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TAXONOMIC COMPOSITION AND USE DIRECTIONS OF THE GENUS *Salvia* L. DISTRIBUTED IN THE NAKHCHIVAN AUTONOMOUS REPUBLIC

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ТАКСОНОМИЧЕСКИЙ СОСТАВ И ИСПОЛЬЗОВАНИЕ РОДА *Salvia* L., РАСПРОСТРАНЕННОГО В НАХЧЫВАНСКОЙ АВТОНОМНОЙ РЕСПУБЛИКЕ

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Abstract. In the presented article Lamiaceae Martinov, nom, cons are widespread in the flora of the Nakhchivan Autonomous Republic. Information about the taxonomic spectrum of species included in the genus Salvia (Salvia L.) and directions of use is provided. As a result of the studies, it was found that 19 species of this genus were found in the flora of the Nakhchivan MR. According to the literature and our studies, species belonging to the genus are used not only from an aesthetic point of view, but also as an ecological, economic and medicinal plant.

Аннотация. Lamiaceae Martinov, nom, cons распространены. Приведены сведения о таксономическом спектре видов во флоре Нахчыванской Автономной Республики, входящих в род Salvia (*Salvia* L.) и практическое использование. В результате проведенных исследований установлено, что во флоре Республики описано 19 видов рода *Salvia* L. Виды используются как экологические, хозяйственные и лекарственные растения.

Keywords: Salvia L., Azerbaijan, Nakhichevan, habitat of the species, plant materials.

Ключевые слова: *Salvia* L., Азербайджан, Нахычеван, ареал вида, растительное сырье.

The Nakhchivan Autonomous Republic occupies a territory located in the southwestern part of Azerbaijan and has a very rich and diverse flora. The flora of Nakhchivan is characterized by mild climatic conditions, different altitudes and geological structure, which create favorable conditions for the development of various plant species. The flora of the Nakhchivan Autonomous Republic accelerates the natural development of vegetation by combining various subecosystems. Most of the plants found in the flora of Nakhchivan are ecologically adapted species suitable for development in certain ecosystems. Among the numerous ecosystems of the region, there are arid conditions and mountainous areas, each of which is rich in unique plant species [1].

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The flora of Nakhchivan includes more than 3021 plant species, including endemic and rare species. *Salvia* is a representative of the Lamiaceae family, one of the families that includes such species. *Salvias* are plants belonging to the Lamiaceae family and have a diverse composition. The chapter is represented by 31 genera and 135 species. There are 33 species of this genus in Azerbaijan and 19 species in the Nakhchivan region. The species of this genus are found in various ecosystems of Nakhchivan, especially in mountainous, semi-desert and desert areas.

Salvia plants occupy a very important place in the flora of Nakhchivan. These plants are widespread not only from an aesthetic point of view, but also because of their ecological, economic and medical use. *Salvias* found in various ecosystems of Nakhchivan play an important role in environmental protection and are useful plants for the local population. Taking into account the above, the study of the taxonomic composition and directions of use of the genus *Salvia* L.-Surva is considered appropriate for this purpose.

Material and Methodology of the Study

The studies were conducted in various areas of the Nakhchivan MR in 2024-2025. Species of the genus *Salvia* L. were selected as the material for the study area. The definition and clarification of the names of species belonging to the genus *Salvia* L. are given on the basis of the books of A. Aserov “Plants of Azerbaijan” [2], “Flora of Azerbaijan” [12] and other works. Recent taxonomic changes were confirmed using World Flora Online [26].

Discussion and Conclusions of the Study

In the Nakhchivan Autonomous Republic, the genus *Salvia* is one of the important plant species included in the rich flora of the region. There are 33 species of this genus in Azerbaijan, and 19 species in the flora of the Nakhchivan MR. The systematic composition of species included in the genus, ecological groups, areal class, altitudinal zone, flowering and fruiting phases are given in the table below (Table 1).

Table 1

TAXONOMIC COMPOSITION OF SPECIES OF THE GENUS *Salvia* L.

