

**KUALITAS FISIKO-KIMIA DAN MIKROBIOLOGIS YOGURT
ASAL SUSU KAMBING PERANAKAN ETTAWA DENGAN
PENAMBAHAN PROBIOTIK *Lactobacillus casei*
DAN *Pediococcus acidilactici***

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INTISARI

Penelitian ini bertujuan untuk mengetahui kualitas fisiko-kimia dan mikrobiologis yogurt yang diproduksi menggunakan *S. thermophilus* (ST) dan *L. bulgaricus* (LB) yang dikombinasikan dengan strain probiotik asal sistem pencernaan manusia yaitu *L. casei* strain AP, AG dan *P. acidilactici* strain BE. Penelitian dilakukan dengan penambahan ST 2,5% (v/v) dan LB 2,5% (v/v) kedalam masing-masing susu fermentasi dengan strain AP 10% (v/v), susu fermentasi dengan strain AG 10% (v/v) dan susu fermentasi dengan strain BE 10% (v/v). Uji yang dilakukan antara lain uji nilai pH, uji viskositas, kadar keasaman, kadar air, kadar protein, kadar laktosa, kadar lemak, FFA, total bakteri asam laktat dan viabilitas probiotik. Data dianalisis dengan analisis Rancangan Acak Lengkap (RAL) pola searah dan pola faktorial 4x3, 3x3 dan 2x3 untuk nilai pH, total BAL dan total probiotik. Hasil penelitian menunjukkan bahwa penambahan probiotik strain AP, AG, dan BE berpengaruh tidak nyata terhadap keasaman ($1,48 \pm 0,26\%$), kadar air ($80,75 \pm 0,41\%$), kadar protein ($4,39 \pm 0,09\%$), kadar lemak ($4,33 \pm 1,23\%$), kadar laktosa ($4,15 \pm 0,89\%$), FFA ($4,91 \pm 0,98\%$), nilai pH, dan viabilitas probiotik. Penambahan probiotik strain AP, AG, dan BE berpengaruh nyata ($P < 0,05$) terhadap viskositas ($2.020 \pm 37,97$ cP) dan total bakteri asam laktat. Hasil penelitian dapat disimpulkan bahwa penambahan bakteri probiotik *L. casei* strain AP, *L. casei* strain AG dan *P. acidilactici* BE meningkatkan viskositas, menurunkan pH yogurt. Didapatkan *L. casei* strain AG sebagai strain probiotik yang paling baik dibanding kedua strain dengan rerata total bakteri paling tinggi ($7,57 \pm 0,87$ log cfu/ml).

(Kata kunci : Yogurt, Probiotik strain asal manusia, Total BAL)

**PHYSICO-CHEMICAL AND MICROBIOLOGICAL QUALITY OF
YOGHURT PRODUCED FROM MILK OF ETTAWA CROSSBRED
GOAT WITH THE ADDITION OF *Lactobacillus casei*
AND *Pediococcus acidilactici***

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ABSTRACT

This experiments was conducted to determine physico-chemical and microbiological quality of yoghurt produced by *L. bulgaricus* (LB) and *S. thermophilus* (ST), and combined with probiotic strain from gastro intestinal track (GIT) of human: *L. casei* strain AP, *L. casei* strain AG and *P. acidilactici* strain BE. Experiment was carried out with ST 2.5% (v/v) and LB 2.5% (v/v) into every each fermented milk with 10% AP strain (v/v), fermented milk with 10% AG strain (v/v) and fermented milk with 10% BE strain (v/v). Evaluation performed include pH value, acidity, viscosity, protein content, lactose content, free fatty acid (FFA), total lactic acid bacteria, and probiotic's viability. Data were analyzed by analysis of variance Completely Randomized Design (CRD), the data value of pH, total of lactic acid bacteria, and viability of probiotic were analyzed by analysis of variance 4x3, 3x3, and 2x3 factorial pattern, and Duncan's Multiple Range Test (DMRT) will be used if there were any difference occurred. The result showed that the addition of strain probiotic had no effect on the acidity ($1.48\pm 0.26\%$), protein content ($4.39\pm 0.09\%$), lactose content ($4.15\pm 0.89\%$), fat content ($4.33\pm 1.23\%$), FFA ($4.91\pm 0.98\%$), pH value and probiotic's viability. The addition of strain had effects ($P < 0.05$) on viscosity ($2,020\pm 37.97$ cP), and total of lactic acid bacteria. It was concluded that the addition of *L. casei* strain AP, *L. casei* strain AG and *P. acidilactici* strain BE increased the viscosity, and decreased pH value of yogurt. The experiment showed *L. casei* strain AG as the best probiotic strain with the highest average of lactic acid bacteria total (7.57 ± 0.87 log cfu/ml).

(Key words: Yoghurt, Human origin's strain probiotic, Total lactic acid bacteria)