

ABSTRAK

PROFIL RESISTANSI *Escherichia coli* TERHADAP ENROFLOXACIN DARI LINGKUNGAN *SMART VETERINARY TEACHING FARM*, PLAYEN, GUNUNG KIDUL

**Yohannes Yulio Enrico
21/478056/KH/10913**

Lingkungan berperan dalam penyebaran zoonosis melalui interaksi dengan manusia dan hewan. *Escherichia coli* tersebar luas di lingkungan dan menjadi indikator pencemaran feses. *Enrofloxacin*, antibiotik golongan fluorokuinolon yang banyak digunakan di bidang veteriner, dapat memicu resistansi jika digunakan secara tidak tepat, sehingga meningkatkan potensi resistansi antibiotik di lingkungan. Penelitian ini bertujuan untuk mengisolasi, mengidentifikasi, serta mengevaluasi tingkat resistansi *E. coli* terhadap *enrofloxacin* dari berbagai jenis sampel lingkungan di *Smart Veterinary Teaching Farm*, Fakultas Kedokteran Hewan Universitas Gadjah Mada. Penelitian ini dilakukan selama bulan Maret hingga November 2024 dengan menggunakan 53 sampel berupa feses, tanah, dan air yang dikoleksi pada tiap kandang hewan dan kolam ikan di *Smart Veterinary Teaching Farm*, Fakultas Kedokteran Hewan Universitas Gadjah Mada. Isolasi dan identifikasi dilakukan menggunakan media agar *Eosin Methylene Blue* (EMB) dan uji biokimia IMViC (*indole, methyl red, Voges-Proskauer, dan citrate*) serta *Triple Sugar Iron Agar* (TSIA). Uji sensitivitas bakteri dilakukan dengan metode Kirby-Bauer menggunakan media *Mueller Hinton Agar*. Hasil penelitian menemukan 35 sampel (66,04%) dari 53 sampel teridentifikasi sebagai *E. coli* dengan distribusi tertinggi pada feses (40%), diikuti dengan air (31,43%) lalu tanah (28,57%). Sebanyak 28 isolat (80%) menunjukkan hasil sensitif pada uji sensitivitas terhadap *enrofloxacin* dan 7 isolat (20%) menunjukkan hasil intermediet. Bakteri *E. coli* yang resistan terhadap *enrofloxacin* tidak ditemukan dalam penelitian ini. Hal ini berarti penggunaan antibiotik ini masih aman, tetapi tetap perlu adanya pertimbangan dan pengawasan karena terdapat hasil sensitivitas intermediet untuk mencegah munculnya resistansi antibiotik.

Kata kunci: *Escherichia coli*, *enrofloxacin*, lingkungan, resistansi antibiotik, *Smart Veterinary Teaching Farm*

ABSTRACT

RESISTANCE PROFILE OF *Escherichia coli* TO ENROFLOXACIN ISOLATED FROM THE ENVIRONMENT OF THE SMART VETERINARY TEACHING FARM, PLAYEN, GUNUNG KIDUL

Yohannes Yulio Enrico
21/478056/KH/10913

The environment plays a critical role in the transmission of zoonotic diseases through its interactions with humans and animals. *Escherichia coli* is widely distributed in the environment and is commonly used as an indicator of faecal contamination. *Enrofloxacin*, a fluoroquinolone class antibiotic widely used in veterinary medicine, may contribute to the development of antibiotic resistance if misused, thereby increasing the risk of environmental resistance. This study aimed to isolate, identify, and evaluate the resistance level of *E. coli* to *enrofloxacin* from various environmental samples collected at the Smart Veterinary Teaching Farm, Faculty of Veterinary Medicine Universitas Gadjah Mada. The research was conducted from March to November 2024, involving 53 samples consisting of faeces, soil, and water collected from various animal enclosures and fish ponds within the facility. Isolation and identification of *E. coli* were performed using Eosin Methylene Blue (EMB) agar, IMViC biochemical tests (*indole*, methyl red, Voges-Proskauer, and *citrate*), and Triple Sugar Iron Agar (TSIA). Antimicrobial susceptibility testing was conducted using the Kirby-Bauer disk diffusion method on Mueller Hinton Agar. The results revealed that 35 out of 53 samples (66.04%) were identified as *E. coli*, with the highest prevalence found in faeces (40%), followed by water (31.43%), and soil (28.57%). Of the *E. coli* isolates, 28 (80%) were sensitive to *enrofloxacin*, while 7 isolates (20%) demonstrated intermediate susceptibility. No resistant *E. coli* strains were detected in this study. These findings suggest that *enrofloxacin* remains effective in the studied setting; however, continued monitoring and responsible antibiotic usage are essential to prevent the emergence of resistance, especially given the presence of isolates with intermediate susceptibility.

Key words: antibiotic resistance, *enrofloxacin*, environment, *Escherichia coli*, Smart Veterinary Teaching Farm