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INHIBITORY POTENTIAL OF ETHANOLIC EXTRACT AND THE FLOWER FRACTIONS OF *Couroupita guianensis* AGAINST TARGET ENZYMES OF *Leishmania donovani*

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Plant-derived secondary metabolites play an important role in drug discovery due to their structural diversity and affinity for biological targets. Leishmaniasis, caused by parasites of the genus *Leishmania*, is a neglected tropical disease with therapeutic options increasingly limited by drug resistance, highlighting the urgency of identifying novel molecular targets. Among them, the nucleoside hydrolase (*Ld*NH) and ornithine decarboxylase (*Ld*ODC) enzymes of *L. donovani* stand out as promising candidates, since *Ld*NH is absent in mammals and *Ld*ODC shows significant structural differences from the human ODC, while both perform essential functions in parasite metabolism. This study aimed to identify inhibitors of *Ld*NH and *Ld*ODC from flower extracts of *Couroupita guianensis*. Native to the Amazon region, this species is traditionally used for the treatment of inflammation, pain, and skin infections. From 340 g of dried flowers, ultrasound-assisted extraction with 70% ethanol was conducted, yielding 3.8%. The extract was fractionated in a Biotage C18 reversed-phase column (25 g, Isolera One system), generating 45 fractions that were grouped according to chemical similarity. The fractions were analysed by ^{1}H NMR (500 MHz) and tested for inhibition of *Ld*NH and *Ld*ODC. Fractions showing inhibition greater than 50% were considered active. For *Ld*NH, active fractions included F5B, F8B, and F9B. For *Ld*ODC, the active fractions were F2B, F3B, F4B, F5B, F6B,13B, and F14B. The F5B fraction was notable for showing significant inhibition in both assays. Its ^{1}H NMR spectrum exhibited signals at 7.0–7.5 ppm (aromatic/heteroaromatic hydrogens), 3.2–3.8 ppm (hydrogens bound to electronegative atoms), and 0.8–1.2 ppm (methyl and methylene groups). These characteristics suggest the presence of flavonoids, substituted phenols, glycosides, or alkaloids. In conclusion, *C. guianensis* flower fractions demonstrated inhibitory potential against enzymes essential for *L. donovani*. The F5B fraction, active against both *Ld*NH and *Ld*ODC, will undergo LC-MS and 2D NMR analyses for structural elucidation of its active metabolites.

Keywords: *nucleoside hydrolase, ornithine decarboxylase, secondary metabolites.*