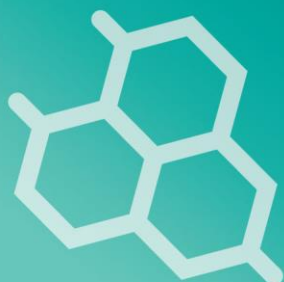


ISSN: 2663-9513 (Online)

ISSN: 2663-9505 (Print)



# South Asian Journal of **BIOLOGICAL RESEARCH**



## MOLECULAR CHARACTERIZATION AND ANTIMICROBIAL RESISTANCE OF *Escherichia coli* ISOLATED FROM RETAIL CHICKEN MEAT

Ahsan Habib , Farzana Afroz , Dr. Md. Mostafizer Rahman, Mst. Deloara Begum,  
M Kamruzzaman , Md. Atiqul Haque

**To cite the article:** Ahsan Habib , Farzana Afroz , Dr. Md. Mostafizer Rahman, Mst. Deloara Begum, M Kamruzzaman , Md. Atiqul Haque (2021). Molecular characterization and antimicrobial resistance of escherichia coli isolated from retail chicken meat, *South Asian Journal of Biological Research*, 4(1): 38-47.

**Link to this article:** <http://aiipub.com/journals/sajbr-210730-031168/>

Article QR



Journal QR



## MOLECULAR CHARACTERIZATION AND ANTIMICROBIAL RESISTANCE OF *Escherichia coli* ISOLATED FROM RETAIL CHICKEN MEAT

Ahsan Habib<sup>1</sup>, Farzana Afroz<sup>2</sup>, Dr. Md. Mostafizer Rahman<sup>3</sup>, Mst. Deloara Begum<sup>4</sup>, M Kamruzzaman<sup>5</sup>, Md. Atiqul Haque<sup>6</sup>

\*Corresponding author E-mail: [farzana.afroz2010@gmail.com](mailto:farzana.afroz2010@gmail.com)

### ARTICLE INFO

**Article Type:** Research

**Received:** 06, July, 2021.

**Accepted:** 18, Aug, 2021.

**Published:** 18, Aug, 2021.

### Keywords:

Retail chicken meat, *Escherichia coli*, Polymerase Chain Reaction (PCR), 16SrRNA, National Center for Biotechnology Information (NCBI) Basic Local Alignment Search Tool (BLAST), Antibiotic sensitivity test

### ABSTRACT

This study was conducted to investigate the prevalence of *E. coli* in retail chicken meat and to determine the drug resistance profile of *E. coli* in Dinajpur district, Bangladesh. A total of 38 chicken meat samples were collected from different markets of Dinajpur city. *E. coli* were isolated and identified by colony characteristics on selective agar like Eosine-methylene blue (EMB) agar, Gram staining, biochemical test and Polymerase Chain Reaction (PCR). Universal Primers (16SrRNA) were used for molecular characterization of *E. coli* during PCR. The amplified size of PCR product was 1000 bp and after NCBI BLAST of the sequence which was obtained by Sanger sequencing method was mostly matched (98%) to *Escherichia coli* IAI39. The overall prevalence of *E. coli* in chicken meat was 60.5%. Antibiotic sensitivity test showed that *E. coli* isolated from chicken meat were resistant to amoxicillin (91.4%), erythromycin (73.9%), and susceptible to Ciprofloxacin(82.6%), Gentamicin (78.2%) and Azithromycin (60.8%). One of the major findings of the study was that 43.5% isolated *E. coli* were resistant against colistin (one of the last-resort antibiotics). The higher prevalence of *E. coli* in chicken meat indicated unhygienic production and processing of these meat samples. Presence of multi-drug resistant *E. coli* in these chicken meat samples might pose serious public health threats. The antibiogram profile of the isolated *E. coli* will help therapeutic decision making in the treatment of colibacillosis in Bangladesh.



This work is licensed under a [Creative Commons Attribution 4.0 International License](https://creativecommons.org/licenses/by/4.0/).

<sup>1</sup> Ahsan Habib, MS student, Department of Microbiology, Faculty of Veterinary and Animal Science, Hajee Mohammad Danesh Science and technology university, Dinajpur, Bangladesh

<sup>2</sup> Farzana Afroz, Assistant Professor, Department of Microbiology, Faculty of Veterinary and Animal Science, Hajee Mohammad Danesh Science and technology university, Dinajpur, Bangladesh

<sup>3</sup> Prof. Dr. Md. Mostafizer Rahman, Professor Department of Microbiology, Faculty of Veterinary and Animal Science, Hajee Mohammad Danesh Science and technology university, Dinajpur, Bangladesh

<sup>4</sup> Mst. Deloara Begum, Assistant Professor, Department of Microbiology, Faculty of Veterinary and Animal Science, Hajee Mohammad Danesh Science and technology university, Dinajpur, Bangladesh

<sup>5</sup> Md. Kamruzzaman(Mitoo), Assistant Professor, Department of Dairy and poultry Science, Faculty of Veterinary and Animal Science, Hajee Mohammad Danesh Science and technology university, Dinajpur, Bangladesh

<sup>6</sup> Md. Atiqul Haque, Assistant Professor, Department of Microbiology, Faculty of Veterinary and Animal Science, Hajee Mohammad Danesh Science and technology university, Dinajpur, Bangladesh