Involvement of NTPDase and ecto-5'-nucleotidase of *Trichomonas vaginalis* on parasite adenosine production and on oxide nitric release by human neutrophils

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*Trichomonas vaginalis* is a flagellate parasitic protozoan of the human urogenital tract that causes trichomonosis - the most common non-viral STD in the world. In the inflammatory process promoted by infection, the leukocytic infiltration is the main cytological change observed. Considering the disease impact on public health and the search for new therapeutic targets to trichomonosis treatment, it is important to investigate the biochemical aspects of the parasite. Extracellular nucleotides, especially ATP, are released by cells under stress, anoxia or injury and they can be degraded to adenosine by ectonucleotidases. Importantly, *T. vaginalis* lacks the ability to synthesize purines de novo, and the enzymes act on the salvage pathways generating the nucleosides. Evaluating the profile of *T. vaginalis* ectonucleotidases in a serum limitation condition, a significant increase in ATP, ADP and AMP hydrolysis was observed. NTPDase gene expression and the metabolism of extracellular nucleotides were also increased. Moreover, the serum limitation promoted cell cycle arrest at G0/G1 phases, suggesting an increase in intracellular pool of adenine nucleotides. To better understand the mechanisms involved in leukocyte recruitment to the infection site, the nitric oxide (NO) production by neutrophils stimulated with *T. vaginalis* was investigated. The trophozoites caused increase in NO synthesis by the inducible nitric oxide synthase. The adenine nucleotides were not able to modulate the NO production. In contrast, the adenosine produced by trichomonads ecto-5'-nucleotidase promoted a significant reduction in the NO levels, likely through A2A receptors activation. The results obtained in this study disclose the importance of *T. vaginalis* ectonucleotidases on adenosine generation and contribute to the host-parasite interactions as well as to the immunity in trichomonosis.

Keywords: *Trichomonas vaginalis*, ectonucleotidases, nitric oxide.