

TITLE: INTESTINAL COLONIZATION OF DOGS BY SPECIES OF ENTEROCOCCI OF CLINICAL IMPORTANCE FOR HUMANS AND THEIR ANTIMICROBIAL RESISTANCE PROFILE

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Enterococcus sp. are members of the human and animal intestinal microbiota. However, multidrug-resistant strains have emerged as leading causes of infections associated to healthcare. Such organisms may cause different infections with variable severity like urinary tract infection, wound infection, bacteremia and endocarditis. *E. faecalis* and *E. faecium* are responsible for about 90% of the enterococci infections. In the last decades, there has been an increase in reports of multidrug-resistant bacteria isolated from animal hosts. The close contact between dogs and their owners may represent a risk of inter-species spread of these microorganisms. Therefore, the present study aimed to investigate the *Enterococcus* species present in the gut of dogs and to determine the antimicrobial resistance patterns of *E. faecalis* and *E. faecium* isolated. Rectal swab samples were collected from 292 dogs attended in three veterinary health units in Niterói and Rio de Janeiro, between 2015 and 2017. Specimens were initially cultured into Enterococcosel Broth, without and with 6 µg/mL vancomycin, and then onto Trypticase Soy Agar. Three colonies recovered from medium without and with antibiotic were selected for species identification using MALDI-TOF. Antimicrobial resistance patterns were determined by disk diffusion. From dogs, the following species were isolated: *E. faecalis* (63.7%), *E. gallinarum* (17.1%), *E. faecium* (7.9%), *E. hirae* (5.5%), *E. casseliflavus* (5.5%), *E. avium* (4.8%), *E. canintestini* (3.4%), *E. raffinosus* (2.7%) and *E. canis* (0.3%). Eighty-two percent and 80% of the *E. faecalis* and *E. faecium* isolates, respectively, were resistant or intermediate resistant at least to one of the antimicrobials tested. High-level aminoglycoside (HLAR) and beta-lactam resistance (BLR) was detected among isolates of both species (*E. faecalis*: streptomycin [18.2%], gentamycin [2.5%], and ampicillin [0.5%]; *E. faecium*: streptomycin [12%], gentamycin [8%] and ampicillin [8%]) while vancomycin resistance (VR) only among *E. faecalis* isolates (2.0%). Two dogs carried an *E. faecium* strain with HLAR and BLR and another dog carried an *E. faecalis* strain with BLR and VR. In conclusion, *Enterococcus* species of clinical importance for humans resistant to antimicrobials important for treatment of severe enterococci infections were recovered from gut microbiota of dogs. These data alert that dogs may be a reservoir of resistant enterococci that cause human infections in Rio de Janeiro.

Keywords: *Enterococcus*, antimicrobial resistance, dog, HLAR, VRE

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