

INVESTIGATIONS OF PLANTS OF THE GENUS *HERACLEUM* AUTOCHTHONOUS FOR SOUTHEASTERN EUROPE - SEARCHING FOR NEW NATURAL MEDICINAL RAW MATERIALS

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Significance of pharmacognostic studies on previously untested or scarcely tested wild plants is constantly rising, considering growing demand of pharmaceutical industry for new bioactive isolates, including essential oils and extracts. Accordingly, comprehensive research that included all nine taxa of genus *Heracleum* L. (Apiaceae) (three of which are endemic) from Serbia, Montenegro, North Macedonia and Slovenia was performed (60 samples of various plant organs collected from 14 localities in period 2009-2016). Plants of this genus (cow parsnips) got their Latin name after ancient hero Heracles, because of their habitus and use in folk medicine in treatment of various diseases. Also, some of them were the main ingredient of borscht, a traditional dish in Eastern European countries. They are interesting because of wide range of metabolites: from essential oil components, coumarins, flavonoids, phenolic acids, triterpenes and phytosterols, to some specific fatty acids. Analysis of these secondary and primary metabolites was performed using modern chromatographic and spectroscopic techniques (GC-FID-MS, LC-MS and NMR). In the case of 35 selected essential oils, antimicrobial, cytotoxic and/or antioxidant activities were also tested. It was revealed that studied plants represent potential new sources of compounds of importance not only for pharmaceutical, but also for cosmetic, food and chemical industries. For components of essential oils and furanocoumarins, by multivariate statistical analysis, chemosystematic significance was also established. Results of pharmacological investigations of essential oils indicated their importance as potential new medicinal plant raw materials, under condition of respecting established maximum daily intakes for those oils in which furanocoumarins were detected.

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ISPITIVANJA BILJAKA RODA *HERACLEUM* AUTOHTONIH ZA JUGOISTOČNU EVROPU - U POTRAZI ZA NOVIM PRIRODNIM LEKOVITIM SIROVINAMA

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Značaj farmakognozijskih studija na do sada neispitivanim ili nedovoljno ispitivanim samoniklim biljkama konstantno raste s obzirom na sve veće potrebe farmaceutske industrije za novim bioaktivnim izolatima, uključujući i etarska ulja i ekstrakte. U skladu sa tim, sprovedeno je opsežno istraživanje svih devet taksona roda *Heracleum* L. (Apiaceae) (od kojih su tri endemična), sa područja Srbije, Crne Gore, Severne Makedonije i Slovenije (60 uzoraka različitih biljnih organa sakupljenih sa 14 lokaliteta u periodu od 2009-2016. god.). Biljke ovog roda (mečje šape) dobile su latinski naziv po antičkom heroju Heraklu, kako zbog svog habitusa, tako i zbog primene u narodnoj medicini u lečenju različitih bolesti. Takođe, neke od njih bile su glavni sastojak boršča, tradicionalnog jela u zemljama istočne Evrope. Interesantne su zbog širokog spektra metabolita: od komponenti etarskih ulja, kumarina, flavonoida, fenolkarboksilnih kiselina, triterpena i fitosterola, sve do nekih specifičnih masnih kiselina. Ispitivanje navedenih sekundarnih i primarnih metabolita ovih taksona sprovedeno je uz korišćenje savremenih hromatografskih i spektroskopskih tehnika (GC-FID-MS, LC-MS i NMR). U slučaju 35 odabranih etarskih ulja ispitivane su i antimikrobna, citotoksična i/ili antioksidantna aktivnost. Utvrđeno je da su proučavane biljke potencijalno novi izvori jedinjenja od značaja ne samo za farmaceutsku, već i za kozmetičku, prehrambenu i hemijsku industriju. Za komponente etarskih ulja i furanokumarine ustanovljeno je multivarijantnom statističkom analizom da imaju i hemosistematski značaj. Rezultati ispitivanja farmakoloških aktivnosti etarskih ulja ukazali su na njihovu važnost kao potencijalno novih lekovitih biljnih sirovina, uz uslov poštovanja ustanovljenih maksimalnih dozvoljenih dnevnih unosa za ona etarska ulja u kojima su detektovani furanokumarini.

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