

Abstrak

Bakteri asam laktat lokal *Lactiplantibacillus plantarum* subsp. *plantarum* T-3 belum diteliti potensinya untuk menghasilkan Gamma Amino Butyric Acid (GABA). Penelitian ini menyajikan pemanfaatan *Lactiplantibacillus plantarum* subsp. *plantarum* T-3 untuk menghasilkan GABA sebagai starter kultur pada tiga jenis susu kambing fermentasi yang berbeda, yaitu tanpa tambahan gula, dengan penambahan sukrosa, dan dengan penambahan glukosa. Hasil menunjukkan bahwa konsentrasi GABA terus meningkat selama periode fermentasi 24 jam. Pada akhir fermentasi, susu kambing fermentasi dengan penambahan glukosa menunjukkan konsentrasi tertinggi sebesar 164,95 ppm, sedangkan varian susu kambing fermentasi tanpa penambahan gula memiliki konsentrasi terendah sebesar 132,68 ppm.

Konsentrasi GABA pada perlakuan susu kambing PE fermentasi dengan penambahan glukosa mengalami peningkatan dari 164,95 mg/L menjadi 242,41 mg/L pada penyimpanan minggu pertama. Sedangkan diakhir penyimpanan selama lima minggu pada suhu 4°C mengalami penurunan pada semua perlakuan, baik susu kambing PE fermentasi tanpa penambahan gula, dengan penambahan sukrosa, maupun dengan penambahan glukosa yaitu berturut-turut menjadi 105,34 mg/L, 77,39 mg/L, dan 71,32 mg/L. Berdasarkan uji organoleptik, minuman fermentasi susu kambing dengan tambahan sukrosa paling disukai panelis dari segi warna, aroma, kekentalan, rasa asam, dan rasa manis. Penyimpanan produk selama 5 minggu pada suhu 4°C pada semua perlakuan menunjukkan adanya penurunan GABA sedangkan jumlah sel total bakteri asam laktat masih stabil pada kisaran 10⁹ CFU/ml.

Kata kunci : GABA, *Lactiplantibacillus plantarum* subsp. *plantarum* T-3, susu kambing fermentasi.

ABSTRACT

Indigenous lactic acid bacteria, *Lactiplantibacillus plantarum* subsp. *plantarum* T-3 has not been studied for its potential to produce Gamma Amino Butyric Acid (GABA). This research presents the use of *Lactiplantibacillus plantarum* subsp. *plantarum* T-3 to produce GABA as a starter culture in three different types of fermented goat's milk, namely without added sugar, with added sucrose, and with added glucose. The results showed that the GABA concentration continued to increase during the 24-hour fermentation period. At the end of fermentation, fermented goat's milk with added glucose showed the highest concentration of 164.95 ppm, while the fermented goat's milk variant without added sugar had the lowest concentration of 132.68 ppm.

GABA concentration in fermented milk treatment with the addition of glucose increased from 164.95 mg/L to 242.41 mg/L in the first week of storage. Meanwhile, at the end of five weeks of storage at a temperature of 4°C, there was a decrease in all treatments, both fermented milk without added sugar, with the addition of sucrose, and with the addition of glucose, namely respectively to 105.34 mg/L, 77.39 mg/L, and 71.32 mg/L. Based on organoleptic tests, the panelists liked the fermented goat's milk drink with added sucrose in terms of color, aroma, viscosity, sour taste and sweet taste. Storage of the product for 5 weeks at 4°C in all treatments showed a decrease in GABA while the total cell number of lactic acid bacteria was still stable at around 10⁹ CFU/ml.

Key words: GABA, *Lactiplantibacillus plantarum* subsp. *plantarum* T-3, fermented goat's milk.