ABSTRAK

DETEKSI GEN *mcr*-1 PADA *Escherichia coli* RESISTEN COLISTIN ASAL PETERNAKAN BROILER DAN LAYER DI KABUPATEN SLEMAN

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Penggunaan antibiotik yang tidak sesuai anjuran dalam upaya pencegahan dan pengobatan infeksi dalam bidang peternakan berdampak pada munculnya bakteri resistan yang memberikan ancaman besar dalam kehidupan manusia dan hewan. Penggunaan colistin sebagai pilihan antibiotik untuk pengobatan infeksi bakteri *Escherichia coli* dapat menyebabkan munculnya *Escherichia coli* yang resisten colistin. Tujuan dari penelitian ini adalah untuk mendeteksi adanya gen *mcr*-1 sebagai gen yang berkontribusi terhadap resistensi colistin pada bakteri *Escherichia coli* dari peternakan broiler dan layer di Kabupaten Sleman. Sampel pada penelitian ini berupa swab kloaka dari 32 ayam pedaging dan 30 ayam petelur. Deteksi *Escherichia coli* resisten colistin dilakukan dengan isolasi sampel pada MacConkey Agar dan Chromocult Agar serta uji biokemis seperti uji *Triple Sugar Iron Agar* (TSIA), urease, *Indole, Methyl Red, Voges-Proskauer, Citrate* (IMViC), dan fermentasi karbohidrat. Deteksi gen *mcr*-1 dilakukan menggunakan *Polymerase Chain Reaction* (PCR). *Escherichia coli* resisten colistin ditemukan pada 88% isolat broiler dan 50% isolat layer dari bakteri resisten pada sampel broiler dan layer, tetapi saat dilakukan uji PCR tidak ditemukan gen *mcr*-1. Hasil ini menunjukkan bahwa resistensi colistin merupakan ancaman berbahaya di Indonesia mengingat sudah ditemukannya *Escherichia coli* resisten colistin.

Kata kunci : *Escherichia coli,* resistensi, colistin, *mcr*-1

ABSTRACT

DETECTION OF *mcr*-1 GENE IN COLISTIN-RESISTANT *Escherichia coli* FROM BROILER AND LAYER FARMS AT KABUPATEN SLEMAN

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The use of antibiotics which is not as recommended in the prevention and treatment of bacterial infections in livestock has resulted in the emergence of resistant bacteria which pose a major threat to human and animal life. The use of colistin as a choice of antibiotic for the treatment of *Escherichia coli* infection can lead to emergence of colistin-resistant *Escherichia coli.* This research was done to detect *mcr*-1 gene that contribute to colistin resistance in *Escherichia coli* from broiler and layer farms in Sleman. Sample in this research was a cloacal swab from 32 broilers and 30 layer chickens. Detection of colistin-resistant *Escherichia coli* was carried out by isolating samples on MacConkey Agar and Chromocult Agar also biochemical tests such as Triple Sugar Iron Agar (TSIA), urease, Indole, Methyl Red, Voges-Proskauer, Citrate (IMViC), and carbohydrate fermentation tests. Detection of the *mcr*-1 gene was carried out using Polymerase Chain Reaction **(**PCR). Colistin-resistant *Escherichia coli* was found in 88% of broiler isolates and 50% of layer isolates from resistant bacteria in broiler and layer samples, but when the PCR test was carried out the *mcr*-1 gene was not found. This result showed that colistin resistance is a dangerous threat in Indonesia considering that colistin-resistant *Escherichia coli* has been discovered.

Key words : *Escherichia coli,* resistance, colistin, *mcr*-1