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DETECTION OF β-CARBOLINE ALKALOIDS IN BANISTERIOPSIS CAAPI (MALPIGHIACEAE) LEAVES BY LEAF SPRAY MASS SPECTROMETRY (LS-MS)

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Leaf Spray Mass Spectrometry (LS-MS) is a rapid and cost-effective analytical technique that requires minimal sample preparation and allows the direct analysis of plant materials such as leaves, bark, roots, and fruits. This method provides preliminary access to chemical profile of different samples, enabling the detection of a wide range of chemical classes in intact plant tissues while minimizing sample handling. In addition to generating chemical profiles, the technique also enables the acquisition of tandem fragmentation spectra, facilitating the annotation of natural products from various classes. *Banisteriopsis caapi*, popularly known as mariri, is native to the Amazon region, belongs to the Malpighiaceae family, and exhibits insecticidal, bactericidal, and fungicidal activities. It is widely recognized as one of the main ingredients of the ayahuasca beverage, traditionally employed in shamanic rituals. The pharmacological interest in this species is largely attributed to the presence of *β*-carboline alkaloids such as harmine, harmaline, and tetrahydroharmine, which act as monoamine oxidase inhibitors (MAOIs), thereby preventing the degradation of dimethyltryptamine (DMT), a psychoactive alkaloid found in ayahuasca. In this context, the aim of this study was to detect and annotate *β*-carboline alkaloids in *B. caapi* leaves through straightforward LS-MS approach. The mass spectrum obtained in positive mode showed a base peak at m/z 213 $[M + H]^+$, identified as the alkaloid harmine based on MS/MS spectral analysis. The application of LS-MS proved effective for the direct detection of *β*-carboline alkaloids in *B. caapi* leaves without the need for prior extract preparation. By combining speed, simplicity, and sensitivity, this methodology represents a promising tool for the rapid prospecting of natural products in plant samples, supporting preliminary chemical studies of medicinal species and those of ethnopharmacological relevance.

Keywords: *Harmine, harmaline, secondary metabolites, mass spectrometry.*