

# 59<sup>th</sup> International Congress and Annual Meeting of the Society for Medicinal Plant and Natural Product Research

**Date/Location:** 4<sup>th</sup>–9<sup>th</sup> September 2011, Antalya, Turkey  
**President:** Prof. Dr. K. Hüsnü Can Başer

Dear Colleagues,

It is my great pleasure and honour to hold the 59th International Congress and Annual Meeting of the Society for Medicinal Plant and Natural Product Research on September 4–9, 2011 in Antalya, Turkey. This congress series has been organized annually since 1953 and has become the most important and popular congress in Europe in its respected field. It is the first time the congress is organized in Turkey. Turkey is a large peninsula bridging the east and the west at the junction of two continents and has been a passage way between Europe and Asia and even Africa. Due to its geographic location Turkey has been a melting pot of civilizations, cultures and nations, and is full of history and home to diverse traditions. It is a land of many firsts since history starts here. Thanks to its climatically and phytogeographically unique position and its transect ranging from sea level (0 m) to the peak of the Ararat mountain (5137 m) the flora of Turkey is rich and diverse with over 12,000 flowering plant taxa recorded of which 33% are endemic. Anatolia is the land of Galenus of Pergamon and Dioscorides of Anavarza. Pedanius Dioscorides, a physician in the Roman Army had written his famous *Materia Medica* in the 1st century AD. His birthplace Anavarza is in Kozan, Adana in Southern Turkey not too far from Antalya. The 59th Congress has attracted global attention and there are participants from all parts of the world. Its scientific level is high thanks to the efforts of the Scientific Committee. High rate of rejects were due to the meticulous work of the reviewers who gave it time and effort to keep the scientific level as high as possible.

Main topics of the Congress are as follows:

- New Trends in Pharmacognosy
- Traditional and Natural Medicines
- Lead Finding from Nature
- Antimicrobials – What's next?
- Endophytes – Importance in Pharmacognosy
- Natural Immune Enhancers
- Nutraceuticals, Cosmeceuticals, Functional Foods – Prevention of Metabolic Diseases
- Essential Oils – Analysis, Bioactivities, Uses, Therapeutical Potential
- Biotechnology and Nanobiotechnology
- Advances in the Analysis of Natural Products

Ten plenary and two keynote lectures will be presented by distinguished scientists. 73 short lectures will be presented in three parallel sessions. Numerous researchers will be able to report their research findings in 900 poster presentations. In addition, young researchers will be able to present their papers at two parallel Young Researchers Workshops. There will also be three more Permanent Committee Workshops of the GA on regulatory affairs, pharmacology, agriculture and quality of natural products. An additional workshop will be held on Traditional Chinese Medicine (TCM). 31 lectures will be presented in the workshops. All in all over 1100 scientific presentation will be made at the congress.

I would like to thank the Executive and the Advisory Board members of the GA for their help and encouragement during the preparatory stages of the Congress. I wish to extend my grateful thanks to Georg Thieme Verlag KG for processing such a huge number of abstracts in a short time. My special thanks go to the members of the Organizing Committee and to the Congress Organizing Company FTS who have done their utmost to offer you a successful, satisfying and enjoyable congress.

I wish you all a fruitful congress which I hope will strengthen old friendships and develop new ones in a friendly, scientific and cultural atmosphere. I hope everybody enjoys their stay in sunny Antalya, gets the opportunity to discover hidden beauties of the region and Turkey, and takes home new scientific knowledge and unforgettable memories.

Prof. Dr. K. Hüsnü Can Başer  
 President of the 59th International Congress and Annual Meeting of the Society for Medicinal Plant and Natural Product Research

