UDC 582.681.81
AGRIS F70
https://doi.org/10.33619/2414-2948/116/05

FLORISTIC ANALYSIS OF THE SPECIES BELONGING TO THE Salicaceae Mirb. FAMILY IN THE FLORA OF THE NAKHCHIVAN AUTONOMOUS REPUBLIC

*©**Babayeva S.**, ORCID: 0009-0004-4800-7276, Ph.D., Nakhchivan State University, Nakhchivan, Azerbaijan, safuraaliyeva1991@gmail.com*
*©**Jalalli U.**, Nakhchivan State University, Nakhchivan, Azerbaijan, ucelalli@mail.ru*

ФЛОРИСТИЧЕСКИЙ АНАЛИЗ ВИДОВ СЕМЕЙСТВА Salicaceae Mirb., ПРИНАДЛЕЖАЩИХ ФЛОРЕ НАХЧЫВАНСКОЙ АВТОНОМНОЙ РЕСПУБЛИКИ

*©**Бабаева С. Р.**, ORCID: 0009-0004-4800-7276, Нахчыванский государственный университет, г. Нахчыван, Азербайджан, safuraaliyeva1991@gmail.com*
*©**Джалалли У.**, Нахчыванский государственный университет, г. Нахчыван, Азербайджан, ucelalli@mail.ru*

Abstract. The study of the Salicaceae Mirb. species common in the flora of the Nakhchivan Autonomous Republic was conducted and their floristic analysis was performed. In the flora of the autonomous republic, 17 Salicaceae species belonging to 2 genera were identified, 9 species were assigned to the genus *Salix* L., and 8 species to the genus *Populus* L. Types of areas: boreal areal type (7 species), xerophilous areal type (4 species), Caucasian areal type (4 species) and desert areal type (1 species). The areal type was not determined for one species. This family is of great interest both in terms of biological diversity and ecological significance. It was established that the greatest species diversity of the family is found in the middle mountain zone, and a small part is found in the low and middle mountain zones, as well as in the subalpine zone. At present, the issues of adjusting botanical-geographical and historical plant systems, analyzing the distribution and genesis of species, and clarifying typical ranges are extremely important.

Аннотация. Проведено исследование видов семейства ивовых (Salicaceae Mirb.), распространённых во флоре Нахчыванской Автономной Республики, и проведён их флористический анализ. Во флоре автономной республики было выявлено 17 видов ивовых, относящихся к 2 родам, 9 видов отнесены к роду *Salix* L., а 8 видов — к роду *Populus* L. Типы ареалов: бореальный ареальный тип (7 видов), ксерофильный ареальный тип (4 вида), кавказский ареальный тип (4 вида) и пустынный ареальный тип (1 вид). Для одного вида не был определён ареальный тип. Это семейство представляет большой интерес как с точки зрения биологического разнообразия, так и экологической значимости. Установлено что наибольшее видовое разнообразие семейства встречается в средней горной зоне, а небольшая часть — в низкой и средней горных зонах, а также в субальпийской зоне. В настоящее время крайне важными являются вопросы корректировки ботанико-географических и исторических систем растений, анализ распространения и генезиса видов, а также уточнение типовых ареалов.

Keywords: Salicaceae, taxonomic composition, floristic analysis, genus, species

Ключевые слова: Salicaceae, таксономический состав, флористический анализ, род, вид.

Т. 11. №7 2025
https://doi.org/10.33619/2414-2948/116

The richness of the flora and the diversity of vegetation in the territory of the Nakhchivan Autonomous Republic are associated with its varied physical-geographical and natural-historical conditions, as well as the influence of extensive floristic regions and its complex formation history. Located along the migration route of species within the Caucasus ecoregion, the Autonomous Republic is distinguished by its rich biodiversity.

