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ANTIMICROBIAL ACTIVITY OF DEHYDRATED BEE POLLEN PRODUCED IN FOUR BRAZILIAN STATES AGAINST MICROORGANISMS WITH CLINICAL IMPORTANCE

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The objective of this study was to determine the antimicrobial activity of eight dehydrated bee pollen samples collected from April to July 2012 in four Brazilian States: Sergipe; Bahia; Rio Grande do Sul and São Paulo. In parallel it was compared the efficiency of this natural product against microorganisms isolated from biological fluids and reference strains. Antimicrobial compounds were extracted with methanol, serial dilutions were performed and aliquots were evaluated in Nutrient Broth or Yeasts Peptone Dextrose on microplate with the inoculum diluted to 10^4 CFU.ml^{-1}. Gram-positive bacteria (*Streptococcus pyogenes* ATCC; *Streptococcus pyogenes* ESA12; *Staphylococcus aureus* ATCC; *Staphylococcus aureus* ESA54), Gram-negative bacteria (*Escherichia coli* ATCC; *Escherichia coli* ESA72; *Klebsiella* ATCC; *Klebsiella* ESA61) and yeasts (*Candida albicans* ATCC; *Candida albicans* ESA109) were the tested organisms. The results were expressed by an index of minimal inhibitory concentration (MIC), which is the lowest concentration of pollen extract that inhibited visible growth, as indicated by the TTC staining. All the extracts evidenced antimicrobial activity, and showed different selectivity and MICs for each microorganism. Gram-positive bacteria were more sensitive than the Gram-negative bacteria, and yeasts were the more resistant. The MICs ranged from 1.8% (w/v) to 7.9% (w/v) for bacteria and from 15% (w/v) to 32.1% (w/v) for yeasts. The extract from the sample collected in Bahia and the extract from the sample collected in São Paulo were the most effective against Gram-positive and Gram-negative bacteria. The sample from Bahia was also the most effective against yeasts. Antimicrobial compounds in pollen can vary depending on botanical source of the flower pollen, and studies suggest that the nature of the phenolic fraction is related to the antimicrobial activity of dehydrated bee pollen. This study is important since it allowed establishing bee pollen from four Brazilian States as valuable sources of antimicrobial agents.
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