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BIOACTIVE COMPOUNDS OF MANDEVILLA VELAME: CHEMICAL PROFILE AND ELASTASE INHIBITORY ACTIVITY

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The species *Mandevilla velame*, belonging to the Apocynaceae family, is widely used by traditional communities of the Brazilian Cerrado for the treatment of renal disorders and blood purification [1]. Although no chemical or biological profile has been reported specifically for *M. velame*, studies within the genus *Mandevilla* Lindl. have described secondary metabolites with biological activities [2]. Thus, this study aimed to evaluate the chemical and biological profile of extracts and fractions from this species. Ethanolic extracts from leaves and stems were obtained through exhaustive maceration for nine days, with solvent renewed every three days, followed by chlorophyll removal. Fractions were obtained by liquid-liquid extraction with hexane and ethyl acetate. The chemical profiles of extracts and fractions were obtained by HPLC-ESI(+)-MS/MS. Data processed with MS-DIAL and SIRIUS were submitted to the GNPS platform and analyzed using the FBMN approach. Biological activity was evaluated against porcine pancreatic elastase (EC 254-453-6), using SucAla3-*p*NA as substrate and quercetin as positive control, and against mushroom tyrosinase (*Agaricus bisporus*, EC 1.14.18.1), using L-DOPA and kojic acid as control. Ethanolic extracts from leaves (79%) and stems (72.8%) showed strong inhibitory activity against elastase. Similar activity was observed for the acetate (80.2%) and hydromethanolic (75.3%) fractions of leaves, whereas the stem fraction were inactive. Annotation by MS/MS showed similarities among the fractions, highlighting the presence of flavonoids such as quercetin-*O*-hexoside (*m/z* 479.0810), condensed tannins such as aesculitannin B (*m/z* 865.1944), phenolic derivatives of phenylpropanoids such as chlorogenic acid (*m/z* 355.1008), and triterpenoids such as queretaroic acid (*m/z* 473.3602). Among them, flavonoids and tannins are particularly relevant due to their known antioxidant and enzyme-modulating properties. Although both extracts shared a similar chemical profile, the higher concentration and bioaccessibility of compounds in the leaves explain their superior elastase inhibitory activity. In contrast, *M. velame* extracts did not show significant activity against tyrosinase, with inhibition rates below 20%. Overall, this study reveals that the extracts, particularly the acetate and hydromethanolic fractions of the leaves, exhibited promising elastase inhibitory activity due to their flavonoid and tannin content. However, tyrosinase inhibition was unsatisfactory. These findings demonstrate that prospecting enzymatic inhibitors from plant extracts may represent a relevant tool for the development of biocosmetics. Acknowledgments: FINEP, CNPq, Livealoe, Bergische Universität Wuppertal.

Keywords: *Mass spectrometry; Chemical profile; Elastase; HPLC-ESI(+)-MS/MS*

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