

**SKRINING AKTIVITAS ANTIBAKTERI EKSTRAK ETIL ASETAT
ISOLAT JAMUR ENDOFIT DARI DAUN TANAMAN YAKON
(*Smallanthus sonchifolius* [Poepp. & Endl.] H. Robinson) TERHADAP
Escherichia coli ATCC 25922 dan *Staphylococcus aureus* ATCC
29213**

ABSTRAK

Penyakit infeksi merupakan salah satu masalah kesehatan global terbesar. Pengobatan penyakit infeksi menggunakan antibiotik, saat ini banyak antibiotik yang telah resisten. Oleh karena itu, diperlukan penemuan senyawa antibiotik baru dengan cara pemanfaatan tanaman, seperti Yacon (*Smallanthus sonchifolius* [Poepp. & Endl.] H. Robinson) yang berpotensi menghasilkan senyawa antibakteri. Alternatif lain untuk memaksimalkan pemanfaatan tanaman tersebut dengan cara memanfaatkan jamur endofit, yang hidup pada jaringan tanaman dan berpotensi menghasilkan senyawa metabolit sekunder sama seperti inangnya. Penelitian ini bertujuan mengisolasi jamur endofit, mengetahui aktivitasnya terhadap *Escherichia coli* dan *Staphylococcus aureus*, mengetahui golongan senyawa metabolit sekunder serta spesies jamur endofit dari daun tanaman Yacon. Jamur diisolasi menggunakan metode tanam dan tuang, didapatkan 5 isolat jamur endofit dan dikultivasi pada media beras. Ekstraksi dilakukan dengan metode maserasi dengan pelarut etil asetat. Uji aktivitas antibakteri menggunakan metode difusi cakram, penentuan Konsentrasi Hambat Minimum (KHM) menggunakan metode mikrodilusi serta menentukan spesies jamur dengan identifikasi molekuler. Hasil penelitian menunjukkan bahwa isolat D5 menunjukkan aktivitas antibakteri kategori kuat dengan zona hambat 12,22 mm terhadap *Escherichia coli* dan kategori sedang dengan zona hambat 6,7 mm terhadap *Staphylococcus aureus*. Nilai KHM 625 µg/mL pada bakteri *Escherichia coli*. Uji fitokimia menunjukkan ekstrak D5 mengandung senyawa golongan fenolik, steroid dan terpenoid. Dari hasil identifikasi molekuler isolat D5 adalah *Fusarium verticillioides*. Hasil ini menunjukkan bahwa jamur endofit Yacon berpotensi sebagai sumber antibakteri dan dapat dikembangkan lebih lanjut, dalam penemuan antibiotik baru.

Kata kunci: Jamur endofit, Yacon (*Smallanthus sonchifolius*), Antibakteri, *Escherichia coli*, *Staphylococcus aureus*, KHM

**SCREENING OF THE ANTIBACTERIAL ACTIVITY OF
ETHYL ACETATE EXTRACTS FROM ENDOPHYTIC FUNGI
FROM THE LEAVES OF THE YAKON PLANT (*Smaallanthus
sonchifolius* [Poepp. & Endl.] H. Robinson) AGAINST
Escherichia coli ATCC 25922 and *Staphylococcus aureus*
ATCC 29213**

ABSTRACT

Infectious diseases are one of the biggest global health problems. The treatment of infectious diseases using antibiotics is currently facing the problem of antibiotic resistance. Therefore, it is necessary to discover new antibiotic compounds by utilizing plants, such as Yacon (*Smallanthus sonchifolius* [Poepp. & Endl.] H. Robinson), which has the potential to produce antibacterial compounds. Another alternative to maximize the utilization of this plant is by utilizing endophytic fungi, which live within plant tissues and have the potential to produce secondary metabolites similar to their host plants. This study aims to isolate endophytic fungi, determine their activity against *Escherichia coli* and *Staphylococcus aureus*, identify the class of secondary metabolites, and determine the species of endophytic fungi from Yacon plant leaves. Fungi were isolated using the plating and pouring methods, resulting in five endophytic fungal isolates, which were then cultivated on rice medium. Extraction was performed using the maceration method with ethyl acetate as the solvent. Antibacterial activity was tested using the disk diffusion method, the Minimum Inhibitory Concentration (MIC) was determined using the microdilution method, and the fungal species were identified using molecular identification. The results showed that isolate D5 exhibited strong antibacterial activity with an inhibition zone of 12,22 mm against *Escherichia coli* and moderate activity with an inhibition zone of 6,7 mm against *Staphylococcus aureus*. The MIC value was 625 µg/mL against *Escherichia coli*. Phytochemical testing showed that the D5 extract contained phenolic, steroid, and terpenoid compounds. Molecular identification revealed that isolate D5 was *Fusarium verticillioides*. These results indicate that Yacon endophytic fungi have potential as a source of antibacterial agents and can be further developed in the discovery of new antibiotics.

Keywords: Endophytic fungi, Yacon (*Smallanthus sonchifolius*), Antibacterial, *Escherichia coli*, *Staphylococcus aureus*, MIC