Species belonging to the *Salicaceae* family play a notable role in the formation of vegetation, the development of various plant communities, and the enrichment of the species composition in the study area. This family mainly includes woody plants in the form of trees and shrubs. Among the most well-known genera within the family are *Salix* L. (willows) and *Populus* L. (poplars). These species are widespread both in natural and cultivated conditions. Representatives of this family are particularly common along riverbanks, in swamps, and in moist habitats.

Since the *Salicaceae* family in the flora of Nakhchivan has not yet been fully studied in a systematic manner, conducting research in this direction is considered essential. Therefore, it is deemed appropriate to investigate the species belonging to the *Salicaceae* family in the flora of the Autonomous Republic, as well as to determine their geographical distribution types, ecological groups, and altitudinal zonation.

Material and research methods

The research was conducted during the years 2023–2024 in various regions of the Nakhchivan Autonomous Republic. The main research objects were different areas of the region, and the research material was based on literary sources and factual data obtained during field studies. Species belonging to the family *Salicaceae* were selected for study. In the identification of species, clarification of their names, and nomenclature changes, references were made to A. M. Asgarov's, "Flora of Azerbaijan" [12], and several other works [2–11, 13–19, 21–23]. For determining the geographical elements of the species and the development of areal types, the schemes of A. A. Grossheim [20] and C. Portenier [24] were used as a basis. The latest taxonomic changes were made according to World Flora Online (https://about.worldfloraonline.org/).

Discussion and conclusions of the study

One of the main families widely represented in the flora of the Nakhchivan Autonomous Republic is the *Salicaceae* family. In the flora of the autonomous republic, members of *Salicaceae* are characterized by 17 species grouped under two genera. As a result of processing literature data and personal research materials, 9 of these species were identified as belonging to the genus *Salix* L., and 8 species to the genus *Populus* L. Based on the collected materials, the following taxonomic spectrum of the family in the flora of Nakhchivan AR has been identified:

Familia: *Salicaceae* Mirb., nom. cons. — Willows and Poplars

1. Genus: *Populus* L. — Poplar

Subgen. 1. *Turanga* (Bunge) Dode

1(1) *Populus euphratica* Oliver (P. transcaucasica Jarm. ex Grossh.) — Transcaucasian poplar

Subgen. 2. *Populus*

Sect.1. *Populus*

2(2) *P. alba* L. (*P. schischkinii* Grossh.) — White poplar

3(3) *P. tremula* L. — Aspen poplar

Sect.2. Aigeiros Duby

4(4) *P. nigra* L. — Black poplar

5(5)**P. gracilis* Grossh. — Cutting poplar

6(6)**P. deltoides* Marsh. — Canadian poplar

7(7)**P. italica* (Duroi) Moench. — Italian poplar

Т. 11. №7 2025
https://doi.org/10.33619/2414-2948/116

8(8)**P. bolleana* Lauche. — Samarkand poplar

2. Genus: *Salix* L. nom. cons. — Willow

Subgen.1. *Salix*
Sect. 1. *Albella* Ser. ex Duby
9(1) *Salix triandra* L. — Three-stamened (white rod) willow
Sect. 2. Salix
10(2*) S. alba* L. — White willow
11(3) *S. excelsa* S.G.Gmel. (S. australior Anderss) — Tall willow
Subgen. 2. *Vetrix* (Dumort.) Dumort.
Sect. 1. *Vetrix*
12(4) *S. caprea* L. — Goat willow
13(5) *S. aegyptiaca* L. — Egyptian willow
14(6) *S. pseudomedemii* E.L. Wolf (*S. phlomoides* auct. non Bieb.) — Swollen willow
Sect. 2. Helix Dumort.
15(7) *S. purpurea* L. — Brown willow
16(8) *S. wilhelmsiana* Bieb. — Wilhelm's willow
17(9)**S. babylonica* L. — Weeping willow (Crying willow)

