

# Antibiotic Susceptibility Profiling of *Escherichia coli* Isolated from a Food Sample Using Disc Diffusion Method

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**Abstract:** *The rising prevalence of antibiotic-resistant bacteria in the food chain is a major public health concern. In this study, Escherichia coli was isolated from a single randomly selected food sample, identified through morphological, biochemical, and subjected to antibiotic susceptibility testing (AST) using the disc diffusion test with the help of HiMedia Antibiotic Disc IC002. Following isolation of multiple bacterial colonies and screening for antibiotic sensitivity, an E. coli strain was confirmed with the help of molecular approach i.e. 16S rRNA gene sequencing. The inhibition zones of selected antibiotics were measured around each disc to determine sensitivity or resistance. Although the exact values were varied by isolate and antibiotic, the method provides a structured approach to monitor food-borne bacterial resistance. The results are discussed in the context of current resistance mechanisms in E. coli, potential risks associated with foodborne transmission of resistant strains, and implications for antibiotic stewardship. The study underscores the importance of continual surveillance of antibiotic susceptibility of foodborne E. coli and the need for integrating molecular identification with phenotypic testing to understand resistance patterns*

**Keywords:** *Escherichia coli*, foodborne bacteria, antibiotic susceptibility testing, HiMedia Octa Disc, antibiotic resistance

