

**TITLE:** Molecular characterization of methicillin resistant *Staphylococcus aureus* (MRSA) isolated from samples of health professionals at a health institution in southwestern Bahia.

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**ABSTRACT:**

*Staphylococcus aureus* is a microorganism of clinical importance, due to the variety of infections and also the high rate of resistance to antibiotics, especially those of the beta lactam class. This resistance was due to the acquisition of the *mecA* gene, carried by a mobile genetic element called the staphylococcal chromosome cassette *mec* (*SCCmec*). Expression of this gene leads to the production of a low affinity protein to beta-lactams (PBP2a). The strains that display this gene are known as methicillin-resistant *Staphylococcus aureus* (MRSA). The development of molecular techniques allows a better analysis of the epidemiology of infections caused by *S. aureus*, important for understanding new information from outbreaks of infections and recognition of virulent clones. Several methods have already been described, such as characterization of the staphylococcal chromosome cassette *mec* (*SCCmec*), pulsed field gel electrophoresis (PFGE), multilocus sequence typing (MLST). Fourteen MRSA isolates obtained from health professionals were analyzed. The DNA extraction and amplification of seven housekeeping genes were performed. The products were purified and sequenced. The analysis of Multilocus Sequence Typing (MLST) was through tools available at the electronic address (<http://saureus.mlst.net/>). Three clonal complexes were determined, CC5 57,14% (8/14), CC 45 14,30% (2/14) e CC 398 7,15% (1/14). The other samples, 21.43% (3/14), were grouped as non-typable (NA). In conclusion, to know the epidemiological profile of isolates from health professionals, reflects the importance of microbial infections control in health centers. The genetic diversity of MRSA was observed in a municipality of Bahia. The existence of epidemic clones was reported through the identification of two of the most important clones in the world (CC5 and CC45). Such evidence helps in the development of hospital infection control measures.

**Keywords:** *Staphylococcus aureus*; epidemiology, MLST.

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