Salicaceae are dioecious trees or shrubs, with approximately 200 species widely distributed around the world. Very few species are known to occur in tropical and mountainous regions. Species belonging to this family are more commonly found in shrublands of the mid-mountain belt, forests, and thickets. These species are effectively used for reinforcing riverbanks and valley slopes. They are also utilized in carpentry, for making household items, and simple agricultural tools. Most species are considered good nectar plants. The species of both genera differ from each other in terms of morphological structure.

a

b

Figure 1. a- White willow (*Salix alba*); b- Aspen poplar (*Populus tremula*)

Paleobotanical materials discovered in the territory of the Nakhchivan Autonomous Republic, as well as the current state of the plant world, stationary observations, analysis and identification of the material, comparative analysis of literature sources, and the data obtained have been used to conduct a floristic analysis of the species belonging to the *Salicaceae* family (Table).

Т. 11. №7 2025
https://doi.org/10.33619/2414-2948/116

Table

FLORISTIC ANALYSIS OF SPECIES BELONGING TO THE Salicaceae FAMILY

Genus names	*Species names*	*Geographical elements*	*Altitude zones*	*Ecological groups*
Populus L.	*Populus euphratica*	Northern Iran	low mountain belt	mesophytes
	P. alba	Western Palaearctic	Middle mountain belt	mesophytes
	P. tremula	Palaearctic	Middle mountain belt	mesophytes
	P. nigra	Western Palaearctic	Middle mountain belt	mesophytes
	P. gracilis	Unknown	Middle mountain belt	mesophytes
	P. deltoides	Caucasus	Middle mountain belt	mesophytes
	P. italica	Mediterranean Sea	Middle mountain belt	mesophytes
	P. bolleana	Caucasus	Middle mountain belt	mesophytes
Salix L.	*Salix triandra*	Palaearctic	Middle mountain belt	mesophytes
	S. alba	Palaearctic	Middle mountain belt	mesophytes
	S. excelsa	Iran-Turan	Middle mountain belt	mesophytes
	S. caprea	Western Palaearctic	Up to the subalpine belt	mesophytes
	S. aegyptiaca	Caucasus	Middle mountain belt	mesophytes
	S. pseudomedemii	Caucasus	Up to the middle mountain belt	mesophytes
	S. purpurea	Palaearctic	Middle mountain belt	mesophytes
	S. wilhelmsiana	Turan-Sarmatian	Middle mountain belt	mesophytes
	S. babylonica	Iran	Middle mountain belt	mesophytes

Based on our personal field research and existing literature sources, it has been determined that the species belonging to the *Salicaceae* family are distributed across various areal types. This makes it possible to trace the migration routes of these species within the region. In the flora of the Autonomous Republic, the species of the *Salicaceae* family have been analyzed according to four geographical areal types and six areal classes, based on zonal and regional principles.

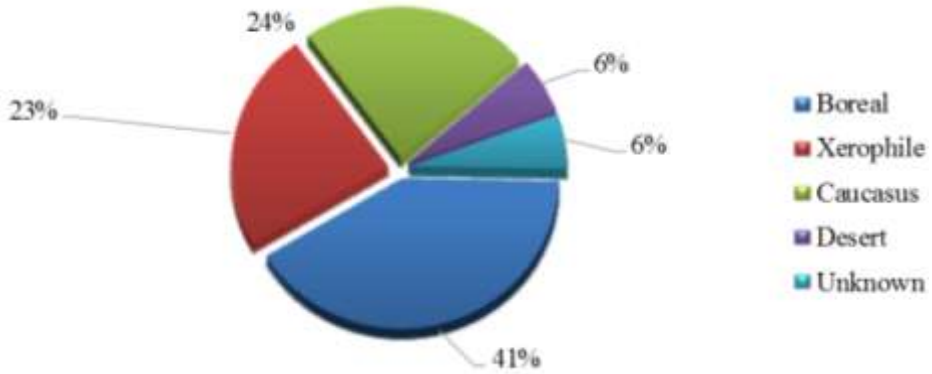

Figure 2. Analysis of the Geographical Distribution Types of Species Belonging to the *Salicaceae* Family

