COMPARATIVE STUDY OF ARTEMISIA TAURICA AND ARTEMISIA BALCHANORUM ESSENTIAL OILS COMPONENTS

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Genus Artemisia L. (wormwood) is represented in the Ukrainian flora by about 30 species of herbaceous and suffrutescent plants. Many members of the genus are studied insufficiently, so it is appropriate to study of biologically active substances (BAS) and physiological activity of wormwoods. A. taurica Willd. grows in the Crimea, the Caucasus and Asia Minor and used in folk medicine as anthelmintic, antibacterial, antiprotozoal remedy and topically against warts and corns. A. balchanorum Krasch., whose natural habitat is located in Turkmenistan, is cultivated in the Crimea for the needs of perfume and cosmetics industries. Both of these species belong to the subgenus Seriphidium and are phylogenetically related.

The aim of this study was to investigate the essential oils (EO) composition of A. taurica and A. balchanorum herbs, harvested in the budding phase in the Crimea in August of 2011.

Materials and methods. EO were obtained by microhydro-distillation method in vials. Study of the composition of the obtained EO was performed by gas chromatography-mass spectrometry (GC-MS) method using Agilent Technology 6890N chromatograph with 5973N mass spectrometric detector under the following conditions: capillary chromatographic column INNOWAX: internal diameter of 0.25 mm and 30 m long; the speed of the carrier gas (helium): 1,2 ml/min; the temperature of the injection heater: 250°C, programmable thermostat temperature from 50 to 250°C at a rate of 4°C/min. In order to identify the components the libraries of mass spectra NIST05 and WILEY 2007 were used. For quantitative calculations the method of internal standard (tridecane at 50 mg/1 mL) was used.

Obtained results. Quantitative yield of A. taurica EO was 0.12%, A. balchanorum – 0.78%. In A. taurica oil a high contents of α- and β-thujones (the total content of over 80% of EO), 1,8-cineole, terpinen-4-ol, camphor and sabinol were revealed. Dominate components of A. balchanorum EO along with α- and β-thujones were sesquitherpenoids vulgarone B and calarene.

Conclusions. A comparative study of A. taurica and A. balchanorum herbs EO was carried out. It is established that oils are similar in composition, but EO of A. balchanorum is characterized by a lower content of toxic α- and β-thujones and a larger share of sesquiterpenoids.