

ABSTRAK

IDENTIFIKASI GEN *blaTEM* BAKTERI *Escherichia coli* PADA URINE PASIEN DIABETES MELITUS METODE *POLYMERASE CHAIN REACTION*

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Keberadaan bakteri *Escherichia coli* pada urine pasien diabetes melitus terjadi karena tingginya kadar gula darah pada urine. Penelitian ini bertujuan untuk mengidentifikasi gen *blaTEM* pada bakteri *E. coli* dari urine pasien DM menggunakan metode *Polymerase Chain Reaction* (PCR). Gen *blaTEM* pada *E. coli* merupakan salah satu faktor penyebab resistensi *E. coli* terhadap antibiotik. Populasi berjumlah 100 pasien DM di UPTD Puskesmas II Dinas Kesehatan Denpasar Timur dan diperoleh sampel sebanyak 20 responden. Desain penelitian yang digunakan adalah deskriptif. Hasil penelitian dari 20 sampel urine pasien DM yang dikumpulkan menunjukkan bahwa responden didominasi oleh kelompok usia 61-70 tahun (50%), berjenis kelamin laki-laki (55%), dan mayoritas memiliki kadar gula darah puasa (GDP) tidak normal atau ≥ 126 mg/dL (75%). Tahap kultur pada media EMBA berhasil mengisolasi bakteri *Escherichia coli* pada 5 sampel (25%) yang ditandai dengan munculnya koloni hijau metalik khas. Melalui identifikasi PCR terhadap kelima isolat tersebut, ditemukan sebanyak 4 sampel (80%) terdeteksi positif memiliki gen *blaTEM* yang ditunjukkan oleh munculnya pita DNA pada rentang 858-900 bp. Terdapat keberadaan gen *blaTEM* pada bakteri *E. coli* di urine pasien DM, yang mengindikasikan adanya potensi resistensi terhadap antibiotik golongan penisilin dan sefalosporin.

Kata kunci: Diabetes Melitus, Urine, *Escherichia coli*, gen *blaTEM*, PCR.

ABSTRACT

IDENTIFICATION OF THE *blaTEM* GENE IN *Escherichia coli* BACTERIA FROM THE URINE OF DIABETES MELLITUS PATIENTS USING THE POLYMERASE CHAIN REACTION METHOD

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The presence of *Escherichia coli* bacteria in the urine of patients with diabetes mellitus occurs due to high blood glucose levels in the urine. This study aimed to identify the *blaTEM* gene in *E. coli* isolated from the urine of patients with diabetes mellitus using the Polymerase Chain Reaction (PCR) method. The *blaTEM* gene in *E. coli* is one of the factors contributing to antibiotic resistance. The study population consisted of 100 patients with diabetes mellitus at UPTD Puskesmas II, East Denpasar Health Office, and a sample of 20 respondents was obtained. The research design used was descriptive. The results of the study from 20 urine samples collected from patients with diabetes mellitus showed that the respondents were predominantly in the 61–70 years age group (50%), male (55%), and the majority had abnormal fasting blood glucose levels (≥ 126 mg/dL) (75%). The culture stage on EMBA medium successfully isolated *Escherichia coli* in 5 samples (25%), indicated by the appearance of characteristic metallic green colonies. Through PCR identification of the five isolates, 4 samples (80%) were found to be positive for the *blaTEM* gene, as indicated by the presence of DNA bands in the 858–900 bp range. The presence of the *blaTEM* gene in *E. coli* isolated from the urine of patients with diabetes mellitus indicates potential resistance to antibiotics of the penicillin and cephalosporin groups.

Keywords: Diabetes Mellitus, Urine, *Escherichia coli*, *blaTEM* gene, PCR.