

**AKTIVITAS ANTIMIKROBIA BAKTERI ASAM LAKTAT
FERMENTASI SUSU KEDELAI DENGAN PENAMBAHAN
Aloe vera (L.) Burm.f. DAN *Pandanus amaryllifolius* Roxb.**

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INTISARI

Bakteri asam laktat (BAL) merupakan bakteri yang berperan dalam proses fermentasi dan bermanfaat bagi manusia karena memiliki potensi untuk berbagai industri. BAL sering dijumpai pada makanan fermentasi, salah satunya pada produk susu nabati yaitu soyghurt. Soyghurt adalah produk makanan fungsional yang berasal dari fermentasi susu kedelai berbasis mikroorganisme. Penggunaan tanaman di Indonesia seringkali dimanfaatkan sebagai sumber senyawa antimikrobia potensial. Tanaman *Aloe vera* (L.) Burm.f. dan *Pandanus amaryllifolius* Roxb. mengandung komponen senyawa seperti saponin, tannin, polifenol, flavonoid, alkaloid, dan zat pewarna sebagai antimikrobia. Penelitian terkait fermentasi susu kedelai disertai penambahan sari daging daun lidah buaya dan daun pandan dengan bantuan BAL sendiri belum pernah dilakukan sehingga diperlukan penelitian. Penelitian ini bertujuan mengetahui kualitas hasil fermentasi oleh bakteri *Lactobacillus plantarum* (total BAL, nilai pH, total asam laktat, kadar protein, kadar air, total padatan) dan mempelajari potensi antimikrobia terhadap bakteri patogen uji. Fermentasi dilakukan selama 24 jam dengan suhu inkubasi 37°C kemudian didapatkan data kuantitatif sebanyak 3 kali ulangan. Hasil akhir produk fermentasi soyghurt oleh *Lactobacillus plantarum* memiliki total BAL sebesar $23,9 \times 10^8$ CFU/mL, kadar air 84.53%, dan total padatan 15.47% nilai pH 3,77, total asam sebesar 0,616%, dan kadar protein 9.40 mg/ml dengan aktivitas antimikrobia hasil fermentasi tergolong rendah dibanding kontrol positif. Hasil isolat BAL dari produk fermentasi memiliki spektrum penghambatan terhadap bakteri patogen uji baik bakteri gram negatif (*Escherichia coli* dan *Pseudomonas aeruginosa*) maupun bakteri gram positif (*Enterococcus faecalis* dan *Staphylococcus aureus*).

Kata kunci : Soyghurt, Bakteri Asam Laktat, Fermentasi, Antimikrobia

**ANTIMICROBIAL ACTIVITY OF LACTIC ACID BACTERIA
FERMENTED SOY MILK WITH THE ADDITION
OF *Aloe vera* (L.) Burm.f. AND *Pandanus amaryllifolius* Roxb.**

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ABSTRACT

Lactic Acid Bacteria (LAB) is bacteria play role in the fermentation process and beneficial for humans because of its potential in various industries. LAB is often found in fermented foods, one of which is in plant-based dairy products, namely soyghurt. Soyghurt is a functional food product derived from microorganism-based fermentation of soy milk. Utilization of plants in Indonesia often used as a source of antimicrobial compounds. *Aloe vera* (L.) Burm.f. and *Pandanus amaryllifolius* Roxb. contain components such as saponins, tannins, polyphenols, flavonoids, alkaloids, and dyes as antimicrobials. Research related to fermented soy milk with the addition *Aloe vera* and *Pandanus amaryllifolius* leaves juice with the help of LAB itself has never been done so research is needed. This study aims to determine quality of fermentation product by *Lactobacillus plantarum* bacteria and to study antimicrobial potential of the tested pathogenic bacteria. Fermentation was carried out for 24 hours with an incubation temperature of 37°C, then quantitative data obtained 3 times repetition. The final product of fermented soyghurt had a total LAB $23,9 \times 10^8$ CFU/mL, water content 84.53%, total solids 15.47% pH value 3.77, total acid 0.616%, and protein 9.40 mg/ml with low antimicrobial activity compared to control positive. The results of LAB isolates from fermented products had an inhibitory spectrum against test pathogenic bacteria, both gram-negative bacteria (*Escherichia coli* and *Pseudomonas aeruginosa*) and gram-positive bacteria (*Enterococcus faecalis* and *Staphylococcus aureus*).

Key word : Soyghurt, Lactic Acid Bacteria, Fermentation, Antimicrobial