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Antimicrobial susceptibility of bacterial clinical specimens isolated from Al-Sader Teaching Hospital in Basra-Iraq

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Abstract. Antibiotic resistance is a global health concern that requires multiple efforts to establish proper preventive and curative programs. This study aimed to assess the antibiotic susceptibility profiles of commonly isolated bacteria at Al-Sader Teaching Hospital, Basra-Iraq. A total of 234 clinical specimens were collected from urine, skin infections, and blood. The bacterial isolates were initially identified using standard microbiological methods, and the identification of the four most common isolates was confirmed by PCR technique using species-specific primers (*malB for Escherichia coli*, *rpoB for Klebsiella pneumonia*, *OprL* for *Pseudomonas aeruginosa*, and *mecA* for methicillin resistant *Staphylococcus aureus*). The identified bacteria were subjected to disc diffusion and VITEK2 system to test the antibiotic susceptibility. *E. coli* was the most prevalent in urine (51.25%), followed by *S. aureus* (15%), while *S. aureus* (31.25%) and *P. aeruginosa* (30.20%) were more prevalent in skin infections. *S. aureus* (31.57%) and *E. coli* (26.31%) were predominant in the blood samples. The Antibiotic susceptibility pattern of Gram-negative isolates revealed high resistance to Cefoxitin (90%), Aztreonam (87%), Ceftriaxone (87%), Piperacillin/tazobactam (85%), and Amoxicillin/clavulanic acid (85%). *S. aureus* showed high resistance to Cefoxitin (93%), Oxacillin (89.58), and Methicillin (91%), whereas, the highest sensitivity was recorded for Colistin (100%), Rifampin (93%), Amikacin (87%), and Meropenem (76%). A high level of multidrug-resistance strains was detected among Gram negative bacteria (76%) and *S. aureus* (56%). The current study provides valuable insights into the distribution of pathogenic bacteria and their antibiotic resistance patterns in different clinical samples, contributing to improved treatment strategies and infection control measures.

Keywords: antibiotic susceptibility, blood, pathogenic bacteria, skin, urine