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BIOPROSPECTING OF ETHANOLIC EXTRACTS FROM *Cupania emarginata* Cambess FRUITS FOR POTENTIAL ANTI- *Trypanosoma cruzi* ACTIVITY

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Described in 1909 by Brazilian scientist Carlos Chagas, Chagas disease is a chronic infection caused by the protozoan *Trypanosoma cruzi*. Considered a neglected tropical disease, its occurrence is concentrated in Latin America, with insects known as "kissing bugs" (*Triatominae*) serving as the primary vectors of transmission. Although anti-*T. cruzi* therapeutic drugs exist, none currently provide a definitive cure for the chronic phase of trypanosomiasis. Given their therapeutic versatility, phytopharmaceuticals may offer an alternative for treatment of the disease. Despite the lack of studies on the potential trypanocidal activity of the species *Cupania emarginata* Cambess, popularly known as camboatá, previous research has reported the presence of bioactive cupanosides against *Trypanosoma brucei rhodesiense* in extracts of *Cupania cinerea*. Thus, considering that species of the same genus tend to produce similar classes of secondary metabolites, the present study proposes a biomonitored chemical investigation aimed at bioprospecting an ethanolic extract of *C. emarginata* fruits with potential anti-*T. cruzi* activity. The methodology included fractionation of the crude extract by ultra high performance liquid chromatography (UHPLC) in a 96-well plate and *in vitro* evaluation of anti-*T. cruzi* activity of both the extract and its fractions. These fractions were also subjected to electrospray ionization mass spectrometry (ESI-MS/MS) to determine their chemical profiles. To achieve the isolation and structural elucidation of bioactive compounds, a semi-preparative fractionation was performed using high performance liquid chromatography (HPLC). The resulting fractions were then analyzed by UHPLC-ESI-MS/MS and nuclear magnetic resonance (NMR) to identify the most active substances. Preliminary results showed that the crude extract exhibited protozoan inhibition activity (IC_{50} = 25.6 ± 4.0 µg/mL), and four collected fractions were bioactive, with protozoan growth inhibition percentages of 68.0%, 80.0%, 85.6%, and 86.9%, respectively. Chemical characterization of the crude extract led to the annotation of xanthotoxin, epicatechin, and a triterpenoid. The substances present in the active fractions are currently under analysis. Future perspectives include the isolation and characterization of these bioactive molecules to elucidate their chemical structures using UHPLC-ESI-MS/MS and NMR.

Keywords: *Cupania emarginta* Cambess, *Phytopharmaceuticals, Trypanosoma cruzi*