TITLE: INFECTION BY *Serratia marcescens* PRODUCER OF KPC-2

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ABSTRACT:
Resistance to cabapenem antibiotics occurs in cells that produce the carbapenemase enzyme (KPC). Patients with long periods in ICU have higher risk of infection or colonization by multiresistant bacteria, becoming more vulnerable to a KPC. *Serratia marcescens* is usually associated with a nosocomial infection mainly in neonatal patients, causing many serious infections, including meningitis, pneumonia and bacteremias with their progression being related to a high mortality rate. To establish a diagnosis, definitive confirmation of KPC producing strains is necessary through the Polymerase Chain Reaction (PCR) test. The aim of this study was to describe the infection of *S. Marcescens* in patients with suspected sepsis in public Hospital in Cuiaba-MT. Ten isolates of Serratia Marcescens from the university Hospital Júlio Muller (HUJM), Isolated from sepsis patients were submitted to DNA extraction by inoculation of the colonies in brain and heart infusion broth (BHI) and Incubation under agitation at 37°c overnight, posterior centrifugation and resuspension of precipitate in 1mL of lysis buffer (100 mM NaCl, 25 mM EDTA, 100 mM Tris-HCl pH 8.0, 0.5% SDS, 0.1 mg Proteinase K) and treated with phenol-chloroform. PCR was performed using primers specific for the KPC-2 gene. After a reaction performed in a thermocycler, the PCR products were submitted to 1% agarose gel electrophoresis, stained with RedTM Gel (Biotium®) at 10 V/cm and viewed in a photodocumenter. Were observed in all isolate's amplification of fragment of 1011pb. After purification of the PCR product, sequencing was performed and subsequently compared with DNA sequences from the database (GenBank) by BLAST. The presence of the KPC-2 gene was confirmed with 98,67% of identity. As in this work, it is currently observed a description of infections related to health services by *S. Marcescens* resistant to Carbapenems, being a global problem, since this bacterium is intrinsically resistant to the antibiotic polymyxin B, Limiting the therapeutic arsenal against this bacterium.

Keywords: carbapenemase, KPC-2, sepsis, PCR, resistance to imipenem

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