Species name	*Environmental groups*	*Area class*	*Flowering and fruiting phase*
Salvia aethiopis L.	Xerophyte	Mediterranean Sea	VI-VIII
Salvia amasiaca Freyn & Sinf.	Xerophyte	Front Asia	VII-IX
Salvia x andreji Pobed.	Xerophyte	Atropaten	VI-VII
Salvia armeniaca (Bordz.) Grossh.	Xerophyte	Armenian-Atropatan	V-VIII
Salvia ceratophylla L.	Xerophyte	Front Asia	V-VII
Salvia glutinosa L.	Mesophyte	Europe	VI, VIII- IX
Salvia grossheimii Sosn.	Xerophyte	Atropaten	V-VI
Salvia hydrangea DC. ex Benth.	Xerophyte	Front Asia	VI-VII
Salvia limbata C.A. Mey.	Xerophyte	Iran	V-VI
Salvia pachystachya Trautv.	Xerophyte	Northern Iran	VI-VIII
Salvia nachczevanica Pobed.	Xerophyte	Iran	VI- IX
Salvia sclarea L.	Xerophyte	Eastern Mediterranean-Iran	VI-VIII
Salvia spinosa L.	Xerophyte	Irano-Turanian	VII- IX
Salvia suffruticosa Montbr. & Auch. ex Benth.	Xerophyte	Asia Minor	V-VI
Salvia syriaca L.	Xerophyte	Front Asia	VI-VII
Salvia tesquicola Klok. & Pobed.	Xerophyte	Pontic-Sarmatian-Turanian	V, VII, VIII
Salvia verticillata L.	Mesoxerophyte	Pannonian-Pontic	VI-IX
Salvia virgata Jacq.	Xerophyte	Eastern Mediterranean-Anterior Asia	VI-VIII
Salvia viridis L.	Xerophyte	Mediterranean Sea	IV -VI

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Based on the collected literary data and personal field studies, it was found that the species of the genus belong to different range classes, which makes it possible to determine the migration routes of the species to the region. According to the zonal and regional principle, it was known that the species included in the genus are grouped into 13 range classes. As shown in the table, Western Asia 4, Mediterranean 2, Atropatene 2, Iran 2, Northern Iran, Eastern Mediterranean-Western Asia, Pontic-Sarmatian-Turanian, Pannonian-Pontic, Europe, Armeno-Atropatene, Eastern Mediterranean-Iranian, Iran- Turanian, Asia Minor areas are each represented by 1 species [1-6].

During the analysis of ecological groups of species specific to the genus, it was found that 17 species belong to the xerophytic ecological group, 1 species to the mesophytic ecological group and 1 species to the mesoxerophytic ecological group.

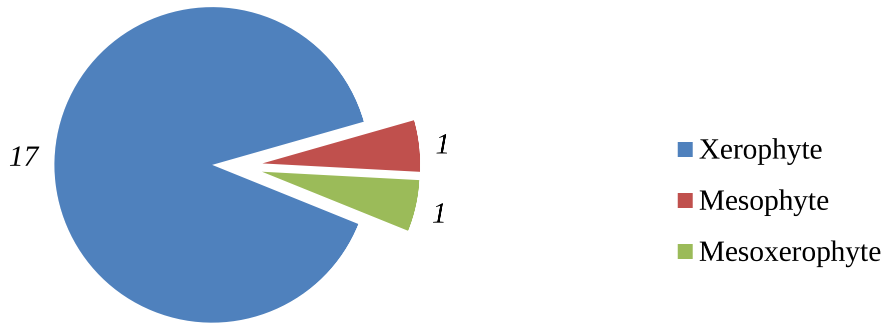

Figure 1. Environmental groups

Salvia L. — Perennial, less often annual, calyx bell-shaped, tubular-bell-shaped or tubular, two-lipped, upper lip three-toothed, lower lip two-parted. The crown has two lips, the upper lip is cap-shaped, sometimes sickle-shaped, the lower lip is three-lobed, the middle lobe is larger. Stamens 2, columnar, lanceolate, ovoid, soft. In Azerbaijan, there are 33 species of this genus, and in the Nakhchivan region — 19 species.

Salvia amasiaca is a plant known as “Amasya sage” and this plant is most commonly used in medicine. *Salvia amasiaca* improves the functions of the stomach and intestines and relieves problems such as diarrhea and stomach pain. The plant helps in reducing insomnia and stress. Salvia *amasiaca* is also used to treat skin inflammations and wounds due to its antiseptic properties. This herb is also used to improve blood circulation and maintain heart health. Flavonoids and other antioxidants in the composition help slow down aging by fighting free radicals in the body.

Salvia x andreji, a type of hybrid sage, is grown mainly for ornamental and medicinal purposes. This plant belongs to the genus *Salvia* and is known for its high ornamental value. *Salvia x andreji* with yellowish, blue and purple flowers is widely used for ornamental purposes in gardens. The hybrid sage plant is sometimes used in folk medicine. Its leaves and extracts have various medicinal properties.

