**In vitro leishmanicidal and cytotoxic activity by flow cytometry of synthetic derivatives of Aldimines and Hantzsch Adducts against *L. infantum***


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Visceral leishmaniasis (VL) is a fatal infectious disease if non treated. Ninety percent of VL cases occur in India, Bangladesh, Sudan, Nepal, and Brazil. The conventional drugs for treatment of VL have limitations, including unresponsiveness, relapse, high toxicity, parenteral administration lasting for long periods of time and lack of effectiveness in HIV–VL patients. There are also issues related with the crescent appearance of resistant parasites to all drugs available, making it essential the execution of drug screening studies for new leishmaniasis treatment alternatives. In this study we tested the leishmanicidal and cytotoxic activity of synthetic derivates of Aldimines and Hantzsch Adducts (HA) against *L. infantum*. For this purpose, we synthesized 7 Aldimines derivates and 5 HA derivates and analyzed these compounds for cytotoxicity against DH82 canine macrophages. These cytotoxicity tests were performed with different concentrations of drugs, using MTT assay to calculate the IC50% (ug/mL) of each drug, using this specific concentration to perform a subsequent leishmanicidal assay. The leishmanicidal activity of each drug against the amastigote form of *L. infantum* GFP OP46 strain was evaluated at 24, 48 and 72h after infection using flow cytometry. In the assay we compare the infection rate ratio of treated cells against the control (control ratio=1). We observed that Aldimines derivates 3H7, 3H9 and 3G2 and Hantzsch Adducts 8B5 significantly decreased the infection rate, compared with the control group, behaving in a similar manner to the amphothericin group at 48 and 72 hours after infection. These results demonstrated the in vitro potential of the Aldimines and Hantzsch Adducts derivates as leishmanicidal drugs and open the perspective to develop further studies using in vivo models.

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