

**AKTIVITAS PENGHAMBATAN EKSTRAK DAUN DANDANG GENDIS
DAN PROBIOTIK (*Lactobacillus acidophilus*) TERHADAP
PERTUMBUHAN BAKTERI GASTROINTESTINAL
(*Salmonella typhi* dan *Escherichia coli*)**

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Abstrak

Infeksi gastrointestinal yang disebabkan oleh *Escherichia coli* dan *Salmonella typhi* masih menjadi permasalahan kesehatan, terutama dengan meningkatnya kasus resistensi antibiotik. Daun dandang gendis memiliki potensi antibakteri pada bakteri *Salmonella typhi* dan *Escherichia coli*, dengan fenolik dan flavonoid sebagai salah satu metabolit sekunder. Selain itu, produksi metabolit *Lactobacillus acidophilus* diketahui menunjukkan hambatan pada *Salmonella* dan *E. coli*. Penelitian ini bertujuan untuk mengevaluasi aktivitas antibakteri ekstrak daun dandang gendis (*Clinacanthus nutans*) dan probiotik *Lactobacillus acidophilus*, baik secara tunggal maupun kombinasi, terhadap bakteri patogen *S. typhi* dan *E. coli*. Penelitian ini dilakukan secara *in vitro* menggunakan metode pengukuran pertumbuhan atau viabilitas bakteri probiotik berdasarkan nilai *optical density* (OD_{600}), penentuan Konsentrasi Hambat Minimum (KHM), Konsentrasi Bunuh Minimum (KBM), serta uji zona hambat. Hasil penelitian menunjukkan bahwa ekstrak daun dandang gendis memiliki aktivitas antibakteri terhadap bakteri *S. typhi*, dengan nilai KHM berada konsentrasi 50% (500 mg/ml), nilai KBM pada konsentrasi 200% (2000 mg/ml), dan nilai zona hambat ekstrak tunggal $9,19 \pm 0,604$ mm, serta nilai zona hambat kombinasi $10,5 \pm 0,98$ mm. Sementara, pada bakteri *E. coli* tidak menunjukkan aktivitas antibakteri pada uji KHM, KBM, dan zona hambat. Perbedaan respon penghambatan antara *E. coli* dan *S. typhi* diduga berkaitan dengan karakteristik struktur membran, porin, dan mekanisme pompa *efflux* bakteri terkait. Penelitian ini menunjukkan bahwa kombinasi ekstrak daun dandang gendis dan *L. acidophilus* memiliki potensi sebagai pendekatan alternatif dalam penghambatan bakteri patogen gastrointestinal.

Kata Kunci : Antibakteri , *Clinacanthus nutans*, *Escherichia coli*, *Lactobacillus acidophilus*, *Salmonella typhi*.

**ANTIBACTERIAL ACTIVITY OF SABAH SNAKE GRASS LEAF EXTRACT
AND THE PROBIOTIC (*Lactobacillus acidophilus*) AGAINST
GASTROINTESTINAL PATHOGENIC BACTERIA (*Salmonella typhi* And
Escherichia coli)**

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Abstract

Gastrointestinal infections caused by *Escherichia coli* and *Salmonella typhi* remain a significant health problem, particularly due to the increasing incidence of antibiotic resistance. *Clinacanthus nutans* leaves have demonstrated antibacterial potential against *Salmonella typhi* and *Escherichia coli*, with phenolic and flavonoid compounds identified as key secondary metabolites. In addition, metabolites produced by *Lactobacillus acidophilus* have been reported to inhibit the growth of *Salmonella* and *E. coli*. This study aimed to evaluate the antibacterial activity of dandang gendis leaf extract (*Clinacanthus nutans*) and the probiotic *Lactobacillus acidophilus*, both individually and in combination, against gastrointestinal pathogenic bacteria. This *in vitro* study employed bacterial growth measurement based on optical density (OD₆₀₀), determination of minimum inhibitory concentration (MIC), minimum bactericidal concentration (MBC), and inhibition zone assays. The results showed that dandang gendis leaf extract exhibited antibacterial activity against *S. typhi*, with an MIC value at a concentration of 50% (500 mg/mL), an MBC value at 200% (2000 mg/mL), a single-extract inhibition zone of $9,19 \pm 0.604$ mm, and a combination inhibition zone of $10,5 \pm 0.98$ mm. In contrast, no antibacterial activity against *E. coli* was observed in the MIC, MBC, or inhibition zone assays. The differences in inhibitory responses between *E. coli* and *S. typhi* are presumed to be associated with variations in membrane structure, porin characteristics, and efflux pump mechanisms.. This study indicates that the combination of dandang gendis leaf extract and *L. acidophilus* has potential as an alternative approach for inhibiting gastrointestinal pathogenic bacteria.

Keywords: Antibacterial activity, *Clinacanthus nutans*, *Escherichia coli*, *Lactobacillus acidophilus*, *Salmonella typhi*