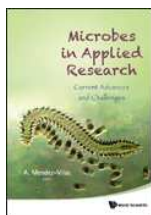


Home > All Publications > All Books > Microbes In Applied Research > 10.1142/9789814405041\_0016

## This Chapter



696pp Aug 2012

ISBN: 978-981-4405-03-4  
(hardcover)

GBP131.00 [Buy Now](#)

ISBN: 978-981-4405-04-1  
(ebook)

GBP170.00 [Buy Now](#)

[Add book to favorites](#)

## Related Publications

### Search for other articles

By keyword

- Glutathione
- diuron
- Saccharomyces cerevisiae*
- Microorganisms
- Applied Microbiology
- Environmental Microbiology
- Industrial Microbiology
- Microbial Biotechnology
- BioMicroWorld2011 Conference Proceedings Book
- Mendez-Vilas

By author

- R. Ferreira
- H. Tenda
- I. Alves-Pereira

Search in

- World Scientific
- CrossRef



## Microbes In Applied Research

Current Advances and Challenges

Malaga, Spain, 14 – 16 September 2011

[< Previous Chapter](#)

Diuron determines *Saccharomyces cerevisiae* UE-ME<sub>3</sub> survival at beginning of exponential phase

[Next Chapter >](#)

[Add to Favorites](#) | [Download to Citation Manager](#) | [Citation Alert](#)

PDF (154 KB)

H. Tenda, I. Alves-Pereira, and R. Ferreira (2012) Diuron determines *Saccharomyces cerevisiae* UE-ME<sub>3</sub> survival at beginning of exponential phase. *Microbes In Applied Research*: pp. 80-83.

doi: 10.1142/9789814405041\_0016

*Agriculture, Soil, Environmental and Marine—Aquatic Microbiology*

## Diuron determines *Saccharomyces cerevisiae* UE-ME<sub>3</sub> 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 Mitra, 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 Mitra, 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 beings, blocking the respiratory chain and ROS generating. Despite the progressive suppression of diuron application by Directive 200/60/CE, groundwater contamination will still persist. Therefore the main purpose of this work was to evaluate the effect of this phenylurea on *S. cerevisiae* at proliferative phase. The results show a significant decrease of GSH/GSSG ratio, in cells exposed to 50 µM diuron. Although GR activity does not changes 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*

Imperial College Press | Global Publishing | Asia-Pacific Biotech News | Innovation Magazine  
Labcreations Co | World Century | WS education | Meeting Matters | National Academies Press

Copyright © 2013 World Scientific Publishing Co. All rights reserved.  
Powered by Atypon® Literatum