Salvia aethiopis is a plant with various medical and traditional uses. The plant is used to treat inflammation. This plant has natural anti-inflammatory properties. It helps to reduce various types of pain and inflammation. Extracts of the plant are used to accelerate wound healing. Due to its natural antiseptic properties, it prevents bacterial infections and helps restore skin tissue. This herb is used to relieve muscle and nerve pain, relieve muscle tension and spasms. *Salvia aethiopis* is also used to relieve stress and provide a relaxing effect. Due to its natural sedative properties, it can be useful for anxiety and sleep problems. This plant helps relieve problems related to the digestive system, such as constipation and bloating [27].

Figure 2. *Salvia aethiopis*

Salvia armenica, also known as Armenian sage or Armenian sage, is a type of herb. This plant has various uses, especially in traditional medicine and herbalism. Sage armenica is especially known for its antiseptic and anti-inflammatory properties. The plant is used to clean wounds and reduce inflammation. It can also be used to treat intestinal problems, digestive disorders, and pain. It is said to have a calming effect on sleep problems and anxiety. Teas made from this plant are used to improve sleep quality and regulate the gastrointestinal tract. Extracts of sage armenica are used in cosmetic products to soothe and cleanse the skin. It is especially useful in treating inflamed skin and acne. The essential oil of the plant is used for aromatherapy purposes, especially for its calming effect on the nervous system.

Salvia ceratophylla (sugar cane) is a plant belonging to the mint family known for its various natural medicinal properties. This plant is used especially in the regions of East and Southeast Asia. *Salvia ceratophylla* is used in folk medicine to treat various ailments. Its natural antiseptic and anti-inflammatory properties are useful in treating inflammations and skin wounds. This plant is sometimes used as a food. When consumed as a tea or infusion, it can strengthen the immune system. *Salvia ceratophylla* is sometimes used to treat bacterial infections as this plant has natural antibiotic properties. The plant helps to reduce muscle pain and headaches. *Salvia ceratophylla* is used to relieve digestive problems. It also has a soothing effect on abdominal pain. Sticky sage is a plant of the *Lamiaceae* family used for various purposes in folk medicine. Sticky sage helps to increase the body's immunity. For this reason, it is used against colds and other infectious diseases. The plant has anti-inflammatory properties. This can be useful in treating various inflammatory diseases (such as joint pain and arthritis). Sticky sage is known for its mild sedative effect. It is used to reduce anxiety and stress. The plant has natural antibacterial and antiviral properties, so it helps fight various infectious diseases. In some healing traditions, sticky sage is used to relax the digestive system and is useful for stomach upset and gas spasms. The plant helps to quickly heal wounds.

Salvia Grossheimii is a plant belonging to the genus *Salvia* and is found mainly in Azerbaijan and other regions of the Caucasus. This plant is used both for medicinal purposes and as an ornamental plant. The most commonly used aspect of *Salvia Grossheimii* is its medicinal properties. Basically, the leaves and flowers of the plant are collected and used in various infusions and tinctures. This plant can be used in the following cases: It has an anti-inflammatory effect. It helps to improve the digestive system. It helps to relieve stress and anxiety. It is also used to treat skin problems (such as skin inflammation, etc.).

Salvia grossheimii is used as an ornamental plant in gardens and parks due to its beautiful flowers and ornamental appearance. This plant has flowers of various colors and remains open for a long time. Plants of the genus *Salvia* attract the attention of bees, especially with the rich nectar of their flowers, and therefore can be used in beekeeping. *Salvia grossheimii* can sometimes be used in some cuisines as a spice or tea, but this is a rarer and more regional use. In general, *Salvia grossheimii* has many uses, but always follow the directions for use and dosage carefully before using.

The *Salvia Hydrangea* plant is commonly grown as a perennial ornamental plant, which is particularly noted for its beautiful flowers. This plant belongs to the genus *Salvia* and is also used for ornamental purposes. *Salvia Hydrangea* is used as an ornamental plant in gardens and yards due to its beautiful flowers and growth habit. This plant blooms especially in the spring and summer and, under the right conditions, blooms for a very long time. Certain parts of *Salvia* species (leaves, flowers, or roots) have been used to treat certain ailments. However, it is important to consult a specialist before starting this type of use, as some herbs can have side effects. *Salvia Hydrangea* can also sometimes be used in the renovation of parks and greenery. In particular, this plant can grow in a variety of conditions, even in partial shade, so it is very versatile. Its flowers are particularly decorative and are ideal for use in compositions. The use of this plant may vary depending on the climate of your region, the suitability of the site and aesthetic purposes.

