Título: COMPARISON BETWEEN ANTIMICROBIAL ACTIVITIES OF BRAZILIAN YELLOW AND GREEN PROPOLIS.

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Abstract

Propolis is a natural product collected by bees from resinous materials, gummy and balsamic flora. It could be slightly modified by bee salivary enzymes and can vary in color and consistency according to geographic region and bee genetic. Recent studies highlight the therapeutical potential of propolis due to its antimicrobial, antioxidant and healing activities, among others. Thus, this study aimed to evaluate the antimicrobial activity of yellow propolis from Mato Grosso do Sul (EEPY-MS) and green propolis from São Paulo (EEPG-SP). The propolis samples were provided by the Laboratory of Chromatography and Natural Products (CRONAT) at the State University in the Midwest (UNICENTRO)/PR. The antimicrobial activity of the propolis extracts was tested against gram-positive bacteria: *Staphylococcus aureus* ATCC 6538 and *Enterecoccus faecalis* ATCC 29212 and Gram-negative: *Escherichia coli* ATCC 8739 and *Pseudomonas aeruginosa* ATCC 25853. The propolis extracts were diluted in DMSO 10% and the antimicrobial activity was performed using the microdilution assay and Resazurin staining for obtaining the Minimum Inhibitory Concentration (MIC). The Minimum Bactericidal Concentration (MBC) was obtained at count of colony forming units. The results demonstrated that EEPY-MS showed weak antibacterial activity with MIC and MBC values ranging to 6400-12800 μg/ml for both gram-positive and gram-negative bacteria. In contrast, the EEPG-SP showed excellent antimicrobial activity, mainly against gram-positive bacteria with MIC 159 μg/ml and MBC of 315 μg/ml (*S. aureus*), MIC 310 μg/ml and MBC > 630 μg/ml (*E. faecallis*). Thus, we conclude that green propolis had better antimicrobial action compared to yellow propolis, this fact may be associated with low levels of phenolic compounds, including flavonoids found in EEPY-MS. On the other hand, EEPG-SP showed high levels of phenolic compounds and Artepillin C, as shown in other previous studies. Thus, there is need to further research into the composition and pharmacological actions of yellow propolis compared with others Brazilian propolis, as the green propolis.

Keywords: Propolis, triterpenes, antimicrobial activity, microdilution

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