As can be seen from the Table, 7 species belong to the Boreal distribution type. In terms of the number of species, they are dominant compared to other groups. Boreal elements cover the southern regions of the Arctic province and are widely distributed across vast areas. Among the plants belonging to this distribution type, 4 species are classified as Paleoarctic and 3 species as Western Paleoarctic elements. These elements are mesophytic plants that mainly inhabit forest and forest-shrub areas. Although the species belonging to the Palearctic group are typically found in the forest vegetation of Europe and Asia, they also occur in non-forest soils. This is due to their evolutionary adaptation to the existing ecological environment.

Т. 11. №7 2025
https://doi.org/10.33619/2414-2948/116

The xerophytic flora extends southward from the Boreal flora and westward from the steppe flora region, covering a wide area from the Black Sea coasts of Eastern Europe to northwestern India, including mountainous regions of Iran, the Near East, and Central Asia. The xerophytic flora elements of the Salicaceae family make up 23.5% of the total plant species and are represented by 4 species. Species belonging to the Caucasian distribution type play a significant role in the formation of the region's flora. This type includes *Populus deltoids*, *P. bolleana*, *Salix aegyptiaca*, and *S. pseudomedemii*, collectively comprising 23.5% of the total species. Desert flora elements constitute 6% of the species within the Salicaceae family. The desert distribution type includes the species *Salix wilhelmsiana*. The distribution type of *Populus gracilis* is unknown.

As environmental conditions constantly change, water is a crucial ecological factor influencing the widespread distribution of plants across different climate zones and the formation of various plant groupings. Based on their water requirements, plants are divided into several ecological groups.

In terms of their relationship to moisture and their needs, mesophytes occupy an intermediate position between hygrophytes and xerophytes. Mesophytic plants are mainly found in forest, shrubland, subalpine, and alpine areas and are more widely distributed. These plants, depending on the natural nutrient environment and various influencing factors, differ not only in species composition but also in ecological characteristics. Research has determined that species belonging to the Salicaceae family are mostly mesophytes.

In the studied area, vertical zonation is more pronounced. Due to the changing environmental conditions, the distribution of plant species varies by altitude, ranging from the lowlands to higher altitude zones. Within the flora of the Nakhchivan Autonomous Republic, species of the Salicaceae family have been studied in relation to four distinct vertical zones with differing physical-geographical and ecological conditions, and their distribution according to elevation zones has been examined.

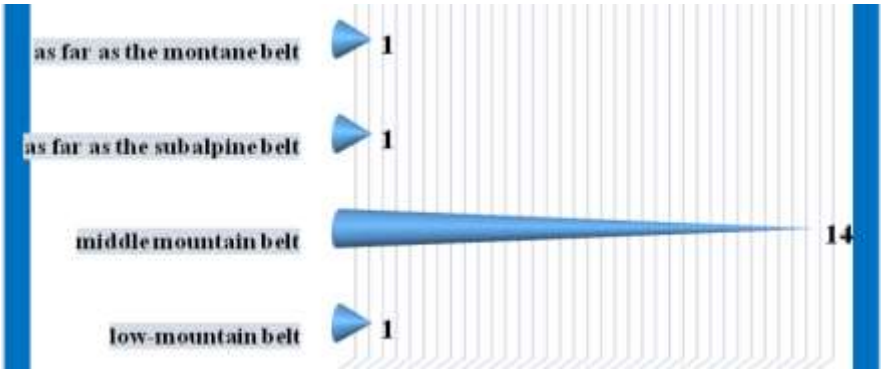

Figure 3. Distribution of species belonging to the Salicaceae family across altitude zones

The low mountain belt covers areas with altitudes up to 1200 meters. The plain areas of the Middle Aras valley are considered part of this zone. The *Populus euphratica* species of the poplar genus is distributed within this low mountain belt.

