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Frequency detection of *Enterococcus faecalis* and *Enterococcus faecium* infection and antibiotic resistance pattern in diarrheic dogs in Ahvaz district

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Abstract

Enterococci are a part of the opportunistic pathogens, which are very important in medicine. These bacteria can cause a variety of diseases in both dogs and human. The aim of the present study was to investigate the frequency detection of *Enterococcus faecalis* and *Enterococcus faecium* in companion dogs in Ahvaz and review of risk factors including age, gender, breed and diarrheic status in animals. Also, the prevalence of virulence genes was evaluated including gelatinase (*gelE*) and (*ccf*) and antibiotic susceptibility measured in obtained samples. Sampling was performed from the rectum of the 150 dogs (36 cases diarrheic and 114 non-diarrheic). The samples were evaluated by two methods of bacterial culture and PCR. In bacterial culture, 122 isolates, suspected to *Enterococcus* species, were isolated and subsequently the detection of *SodA* gene specific to *Enterococcus faecalis* and *Enterococcus faecium* was performed by PCR. Overall forty-five positive isolates were identified, which thirty four of which were *Enterococcus faecalis* (75.5%) and 11 were *Enterococcus faecium* (24.5 %). In regard to identify virulence genes (*gelE* and *ccf*), 36 out of 45 isolates were positive for virulence genes. Twenty six isolates (57.77%) had virulence genes, 5 isolates (11.11%) *ccf* gene and 5 other isolates (11.11%) *gelE* gene. In all, nine isolates (20%) had no virulence gene. Fourteen different antibiotics were used to determine antibiotic susceptibility that indicated all isolates were resistant to azithromycin, streptomycin, ampicillin and imipenem. Thereafter, the highest resistance was related to erythromycin and cephalexin (95.5%), trimethoprim sulfamethoxazole (84.4%) and gentamicin (80%), respectively. Also, the highest sensitivity was related to nitrofurantoin (62.2%), penicillin G (60%) and enrofloxacin (55.5%), respectively. There was no significant relationship between risk factors such as age, gender, breed and diarrheic condition with the presence of *Enterococcus* in the studied dogs (P>0.05). The results showed that the prevalence of *Enterococci* was relatively significant (30%) in dogs of Ahvaz district. Antibiotic resistance was significant in the two species of Enterococci. Finally, because of the very high importance of antibiotic resistance, appropriate administration of antibiotics is recommended.

Key words: *Enterococcus*, *Faecalis*, *Faecium*, Virulence gene, Antibiotic resistance

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