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PHENOTYPIC AND GENOTYPIC CHARACTERIZATION OF CARBAPENEM-RESISTANT *KLEBSIELLA PNEUMONIAE* ISOLATED IN A STATE OF THE BRAZILIAN AMAZON

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Introduction/Objective: Carbapenem-resistant *Klebsiella pneumoniae* (CRKP) are currently among the main bacterial pathogens associated with high mortality rates worldwide. Monitoring these isolates allows a better understanding of their dissemination; however, studies on this topic remain scarce in the Brazilian Amazon region. Therefore, we present here the molecular characterization of CRKP strains isolated in Rondônia.

Methods: This study included 21 CRKP isolates recovered from blood cultures (n =13), tracheal aspirates (n = 6), and urine (n = 2) from two hospitals located in Porto Velho, Rondônia. The search for genes encoding carbapenemases and extended-spectrum β-lactamases (ESBLs) was performed by polymerase chain reaction (PCR), followed by sequencing of the amplicon. Antimicrobial susceptibility testing was carried out for 13 antimicrobials by disk diffusion and broth microdilution (for polymyxin and colistin), according to BrCAST/EUCAST guidelines.

Results: All isolates showed resistance to aztreonam, ceftriaxone, ceftazidime, cefepime, ertapenem, imipenem, and meropenem. Resistance to aminoglycosides was observed in 17 isolates based on gentamicin and amikacin testing. A total of 19 isolates were resistant to ciprofloxacin and levofloxacin. Additionally, five isolates showed resistance to colistin and polymyxin B. Molecular analysis revealed that all isolates were positive for the *blaKPC-2* gene. Among the ESBL genes, 17 isolates were positive, with *blaCTX-M-15* being the most frequent (n = 14), followed by *blaCTX-M-14* (n = 3). One isolate was positive for both *blaCTX-M-15* and *blaCTX-M-14*. Moreover, one isolate carried *blaGES-1*, and 14 strains harbored the *blaTEM-like* gene. The identification of these various genes reinforces the complexity of the resistome of *K. pneumoniae* strains circulating in Rondônia.

Conclusion: The findings of this study reveal a concerning scenario of dissemination of *K. pneumoniae* producing KPC-2 in hospitals in Rondônia, with high levels of resistance to multiple antimicrobial classes, including polymyxins. Considering that Rondônia is a region with limited data on resistance epidemiology, this study provides unprecedented regional insight and highlights the urgent need for genomic monitoring and continuous microbiological surveillance in the Brazilian Amazon.

Keywords: *Klebsiella pneumoniae*, Antimicrobial resistance, Rondônia.

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MOLECULAR CHARACTERIZATION OF CARBAPENEMASE CO-PRODUCTION IN *KLEBSIELLA PNEUMONIAE*

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Introduction/Objective: Carbapenem-resistant *Klebsiella pneumoniae* represents a serious public health threat due to its high prevalence and therapeutic difficulty. This resistance is often associated with the production of carbapenemases such as KPC, NDM, and OXA-48. The dissemination of these isolates in hospital environments requires continuous surveillance and strict infection control measures. In this context, this study aimed to investigate the prevalence and the genes encoding carbapenemases in carbapenem-resistant clinical isolates of *K. pneumoniae* from hospitalized patients, as well as to verify carbapenemase co-production in these isolates.