The middle mountain belt spans elevations between 1200–2400 meters. The area is intersected by river valleys and dry riverbeds. The foothill sections of this zone tend to be more arid. The species *Salix pseudomedemii* of the willow genus is found up to the middle mountain zone, while *Populus italica*, *P. nigra*, *Salix aegyptiaca*, *S. excelsa*, *S. babylonica*, and others are found within the middle mountain zone. The *Salix caprea* species is distributed up to the subalpine belt.

As a result of conducted studies, the taxonomic composition of the Salicaceae family distributed in the flora of the Nakhchivan Autonomous Republic was identified. The altitudinal zones, ecological groups, geographical distribution types, and classification of these species were also examined. The findings are considered an important scientific basis for studying willow-like species in the region.

Conclusions

During the research, it was found that the willow-like plants (Salicaceae) in the flora of the Nakhchivan Autonomous Republic are characterized by 17 species grouped into 2 genera -9 species belong to the genus *Salix* L., and 8 species belong to the genus *Populus* L.

Based on the analysis of their geographical distribution types, 7 species (41%) belong to the Boreal type, 4 species (23.5%) to the Xerophytic type, 4 species (23.5%) to the Caucasian type, and 1 species (6%) to the Desert type. The distribution type of *Populus gracilis* remains unknown.

The species of the Salicaceae family found in the flora of the Nakhchivan Autonomous Republic were studied according to four vertical zones that differ in physical-geographical and ecological conditions. It was determined that: 1 species is distributed in the low mountain zone, 1 species up to the middle mountain zone, 1 species up to the subalpine zone, and 14 species in the middle mountain zone itself. According to the ecological group analysis, all studied species of the Salicaceae family were identified as mesophytes.

Acknowledgments: I would like to express my gratitude to Professor Dashgin Ganbarov for identifying the species studied.

Financing: The research it is financed and supported on the basis of the "Herbari Fund of Biology Department of Nakhchivan State University" project.

References:

1. Askerov, A. M. (2016). Flora Azerbaidzhana. Baku. (in Azerbaijani).

2. Babayeva, S. (2022). Contemporary Situation of the Rosaceae Family Tree Crops in the Nakhchivan Flora. *Bulletin of Science and Practice, 8*(12), 104-110. https://doi.org/10.33619/2414-2948/85/13

3. Babayeva, S. (2023). Phytocenological Characteristics of the Woody Species of the Rosaceae Family in the Steppe Vegetation of the Flora of Nakhchivan. *Bulletin of Science and Practice, 9*(5), 57-63. https://doi.org/10.33619/2414-2948/90/06

4. Babayeva, S. (2024). Distribution Regularities of Tree Species of the Rosaceae Family in Shrubs in River Valleys and a Streak in the Flora of the Nakhchivan Autonomous Republic. *Bulletin of Science and Practice, 10*(1), 69-79. (in Russian). https://doi.org/10.33619/2414-2948/98/09

5. Babayeva, S. (2024). Flora Current State of Rosaceae Woody Species in Mountain Xerophytic and Steppe Vegetation of Ordubad District. *Bulletin of Science and Practice, 10*(7), 41-48. https://doi.org/10.33619/2414-2948/104/05

6. Babayeva, S. (2024). Special Protection of Nakhchivan Autonomous Republic Natural Areas. Bulletin of Science and Practice, 10(11), 81-88. https://doi.org/10.33619/2414-2948/108/10

7. Babayeva, S. (2024). Taxonomic Spectrum of the Species Belonging to the Potentilla L. Genus of the Rosaceae Family in the Nakhchivan Flora. *Bulletin of Science and Practice, 10*(8), 51-58. https://doi.org/10.33619/2414-2948/105/06

8. Babayeva, S., Guliyeva, N., Novruzov, H., & Bakhshaliyeva, A. (2025). Systematic Composition and Ecology of Species of the Genus Nepeta L. Flora of the Nakhchivan Autonomous

