Biochemical Analysis of a Phosphotyrosine Phosphatase from *Trypanosoma cruzi*

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Trypanosoma cruzi is the etiological agent of the American Trypanosomiasis disease, also known as Chagas' disease. Many researchers have been trying to understand the biochemistry involved in the life cycle of the protozoan parasite, with that knowledge they may improve the production of new drugs, search for new treatments and diagnosis. The objective of this work is to describe the purification and the characterization of a *T. cruzi* recombinant protein tyrosine phosphatase (PTP), as previous works described that PTPs can be involved in pathogenicity. The recombinant PTP was expressed in *Escherichia coli* BL21(DE3) pLysS and purified by immobilized metal ion affinity chromatography. The purification was optimized by size-exclusion chromatography. At the end of the process the protein yield was 6.52 mg/l of cell culture. A kinetic study was performed using 4-nitrophenylphosphate (pNPP) as a model substrate of the enzyme. The results indicated that the enzyme converted the model substrate in 4-nitrobenzene. It was possible to conclude that the purification methods were efficient and the recombinant protein shows a tyrosine-phosphatase activity. Further biochemical and structural analysis of this enzyme are in progress.

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