The plant *Limbata* sage is a species that is especially used for medicinal purposes. This plant belongs to the genus *Salvia* (pants) and is mainly used in folk medicine to treat various ailments. The natural ingredients of *Limbata* sage energize the body and strengthen the immune system. This herb has sedative properties and can be used to reduce stress, anxiety and depression. *Limbata* sage has an antioxidant effect and removes free radicals that damage the body. This herb can help relax the gastrointestinal system, facilitate digestion and prevent problems such as constipation. *Limbata* sage has antibacterial and antifungal properties, which can be useful in the treatment of various infections. If you are considering using sage limbata, it is recommended that you consult with your doctor and get advice on how to use it properly.

Salvia pachystachya, also known as Yellow Sage, is a plant that is primarily used for medicinal purposes. This plant is used for various purposes in some traditional medicine systems. *Salvia pachystachya* is used to treat pain, inflammation, and various ailments of the body, especially in Mexico and other South American countries. This plant is reported to have anti-inflammatory and analgesic effects. It is also possible to relieve swelling and pain in arthritis and other inflammatory conditions by using this herb in the form of an ointment or tea. *Salvia pachystachya* can be used to calm the nervous system and reduce stress. Some people use this herb as a natural remedy for conditions such as insomnia and anxiety. *Salvia pachystachya* leaves can be used to make tea and infusions. This tea can help remove toxins from the body and improve overall health.

The *Salvia nachczevanica* plant (sometimes known as Nakhchevan sage or Nakhchevan sage) is most often used for medicinal and perfume purposes. This plant is especially common in the South Caucasus region. Its ingredients can provide various health benefits. *Salvia nachczevanica* may have anti-inflammatory properties and can relieve various pain conditions, especially headaches, muscle pain, and swelling, such as arthritis. This plant is beneficial for the kidneys and digestive system. It can be used for stomach problems, constipation, and digestive problems. Sage nachczevanica is believed to have a calming and stress-relieving effect. It is often used as a tea to reduce anxiety and stress. Since this plant has antibacterial and antifungal properties, it can be used to treat various infections. Due to its ingredients, *Salvia nachczevanica* supports the immune system and helps increase the body's resistance to various infections. Tea made from *Salvia nachczevanica* leaves has a calming and digestive effect. The ingredients of this plant can also be used in the form of pressed oil or alcohol extracts.

Salvia sclarea (sage) is a plant known for its natural aromatic properties and is used for various purposes. Soothing and calming effect: Salva can be used to relieve symptoms of anxiety, stress and depression. The essential oils it contains help in relaxation. Since it has hormone-regulating properties, women can use it during menopause. Salva has natural properties that help prevent inflammation and infections. Salva is rich in natural oils and antioxidants that have a beneficial effect on the skin. For this reason, it is used in skin cleansing and rejuvenating products. Salva oil is used to treat acne, eczema and other skin problems. Salva is often used for teas and infusions, and is also used as a spice in various dishes and sauces. Salva oil is widely used in aromatherapy due to its relaxing and calming effect. It is most often used as a means of reducing stress and combating sleep problems. *Salvia sclarea* can also be used as a natural perfume for household purposes.

Salvia spinosa, also known as "rye" or "tall dwarf sage", is a plant of the genus *Salvia*. The main use of this plant is mainly for medicinal purposes and sometimes as a natural ornamental plant. The leaves and other parts of *Salvia spinosa* L. have antioxidant properties and therefore help fight free radicals. This herb can help reduce inflammation and is used to treat inflammation in some organisms. In some cultures, this plant is used for weakness, respiratory problems, and digestive problems. *Salvia spinosa* L. extracts help reduce inflammation on the skin and keep the skin fresh. *Salvia spinosa* can be used to fight microbes in some medicinal and cosmetic products. This plant is often used in gardens for ornamental purposes. Aesthetically, it attracts attention with its long and beautiful flowers. The use of *Salvia spinosa* L. may vary depending on certain conditions and existing health conditions.

