

TITLE: BIOPROSPECTING OF BIOMOLECULES FOR CONTROL OF *Staphylococcus* spp

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ABSTRACT:

Bovine mastitis is a commonly observed disease in the veterinary clinic, with *Staphylococcus aureus* its main infectious agent, the treatment is conventionally performed by antibiotic therapy, however, intensive and inadequate usage provides bacterial resistance. Thus, bioprospecting may be a viable solution to find bioactive molecules in the control of these microorganisms. In this context, the present work aimed to evaluate the *in vitro* effects of bacterial extract associated with bat guano on *Staphylococcus* spp. isolated from bovine mastitis milk. The bacteria were isolated from a cave in Altamira, State of Pará, and tests were carried out to evaluate the presence of bacteriocins against the following microorganisms: *S. aureus* ATCC 25923, *S. saprophyticus* ATCC 25923 and isolates of *Staphylococcus* spp. The disc diffusion test was carried out with 40 µL of bacterial extract, and zones of inhibition were measured after 24 hours. As standard comparison of the efficiency of the extracts, sensitivity tests were performed on the chemical drugs commonly used in the veterinary clinic. The results were significant by the F test and were grouped by the Scott-Knott test ($p < 0.05$). Among the isolates of *Staphylococcus* spp. 22 were identified as *S. aureus* and 9 as *S. saprophyticus*, of which 5 and 4 isolates were resistant to several antibiotics tested. Reference bacteria, 4 isolates of susceptible bacteria and 4 resistant isolates were submitted to analysis of antibiotic sensitivity. The results demonstrate similarity between reference bacteria and susceptible isolates, and the resistant isolates presented lower zones of inhibition. Considering the results presented by the disc diffusion test, a halo inhibition index of 13.67 mm was determined as extracts with potential antimicrobial action. Thus, 95.23% (40) and 73.81% (31) of *S. aureus* and *S. saprophyticus* isolates were sensitive to 50% of the extracts of the bacteria tested. We can conclude that 30 isolates are potentially producers of biomolecules with antimicrobial activity, with interest in the isolation and identification of bioactive molecules.

Keywords: biological control; milk; cave

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