

## *Extended-spectrum $\beta$ -lactamases producing multidrug resistant *E. coli* among dogs, cats and their owners in Pakistan*



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Infections caused by multidrug resistant (MDR) *E. coli* strains are common both in humans and animals. In particular, the pet animals have been considered as a potential carrier of MDR *E. coli*. Therefore, this study was designed to detect the ESBL producing *E. coli* isolates in companion animals, their owners and veterinary professionals. A total of 105 rectal swabs from pets (n=45), their owners (n=45) and veterinary professionals (n=15) were screened for the presence of ESBL producing *E. coli*, MDR and their genetic relatedness.

A total of 73/105 (69.5%) ESBL producing *E. coli* were recovered from this study. ESBL *E. coli* isolates in dogs (18/22) and dog owners (13/22) were 81.8% and 59%, respectively. ESBL *E. coli* isolates in cats (17/23) and cat owners (13/23) were 74% and 56.5%, respectively. While these *E. coli* isolates in veterinary professionals (12/15) were 80%. Of these, isolates 23/73 (31.5%) isolates showed MDR phenotype. Resistance to ampicillin, cefotaxime, ciprofloxacin and nitrofurantoin AMP-CTX-CIP-F represented the most common pattern of MDR (17.4%). None of the isolate was resistant to tobramycin. Among the ESBL *E. coli* with MDR, PCR detected blaCTX-M as the most common ESBL genotype (19/23). CTX-M-1 group was found among all the 19 blaCTX-M positive *E. coli*. Furthermore, BOX-PCR fingerprints showed distinct clonal groups indicating high genetic diversity among CTX-M-1 producing *E. coli* isolates. The presence of multidrug resistant *E. coli* in particular of ESBL class CTX-M-1 in dogs, cats, their owners and veterinary health workers pose a zoonotic threat for the spread of multidrug resistant

**Keywords:** Antimicrobial resistance, ESBL-producing *E. coli*, pets, zoonosis



### **Biography:**

Rana Muhammad Abdullah have completed my D.V.M from University of Agriculture Faisalabad and then Mphil degree in microbiology from GCUF Faisalabad. Currently doing Ph.D in microbiology from university of agriculture Faisalabad.

### **Speaker Publications:**

1. Mylonakis E, Zacharioudakis IM, Clancy CJ, Nguyen MH, Pappas PG. 2018. Efficacy of T2 magnetic resonance assay in monitoring candidemia after initiation of antifungal therapy: the Serial Therapeutic and Antifungal Monitoring Protocol (STAMP) trial. *J Clin Microbiol* 56:e01756-17.
2. Tang et al. Pooled analysis of T2 Candida for rapid diagnosis of candidiasis. *BMC Infectious Diseases* (2019) 19:798 <https://doi.org/10.1186/s12879-019-4419-z>
3. CDC/NHSN Patient Safety Component Manual, Summary of Updates, January 2020
4. Cornelius J. Clancy et al. Detecting Infections Rapidly and Easily for Candidemia Trial, Part 2 (DIRECT2): A Prospective, Multicenter Study of the T2Candida Panel. *CID* 2018;66(11):1678–86
5. De Angelis et al. T2Bacteria magnetic resonance assay for the rapid

detection of ESKAPEc pathogens directly in whole blood.

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