

## ABSTRAK

Peningkatan resistensi antibiotik di industri peternakan mendorong penggunaan kapang endofit sebagai strategi biokontrol terhadap patogen resisten seperti *Escherichia coli*. Kapang endofit diisolasi dari jaringan tanaman lamun (*Enhalus* sp.) dan dikultur pada media *Potato Dextrose Agar* selama 30 hari. Hasil kultivasi terbaik diukur berdasarkan bobot biomassa, pH, dan kultur filtrat, yang kemudian di ekstraksi menggunakan etil asetat. Metode Kirby-Bauer digunakan untuk mengevaluasi aktivitas antibakteri ekstrak kasar terhadap *Escherichia coli* dengan konsentrasi 2, 1, dan 0,5 ppm, menggunakan Tetracycline sebagai kontrol positif dan akuades steril sebagai kontrol negatif. Hasil menunjukkan bahwa kapang endofit mencapai puncak biomassa pada hari ke-9, dengan perubahan pH signifikan. Kultur filtrat menunjukkan daya hambat kuat terhadap *Escherichia coli* dengan zona hambat maksimum 18,43 mm pada hari ke-9, meskipun menurun pada hari-hari berikutnya. Ekstrak kasar pada konsentrasi 2 ppm menunjukkan aktivitas antibakteri lemah ( $2,08 \pm 0,4$  mm). Kadar senyawa fenolik total dan flavonoid total masing-masing sebesar 0,294 mg GAE/g dan 0,052 mg GAE/g. Kapang endofit terbukti efektif menghasilkan daya hambat, namun ekstrak kasar belum optimal, dan senyawa fenolik berpotensi sebagai imunostimulan pada hewan ternak.

Kata kunci: antibiotik, daya hambat, *Escherichia coli*, *Enhalus* sp, fitokimia, fenolik, flavonoid.

## ABSTRACT

The increasing antibiotic resistance in the livestock industry is driving the use of endophytic fungi as a biocontrol strategy against resistant pathogens such as *Escherichia coli*. Endophytic fungi were isolated from seagrass (*Enhalus* sp.) plant tissues and cultured on *Potato Dextrose Agar* medium for 30 days. The best cultivation results are measured by biomass weight, pH, and filtrate culture, which are then extracted using ethyl acetate. The Kirby-Bauer method was used to evaluate the antibacterial activity of the crude extract against *Escherichia coli* at concentrations of 2, 1, and 0.5 ppm, using tetracycline as a positive control and sterile distilled water as a negative control. The results indicated that the endophytic mold reached peak biomass on day 9, with significant pH changes. The culture filtrate showed strong inhibitory activity against *Escherichia coli*, with a maximum inhibition zone of 18.43 mm on day 9, although the level of inhibition decreased in subsequent days. The crude extract at a concentration of 2 ppm showed weak antibacterial activity ( $2.08 \pm 0.4$  mm). The total phenolic compound and total flavonoid levels were 0.294 mg GAE/g and 0.052 mg GAE/g, respectively. Endophytic fungi were proven effective in producing inhibitory activity, but the crude extract was not yet optimal, and phenolic compounds have the potential to act as immunostimulants in livestock.

Keywords: antibiotic, inhibitory power, *Escherichia coli*, *Enhalus* sp, phytochemical, phenolic, and flavonoid.