



University of Belgrade - Faculty of Agriculture

1st European Symposium on
Phytochemicals in Medicine and Food
(1-EuSPMF)

Book of abstracts

Belgrade, Serbia
7-9 September 2022

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Medicine and Food

1-EuSPMF



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**University of Belgrade - Faculty of Agriculture
Univerzitet u Beogradu - Poljoprivredni fakultet**

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I - Natural resources of bioactive compounds

II - Bioactive compounds and human health

III - Medicinal herbs and spices

IV - Herbal medicines in disease prevention and treatment

V - Novel perspectives of phytochemical use in contemporary medicine

VI - Farm to fork

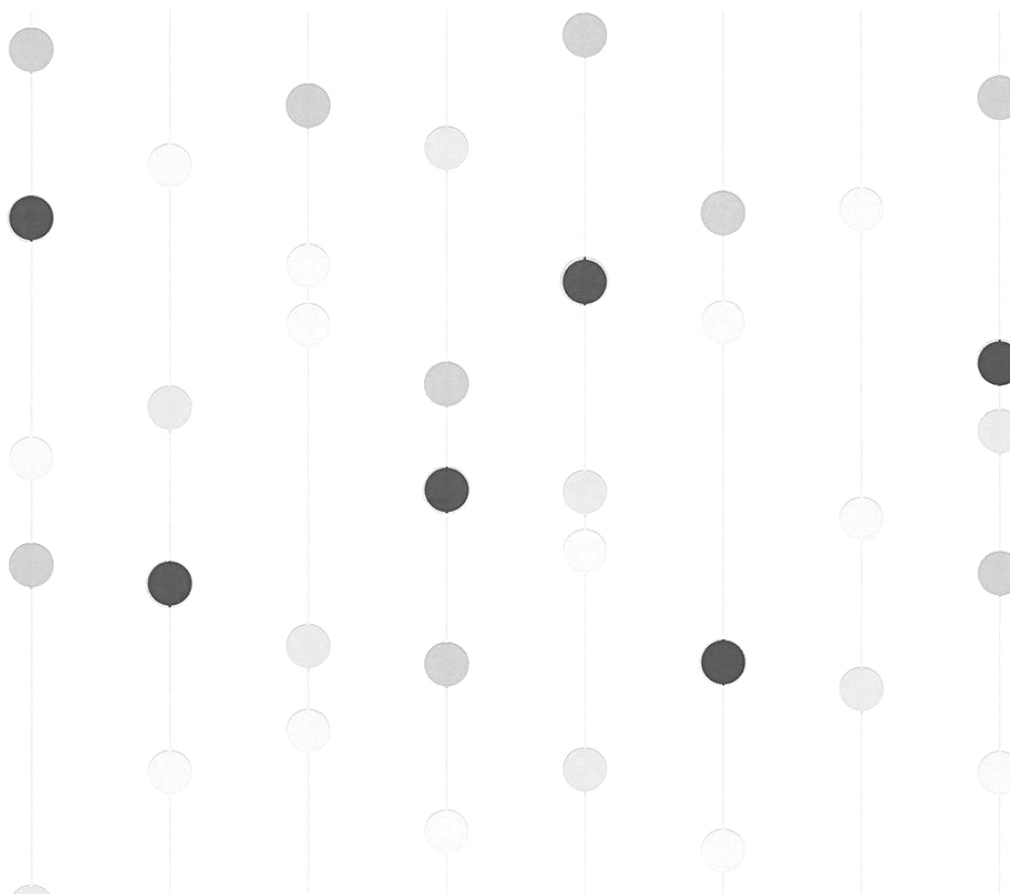
VII - Natural resources in food industry

VIII - Food and agro waste recovery

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Abbreviations:

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IV_PP3_ *Tripleurospermum inodorum* – mayweed without scent but with range of bioactivities

Marija Ivanov¹, Jelena Božunović¹, Maria Inês Dias², Ricardo C. Calhella², Lillian Barros², Isabel C.F.R. Ferreira², Dejan Stojković¹

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Tripleurospermum inodorum (L.) Sch. Bip. (Asteraceae), scentless mayweed, is a common weed species, but despite its abundance it is still underexplored in the terms of its bioactivities. The aim of the study was to explore the bioactivities of scentless mayweed methanolic extract including antimicrobial, antibiofilm, antioxidant, cytotoxic, and anti-inflammatory activity and to provide deeper insight into its chemical composition. It was shown that *T. inodorum* inhibits growth of human pathogenic microorganisms with minimal inhibitory concentration (MIC) in range 3-12 mg/mL, with the lowest MIC noted for the species *Candida albicans* 475/15, *C. albicans* 17/15, *C. parapsilosis* ATCC 22019, *Pseudomonas aeruginosa* (IBRS P001), *Yersinia enterocolitica* (ATCC 23715), and *Klebsiella pneumoniae* (ATCC 13883). Its biofilm potential was promising - application of plant extract (1.5 and 3 mg/mL) reduced *C. albicans* 475/15 biofilm biomass and biofilm cell viability for more than 50%. Antioxidant assays suggested the plants antioxidant potential at 442.2 mmol GAE (gallic acid equivalent)/100 mg DW (dry weight) as in ABTS[®] assay, 277.8 mmol GAE/100 mg DW in DPPH, and 204.4 mmol GAE/100 mg DW as recorded in the FRAP assay. Wide cytotoxic potential of the extract was noticed for the range of cells: AGS (gastric adenocarcinoma, GI₅₀ 198.7 µg/mL), CaCo2 (colorectal adenocarcinoma, GI₅₀ 278.2 µg/mL), MCF-7 (breast adenocarcinoma, GI₅₀ 265.7 µg/mL), NCI-H460 (lung carcinoma, GI₅₀ 62.9 µg/mL), and VERO (non-tumour cell line, GI₅₀ >400 µg/mL). Likewise, low IC₅₀ (8.4 µg/mL) in the RAW 246.7 anti-inflammatory assay suggests the strong anti-inflammatory potential of this weed. The dominant polyphenols in the extract were two apigenin derivatives: apigenin-*O*-pentoside and apigenin-*O*-acetylhexoside (5.234 mg/g and 4.929 mg/g extract, respectively). *T. inodorum* is a rich source of different bioactive polyphenols and its methanolic extract displays a range of bioactive features that should be further examined in order to develop novel herbal medicines.

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