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were evaluated against 3–4-day-old individuals of the *M. persicae*. The plants were included *Eucalyptus globulus* Labill. (Myrtaceae), *Teucrium polium* L. (Lamiaceae) and *Otostegia persica* Boiss. (Labiatae). In order to obtain the crude extracts, the dried leaves were powdered and extracted with acetone. Experiments were carried out at  $25 \pm 1^\circ\text{C}$  temperature, relative humidity of  $60 \pm 10\%$  and 16 hours of artificial light at an intensity of about 4000 lux. In control treatments only distilled water and DMSO (dimethyl sulfoxide) were applied. Topical treated aphids with three acetonic extract emulsion (in distilled water with DMSO) were placed on the broad bean leaf discs (4.5 cm diameter) in the round plastic Petri dishes (5.5 cm diameter), filled with a 0.5-cm-thick agar gel layer. The highest percentage of mortality (55.6%) was observed in the acetonic leaf extract of *O. persica* in the concentration of 80  $\mu\text{l/ml}$  after 48 hours. While, it was less than 10% in the acetonic leaf extract of *E. globulus*. The acetonic leaf extract of *T. polium* caused 14.5% mortality of *M. persicae*. It is concluded that *O. persica* is the most promising for future development and use as botanical pesticide. **Keywords:** *Myzus persicae*, medicinal plant, Toxic effect, Topical test **References:** 1. Blackman RL, Eastop VF (1984) Aphids on the World's Crops. John Wiley and Sons. New York. 2. Clements KM et al. (2000) *RevToxicol* 3: 1–23.

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#### Evaluation of antibacterial and antioxidant activities of *Ziziphus vulgaris* (Rhamnaceae)

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*Ziziphus vulgaris* Lam. is a deciduous shrub, native of the Mediterranean region and used to treat sore throats, alleviate stress and helps in the common colds. In present work 10 g of the dried plant material was soaked in 100 ml methanol and shaken for 24 h and clear filtrate was obtained. The fresh methanolic crude extracts were qualitatively screened for secondary metabolites. Results showed that: flavonoids, hydrolysable tannins, alkaloids, terpenes and saponins had reasonably high contents but anthraquinones and coumarines were low. In vitro antimicrobial assay and MIC determination growth inhibition activities of methanolic leaves extract of *Z. vulgaris* against gram-positive and gram-negative bacterial species using the conventional paper disc assay showed good inhibitory effects only against gram-positive with no antagonistic effects against gram-negative bacterial species tested. The MIC values of the crude methanolic *Z. vulgaris* extract on gram-positive was in range to 12.5–25.0  $\mu\text{g/ml}$ , whereas extract exhibited very weak antimicrobial activity against gram-negative with very high values (1000  $\mu\text{g/ml}$ ) of MICs. Total phenolics assay by the Folin-Ciocalteu method in plant extract also showed reasonably high contents of polyphenolics (300 mg/ml extract). Results collectively suggest that *Z. vulgaris* is not only reliable natural sources of antimicrobials but also potential sources of phenolic antioxidants and hence could be nominated for future intensive studies. **Keywords:** *Ziziphus vulgaris*, antimicrobials, phenolic antioxidants

PM98

#### Antioxidant activity and phenolic content of different extracts of *Gentiana cruciata* L

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*Gentiana cruciata* L. is a perennial plant belonging to the genus *Gentiana* (fam. Gentianaceae) [1]. *Gentiana* species are widely used throughout the world as potential stomachic and hepatoprotective agents [2]. *G. cruciata* is used in the traditional medicine for loss of appetite, as a stomachic as well as component in preparations showing beneficial effects in gall and liver diseases [3]. The aim of this study was to evaluate the antioxidant and radical-scavenging activities of methanol extract, chloroform, ethyl acetate and *n*-butanol fractions obtained from the methanol extract of aerial part of *G. cruciata*. Amounts of total phenols and flavonoids were also determined. The total phenolics contents in the fractions and extract were determined as gallic acid equivalent (GA) using Folin-Ciocalteu's reagent, while the spectrophotometric method with aluminium chloride was used for the determination of total flavonoids. The total amount of flavonoids was calculated as the rutin equivalent (RU). The extracts were investigated for antioxidant capacity using two different assays: DPPH assay and inhibitory activity toward lipid peroxidation. The highest content of total phenols (109.8 mg GA/g) and flavonoids (110.9 mg RU/g) was determined in the

