UJI AKTIVITAS ANTIBAKTERI FRAKSI ETIL ASETAT DAUN PANDAN LAUT (*Pandanus odorifer*) TERHADAP *Escherichia coli* dan *Staphylococcus aureus*

Retno Wulandari
Program Studi Sarjana Farmasi
Fakultas Ilmu Kesehatan Institut Kesehatan Mitra Bunda

Dosen Pembimbing
Ghalib Syukrillah Syahputra
Dhia Suhailah

ABSTRAK

Penyakit infeksi akibat *Escherichia coli* dan *Staphylococcus aureus* semakin sulit ditangani seiring meningkatnya fenomena AMR (*Antimicrobial Resistance*). Penggunaan antibiotik sintetis yang berlebihan dan tidak rasional berpotensi menimbulkan resistensi sehingga diperlukan pencarian sumber antibakteri baru dari bahan alami yang minim efek samping. Daun pandan laut (*Pandanus odorifer*) diketahui mengandung senyawa bioaktif, terutama golongan flavonoid, yang memiliki aktivitas antibakteri. Penelitian ini bertujuan untuk menganalisis aktivitas antibakteri fraksi etil asetat daun pandan laut terhadap pertumbuhan *E. coli* dan *S. aureus*. Penelitian ini dilakukan secara eksperimental laboratorium. Ekstrak daun pandan laut diperoleh dengan teknik maserasi menggunakan metanol. Ekstrak metanol kemudian difraksinasi dengan teknik Ekstraksi Cair-Cair bertingkat menggunakan pelarut *n*-heksana, etil asetat, dan metanol-air. Fase etil asetat dipekatkan menggunakan *rotary evaporator*. Metode yang digunakan dalam pengujian antibakteri adalah metode difusi cakram dengan konsentrasi 200 µg/disk, serta menggunakan kontrol positif kloramfenikol 30 µg/disk dan kontrol negatif DMSO 10%. Hasil penelitian menunjukkan bahwa fraksi etil asetat daun pandan laut memiliki aktivitas antibakteri terhadap *E. coli* dan *S. aureus* yang ditandai dengan terbentuknya zona bening disekitar disk yang diteteskan fraksi uji. Rata-rata diameter hambat yaitu 7,1 mm (*E. coli*) dan 7,4 mm (*S. aureus*). Kontrol positif menghasilkan zona hambat sebesar 23,9 mm (*E. coli*) dan 28,4 mm (*S. aureus*), sedangkan kontrol negatif terhadap dua bakteri uji tidak menunjukkan zona hambat. Hasil uji *post hoc* Games-Howell menunjukkan adanya perbedaan signifikan antar kelompok uji ($p<0,05$). Disimpulkan bahwa ekstrak fraksi etil asetat daun pandan laut memiliki aktivitas antibakteri terhadap *E. coli* dan *S. aureus*, dengan zona hambat terbesar pada *S. aureus*.

Kata Kunci: Antibakteri, Fraksi Etil Asetat, *Pandanus odorifer*.

ANTIBACTERIAL ACTIVITY TEST of the ETHYL ACETATE FRACTION of Pandanus odorifer LEAVES AGAINST Escherichia coli and Staphylococcus aureus

Retno Wulandari

Bachelor of Pharmacy Study Program

Faculty of Health Sciences, Mitra Bunda Institute of Health

Academic Supervisors

Ghalib Syukrillah Syahputra

Dhia Suhailah

ABSTRACT

Infection diseases caused by Escherichia coli and Staphylococcus aureus are becoming increasingly difficult to manage amid the growing phenomenon of Antimicrobial Resistance (AMR). Excessive and irrational use of synthetic antibiotics carries a risk of promoting resistance, highlighting the need to explore new antibacterial sources from natural materials with minimal side effects. The leaves of sea pandan (Pandanus odorifer) are known to contain bioactive compounds, particularly flavonoids, which exhibit antibacterial properties. This study aimed to evaluate the antibacterial activity of the ethyl acetate fraction of sea pandan leaves against the growth of E. coli and S. aureus. This was a laboratory-based experimental study. The leaf extract was obtained through maceration using methanol, after which the methanol extract was subjected to stepwise liquid-liquid extraction using n-hexana, ethyl acetate, and methanol-water as solvents. The ethyl acetate fraction was then concentrated using a rotary evaporator. Antibacterial activity was assessed using the disc diffusion method at a concentration of 200µg/disk, with chloramphenicol 30µg/disk and DMSO 10% serving as the positive and negative controls, respectively. The result showed that the ethyl acetate fraction of sea pandan leaves exhibited antibacterial activity against both E. coli dan S. aureus, as indicated by the formation of clear zones around the discs treated with the test fraction. The mean inhibition zone diameters were 7,1 mm for E. coli and 7,4 mm for S. aureus, whereas the positive control producted inhibition zones of 23,9 mm and 28,4 mm, respectively, and the negative control showed no inhibitory effect against either bacterium. Games-Howell post hoc test result revealed significant differences among the treatment groups ($p<0,05$). It is concluded that the ethyl acetate fraction of sea pandan leaves possesses antibacterial activity against E. coli and S. aureus, with the largest inhibition zone observed against S. aureus.

***Keywords**: Antibacterial, Ethyl Acetate Fraction, Pandanus odorifer*