

TITLE: "IN VITRO" ANTIBACTERIAL ACTIVITY OF RED PROPOLIS EXTRACTS COMMERCIALIZED IN THE ALAGOAS STATE - BRAZIL

AUTHORS: SANTOS, A. S. L.; COSTA, A. L. F.; COSTA, C. L.; MILITÃO, C. M. S. S.; RODRIGUES, K. K. S.; SANTOS, A. S.; SANTOS, L. E. S.; SILVA, S. N. B.; DABBUR, F. S.; VASCONCELOS, C. C.

INSTITUTION: CENTRO UNIVERSITÁRIO CESMAC, MACEIÓ, AL (RUA CÔNEGO MACHADO, 984, 57051-160, MACEIÓ – AL, BRAZIL)

ABSTRACT:

The red propolis antimicrobial activity has been investigated through preliminary tests in vitro in order to demonstrate its pharmacological potential. The aim of this study was to verify the in vitro antibacterial activity of four red propolis extract samples commercialized in the Alagoas State, against Gram-positive microorganisms (*Staphylococcus aureus* ATCC 25923) and Gram-negative (*Escherichia coli* ATCC 25922 and *Pseudomonas aeruginosa* ATCC 27853). The methodology was disc diffusion with a Mueller-Hinton Agar as culture medium, and the analyzes were performed in triplicate. The plates were incubated for 18 hours at 35 °C ± 2 °C and the plate readings were measure by the inhibition halo obtained in millimeters (mm). The inhibition percentual (I%) obtained for each sample was obtained by a direct relationship between the halo of the tested sample and the standard antibiotic inhibition halo, with chloramphenicol for *S. aureus* and *E. coli* and amikacin for *P. aeruginosa*. For each sample the °Brix was verified by a manual refractometer, in order to corroborate with the data discussion. All samples analyzed showed presence halo inhibition against *S. aureus* (10 - 11 mm) and *E. coli* (8 - 13 mm), with sample B being the only one presenting halo to *P. aeruginosa* (7 mm). O I% allowed to infer that sample A presented a higher inhibition percentage for *S. aureus* (66%) and *E. coli* (43%), followed by samples B, C and D, indicating that the propolis extract presented greater sensitivity to Gram-positive microorganisms investigated. When analyzing the samples °Brix, none of them obtained the monograph recommendations (32 °Brix), indicating that dry extract percentage does not correspond to the minimum required by Brazilian legislation (11%). As the dry extract percentage parameter is relevant to infer in the antibacterial activity of propolis extracts, it becomes necessary to control actions by the Government, in order to standardize the quality of the product available to the consumer. In this way, it is suggested that the investigated samples, although presenting antibacterial activity, may have presented potential reducing, since the dry extract percentage does not correspond to the one recommended by the Brazilian legislation.

Keywords: antibacterial activity, *Apis mellifera*, propolis.