CHEMISTRY JOURNAL OF MOLDOVA. General, Industrial and Ecological Chemistry. 2018, 13(2), 63-68
ISSN (p) 1857-1727 ISSN (e) 2345-1688
http://cjm.asm.md
http://dx.doi.org/10.19261/cjm.2018.514

CHEMICAL COMPOSITION AND ANTIMICROBIAL ACTIVITY OF THE *LEVISTICUM OFFICINALE* W.D.J. KOCH ESSENTIAL OIL

Alexandru Ciocarlan [a,*], Ion Dragalin [a], Aculina Aricu [a], Lucian Lupascu [a], Nina Ciocarlan [b], Violeta Popescu [c]

[a]*Institute of Chemistry, 3, Academiei str., Chisinau MD 2028, Republic of Moldova*
[b]*Botanical Garden (Institute), 18, Padurii str., Chisinau MD-2002, Republic of Moldova*
[c]*Tiraspol State University, 5, Gh. Iablocikin str., Chisinau MD 2069, Republic of Moldova*
[*]*e-mail: algciocarlan@yahoo.com, phone: (+373 22) 739 769; fax: (+373 22) 739 775*

Abstract. The chemical composition of industrially obtained *Levisticum officinale* W.D.J. Koch (lovage) essential oil of Moldovan origin was analysed by means of chromatographic (GC-MS) and spectral (IR, ^{1}H and ^{13}C NMR) methods. According to gas chromatography-mass spectrometry analysis of the studied essential oil, thirty-two known and two unknown constituents were identified. The main components of *L. officinale* essential oil are monoterpenic hydrocarbons, which make up to 53.50% of the total number of components. *L. officinale* essential oil is also characterized by a high content of oxygenated monoterpenes (alcohols, cetones and esters), which reaches up to 33.60%. For the first time the presence of 6-butyl-cyclohepta-1,4-diene (0.56%) and 7-formyl-4-methyl-cumarine (0.15%) in lovage essential oil is reported. Antibacterial and antifungal activities of mentioned oil were evaluated *in vitro* on five strains of microorganisms. It was found that lovage volatile oil (*L. officinale*) exhibits high antibacterial and antifungal properties in the range of concentrations 0.015-0.030%.

Keywords: *Levisticum officinale*, essential oil, GC-MS analysis, antibacterial activity, antifungal activity.

Received: 11 September 2018/ Revised final: 10 October 2018/ Accepted: 11 October 2018