

Effect of *Enterolobium contortisiliquum* Peptidase Inhibitor and Reactive Site Derived Synthetic Peptide on *Trypanosoma cruzi* Infection

Santana, L.A.¹, Yoshida, N.², Ferreira, D.², Souza, M.T.¹, Andrade, S.S.¹, Sampaio, M.U.¹ and Oliva, M.L.V.¹

¹Departamento de Bioquímica, ²Departamento de Micro-Imuno-Parasitologia da Universidade Federal de São Paulo - UNIFESP – São Paulo – SP.

Enterolobium contortisiliquum Trypsin Inhibitor (EcTI) is plant Kunitz type serine and metallo peptidase inhibitor of trypsin, plasmin, chymotrypsin, human plasma kallikrein, human neutrophil elastase (K_{iapp} 0.88 nM, 9.36 nM, 1.11 nM, 6.15 nM and 55.0 nM respectively) and of the activation of both MMP-2 and MMP-9 (matrix metallo proteinases). In experiments using metacyclic tripomastigote form of *T. cruzi* CL strain on HeLa cell line, EcTI shows a significant cell invasion inhibition. In order to investigate the role of its reactive site, three synthetic peptides from EcTI surrounding this region (pEcTI-1, pEcTI-2, pEcTI-3) were tested in cell infection and the results demonstrated that these peptides inhibit approximately 75% of cell invasion. In assays using extracts of metacyclic *T. cruzi* CL strain peptidases, pEcTI-1 inhibited serinepeptidases and pEcTI-3 acted on metallo peptidases activities (97%). The confocal microscopy of HeLa cell showed pEcTI-Alexa Fluor 488 internalized in the cell. (Supported by FAPESP, MCT/CNPq, FADA/FAP, CAPES). Key words: plant inhibitors, peptidase, peptide, *T.cruzi*.