The *Salvia suffruticosa* plant is mainly used in folk medicine and cooking. Due to its antibacterial and antiviral properties, *Salvia suffruticosa* is often used against diseases. Infusions made from this plant can relieve sore throats, colds and flu symptoms. It can be used to improve digestion. Teas are prepared that relieve gastrointestinal upset and facilitate the digestion process. It is also known for its relaxing effect, reducing stress and anxiety. *Salvia suffruticosa* leaves are used to improve the taste of meat dishes and, in particular, salads. Its fresh and mild pungency gives dishes a special taste. The leaves are used to prepare teas with a light spicy taste. This plant is also grown in ornamental gardens or on terraces because of its beautiful appearance.

Salvia syriaca (i.e. oriental sage) is a plant used for various medicinal and agricultural purposes. *Salvia syriaca* contains many substances with anti-inflammatory and antimicrobial properties. Due to these properties, it can be used in the treatment of infections. Oriental sage is also used to treat psychological conditions such as neurosis and stress. It can be used to combat stomach pain and digestive problems. It is also useful in the treatment of skin wounds, eczema and other dermatological problems. *Salvia syriaca* is especially useful for retaining moisture in the soil and preventing erosion. Due to the beautiful flowers of the plant, it is also used for ornamental purposes in gardening. The leaves and flowers of oriental sage are sometimes used as a seasoning for food. Thus, sage syriaca is widely used in both medicine and agriculture due to its many beneficial properties.

Salvia tesquicola is a species of *salvia* that grows wild, especially in Mexico and other regions of South America. This plant may also have medicinal properties and has traditionally been used to treat certain ailments. However, there is limited information on the exact uses of this herb, and individual reactions to each herb may vary. Plants in the *Salvia* genus, particularly certain species such as *Salvia* divinorum, can cause hallucinations and strong psychoactive effects. However, less information is available on *Salvia tesquicola*, and more research is needed on its psychoactive effects. Sage plants are often used as a tea, extract, or other form. When used as a tea or infusion, it is important that the herb is used in the correct dosage. If you have allergies, gastrointestinal problems, or other health issues related to the plant, its use may be harmful. It is important to consult a health professional before using any medication or treatment. For safety, it is recommended to consult a health professional before using *Salvia tesquicola*.

Salvia verticillata is called "umbrella sage" and is a member of the mint (lavender) family. This plant is especially known for its natural healing properties and is used for various purposes. *Salvia verticillata* L. has many medicinal properties. It is especially used for digestive system problems. It can relieve stomach discomfort and reduce gas in the stomach. Infusions of this plant help reduce inflammation and strengthen the body's immunity. *Salvia verticillata* can also be used for mouth and throat infections. This plant is used as a natural mouthwash due to its antiseptic properties. *Salvia verticillata* herb is known for its calming properties for insomnia and anxiety. It is useful in reducing stress and relieving mental fatigue. Some forms of this plant are used to relieve headaches and mild muscle pain. *Salvia verticillata* tea is also often drunk for digestive and calming purposes. The antiseptic properties of the plant also make it useful for skin care. When applied to the skin, *Salvia verticillata* reduces skin problems including acne and inflammation. This plant is used in nature, especially in Europe and Asia, for various medicinal purposes [7-10].

Salvia virgata is a plant known as "red thyme" that is especially used as a natural remedy. The dried leaves of *Salvia virgata* can be brewed and drunk as a tea. This tea is used to relieve stress, has a calming effect and supports the digestive system. A tincture of the plant can be used to relieve various physical ailments (headaches, insomnia or anxiety). *Salvia virgata* can also be used as an ointment or cream to treat the skin and reduce inflammation.

Salvia viridis (green sage) is a plant used mainly for medicinal and ornamental purposes. *Salvia viridis* is traditionally used to treat ailments such as intestinal problems, indigestion and stomach pain. At the same time, because it has anti-inflammatory and antioxidant properties, it is included in some medicinal preparations. Like other species of the genus *Salvia*, this plant can also be used to relieve stress. *Salvia* viridis is very popular in gardening due to its attractive flowers and beautiful blossoms. The flowers are made in blue and purple tones. Due to its aromatic composition, the plant can be used in cosmetic products and aromatherapy. In some regions, the leaves and flowers of this plant are used to make tea, as some of the ingredients in it help improve stomach comfort.

Nakhchivan Autonomous Republic, which is mentioned as the research area, is a favorable area for xerophytic plants in terms of climatic and geographical conditions. The group of ecological xerophytic plants includes drought-resistant plants adapted to arid climate. They effectively use water through a number of adaptations. The role of xerophytes in ecosystems is enormous, as they protect the soil, provide food and shelter for animals, and maintain the sustainability of the natural environment. Due to their ecological and economic importance, xerophytes bring important benefits to both nature and humans [12, 13, 22].

