

## Multidrug resistance in *Klebsiella pneumoniae* isolated from pet dogs

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*Klebsiella pneumoniae* is an opportunistic pathogen of humans and animals, found in the intestinal microbiota, and may be associated with infections of gastrointestinal tract, sepsis and infections of urinary tract. The main reservoir of strains is the intestinal tract of humans and animals. Cases of infections caused by *Klebsiella* multiresistant are currently increasing worldwide, and *K. pneumoniae* is described as a microorganism that produces extended spectrum  $\beta$ -lactamases (ESBL). In general, pets, dogs and cats, lives in close contact with humans, making possible the spread of multi-resistant bacteria between humans and animals. Therewith, the objectives of this study were to isolate multidrug-resistant *Klebsiella pneumoniae* from pet dogs; characterize the phenotypic profile of antimicrobial resistance; analyze the ESBL production; develop conjugation assay tests; identify the genes responsible for the resistance to antibiotics, as well as correlate the resistance of bacteria to the importance of the rational use of antimicrobials in veterinary medicine. Five isolates were resistant to aminoglycosides,  $\beta$ -lactams, chloramphenicol, macrolides, imipenem, fluoroquinolones, sulfonamides and tetracyclines; of these, four were positive for the production of ESBL. The bla<sub>TEM</sub> gene was the most prevalent among the analyzed bacteria strains, four were positive, followed by bla<sub>SHV</sub> gene in which three were positive. All strains were positive in the conjugation assay showing their ability to disseminate resistance genes. The use of  $\beta$ -lactams in clinical practice of veterinary medicine may be considered one of the reasons for the high incidence of ESBL producers worldwide. Thus, it is important that the veterinarians become aware of the correct antibiotic prescriptions, based on susceptibility tests, and, from the results obtained, launch the correct drug treatment for the infections, reducing the selection pressure on the pathogens.

**Keywords:** Gram-negative bacteria, bacterial resistance, ESBL, bla<sub>TEM</sub>

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