

## **KUALITAS FISIKO-KIMIA DAN MIKROBIOLOGIS SUSU FERMENTASI KAMBING PERANAKAN ETTAWA DENGAN PENGGUNAAN PROBIOTIK STRAIN ASAL MANUSIA**

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### **INTISARI**

Penelitian ini bertujuan mengetahui kualitas fisiko-kimia dan mikrobiologis susu fermentasi asal kambing Peranakan Ettawa (PE) menggunakan probiotik strain asal manusia. Penelitian dilakukan dengan memfermentasi susu kambing PE yang ditambahkan 0,93% susu skim dengan menggunakan kultur starter *L. casei* strain AP, *L. casei* strain AG, dan *P. acidilactici* strain BE, dilakukan tiga kali ulangan. Uji yang dilakukan antara lain uji nilai pH, keasaman, kadar air, protein, lemak, laktosa, *free fatty acid* (FFA), viskositas, dan total bakteri asam laktat (BAL). Data hasil keasaman, kadar air, protein, lemak, laktosa, *free fatty acid* (FFA), dan viskositas dianalisis dengan analisis variansi rancangan acak lengkap pola searah, data nilai PH dan total BAL dianalisis dengan analisis variansi pola faktorial 4x3 dan 2x3, dan jika terdapat perbedaan variabel karena perlakuan diuji dengan Duncan's Multiple Range Test (DMRT). Rerata hasil uji kualitas susu fermentasi didapatkan nilai pH  $4,19 \pm 0,10$ ; keasaman setara asam laktat  $1,46 \pm 0,26\%$ ; kadar air  $82,26 \pm 4,14\%$ ; kadar protein  $4,49 \pm 0,12\%$ ; kadar lemak  $4,37 \pm 0,71\%$ ; FFA  $5,31 \pm 1,3\%$ ; viskositas  $2271,89 \pm 49,68$  cP; laktosa  $3,62 \pm 3,7\%$ ; total BAL sebelum fermentasi  $6,61 \pm 0,48$  log cfu/ml; dan total BAL setelah fermentasi  $8,63 \pm 0,54$  log cfu/ml. Produk susu fermentasi yang dibuat menggunakan *L. casei* strain AP, *L. casei* strain AG, dan *P. acidilactici* strain BE memiliki kualitas fisiko-kimia dan mikrobiologis yang sesuai dengan Standar Nasional Indonesia (SNI). Berdasarkan hasil uji viskositas, strain AG menghasilkan susu fermentasi dengan nilai viskositas tertinggi.

(Kata kunci: Susu fermentasi, Probiotik, Kualitas fisiko-kimia dan mikrobiologis)

## PHYSICO-CHEMICAL AND MICROBIOLOGICAL QUALITY OF ETTAWA CROSSBREED GOAT MILK FERMENTED WITH HUMAN ORIGIN PROBIOTICS

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### ABSTRACT

This research aims to find out the quality of physico-chemical and microbiological from ettawa crossbreed goat milk fermented with human origin probiotics. Ettawa crossbreed goat's milk with 0,93% skim was fermented by adding starter culture *L. casei* strain AP, *L. casei* strain AG, and *P. acidilactici* strain BE in three replications. Acidity, pH value, water content, protein, fat, lactose, free fatty acid (FFA), viscosity, and total lactic acid bacteria (LAB) were examined in this study. Data of acidity, water content, protein, fat, lactose, free fatty acid (FFA), and viscosity were analyzed by analysis of variance completely randomized design, the data value of pH and total BAL were analyzed by analysis of variance 4x3 and 2x3 factorial design, and Duncan's Multiple Range Test (DMRT) will be used if there were any differences occurred. The average test of fermented milk quality obtained pH value  $4.19 \pm 0.10$ ; acidity  $1.46 \pm 0.26\%$ ; water content  $82.26 \pm 4.14\%$ ; protein content  $4.49 \pm 0.12\%$ ; fat content  $4.37 \pm 0.71\%$ ; FFA  $5.31 \pm 1.3\%$ ; viscosity  $2271.89 \pm 49.68$  cP; lactose content  $3.62 \pm 3.7\%$ ; total BAL before fermented  $6.61 \pm 0.48$  log cfu/ml; and total BAL after fermented  $8.63 \pm 0.54$  log cfu/ml. Fermented milk with *L. casei* strain AP, *L. casei* strain AG, and *P. acidilactici* strain BE had physico-chemical and microbiological quality which appropriate with Indonesian National Standard. Viscosity test showed milk fermented with *L. casei* strain AG had the highest value.

(Key words: Fermented milk, Probiotics, Physico-chemical and microbiological quality)