

## **PENGARUH SUBSTITUSI SUSU SKIM DENGAN UBI JALAR MERAH (*Ipomoea batatas*) TERHADAP KUALITAS ES KRIM PROBIOTIK**

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### **INTISARI**

Penelitian ini bertujuan untuk mengetahui pengaruh substitusi susu skim dengan ubi jalar merah terhadap kualitas es krim probiotik. Es krim probiotik dibuat dengan 3 macam perlakuan ubi jalar merah, yaitu 0%, 50% dan 100% dan disimpan selama 30 hari pada suhu  $-27^{\circ}\text{C}$ . Data dari uji pH, keasaman dianalisis dengan analisis pola faktorial (4x3) dan mikrobiologis (*total plate count*) dianalisis dengan analisis pola faktorial (2x3); data uji serat kasar, kadar lemak, kadar protein, kadar air dan uji kualitas fisik yang meliputi nilai *overrun* serta titik leleh dianalisis dengan CRD (*Completely Randomized Design*) atau rancangan acak lengkap-pola searah dan dilanjutkan dengan *Duncan's New Multiple Range Test* (DMRT), masing-masing dengan 3 kali ulangan sedangkan data uji kualitas organoleptik dianalisis dengan analisis non parametrik melalui uji *Hedonik Kruskal Wallis*. Hasil penelitian menunjukkan bahwa substitusi susu skim dengan ubi jalar merah berbeda tidak nyata terhadap nilai *overrun*, kadar lemak dan total bakteri dengan rerata berturut-turut 85,22%, 6,50%,  $2,2 \times 10^7$  cfu/ml. Substitusi susu skim dengan ubi jalar merah berbeda nyata ( $P \leq 0,05$ ) terhadap titik leleh, pH, keasaman, kadar protein, kadar air, dan serat kasar untuk masing-masing perlakuan 0%, 50%, 100% ubi jalar merah dengan rerata berturut-turut 71,33%, 83,33%, 95,00% untuk titik leleh; 5,97, 5,84, 5,78 untuk pH; 0,19%, 0,22%, 0,26% untuk keasaman; 4,27%, 2,69%, 2,52% untuk kadar protein; 57,61%, 58,92%, 60,23% untuk kadar air; dan 0,16%, 0,64%, 0,95% untuk serat kasar. Uji organoleptik menunjukkan es krim probiotik 0% dan 50% ubi jalar merah dapat diterima oleh konsumen, sedangkan es krim probiotik 100% ubi jalar merah tidak bisa diterima oleh konsumen dilihat dari segi aroma, kesukaan dan rasa. Berdasarkan hasil penelitian dapat disimpulkan bahwa substitusi susu skim dengan ubi jalar merah pada es krim probiotik meningkatkan titik leleh, keasaman, kadar air dan serat kasar serta menurunkan nilai pH dan kadar protein. Bakteri *Lactobacillus acidophilus* masih dapat bertahan hidup pada es krim ubi jalar merah setelah penyimpanan satu bulan dengan rerata  $2,2 \times 10^7$  cfu/ml sehingga memenuhi syarat sebagai produk pangan probiotik. Ubi jalar merah dapat dijadikan sebagai bahan pangan untuk substitusi terhadap susu skim dengan menghasilkan produk es krim probiotik ubi jalar merah yang dapat diterima untuk dikonsumsi dengan persentase ubi jalar merah sebesar 50% ditinjau dari kualitas fisik, kimia, mikrobiologis dan organoleptik.

(Kata kunci : Es krim, Ubi jalar merah, *Lactobacillus acidophilus*)

## THE EFFECT OF SKIM MILK SUBSTITUTION WITH SWEET POTATO (*Ipomoea batatas*) TOWARD THE QUALITY OF PROBIOTIC ICE CREAM

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### ABSTRACT

The aim of this research was study the effect of skim milk substitution with sweet potato on the quality of probiotic ice cream. Probiotic ice cream was made with 3 kinds of sweet potato treatments, 0%, 50%, and 100% and stored for 30 days in  $-27^{\circ}\text{C}$ . Data from pH testing and acidity were analyzed using factorial design analysis (4x3) and microbiology (total plate count) was analyzed using factorial design analysis (2x3); the data of crude fiber test, lipid content, protein content, water content and physical quality test comprising of overrun value and melting point were analyzed using one way CRD (Completely Randomized Design) and continued with Duncan's New Multiple Range Test (DMRT), each with 3 times replications. Meanwhile, the data on organoleptic quality test was analyzed using non parametric analysis with Hedonik Kruskal Wallis test. The result showed that the skim milk substitution with sweet potato was insignificantly different toward the overrun value, lipid content and total bacterial with the following averages 81.11%, 6.50%,  $2.2 \times 10^7$  cfu/ml. The substitution of skim milk with sweet potato was significantly different ( $P \leq 0.05$ ) toward melting point, pH, acidity, protein content, water content, and crude fiber for each treatment of 0%, 50% and 100% of sweet potato with the following averages 71.33%, 83.33%, 95.00% for melting point of 5.97, 5.84, 5.78 for pH 0.19%, 0.22%, 0.26% for acidity of 4.27%, 2.69%, 2.52% for protein content of 57.61%, 58.92%, 60.23% for water content and 0.16%, 0.64%, 0.95% for crude fiber. The organoleptic test showed that probiotic ice cream of 0% and 50% of sweet potato could be accepted by customers, while probiotic ice cream of 100% of sweet potato could not be accepted by customers seen from taste, preference and aroma. Based on the result of the research, it can be concluded that the skim milk substitution with sweet potato in probiotic ice cream increased the melting point, acidity, water content, crude fiber and it decreased the pH content, protein content. *Lactobacillus acidophilus* bacterial could still stand on sweet potato ice cream after the storing period of one month with average of  $2.2 \times 10^7$  cfu/ml so that it met the requirement as probiotic food product. Sweet potato can be used as substitution for skim milk by produce sweet potato probiotic ice cream that can be accepted and consumed with 50% of sweet potato that observed from physical, chemical, microbiological and organoleptic quality.

(Key words : Ice cream, Sweet potato, *Lactobacillus acidophilus*)