

PENGARUH PENAMBAHAN BAHAN PENSTABIL TERHADAP KUALITAS FISIKO-KIMIA PRODUK SUSU FERMENTASI *Lactobacillus casei* AP SELAMA PENYIMPANAN

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INTISARI

Penelitian ini bertujuan untuk mengetahui pengaruh perbedaan bahan penstabil pada produk susu fermentasi *L. casei* AP terhadap kualitas fisiko-kimia selama penyimpanan. Produk susu fermentasi dibuat dari susu sapi yang ditambahkan susu skim 2% (w/v) dan perbedaan penambahan bahan penstabil yaitu agar-agar, gelatin dan *carboxymethyl cellulose* (CMC) masing-masing sebanyak 0,3% (w/v) serta tanpa penambahan bahan penstabil sebagai kontrol. Kultur *L. casei* AP diinokulasi sebanyak 1% (v/v) dan diinkubasi pada suhu 37°C selama 14 jam. Pengujian produk susu fermentasi dilakukan selama penyimpanan 28 hari yaitu hari ke-0, 7, 14, 21 dan 28. Pengujian kualitas yang dilakukan yaitu meliputi uji kualitas fisik antara lain viskositas dan *syneresis* dan uji kualitas kimia antara lain pH, keasaman, protein, lemak, laktosa, dan *total solid*. Pembuatan produk dilakukan sebanyak tiga kali pengulangan, data dianalisis menggunakan rancangan acak pola faktorial kemudian dilanjutkan uji *Duncan Multiple Range Test* (DMRT) untuk hasil signifikan. Hasil analisis menunjukkan bahwa perlakuan bahan penstabil dan lama penyimpanan berpengaruh ($P < 0,05$) terhadap kualitas fisik susu fermentasi meliputi nilai viskositas dan *syneresis*. Hasil viskositas tertinggi dicapai pada penggunaan agar (1752,33cP) diikuti gelatin (1432,00cP) kemudian terendah yaitu kontrol (1243,33cP) dan CMC (1233,00cP). *Syneresis* terendah dicapai pada penggunaan agar (15,14%) diikuti gelatin (16,64%) kemudian tertinggi yaitu kontrol (19,89%) dan CMC (20,26%). Perbedaan bahan penstabil dan lama penyimpanan berpengaruh ($P < 0,05$) terhadap kualitas kimia susu fermentasi meliputi pH, keasaman dan laktosa dengan nilai rerata secara berurutan $4,35 \pm 0,09$; $1,01 \pm 0,10\%$ dan $5,06 \pm 0,31\%$, namun tidak berpengaruh ($P > 0,05$) terhadap kadar protein, lemak dan *total solid* secara berurutan $4,74 \pm 0,77\%$; $2,99 \pm 0,19\%$ dan $16,29 \pm 0,80\%$. Kesimpulannya, penambahan bahan penstabil pada produk susu fermentasi *L. casei* AP mampu meningkatkan kualitas fisik dan mempertahankan kualitas kimia susu fermentasi.

(Kata Kunci : Susu fermentasi, *Lactobacillus casei*, Bahan penstabil, Fisiko-kimia, Penyimpanan)

THE EFFECT OF ADDITIONAL STABILIZER ON THE PHYSICAL-CHEMICAL QUALITY OF FERMENTED MILK PRODUCTS *Lactobacillus casei* AP DURING STORAGE

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ABSTRACT

This study aims to determine the effect of stabilizers in milk fermented using *L. casei* AP on physico-chemical quality during storage. Fermented milk was made from cow's milk with added 2% (w/v) skim milk and difference in the addition of stabilizers, agar-agar, gelatin and carboxymethyl cellulose (CMC) respectively as much as 0,3% (w/v) and without the addition of stabilizer as a control. The culture of *L. casei* AP was inoculated as much as 1% (v/v) and incubated at 37°C for 14 hours. Testing of fermented milk products was carried out for 28 days of storage, namely the 0th, 7th, 14th, 21st and 28th days. Quality testing included physical quality tests for viscosity and syneresis and chemical quality tests for pH, acidity, protein, fat, lactose and total solid. The product was made in three replication and the data were analyzed using a factorial randomized design, then continued with the Duncan Multiple Range Test (DMRT) for significant results. The data showed that the treatment of stabilizer and storage time had significant effect ($P < 0,05$) on the physical quality of fermented milk including the value of viscosity and syneresis. The highest viscosity were achieved using agar (1752,33cP) followed by gelatin (1432,00cP) then the lowest was control (1243,33cP) and CMC (1233,00cP). The lowest syneresis was achieved using agar (15,14%) followed by gelatin (16,64%), then the highest was control (19,89%) and CMC (20,26%). The difference between stabilizer and storage time had significant effect ($P < 0.05$) on the chemical quality of fermented milk including pH, acidity and lactose with a mean value of $4,35 \pm 0,09$; $1,01 \pm 0,10\%$ and $5,06 \pm 0,31\%$, but had no effect ($P > 0,05$) on protein, fat and total solid content, $4,74 \pm 0,77\%$; $2,99 \pm 0,19\%$ and $16,29 \pm 0,80\%$, respectively. It is concluded that the addition of stabilizers to fermented milk products of *L. casei* AP improve physical quality and maintain the chemical quality of fermented milk.

(Keywords : Fermented milk, *Lactobacillus casei*, Stabilizer, Physics-Chemical, Storage)