Republic. Bulletin of Science and Practice, 11(1), 30-39. https://doi.org/10.33619/2414-2948/110/04

9. Babayeva, S., Guliyeva, N., Salmanova, R., Huseynov, H., & Novruzov, H. (2024). Bioecological Characteristics of Species of the Pimpinella L. Genus in Flora of the Nakhchivan Autonomous Republic. *Bulletin of Science and Practice, 10*(12), 48-54. https://doi.org/10.33619/2414-2948/109/06

10. Ganbarov, D. Sh., & Ibrahimov, A. Sh. (2015). New species and their bioecological features of astragalus spread in the area of nakhchivan autonomous republic. *International Journal of Multidisciplinary Research and Developmen, 2*(4), 696-697.

11. Ganbarov, D. Sh., & Ibrahimov, A. Sh. (2015). Astragalus dasyanthus L. (Fabaseae) a New Species to the Flora of Azerbaijan. *International Journal of Multidisciplinary Research and Development*, *2*(2), 426-427.

12. Ganbarov, D. S., Aslanova, Y. A., & Matsyura, A. V. (2024). Astragalus cephalotes Banks & Sol.–a new species for the Republic of Azerbaijan. *Acta Biologica Sibirica, 10*, 465-470. https://doi.org/10.5281/zenodo.11216116

13. Flora Azerbaidzhana (1954). Baku, 5. (in Russian).

14. Flora Kavkaza (1952). Moscow, 7-140. (in Russian).

15. Gambarov, D., İbrahimov, A., & Nabiyeva, F. (2011). Geographical areal types of Astragalus species spread in Nakhchivan Autonomous Republic. *Kafkas Üniversitesi Fen Bilimleri Enstitüsü Dergisi, 4*(1), 58-64.

16. Ganbarov, D. (2024). Rosaceae in the Mountain-Xerophyte and Steppe Vegetation of Shahbuz District, Current Status of the Woody Species. *Bulletin of Science and Practice, 10*(11), 37-44. https://doi.org/10.33619/2414-2948/108/04

17. Ganbarov, D., & Aliyeva, S. (2014). Spreading of Astracantha and Astragalus species of wild vegetation in the Nakhchivan Autonomous Republic flora. International Multidisciplinary eJournal, 50-55.

18. Ganbarov, D., Aslanova, E., & Abbasov, N. (2023). New Location of the Species Astragalus mollis M. Bieb. (Fabaceae) in the Flora of Nakhchivan (Azerbaijan). *Bulletin of Science and Practice, 9*(11), 75-79. https://doi.org/10.33619/2414-2948/96/08

19. Ganbarov, D., & Babayeva, S. (2020). Systematical Structure, Geographical Areal Classes and Ecological Groups of Rosa L. Genus Spreading in the Flora of Nakhchivan Autonomous Republic *Bulletin of Science and Practice, 6*(6), 55-60. https://doi.org/10.33619/2414-2948/55/07

20. Ganbarov, D., & Babayeva, S. (2022). Floristic Analysis of the Distribution of the Crataegus L. Genus in the Mountain Xerophyte and Steppe Vegetation of Nakhchivan. *Bulletin of Science and Practice, 8*(10), 27-33. https://doi.org/10.33619/2414-2948/83/02

21. Ganbarov, D., Babayeva, S., Seyidov, M., & Jafarova, F. (2024). Phytocoenological Analysis of Species Malvaceae and Their Distribution in the Flora of Nakhchivan Autonomous Republic. *Bulletin of Science and Practice, 10*(5), 55-60. https://doi.org/10.33619/2414-2948/102/07

22. Ganbarov, D., Guliyeva, N., & Babayeva, S. (2024). Taxonomic Composition of the Tragopogon L. Genus in Nakhchivan and Prospects for Using Species. *Bulletin of Science and Practice, 10*(12), 71-78. https://doi.org/10.33619/2414-2948/109/09

23. Ganbarov, D., Guliyeva, N., & Huseynov, H. (2025). Taxonomic Composition and Use Directions of the Genus Thyme (Thymus L.) Distributed in the Nakhchivan Autonomous Republic *Bulletin of Science and Practice, 11*(1), 22-29. https://doi.org/10.33619/2414-2948/110/03

24. Ganbarov, D. Sh., & Babaeva, S. R. (2022). Ecobiological features of the Crataegus L. species spreading in the mountainious-xerophit and flora of the Nakhchivan Autonomous Republic. *Estestvennye i tekhnicheskie nauki*, *10*, 51-55.

