

PENGARUH SUBSTITUSI WHEY TERHADAP KADAR KEASAMAN DAN KUALITAS SENSORIS SUSU BIFIDUS

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INTISARI

Penelitian ini bertujuan untuk mengetahui pengaruh substitusi whey terhadap kadar keasaman dan kualitas sensoris susu bifidus. Kultur bakteri diperoleh melalui peremajaan kultur induk yang mengandung bakteri *Bifidobacterium longum*. Cairan whey berasal dari hasil samping proses pembuatan keju. Susu bifidus kontrol (W0) dibuat dengan menginokulasikan 5% (V/V) kultur bakteri ke dalam susu sapi yang telah dipasteurisasi sedangkan susu bifidus dengan substitusi whey (W1) dilakukan dengan metode yang sama tetapi ditambah dengan cairan whey steril 5% (V/V). Susu bifidus dengan maupun tanpa substitusi whey diinkubasi selama 24 jam pada suhu 39°C. Pengujian terhadap kadar keasaman (nilai pH dan angka keasaman) dilakukan pada 0, 2, 4, 6, 8, dan 24 jam inkubasi. Pengujian terhadap kualitas sensoris (cita rasa, viskositas, dan odor) baik secara subyektif (panelis) ataupun obyektif (GC, viskometer) dilakukan pada akhir inkubasi. Data kadar keasaman dianalisis dengan rancangan split-plot, kualitas sensoris secara obyektif menggunakan rancangan acak lengkap pola searah, dan kualitas sensoris secara subyektif dianalisis dengan uji K-Independen Kruskal Wallis dilanjutkan dengan uji *Quantitative Descriptive Analysis* (QDA) metode jaring laba-laba. Hasil penelitian menunjukkan bahwa substitusi whey ke dalam susu bifidus memberikan perbedaan yang nyata ($P < 0,05$) terhadap kadar keasaman dan kualitas sensoris khususnya odor aseton (6,80 ppm vs 19,00 ppm). Lama waktu inkubasi memberikan pengaruh yang signifikan terhadap kadar keasaman susu bifidus ($P < 0,05$). Substitusi whey ke dalam susu bifidus memberikan perbedaan tetapi tidak nyata ($P > 0,05$) pada cita rasa, viskositas, dan odor asetaldehid (0,19 ppm vs 0,18 ppm) serta asam asetat (1,68 ppm vs 0,72 ppm). Kesimpulan dari penelitian menunjukkan bahwa cairan whey mampu meningkatkan kadar keasaman dan kualitas sensoris susu bifidus, daripada sekedar menjadi limbah.

(Kata kunci : Susu bifidus, Whey, Kadar keasaman, Kualitas sensoris)

INFLUENCE OF SUBSTITUTION OF WHEY ON ACIDITY AND SENSORY QUALITY OF BIFIDUS MILK

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ABSTRACT

The research was conducted to investigate the influence of substitution whey on acidity and sensory quality of bifidus milk. Culture was obtained from mother culture containing *Bifidobacterium longum* recultured three times. In the other hand, whey liquid used in the research were obtained from cheese making process. Control bifidus milk (W0) has been produced by using pasteurized cow milk inoculated by 5% ($\frac{1}{v}$) culture. Treatment bifidus milks (W1) were made in the same method but substitute with whey liquid as much as 5% ($\frac{1}{v}$). Bifidus milk with or without substitution of whey liquid were incubated at 39°C for 24 hours. Laboratory analysis for acidity (pH and acidity value) was done at 0, 2, 4, 6, 8, and 24 hours incubation time. Analysis for sensory quality consists of taste, texture or viscosity, and odor, both subjectively (panelist) and objectively (GC, viscometer) were evaluated only in the end of incubation time. Data from chemical quality was analyzed using split-plot design, objective sensory quality analyzed by completely randomized design one way classification, and subjective sensory quality analyzed by Kruskal Wallis K-Independent test continued by Quantitative Descriptive Analysis spider-web models. The result indicated that substitution of cheese by product in the manufacture of bifidus milk gave significant effect ($P < 0.05$) on acidity and sensory quality especially acetone odor (6.80 ppm vs 19.00 ppm). Incubation time also gave significant effect ($P < 0.05$) to the acidity of bifidus milk. Substitution of cheese by product to the bifidus milk gave difference but not significant ($P > 0.05$) for taste, texture or viscosity, acetaldehyde (0.19 ppm vs 0.18 ppm) and acetate acid odor (1.68 ppm vs 0.72 ppm). The conclusion of the research show that whey can be used to improve acidity and sensory quality of bifidus milk, rather than to be discarded.

(Key words : Bifidus milk, Whey, Acidity, Sensory quality)