

INTERNATIONAL CONFERENCE ON
NATURAL PRODUCTS UTILIZATION:
FROM PLANTS TO PHARMACY SHELF



ICNPU, 3-6 November 2013
Bansko, BULGARIA

COUMARINS AND FLAVONOIDS IN *ARTEMISIA ALBA* TURRA – A COMPARATIVE STUDY OF FIELD CULTIVATED AND TISSUE CULTURE PRODUCED PLANT MATERIAL

Antoaneta Trendafilova¹, Milka Todorova¹, Victoria Genova¹, Evelyn Wolfram²,
Luba Evstatieva³, Kalina Danova¹

¹ Institute of Organic Chemistry with Centre of Phytochemistry, Bulgarian Academy of Sciences, Sofia, Bulgaria

² Zurich University of Applied Sciences, Institute of Biotechnology, Wädenswil, Switzerland

³ Institute of Biodiversity and Ecosystem Research, Bulgarian Academy of Sciences, Sofia, Bulgaria

Artemisia alba Turra is an essential oil bearing plant widely distributed in Southern and South-Eastern parts of Europe. Its aerial parts have been utilized in traditional medicine as a stomach digestive and tonic in the form of decoction.

The aerial parts of the field cultivated *A. alba* Turra were extracted exhaustively with methanol. Coumarin and flavonoid containing fractions were obtained by column chromatography on Sephadex LH 20. Further CC and PTLC resulted in isolation of 7 flavonoids (quercetin-3,4'-dimethylether, centaureidin, axillarin, quercetin 3-methyl ether, kaempferol, quercetin and luteolin) and 3 coumarins (scopoletin, umbeliferone and fraxidin-8-O-glucoside). Their structures were elucidated by NMR, MS and UV.

In vitro shoot cultures of the species were initiated by surface sterilization of the *ex situ* derived plant material. The isolated compounds were used as references for evaluation of the biosynthetic capacity of the plant in different culture media with variation of plant growth regulators supplementation. Shoot cultures were treated with indole-3-butyric acid and benzyl adenine. Qualitative similarity of the metabolite profiles of the *ex situ* and *in vitro* derived material was shown by TLC using UV and NP spray reagent for visualization.

Acknowledgments: The authors are grateful for the financial support provided by the Swiss National Science Foundation in the Framework in the Bulgarian-Swiss Research Programme (BSRP, grant No. IZEBZO_142989; D02-1153).