

ABSTRAK

KAJIAN LINTAS SEKSIONAL RESISTANSI *Escherichia coli* TERHADAP ANTIBIOTIK PADA SAPI POTONG DI KABUPATEN SLEMAN, DAERAH ISTIMEWA YOGYAKARTA

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Sapi potong merupakan komoditas penting dalam penyediaan pangan namun sistem pemeliharaan yang dekat dengan manusia dan lingkungan berpotensi meningkatkan penyebaran bakteri serta resistansi antibiotik. *Escherichia coli* sebagai bakteri indikator dapat digunakan untuk menggambarkan potensi masalah tersebut pada peternakan masyarakat. Penelitian ini bertujuan mengetahui keberadaan *Escherichia coli* pada sapi potong, tingkat resistansi *Escherichia coli* terhadap antibiotik, dan faktor risiko resistansi *Escherichia coli* berdasarkan manajemen pemeliharaan pada peternakan sapi potong di Kabupaten Sleman, Daerah Istimewa Yogyakarta. Penelitian menggunakan rancangan lintas seksional pada Agustus 2024–Mei 2025 di lima kecamatan, yaitu Minggir, Seyegan, Pakem, Cangkringan, dan Prambanan. Sampel berupa *swab rectal* dan feses kandang dari 62 ekor sapi milik 40 peternak yang diambil secara acak sederhana. Isolasi bakteri dilakukan menggunakan *Buffered Peptone Water* dan *Eosin Methylene Blue Agar*, dilanjutkan identifikasi bakteri melalui pengecatan Gram serta uji biokimia. Uji sensitivitas antibiotik penisilin G, oksitetrasiklin, ampicilin, *ciprofloxacin*, *sulfamethoxazole*, dan streptomisin dilakukan dengan metode *Kirby-Bauer*. Data dianalisis secara deskriptif, uji *Chi-square*, dan *odds ratio*. Hasil penelitian menunjukkan bahwa *Escherichia coli* ditemukan pada 33 (53,2%) isolat dari 62 *swab rectal* sapi potong dan terdapat 33 (100%) isolat resistan terhadap penisilin G, 2 (6,1%) isolat resistan oksitetrasiklin, 2 (6,1%) isolat resistan *sulfamethoxazole*, 2 (6,1%) isolat resistan streptomisin, dan 1 (3,0%) isolat resistan *ciprofloxacin*. Frekuensi pembersihan kandang yang dibersihkan seminggu 1-3 kali berpeluang pada kejadian resistansi antibiotik penisilin G 16,698 lebih besar dibandingkan dengan kandang yang dibersihkan setiap hari (*p-value*=0,008). Penelitian ini menyimpulkan bahwa peternakan sapi potong di Sleman memiliki potensi 53,2% sebagai sumber penyebaran *Escherichia coli* resistan terutama antibiotik penisilin G sehingga diperlukan penggunaan antibiotik yang bijak serta perbaikan frekuensi kebersihan kandang.

Kata Kunci: antibiotik, *Escherichia coli*, resistansi, sapi potong, Sleman

ABSTRACT

Cross-Sectional Study of *Escherichia coli* Resistance to Antibiotics in Beef Cattle in Sleman Regency, Special Region of Yogyakarta

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Beef cattle are an important commodity in food supply, but management systems that are close to humans and the environment have the potential to increase the spread of bacteria and antibiotic resistance. *Escherichia coli* as an indicator bacterium can be used to illustrate the potential problems in community farms. This study aims to determine the presence of *Escherichia coli* in beef cattle, the level of resistance of *Escherichia coli* to antibiotics, and the risk factors for *Escherichia coli* resistance based on management practices in beef cattle farms in Sleman Regency, Special Region of Yogyakarta. The research used a cross-sectional design from August 2024 to May 2025 in five districts, namely Minggir, Seyegan, Pakem, Cangkringan, and Prambanan. The samples consisted of rectal swabs and feces from 62 cows owned by 40 farmers, taken randomly. Bacterial isolation was performed using Buffered Peptone Water and Eosin Methylene Blue Agar, followed by bacterial identification thru Gram staining and biochemical tests. Antibiotic sensitivity tests for penicillin G, oxytetracycline, ampicillin, ciprofloxacin, sulfamethoxazole, and streptomycin were conducted using the Kirby-Bauer method. Data were analyzed descriptively, using Chi-square tests, and odds ratios. The research results show that *Escherichia coli* was found in 33 (53.2%) isolates from 62 rectal swabs of beef cattle, and there were 33 (100%) penicillin G-resistant isolates, 2 (6.1%) oxytetracycline-resistant isolates, 2 (6.1%) sulfamethoxazole-resistant isolates, 2 (6.1%) streptomycin-resistant isolates, and 1 (3.0%) ciprofloxacin-resistant isolate. The frequency of barn cleaning, with cleaning done 1-3 times a week, had a 16.698 times higher chance of penicillin G antibiotic resistance compared to barns cleaned daily (p-value=0.008). This study concludes that beef cattle farms in Sleman have a 53.2% potential as a source of resistant *Escherichia coli*, particularly penicillin G, thus necessitating prudent antibiotic use and improved cleaning frequency of the pens.

Keywords: antibiotics, *Escherichia coli*, resistance, beef cattle, Sleman