PENGEMBANGAN SABUN SUSU KAMBING pH SEIMBANG DENGAN PENAMBAHAN BAHAN PENURUH pH: STUDI KUALITAS FISIKO-KIMIA DAN PREFERENSI KONSUMEN

INTISARI

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Penelitian ini bertujuan untuk mengetahui pengaruh penambahan bahan penurun pH pada sabun susu kambing berdasarkan kualitas fisiko-kimia serta preferensi konsumen pada pengembangan produk baru sabun susu kambing pH seimbang. Kualitas fisik sabun yang diuji, yaitu kekerasan dan stabilitas busa, sedangkan kualitas kimia sabun yang diuji, yaitu pH, bilangan peroksida, bilangan penyabunan, dan asam lemak bebas. Penelitian terkait kualitas fisiko-kimia sabun susu kambing dilakukan dengan pola faktorial 5x3, sedangkan terkait daya terima dan preferensi konsumen dilakukan *purposive sampling* dalam penentuan partisipan. Hasil penelitian menunjukkan bahwa bahan baku telah dalam keadaan baik. Penambahan bahan penurun pH (madu, *whey*, asam sitrat, kopi) dan lama penyimpanan (0, 30, 60 hari) berpengaruh nyata terhadap kualitas fisik, kimia, dan daya terima sabun susu kambing. Kekerasan sabun meningkat selama penyimpanan dengan nilai tertinggi pada asam sitrat, sedangkan stabilitas busa terbaik diperoleh pada *whey*. Nilai pH menurun seiring lama penyimpanan dan masih sesuai SNI dengan nilai terbaik pada penambahan madu. Bilangan peroksida menurun selama penyimpanan dengan nilai terbaik pada penambahan madu, sedangkan bilangan penyabunan tertinggi terdapat pada asam sitrat. Asam lemak bebas meningkat namun tetap di bawah SNI dengan nilai terbaik dengan penambahan asam sitrat. Uji daya terima menunjukkan sabun dengan penambahan *whey* paling disukai partisipan, sementara kopi paling rendah. Secara keseluruhan, *whey* memberikan kombinasi terbaik antara mutu fisiko-kimia dan preferensi konsumen. Kesimpulan dari penelitian ini adalah penambahan bahan penurun pH yang terbaik terhadap kualitas fisiko-kimia sabun susu kambing adalah dengan asam sitrat. Lama penyimpanan sabun susu kambing yang terbaik adalah pada hari ke-60. Terdapat interaksi signifikan antara jenis bahan penurun pH dan lama penyimpanan terhadap kualitas fisiko-kimia sabun susu kambing. Uji daya terima menunjukkan bahwa sabun dengan penambahan *whey* paling disukai dan diterima oleh partisipan.

Kata kunci: Bahan Penurun pH, Fisikokimia Sabun, Pengembangan Produk Baru, Preferensi Konsumen, Sabun Susu Kambing

DEVELOPMENT OF pH-BALANCED GOATS MILK SOAP WITH THE ADDITION OF pH-LOWERING MATERIALS: A STUDY OF PHYSICAL-CHEMICAL QUALITY AND CONSUMER PREFERENCES

ABSTRACT

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This study aims to determine the effect of adding pH-lowering agents to goat milk soap based on its physicochemical qualities and consumer preferences in the development of a new pH-balanced goat milk soap product. The physical qualities tested included hardness and foam stability, while the chemical qualities evaluated were pH, peroxide value, saponification value, and free fatty acids. The physicochemical assessment was conducted using a 5x3 factorial design, whereas consumer acceptance and preferences were determined through purposive sampling. The results showed that the raw materials were in good condition. The addition of pH-lowering agents (honey, whey, citric acid, and coffee) and different storage durations (0, 30, and 60 days) significantly affected the physical, chemical, and sensory acceptance of goat's milk soap. Soap hardness increased during storage, with the highest value observed in the citric acid treatment, while the best foam stability was achieved with whey. The pH value decreased over time and remained within the Indonesian National Standard (SNI) limits, with honey providing the optimal results. The peroxide value decreased during storage, with honey showing the best performance, while the highest saponification value was found in the citric acid treatment. Although free fatty acids increased, they remained below the SNI threshold, with citric acid yielding the best results. Sensory acceptance tests indicated that soap with the addition of whey was the most preferred by participants, while coffee received the lowest rating. Overall, whey provided the best combination of physicochemical quality and consumer preference. This study concludes that citric acid is the most effective pH-lowering agent for the physicochemical quality of goat milk soap, and the optimal storage duration is 60 days. A significant interaction was found between the type of pH-lowering agent and storage duration regarding the soap's physicochemical qualities. Finally, acceptance tests confirmed that the whey-added soap was the most preferred and accepted by participants.

Keywords: Consumer Preferences, Goat Milk Soap, New Product Development, pH Lowering Agents, Physicochemical of Soap