

ABSTRAK

Penelitian ini bertujuan untuk mengetahui pola produksi asam, pola penurunan pH, serta perubahan kenampakan dan aroma selama fermentasi sari kedelai hitam dengan variasi konsentrasi sukrosa oleh bakteri asam laktat. Sari kedelai hitam diekstraksi dari biji kedelai hitam dengan perbandingan air dan kedelai hitam sebesar 1:2. Sari kedelai hitam yang telah diberi perlakuan konsentrasi sukrosa 0%, 2%, 4%, 6%, dan 8% (b/v) diinokulasikan dengan 1% (v/v) strain bakteri asam laktat (BAL) *Streptococcus thermophilus* Dad 11, *Lactobacillus plantarum* Dad 13, dan *Lactobacillus plantarum* WGK 4. Inkubasi dilakukan pada suhu 37°C dan dilakukan pengujian asam tertitiasi, pengujian nilai pH, serta pengamatan kenampakan dan aroma setiap 3 jam hingga jam ke-24. Hasil penelitian menunjukkan bahwa pada sari kedelai hitam tanpa penambahan sukrosa, produksi asam dan penurunan pH selama fermentasi terjadi selama 12 jam fermentasi dan cenderung tetap setelahnya. Pada penambahan variasi konsentrasi sukrosa, produksi asam dan penurunan pH terjadi selama 24 jam fermentasi. Untuk penggunaan ketiga strain BAL, peningkatan produksi asam dan penurunan pH yang signifikan pada sari kedelai hitam dengan penambahan sukrosa sebesar 2%. Didapatkan kadar asam pada kisaran 0,99–1,67% dan nilai pH pada kisaran 3,07–4,42 pada hasil akhir fermentasi jam ke-24. Diharapkan hasil fermentasi dengan warna abu-abu pudar, curd yang kental, dan aroma asam yang kuat. Berdasarkan hasil penelitian, waktu yang diperlukan untuk fermentasi sari kedelai hitam menggunakan ketiga isolat BAL adalah selama 9–12 jam.

Kata kunci: fermentasi sari kedelai hitam, bakteri asam laktat, sukrosa, produksi asam

ABSTRACT

The objectives of this research were to study the pattern of acid production, pH drop, and changes in the appearance and aroma during the fermentation of black soybean milk with various concentration of sucrose by lactic acid bacteria. Black soybean milk was extracted from of black soybean seed with ratio of water and black soybean 1:2. The black soybean milk with 0%, 2%, 4%, 6%, and 8% (b/v) of sucrose were inoculated with 1% (v/v) lactic acid bacteria (LAB) strains of *Streptococcus thermophilus* Dad 11, *Lactobacillus plantarum* Dad 13, and *Lactobacillus plantarum* WGK 4. Incubation was done at 37°C, then the titratable acidity, pH value, and appearance and aroma observation were examined in every 3 hours until the 24th hour. The result shows that in black soybean milk without the addition of sucrose, acid production and pH drop occurred during the 12 hours of fermentation and the level of acid and pH likely to remain afterwards. In addition variation of sucrose concentration, acid production and pH drop occurred during the 24 hours of fermentation. On the use of three strain, there was significant increase in acid production and a significant drop in pH of black soybean milk with the addition of sucrose by 2%. Obtained acid levels in the range of 0.99–1.67% and pH value in the range of 3.07–4.42 in the end of fermentation. The fermented product characteristics are grey-faded color, thick curd, and strong sour aroma. Based on the research results, the time required for the fermentation of black soybean milk using the three isolates of LAB was for 9–12 hours.

Keywords: black soybean milk fermentation, lactic acid bacteria, sucrose, acid production