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## Antimicrobial Resistance of *Escherichia coli* Isolates in Romaine Lettuce from Vegetable Markets in Marilog District, Davao City, Philippines

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**Abstract**

The consumption of lettuce (*Lactuca sativa* L.) has become a trend due to its health benefits. However, lettuce, in general, has been described as a reservoir of pathogenic microbes such as antimicrobial-resistant (AMR) *E. coli*, posing a health risk to consumers that may lead to an outbreak of foodborne pathogens. The MPN test was used for coliform enumeration. *E. coli* isolation used membrane filtration techniques and subculture techniques, confirmed by gram staining. The antimicrobial susceptibility profiles of the *E. coli* isolates were determined using the Kirby-Bauer disk diffusion assay. A Chi-square test of independence correlated coliform contamination and AMR. The study found that among the 50 Romaine lettuce samples, the average level of coliform contamination was 693.52 MPN/g, a value above the acceptable limit in vegetables. Among the *E. coli* isolates, 60% were susceptible to amikacin (30 µg), and 90% were susceptible to nalidixic acid (30 µg). AMR *E. coli* isolates were found, with 85% resistant to ampicillin (10 µg), 40% resistant to ticarcillin (75 µg), 15% resistant to cefazolin (30 µg), and 45% expressing multidrug resistance. The Chi-square test of independence showed that coliform contamination and AMR had a significant relationship, with AMR found more frequently in samples with low MPN/g. This study emphasizes the need for surveillance of AMR bacterial strains in fresh produce and the implementation of better sanitary practices in the post-harvest handling of lettuce.