Abstracts of the 47th Annual Scientific Meeting of the European Society for Clinical Investigation
Albufeira, Portugal
17 – 20 April 2013

Guest Editor:
Dr. Paulo Oliveira
CNC – Center for Neuroscience and Cell Biology
Largo Marquês de Pombal
University of Coimbra
Coimbra, Portugal

These abstracts have been published as they were received via online electronic submission. Every effort has been made to reproduce faithfully the abstracts as submitted. However, no responsibility is assumed by the organizers for any injury and/or damage to persons or property as a matter of products liability, negligence or otherwise, or from any use or operation of methods, products, instructions or ideas contained in the materials herein. Because of the rapid advances in medical sciences, we recommend that independent verification of diagnoses and drug doses should be made.
Materials and methods: The Eriocrepusus africanus leaf extract was prepared with an aqueous ethanolic solution (80%, v/v) and its total phenolic content was estimated by the Folin-Ciocalteu method. The antioxidant abilities of the ethanolic extract was evaluated through the in vitro measurement of its DPPH radical scavenging potential, its reducing power, and by its lipid peroxidation inhibition capacity, as evaluated by thioarbituric acid-reactive substances. Identification of the main compounds in the extract was accomplished by ESI-MS and MS² analysis, upon fractionation by reversed-phase HPLC.

Results: The total amount of phenolic compounds accounted for 232.8 ± 20.1 μg g⁻¹ of the Eriocrepusus africanus ethanolic extract. The extract exhibited high antioxidant capacity, with EC₅₀ values of 9.1 ± 1.2 μg mL⁻¹, 0.045 ± 0.004 mg mL⁻¹ and 0.74 ± 0.04 mg mL⁻¹ for the DPPH, reducing power and lipid peroxidation assays, respectively. Data also allowed to conclude that the Eriocrepusus africanus ethanolic extract contained a mixture of compounds which included the polyphenolic quinic acid, cyclopentyl-derivatives fatty acids and several phenolic compounds. From the latter, one should highlight the presence of caffeic acid derivatives, and flavonoids e.g. eriodictyol-O-glucuronide and apigenin-O-glucuronide.

Conclusions: The present results suggest that Eriocrepusus africanus can be used as a potential source of antioxidant compounds.


3.20 Antioxidant activities of five lamiaceae plants
O.R. Pereira*, 1, M.J. Perez², R.I.R. Macias³, J.J.G. Marín⁴ & S.M. Cardoso*  
*CERNAS, School of Agriculture, Polytechnic Institute of Coimbra, Coimbra, Portugal; ¹D TDT, School of Health Sciences, Polytechnic Institute of Bragança, Bragança, Portugal; ²University Hospital, IE C S C YL-IBSAL, Salamanca, Spain; ³HEVEFARM, CIBERehd, University of Salamanca, Salamanca, Spain; ⁴University Hospital, IE C S CYL-IBSAL, Salamanca, Spain

Background: In the last decades, oxidative stress has been recognized as a key process in the pathophysiology of several diseases. Consequently, the search for new antioxidant compounds, as well as new antioxidant sources, has increased exponentially. The Lamiaceae family encompasses many plant species which are potential sources of antioxidant compounds. The present study evaluates the antioxidant activity of phenolic enriched extracts of Lamiun album, Leonurus cardiaca, Lavandula dentata, Mentha aquatica and Thymus citriodorus.

Materials and methods: The antioxidant activity of the hydroethanolic plant extracts was estimated in the in vitro measurement of their 2,2-diphenyl-1-picrylhydrazyl radical (DPPH) scavenging potential and reducing power assays. Additionally, the protective effects of the extracts against the potassium dichromate (DKI)-induced generation of reactive oxygen species (ROS) in human hepatoblastoma HepG2 cells were measured by flow cytometry, after a 48 h treatment period.

Results: The two chemical assays indicated that the extracts possess high antioxidant activity with the order of potency M. aquatica > L. album > L. dentata > T. citriodorus > L. cardiaca. EC₅₀ values ranged from 8.1 to 18.3 μg mL⁻¹ and from 51.9 to 94.7 μg mL⁻¹ for DPPH scavenging and reducing power assays, respectively. Moreover, with the exception of L. cardiaca, at 50 μg mL⁻¹, all the extracts induced an effective protection against the DK-induced generation of ROS in HepG2 cells. This protection was approximately 20% and 30%, for DK exposure at 3 and 25 μM, respectively.

Conclusions: The present data suggest that the herein studied plants can be applied as antioxidant agents.

Acknowledgements: FCT (project PEst-OE/AGR/UI0681/2013) and PRO TEC (P6ID grant 3P/10/2009, Portugal. MCI (Grant SAF2010-15517), ICSII, FIS (Grant PI11/00337) and JCL (Grants SA023A11-2, SA078A11-2 and Biomedicina-2011), Spain.

3.21 Portuguese propolis enriched phenolic extract: reactive oxygen scavenging and cytoprotective activities
O.R. Pereira*, 1, R.I.R. Macias³, M.J. Perez², J.J.G. Marín⁴ & S.M. Cardoso*  
*CERNAS, School of Agriculture, Polytechnic Institute of Coimbra, Coimbra, Portugal; ¹D TDT, School of Health Sciences, Polytechnic Institute of Bragança, Bragança, Portugal; ²HEVEFARM, CIBERehd, University of Salamanca, Salamanca, Spain; ³University Hospital, IE C S CYL-IBSAL, Salamanca, Spain

Background: Propolis, a resinous natural product produced by honeybees, is claimed to have a wide range of beneficial activities for human health which have been attributed to its phenolics. In general, phenolics account for approximately half of propolis weight, although its content and composition can greatly vary with propolis geographical origin. This study aims determining the antioxidant and cytoprotective properties of Northeast Portuguese propolis.

Materials and methods: The propolis hydroethanolic purified extract (PPE) was obtained by extraction at 70 °C/1 h and recovery onto SPE C₁₈ cartridges. Total phenolic content and identification of the main phenolics in the PPE were assessed by the Folin Cicloates method and by HPLC-DAD analysis, respectively. The reactive oxygen species (ROS) scavenging and cytoprotective properties of PPE were evaluated in dichromate potassium-stimulated (DK) HepG2 cells model. ROS scavenging activity was measured by flow cytometry, after DK incubation for 48 h and cytoprotective activity was estimated by the MTT assay, after DK exposure for 6 or 72 h.

Results: The total amount of phenolics in the PPE accounted for 375.4 ± 5.8 mg GAE per gram of extract and this was enriched in chrysin, pinocembrin and pinobanksin-3-O-acetate. Bioactivity assays showed that the PPE decreased the rate of ROS production about 50% and exerted an effective protection against the reduction of cell viability of 9% and 22%, for HepG2 cells exposed to DK for 6 and 72 h, respectively.

Conclusions: Overall the results emphasize important activities of PPE that can be related to the high content of phenolic compounds.

Acknowledgements: FCT (project PEst-OE/AGR/UI0681/2013) and PRO TEC (P6ID grant 3P/10/2009, Portugal. MCI (Grant SAF2010-15517), ICSII, FIS (Grant PI11/00337) and JCL (Grants SA023A11-2, SA078A11-2 and Biomedicina-2011), Spain.

© 2013 The Authors. European Journal of Clinical Investigation © 2013 Stichting European Society for Clinical Investigation Journal Foundation European Journal of Clinical Investigation, 43 (Suppl. 1), 3-96