

**PENGGUNAAN ISOLAT CAMPURAN BAKTERI ASAM LAKTAT
DARI SALURAN PENCERNAAN IRAN TAWES (*PUNTIUS
JAVANICUS*) DAN APLIKASINYA TERHADAP
PRODUKSI ASAM LAKTAT PADA
LIMBAH INDUSTRI TAHU**

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2000

INTISARI

Bakteri asam laktat (BAL) memproduksi asam laktat yang berkorelasi positif terhadap penurunan pH. Tujuan penelitian adalah memperoleh isolat campuran bakteri penghasil laktat unggul dari isi saluran pencernaan ikan tawes (*Puntius javanicus*) sebagai *starter* pada fermentasi ampas tahu. BAL diisolasi dengan teknik *roll tube*. Seleksi dilakukan dengan penambahan glisin HCl (0,5N) pH 3,0 selama 100 menit secara anaerobik dan kadar asam laktat tertinggi. Isolat campuran BAL diformulasikan untuk fermentasi ampas tahu dengan level inokulum 0%, 5% dan 10% V/B dan lama inkubasi 0, 3, 6, 12, 24, 48 dan 72 jam suasana anaerobik. Evaluasi dilakukan terhadap total koloni, kadar asam laktat, pH dan kualitas fisik. Data yang diperoleh dianalisa variansinya dengan rancangan *Completely Randomised Design* (CRD) pola faktorial dan regresi. Perbedaannya diuji dengan uji *Duncan Multiple Range Test* (DMRT). Enam isolat campuran BAL dengan total koloni $1,04 \times 10^7$ CFU/ml dan kadar asam laktat 4,81 mg/ml. Persentase inokulum dan lama inkubasi berpengaruh terhadap jumlah dan kecepatan pembentukan asam laktat serta perubahan pH ($P < 0,01$). Kualitas fisik ampas tahu ditunjukkan dengan tidak adanya perubahan warna, aroma gurih dan tekstur yang lebih lunak. Inokulum 5% dan lama inkubasi 24 jam merupakan level yang optimal untuk produksi asam laktat.

(Kata kunci : Ampas tahu, fermentasi, isolat BAL, asam laktat)

UTILIZATION OF MIX-CULTURE OF LACTIC ACID BACTERIA
FROM THE DIGESTIVUS TRACTUS OF INDIGENOUS FISH
(*PUNTIUS JAVANICUS*) AND ITS APPLICATION
IN LACTIC ACID PRODUCTION
ON TOFU WASTE INDUSTRY

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ABSTRACT

Lactic acid bacteria (LAB) produce lactic acid and decrease pH. The objectives of this study were to determine mix-culture of Lactic acid bacteria that were isolated and selected from the digestivus tractus of indigenous fish (*Puntius javanicus*), as starter on the fermentation of tofu waste industry. The LAB were isolated using *roll tube* technique (Hungate methode). Formulation of mix-culture of LAB based on the low pH resistance (PH 3,0 for 100 minute) and lactic acid production. The tofu waste industry fermentation were conducted on different level of inoculum and incubation time. Waste industry fermentation had been determined total of colony, pH, lactic acid production and physical characteristic as variables. The result of this study showed that the average of total colony and lactic acid production by mix-culture of LAB were 1.04×10^7 CFU/ml and 4.805 mg/ml respectively. The different addition of level inoculum and incubation time improved the quantity and velocity of lactic acid production ($P < 0.01$). However the inoculum addition and incubation time decrease pH of tofu waste industry fermentation ($P < 0.01$). The physical characteristic of fermentated tofu waste industry wasn't change by the inoculum addition. The consclusion of this study show that the 5% of inoculum and 24 hours incubation perform of the optimum of tofu waste industry fermentation.

(Keyword : tofu waste industry, fermentation, mix-culture of LAB, lactic acid)