

ABSTRAK

EFEKTIVITAS KOMBINASI ANTIBIOTIK TILOSIN-NORFLOKSASIN TERHADAP BAKTERI *Staphylococcus aureus* DAN *Escherichia coli*

Muhammad Farhan Pudi Hastawa
21/474742/KH/10867

Infeksi bakteri *Staphylococcus aureus* dan *Escherichia coli* merupakan tantangan utama dalam industri peternakan unggas karena dapat menurunkan produktivitas dan meningkatkan angka kematian ternak. Penggunaan kombinasi antibiotik, seperti tilosin (makrolida) dan norfloksasin (fluorokuinolon), menjadi strategi potensial untuk memperluas spektrum antibakteri dan menekan risiko resistensi pada infeksi polimikrobial. Penelitian ini menggunakan metode *Kirby-Bauer disc diffusion test* untuk menguji sensitivitas isolat *S. aureus* dan *E. coli* terhadap kombinasi tilosin-norfloksasin (Tyloflox[®]) pada tiga variasi dosis pengenceran (Perlakuan A dengan konsentrasi obat 0,01%, Perlakuan B dengan konsentrasi obat 0,02%, dan Perlakuan C dengan konsentrasi obat 0,04%). Disk antibiotik diletakkan pada media *Muller Hinton Agar* (MHA) yang telah diinokulasikan bakteri, bersama kontrol positif tetrasiklin dan kontrol negatif *blanc disc*, lalu diinkubasi 24 jam pada suhu 37°C. Diameter zona hambat diukur dan dianalisis menggunakan Kruskal-Wallis serta dilanjutkan dengan *Dunn Test*. Hasil penelitian menunjukkan rata-rata diameter zona hambat dari tiga pengulangan uji yang terbentuk terhadap *S. aureus* dan *E. coli* oleh kontrol tetrasiklin secara berurutan yaitu 21,17 mm dan 15,67 mm, oleh kombinasi tilosin-norfloksasin (Tyloflox[®]) Perlakuan A secara berurutan yaitu 19,17 mm dan 29 mm, Perlakuan B yaitu 22,33 mm dan 28,5 mm, serta Perlakuan C yaitu 23,67 mm dan 30 mm. Hasil pengukuran diameter zona hambat dari Tyloflox[®] terhadap kedua bakteri menunjukkan hasil sensitif. Analisis statistik menggunakan uji Kruskal-Wallis mengungkapkan adanya perbedaan signifikan ($p < 0,05$) antar kelompok perlakuan, yang selanjutnya dikonfirmasi melalui uji lanjut *Dunn Test* dan menunjukkan bahwa variasi dosis kombinasi antibiotik memberikan efek hambatan yang berbeda secara statistik terhadap pertumbuhan bakteri uji. Hasil penelitian ini membuktikan bahwa kombinasi antibiotik tilosin-norfloksasin (Tyloflox[®]) efektif dalam menghambat pertumbuhan bakteri *Staphylococcus aureus* dan *Escherichia coli*.

Kata kunci: tilosin, norfloksasin, Tyloflox[®], *Escherichia coli*, *Staphylococcus aureus*, uji sensitivitas

ABSTRACT

EFFECTIVITY OF TYLOSIN-NORFLOXACIN ANTIBIOTIC COMBINATION AGAINST *Staphylococcus aureus* AND *Escherichia coli* BACTERIA

Muhammad Farhan Pudi Hastawa
21/474742/KH/10867

Bacterial infections caused by *Staphylococcus aureus* and *Escherichia coli* are major challenges in the poultry industry because they can decrease livestock productivity and increase mortality rates. The use of antibiotic combinations, such as tylosin (a macrolide) and norfloxacin (a fluoroquinolone), is a potential strategy to broaden the antibacterial spectrum and reduce the risk of resistance in polymicrobial infections. This study used the *Kirby-Bauer disc diffusion* test method to assess the sensitivity of *S. aureus* and *E. coli* isolates to the tilosin-norfloxacin combination (Tyloflox[®]) at three dilution dose variations (Treatment A with a drug concentration of 0.01%, Treatment B with a drug concentration of 0.02%, and Treatment C with a drug concentration of 0.04%). Antibiotic discs were placed on Mueller Hinton Agar (MHA) media that had been inoculated with bacteria, along with tetracycline as a positive control and blank discs as a negative control, then incubated for 24 hours at 37°C. The inhibition zone diameters were measured and analyzed using the Kruskal-Wallis test followed by the Dunn Test. The results showed that the average inhibition zone diameters from three test replications against *S. aureus* and *E. coli* by the tetracycline control were 21.17 mm and 15.67 mm, respectively. For the tilosin-norfloxacin combination (Tyloflox[®]), Treatment A showed diameters of 19.17 mm and 29 mm, Treatment B 22.33 mm and 28.5 mm, and Treatment C 23.67 mm and 30 mm, respectively. The results of the inhibition zone diameter measurements of Tyloflox[®] against both bacteria showed sensitive outcomes. Statistical analysis using the Kruskal-Wallis test revealed significant differences ($p < 0.05$) among treatment groups, which were further confirmed by the Dunn Test, demonstrating that variations in the antibiotic combination dosage produced statistically different inhibitory effects on the growth of the tested bacteria. This study demonstrates that the tilosin-norfloxacin antibiotic combination (Tyloflox[®]) is effective in inhibiting the growth of *Staphylococcus aureus* and *Escherichia coli*.

Key words: tylosin, norfloxacin, Tyloflox[®], *Escherichia coli*, *Staphylococcus aureus*, sensitivity test