ABSTRACT

THE EFFECT OF SUGAR ADDITION ON THE CHARACTERISTICS OF NATA DE CACAO (Theobroma cacao L.) DURING FERMENTATION

By

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Nata de kakao was a bioselulose produced from the fermentation of cocoa pulp waste. The production process utilized the natural sugars in cocoa pulp as a carbon source for bacterial growth. This study aimed to examine the effects of sugar addition and fermentation duration on the characteristics of nata de kakao. The research employed a Completely Randomized Design (CRD) with two factors: sugar concentration (10°brix, 12°brix, 14°brix, 16°brix, and 18°brix) and fermentation time (0, 7, and 14 days). The results showed that increasing sugar concentration affected total sugar, pH, thickness, yield, and moisture content, but had no significant effect on whiteness index, color index values L, a*, b*, and hedonic tests for taste, aroma, color, texture, and overall acceptance. Longer fermentation time increased the thickness and yield of nata de kakao, while moisture content, color index values L*, a*, b*, whiteness index, sensory hedonic scores, total sugar, and pH of the fermentation medium decreased. The best treatment based on sensory tests and the De Garmo method was obtained at a sugar concentration of 18°brix and 7 days of fermentation. Overall, the combination of sugar addition and fermentation duration significantly influenced the characteristics of the nata de kakao produced.*

***Keywords** : fermentation, sugar, cocoa pulp kombucha, nata de cacao, cocoa pulp.*

ABSTRAK

PENGARUH PENAMBAHAN GULA TERHADAP KARAKTERISTIK NATA DE KAKAO *(Theobroma cacao* L.*)* SELAMA FERMENTASI

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Nata de kakao merupakan bioselulosa yang dihasilkan dari fermentasi limbah pulpa kakao. Proses pembuatannya memanfaatkan gula alami dalam pulpa kakao sebagai sumber karbon bagi pertumbuhan bakteri. Penelitian ini bertujuan untuk mengkaji pengaruh penambahan gula dan lama fermentasi terhadap karakteristik nata de kakao. Penelitian menggunakan Rancangan Acak Kelompok Lengkap (RAKL) dengan dua faktor, yaitu konsentrasi gula (10°brix, 12°brix, 14°brix,16°brix, dan 18°brix) serta lama fermentasi (0, 7, dan 14 hari). Hasil penelitian menunjukkan bahwa peningkatan konsentrasi gula berpengaruh terhadap total gula, pH, ketebalan, rendemen, dan kadar air, tetapi tidak berpengaruh nyata terhadap indeks keputihan dan indeks warna nilai L*, a*, b* dan uji hedonik rasa, aroma, warna , tekstur serta penerimaan keseluruhan.. Semakin lama fermentasi, ketebalan dan rendemen nata de kakao meningkat, sedangkan kadar air, indeks warna nilai L*, a*, b*, indeks keputihan, dan sensori hedonik nata de kakao serta total gula, dan pH media fermentasi menurun. Perlakuan terbaik berdasarkan uji sensoris dan metode De Garmo diperoleh pada kombinasi konsentrasi gula 18°brix dan lama fermentasi 7 hari. Secara keseluruhan, kombinasi penambahan gula dan lama fermentasi memberikan pengaruh signifikan terhadap karakteristik nata de kakao yang dihasilkan.

Kata kunci : fermentasi, gula, kombucha pulpa kakao, nata de kakao, pulpa kakao.