

TITLE: *IN VITRO* ACTIVITY OF PROPOLIS EXTRACT AGAINST *STAPHYLOCOCCUS* SP ISOLATED FROM BOVINE MASTITIS.

AUTHORS: SILVA, V.F².; FREIRE, D.P¹.; SILVA, T.M.S².; COSTA, M.M¹.

INSTITUTION: 1:UNIVERSIDADE FEDERAL DO VALE DO SÃO FRANCISCO, PETROLINA, PE (RODOVIA BR-407, KM 12 LOTE 543, S / N - PROJETO DE IRRIGAÇÃO NILO COELHO, CEP 56300-000, PETROLINA – PE, BRASIL. 2: UNIVERSIDADE FEDERAL RURAL DE PERNAMBUCO, RUA MANOEL DE MEDEIROS, S/N - DOIS IRMÃOS,52171-900, RECIFE – PE.

ABSTRACT:

Cows suffering from mastitis present a reduced milk production and several changes in its composition, which makes the derivatives industry unfeasible. The genus *Staphylococcus* has a great importance for men and animals, and is the etiological agent with the highest prevalence in cases of mastitis in cattle, being responsible for most of the subclinical and chronic cases of the disease, presenting difficult control and eradication. Unsatisfactory results of antimicrobial use incite the search for alternatives for the treatment of mastitis. Brown Propolis is a substance produced by bees from vegetable exudates, presenting antibacterial, anti-inflammatory, antioxidant, hepatoprotective, immunostimulating activity and toxic action on cancer cells. The aim of this study was to evaluate the antimicrobial effect of Propolis extract on forty isolates of *Staphylococcus* sp. from cases of bovine mastitis, which in a previous study had a sensitivity profile of 98.2% to oxacillin. The sensitivity test used was the Minimum Inhibitory Concentration (MIC) and Minimum Bactericidal Concentration (MBC) techniques. The extract was diluted in absolute alcohol, and the assays were performed in triplicate. The ethanolic Propolis extract presented antimicrobial activity against all isolates of *Staphylococcus* sp. The ethanolic Propolis extract presented antimicrobial activity against all isolates of *Staphylococcus* sp. with MBC values of 781.3 µg/mL and 1562.5 µg/mL. An ATCC 25923 sample was assayed, averaging 1562.5 µg/mL. The action of Propolis extract on microorganisms is associated with the presence of flavonoids and active principles that act synergistically when they are solubilized in alcohol. The Propolis extract mechanism of action would be involved in the prevention of cell division, production of defects in cell wall structure, cytoplasmic disorganization and inhibition of protein synthesis. The Propolis extract has bactericidal effect, suggesting that the extract combination with antimicrobial drugs can reduce the clinical doses of certain antibiotics, increasing the therapy instituted and decreasing the side effects, especially in infectious cases with high bacterial resistance.

Keywords: *Staphylococcus* sp.; Propolis; Bovine mastitis;