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Characterization and Antibiotic Resistance Profiling of Extended Spectrum Beta- Lactamases (ESBL) Producing Bacteria in Clinical settings

The emergence of extended-spectrum beta-lactamase (ESBL) producing bacteria poses significant challenges in clinical settings, necessitating robust surveillance and characterization strategies. This study aimed to collect clinical specimens from a medical college and evaluate a diverse array of bacterial isolates. A total of 30 isolates were obtained, followed by comprehensive biochemical testing and morphological analyses to characterize the strains. The antibiotic resistance profile was assessed through standard disk diffusion methods, specifically focusing on ESBL production across various antibiotics, including cefotaxime, ceftazidime, and others in the beta-lactam class. Our findings reveal a concerning prevalence of ESBL producers within the sampled isolates, with notable resistance patterns that underscore the need for continuous monitoring and antibiotic stewardship. This research not only contributes to the understanding of resistance mechanisms in clinical isolates but also emphasizes the importance of targeted therapeutic strategies to combat the challenge of antibiotic resistance in healthcare settings. The results underscore the critical need for enhanced infection control measures and refined antibiotic use policies to mitigate the impact of ESBL-producing organisms in medical environments.

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