5th INTERNATIONAL CONFERENCE ON NATURAL PRODUCTS UTILIZATION

FROM PLANTS TO PHARMACY SHELF

30 May
02 June
2023

Sts. Constantine
and Helena Resort
BULGARIA

BOOK OF ABSTRACTS

PP 50

ANTIRADICAL ACTIVITY AND PHENOLIC CONSTITUENTS OF *STACHYS RECTA* L. SUBSP. *RECTA* HERB METHANOL EXTRACT

Jelena Kukić-Marković[1], Violeta Milutinović[1], Marjan Niketić[2], Silvana Petrović[1]

[1] University of Belgrade-Faculty of Pharmacy, Department of Pharmacognosy, Belgrade, Serbia
[2] Natural History Museum, Belgrade, Serbia
[3] Serbian Academy of Sciences and Arts, Belgrade, Serbia

The highest richness of taxa within genus *Stachys* was recorded in the wider area of the Mediterranean, where the group *S. recta* stands out in terms of taxonomic complexity. The center of diversity of this group is on the Balkan Peninsula. Its representatives are still insufficiently defined in taxonomic and horological terms, and their traditional approach includes about fifteen taxa, mostly at the infraspecific level. Despite some radical approaches that were presented at the end of the last century [1], the traditional taxonomic treatment is still prevailed in the relevant global lists.

In this work antiradical potential and phenolic constituents of *S. recta* L. subsp. *recta* were investigated. Plant material, collected in Central Serbia (vicinity of Prokuplje), was air-dried, powdered, and then extracted by bimaceration with chloroform and methanol. Obtained dry methanol extract exhibited strong, concentration-dependant anti-DPPH activity (SC_{50} = 8.23 μg/mL), with total phenolics content at 0.27 mg GAE/mg of dry extract. In TLC-DPPH test observed yellow zones indicated presence of few compounds which strongly neutralized purple DPPH radical. LC-MS analysis revealed presence of 24 phenolic compounds, belonging to three classes of constituents: phenolic acids, phenylethanol glycosides and flavonoids. Chlorogenic acid (2.63%) was the only phenolic acid, while acteoside was the most dominant phenylethanoid (24.03%). Flavonoid fraction was composed almost entirely of 8-hydroxyflavones, derivatives of hypolaetine and isoscutellareine (53.47%). The most prominent flavonoids in investigated extract were 7-*O*-[6‴-acetylallosyl(1→2)]-glucopyranosides of 4'-*O*-methylhypolaetine and hypolaetine (15.92 and 13.01%, respectively).

Acknowledgements: Ministry of Science, Technological Development and Innovation, Republic of Serbia (Grant No. 200161).

References:

[1] Lenherr A (1983) Biosystematische und chemotaxonomische untersuchungen in der artengruppe *Stachys recta* L. Zürich: Eidgenössische Technischen Hochschule, Zürich, PhD Thesis.

PP 51

ANTIHYPERGLYCEMIC EFFECTS AND MECHANISMS OF BIOACTIVE MOLECULES FROM *LAVANDULA STOECHAS*

Seda Savranoğlu Kulabaş[1], Hande İpek[2], Ali Rıza Tüfekçi[3], İbrahim Demirtaş[3], Tuğba Boyuneğmez Tümer[4]

[1] Çanakkale Onsekiz Mart University, Faculty of Medicine, Department of Basic Medical Sciences, 17100, Çanakkale, Turkey
[2] Çanakkale Onsekiz Mart University, Institute of Natural and Applied Sciences, 17100, Çanakkale, Turkey
[3] Department of Chemistry, Faculty of Sciences, Çankırı Karatekin University, Çankırı, Turkey
[4] Çanakkale Onsekiz Mart University, Faculty of Arts and Sciences, Department of Molecular Biology and Genetics, 17100, Çanakkale, Turkey

Bioactivity guided fractionation of ethyl acetate extract obtained from *Lavandula stoechas* L. (*L. stoechas*) leaded to several known phenolics: Rosmarinic acid (RA), Caffeic acid (CA), Luteolin (LUT), Propanoic acid methyl ester (PAME), Luteolin 7 glucoside (L7G), Apigenin-7-glucoside (A7G) and one unusual hybrid compound RA-CA (Caffeoyl rosmarinic acid) [1]. All these compounds were investigated for their inhibitory effects on hepatic glucose output and mechanism of action.

The effects of bioactive compounds on glucose production (GP) was determined by measuring the amount of glucose released from hepatic cells under starvation conditions. The mRNA levels of PEPCK and G6Pase enzymes, the main regulators of gluconeogenesis, were determined by qPCR analysis. The potentials of the compounds to suppress glycerol release from adipocytes were determined by measuring the amount of glycerol in the medium.

RA, CA, LUT, PAME, L7G, A7G, RA-CA, BA at 50 μM doses suppressed 8-CTP-Dex-induced GP by 59%, 60%, 30%, 73%, 27%, 56%, 76%, and 22%, respectively ($p<0.05$). LUT, PAME, RA-CA at 50 μM dose suppressed 8-CTP-Dex-induced G6Pase mRNA levels by 95%, 53%, and 22%, LUT downregulated 8-CTP-Dex-induced PEPCK mRNA level by 84%, respectively($p<0.05$).

In case of insulin resistance, increased level of triglyceride lipolysis in adipocytes delivers elevated fatty acid and glycerol to the liver. While the former condition contributes to hepatosteatosis the later event increases rate of gluconeogenesis leading to hyperglycemia. LUT, PAME, A7G, RA-CA at 50 μM doses demonstrated supressing effects (12%, 21%, 37%, respec-