Determination of Kinetic Parameters of the Isocitrate Lyase of the Fungus *Paracoccidioides brasiliensis*

Troian, R.F; Neto, B.R.S; Cruz, A.H.S; Fernandes, K.F; Soares, C.M.A; Pereira, M

[1]Laboratório de Biologia Molecular, Instituto de Ciências Biológicas, Instituto de Patologia Tropical e Saúde Pública, Universidade Federal de Goiás, 74001-970, Goiânia, Goiás, Brasil.

Introduction *Paracoccidioides brasiliensis* is a human pathogenic fungus and as termodimorfic this as saprophytic filamentous hyphae to 22°C. During infection, the yeast cells of *P. brasiliensis* yeasts pathogenic to 36 brasiliensis are found intracellularly in macrophages. To address the deficiency of nutrients during infection, some pathogens use the cycle glioxalat in the use of fatty acids as carbon sources. Glioxalate cycle (GC) enzymes are potential targets of antifungal, since they are absent in humans, have been shown to be necessary for the development of the fungus. The isocitrate lyase (ICL) is a key enzyme of the GC and is essential as an enzyme anaplerotic for growth on acetate as a carbon source. **Objectives**This work was performed to characterize the enzyme ICL of *P. brasiliensis* (PbICL). **Conclusion** The enzyme showed an optimum pH of 7.0, with a range of 5.0 - 9.0. The optimum temperature of PbICL was also evaluated, showing that the optimum in a range from 25 to 45 °C. The kinetic parameters were temperature for the enzyme was 30°C analyzed to Km 3.8 mM and Vmax 3.4. To ICL some microorganisms has been found that the presence of Mg^{2+} ions is essential for the catalytic activity of the enzyme. In order to evaluate the dependence of the enzyme in relation to other cations, the activity tests were performed with PbICL the ions Mg^{2+}, Mn^{2+}, Ca^{2+}, Ba^{2+}, Ni^{2+}, Zn^{2+} and Hg^{2+}, the results showed that the presence of Mg^{2+} the enzyme showed better activity for the other ions examined.