

HEMIJSKA ANALIZA I ANTIMIKROBNA AKTIVNOST ETARSKIH ULJA SAMONIKLOG LOVORA SA PODRUČJA NACIONALNOG PARKA SKADARSKO JEZERO, CRNA GORA

**Dragica Bojović¹, Mimir Šoškić², Iva Ljumović^{3*}, Ana Žugić⁴,
Marina Milenković⁵, Vanja Tadić⁴**

¹ Biljna apoteka "Sveti Vasilije Ostroški", Podgorica, Crna Gora

² Klinički centar Crne Gore, Podgorica, Crna Gora

³ Stomatološki fakultet u Pančevu, Privredna Akademija Novi Sad, Pančevo, Srbija

⁴ Institut za proučavanje lekovitog bilja „Dr Josif Pančić“, Beograd, Srbija

⁵ Farmaceutski fakultet Univerziteta u Beogradu, Beograd, Srbija

*ljumovic.iva@hotmail.com

Laurus nobilis L., Lauraceae, u narodu poznat kao lovor, je cvetni, zimzeleni žbun koji samoniklo raste u većem delu Crne Gore, a često se uzgaja i koristi kao aromatična, začinska i lekovita biljka. Cilj ovog istraživanja je bio da se analizira hemijski sastav etarskog ulja (EU) ploda i lista, a zatim testira antibakterijska i antifungalna aktivnost EU na sledećim sojevima: *Staphylococcus aureus* ATCC25923, *Enterococcus faecalis* ATCC29212, *Bacillus subtilis* ATCC6633 *Escherichia coli* ATCC25922, *Klebsiella pneumoniae* ATCC13083, *Salmonella Abony* NCTC6017, *Pseudomonas aeruginosa* ATCC27853 i *Candida albicans* ATCC10231. Ispitivanje kvalitativnog i kvantitativnog sastava etarskih ulja lista i plodova lovora izvršeno je gasnohromatografskom tehnikom spregnutom sa masenom spektrometrijom (GC-MS). Utvrđeno je da je etarsko ulje ploda bogato 1,8-cineolom (33,3%), α -terpenil acetatom (7,0%), α -pinenom (5,8%), β -elemenom (5,7%), sabinenom (5,3%), β -pinenom (4,0%), borneolom (2,1%) i terpinen-4-olom (2,1%). Najvažnije komponente identifikovane u EU listova su 1,8-cineol (35,1%), α -terpinil acetat (10,4%) i linalol (7,6%), između ostalih, a u skladu su sa prethodno dobijenim literaturnim podacima (1). Dodatno, ispitivana su antibakterijska i antifungalna svojstva EU lista i ploda lovora bujon mikrodilucionom metodom. EU ploda je pokazao antibakterijsko i antifungalno svojstvo protiv skoro svih testiranih sojeva mikroorganizama, dok je EU lista inhibiralo sledeće sojeve: *Staphylococcus aureus* ATCC25923, *Enterococcus faecalis* ATCC29212, *Bacillus subtilis* ATCC6633 i *Candida albicans* ATCC10231. *Escherichia coli* ATCC25922 je bakterijski soj koji je pokazao najveću otpornost na etarska ulja lovora, kako ploda, tako i lista. Dobijeni rezultati za etarska ulja lovora i 1,8-cineol, koji je njihov glavni sastojak, su u skladu sa prethodnim studijama (2).

Literatura

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2. Caputo, L.; Nazzaro, F.; Souza, L.F.; Aliberti, L.; De Martino, L.; Fratianni, F.; Coppola, R.; De Feo, V. *Laurus nobilis*: Composition of essential oil and its biological activities. *Molecules* 2017, 22(6), 930–941.

CHEMICAL ANALYSIS AND ANTIMICROBIAL ACTIVITY OF ESSENTIAL OILS FROM WILD LAUREL OF NATIONAL PARK SKADAR LAKE, MONTENEGRO

Dragica Bojović¹, Miomir Šoškić², Iva Ljumović^{3*}, Ana Žugić⁴,
Marina Milenković⁵, Vanja Tadić⁴

¹ Herbal pharmacy "Sveti Vasilije Ostroški", Podgorica, Montenegro

² Clinical Center of Montenegro, Podgorica, Montenegro

³ Faculty of Stomatology Pančevo, University Business Academy in Novi Sad,
Pančevo, Serbia

⁴ Institute for Medicinal Plant Research „Dr Josif Pančić”, Belgrade, Serbia

⁵ Faculty of Pharmacy, University of Belgrade, Belgrade, Serbia

*ljumovic.iva@hotmail.com

Laurus nobilis L., Lauraceae, popularly known as laurel, is a flowering, evergreen bush which grows wild in most parts of Montenegro, and is often cultivated and used as an aromatic, flavoring spice and medicinal plant. The aim of this research was to analyze the chemical composition of the essential oil (EO) of fruit and leaf, and afterwards antibacterial and antifungal activity of EOs on the following strains: *Staphylococcus aureus* ATCC25923, *Enterococcus faecalis* ATCC29212, *Bacillus subtilis* ATCC6633 *Escherichia coli* ATCC25922, *Klebsiella pneumoniae* ATCC13083, *Salmonella Abony* NCTC6017, *Pseudomonas aeruginosa* ATCC27853 i *Candida albicans* ATCC10231. The qualitative and quantitative composition of the EOs of fruit and leaves was carried out by using a gas chromatographic analysis coupled with mass spectrometry (GC-MS). The EO of fruit was found to be rich 1,8-cineole (33.3%), α -terpinyl acetate (7.0%), α -pinene (5.8%), β -elemene (5.7%), sabinene (5.3%), β -pinene (4.0%), borneol (2.1%) and terpinene-4-ol (2.1%). The most important components identified in the leaves EO were 1,8-cineol (35.1%), α -terpinyl acetate (10.4%) and linalool (7.6%), among others, are in line with previous literature reports (1). In addition, the antibacterial and antifungal properties of leaf and fruit laurel EOs were examined according to the broth microdilution method. The fruit EO showed antibacterial and antifungal activities against almost all strains of the microorganisms tested, whereas the leaf EO was able to inhibit: *Staphylococcus aureus* ATCC25923, *Enterococcus faecalis* ATCC29212, *Bacillus subtilis* ATCC6633 and *Candida albicans* ATCC10231. *Escherichia coli* ATCC25922 was bacterial strain that showed the highest resistance to both tested laurel EOs. The results obtained herein for laurel EO and 1,8-cineole as its main constituent are in accordance with previous studies (2).

References

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