

ABSTRAK

ISOLASI, IDENTIFIKASI, DAN UJI RESISTENSI *Escherichia coli* TERHADAP OXYTETRACYCLINE DARI SAMPEL LINGKUNGAN SMART VETERINARY TEACHING FARM, PLAYEN GUNUNG KIDUL

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Resistensi antibiotik merupakan permasalahan global yang mengancam kesehatan hewan, manusia, dan lingkungan. *Escherichia coli* sebagai bakteri indikator pencemaran sering digunakan untuk menilai tingkat resistensi di berbagai lingkungan. Penelitian ini bertujuan untuk mengetahui resistensi *Escherichia coli* terhadap *oxytetracycline* yang diisolasi dari sampel lingkungan berupa air, feses, dan tanah. Isolasi dilakukan menggunakan media selektif *Eosin Methylene Blue Agar* (EMBA), sedangkan Identifikasi dilakukan melalui pewarnaan Gram serta uji biokimia, termasuk uji *Indole*, *Methyl Red*, *Voges-Proskauer*, *Citrate*, *Triple Sugar Iron Agar*, dan motilitas. Uji resistensi dilakukan dengan metode difusi cakram yang mengacu pada standar dari *Clinical and Laboratory Standards Institute* (CLSI). Hasil penelitian menunjukkan bahwa dari 53 sampel yang diuji, 35 (66,04%) sampel menghasilkan isolat *Escherichia coli*. Uji resistensi terhadap *oxytetracycline* dilakukan pada 25 isolat, dengan hasil 48% resisten, 4% intermediet, dan 48% sensitif. Isolat dari sampel air menunjukkan 40% resisten, 20% intermediet, dan 60% sensitif; feses 50% resisten dan 50% sensitif; sedangkan tanah memiliki resistensi tertinggi, yaitu 57% resisten tanpa intermediet, dan 43% sensitif.

Kata kunci : *Escherichia coli*, resistensi antibiotik, *oxytetracycline*, lingkungan, *teaching farm*.

ABSTRACT

ISOLATION, IDENTIFICATION AND ANTIBIOTIC RESISTANCE TEST OF *Escherichia coli* AGAINST OXYTETRACYCLINE FROM ENVIRONMENTAL SAMPLES AT SMART VETERINARY TEACHING FARM, PLAYEN GUNUNG KIDUL

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Antibiotic resistance is a global problem that threatens animal, human, and environmental health. *Escherichia coli* as an indicator bacteria for pollution is often used to assess the level of resistance in various environments. This study aims to determine the resistance of *Escherichia coli* to oxytetracycline isolated from environmental samples in the form of water, feces, and soil. Isolation was carried out using selective media Eosin Methylene Blue Agar (EMBA), while identification was carried out through Gram staining and biochemical tests, including Indole, Methyl Red, Voges-Proskauer, Citrate, Triple Sugar Iron Agar, and motility tests. Resistance testing was carried out using the disc diffusion method referring to the standards of the Clinical and Laboratory Standards Institute (CLSI). The results showed that of the 53 samples tested, 35 (66.04%) samples produced *Escherichia coli* isolates. Resistance testing to oxytetracycline was carried out on 25 isolates, with the results of 48% resistant, 4% intermediate, and 48% sensitive. Isolates from water samples showed 40% resistant, 20% intermediate, and 60% sensitive; feces 50% resistant and 50% sensitive; while soil had the highest resistance, which was 57% resistant without intermediate, and 43% sensitive.

Keywords : *Escherichia coli*, antibiotic resistance, oxytetracycline, environment, teaching farm