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IN VITRO ANTITRYPANOSOMAL ACTIVITIES OF CUMARINES AND FRACTIONS FROM *BACCHARIS GLAZIOVII* (ASTERACEAE)

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Abstract: *Trypanosoma cruzi* is the causative agent of American trypanosomiasis also known as Chagas' disease, which is a major endemic disease in Latin America [1]. That remains a serious health concern with unsatisfactory treatment. The current treatment regimens, based on chemotherapy, for these parasitic diseases are limited and are not ideal, as they are often associated with severe side effects. The emergence of drug resistant parasites presents an additional and major problem. All these facts underline the urgent need for the development of new, cheap, safe, and easy-to-administer molecules for the treatment of these infectious diseases [2]. Screening natural products provides the chance to discover new molecules of unique structure with high activity and selectivity [3,4,5]. The aim of the present study was to investigate *in vitro* the antiproliferative activities of extracts and cumarins isolated from *Baccharis glaziovii* Baker on trypomastigotas of *T. cruzi*. The aerial part of *B. glaziovii* were extracted with etanol:water (9:1, *v/v*) and then fractionated with solvents in increasing polarity, to afford the hexane (**BgFH**), dichloromethane (**BgFD**), ethyl acetate (**BgFAc**) and residual aqueous (**BgFAq**) fractions. The **BgFAc** fraction afforded a precipitate which was analyzed by 1D and 2D NMR, identified a mixture of the three cumarins (**CM**). Then the **BgFH, BgFD**, **BgFAc** and **BgFAq** fractions and **CM** were submitted to *in vitro* antitrypanosomal activities. The evaluated fractions and **CM** showed interesting antiproliferative activity. The fractions **BgFH**, **BgFAc**, **BgFAq** and **CM** showed a significant antiproliferative activity on trypomastigotes with EC_{50} 37.83 μg.mL^{-1}, 44.97 μg.mL^{-1}, EC_{50} 57.9 μg.mL^{-1} and EC_{50} 74.00 μg.mL^{-1}, respectively. Due to the relevant action of the fractions and **CM** were then subjected to the cytotoxicity assay in VERO cells, with a CC_{50} 220.59 μg.mL^{-1} for **BgFAc**, 170.47 μg.mL^{-1} for **CM**, 162.64 μg.mL^{-1} for **BgFAq** and 65.00 μg.mL^{-1} for **BgFH**. The **BgFH**, **BgFAc**, **BgFAq** fractions and **CM** showed that the selectivity index, IS (CC_{50}/EC_{50}) is greater than 1, indicating that these samples are more active against protozoans and less active against VERO cells. The **BgFD** fraction showed high toxicity on VERO cells as compared to activity against protozoa. The **BgFH**, **BgFAc**, **BgFAq** fractions and the mixture of the cumarins, Isofraxoside, Magnolioside and Uncalina obtained of the aerial part from *B. glaziovii*, have an effective activity on the feasibility of trypomastigotes of *T. cruzi* parasite.

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