

**POTENSI BAKTERI ASAM LAKTAT PROBIOTIK DIISOLASI DARI
KULIT BUAH JERUK *JESIGO* (*Citrus nobilis Lour.*) ASAL KABUPATEN
LIMA PULUH KOTA SEBAGAI SUPLEMEN PAKAN TERHADAP
PERFORMA IKAN LELE (*Clarias gariepinus*) RENDAH KOLESTEROL**

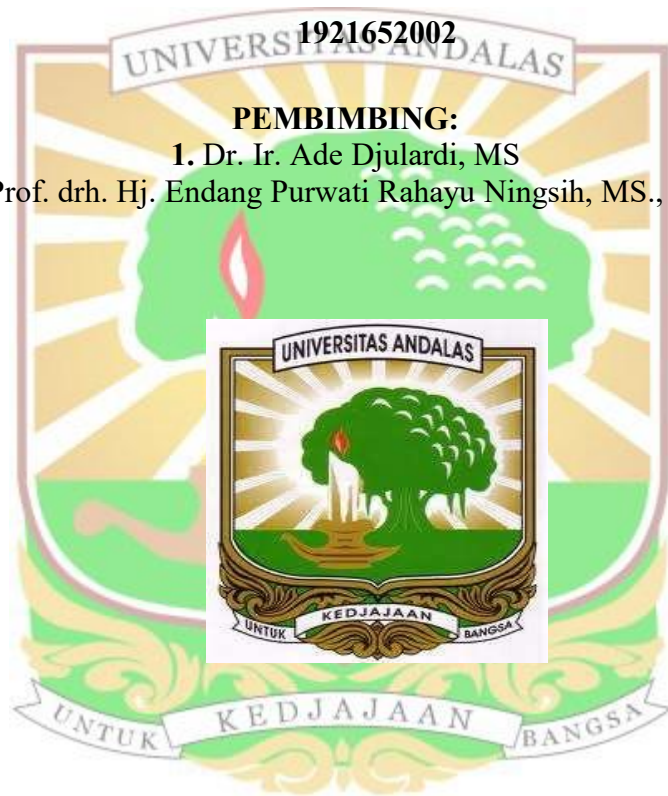
Tesis

RENI DWISURI

1921652002

PEMBIMBING:

1. Dr. Ir. Ade Djulardi, MS
2. Prof. drh. Hj. Endang Purwati Rahayu Ningsih, MS., Ph.D



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Oleh: RENI DWISURI (1921652002)

(Dibawah bimbingan: Dr. Ir. Ade Djulardi, MS dan Prof. Drh. Hj. Endang Purwati
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Abstrak

Penelitian ini bertujuan untuk mengisolasi Bakteri Asam Laktat (BAL) dari fermentasi kulit Jeruk Siam Gunuang Omeh (*JESIGO*) (*Citrus nobilis Lour.*) yang berasal dari Kabupaten Limapuluh Kota. Dari 3 sampel yang diisolasi didapatkan satu sampel yaitu isolat JR2 yang berpotensi sebagai probiotik dilakukan karakterisasi secara mikroskopis, makroskopis dan molekuler, serta mengetahui interaksi antara dosis dan lama pemberian probiotik asal fermentasi kulit Jeruk Siam Gunuang Omeh (*JESIGO*) (*Citrus nobilis Lour.*) tersebut dalam mempengaruhi performa produksi dan menurunkan kadar kolesterol ikan Lele (*Clarias gariepinus*). Metode yang digunakan tahap I deskriptif dan tahap II eksperimen. Tahap I meliputi isolasi bakteri asam laktat dari kulit *JESIGO* (*Citrus nobilis Lour.*), selanjutnya dikarakterisasi dengan pengamatan makroskopis dan mikroskopis, uji biokimia aktifitas antimikroba, ketahanan asam, dan ketahanan garam empedu. Sedangkan untuk menentukan spesies isolat BAL digunakan pengujian molekuler 16S rRNA. Tahap II Penambahan Probiotik yang diperoleh diberikan melalui pakan ikan Lele (*Clarias gariepinus*) menggunakan Rancangan Acak Lengkap (RAL) pola Faktorial 3 x 3 dengan 3 kali ulangan sesuai faktor A (dosis probiotik) dan faktor B (lama pemberian). Dosis probiotik yang diberikan adalah 0, 5 dan 10 %, sedangkan lama pemberian adalah 10, 20, dan 30 hari. Hasil isolasi bakteri asam laktat didapatkan isolat terbaik JR2 yang merupakan bakteri gram positif, *coccus*, katalase negatif, homofermentatif dengan hasil skrining kandidat probiotik memiliki daya hambat terhadap bakteri patogen *Escherichia coli* O157 15,23 mm, tahan terhadap garam empedu viabilitas bakteri asam laktat 20,37 %, dan pH lambung viabilitas bakteri asam laktat 63%, serta didapatkan jenis BAL *Pediococcus acidilactici* dengan ukuran panjang basa 1407 bp. Hasil menunjukkan pengaruh yang nyata ($P < 0,05$) pada masing-masing faktor beserta nilai terbaik dimana pemberian dosis probiotik berpengaruh terhadap laju pertumbuhan (3,29 %) pemberian dosis 10%, Efisiensi Pakan (78,94%) pemberian dosis 10%, dan kolesterol daging ikan (21,88 mg /dL) pemberian dosis 10%. Pada lama waktu pemeliharaan berpengaruh terhadap laju pertumbuhan (3,02) dan efisiensi pakan (77,69%) pada lama pemberian 30 Hari. Hasil menunjukkan tidak terdapat interaksi antara dosis probiotik dan lama pemberian terhadap performa produksi dan penurunan kadar kolesterol daging ikan Lele.

