4TH MEETING OF
MEDICINAL
BIOTECHNOLOGY

BOOK OF ABSTRACTS

P.PORTO
ESCOLA SUPERIOR DE SAÚDE

4TH MEETING OF MEDICINAL BIOTECHNOLOGY

17 DE MAIO DE 2019

ESCOLA SUPERIOR DE SAÚDE
POLITÉCNICO DO PORTO

4TH MEETING OF MEDICINAL BIOTECHNOLOGY

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POSTER 27

Modulation of oxidative stress with Vitamin E in *Sacharomyces cerevisiae*

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Neurodegenerative diseases, such as Parkinson's Disease or Alzheimer's Disease, are characterized by the death of a subset of neurons over long periods of time. These age-related diseases are becoming more prevalent with the generalized increase of life expectancy and have been linked by many authors with increased oxidative stress levels. Indeed, oxidative stress effects can be accounted as cumulative damage, which associates well with the delayed onset and progressive nature of these conditions. Moreover, various results on life extension research strongly support the hypothesis that enhancing the cell protective systems against oxidative stress can extend life span. In view of this, the present study aimed at evaluating the role of the antioxidant α-tocopherol (vitamin E) on induced oxidative stress conditions. α-tocopherol (vitamin E) was chosen for its principal role in scavenging lipid peroxyl radicals, at lipoproteins and cell membranes, hence breaking the chain of lipid peroxidation initiated by ROS. The toxic effect of hydrogen peroxide (H_2O_2) and the antioxidant role of vitamin E were investigated using Saccharomyces cerevisiae as a model for cell viability. A High-Performance Liquid Chromatography analysis was also performed to assess 3-nytrotirosine and GSH/GSSG production levels, due to their relevance as oxidative stress biomarkers. Altogether, the results presented here demonstrated that H_2O_2 exposure decreased yeast cells viability equally, independent of dose, and that the adverse effects were, at least, partially rescued by the combined exposure with vitamin E. The results from redox biomarkers were, however, shown to be inconclusive. This preliminary study helped to understand the dual nature of vitamin E, under the conditions tested. However, future studies should be able to further explore vitamin E antioxidant role in pathological models of neurodegenerative diseases.

Keywords: neurodegenerative diseases, oxidative stress, *S. cerevisiae*, vitamin E.