**H⁺-DEPENDENT MECHANISM FOR INORGANIC PHOSPHATE UPTAKE IN THE PRIMITIVE FUNGUS BLASTOCLADIILLA EMERSONII**

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Inorganic phosphate (Pᵢ) is an important nutrient for cellular metabolism in all forms of life because it is involved in most metabolic processes. In the chytridiomycete Blastocladia emersonii, phosphate limitation is sufficient to interrupt cell growth and to induce complete sporulation. Since inorganic phosphate availability seems to be involved in cell growth and differentiation of B. emersonii, the biochemical characterization of the mechanism by which B. emersonii internalizes Pᵢ is needed to clarify several new features of the regulation of Pᵢ metabolism. Then, the aim of the present work is: (i) to investigate the Pᵢ transport system whereby phosphate is taken up by B. emersonii cells and to measure the uphill Pᵢ uptake capacity across the plasma membrane of the fungus grown under phosphate depletion, and (ii) to investigate any possible association with the transport of other species of ions. In all cases, at least three independent experiments were performed in triplicate. The values shown in all experiments represent the mean±SE. Comparison among the different conditions was made using an unpaired t-test or Student’s t-test. The proton ionophore FCCP, bafilomycin A1 (an inhibitor of the plasma membrane H⁺ pump), nigericin (K⁺ ionophore) and SCH28080 (an inhibitor of H⁺,K⁺-ATPase) all reduced the transport of Pᵢ, suggesting that an electric potential gradient ΔΨ is necessary for an electrogenic or electroneutral Pᵢ uptake. Furthermore, the transport of phosphate was significantly diminished upon changes in pH range between 6.4 and 8.4. The increased transport rates at the lower pH may reflect the preference for H₂PO₄⁻ over HPO₄²⁻. These findings provide the first evidence of a H⁺: Pᵢ-transport system in B. emersonii, similar to PHO84 in S. cerevisiae, that contributes to the acquisition of inorganic phosphate and could be involved in growth, differentiation and survival of B. emersonii.