Antioxidant power of *Malus domestica* juice partially reverses the oxidative effect of vanadium pentoxide in *Saccharomyces cerevisiae*


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Antioxidant power of *Malus domestica* juice partially reverses the oxidative effect of vanadium pentoxide in *Saccharomyces cerevisiae*

J. Agostinho
Department of Chemistry, School of Sciences and Technology, University of Évora, R. Romão Ramalho, 59, 7001-554 Évora, Portugal

R. Ferreira
Department of Chemistry, School of Sciences and Technology, University of Évora, R. Romão Ramalho, 59, 7001-554 Évora, Portugal

I. Alves-Pereira
Institute of Mediterranean Agrarian Environmental Sciences (ICAM), University of Évora, Núcleo da Mitra, 7002-774 Évora, Portugal

Apple juices are described as potential inhibitors of oxidative stress preventing chronic disorders such as cancer and cardiovascular disease. Accordingly, the main intention of this study was to evaluate the influence of Golden Delicious apple juice, from Beira Alta, Portugal on cell proliferation of S. cerevisiae IP-096 exposed to oxidant, vanadium pentoxide. The results show that 2.0 mM vanadium pentoxide induced cell death, detected by a decrease in cell viability (cfu) and ALP activity, as well as a significant increase of ROS and GSH contents, GSH/GSSG ratio and GR activity. Despite also occur a rise of free radical scavenger in cytoplasm (DPPH) in cells exposed to vanadium, this response was not adequate to preserve its viability. Nevertheless, the apple juice caused a protector response, increasing cell viability and ALP activity, as well as, decreasing ROS content in S. cerevisiae grown in presence of V$_2$O$_5$. We assume that this partial reverse effect depends on phenolic compounds in apple juice, which ameliorate the response mediated by glutathione.

**Keywords:** *Malus domestica*; *Saccharomyces cerevisiae*; antioxidants