

***In vitro* Cytotoxic Effect of *Phyllanthus niruri* Leaf Extract on *Leishmania infantum* Promastigotes and Murine Macrophages**

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**INTRODUCTION:** Leishmaniasis is a chronic disease caused by protozoa of the genus *Leishmania* (Trypanosomatidae family) that affects a large portion of the world population, especially in underdeveloped countries. The most severe form of disease is visceral leishmaniasis that can be fatal in cases of ineffective treatments. A promising alternative to treat the disease more effectively than current drugs is the use of natural products with leishmanicide activity against the etiological agent *Leishmania infantum*. **OBJECTIVE:** To evaluate the potential cytotoxicity of *Phyllanthus niruri* leaf extract on *L. infantum* promastigotes and murine macrophages. **MATERIAL AND METHODS:** *P. niruri* leaf powder was submitted to extraction in 0.15M NaCl (10%, w/v) under constant agitation (16h). The material was centrifuged (at 4 °C) and obtained extract was evaluated for protein concentration and hemagglutinating activity. The cytotoxicity was analyzed by MTT test, using *L. infantum* promastigotes and murine macrophages in culture plates, which were incubated with extract (500-0.485 µg mL<sup>-1</sup> and 500-31.25 µg mL<sup>-1</sup>, respectively) for 72h; subsequently plates were washed, complete RPMI medium and MTT were added. After 3h, DMSO was added, plates were shaken and the absorbance was measured at 540nm. Data were analyzed by ANOVA followed by Tukey's post-test (program SPSS 13.0). **RESULTS AND DISCUSSION:** The extract showed 19.7 mg mL<sup>-1</sup> protein concentration and hemagglutinating activity with human erythrocytes (between 4<sup>-1</sup> and 16<sup>-1</sup>) revealing lectin activity. The extract presented cytotoxic effect on macrophages at a protein concentration of 500 µg mL<sup>-1</sup> (p<0.05), due to presence of constituents as lectins and other potentially toxic metabolites. However, there was no cytotoxicity on *L. infantum* promastigotes. The cytotoxicity on macrophages should be investigated because *P. niruri* is a plant of medicinal use. **CONCLUSION:** *P. niruri* leaf extract has lectin activity and is cytotoxic to macrophages, but does not affect the viability of *L. infantum* promastigotes.

**Keywords:** Stonebreaker, Kala-azar, Hemagglutinin.

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