Список литературы:

1. Аскеров А. М. Флора Азербайджана. Баку, 2016.

2. Babayeva S. Contemporary Situation of the Rosaceae Family Tree Crops in the Nakhchivan Flora // Бюллетень науки и практики. 2022. Т. 8. №12. С. 104-110. https://doi.org/10.33619/2414-2948/85/13

3. Babayeva S. Phytocenological Characteristics of the Woody Species of the Rosaceae Family in the Steppe Vegetation of the Flora of Nakhchivan // Бюллетень науки и практики. 2023. Т. 9. №5. С. 57-63. https://doi.org/10.33619/2414-2948/90/06

4. Бабаева С. Р. Закономерности распределения древесных видов растений семейства Rosaceae кустарниковой растительности по долинам рек и склонам ущелий в Нахчыванской Автономной Республике // Бюллетень науки и практики. 2024. Т. 10. №1. С. 69-79. https://doi.org/10.33619/2414-2948/98/09

5. Babayeva S. Flora Current State of Rosaceae Woody Species in Mountain Xerophytic and Steppe Vegetation of Ordubad District // Бюллетень науки и практики. 2024. Т. 10. №7. С. 41-48. https://doi.org/10.33619/2414-2948/104/05

6. Babayeva S. Special Protection of Nakhchivan Autonomous Republic Natural Areas // Бюллетень науки и практики. 2024. Т. 10. №11. С. 81-88. https://doi.org/10.33619/2414-2948/108/10

7. Babayeva S. Taxonomic Spectrum of the Species Belonging to the Potentilla L. Genus of the Rosaceae Family in the Nakhchivan Flora // Бюллетень науки и практики. 2024. Т. 10. №8. С. 51--58. https://doi.org/10.33619/2414-2948/105/06

8. Babayeva S., Guliyeva N., Novruzov H., Bakhshaliyeva A. Systematic Composition and Ecology of Species of the Genus Nepeta L. Flora of the Nakhchivan Autonomous Republic // Бюллетень науки и практики. 2025. Т. 11. №1. С. 30-39. https://doi.org/10.33619/2414-2948/110/04

9. Babayeva S., Guliyeva N., Salmanova R., Huseynov H., Novruzov H. Bioecological Characteristics of Species of the Pimpinella L. Genus in Flora of the Nakhchivan Autonomous Republic // Бюллетень науки и практики. 2024. Т. 10. №12. С. 48-54. https://doi.org/10.33619/2414-2948/109/06

10. Ganbarov D. S., Ibragimov A. S. New species and their bioecological features of Astragalus spread in the area of Nakhchivan Autonomous Republic // International Journal Multidisciplinary Research and Development. 2015. V. 2. №4. P. 696-697.

11. Ganbarov D. S., Ibrahimov A. S. Astragalus dasyanthus L.(Fabaceae), a new species to the flora of Azerbaijan // International Journal of Multidisciplinary Research and Development. 2015. V. 2. №1. P. 426-427.

12. Ganbarov D. S., Aslanova Y. A., Matsyura A. V. Astragalus cephalotes Banks & Sol.–a new species for the Republic of Azerbaijan // Acta Biologica Sibirica. 2024. V. 10. P. 465-470. https://doi.org/10.5281/zenodo.11216116

13. Флора Азербайджана: [в 8 т.]. Баку: Изд-во АН Азерб. ССР, Т. 5. 1954. 368 с.

