ABSTRAK

PROFIL RESISTENSI ANTIBIOTIK TERHADAP *ESCHERICHIA COLI* PADA DAGING SAPI YANG DIJUAL DI PASAR TRADISIONAL PROVINSI YOGYAKARTA

Muhammad Shalahuddin Rahmaan
21/482363/KH/11008

Penggunaan antibiotik pada hewan penghasil pangan, seperti sapi, terus meningkat. Pemanfaatan antibiotik dengan dosis yang tidak sesuai dapat memicu resistensi bakteri, termasuk *Escherichia coli*. Resistensi antibiotik pada *E. coli* telah ditemukan pada daging sapi dan menjadi permasalahan serius. Penelitian ini bertujuan untuk mengidentifikasi profil resistensi antibiotik penisilin G, eritromisin, oksitetrasiklin, dan enrofloksasin pada bakteri *Escherichia coli* yang terdapat pada daging sapi di lima pasar tradisional Provinsi Yogyakarta yang diambil melalui metode *convenience sampling*. Dalam penelitian ini menggunakan sebanyak 20 sampel isolat daging sapi. Sampel dikultur dengan media *Buffered Peptone Water* (BPW) kemudian diinokulasi pada media *Eosine Methylene Blue Agar* (EMB). Pengecatan gram dan uji katalase dilakukan pada koloni bakteri yang tumbuh terpisah dan memiliki warna ungu tua disertai warna hijau metalik. Koloni yang terindikasi *E coli* dilakukan identifikasi lanjutan melalui uji biokimia. Hasil uji ini, ditemukan sebanyak 16 isolat *E. coli* tanpa H_2S, satu isolat *E. coli* dengan H_2S, dan satu isolat *Escherichia fergusonii* yang tidak dilanjutkan uji resistensi antibiotik. Perbedaan menciri pada isolat *E. coli* tanpa H_2S dengan isolat *E. coli* dengan H_2S adalah pada uji *Triple Sugar Iron* Agar (TSIA) dan *Lysine Iron Agar* (LIA) yang terlihat terdapat adanya presipitat hitam pada media. Uji resistensi antibiotik dilakukan pada 17 isolat *E. coli* dengan metode *Kirby-Bauer* terhadap penisilin G 10µg, eritromisin 15µg, oksitetrasiklin 30µg, dan enrofloksasin 5µg. Pengukuran zona hambat dilakukan dan turut dikomparasikan dengan standar dari *Clinical Standards Laboratory Institute* (CLSI). Diperoleh hasil yang menunjukkan bahwa masing-masing isolat resisten terhadap penisilin (100%), eritromisin (76%), dan oksitetrasiklin (29%) serta sensitif terhadap enrofloksasin (100%). Ditemukan *multidrug resistance* pada 23% isolat *E. coli* terhadap antibiotik penisilin, eritromisin, dan oksitetrasiklin. Kesimpulan tingkat resistensi isolat *E. coli* dari tertinggi yaitu penisilin, eritromisin, oksitetrasiklin, dan enrofloksasin.

Kata kunci: *Escherichia coli, Antibiotik, Resistensi Antibiotik*, *Daging Sapi*

ABSTRACT

ANTIBIOTIC RESISTANCE PROFILE OF *ESCHERICHIA COLI* IN BEEF SOLD AT TRADITIONAL MARKETS IN YOGYAKARTA PROVINCE

Muhammad Shalahuddin Rahmaan
21/482363/KH/11008

The use of antibiotics in food-producing animals, such as cattle, continues to increase. The administration of antibiotics at inappropriate dosages can trigger bacterial resistance, including in *Escherichia coli*. Antibiotic resistance in *E. coli* has been detected in beef and poses a serious problem. This study aims to identify the antibiotic resistance profiles of penicillin G, erythromycin, oxytetracycline, and enrofloxacin in *Escherichia coli* bacteria isolated from beef obtained from five traditional markets in Yogyakarta Province using convenience sampling. A total of 20 beef isolates were used in this study. The samples were cultured in *Buffered Peptone Water* (BPW) medium and then inoculated onto *Eosin Methylene Blue Agar* (EMB). Gram staining and catalase tests were performed on isolated bacterial colonies exhibiting dark purple coloration with a metallic green sheen. Colonies suspected to be *E. coli* underwent further biochemical identification. The results revealed 16 *E. coli* isolates without H_2S production, one *E. coli* isolate with H_2S production, and one *Escherichia fergusonii* isolate, which was excluded from further antibiotic resistance testing. The distinguishing feature between *E. coli* isolates without H_2S and those with H_2S was observed in *Triple Sugar Iron Agar* (TSIA) and *Lysine Iron Agar* (LIA) tests, where black precipitates formed in the medium. Antibiotic resistance testing was conducted on 17 *E. coli* isolates using the Kirby-Bauer method against penicillin G (10 µg), erythromycin (15 µg), oxytetracycline (30 µg), and enrofloxacin (5 µg). Inhibition zones were measured and compared with *Clinical and Laboratory Standards Institute* (CLSI) guidelines. The results showed that all isolates were resistant to penicillin (100%), erythromycin (76%), and oxytetracycline (29%), while remaining sensitive to enrofloxacin (100%). Multidrug resistance to penicillin, erythromycin, and oxytetracycline was observed in 23% of *E. coli* isolates. In conclusion, the resistance levels of *E. coli* isolates were highest against penicillin, followed by erythromycin, oxytetracycline, and enrofloxacin.

Keywords**:** *Escherichia coli*, *Antibiotics, Antibiotic Resistance, Beef*