

## EXTRACTION AND CHARACTERIZATION OF ACID PHOSPHATASE FROM MICROALGAE *SELENASTRUM CAPRICORNUTUM*.

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*Selenastrum capricornutum* is an unicellular green algae widely distributed in freshwater and soils among the world. Because this cosmopolitan characteristic its use is recommended by national and international protocols in ecotoxicity studies. Algae acid phosphatase plays important roles in the metabolism such as decomposing organic phosphates into free phosphates and organic compounds; autophagic digestive process recycling cellular materials, and zygote formation during reproduction. In this work we compared some methods of extraction of acid phosphatase from *S. capricornutum*, and we studied the stability, substrates specificity, inhibitors effect and kinetics in the crude extract. With p-nitrophenylphosphate (p-NPP) as substrate, our results showed that the extraction increased by freezing/thawing between cycles of probe sonication, and that this last method was almost as effective as the N<sub>2</sub> freezing/triturating, but several times more effective than bath sonication. The enzyme, stable by freezing storage during approximately 3 months, showed an optimum pH of 5, and a Km value of 0.28 mM. The enzyme was inhibited by tartrate (35%), fluoride (75%) and partially by p-CMB. Natural organic substrates like FMN, fructose 1,6 diphosphate and  $\alpha$ -glycero-phosphate were cleaved in a similar extent as the synthetic p-NPP, suggesting the possibility of the enzyme involvement in the cellular metabolism of such intermediates.

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