

Perubahan Komposisi Kimiawi Produk Yogurt dengan Penambahan Kalsium Karbonat pada Kultur Starter Campuran

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ABSTRACT

Mixed lactic acid bacteria culture is commonly used in yogurt production. In the present study, two lactic acid bacteria (*Lactobacillus bulgaricus* and *Streptococcus thermophilus*) was used as starter culture. Calcium carbonate was added to the starter culture to increase the quality of mixed starter culture of *L. bulgaricus* and *S. thermophilus* with ratio of 4:1. The present study was directed to investigate the chemical composition of mixed starter culture with and without calcium carbonate addition. Furthermore, the effect of each starter culture on yogurt product chemical composition was also examined. The pH, lactose, soluble protein and acid content was determined as chemical composition parameters. For starter culture without calcium carbonate addition, the yogurt has pH, lactose, soluble protein and acid content of 4.18–4.39, 4.18–4.39% w/v, 2.88–4.36% w/v and 0.82–0.99% w/v, respectively. While for starter culture with calcium carbonate addition, the yogurt product has pH, lactose, soluble protein and acid content of 4.26–4.37, 1.47–1.75% b/v, 3.42–4.95% w/v and 0.86–1.11% w/v, respectively. Addition of 0.05% w/v calcium carbonate to mixed starter culture gave effect on lactose consumption, where it still can convert lactose to lactic acid up to 45 days of storage. Furthermore, the yogurt product made with starter culture with calcium carbonate addition has higher soluble protein content compared to yogurt made with starter culture without calcium carbonate addition.

Keywords: calcium carbonate, *Lactobacillus bulgaricus*, mixed starter culture, *Streptococcus thermophilus*

ABSTRAK

Penggunaan kultur campuran bakteri asam laktat pada proses pembuatan yogurt telah umum digunakan. Pada penelitian ini digunakan dua bakteri, yaitu *Lactobacillus bulgaricus* dan *Streptococcus thermophilus* sebagai bakteri kultur starter. Kalsium karbonat ditambahkan ke dalam kultur starter untuk meningkatkan kualitas kultur starter campuran bakteri *L. bulgaricus* dan *S. thermophilus* dengan perbandingan 4:1. Tujuan dari penelitian ini adalah untuk mengetahui komposisi kimiawi dari kultur starter campuran dengan dan tanpa penambahan kalsium karbonat serta mempelajari pengaruh penambahan kalsium karbonat terhadap komponen kimiawi produk yogurt yang dihasilkan. Parameter yang ditentukan meliputi nilai pH, kadar laktosa, kadar protein terlarut dan kadar asam. Hasil penelitian ini menunjukkan bahwa produk yogurt yang dihasilkan dengan menggunakan kultur starter tanpa penambahan kalsium karbonat memiliki pH 4,18–4,39; kadar laktosa 4,18–4,39% b/v; kadar asam 0,82–0,99% b/v dan kadar protein terlarut 2,88–4,36% b/v. Sedangkan produk yogurt yang dibuat menggunakan kultur starter dengan penambahan kalsium karbonat memiliki pH 4,26–4,37; kadar laktosa 1,47–1,75% b/v; kadar asam 0,86–1,11% b/v dan kadar protein terlarut 3,42–4,95% b/v. Penambahan kalsium