

EVALUASI KUALITAS FISIKO-KIMIA DAN VIABILITAS *Lacticaseibacillus casei* AP DAN *Lacticaseibacillus casei* AG DALAM SUSU KAMBING BUBUK PROBIOTIK

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INTISARI

Penelitian ini bertujuan untuk mengetahui kualitas fisiko-kimia dan viabilitas *Lacticaseibacillus casei* AP dan AG dalam susu kambing bubuk probiotik. Penelitian dilakukan dengan membandingkan kualitas fisiko-kimia dan viabilitas dua kultur berbeda yaitu *Lacticaseibacillus casei* AP dan AG dalam susu kambing bubuk probiotik. Susu kambing probiotik dibuat dengan inokulasi *Lacticaseibacillus casei* AP dan AG sebagai kultur *starter* dan difermentasi pada suhu 42°C selama 10-12 jam kemudian dipanen, dilanjutkan *spray drying* dengan suhu *inlet* 160°C dan *outlet* 67°C. Data pengujian kualitas fisik *wettability*, *insolubility index*, dan *sieve test* dianalisis menggunakan metode *One-way ANOVA* dan hasil analisis yang menunjukkan adanya perbedaan signifikan ($P < 0,05$) dianalisis lebih lanjut dengan uji *Duncan's New Multiple Range Test* (DMRT). Data pengujian kualitas kimia meliputi uji total *solid*, kadar air, keasaman, pH, dan data viabilitas probiotik dianalisis dengan metode *paired T-test*. Data pengujian kualitas kimia meliputi uji laktosa, protein, aktivitas air, dan lemak dianalisis menggunakan *independent sample T-test*. Hasil analisis menunjukkan bahwa penggunaan kultur bakteri yang berbeda, *Lacticaseibacillus casei* AP dan AG pada susu kambing bubuk probiotik memberikan pengaruh yang signifikan ($P < 0,05$) terhadap kadar air, total *solid*, pH, keasaman, kadar laktosa, kadar protein, kadar lemak, *wettability*, *insolubility index*, *sieve test*, dan viabilitas probiotik, namun tidak memberikan pengaruh nyata ($P > 0,05$) terhadap aktivitas air. Hasil penelitian menunjukkan bahwa susu kambing bubuk probiotik dengan kultur starter *Lacticaseibacillus casei* AP memiliki kualitas kimia dan viabilitas probiotik lebih baik dibandingkan dengan menggunakan kultur *Lacticaseibacillus casei* AG. Susu kambing bubuk probiotik dengan *Lacticaseibacillus casei* AG memiliki kualitas fisik lebih baik dibandingkan dengan *Lacticaseibacillus casei* AP.

Kata kunci : Susu probiotik, Susu bubuk, *Lacticaseibacillus casei* AP, *Lacticaseibacillus casei* AG, Kualitas fisiko-kimia, Viabilitas probiotik.

THE EVALUATION OF PHYSICO-CHEMICAL QUALITIES AND VIABILITY OF *Lactocaseibacillus casei* AP AND *Lactocaseibacillus casei* AG IN PROBIOTIC GOAT MILK POWDER

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ABSTRACT

This study aims to evaluate the physico-chemical qualities and viability of *Lactocaseibacillus casei* AP and AG in probiotic goat milk powder. The experiment was carried out by comparing the physico-chemical quality and viability of two different cultures, *Lactocaseibacillus casei* AP and AG in probiotic goat milk powder. Probiotic goat milk powder was produced by inoculating *Lactocaseibacillus casei* AP and as starter cultures, followed by a fermentation at 42°C for 10-12 hours. The product was then spray dried with inlet temperature 160°C and outlet 67°C. The physical quality data of probiotic goat milk powder (wettability, insolubility index, and sieve test) were analyzed using One-way ANOVA and significant differences ($P < 0.05$) were further examined using Duncan's New Multiple Range Test (DMRT). The chemical quality data of probiotic goat milk powder including total solids, moisture content, acidity, pH, and microbiological quality were analyzed using paired T-test. Data of lactose content, protein content, water activity, and fat content in probiotic goat milk powder were analyzed using independent sample T-test. The use of different bacterial cultures, *Lactocaseibacillus casei* AP and *Lactocaseibacillus casei* AG in probiotic goat milk powder had a significant effect ($P < 0.05$) on moisture content, total solids, pH, acidity, lactose levels, protein levels, fat levels, wettability, insolubility index, sieve test, and probiotics viability. However, the use of different bacterial cultures had no significant effect ($P < 0.05$) on water activity. This Study indicated that probiotic goat milk powder with *Lactocaseibacillus casei* AP has better chemical quality and probiotics viability than *Lactocaseibacillus casei* AG. However, probiotic goat milk powder with *Lactocaseibacillus casei* AG has better physical quality than *Lactocaseibacillus casei* AP.

Keywords : Probiotic milk, Powder milk, *Lactocaseibacillus casei* AP, *Lactocaseibacillus casei* AG, Physicochemical quality, Probiotics viability.