

## Characterization of gentamicin resistance in *Staphylococcus haemolyticus* with emphasis on conjugative plasmids

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### Resumo:

*Staphylococcus haemolyticus* has recently emerged as an important nosocomial pathogen. An important feature related to this microorganism is its ability to develop resistance to multiple antimicrobials drugs. Resistance to gentamicin is due to the presence of aminoglycosides modifying enzymes whose encoding genes can be located on the chromosome or on plasmids. The genes described in *Staphylococcus aureus* are *aac(6')-Ie-aph(2'')*, *APH(3')-IIIa*, *ANT(4')-Ia*. The coagulase-negative group (SCN) to which belongs *S. haemolyticus*, seems to constitute a reservoir for genes resistance and may even promote the horizontal transfer of these to *S. aureus*. In this context, the aim of this study is to evaluate the presence of gentamicin resistance genes (GMR) as well as conjugative plasmids responsible for this resistance in *S. haemolyticus*. The presence of the GMR genes were analyzed by PCR gentamicin resistant *S. haemolyticus* strains provided by a hospital of the Rio de Janeiro city (Hospital Marcilio Dias). From 45 strains, in 35, the *aac(6')-Ie-aph(2'')*-*Ia* and in 31, the *aac6-aph2a* genes were detected. These 45 strains were investigated by PCR for the presence of essential genes involved in the conjugation process (*traK* genes, *traL*, *traM* and *nesF*), and three showed the gene *traM*; one presented the *traK* gene; three the *traL* gene and 23 the *nesF* gene. Five strains containing either conjugation or GMR genes presented concomitantly high molecular weight plasmids. However only three cured the GMR when the strains were grown at 42 °C. The cured of the GMR gene was confirmed by PCR analysis and the loss of the high molecular weight plasmid was observed for two of these three strains. Our results suggest that at least two of the *S. haemolyticus* strains present plasmids involved in gentamicin resistance which could contribute to spread of the GMR in the hospital.

**Palavras-chaves:** gentamicina, resistance, *Staphylococcus haemolyticus*, plasmids

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