



COETox

International Conference of Environmental and Occupational Health

ABSTRACT BOOK



iBAMTOX
Ibero-American Meeting on Toxicology and Environmental Health

2016

21-23 June | Porto



FOREWARD



On behalf of the Organising Committee, I would like to cordially welcome you to the *3rd International Conference on Occupational & Environmental Toxicology* (ICOETox 2016), which is held in Porto in conjunction with the *3rd Ibero-American Meeting on Toxicology and Environmental Health International* (IBAMTOX 2016).

This conference is co-organised by the Portuguese National Institute of Health (INSA), the Institute of Public Health- Universidade do Porto (ISPUP) and the Instituto de Ciências, Tecnologias e Agroambiente da Universidade do Porto (ICETA-UP).

The Organising Committee was successful in inviting a number of outstanding international and local speakers in order to offer you a very attractive scientific programme. The Conference covers most of the current topics of Environmental and Occupational Toxicology; we have tried to achieve a good balance between research and practice and to allow sufficient time for interaction and discussion. This meeting provides a good opportunity for divulging one's work and discussing a great variety of topics that we hope will be reflected in a fruitful interchange of experiences, knowledge and ideas. It is also a chance for renewing old contacts and making many new friends.

The city of Porto, known as *Invicta* (unvanquished) City, has an important historical legacy, although architectural images show its urban renovation process giving valuable testimony of its history and modernity. Indeed, Porto historical centre was designated World Cultural Heritage in 1996 due to the many historical buildings and urban mesh. Porto is divided between the river Douro and the Atlantic Ocean, and boasts of poetic sunsets where the eyes absorb and the soul savours. Downtown is located the busiest commercial area, where typical products are found alongside prestigious designer brands. It is also worth highlighting the world famous Porto Wine, produced exclusively in the Douro Demarcated Region and aged in cellars. And finally, our visitors should not forget to try our local cuisine, as Porto has gone beyond tradition in order to reach the best international standards.

I would like to express my sincere thanks to our collaborating institutions and all those organisations and companies which put their trust in this project and provided sponsorship for the meeting; without their effort, support and collaboration this Conference would not have been possible.

I hope that, despite the tight scientific programme, you will find some time to enjoy our landscapes, typical food, and kind people, and that this meeting will meet all your expectations from the scientific and social points of view. I wish you a productive Conference and a pleasant stay in Porto. Thank you for being here.

Bem-vindos ao Porto!

(João Paulo Teixeira)

ICOETox 2016 | IBAMTOX 2016 Scientific Committee

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P65.**UNEXPECTED EFFECT OF DRY OLIVE LEAF EXTRACT (DOLE) BEFORE AND AFTER CaNa₂EDTA CHELATION THERAPY IN COMET ASSAY IN LEAD INTOXICATED WORKERS**

A. Čabarkapa¹, L. Živković¹, D. Dekanski², D. Topalović¹, V. Bajić³, Biljana Spremo-Potparević^{1*}

¹Faculty of Pharmacy, Department of Physiology, University in Belgrade, Serbia; ²Center for Biological Research, Department of Physiology, Faculty of Pharmacy, University of Belgrade, Serbia; ³Institute for Nuclear Research "Vinca", Laboratory for Radiobiology and Molecular Genetics, University in Belgrade, Serbia

*presenting author: bilja22@pharmacy.bg.ac.rs

The CaNa₂EDTA chelation is a standard therapy for lead (Pb) intoxication in occupationally exposed workers. Application of antioxidant nutrients through exogenous supplementation is often practiced with the chelation therapy, although their synergistic effect in reduction of Pb-induced oxidative damage has not been investigated conclusively. Dry olive Leaf extract (DOLE) is polyphenol rich natural antioxidant. The effects of DOLE on the levels of DNA damage were investigated *ex vivo* in peripheral blood lymphocytes (PBLs) of 19 male workers occupationally exposed to Pb, before and after application of five day CaNa₂EDTA chelation therapy. Comet assay was used to assess levels of DNA damage.

While the level of DNA damage in PBLs of workers before chelation were moderately increased (24.21±14.26) compared to controls (6.0±3.37), the incubation of the same samples with 1mg/mL DOLE for 30 min at 37⁰C lead to a severe increase in DNA damage levels (64.03±20.96). After the exposure of workers to a five day CaNa₂EDTA chelation regimen, the experiment was repeated. Following chelation, the level of DNA damage in PBLs of workers was decreased (8.26±4.62) significantly compared to the baseline value and was then similar to the control level. When the PBLs after chelation were treated with 1mg/mL DOLE for 30 min, high level of damage was obtained (41.82±23.17). The antigenotoxic effects of five day CaNa₂EDTA chelation were demonstrated in PBLs of Pb exposed workers. On the contrary, the applications of DOLE lead to an increase of oxidative DNA damage after 30 min incubation, exhibiting prooxidant rather than antioxidant effect. After CaNa₂EDTA treatment, the acute prooxidant effects of DOLE remained following the incubation, but, the oxidative DNA damage was less severe compared to the same experiment with DOLE before the chelation, probably as a result of partial removal of Pb from cells by chelation therapy. Prooxidant nature of DOLE could be a result of Pb-mediated hydroxyl radical formation, where heavy metals serve as catalysts for the reactions which oxidize DOLE and reduce oxygen. Removal of Pb by complexation with CaNa₂EDTA seems to significantly depress these oxidative events. However, this mechanism remains to be explored on molecular level. It could be concluded that the DOLE exhibits prooxidant effects in presence of Pb in lymphocytes of exposed workers, and its effect is less pronounced following the removal of Pb after standard chelation therapy.