

**PERBANDINGAN AKTIVITAS ANTIBAKTERI EKSTRAK ETANOL
KULIT BUAH DAN DAUN JERUK NIPIS (*Citrus aurantifolia*) TERHADAP
BAKTERI *Escherichia coli* ATCC 25922 MENGGUNAKAN METODE
DIFUSI CAKRAM**

Cristian Evan Vedheric¹, Dianita Febrina Leswara², Devika Nurhasanah³

INTISARI

Latar Belakang: Prevalensi penyakit infeksi merupakan tantangan besar bagi kesehatan masyarakat. Salah satu contoh dari penyakit infeksi yaitu diare. Diare merupakan penyakit yang dapat disebabkan oleh bakteri *Escherichia coli*. Pengobatan diare dapat dilakukan dengan menggunakan bahan alam, salah satunya yaitu taman jeruk nipis. Jeruk nipis mengandung senyawa yang dapat menghambat pertumbuhan bakteri penyebab diare.

Tujuan penelitian: Mengetahui perbandingan aktivitas antibakteri ekstrak etanol kulit buah dan daun jeruk nipis (*Citrus aurantifolia*) terhadap pertumbuhan bakteri *Escherichia coli* ATCC 25922.

Metode penelitian: Kulit buah dan daun jeruk nipis diekstraksi menggunakan metode maserasi dengan pelarut etanol 70%. Hasil dari maserasi tersebut kemudian dilakukan uji skrining fitokimia dan uji aktivitas antibakteri menggunakan metode difusi agar Kirby Bauner pada konsentrasi 40%, 60%, 80% dan 100%, serta menggunakan kloramfenikol sebagai kontrol positif.

Hasil penelitian: Pada uji skrining fitokimia didapatkan ekstrak etanol kulit buah dan daun jeruk nipis positif mengandung alkaloid, flavonoid, steroid atau terpenoid, tanin, dan saponin. Hasil uji aktivitas antibakteri pada konsentrasi 40%, 60%, 80% dan 100% berturut-turut pada ekstrak etanol kulit buah yaitu 10,98 mm, 11,63 mm, 12,67 mm, 15,57 mm dan ekstrak etanol daun jeruk nipis yaitu 13,73 mm, 14,54 mm, 15,75 mm dan 17,23 mm.

Kesimpulan: Ekstrak etanol daun jeruk nipis memiliki aktivitas antibakteri lebih baik dibandingkan dengan ekstrak etanol kulit buah jeruk nipis terhadap pertumbuhan bakteri *Escherichia coli* ATCC 25922.

Kata kunci: Antibakteri, Jeruk nipis, Kulit buah, Daun, *Escherichia coli*

¹ Mahasiswa Farmasi Universitas Jenderal Achmad Yani Yogyakarta

^{2,3} Dosen Farmasi Universitas Jenderal Achmad Yani Yogyakarta

**COMPARISON OF ANTIBACTERIAL ACTIVITY OF
ETHANOLIC EXTRACTS OF FRUIT AND LIME LEAVES (*Citrus
aurantifolia*) AGAINST THE BACTERIA *Escherichia coli* ATCC
25922 USING THE DISC DIFFUSION METHOD**

Cristian Evan Vedheric¹, Dianita Febrina Leswara², Devika Nurhasanah³

ABSTRACT

Background: The prevalence of infectious diseases is a major challenge for public health. One example of an infectious disease is diarrhea. Diarrhea is a disease that can be caused by *Escherichia coli* bacteria. Diarrhea treatment can be done using natural ingredients, one of which is lime garden. Lime contains compounds that can inhibit the growth of bacteria that cause diarrhea.

Objectives: To determine the comparison of the antibacterial activity of etanol extracts of lime peel and lime leaves (*Citrus aurantifolia*) on the growth of *Escherichia coli* ATCC 25922 bacteria.

Methods: Lime fruit peel and leaves were extracted using the maceration method with 70% ethanol solvent. The results of the screening were then subjected to qualitative tests such as phytochemical screening, then quantitative tests were carried out for antibacterial activity using the Kirby Bauner Agar Diffusion method at concentrations of 40%, 60%, 80% and 100%. As well as using chloramphenicol as a positive control and 10% DMSO as a negative control.

Results: In the phytochemical screening test, it was found that the ethanol extract of lime fruit peel and leaves was positive for containing alkaloids, flavonoids, steroids or terpenoids, tannins and saponins. Antibacterial activity test results at concentrations of 40%, 60%, 80% and 100% respectively on fruit peel ethanol extract, namely 10.98 mm, 11.63 mm, 12.67 mm, 15.57 mm and orange leaf ethanol extract thin, namely 13.73 mm, 14.54 mm, 15.75 mm and 17.23 mm.

Conclusion: The ethanol extract of lime leaves has better antibacterial activity compared to the ethanol extract of lime peel against the growth of *Escherichia coli* ATCC 25992 bacteria.

Keyword: Antibacterial, Lime, *Escherichia coli* ATCC 25992.

¹ Students of Pharmacy Universitas Jenderal Achmad Yani Yogyakarta

^{2,3} Lecturers of Pharmacy Universitas Jenderal Achmad Yani Yogyakarta.