Kata kunci: Bakteri asam laktat, kulit Jeruk Siam Gunuang Omeh (*JESIGO*) (*Citrus nobilis Lour.*), ikan Lele (*Clarias gariepinus*), kolesterol, *P. acidilactici*

POTENTIAL OF PROBIOTIC LACTIC ACID BACTERIA Isolated from peel of the Siam Gunuang Omeh (JESIGO) Orange (*Citrus nobilis* Lour.) Limapuluh Kota Regency ON PRODUCTION PERFORMANCE AND REDUCTION OF fish meat CHOLESTROL

By: RENI DWISURI (1921652002)
(supervised by: Dr. Ir. Ade Djulardi, MS dan Prof. Drh. Hj. Endang Purwati
Rahayu Ningsih, MS, Ph.D)

Abstract

*This study aimed to isolate Lactic Acid Bacteria (LAB) from the fermented peel of the Siam Gunuang Omeh (JESIGO) Orange (*Citrus nobilis* Lour.) Limapuluh Kota Regency. From the 3 isolated samples, one sample was obtained, namely isolate JR2 which has the potential as a probiotic. Microscopic, macroscopic and molecular characterization was carried out, and to determine the interaction between dose and duration of administration of probiotics from the fermented peel of the Siam Gunuang Omeh (JESIGO) Orange (*Citrus nobilis* Lour.) Limapuluh Kota Regency in influencing production performance and reducing levels of probiotics, reducing cholesterol levels of catfish cholesterol. The method used in the first stage is descriptive and the second stage is experimental. Phase I included isolation of lactic acid bacteria from the fermented peel of the Siam Gunuang Omeh (JESIGO) Orange (*Citrus nobilis* Lour.) Limapuluh Kota Regency, further characterized by macroscopic and microscopic observations, biochemical tests of antimicrobial activity, acid resistance, and bile salt resistance. Meanwhile, to determine the species of LAB isolates, 16S rRNA molecular testing was used. Phase II The addition of probiotics obtained was given to laying quail using a completely randomized design (CRD) with a factorial pattern of 3 x 3 with 3 replications according to factor A (dose of probiotics) and factor B (time of administration). The doses of probiotics given were 0, 5 and 10 %, while the duration of administration was 10, 20, and 30 days. The results of the isolation of lactic acid bacteria showed that the best isolate was JR2 which was gram positive bacteria, Coccus, catalase negative, homofermentative with the results of screening probiotic candidates having inhibitory power against pathogenic bacteria *Escherichia coli* O157 15.23 mm, resistant to bile salts, viability of lactic acid bacteria 20,37%, and Gastric pH viability of lactic acid bacteria is 63%, and the type of LAB is *Pediococcus acidilactici*. with a base length of 1407 bp. The results showed a significant effect ($P < 0,05$) on each factor along with the best value where the probiotic dose had an effect on the growth rate (3.29%) with a dose of 10%, Feed Efficiency (78.94%) with a dose of 10 %, and fish meat cholesterol (21.88 mg/dL) with a dose of 10%. The length of maintenance time affects the growth rate (3.02) and feed efficiency (77.69%) at 30 days of administration. The results showed that there was no interaction between the dose of probiotics and the duration of administration on the production performance and the reduction of cholesterol levels in catfish meat.*

*Keywords: Lactic acid bacteria, Peel of JESIGO (*Citrus nobilis* Lour.), Catfish (*Clarias gariepinus*), cholesterol, *P. acidilactici**