

Biochemical and Morphological Alterations on Epimastigote Forms of  
*Trypanosoma cruzi* Induced by Treatment with Plant Extracts

Garcia, C.S.<sup>1</sup>, Gonçalves, G.<sup>1</sup>, Souza, C.M.M.<sup>1</sup>, Maier, F.S.C.<sup>1</sup>, Pereira, T.A.<sup>1</sup>,  
Paulino, L.M.<sup>1</sup>, Miranda, M.L.D.<sup>1</sup>, Sarmiento, U.<sup>1</sup>, Tozetti, I.A.<sup>1</sup>, Padovani, C.T.J.<sup>1</sup>,  
Garcez, F.R.<sup>1</sup>, Garcez, W.S.<sup>1</sup>, Ferreira, A.M.T.<sup>1</sup>

<sup>1</sup>Universidade Federal de Mato Grosso do Sul, CCBS, Campo Grande-MS, Brazil

**INTRODUCTION** *Trypanosoma cruzi*, a hemoflagellate protozoan parasite (Kinetoplastida order, Trypanosomatidae family), is the etiologic agent of Chagas disease, one of the main diseases of public health interest in Latin America. The adaptation of the protozoan to different temperatures, nutrients availability and the intra- and extracellular environments is reflected in its different evolutionary forms observed in the parasite's life cycle, marked by morphological, ultra-structural, functional and biochemical alterations. **OBJECTIVES** The aim of this study was to evaluate the protein profile of epimastigote forms of *T. cruzi* Dm28c treated with biologically active plant extracts by the viability test with MTT and describe the morphological changes induced by these treatments. **MATERIAL AND METHODS** The protein profiles of parasites treated with IC<sub>50</sub> of ethanolic extracts of *Vernonia ferruginea* (leaves), *Aiouea trinervis* (fruits) and *Guarea kunthiana* (seed) were analyzed by polyacrylamide gel electrophoresis (SDS-PAGE). The morphological and morphometric analyzes were performed using optical microscopy with the aid of Motic 2.1 software. **RESULTS AND DISCUSSION** Regarding the morphology, 30% of the parasites showed alterations when treated the IC<sub>50</sub> of the *V. ferruginea* extract, which although biologically active, did not induce significant changes in the expression of parasite proteins. The treatment of epimastigote forms of *T. cruzi* with the IC<sub>50</sub> of the extracts *G. kunthiana* and *A. trinervis* modified the protein profile of the parasites, evidencing a peptide of approximately 70 kDa. Regarding the morphometric data, the *A. trinervis* extract caused an increase in size of the flagella ( $p < 0.05$ ) and reduction in kinetoplast area ( $p = 0.036$ ) while *G. kunthiana* extract caused reduction in size of the flagella ( $p < 0.05$ ) and cell perimeter ( $p < 0.05$ ). **CONCLUSIONS** Our results indicate that the tested extracts are biologically active and do modify the protein profile and the morphology of parasites and, therefore, represent a potential source of compounds with trypanocidal activity.

Keywords: *Trypanosoma cruzi*, protein profile, morphology  
Supported by: FUNDECT, CNPq and CAPES