

## **IN VITRO ACTIVITY AGAINST *TRYPANOSOMA CRUZI* OF BARBATIC ACID-LOADED NANOCAPSULES**

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The aim of this study was to evaluate the effect of barbatic acid (BARB) on the viability and growth of *Trypanosoma cruzi* epimastigote forms, the etiologic agent of Chagas' disease. In order to improve the BARB bioavailability, it was incorporated into poly(lactic-glycolic) nanocapsules (BARB-NC). Epimastigote forms of *T. cruzi* were incubated at different concentrations of free BARB or BARB-NC for 24, 48 and 72 hours. The LD<sub>50</sub> was evaluated by cell counting using Neubauer chamber. Parasites grown in drug-free medium was used as a control. Treatment of epimastigote with both BARB and BARB-NC resulted in a dose-dependent growth inhibition, with a value of LD<sub>50</sub>/24h of 83.5 and 36.16 µg/ml, respectively. Incubation of parasites with 15.6 – 62.5 µg/ml leads to a significant increase of cell death soon after 24 hours of incubation for both free and encapsulated BARB. Furthermore, BARB-NC considerably increased trypanocidal activity as compared with unloaded BARB. Results showed that BARB-loaded nanocapsules can be used as a potential drug system against *T. cruzi*, being the poly-lactic-glycol a good carrier for this compound.

**Keywords:** Barbatic acid, *Trypanosoma cruzi*, PLGA nanocapsules