

**TITLE:** GENETIC PROFILE AND ANTIMICROBIAL RESISTANCE OF NOSOCOMIAL ISOLATES OF *Acinetobacter baumannii* IN A TERTIARY HOSPITAL IN THE NORTHERN REGION OF CEARÁ

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**ABSTRACT:**

*Acinetobacter baumannii* is an opportunistic pathogen often associated with outbreaks of nosocomial infections. The emergence of *A. baumannii* strains resistant to broad-spectrum antimicrobial agents in hospital settings has become a major health burden, due to the limited treatment options for infections caused by this pathogen. *A. baumannii* has the capability to develop resistance mechanisms to a wide range of antimicrobial agents, including carbapenems. The most common carbapenem resistance determinants in *Acinetobacter* spp. are carbapenem-hydrolyzing oxacillinases (OXA). The aim of this study was to evaluate the antimicrobial resistance profile and detect resistance genes in nosocomial strains of *A. baumannii* isolated from patients treated at a tertiary hospital in the Northern Region of the State of Ceará. A total of 48 specimens of this microorganism were isolated between March 2021 and March 2022 from different biological sites. Identification and antimicrobial susceptibility testing were performed by the automated VITEK®2 system, and *bla*<sub>OXA-143</sub>, *bla*<sub>KPC-2</sub> and *mcr-1* genes were detected by polymerase chain reaction (PCR), followed by an electrophoretic run on agarose gel. Of the total analyzed, 62.5% (n=30) were isolated from pulmonary infections, 20.8% (n=10) from bloodstream infections, 10.4% (n=5) from tendon fragments and 6, 3% (n=3) of urinary tract infections. Regarding the resistance profile, it was observed that all isolates were resistant to piperacillin+tazobactam, meropenem and imipenem, 77% (n=37) to amikacin, 66.6% (n=32) to sulfamethoxazole/trimethoprim, and still showed different patterns of resistance to gentamicin, aztreonam, colistin and trobamyacin. As for the resistance genes, only 20 strains (41.7%) of the total isolated were analyzed. Of these, 60% (n=12) harbored the carbapenem-resistant gene *bla*<sub>KPC-2</sub>, 25% (n=5) the *bla*<sub>OXA-143</sub> and 15% (n=3) the *mcr-1*. Therefore, the results of this study allow us to conclude that there was a high prevalence of *A. baumannii* isolated from pulmonary infections in the investigated hospital; high rate of resistance to carbapenems, making it impossible to choose these antimicrobials to treat infections by this bacterium, in addition to having observed a high prevalence of the carbapenem-resistant gene *bla*<sub>KPC-2</sub> among the analyzed isolates.

**Keywords:** *Acinetobacter baumannii*, antimicrobial resistance, carbapenem, colistin, nosocomial infection