



Área: ORG

METABOLOMIC PROFILE OF FRACTIONS FROM GEOPROPOLIS OF *MELIPONA QUADRIFASCIATA* (MANDAÇAIA) BY UPLC-ESI-HRMS

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Highlights

UPLC-ESI-HRMS metabolomic profiling was performed on geopropolis from *Melipona quadrifasciata* (Mandaçaia). Seasonal samples (summer and winter) showed distinct chemical compositions. More importantly the diterpenes turned out to derive from labdane scaffold and not from abietane as shown in the literature. The metabolomic data supported future studies on cytotoxic and bioactive potential of geopropolis fractions

Abstract

The geopropolis produced by the stingless bee *Melipona quadrifasciata* (Mandaçaia) exhibits a complex and highly variable chemical composition depending on seasonality and plant sources. In this study, geopropolis samples collected during summer and winter in Florianópolis (SC, Brazil) were subjected to hydroalcoholic extraction and liquid-liquid partition, affording hexane, dichloromethane, ethyl acetate, and n-butanol fractions. These fractions were analyzed by ultra-performance liquid chromatography coupled with high-resolution electrospray ionization mass spectrometry (UPLC-ESI-HRMS), allowing detailed metabolomic characterization. The analysis revealed compounds belonging to different classes of secondary metabolites, including phenolic acids (p-coumaric, gallic, and ellagic acids), flavonoids (naringenin, aromadendrin, and methoxylated derivatives), and labdane-type diterpenes such as cupressic acid, sugiol, abieta-8,11,13,15-tetraen-18-oic acid, and 15-oxolabda-8(17),13-Z-dien-19-oic acid. Phenolic compounds predominated in the summer samples, while diterpenes were more abundant in winter samples, indicating a clear seasonal influence on the chemical profile. This metabolomic approach expanded the chemical knowledge of *M. quadrifasciata* geopropolis and provides a foundation for future studies correlating chemical composition with biological properties, particularly the cytotoxic potential observed in dichloromethane fractions.

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