

47th International Symposium on Essential Oils

47th ISEO - Nice, France

11-14 September 2016



PROGRAM & BOOK OF ABSTRACTS



47th International Symposium on Essential Oils
(ISEO2016)

**PROGRAM, BOOK OF
ABSTRACTS AND
PARTICIPANTS LIST**

11-14 September 2016, Nice, France.

47th International Symposium on Essential Oils (ISEO2016)

Organization :



Editor :

Nicolas Baldovini
Institut de Chimie de Nice, UMR 7272
Université de Nice-Sophia Antipolis, CNRS
Parc Valrose
06108 Nice cedex 2, France

Printing :

Centre de Production Numérique Universitaire (CPNU)
Université de Nice-Sophia Antipolis
Grand Chateau
28, avenue Valrose
B.P. 2135
06108 Nice cedex 2, France

Essential Oil and Volatile Glucosinolate Breakdown Products of *Descurainia sophia* (L.) Webb ex Prantl (Brassicaceae)

Milan S. Dekić¹, Niko S. Radulović², Jelena B. Danilović-Luković³ and Dalibor Z. Stojanović³

¹Department of Chemical and Technological Sciences, State University of Novi Pazar, Vuka Karadžića bb, 36300 Novi Pazar, Serbia

²Department of Chemistry, Faculty of Science and Mathematics, University of Niš, Višegradska 33, 18000 Niš, Serbia

³Department for Biomedical Sciences, State University of Novi Pazar, Vuka Karadžića bb, 36300 Novi Pazar, Serbia

Corresponding author: mdekic@np.ac.rs

Keywords: *Descurainia sophia*, glucosinolates, isothiocyanates, arctigenin

Descurainia sophia (L.) Webb ex Prantl 1891 (syn. *Sisymbrium sophia* L. 1753; *Discurea sophia* (L.) Schur 1866), commonly called flixweed or *strižica* in Serbian, is an annual weed plant commonly found in whole Europe, in Asia to India and the Himalayas, in Siberia, China, Japan, North Africa, in North and South America and New Zealand. Flixweed has been widely used in folk medicine for reducing jaundice and in the case of stomach disorders.

The scarce literature data on the volatile chemistry of this plant species has prompted us to investigate the volatile profile of this taxon originating from Serbia. Furthermore, as this species belongs to the Cruciferae, a plant family characterized by the presence of glucosinolates, another goal was set to detect and identify the volatile autolysis products of these secondary metabolites.

Volatile constituents obtained by autolysis of the aerial and underground parts of *D. sophia* and the essential oil obtained by hydrodistillation of whole plant samples were analyzed in detail by GC and GC-MS. In total, 71 constituents were identified, accounting for more than 90% of the detected total peak areas. Both aerial and underground autolysates contained considerable amounts of lignan arctigenin and cuticular wax compounds. The essential oil was dominated by the glucosinolate breakdown product 4-pentenitrile. Glucosinolate degradation products identified in the essential oil and autolysates, 3-butenyl isothiocyanate, 4-pentenitrile and allyl isothiocyanate, suggested the presence of gluconapin and sinigrin in this species as the most likely “mustard oil” precursors. The relatively high contribution of arctigenin in *D. sophia* aerial parts autolysate, a lignan with an important biological activity such as antioxidative, anti-HIV-1 and anti-inflammatory, as well as selective cytotoxicity, imply that this species could serve as good source of this compound.

Acknowledgements: This work was supported by the Ministry of Education, Science and Technological Development of the Republic of Serbia [Project No. 172061].