14. Флора Кавказа: [в 5 т.]. М., 1952. С. 7-140.

15. Gambarov D., İbrahimov A., Nabiyeva F. Geographical areal types of Astragalus species spread in Nakhchivan Autonomous Republic // Kafkas Üniversitesi Fen Bilimleri Enstitüsü Dergisi. 2011. V. 4. №1. P. 58-64.

16. Ganbarov D. Rosaceae in the Mountain-Xerophyte and Steppe Vegetation of Shahbuz District, Current Status of the Woody Species // Бюллетень науки и практики. 2024. Т. 10. №11. С. 37-44. https://doi.org/10.33619/2414-2948/108/04

17. Ganbarov D., Aliyeva S. Spreading of Astracantha and Astragalus species of wild vegetation in the Nakhchivan Autonomous Republic flora // International Multidisciplinary eJournal. 2014. P. 50-55.

18. Ганбаров Д. Ш., Асланова Е. А., Аббасов Н. К. Новое местонахождение вида Astragalus mollis M. Bieb. (Fabaceae) во флоре Нахичевани (Азербайджан) // Бюллетень науки и практики. 2023. Т. 9. №11. С. 75-79. https://doi.org/10.33619/2414-2948/96/08

19. Ganbarov D., Babayeva S. Systematical Structure, Geographical Areal Classes and Ecological Groups of Rosa L. Genus Spreading in the Flora of Nakhchivan Autonomous Republic // Бюллетень науки и практики. 2020. Т. 6. №6. С. 55-60. https://doi.org/10.33619/2414-2948/55/07

20. Ganbarov D., Babayeva S. Floristic Analysis of the Distribution of the Crataegus L. Genus in the Mountain Xerophyte and Steppe Vegetation of Nakhchivan // Бюллетень науки и практики. 2022. Т. 8. №10. С. 27-33. https://doi.org/10.33619/2414-2948/83/02

21. Ganbarov D., Babayeva S., Seyidov M., Jafarova F. Phytocoenological Analysis of Species Malvaceae and Their Distribution in the Flora of Nakhchivan Autonomous Republic // Бюллетень науки и практики. 2024. Т. 10. №5. С. 55-60. https://doi.org/10.33619/2414-2948/102/07

22. Ganbarov D., Guliyeva N., Babayeva S. Taxonomic Composition of the Tragopogon L. Genus in Nakhchivan and Prospects for Using Species // Бюллетень науки и практики. 2024. Т. 10. №12. С. 71-78. https://doi.org/10.33619/2414-2948/109/09

23. Ganbarov D., Guliyeva N., Huseynov H. Taxonomic Composition and Use Directions of the Genus Thyme (Thymus L.) Distributed in the Nakhchivan Autonomous Republic // Бюллетень науки и практики. 2025. Т. 11. №1. С. 22-29. https://doi.org/10.33619/2414-2948/110/03

24. Ganbarov D. Sh., Babayeva S. R. Ecobiological features of the Crataegus L. species spreading in the mountainious-xerophit and flora of the Nakhchivan Autonomous Republic // Естественные и технические науки. 2022. №10. С. 51-55.

Работа поступила
в редакцию 12.05.2025 г.

Принята к публикации
19.05.2025 г.

Ссылка для цитирования:

Babayeva S., Jalalli U. Floristic Analysis of the Species Belonging to the Salicaceae Mirb. Family in the Flora of the Nakhchivan Autonomous Republic // Бюллетень науки и практики. 2025. Т. 11. №7. С. 51-59. https://doi.org/10.33619/2414-2948/116/05

Cite as (APA):

Babayeva, S., & Jalalli, U. (2025). Floristic Analysis of the Species Belonging to the Salicaceae Mirb. Family in the Flora of the Nakhchivan Autonomous Republic. *Bulletin of Science and Practice, 11*(7), 51-59. https://doi.org/10.33619/2414-2948/116/05