

Oxidative Stress Induced by Arsenic Trioxide (As_2O_3) in *Saccharomyces cerevisiae*

Campos, D.C.¹, Haddad-Ribeiro, F.¹, Porto B.A.A., Costa-Moreira, L.M.¹,
Menezes, M. A. B. C.², Amaral, A. M.², and Neves, M. J.¹.

¹Laboratório de Radiobiologia, ²Laboratório de Radioquímica, CNEN/CDTN,
Belo Horizonte, Minas Gerais

The metals have an important role in medicine and treatment of diseases. Because of its significant medicinal properties, arsenic has been used as a therapeutic agent. The arsenic trioxide (As_2O_3) is administered as a primary agent antileukemic and is considered the most effective treatment for patients with chronic myelogenous leukemia (CML). Since old times this metal acquired a reputation as a toxic compound and a poison, in fact, chronic exposure at this metal has been associated with different types of cancer, diabetes, arteriosclerosis and cardiovascular diseases, hypertension and neurological diseases. The arsenic is not a redox metal but can causing an increase in oxidative stress indirectly, through damage to the antioxidant defense system. The objective of this research was to evaluate the incorporation of arsenic by *Saccharomyces cerevisiae* BY-4741 and the influence of metal in the cells. The quantity of arsenic incorporated, its influence on growth of the cell and cellular tolerance to different concentration of this metal was determined, until 200ppm of As_2O_3 it was verified that arsenic didn't inhibit the growth of cells but the growth was slower than in control cells. Parameters of oxidative stress such as peroxidation of lipid, total sulfhydryl residues were determined. These parameters were altered in presence of arsenic.

Key words: As_2O_3 , *Saccharomyces cerevisiae*, peroxidation of lipids, total sulfhydryl residues, oxidative stress.

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