ISOLATED CONDENSED TANNINS FROM *Mimosa tenuiflora*: POTENTIAL PRECURSORS FOR THE DEVELOPMENT OF ANTILEISHMANIAL DRUGS

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Leishmaniases are neglected diseases with a wide geographical distribution, and the available treatment presents certain limitations. The drugs used exhibit high toxicity, severe side effects, and limited efficacy, making the development of new, effective drugs necessary. In this context, natural products emerge as promising sources for new drugs. *Mimosa tenuiflora* contains phytoconstituents, such as condensed tannins, with the potential to inhibit pathogens through interaction with membrane proteins. This study investigated the antileishmanial activity of condensed tannins isolated from the bark of *M. tenuiflora*.

Leishmania amazonensis promastigotes were used to evaluate in vitro antiparasitic activity, while NIH/3T3 cells were used for cytotoxicity analysis. Molecular docking assays assessed the interaction of condensed tannins with the *Leishmania mexicana* L-arginase enzyme (PDBID: 4IU0).

The results demonstrated that condensed tannins significantly inhibited parasite growth at higher concentrations (IC_{50} = 24.59 µg/mL), with low toxicity (CC_{50} > 1,000 µg/mL) and high selectivity (SI > 40.65). In molecular docking, tannins interacted with residues in the active site of L-arginase, suggesting an enzymatic inhibition mechanism.

Based on these findings, it is possible to suggest that condensed tannins compromise parasite survival by blocking essential metabolic pathways. This is the first report on the antileishmanial activity of purified condensed tannins from *M. tenuiflora*, highlighting their biotechnological potential. The high selectivity and safety observed reinforce the viability of these molecules as drug candidates. This study paves the way for further research using this molecule as a potential precursor for new drugs.

Supported by Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq)

Keywords: Biotechnology, Leishmaniases, Condensed Tannins