**TITLE:** ACTION OF SANEANTES IN MULTIRESISTANT *Staphylococcus haemolyticus* ISOLATES FROM HEMOCULTURES IN AN UNIVERSITY HOSPITAL IN RIO DE JANEIRO

**AUTHORS:** AGUIAR, V. A.[1]; OLIVEIRA, T. L. R.[1]; SILVA, M. G.[1]; RODRIGUES, B. G.[1]; FERREIRA, R. B. R.[1]; NOÉUR, S. A.[2]; DOS SANTOS, K. R. N.[1]

**INTITUTION:** [1]INSTITUTO DE MICROBIOLOGIA PROFESSOR PAULO DE GÓES, RIO DE JANEIRO, RJ (AV. CARLOS CHAGAS FILHO, 373, CCS, SALA I2-010, CEP 21941-902, RIO DE JANEIRO – RJ, BRAZIL).
[2]HOSPITAL UNIVERSITÁRIO CLEMENTINO FRAGA FILHO, RIO DE JANEIRO, RJ (RUA PROFESSOR RODOLPHO PAULO ROCCO, 255, CEP 21941-590, RIO DE JANEIRO – RJ, BRAZIL)

**ABSTRACT:**
*Staphylococcus haemolyticus* is part of the human microbiota but it has also been isolated from blood cultures, presenting multi resistance to antimicrobial and sanitizing agents. Quaternary ammonium compounds (QACs) are commonly used as disinfectants and their use can select microorganisms with reduced susceptibility to these agents, whose mechanism of resistance is the expression of efflux pumps. The Cartwheel method on agar containing ethidium bromide (EtBrCw) allows comparing different isolates for their ability to exocytosis the ethidium bromide from the cellular interior, characterizing the presence of efflux pumps in the isolate. The aim of this study was to characterize tolerance to sanitizers in *S. haemolyticus* isolates from blood cultures of patients from a university hospital in Rio de Janeiro, and correlate the results obtained to their clonality. Among 91 isolates previously identified in relation to species, antimicrobial resistance and clonality, the presence of efflux pumps related to chlorhexidine digliconate (CD) was evaluated through the EtBrCw method. The minimum inhibitory concentration (MIC) for CD was determined by the broth microdilution method and the search for *qacA/B* genes was performed by PCR. Among the isolates tested, 59 (64,9%) were positive for active efflux pump systems (37,4% of them emitted fluorescence in ≥ 2.0 μg/mL EtBr and 27.5% between 1.0 μg/mL and 1.5 μg/mL). Among the 34 isolates with the highest efflux potential, nine (26.5%) belonged to the prevalent clone A. For 29 isolates tested, the MICs for CD ranged from 0.00012% to 0.00098%, and 26 (89.6%) of them presented tolerance values (≥0.00024%). Among 55 isolates tested for the presence of *qacA/B* genes, 39 (71%) were positive, and among them, 33 (84.6%) also had active efflux pump systems, while only 6 (15.4%) were *qacA/B* positive and did not have these active systems. Resistance to cefoxitin, ciprofloxacin, gentamicin, erythromycin and sulfamethoxazol-trimethoprim was more frequent among *qacA/B* positive isolates than in *qacA/B* negative ones. Our results show the relationship between the presence of efflux pumps and *qacA/B* genes in *S. haemolyticus* clinical isolates. Results also highlight the high tolerance to chlorhexidine digliconate and the widespread presence of active efflux systems among prevalent clones, which may hinder the elimination of the pathogen in the health institution.

**Keywords:** *S. haemolyticus,* efflux pumps, *qacA/B*, multidrug resistance

**Development Agency:** CAPES, CNPq, FAPERJ