# CHEMICAL COMPOSITION AND ANTIMICROBIAL ACTIVITY OF ESSENTIAL OIL FROM NARCISSUS (*NARCISSUS POETICUS* L.) AND ABSOLUTE FROM FOUR ROSE (*ROSA DAMASCENA* MILL.) CULTIVARS

Alexandru Ciocarlan [a*], Ion Dragalin [a], Violeta Popescu [a], Lidia Lungu [a], Lucian Lupascu [a], Aculina Aricu [a], Tatiana Calugaru-Spataru [b], Zinaida Balmus [c], Dmitrii Grozdov [d], Pavel Nekhoroshkov [d], Inga Zinicovscaia [d,e]

[a]*Moldova State University, Institute of Chemistry, 3, Academiei str., Chisinau, 2028, Republic of Moldova*
[b]*Moldova State University, Institute of Genetics, Physiology and Plant Protection, Laboratory „Plant Biochemistry", 20, Padurii str., Chisinau, 2002, Republic of Moldova*
[c]*Moldova State University, Institute of Genetics, Physiology and Plant Protection, Laboratory „Aromatic and Medicinal Plants", 20, Padurii str., Chisinau, 2002, Republic of Moldova*
[d]*Joint Institute for Nuclear Research, 6 Joliot-Curie str., 141980 Dubna, Russia*
[e]*Horia Hulubei National Institute for R&D in Physics and Nuclear Engineering, 30 Reactorului str. MG-6, Bucharest-Magurele, Romania*
[*]e-mail: algciocarlan@yahoo.com

**Abstract.** The chemical composition of *Narcissus poeticus* L. essential oil and absolutes from four cultivars of *Rosa damascena* Mill. cultivated in the Republic of Moldova, as well as, the antimicrobial activity of these, was evaluated. The 28 components of *N. poeticus* essential oil and 37 of *R. damascena* Mill. absolutes were identified using GC-MS analysis. The major component of *N. poeticus* essential oil was *γ*-terpineol (52.62%), apart from the previously described terpene constituents, (*Z*)-*β*-ocimene (6.81%), eucalyptol (5.48%), (*E*)-*β*-ocimene (2.78%), *β*-caryophyllene (0.88%), *β*-myrcene (0.41%) and some undescribed like lilac alcohols B and D (0.53 and 0.42%), lilac aldehydes A and C (0.43% and 0.78%), etc. The chemical composition of *R. damascena* absolutes includes 37 components belonging to several classes. The main constituent of rose essential oil, as expected, is phenylethyl alcohol, the content of which varies from 59.85% to 78.17%. The terpene fraction is represented by several compounds like *β*-cytronellol (0.79-6.53%), nerol (5.89%), elemol (0.37%) and *a*-eudesmol (0.32%). The *in vitro* assessment of the essential oil from *N. poeticus* and *R. damascena* absolutes against four bacterial strains and two fungal species showed its high antibacterial and antifungal activity in a range of 150-300 μg/mL and 300-600μg /mL.

**Keywords:** *Narcissus poeticus* L., *Rosa damascene* Mill., essential oil, absolute, GC-MS analysis, antibacterial and antifungal activity.