STUDY OF VOLATILE COMPOUNDS OF HELICHRYSUM ARENARIUM

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Flavonoids containing plants are promising sources of medicines. The creation and optimization of drugs prevents insufficient knowledge about the chemical composition of the herbal drugs. Considering the importance of all active substances in showing the pharmacological activity, there is need for a more complete study of the chemical composition of herbal drugs.

The purpose of study was to comparatively determine the qualitative and quantitative composition of volatile compounds of Immortelle (Helichrysum arenarium, family Asteraceae) flowers and stems with leaves. The objects of study were flowers and stems with leaves of Immortelle that were harvested in early flowering in Kharkiv region. The composition and content of volatile compounds was determined by chromatography-mass spectrometric method. Were used the Agilent Technologies 6890 chromatograph with mass spectrometric detector 5973. For calculations the method of internal standard was used.

Researching of composition of biologically active substances of Immortelle flowers found 21 compounds and in stems with leaves – 34 compounds. In flowers have been found 5 monoterpenoids – limonene, camphor, linalool, α-terpinol, α-terpinyl acetate; 2 sesquiterpenoids – 1,4-cis-1,7-trans-acorenone and trans-caryophyllene; 3 aromatic compounds – phenylacetaldehyde, benzophenone and asarone; 3 aliphatic aldehydes – nonanal, tridecanal and tetradecanal. In the quantitative ratio dominated correspondingly – linalool (5.04 mg/kg); 1,4-cis-1,7-trans-acorenone (18.73 mg/kg); asarone (35.55 mg/kg); tridecanal (20.65 mg/kg). In stems with leaves have been found 2 monoterpenoids – α-terpinol and neryl acetone; 11 sesquiterpenoids – shyobunone, α-calacorene, β-farnezen, caryophyllene oxide, 1-isopropyl-4,8-dymetylspiro[4.5]dec-7-one, τ-cadinol, α-cadinol, allo-aromadendrene, ε-cadinen, zierone and 1,4-cis-1,7-trans-acorenone; 6 aromatic compounds – 2-octyl benzoate, eugenol, methyl eugenol, cis-methyl eugenol, cis-asarone, trans-asarone; other terpenoid-like compounds – β-ionon and trans-β-ionon-5,6-epoxide; 5 aliphatic aldehydes – benzaldehyde, nonanal, decanal, deca-2,4-dien-1-al and tetradecanal. In the quantitative ratio dominated correspondingly – neryl acetone (6.17 mg/kg); 1,4-cis-1,7-trans-acorenone (106.72 mg/kg); cis-asarone (135.50 mg/kg); β-ionon (2.61 mg/kg); tetradecanal (17.97 mg/kg). The study of composition and content of a variety of biologically active compounds of Immortelle requires further investigation.