

ABSTRAK

KAJIAN LINTAS SEKSIONAL RESISTANSI *Escherichia coli* TERHADAP BERBAGAI ANTIBIOTIK PADA SAPI POTONG DI KABUPATEN BANTUL

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Sapi potong merupakan hewan ternak utama penghasil pangan sekaligus penggerak ekonomi, khususnya pada peternakan rakyat. Ternak ini dapat menjadi pembawa bakteri *Escherichia coli* yang berpotensi memiliki gen resistan antibiotik. Resistansi antibiotik adalah ancaman kesehatan global yang penyebarannya dapat diperburuk oleh manajemen peternakan yang kurang baik. Penelitian ini bertujuan untuk mengetahui prevalensi dan tingkat resistansi *E. coli* terhadap antibiotik, serta menganalisis faktor risiko manajemen peternakan pada sapi potong di Kabupaten Bantul. Studi ini menggunakan desain lintas seksional (*cross-sectional*). Spesimen berupa *swab* rektal dan feses diambil langsung dari 123 ekor sapi milik 69 peternak di lima kecamatan. Isolasi dan identifikasi *E. coli* dilakukan menggunakan media spesifik (*EMB Agar*) dan uji biokimia (*TSIA*, *LIA*, *Simmons' Citrate Agar*, *SIM Media*, dan *MR-VP*), dilanjutkan uji sensitivitas antibiotik metode difusi cakram (*Kirby-Bauer Method*) terhadap *Ampicillin*, *Penicillin G*, *Streptomycin*, *Sulfamethoxazole-Trimethoprim*, *Oxytetracycline*, dan *Ciprofloxacin*. Analisis data dilakukan secara deskriptif dan bivariat menggunakan uji *Chi-Square* untuk mengetahui asosiasi faktor risiko terhadap kejadian resistansi (*p-value* dan *odds ratio/OR*). Hasil menunjukkan prevalensi *E. coli* pada sapi potong di Kabupaten Bantul sebesar 33,3% (41/123). Tingkat resistansi tertinggi terjadi pada *Penicillin G* (92,6%), diikuti *Ciprofloxacin* (21,9%), *Streptomycin* (14,6%), *Ampicillin* (7,3%), *Oxytetracycline* (4,8%), dan *Sulfamethoxazole-Trimethoprim* (2,4%), dengan 13,3% isolat bersifat *Multidrug Resistant* (MDR). Analisis bivariat menunjukkan asosiasi yang signifikan antara tipe kandang dengan kejadian resistansi ($p = 0,029$; $OR = 2,640$), sedangkan variabel manajemen lain tidak signifikan. Studi ini menyimpulkan bahwa tingkat resistansi *E. coli* terhadap *Penicillin G* pada sapi potong pada 5 Kecamatan di Kabupaten Bantul sangat tinggi (92,6%), dengan tipe kandang kelompok sebagai faktor yang berasosiasi dengan kejadian resistansi antibiotik.

Kata kunci: Antibiotik, *Escherichia coli*, Manajemen Peternakan, Resistansi, Sapi Potong.

ABSTRACT

CROSS-SECTIONAL STUDY *Escherichia coli* RESISTANCE TO VARIOUS ANTIBIOTICS IN BEEF CATTLE IN BANTUL REGENCY, SPECIAL REGION OF YOGYAKARTA

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Beef cattle are the primary food-producing livestock and an economic driver, particularly in smallholder farms. These livestock can act as carriers of *Escherichia coli* bacteria, which potentially harbor antibiotic resistance genes. Antibiotic resistance is a global health threat, the spread of which can be exacerbated by poor farm management. This study aimed to determine the prevalence and resistance levels of *E. coli* to antibiotics, and to analyze farm management risk factors in beef cattle in Bantul Regency. This study employed a cross-sectional design. Specimens consisting of rectal swabs and feces were collected directly from 123 cattle belonging to 69 farmers across five sub-districts. Isolation and identification of *E. coli* were performed using specific media (EMB Agar) and biochemical tests (TSIA, LIA, Simmons' Citrate Agar, SIM Media, and MR-VP), followed by antibiotic susceptibility testing using the disk diffusion method (Kirby-Bauer Method) against Ampicillin, Penicillin G, Streptomycin, Sulfamethoxazole-Trimethoprim, Oxytetracycline, and Ciprofloxacin. Data analysis was conducted descriptively and bivariately using the Chi-Square test to determine the association of risk factors with the incidence of resistance (p-value and odds ratio/OR). The results showed that the prevalence of *E. coli* in beef cattle in Bantul Regency was 33.3% (41/123). The highest resistance rate was observed against Penicillin G (92.6%), followed by Ciprofloxacin (21.9%), Streptomycin (14.6%), Ampicillin (7.3%), Oxytetracycline (4.8%), and Sulfamethoxazole-Trimethoprim (2.4%), with 13.3% of the isolates being Multidrug-Resistant (MDR). Bivariate analysis revealed a significant association between housing type and the incidence of resistance ($p = 0.029$; OR = 2.640), whereas other management variables were not significant. This study concludes that the resistance level of *E. coli* to Penicillin G in beef cattle across 5 sub-districts in Bantul Regency is very high (92.6%), with group housing type identified as a factor associated with the occurrence of antibiotic resistance.

Key words: Antibiotics, *Escherichia coli*, Farm Management, Resistance, Beef Cattle