

## ABSTRACT

### ANTIMICROBIAL ACTIVITY OF *n*-HEXANE FRACTION FROM MANGROVE LEAVES AND BARK (*Rhizophora apiculata*) AGAINST *Staphylococcus aureus*, *Streptococcus pyogenes*, *Pseudomonas aeruginosa*, AND *Candida albicans*.

By

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**Background:** Infection diseases have become one of the leading causes of death in both developed and developing countries. The use of synthetic antimicrobials can lead to bacterial resistance and is relatively expensive. Mangrove leaves and bark (*Rhizophora apiculata*) contain secondary metabolites believed to inhibit the growth of microbial agents causing infections.

**Methods:** This research was an experiment to determine the antimicrobial activity of *n*-hexane fractions from mangrove leaves and bark (*Rhizophora apiculata*) at concentrations of 1.6%, 3.2%, 6.25%, 12.5%, and 25% against *Staphylococcus aureus*, *Streptococcus pyogenes*, *Pseudomonas aeruginosa*, and *Candida albicans*.

**Result:** The research results indicate that the *n*-hexane fraction from mangrove leaves (*Rhizophora apiculata*) has antimicrobial activity against *Staphylococcus aureus* at a concentration of 25%, with an average inhibition zone diameter of 5.4 mm, and against *Streptococcus pyogenes* at concentrations of 6.25%, 12.5%, and 25%, with average inhibition zone diameters of 4.4 mm, 9.7 mm, and 19.7 mm, respectively. However, it didn't exhibit antimicrobial activity against *Pseudomonas aeruginosa* and *Candida albicans*. The *n*-hexane fraction from the bark of mangrove stems (*Rhizophora apiculata*) didn't show inhibitory effects against *Staphylococcus aureus*, *Streptococcus pyogenes*, *Pseudomonas aeruginosa*, and *Candida albicans*.

**Conclusion:** Antimicrobial activity was observed in the *n*-hexane fraction of mangrove leaves (*Rhizophora apiculata*) against *Staphylococcus aureus* and *Streptococcus pyogenes*. However, no antimicrobial activity was detected in the *n*-hexane fraction of mangrove stem bark (*Rhizophora apiculata*) against *Staphylococcus aureus*, *Streptococcus pyogenes*, *Pseudomonas aeruginosa*, and *Candida albicans*.

**Keywords:** Infection diseases, Antimicrobial, *Rhizophora apiculata*

## ABSTRAK

### **AKTIVITAS ANTIMIKROBA FRAKSI *n*-HEKSAN DAUN DAN KULIT BATANG BAKAU (*Rhizophora apiculata*) TERHADAP *Staphylococcus aureus*, *Streptococcus pyogenes*, *Pseudomonas aeruginosa*, DAN *Candida albicans***

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**Latar Belakang:** Penyakit infeksi menjadi salah satu penyebab kematian utama di negara-negara maju maupun berkembang. Penggunaan antimikroba sintetik, dapat menyebabkan resistensi bakteri dan harganya tergolong mahal. Daun dan kulit batang bakau (*Rhizophora apiculata*) mengandung metabolit sekunder yang diduga dapat menghambat pertumbuhan mikroba penyebab infeksi.

**Metode:** Penelitian ini berupa eksperimental untuk mengetahui efek aktivitas antimikroba fraksi *n*-heksan daun dan kulit batang bakau (*Rhizophora apiculata*) pada konsentrasi konsentrasi 1,6%, 3,2%, 6,25%, 12,5%, 25% terhadap *Staphylococcus aureus*, *Streptococcus pyogenes*, *Pseudomonas aeruginosa*, dan *Candida albicans*.

**Hasil:** Hasil penelitian menunjukkan antimikroba fraksi *n*-heksan dari daun bakau (*Rhizophora apiculata*) terhadap *Staphylococcus aureus* pada konsentrasi 25% dengan rata-rata diameter zona hambat 5,4 mm dan *Streptococcus pyogenes* pada konsentrasi 6,25, 12,5 %, 25% dengan rata-rata diameter zona hambat 4,4 mm, 9,7 mm, 19,7 mm. Namun tidak memiliki aktivitas antimikroba terhadap *Pseudomonas aeruginosa* dan *Candida albicans*. Pada fraksi *n*-heksan dari kulit batang bakau (*Rhizophora apiculata*) tidak memiliki daya hambat terhadap *Staphylococcus aureus*, *Streptococcus pyogenes*, *Pseudomonas aeruginosa*, dan *Candida albicans*.

**Kesimpulan:** Terdapat aktivitas antimikroba pada fraksi *n*-heksan daun bakau (*Rhizophora apiculata*) terhadap *Staphylococcus aureus* dan *Streptococcus pyogenes*. Tidak terdapat aktivitas antimikroba pada fraksi *n*-heksan kulit batang bakau (*Rhizophora apiculata*) terhadap *Staphylococcus aureus*, *Streptococcus pyogenes*, *Pseudomonas aeruginosa*, dan *Candida albicans*.

**Kata Kunci:** Penyakit infeksi, Antimikroba, *Rhizophora apiculata*