Diuron determines *Saccharomyces cerevisiae* UE-ME3 survival at beginning of exponential phase


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**Diuron determines *Saccharomyces cerevisiae* UE-ME, survival at beginning of exponential phase**

H. Tenda  
Department of Chemistry, School of Sciences and Technology, University of Évora, Rua Romão Ramalho, 59, 7002-554, Évora, Portugal

I. Alves-Pereira  
Department of Chemistry, School of Sciences and Technology, University of Évora, Rua Romão Ramalho, 59, 7002-554, Évora, Portugal

Institute of Mediterranean Agrarian and Environmental Sciences (ICAAM), University of Évora, Núcleo da Mira, 7002-774 Évora, Portugal

R. Ferreira  
Corresponding author. Phone: +351 266745313

Department of Chemistry, School of Sciences and Technology, University of Évora, Rua Romão Ramalho, 59, 7002-554, Évora, Portugal

Institute of Mediterranean Agrarian and Environmental Sciences (ICAAM), University of Évora, Núcleo da Mira, 7002-774 Évora, Portugal

The diuron is an herbicide used on autumn-winter crops, due to its ability to block the chloroplast electron chain at level of photosystem II. Furthermore, diuron can also exert toxic effects on heterotrophic yeasts, blocking the respiratory chain and ROS generating. Despite the progressive suppression of diuron application by Directive 2006/60/CE, groundwater contamination will still persist. Therefore the main purpose of this work was to evaluate the effect of this phytosanitary residue on *S. cerevisiae* at proliferative phase. The results show a significant decrease of GSH/GSSG ratio, in cells exposed to 50 µM diuron. Although GSH activity does not change significantly in any assay of this study, it was observed a significantly decrease of G6PD and GPx enzyme activities, in cells grown in 50 and 75 µM diuron. The decline of NADPH availability probably blocks the glutathione cycle, generating oxidative stress. In addition, the CAT activity presents also a significant increase in cells grown in 50 µM diuron, as well as an increase of cytoplasm ROS, MDA level and CAT A activity in cultures with 50 and 75 µM diuron, that suggests a key role of peroxisomal lipid oxidation in diuron response which cause cell death by an active process.

**Keywords:** Glutathione; diuron; *Saccharomyces cerevisiae*