

ABSTRACTS: VOLUME 8, SPECIAL ISSUE {8th Undergraduate Conference}

ANTIBIOTIC RESISTANCE IN *E. COLI* ISOLATED FROM LOCALLY CULTIVATED MINT IN HEBRON, PALESTINE

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Abstract

Background: Antimicrobial resistance (AMR) is a major global public health concern. Fresh leafy vegetables may act as reservoirs of resistant bacteria because contamination can occur during cultivation, irrigation, harvesting, transport, or sale. *Escherichia coli* is widely used as an indicator of fecal contamination and has frequently been isolated from fresh produce worldwide. In Palestine, information on antibiotic-resistant bacteria in vegetables is limited, particularly in mint, which is commonly consumed fresh.

Objectives: This study aimed to investigate whether locally cultivated mint sold in grocery markets in Hebron, Palestine, is contaminated with antibiotic-resistant *E. coli*. The objectives were to isolate and confirm *E. coli* from mint samples and to evaluate the antibiotic resistance patterns of confirmed isolates.

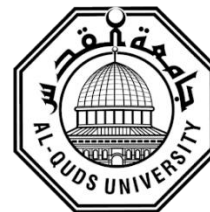
Methods: A total of 14 locally cultivated mint samples were collected from grocery stores in Hebron between January and March 2024. Presumptive *E. coli* isolates were obtained through enrichment and selective culturing. Phenotypic identification was performed using biochemical tests, and confirmation was carried out by colony PCR targeting the *uidA* gene. Confirmed isolates were tested for antibiotic resistance using the Kirby–Bauer disc diffusion method in accordance with CLSI guidelines.

Results: Among 28 presumptive isolates, 13 were confirmed as *E. coli*. Resistance was observed primarily to tetracycline (53.9%) and chloramphenicol (46.2%). Heteroresistance to levofloxacin was detected in 15.4% of isolates, while 61.5% showed intermediate resistance to cefuroxime. No multidrug-resistant isolates were identified. These findings indicate the presence of antibiotic-resistant *E. coli* in mint sold in Hebron grocery markets.

Conclusions: This study provides initial evidence of antibiotic-resistant *E. coli* contamination in locally cultivated mint in Hebron, Palestine. The findings highlight the importance of monitoring bacterial contamination and antibiotic resistance in fresh produce and underscore the need for further research on contamination sources and associated public health risks.



PalStudent Journal
A Palestinian Scientific Journal for the Youth



Keywords: *Escherichia coli*; Antibiotic resistance; Multidrug resistance (MDR); Mint; Fecal contamination; Phenotypic resistance.

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