

**TITLE:** PROPOLIS: INFLUENCE OF THE METHODS OF PREPARATION TO ETHANOLIC EXTRACTS (EEP) ON ANTIBACTERIAL PROPERTIES.

**AUTHORS:** SANI, A.A.; PEREIRA, A.F.M.; FURLANETTO, A.; RALL, V.L.M.; FERNANDES JR. A.

**INSTITUTION:** INSTITUTO DE BIOCÊNCIAS, BOTUCATU, SP (DISTRITO DE RUBIÃO JÚNIOR S/N, CEP 18618-970, BOTUCATU – SP, BRAZIL).

**ABSTRACT:**

Propolis has long been studied in order to elucidate the biological benefits, especially the ability to inhibit bacterial growth. The species of bee *Apis mellifera* is a more widely known and applied commercially, and the propolis products from that species of bees are widely used in the preparation of herbal medicines and as a basis for food and cosmetics industry. The objective of the study was to test different preparation methods of ethanolic extract of propolis (EEP) in percentage of 15% (15g of crude propolis in 100 ml of 70% ethanol), which were extracted by Double Ultrasonication, Double Maceration and Maceration-Ultrasonication, against ATCC (*American Type Culture Collection*) strains of methicillin-resistant *Staphylococcus aureus* (MRSA) (ATCC 33591) and *Paenibacillus alvei* (ATCC 6344) this last, important sporulated pathogen of *A. mellifera* larvae and causes a disease known as the European Foulbrood (EFB). Was tested a minimal inhibitory concentration (MIC) and minimal bactericidal concentration (MBC), using microdilution methodology (*Resazurin Microtiter Assay* – REMA). About the MIC, the Double Ultrasonication and Double Maceration methods, presented better results for the two bacteria, 78,1µg/ml to MRSA and 19,5µg/ml to *P. alvei*. About the CBM, the methods of preparation did not presented divergences regarding the results, being 312,5µg/ml for all the preparation forms, except Double Maceration against MRSA, resulting in 156,0µg/ml. Thus the preparation of EEP showed no significant differences on the bactericidal properties, but showed influences on bacteriostatic properties, being a Double Ultrasonication and Double Maceration more efficient for bacterial inhibition. Thus, can think about the potential use of the product made with propolis from *A.mellifera*, aiming to combat the two bacteria studied, and in the future will be carried out tests to verify the sporicidal effect of these EEP on *P. alvei*.

**Keywords:** *Paenibacillus alvei*, MRSA, Bacterial resistance, *Apis mellifera*.

**Development Agency:** not applicable.