

## ABSTRAK

*Escherichia coli* penghasil ESBL bertanggungjawab terhadap peningkatan morbiditas, mortalitas, dan wabah infeksi nosokomial karena adanya enzim yang dikode oleh gen CTX-M.

Penelitian ini bertujuan untuk mengidentifikasi isolat klinik bakteri *Escherichia coli* yang berasal dari urin pasien pada bulan Mei sampai Juni 2019. Jenis penelitian yang digunakan yakni deskriptif observasional dengan pendekatan molekuler genetik. Sampel yang digunakan merupakan isolat klinik bakteri *Escherichia coli* penghasil ESBL yang terkumpul dari bulan Mei sampai Juni 2019 yang merupakan koleksi laboratorium intalasi mikrobiologi klinik RSUD dr. Iskak Tulungagung yakni sebanyak delapan isolat. Penelitian dilakukan di Laboratorium Gastroenterologi ITD Universitas Airlangga Surabaya. Metode yang digunakan untuk mengidentifikasi gen CTX-M yakni dengan PCR (*Polymerase Chain Reaction*), Elektroforesis, dan divisualisasi pada gel agarose 1.5% dengan *uv transluminator*.

Hasil penelitian menunjukkan bahwa Isolat Klinik bakteri *Escherichia coli* yang ditemukan sebanyak delapan isolat. Hasil identifikasi menunjukkan sebanyak tujuh isolat (87,5%) positif terdapat gen CTX-M. Isolat Klinik bakteri *Escherichia coli* penghasil ESBL yang ditemukan sebanyak delapan isolat. Hasil identifikasi menunjukkan sebanyak satu isolat (12,5%) negatif tidak terdapat gen CTX-M.

Kesimpulan dari penelitian bahwa identifikasi bakteri penghasil ESBL secara genotip penting dilakukan supaya terapi antibiotik yang diberikan kepada pasien lebih efektif dan efisien.

**Kata kunci : CTX-M, ESBL, *Escherichia coli*, PCR**

## ABSTRACT

ESBL-producing *Escherichia coli* is responsible for increased morbidity, mortality, and outbreaks of nosocomial infections due to the presence of enzymes encoded by the CTX-M gene.

This study aims to identify clinical isolates of *Escherichia coli* bacteria originating from the urine of patients in May to June 2019. The type of research used is descriptive observational approach to genetic molecules. The sample used was a clinical isolate of ESBL producing *Escherichia coli* bacteria collected from May to June 2019 which is a collection of clinical microbiology installation laboratories at the RSUD Dr. Iskak Tulungagung namely as many as eight isolates. The research was conducted at the ITD Gastroentology Laboratory, Airlangga University, Surabaya. The method used to identify the CTX-M gene is PCR (*Polymerase Chain Reaction*), Electrophoresis, and visualized on a 1.5% agarose gel with UV transluminator.

The results showed that the Clinical Isolates of *Escherichia coli* bacteria were found in eight isolates. The identification results showed that seven isolates (87.5%) positive contained the CTX-M gene. Clinical Isolates of ESBL producing *Escherichia coli* bacteria found as many as eight isolates. The identification results showed that one isolate (12.5%) was negative there was no CTX-M gene.

The conclusion of the study are the identification of genotype ESBL producing bacteria is important so that antibiotic therapy given to patients is more effective and efficient.

**Keywords : CTX-M, ESBL, Escherichia coli, PCR**