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BIOECOLOGICAL CHARACTERISTICS OF SPECIES OF THE *Pimpinella* L. GENUS IN FLORA OF THE NAKHCHIVAN AUTONOMOUS REPUBLIC

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БИОЭКОЛОГИЧЕСКАЯ ХАРАКТЕРИСТИКА ВИДОВ РОДА *Pimpinella* L. ФЛОРЫ НАХИЧЕВАНСКОЙ АВТОНОМНОЙ РЕСПУБЛИКИ

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Abstract. In the presented article, the species included in the *Pimpinella* L. genus, common in the flora of the Nakhchivan Autonomous Republic, were studied, and it was found that 11 species of the genus were found in the study area. *P. anisum* L., one of these species, is cultivated. The article also reflects the bioecological characteristics and areas of use of species belonging to the genus. According to the literature and our research, species belonging to the genus are valuable spices and are used in medicine, perfumery, cosmetics, food, and confectionery industries. The studied species are widespread in the types of vegetation of the foothills, plains, and lower, middle, and upper mountain belts of the region.

Аннотация. Изучены виды, входящие в род *Pimpinella* L., распространенные во флоре Нахичеванской Автономной Республики. Установлено, что на исследуемой территории обнаружено 11 видов рода. Культивируется *P. anisum* L. отражены биоэкологические особенности и области использования видов, принадлежащих к роду. По данным литературы и наших исследований, виды, относящиеся к роду, являются ценной пряностью и используются в медицине, парфюмерии, косметике, пищевой и кондитерской промышленности. Виды широко распространены в регионе.

Keywords: bioecology, ethers, spice.

Ключевые слова: биоэкология, эфиры, пряности.

The flora of the Nakhichevan Autonomous Republic is rich in economically useful plant resources. The location of the territory in the zone of sharply continental climate had a greater impact on the flora. The flora of the region has a deep historical origin, has undergone a complex natural-historical process of development, and has reached its current state, undergoing changes from time to time as a result of various physical and anthropogenic impacts.

Among the natural resources of the Nakhichevan Autonomous Republic, flora occupies an important place in terms of its soil and climate characteristics. Unlike other botanical and geographical regions of Azerbaijan, the vegetation of the mountainous zone of the Nakhichevan MR is richer. The highlands, mid- and lowlands, as well as the plains of the autonomous republic, are the main habitats of various plant groups. Plants, which are the main component of the biosphere, are considered to be among the first creatures used by man. A number of biologically active substances contained in plants are used in medicine, perfumery, and cosmetics; in the preparation of food and confectionery products; in many areas of the national economy; in the home; in the treatment of various diseases; and in the medical industry.

Among the studied *Apium*. Of particular importance in production are species of the *Pimpinella* L. genus, which are part of the family. Given the relevance of the topic, it is considered important to conduct research in this direction.

Material and research methods

In the course of the research, generally accepted floristic, geobotanical, bioecological, and other methods were used, and phenological observations were used. Literary sources and factual data obtained during field studies were named as the main material of the study, and various territories of the region were selected as the object of the study. A. Askerov "Azerbaijani flora" [2], H. Gasimov, S. Ibadullaeva, M. Seidov, G. Shiralieva "Wild vegetable plants in the flora of the Nakhchivan Autonomous Republic" [18], when determining the species belonging to the genus *Pimpinella* L. H. Gasimov, S. Ibadullaeva, M. Seidov, Z. Salaeva. "Flora and vegetation of the Shahbuz State Nature Reserve" [17]. A based on the works of Ibragimov "Distribution, stocking, and use of *Pimpinella* L. species in the territory of the Nakhchivan Autonomous Republic" [20], Flora of Azerbaijan [6].

Discussion and conclusions of the study

Pimpinella L. is one of the economically important genera of the flora of the Nakhchevan Autonomous Republic. As a result of personal research and available literary materials, 11 species belonging to the genus were found in the region, of which 1 species (*P. anisum*) is cultivated in the cultural flora. The systematic composition and bioecological characteristics of important species of this genus are reflected in the table below (Table).

When analyzing the ecological groups of species included in the genus, it was found that the species *Pimpinella rhodantha*, *P. anthriscoides*, *P. saxifraga*, *P. puberula*, and *P. peregrina* are mesophytic; *P. aurea*, *P. aromatica*, and *P. squamosa* are xerophytes; and the species *P. pseudotragium* are mesoxerophytes.

Based on the available literary sources and our own field studies, the species of the genus belong to different ranges of class, which makes it possible to determine the migration routes of the species to the territory.

The species of the *Pimpinella* L. genus distributed in the study area were analyzed in 9 areal classes according to zonal and regional principles. It is known that the species is widespread in such areas as Asia Minor-Caucasus, Southwest Asia, Central Asia, Iran, Iberia-Albania, the Western Palearctic, and Atropatene. The areal class of the species *P. anthriscoides* is unknown.

