P4.78 - CHARACTERIZATION OF MOLECULAR FEATURES AND VIRULENCE PROFILE OF *KLEBSIELLA PNEUMONIAE* AND *KLEBSIELLA OXYTOCA* ISOLATES FROM COMPANION ANIMALS IN PORTUGAL

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ABSTRACT

Klebsiella spp. are important pathogens that affect both humans and animals and can cause serious life-threatening diseases. The increasing incidence of *Klebsiella* infections in companion animals (*e.g.,* cats and dogs) can result in the death of animals and become a serious public health concern. The study of strains isolated from animal infections can be a means of assessing the risk of transmission to humans, including zoonotic potential.

The aim of this study was to characterize the genetic and phenotypic features of *Klebsiella pneumoniae* and *Klebsiella oxytoca* previously isolated from ill companion animals by whole genome sequencing, followed by *in vitro* evaluation of biofilm formation. The *Galleria mellonella* model was also used to evaluate the *in vivo* pathogenicity of *Klebsiella* isolates.

K. pneumoniae isolates tested exhibited two LPS O-types (O3B and O1/O2v2) and only one LPS O-types was detected for *K. oxytoca* isolates (OL104). Among the STs, ST11 and ST266 were the most frequently found. In turn, *K. pneumoniae* showed a high diversity of K-locus types (KL102; KL105; KL31, and KL13). Among *K. pneumoniae*, a specific pattern (*i.e.,* KL105-ST11-O1/O2v2) raises concern due to its high resistance and virulence towards human hosts. Furthermore, this pattern was associated with a high inflammatory response observed in *G. mellonella* larvae, with approximately 80% of the larvae dead at 72 h post-infection, which is not directly related to the ability of *Klebsiella spp.* to form a biofilm.

The present study highlights a noteworthy level of pathogenicity associated with *Klebsiella* spp. isolated from companion animals. Consequently, it underscores the potential for dogs and cats to serve as reservoirs of resistant *Klebsiella* spp. that could pose a risk of transmission to humans.

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