



CHARACTERIZATION OF SECONDARY METABOLITES IN ETHANOLIC EXTRACTS AND HYDROSOLS OF *Piper tuberculatum* FROM THE ALTO SAN JUAN BIOLOGICAL CORRIDOR, RISARALDA, COLOMBIA

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The biodiversity of the Alto San Juan biological corridor provides essential ecosystem services for the subsistence of Afro-descendant communities, whose plant resources are currently threatened by improper use and climate change. Bioprospecting emerges as a strategy for the conservation and valuation of these plant resources. This work aimed to phytochemically characterize and evaluate the antioxidant potential of the ethanolic extracts of leaves and stems and the hydrosol of *Piper tuberculatum* (Piperaceae). This species was selected participatively with community members for its use in traditional medicine. The main groups of secondary metabolites in ethanolic extract were identified by thin-layer chromatography (TLC). The antioxidant capacity was determined by three assays: DPPH radical scavenging, Total Antioxidant Capacity (TAC), and Oxygen Radical Absorbance Capacity (ORAC). The hydrosol was obtained by hydrodistillation, extracting the volatile compounds by headspace solid-phase microextraction (HS-SPME) followed by analysis by gas chromatography-mass spectrometry (GC-MS). The species *Piper tuberculatum* revealed the presence of **alkaloids, tannins, phenols, flavonoids, coumarins, anthraquinones, sterols, terpenes, saponins and triterpenes**. In the antioxidant evaluations, the ethanolic extract presented the following results: 35.8 ± 4.7 ($\mu\text{mol Trolox g extract}^{-1}$) for DPPH, a value of 105.9 ± 3.8 (mg GAE g extract⁻¹) for TAC, and 2131.9 ± 161.2 ($\mu\text{mol Trolox g extract}^{-1}$) for ORAC. The data obtained for the hydrosol were analyzed using molecular networking on the Global Natural Products Social Molecular Networking (GNPS) platform, where different molecular families such as **monoterpenes** and **sesquiterpenes** were grouped. The results highlight a wide variety of secondary metabolites and the bioactive potential of *Piper tuberculatum* as a promising source of natural antioxidants.

Keywords: antioxidant activity, phytochemical profile, bioprospecting, secondary metabolites, HS-SPME-GC-MS.

