

TITLE: DISSEMINATION AND EMERGENCE OF *bla*_{KPC} AND *bla*_{NDM} IN *Proteus mirabilis* FROM RECIFE-PE, BRAZIL

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ABSTRACT:

Proteus mirabilis is a pathogen often neglected and frequently associated with Healthcare-Associated Infections (HAIs), especially Urinary Tract Infections (UTI). Therefore, to reduce therapeutic failures it is important periodically monitor the microorganisms related to these infections and their respective resistance patterns, as well as the presence of other broad spectrum antimicrobial resistance genes. Therefore, the present study aimed to investigate the occurrence of *bla*_{KPC} and *bla*_{NDM} genes in *Proteus mirabilis* clinical isolates at a public hospital in Recife-PE, Brazil, between 2017 and 2018. Biochemical identification and susceptibility to different classes of antimicrobials were performed by automated system. The presence of the *bla*_{KPC} and *bla*_{NDM} genes was determined by PCR, followed by amplicon sequencing. Nucleotide sequences were analyzed by the BLAST, Clustal W and Bioedit v7 platforms. We analyzed 40 *P. mirabilis* clinical isolates from different infection sites. In all, the Intensive Care Unit (ICU) and Cardiology were the most frequent sectors with 42.7% (17/40) and 20% (8/40), respectively. *P. mirabilis* was isolated mainly in urine samples with 55% (22/40), followed by catheter tip with 15% (6/40). It was observed that 27.5% (11/40) of *P. mirabilis* clinical isolates carried the *bla*_{KPC} gene and 22.5% (9/40) the *bla*_{NDM} gene. In other words, 50% (20/40) carried *bla*_{KPC} or *bla*_{NDM}. The presence of *bla*_{KPC} and *bla*_{NDM} in *P. mirabilis* emphasizes the importance of monitoring the circulation of these carbapenemases and this bacterial species in the hospital environment. Thus, the high dissemination of the *bla*_{KPC} gene and the emergence of *bla*_{NDM} in Brazil is alarming. This data indicates that *bla*_{NDM} is being disseminated as well as *bla*_{KPC}.

Keyword: *Proteus mirabilis*, *bla*_{KPC}, *bla*_{NDM}

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