

## PERBANDINGAN KUALITAS FISIKO-KIMIA DAN MIKROBIOLOGIS SUSU KAMBING FERMENTASI DENGAN KULTUR *Lactobacillus casei* AP DAN *Lactobacillus paracasei* M104

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### INTISARI

Penelitian ini bertujuan untuk mengetahui perbandingan kualitas fisiko-kimia dan mikrobiologis susu kambing fermentasi dengan menggunakan kultur starter *Lactobacillus casei* AP dan/atau *Lactobacillus paracasei* M104. Susu kambing fermentasi dibuat dengan susu kambing segar Peranakan Etawah (PE) yang ditambahkan skim sebanyak 2%(w/v), kemudian susu dipasteurisasi pada suhu 80°C selama 30 menit, dilanjutkan dengan penurunan suhu hingga 40°C. Kultur starter *L. casei* AP atau *L. paracasei* M104 diinokulasikan sebesar 2,5%, 5%, dan 10% (v/v) ke dalam 250 mL susu pasteurisasi dan diinkubasi pada suhu 37°C selama 10 jam. Kualitas fisiko-kimia (viskositas, nilai pH, nilai keasaman, *total solid*, kadar protein, kadar lemak, dan kadar laktosa) dan kualitas mikrobiologis (total bakteri asam laktat) kemudian diuji. Data hasil uji dilakukan pengujian dengan menggunakan *Two Way ANOVA 2x3* (kultur starter x persentase inokulum) dan dilanjutkan dengan *Duncan's New Multiple Range Test* (DMRT). Hasil penelitian menunjukkan bahwa penggunaan kultur starter *L. paracasei* M104 2,5% (v/v) berpengaruh signifikan ( $P < 0,05$ ) terhadap nilai pH sebesar  $4,49 \pm 0,07$  dan viskositas sebesar  $308,76 \pm 2,41$  cP. Persentase inokulum 5% (v/v) berpengaruh nyata terhadap kadar lemak. Penggunaan kultur starter *L. paracasei* M104 2,5% (v/v) berpengaruh signifikan ( $P < 0,05$ ) terhadap total bakteri asam laktat dengan total BAL  $11,25 \pm 0,10$  log CFU/mL. Terdapat interaksi ( $P < 0,05$ ) antara perbedaan jenis kultur dengan persentase inokulum dalam menentukan viskositas dan total bakteri asam laktat. Kesimpulannya, susu kambing fermentasi menggunakan kultur starter *L. paracasei* M104 2,5% (v/v) dapat meningkatkan kualitas fisiko-kimia dan mikrobiologis.

Kata kunci: Susu kambing fermentasi, *Lactobacillus casei* AP, *Lactobacillus paracasei* M104, Sifat fisiko-kimia, Sifat mikrobiologis.

**THE COMPARISON ON PHYSICO-CHEMICAL AND MICROBILOCAL  
QUALITIES OF FERMENTED GOAT MILK WITH *Lactobacillus*  
*casei* AP AND *Lactobacillus paracasei* M104  
STARTER CULTURES**

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**ABSTRACT**

The aim of this study was to determine the comparison of goat milk fermented using *Lactobacillus casei* AP and/or *Lactobacillus paracasei* M104 starter cultures on the quality of fermented goat milk, including physico-chemical and microbiological properties. Fermented goat milk was made by fresh goat milk that was added 2%(w/v) of skim milk, then the milk pasteurized at 80°C for 30 minutes, followed by a decrease in temperature to 40°C. The starter cultures of *L. casei* AP or *L. paracasei* M104 were inoculated at 2.5%, 5%, and 10% (v/v) into 250 mL of pasteurized goat milk and incubated at 37°C for 10 hours. The physico-chemical quality (viscosity, pH value, acidity value, total solid, protein content, fat content, and lactose content) and microbiological quality (total lactic acid bacteria) were then tested. The test data was tested using Two Way ANOVA 2x3 (starter culture x inoculum percentage) and continued with Duncan's New Multiple Range Test (DMRT). The results showed that the use of starter cultures of *L. paracasei* M104 2.5% (v/v) showed a significant difference ( $P<0.05$ ) to the pH value of  $4.49\pm 0.07$  and the viscosity of  $308.76\pm 2.41$  cP. The inoculum percentage of 5% (v/v) had a significant effect on fat content. The use of 2.5% (v/v) *L. paracasei* M104 starter culture showed a significant difference ( $P<0.05$ ) to the total lactic acid bacteria of  $11.25\pm 0.10$  log CFU/mL. There was an interaction ( $P<0.05$ ) between different types of culture and the percentage of inoculum in determining the viscosity and total lactic acid bacteria. In conclusion, fermented goat milk using 2.5% (v/v) starter culture of *L. paracasei* M104 can improve the physico-chemical and microbiological quality.

Keywords: Fermented goat milk, *Lactobacillus casei* AP, *Lactobacillus paracasei* M104, Physico-chemical properties, Microbiological properties.