DETERMINATION OF ESSENTIAL OIL CONTENT IN NEEDLES OF SELECTED SPECIES FROM THE PINACEAE FAMILY

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In order to determinate essential oil content, five species from the *Pinaceae* family were investigated. Plant material was collected in two locations in Bosnia and Herzegovina - Crepoljsko (Ozren Mountain) and Ruište (at the bottom of Mountain Prenj), in the spring period of 2020. Isolation and determination of the essential oil content was performed by Clevenger distillation, with a duration of 2.5 h (1). The results of determining the content of essential oils are expressed as the mean value of three consecutive distillations, for each species of the Pinaceae family. As a raw material for distillation process, the fresh, whole needles (leaves) of the tested species were used, as follows: *Pinus sylvestris* L. - collected in Crepolje; *Pinus nigra* J.F.Arnold - collected in Crepolje; *Pinus heldreichi* Christ - collected at Ruisht; *Picea abies* (L.) H.Karst. - collected at Ruište; *Picea pungens* Engelm. - collected in Crepolje. Qualitative analysis of the tested samples of essential oils was performed by thin layer chromatography (TLC) (2). The presence of α-thujone, a mixture of α- and β-thujone , α-phelandrene, β-pinene, bornyl acetate and eucalyptol in the tested samples was examined. The determined content of essential oils ranging from 0.3 mL/100 g, in *Pinus heldreichii* needles, to 1.03 mL/100 g, in *Picea abies* needles. The applied chromatographic conditions enable adequate separation and identification of target molecules of interest in the tested samples.

References

1. European Pharmacopeia 8th Edition : Strasbourg: Council of Europe, 2013: 273.
2. European Pharmacopeia 8th Edition : Strasbourg: Council of Europe, 2013: 1355–1356.

ODREĐIVANJE SADRŽAJA ETERIČNIH ULJA U ČETINAMA ODABRANIH VRSTA IZ PORODICE PINACEAE

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U cilju određivanja sadržaja eteričnih ulja, ispitivano je pet vrsta iz porodice *Pinaceae*, sakupljenih na dva lokaliteta u Bosni i Hercegovini - Crepoljsko (planina Sarajevski Ozren) i Ruište (u podnožju planine Prenj), u proljetnom periodu 2020. godine. Kao sirovina za dobijanje eteričnog ulja korištene su svježe, cjelovite iglice (četine) *Pinus sylvestris* L. – sakupljene na Crepoljskom; *Pinus nigra* J.F.Arnold – sakupljene na Crepoljskom; *Pinus heldreichii* Christ – sakupljene na Ruištu; *Picea abies* (L.) H. Karst.– sakupljene na Ruištu; *Picea pungens* Engelm.– sakupljene na Crepoljskom. Izolacija i određivanje sadržaja eteričnih ulja je izvršena putem destilacije po Klevendžeru u trajanju od 2,5 h (1). Rezultati određivanja sadržaja eteričnih ulja izraženi su kao srednja vrijednost tri uzastopne destilacije, za svaku vrstu porodice *Pinaceae*. Kvalitativna analiza ispitivanih uzoraka eteričnih ulja odabranih vrsta porodice Pinaceae urađena je tankoslojnom hromatografijom (TLC) (2). Ispitivano je prisustvo *α*-tujona, smjese *α*- i *β*-tujona, α-felandrena, *β*-pinena, bornil-acetata i eukaliptola u analiziranim uzorcima. Određen je sadržaj eteričnih ulja u rasponu od 0,3 mL/100 g u iglicama vrste *Pinus heldreichii*, do 1,03 mL/100 g u iglicama vrste *Picea abies*. Primjenjeni uslovi hromatografiranja omogućavaju adekvatno razdvajanje i identifikaciju target molekula u ispitivanim uzorcima.

Literatura

1. European Pharmacopoeia 8th Edition: Strasbourg: Council of Europe, 2013: 273. 2.
2. European Pharmacopoeia 8th Edition: Strasbourg: Council of Europe, 2013: 1355–1356.