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# ANTIOKSIDATIVNI POTENCIJAL SUVIH VODENIH EKSTRAKTA ODABRANIH LAMIACEAE VRSTA

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Poznato je da aromatične vrste familije Lamiaceae imaju antioksidativnu aktivnost (1) na koju može uticati farmaceutsko-tehnološka obrada biljke (2). Stoga je ispitivan antioksidativni potencijal suvih vodenih ekstrakta vrhova majkine dušice, *Thymus serpyllum* L., matičnjaka, *Melissa officinalis* L. i ruzmarina, *Rosmarinus officinalis* L., u cvetanju, uzgajanih na teritoriji Republike Srbije. Osušene biljke nabavljene su na Institutu za proučavanje lekovitog bilja „dr Josif Pančić“ i usitnjeni (0,254 mm). Suvi ekstrakt je dobijen liofilizacijom infuza (Ph.Jug.IV). Antioksidativni potencijal ispitan je metodom sa 1,1-difenil-2-pikrilhidrazil radikalom (DPPH) uz askorbinsku kiselinu kao pozitivnu kontrolu (1). Koncentracije suvih ekstrakata koje su inhibirale 50% DPPH radikala ($IC_{50}$) iznosile su za majkinu dušicu 2,43 μg/mL, matičnjak 6,29 μg/mL i ruzmarin 32,37 μg/mL, iz jednačina pravih y=21712,00x-2,70, y=12043,00x-25,71 i y=1538,10x+0,21, redom (N=1, n=3). Svi ispitivani ekstrakti demonstrirali su sposobnost reakcije sa DPPH radikalom sa $IC_{50}$ vrednostima nižim od očekivanih (1,3). Ekstrakt ruzmarina pokazao je značajno veću $IC_{50}$ vrednost i manji antioksidativni potencijal, u poređenju sa majkinom dušicom i matičnjakom, čije su $IC_{50}$ vrednosti bile statistički slične. Naizgled različita aktivnost protiv slobodnih radikala je mogla biti posledica razlika u fitohemijskim profilima vrsta i načina generisanja ekstrakata (1,3). Međutim, odabrani način obrade biljnih materijala pružao je širok spektar mogućnosti analize i upotrebe ekstrakata. Shodno tome, dalja istraživanja bi obuhvatila širu paletu ispitivanih vrsta, kao i detaljna ispitivanja sadržaja suvih ekstrakata. Liofilizirani vodeni infuzi aromatičnih vrsta familije Lamiaceae pokazale su snažan antioksidativni potencijal koji može varirati između vrsta.

## Literatura

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# ANTIOXIDATIVE POTENTIAL OF DRY AQUEOUS EXTRACTS OF SELECTED LAMIACEAE SPECIES

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Aromatic species of Lamiaceae family have been shown to possess antioxidative properties (1) which could be altered by pharmaceutical processing (2). Therefore, the antioxidative potential of dry aqueous extracts of herb top flowering thyme, *Thymus serpyllum* L.*,* lemon balm, *Melissa officinalis* L. and rosemary, *Rosmarinus officinalis* L.*,* grown on the Republic of Serbia territory was examined. Dried herbs were acquired from the Institute for Medicinal Plant Research "Dr Josif Pančić" and ground (0.254 mm). The dry extract was obtained by the infusion (*Ph.Jug.IV*) lyophilisation. Antioxidative potential was tested using the 1,1-diphenyl-2-picrylhydrazyl radical (DPPH) method with ascorbic acid as positive control (1). Dry extract concentrations that inhibited 50% of DPPH radicals ($IC_{50}$) were 2.43 μg/mL, 6.29 μg/mL and 32.37 μg/mL for thyme, lemon balm and rosemary, gained from the equations y=21712.00x-2.70, y=12043.00x-25.71 and y=1538.10x+0.21, respectively (N=1, n=3). All tested extracts demonstrated DPPH scavenging ability with $IC_{50}$ values lower than expected (1,3). Rosemary extract showed significantly higher $IC_{50}$ value and lower antioxidative potential, compared to thyme and lemon balm, whose $IC_{50}$ were statistically similar. Seemingly different radical scavenging activity may have resulted from the differences in species' phytochemical profiles and the extract generation (1,3). However, selected way of material processing provided a wide range of possibilities for extract analysis and usage. Further research could therefore include a wider species palette as well as thorough investigation of the dry extracts' content. Lyophilised aqueous infusions of aromatic species of the Lamiaceae family demonstrated strong antioxidative potential that may vary between the species.

## References

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