, walnut, biscuit, probiotic, *Lactiplantibacillus plantarum* Dad-13