

## ASSESSMENT OF MULTIDRUG-RESISTANT *ENTEROBACTERIACEAE* AND CIPROFLOXACIN DETECTION IN SAMPLES FROM HOSPITAL SEWAGE, A WASTEWATER TREATMENT PLANT, AND RIVER WATER

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Multidrug-resistant bacteria are widespread in hospitals and have been increasingly isolated from aquatic environments such as wastewater. To evaluate the dissemination of beta-lactam resistant *Enterobacteriaceae* and the presence of antimicrobial residues in wastewater, samples from hospital sewage, a sanitary sewer, a wastewater treatment plant, and river water were analyzed. Extended-spectrum beta lactamase-producing bacteria were isolated from all sampling sites. The following species were isolated, *Escherichia coli* (n=32), *Klebsiella pneumoniae* (n=22), and *Klebsiella oxytoca* (n=1). The presence of *bla* genes encoding CTX-M, SHV, TEM, and GES was assessed. The results have shown high prevalence of *bla*<sub>CTX-M</sub> followed by *bla*<sub>SHV</sub> and *bla*<sub>GES</sub>, found in two isolates. Ciprofloxacin was detected in the hospital effluent, and water from the sanitary sewer, wastewater treatment plant, and downstream river. Overall, the findings of this study indicate the presence of multiple ESBL-encoding resistance genes in hospital effluent which did not occurred in the other sites. However multidrug resistance was observed in the hospital effluent and river water samples. It is essential to reduce antibiotic discharge into the environment to minimize the selective pressure that promotes bacteria resistance.

**Key words:** ESBL, ciprofloxacin, wastewater

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