

**PENGARUH CARA PENGERINGAN DAUN SIRIH HIJAU (*Piper betle* L.)
TERHADAP PERTUMBUHAN BAKTERI *Escherichia coli* ATTC 25922
DENGAN METODE DIFUSI CAKRAM**

Paskalina Ekasetia Abu¹, Nofran Putra Pratama², Nur'aini Purnamaningsih³.

INTISARI

Latar Belakang : Infeksi bakteri masih menjadi masalah kesehatan serius di Indonesia, salah satunya disebabkan oleh *Escherichia coli*. Penggunaan antibiotik yang tidak tepat sering menimbulkan resistensi, sehingga diperlukan alternatif antibakteri dari bahan alami seperti daun sirih hijau yang mengandung flavonoid, tanin, dan saponin. Aktivitas antibakteri daun sirih hijau dapat dipengaruhi oleh proses penanganan simplisia, misalnya cara pengeringan.

Tujuan Penelitian: Mengetahui pengaruh cara pengeringan daun sirih hijau (*Piper betle* L.) terhadap pertumbuhan bakteri *Escherichia coli* dengan metode difusi cakram.

Metode Penelitian: Daun sirih hijau dikeringkan menggunakan tiga cara, yaitu oven (O), sinar matahari langsung (SML), dan sinar matahari tidak langsung (SMTL). Setelah kering, daun dihaluskan dan diekstraksi menggunakan metode *Ultrasonic Assisted Extraction* (UAE). Ekstrak yang diperoleh kemudian dilakukan skrining fitokimia untuk mengidentifikasi kandungan senyawa aktif dan dilanjutkan uji aktivitas antibakterinya terhadap *Escherichia coli* ATTC 25922 menggunakan metode difusi cakram pada konsentrasi 10%, 15%, 20%, 25%, dan 30%.

Hasil Penelitian : Skrining fitokimia menunjukkan adanya senyawa tanin, flavonoid, dan saponin pada semua ekstrak. Uji difusi cakram memperlihatkan zona hambat terbesar pada ekstrak yang dikeringkan dengan cara SMTL (18,43 mm) pada konsentrasi 30%, sedangkan oven menghasilkan zona hambat terkecil (6,38 mm) pada konsentrasi 10 %.

Kesimpulan : Cara pengeringan daun sirih hijau (*Piper betle* L.) berpengaruh terhadap pertumbuhan *Escherichia coli* ATTC 25922, di mana metode pengeringan SMTL menghasilkan aktivitas antibakteri terbaik.

Kata kunci: Antibakteri, daun sirih hijau, *Escherichia coli* ATTC 25922 , pengeringan.

¹Mahasiswa Farmasi Universitas Jenderal Achmad Yani Yogyakarta

²Dosen Farmasi Universitas Jenderal Achmad Yani Yogyakarta.

³Dosen Teknologi Bank Darah Universitas Jenderal Achmad Yani Yogyakarta

**THE EFFECT OF DRYING METHODS OF GREEN BETEL LEAVES
(*Piper betle* L.) ON THE GROWTH OF *Escherichia coli* ATTC 25922
BACTERIA USING THE DISC DIFFUSION METHOD**

Paskalina Ekasetia Abu¹, Nofran Putra Pratama², Nur'aini Purnamaningsih³.

ABSTRACT

Background: Bacterial infections remain a serious health problem in Indonesia, one of which is caused by *Escherichia coli*. Inappropriate use of antibiotics often leads to resistance, so alternative antibacterials from natural ingredients such as green betel leaves which contain flavonoids, tannins, and saponins are needed. The antibacterial activity of green betel leaves can be affected by the handling of the medicinal plant, such as drying.

Research Objective: To determine the effect of drying green betel leaves (*Piper betle* L) on the growth of *Escherichia coli* bacteria using the disc diffusion method.

Research Method: Green betel leaves were dried using three methods, namely oven (O), direct sunlight (SML), and indirect sunlight (SMTL). After drying, the leaves were ground and extracted using the *Ultrasonic Assisted Extraction* (UAE) method the extract obtained was then screened phytochemically to identify the active compound content and continued with testing its antibacterial activity against *Escherichia coli* ATTC 25922 using the disc diffusion method at concentrations of 10%, 15%, 20%, 25%, and 30%.

Research Results: Phytochemical screening showed the presence of tannins, flavonoids, and saponins in all extracts. The disc diffusion test showed the largest inhibition zone in the extract dried by SMTL (18.43 mm) at a concentration of 30%, while the oven produced the smallest inhibition zone (6.38 mm) at a concentration of 10%.

Conclusion: The drying method of green betel leaves (*Piper betle* L.) has a effect on the growth of *Escherichia coli* ATTC 25922, where the SMTL drying method produces the best antibacterial activity.

Keywords: Antibacterial, green betel leaf, *Escherichia coli* ATTC 25922, drying.

¹Student of Pharmacy Universitas Jenderal Achmad Yani Yogyakarta

²Lecturer of Pharmacy Universitas Jenderal Achmad Yani Yogyakarta

³Lecturer in Blood Bank Technology, General Achmad Yani University, Yogyakarta