*n*-butanol fraction. The most effective DPPH radical scavenger was *n*-butanol fraction ( $\text{IC}_{50} = 114.7 \mu\text{g/ml}$ ), while the methanol extract showed the highest inhibitory activity toward lipid peroxidation ( $\text{IC}_{50} = 69.9 \mu\text{g/ml}$ ). The results show a significant antioxidant activity of the investigated extracts compared to referent antioxidant compounds, such as butylated hydroxytoluene (BHT), ascorbic acid (AA), gallic acid (GA) and  $\alpha$ -tocopherol. **Keywords:** *Gentiana cruciata*, antioxidant activity, phenolic content **Acknowledgement:** This work was supported by the Ministry of Science and Technological Development of the Republic of Serbia (project No. III 43004). **References:** 1. Struwe L, Albert V (2002) *Gentianaceae-systematics and natural history*, Cambridge University Press, Cambridge 2. Jiang R et al. (2005) *Phytochemistry* 66: 2674–2680. 3. Menkovic N et al. (2011) *J Ethnopharmacol* 133: 97–107.

PM99

#### *Melissa officinalis*: an important dietary source of phenolic compounds with high antioxidant capacity

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Balm, *Melissa officinalis* L. a perennial herb native to southern climates of Europe and North America and is cultivated in Mediterranean and central Asian areas [1]. Oil of balm has been shown to have antiviral, antibacterial and antispasmodic activity [2,3]. In this research, total phenolic content and related total antioxidant capacity of plant infusions was analyzed. Infusions were prepared in common way in which teas are prepared for human consumption. The total phenolics were measured by Folin-Ciocalteu assay. The total antioxidant capacity was estimated by Ferric Reducing/Antioxidant Power (FRAP) assay. Also, the phenol antioxidant coefficient (PAC) was calculated for plant infusion. The obtained results for *Melissa* infusions showed: high phenolic concentration, very high FRAP (> 20 mM/L) and PAC > 3. The effect of infusion time and temperature on the phenolic content, FRAP, and free radical scavenging ability was tested. Preparation of Balm infusions with hot ( $98^\circ\text{C}$ ) and cold ( $20^\circ\text{C}$ ) revealed that although antioxidants were liberated from leaves into the water at both of the temperatures studied, infusions prepared at higher temperature had more than 2-fold higher antioxidant capacity determined as FRAP. DPPH radical scavenging ability of Balm phenolics was similar to (+)-catechin but not as good as for quercetin. Compared to Trolox and vitamin C, *Melissa* phenolics were more efficient free ABTS radical scavengers. The results indicate that *Melissa officinalis* infusions could be an important dietary source of phenolic compounds with high antioxidant capacity comparable with red wine or beverages like tea. **Keywords:** Phenolic compound, antioxidant capacity; Infusions; *Melissa officinalis*; FRAP; DPPH; ABTS **References:** 1- Kennedy D, Little OW, Haskell CF, Scholey AB (2006) *Phytother Res* 20: 96–102 2-Weiman Z, Alkrinawi S, Golfarb D, Bitran C (1993) *Pediatr* 122:650–652 3-Wake G, Court J, Pictering A, Lewis R, Wilkins R, Perrey E (1999) *J Ethnopharmacol* 69: 105–114

PM100

#### *In vitro* and *In vivo* Antitumor Effects of Deoxyelephantopin on Human Breast Cancer Cells

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Breast cancer is one of the most common cancers in women, and a leading cause of death worldwide. It is often highly resistant to chemotherapy, and there is often no effective cure for patients in the advanced stages of the disease. In this study, we evaluated the effect of deoxyelephantopin (DET), a phytochemical extracted from *Elephantopus scaber* L. (Asteraceae) for possible anti-tumor activities in the human breast cancer cell-line MDA-MB-231. Cell-apoptosis assay showed that DET treatment was able to effectively suppress the growth of test tumor cells in vitro. In addition, DET treatment significantly decreased expression level of transforming growth factor-beta (TGF- $\beta$ ), effectively inhibited cell growth by inducing G2-M phase cell cycle arrest and apoptosis, and reduced the clonogenicity in a concentration-dependent manner in MDA-MB-231 cells. DET also significantly inhibited the invasion and migration of test breast tumor cells. The effect of DET on suppression of NF- $\kappa$ B, via activation by TNF- $\alpha$ , was examined using electrophoretic mobility shift analysis (EMSA). Decreased levels of expression of phospho-NF- $\kappa$ B and the downstream molecules of the NF- $\kappa$ B signaling path-