

## INTRODUCTION TO YOUR GUIDE TO THE ISEO CONFERENCE

The 42nd International Symposium of Essential Oils (ISEO 2011) being held on September 11–14, 2011 in Antalya, Turkey is the latest iteration of a symposium series that has been organized annually in Europe for the last 41 years, in order to stimulate cooperation among scientists for the advancement of research and development into the science of essential oils and aroma chemicals. The only other ISEO organized in Turkey (the 28th Symposium) was held in 1997 in Eskisehir, and we are gratified to once again be back in this unique country.

The first ISEO was held in 1969 in Leiden, Netherlands, as an informal meeting of four active scientists in order to discuss common analytical and associated problems concerning research into essential oils. Participants of that meeting were Prof. Baerheim-Svendsen and Dr. Jan Karlsen, both from University of Leiden, Dr. Hefendehl from the University of Freiburg, and Prof. Karl-Heinz Kubeczka, at that time from the Technical University of Karlsruhe in Germany. In subsequent years, the meetings were held in connection with the annual congresses of the Society of Medicinal Plant Research (GA) until ISEOs were organized independently. The increase in the number of ISEO participants from 1974 in Freiburg, Germany with 15 participants, to 2009 in Savigliano, Italy with 252 participants has been nothing short of remarkable.

This 42nd symposium is expected to attract global attention in the International Year of Chemistry of the United Nations preceded by the 59th International Symposium and Annual Meeting of the Society for Medicinal Plant and Natural Product Research (GA 2011) and Herbal Products in Animal Health and Nutrition Symposium (HERBAN 2011) this past week at this very same venue. This will give most of the participants a feast of natural products chemistry for two weeks in early September, at an excellent venue where business and leisure can be combined for pleasure and satisfaction. Antalya is an attractive spot blending history and culture and a favorite holiday resort with numerous five-star hotels and holiday villages. As you are hopefully experiencing, September is a fine time for Antalya with a favorable and pleasant climate.

Antalya with its rich diverse and fragrant flora is an ideal venue to enjoy the symposium on essential oils. Being a Mediterranean town, it is home to citrus production, and many spice and condiment plants are wild crafted, grown and processed in this region. A strong rose growing and processing spot of Turkey, Isparta is the neighboring province.

The meeting will get together essential oil scientists and aroma therapists working in academia, trade, industry and regulatory affairs dealing with various aspects of essential oils, aromatic plants and aroma chemicals to enjoy a rich, varied and attractive scientific and cultural program.

For the first time in the history of ISEO symposia, abstracts of the meeting being provided to each attendee, gratis, courtesy of *The Journal of Essential Oil Research (JEOR)*. Abstracts were peer-reviewed by the Permanent Committee Members of ISEO before acceptance. We are thankful to *JEOR* for this gesture and hope that the abstracts will both fuel your interest in this year's symposium and find a permanent place on your reference shelf.

We wish ISEO 2011 participants a successful and enjoyable symposium!

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## Seasonality effects on *Cordia verbenacea* D.C. transcriptome and essential oils target metabolome

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### Abstract

*Cordia verbenacea* DC. (Boraginaceae), a Brazilian native species, produces active principles in the essential oils from leaves, such as E-caryophyllene and  $\alpha$ -humulene that exhibit anti-inflammatory activity. The current study aimed to investigate the effects of seasonality on the concentration of essential oil active components and on the transcriptome of four genotypes of *C. verbenaceae*. Leaves from pot grown plants of the four genotypes (1, 2, 3, 4) were harvested at fixed dates in the four seasons (spring, summer, autumn and winter) in the morning (8:00 to 10:00 AM) and afternoon (5:00 to 6:00 PM). Leaf material was employed for chemical and transcriptional analyses. Active compounds were identified by GC/MS and quantified by GC/FID. Whole-genome transcriptome was determined by cDNA-AFLP. In all four investigated genotypes for both sampling points, higher concentrations of the active compounds were found in the summer, ranging from 0.15 to 0.65 mg/mL for E-caryophyllene and from 0.013 to 0.48 mg/mL for  $\alpha$ -humulene. The contents of both substances were lower in the spring (0.06 to 0.23 mg/mL) and winter (0.06 to 0.27 mg/mL) for E-caryophyllene and  $\alpha$ -humulene (0.03 to 0.012 mg/mL; 0.004 to 0.019 mg/mL), regardless of the diurnal period. Thirty-four differentially expressed transcript-derived fragments (TDFs), with molecular weights ranging from 1150 to 130 bp, were identified in the sampling conditions. Fragments corresponding to ten distinctly regulated transcripts were cloned and are currently being sequenced. The association of chemical and molecular analyses will provide important tools to elucidate the biosynthesis of economically important compounds in *C. verbenaceae*.

### Key Words

*Cordia verbenacea*, essential oils, transcriptome, metabolome.