

administration of antibiotics might be useful for minimizing teeth problems and improving laboratory animal welfare.

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#### P-009

### Virulence Factors and Antimicrobial Resistance Pattern of *Citrobacter freundii* Isolated from Healthy Pet Turtles and Their Environment

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**Introduction:** Zoonotic *Citrobacter freundii* infection can occur if pet turtle owners fail to hygienically handle the turtle or the turtle's environment. Therefore, the virulence characteristics and resistance patterns of *C. freundii* to commonly used antimicrobials should be understood.

**Materials and Methods:** *C. freundii* isolates were characterized by conventional pathogenicity tests such as proteolysis, biofilm formation and hemolysis; PCR assays of virulence genes and antimicrobial disk diffusion tests.

**Results:** Forty-seven presumptive *C. freundii* isolates obtained from 41 fecal and 18 environmental samples including water and soil samples were confirmed as *C. freundii* by biochemical tests and 16S rRNA gene sequencing. Proteolysis and biofilm formation were shown in 17 and 6 isolates respectively. No isolates showed hemolysis. The PCR assay for the presence of *slt-II* or *slt-II* related genes and *via B* genes were successful in two and four isolates respectively. In the antimicrobial susceptibility test, most isolates were susceptible to all tested antibiotics except ampicillin, amoxicillin, cephalothin, cefoxitin and nalidixic acid. Non-susceptible isolates to penicillins (piperacillin and ticarcillin), fluoroquinolones (ciprofloxacin and norfloxacin), aminoglycosides (gentamicin) and other antibiotics (trimethoprim/sulfamethoxazole) were frequently observed among the isolates. A few isolates were resistant to imipenem, aztreonam, ceftriaxone and cefotaxime.

**Conclusions:** In conclusion, it can be said that pet turtles are a potential public health risk due to the virulence and antimicrobial resistance of *C. freundii*.

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#### P-010

### Potential enterotoxicity and antimicrobial resistance pattern of *Aeromonas* species isolated from pet turtles and their environment

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**Introduction:** We investigated the potential enterotoxicity and antimicrobial resistance of aeromonads from pet turtles as a risk for human infection.

**Materials and Methods:** One hundred and two *Aeromonas* spp. were isolated from the feces, skin and rearing environments of pet turtles and identified by biochemical and *gyrB* sequence analysis. Their potential enterotoxicities and antimicrobial resistance patterns were evaluated by PCR assays for detecting genes encoding cytotoxic enterotoxin (*act*) and two cytotoxic enterotoxins (*alt* and *ast*) and disk diffusion tests.

**Results:** *Aeromonas enteropelogenes* was the predominant species among the isolates (52.9%) followed by *A. hydrophila* (32.4%), *A. dharkensis* (5.9%), *A. veronii* (4.9%) and *A. caviae* (3.9%). 75.8% of *A. hydrophila* isolates exhibited the *act*+/*alt*+/*ast*+ genotype whereas 94.4% of *A. enteropelogenes* isolates were determined to be *act*-/*alt*-/*ast*-. In an antimicrobial susceptibility test, most isolates were susceptible to all tested antibiotics except amoxicillin, ampicillin, cephalothin, chloramphenicol and tetracycline. Non-susceptible isolates to penicillins (ampicillin and amoxicillin) and fluoroquinolones (ciprofloxacin, norfloxacin) were frequently observed among the *A. enteropelogenes* isolates. Few isolates were resistant to imipenem, amikacin, ceftriaxone and cefotaxime.

**Conclusions:** Collectively, these results suggest that pet turtles may pose a public health risk of infection by enterotoxigenic and antimicrobial resistant *Aeromonas* strains.

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