Regardless of the research area, herbaceous plants in all areas closely interact with species of a number of families and form different groups [9, 11, 15, 25].

Cultivation of xerophytic herbs in Nakhchivan is an area related to the cultivation of plants that require little water and are resistant to drought, taking into account the arid climate and soil conditions of the region. In the semi-desert and desert zones of Nakhchivan, xerophytic plants grow in accordance with the local flora, which can be used both in agriculture and livestock breeding. Xerophytic herbaceous plants have great potential for local agriculture and farming, ensuring the efficient use of land and water resources [1, 8, 10, 20-24].

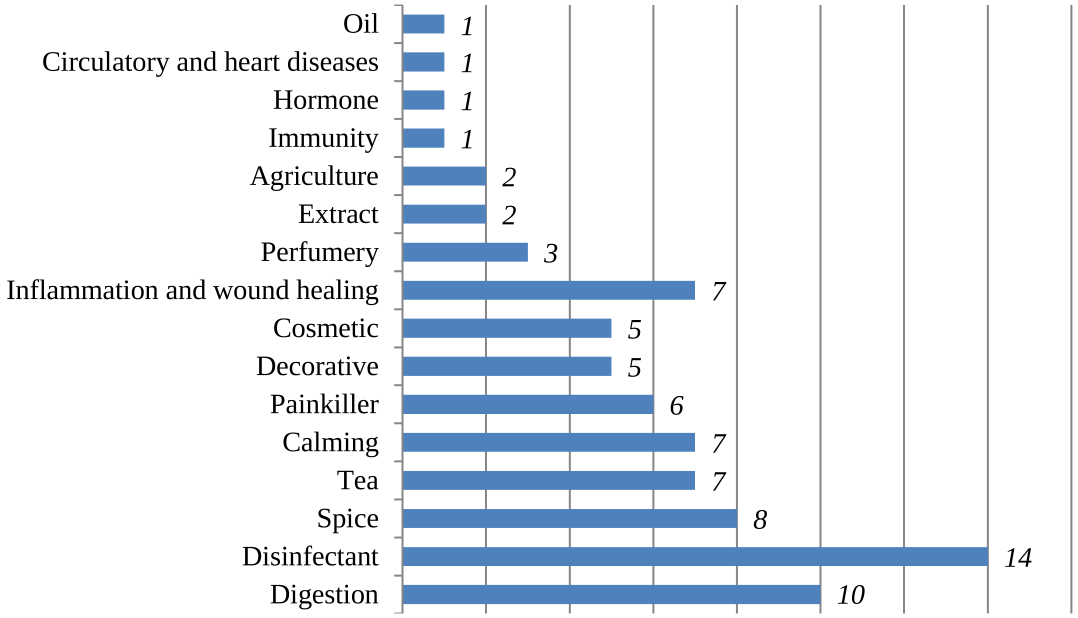

Figure 3. Application of the genus *Salvia* L.

In addition to herbaceous plants, forest and shrub plants are widespread, creating diverse complex ecosystems. These ecosystems play a key role in maintaining the ecological balance, providing important support to the local flora and fauna. Thus, in the emerging phytocenoses, the dominant species are legumes, mallows, rosaceae and many other families [3-7, 14, 16-19]. Thus, it does not fully reflect the directions of use of species belonging to the above-mentioned genus *Salvia* L. In our further research, we consider it appropriate to comprehensively study all the features of the breed under study.

Conclusıon

1. The conducted research showed that there are 19 species of the genus *Salvia* L. in the flora of the Nakhchivan Autonomous Republic. It was found that all species belonging to the genus are ornamental, medicinal, cosmetic, ecological and oil-bearing. Also important are 3 types of pesticides and cosmetics. Some species included in the genus are also used in erosion and perfumery.

2. When analyzing the ecological groups of species included in the genus, it was found that 17 species of the genus are xerophytic, 1 species is mesophytic and 1 species is mesoxerophytic. According to the analysis of geographic range classes, 4 species of the genus are found in Western Asia, 2 species in the Mediterranean Sea, 2 species in Atropatene, 2 species in Iran, 1 species in Northern Iran, 1 species in the East Mediterranean Coastal Region. Asia, 1 species in Pontus-Sarmatian-Turanian, 1 species in Pannonian-Pontic, 1 European type, 1 Armenian-Atropatenic type, 1 East Mediterranean-Iranian type, 1 Irano-Turanian type, and 1 type is Asia Minor monotypic.

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