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SCREENING FOR METHICILLIN RESISTANCE IN *STAPHYLOCOCCUS* SPP. AND ESBL PRODUCTION IN *ESCHERICHIA COLI* ISOLATED FROM HEALTHY CATS IN THE REPUBLIC OF NORTH MACEDONIA

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Given the increasing concern about antimicrobial resistance (AMR) and its possible transmission between pets and humans, this study investigated AMR in commensal bacteria from healthy domestic cats. Commensal bacteria can act as opportunistic pathogens and lead to various infections as well as they can serve as a reservoir and potential source of AMR. The aim of this study was to screen for the presence of methicillin resistance in *Staphylococcus* spp. and detect extended-spectrum beta-lactamase (ESBL) production in *Escherichia coli* (*E. coli)*, both isolated from cats. Fecal and swab samples from 19 healthy cats were collected from different body sites (ears, perinasal, perioral, oral, inguinal, perianal and rectal area). Information on the cat's demographics (age, breed, neutering status), health status (including medical history and antibiotic therapy), dietary habits and cohabitation with other animals was obtained from the cat owners by questionnaire. The samples were cultured on Blood agar and Coliform agar and incubated aerobically at 37°C for 24 hours. The suspected colonies were identified by MALDI-TOF MS. Oxacillin or cefoxitin disks (depending on the identified species according CLSIVET01 standard) were used to screen for methicillin resistance in staphylococci. A combination disk test was used for detection of ESBL producing *E. coli* using cefotaxime and cefotaxime with clavulanic acid, as well as ceftazidime and ceftazidime with clavulanic acid. Thirty-six *Staphylococcus* spp. were identified: *S. felis* (21/36, 58.3%), *S. epidermidis* (6/36, 16.7%), *S. equorum* (4/36, 11.1%) and one isolate of the following strains ; *S. lentus, S. hominis, S. haemolyticus, S. sciuri and S. simulans* (2.8% each). Only one isolate, *Staphylococcus epidermidis*, isolated from the ear, was identified as resistant to methicillin. No ESBL-producing *E. coli* were identified. Surprisingly, a significant percentage of cat owners (57.9%) reported that they were unaware of antimicrobial susceptibility testing as a valuable tool for selecting the appropriate antimicrobial agent in the event of diagnosed bacterial infection in their cat. In addition, a high number of cat owners (84.2%) reported that their cats can sleep anywhere in the house without restriction, potentially increasing the risk of transmission of antimicrobial resistance. This study emphasizes the importance of monitoring AMR in feline commensal bacteria, as they can serve as reservoirs for resistant strains. Addressing gaps in owner awareness and promoting responsible antimicrobial stewardship are critical steps to reduce the spread of AMR between pets and humans.

Keywords: methicillin-resistant, *Staphylococcus felis, Staphylococcus epidermidis*, owner awareness, AMR