Assessment of Antimicrobial Resistant Bacteria Prevalence in Mamotintane Village Water Sources

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***Abstract*—** Antimicrobial resistance is a global health threat driven by misuse of antibiotics. This resistance occurs when bacteria develop mechanisms to evade the effects of antibiotics. The study aimed to assess the prevalence of antimicrobial-resistant bacteria in various water sources in Mamotintane Village. Samples were collected using the convenience sampling method. The enumeration of total coliforms and *E. coli* were performed using standard procedures. While antibiotic susceptibility was tested using the Kirby-Bauer disk diffusion method. pH values at all sites ranged from 6.58 to 9.61, which is within the SANS 241 limits. Electrical conductivity was below the standard, but turbidity levels were higher than permissible in samples from streams and Syferkuil Dam. Significant levels of *E. coli* and total coliforms were detected, indicating the possibility of antibiotic-resistant bacteria, like *Klebsiella pneumoniae* and *Salmonella spp*.; with 26% of the isolates resistant to tetracycline, penicillin, and amoxicillin, while 48% demonstrated susceptibility to vancomycin.

***Keywords*—** Antimicrobial Resistance, Kirby-Bauer Disk Method, Mamotintane village, Water Contamination.

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