Table

TAXONOMIC COMPOSITION OF SPECIES OF THE GENUS *Pimpinella*

<i>Species name</i>	<i>Ecological quarters</i>	<i>Area class</i>	<i>Flowering and fruiting stage</i>
<i>Pimpinella rhodantha</i> Boiss.	Mesophyte	Asia Minor-Caucasus	VII, VIII-IX
<i>P. anthriscoides</i> Boiss.	Mesophyte	It is not known	VI, VII-VII
<i>P. aurea</i> DC.	Xerophyte	Iran	VI, VII-VII
<i>P. aromatica</i> M. Bieb.	Xerophyte	Iberia-Albania	VI, VII-VII, VIII
<i>P. saxifraga</i> L.	Mesophyte	Western Palearctic	VII-VIII
<i>P. peucedanifolia</i> Fisch. ex Ledeb.	Mesoxerophyte	Atropatene	VII-VIII
<i>P. squamosa</i> Karjag.	Xerophyte	Atropatene	VI, VII-VII, VIII
<i>P. puberula</i> (DC.) Boiss.	Mesophyte	Central Asia	VII
<i>P. peregrina</i> L.	Mesophyte	Central Asia	V-IX
<i>P. tragium</i> ssp. <i>pseudotragium</i> (DC.) V.A. Matthews *	Xerophyte	Southwest Asia	V, VI, VII-VIII

Species belonging to the genus *Pimpinella* L. are annual, biennial, and mostly perennial herbs. The trunk is flat, rounded, and branched at the top. The leaves are pinnate or two- to three-layered pinnate plants. The petals are white, less often pink, grooved at the top, and curved inward. It blooms in June-July and bears fruit in August. The upper side of the fruit is blunt and uneven, the outer convex, the inner flat.

The species *Pimpinella rhodantha* is a perennial herb found in meadows and shrublands of the subalpine and alpine belts of the region. As an important species, the drug has long been used by local people to treat diseases such as asthma, bronchitis, cancer, cholera, and cough.

The species *Pimpinella anthriscoides* is widespread in forests and meadows of the mid-mountain and subalpine zones. The plant is a medicinal and ornamental species, used as a flavoring agent in the food, perfume, tonic, pharmaceutical, and beverage industries.

The species *Pimpinella aurea* is found in rocky areas of the mid-mountain zone. The main characteristic of the species is the pleasantness of its flowers and fruits. That is why it is important in beekeeping. The roots and seeds of the plant are also used in veterinary medicine.

The species *Pimpinella aromatica* is widespread in rocky areas of the mid-mountain zone. Medicine is an important type. The plant is used as an antitussive in the treatment of diseases such as inflammation of the upper respiratory tract and diphtheria. Pharmacologically, the essential oil contained in it has a resorptive and antispasmodic effect. Oil prepared from the fruits of the sweet-scented false sedum has a bactericidal effect, affecting the liquefaction of phlegm from the bronchi, accelerating its removal. It has a positive effect in the treatment of tracheitis, laryngitis, bronchitis, diphtheria, chronic bronchopneumonia, and tonsillitis.

The *Pimpinella saxifraga* species is widespread in the subalpine and alpine meadows of the study area. The local population mainly uses this species as feed. It is of particular importance as the main source of nutrition for farm animals and also has a positive effect on the digestive system of animals, increasing milk yield in cattle.

Preparations from the *Pimpinella peucedanifolia* species are successfully used in the treatment of many diseases, such as gastritis, flatulence, constipation, and other diseases of the gastrointestinal tract. Its fruits have a mild diuretic, antiseptic, and antispasmodic effect in cystitis, pyelonephritis, and urethritis.

The *Pimpinella squamosa* species is found in the rocks and boulders of the middle mountain belt of the study area. Due to the pleasant aroma of the fruits, it is used in meat and fish casseroles, pickled cabbage, pickled cucumbers, and tomatoes.

Pimpinella puberula is an annual herbaceous plant, widespread in Asia Minor, Iran, and Central Asia. *Pimpinella puberula* grows in sparse forests, in depressions, on saline meadows, and in river and stream valleys. Due to the action of biologically active substances contained in Pampel's leek, it is used in medicine for the treatment of infections and other infectious diseases. It is the main component of ointments prepared for healing wounds on the body.

Pimpinella peregrina grows on the Iberian Peninsula, in France, on the Apennine Peninsula, on the Balkan Peninsula, in Romania, on the Crimean Peninsula, in Turkey, and in Syria, the Caucasus, Central Asia, and Egypt. The plant is widespread in sunny and semi-shaded places, on moist soil. Medicine is an important species.

The species *Pimpinella pseudotragium* is a perennial plant. It is found in Azerbaijan—Gobustan, in the central and southern parts of the Greater and Lesser Caucasus, in the mountainous zone of the Nakhchivan MR, in the middle mountain belt, and rarely in the lower mountain belt. The plant is used in the essential oil and food industries.

The territory of the region is a natural grouping of natural herbaceous plants with various shrubs and woody plants, covering large areas of the region and forming zonality. In the early stages of the formation of high-bush groups, they are characterized by a well-developed grass stand. Then, an extremely dense shrub layer is gradually formed, and the grass cover in the grouping gradually becomes sparse, as a result of which the grouping is replaced by sparse herbaceous and non-herbaceous variants. Herbs in all territories, regardless of location, are constantly in contact with species belonging to other families and form different groups [1, 3-5, 7-16, 19, 21, 22].

Thus, it does not fully reflect the directions of use of species belonging to the aforementioned genus *Pimpinella*. In our further studies, we consider it expedient to comprehensively study all the features of the studied breed.

Conclusions

1. As a result of the conducted research, it was established that 11 species of the genus *Pimpinella* L. were found in the flora of the Nakhchivan Autonomous Republic, and *P. anisum* L. is cultivated in the cultural flora of these species. It is known that the species belonging to this genus are valuable spices and are used in medicine, perfumery, cosmetics, food, and confectionery industries.

2. When analyzing the ecological groups of species included in the genus, it was found that 5 species of the genus are mesophytic, 4 species are xerophytic, and 1 species is mesoxerophytic. According to the analysis of the geographical classes of the range, 2 species of the genus are grouped by Atropatene, 2 species of Central Asia, 1 species of Southwest Asia, 1 species of Asia Minor-Caucasus, 1 species of the Western Palearctic, 1 species of Iran and 1 species of the Iberian-Albanian range. The range class of species 1 is unknown.

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