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PROSPECTING SECONDARY METABOLITES FROM GRAM-NEGATIVE BACTERIA ASSOCIATED WITH PROPOLIS

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Gram-negative bacteria are a largely underexplored source of secondary metabolites, despite their increasing importance in natural products research. The present study aims to evaluate the potential of Gram-Negative bacteria isolated from propolis samples to produce bioactive metabolites. Gram-Negative bacterial strains were isolated from three types of propolis collected from different Brazilian biomes: (a) Caatinga green propolis and *Mimosa tenuiflora* resin (Remanso, BA); (b) green propolis and *Baccharis dracunculifolia* resin (Guaranésia, MG); and (c) red propolis and *Dalbergia ecastophyllum* resin (Marechal Deodoro, AL). Collected samples underwent serial dilutions, were inoculated on selective media, and incubated while closely monitoring bacterial growth. Colonies with Gram-negative morphology were isolated, purified, and cryopreserved in 20% glycerol. Strains were also grown on a 1-liter scale for the extraction of growth media. Extracts were prepared by liquid-liquid partitioning and solid-phase extraction. Selected extracts underwent LC-MS-based metabolite profiling to assess their chemical diversity and identify potential bioactive compounds. Preliminary results show a high taxonomic diversity among the Gram-negative isolates, encompassing 15 bacterial genera. Special focus was given to strains isolated solely from Caatinga green propolis, a biome that remains underexplored in natural product research and may harbor bacteria with unique metabolic profiles. These findings highlight the potential of Gram-negative bacteria as sources of structurally novel and pharmacologically significant bioactive compounds.

Keywords: Brazilian propolis, natural product screening, bioprospecting, bioactive compounds.

