MYRACRODROON URUNDEUVA HEARTWOOD LECTIN INHIBITED THE GROWTH OF LEISHMANIA AMAZONENSIS PROMASTIGOTES AND WAS NOT TOXIC TO MURINE MACROPHAGES

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Introduction: Lectins, carbohydrate-binding proteins, show biological effects on different organisms. The Myracrodruon urundeuva lectin (MuHL) isolated from heartwood is an insecticidal lectin inducing mortality of Nasutitermes corniger workers and soldiers and of Aedes aegypti larvae. Cutaneous leishmaniasis, disease that affects millions of people around the world, is caused by Leishmania amazonensis. Antimonials are the drugs used for treatment but these compounds showed cardiac and renal toxicities. The toxic effect of plant molecules on L. amazonensis as well as to murine macrophages has been evaluated aiming to find new anti-leishmanial drugs with high selectivity index (SI). Objectives: This study determined the effects of MuHL on L. amazonensis growth and viability of murine macrophages. Material and Methods: MuHL was isolated according procedure previously described and different concentrations (3.12–100 µg/mL) of lectin were incubated with promastigotes and with macrophages by 48 h. Following, cell viabilities were analyzed using the CellTiter-Glo® Luminescent Cell Viability Assay kit. The concentration of lectin that inhibits 50% of the promastigote growth (IC₅₀) and 50% cytotoxic concentration (CC₅₀) to macrophages were determined by probit analysis. The SI was determined as the ratio of CC₅₀/IC₅₀. Results and Discussion: MuHL inhibited the promastigote growth in a dose dependent manner (IC₅₀ of 22.4 µg/mL) and showed low toxicity to macrophages (CC₅₀>100 µg/mL), resulting in a SI higher than 4.46. Conclusion: MuHL is an anti-leishmanicidal lectin with low toxicity to murine macrophages.

Key words: Myracrodruon urundeuva, cutaneous leishmaniasis, lectin.

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