Adenosine Deaminase Activity in Intact Trophozoites of *Trichomonas vaginalis*

Weizenmann, M.[1], Vieira, P.B. [1], De Carli, G.A. [2], Bonan, C.D. [3], Tasca, T. [1]
[1]Laboratório de Pesquisa em Parasitologia, Faculdade de Farmácia, UFRGS, RS, Brazil; [2]Instituto de Geriatria e Gerontologia, PUCRS, RS, Brazil; [3]Laboratório de Neuroquímica e Psicofarmacologia, Faculdade de Biociências, PUCRS, RS, Brazil.

Trichomonas vaginalis is a parasitic protozoan that causes trichomonosis, the non viral sexually transmitted disease (STD) most common in the world. This STD presents a serious impact on public health and therefore it is important to investigate the biochemical aspects of the parasite. The aim of this study was to characterize the adenosine deaminase (ADA) activity from intact trophozoites of *T. vaginalis*, an enzyme involved in the purine metabolism responsible for the degradation of adenosine to inosine. Considering adenosine as substrate, the protein curve was linear between 50 to 150µg protein mL^{-1} and the time course was linear up to 40 minutes. The optimal pH for nucleotide hydrolysis was 7.5. Adenosine and 2-deoxyadenosine were substrates for ADA presenting the activities 2.9±0.5 and 1.9±0.6 nmol NH_3 min^{-1}mg $protein^{-1}$, respectively. Guanosine and 2- deoxyguanosine were not deaminated. The enzyme activity increased with increasing concentrations of adenosine. The apparent values for K_M and V_{max} were, respectively, 1.13 mM and 2.61 nmol NH_3 min^{-1}mg $protein^{-1}$. In the presence of EHNA (5, 10, 15, 20, 25µM), a classical ADA inhibitor, the enzyme activity was strongly inhibited. Divalent cations, Mg^{2+} and Ca^{2+}, inhibited the activity and EDTA reverted the effect. Considering the viability of the trophozoites, data suggest the presence of an ectoADA in the parasite surface. The occurrence of an ADA in *T. vaginalis* may represent important implications for the purinergic system in the immune response to trichomonosis.

Keywords: *Trichomonas vaginalis,* adenosine deaminase, intact trophozoites, purinergic system
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