

ABSTRAK

SURVEI RESISTANSI *ENROFLOXACIN* DAN *STREPTOMYCIN* ISOLAT *Escherichia coli*: INDIKATOR KESEHATAN MASYARAKAT VETERINER DARI IKAN AIR TAWAR DAN LINGKUNGAN BUDIDAYA KOLAM di KECAMATAN NGEMPLAK

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Peningkatan kejadian resistansi antimikroba (*antimicrobial resistance/AMR*) pada ekosistem akuakultur saat ini telah menjadi ancaman serius bagi kesehatan masyarakat veteriner global akibat risiko kontaminasi bakteri zoonosis melalui rantai pangan. Studi epidemiologi mengenai sebaran bakteri indikator seperti *Escherichia coli* di wilayah sentra perikanan sangat penting untuk memetakan tingkat pencemaran feses dan pola resistansi obat di lingkungan budidaya. Penelitian ini bertujuan mengisolasi, mengidentifikasi, dan menentukan profil resistansi *Escherichia coli* terhadap antibiotik *enrofloxacin* dan *streptomycin* pada ekosistem budidaya ikan nila (*Oreochromis* sp.) dan ikan lele (*Clarias* sp.) di Kecamatan Ngemplak menggunakan 140 unit sampel dari kompartemen daging, air, dan tanah. Prosedur identifikasi fenotipik melalui pewarnaan Gram dan uji biokimia mengonfirmasi 49 isolat (35,00%) sebagai *E. coli*, dengan rincian prevalensi kontaminasi pada ekosistem nila sebesar 44,05% (37/84) dan ekosistem lele sebesar 21,43% (12/56). Hasil uji sensitivitas metode *Kirby-Bauer* pada ekosistem nila terhadap *enrofloxacin* menunjukkan hasil 70,3% sensitif, 18,9% resistansi, dan 10,8% intermediet, sedangkan terhadap *streptomycin* mencatatkan 37,8% sensitif, 48,6% resistansi, dan 13,5% intermediet. Pada ekosistem lele, uji terhadap *enrofloxacin* menghasilkan 75,0% sensitif dan 25,0% resistansi tanpa isolat intermediet, sementara terhadap *streptomycin* menunjukkan 16,7% sensitif, 66,7% resistansi, dan 16,7% intermediet. Hasil penelitian ini memberikan gambaran komprehensif mengenai pola cemaran dan resistansi spesifik komoditas sebagai landasan evaluasi regulasi antibiotik serta mitigasi AMR di sektor perikanan air tawar Kecamatan Ngemplak.

Kata kunci: *Escherichia coli*, *Clarias* sp., Ngemplak, *Oreochromis* sp., Resistansi Antibiotik.

ABSTRACT

A SURVEY OF ENROFLOXACIN AND STREPTOMYCIN RESISTANCE IN *Escherichia coli* ISOLATES: AN INDICATOR OF VETERINARY PUBLIC HEALTH IN FRESHWATER FISH AND POND AQUACULTURE ENVIRONMENTS IN NGEMPLAK DISTRICT

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The rising incidence of antimicrobial resistance (AMR) in aquaculture ecosystems has emerged as a critical threat to global veterinary public health due to the risk of zoonotic bacterial contamination through the food chain. Epidemiological studies on the distribution of indicator bacteria, such as *Escherichia coli*, in central fisheries regions are essential to map fecal contamination levels and drug resistance patterns within aquaculture environments. This study aimed to isolate, identify, and determine the resistance profiles of *Escherichia coli* against *enrofloxacin* and *streptomycin* in tilapia (*Oreochromis* sp.) and catfish (*Clarias* sp.) aquaculture ecosystems in Ngemplak District using 140 sample units collected from muscle tissue, water, and soil compartments. Phenotypic identification through Gram staining and biochemical testing confirmed 49 isolates (35.00%) as *E. coli*, with a contamination prevalence of 44.05% (37/84) in the tilapia ecosystem and 21.43% (12/56) in the catfish ecosystem. The Kirby-Bauer susceptibility test results for the tilapia ecosystem showed that 70.3% of the isolates were sensitive, 18.9% were resistant, and 10.8% were intermediate to *enrofloxacin*, while 37.8% were sensitive, 48.6% were resistant, and 13.5% were intermediate to *streptomycin*. In the catfish ecosystem, susceptibility testing for *enrofloxacin* revealed 75.0% sensitive and 25.0% resistant isolates with no intermediate strains, whereas testing for *streptomycin* yielded 16.7% sensitive, 66.7% resistant, and 16.7% intermediate isolates. The findings of this study provide a comprehensive overview of commodity-specific contamination profiles and resistance patterns, serving as a baseline for evaluating antibiotic use regulations and implementing AMR mitigation strategies in the freshwater fisheries sector of Ngemplak District.

Key words: *Antibiotic Resistance, Clarias* sp., *Escherichia coli*, Ngemplak, *Oreochromis* sp.