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ROSACEAE IN THE MOUNTAIN-XEROPHYTE AND STEPPE VEGETATION OF SHAHBUZ DISTRICT, CURRENT STATUS OF THE WOODY SPECIES

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ROSACEAE В ГОРНО-КСЕРОФИТНОЙ И СТЕПНОЙ РАСТИТЕЛЬНОСТИ ШАХБУЗСКОГО РАЙОНА, СОВРЕМЕННОЕ СОСТОЯНИЕ ДРЕВЕСНЫХ ВИДОВ

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Abstract. Rosaceae spreading in mountain-xerophytic and steppe vegetation of Shahbuz district flora, is presented in the article. Information is given on the taxonomic composition, life forms, ecological groups, geographical area types and classes of woody species of the family. According to the researches conducted by us, when we characterized the woody species of the mountain-xerophyte and steppe zone of the Shahbuz district flora belonging to the Rosaceae family by genera, it was found that *Rosa* — 21 (37.5%), *Crataegus* — 7 (12.5%), *Pyrus* — 7 (12.5%), *Prunus* — 6 (10.71%), *Sorbus* — 5 (8.92%), *Cotoneaster* — 4 (7.14%), *Rubus* and *Spiraea* — 2 (3.57%), *Malus* and there is — 1 (1.78%) species of the Pyracantha genus. Shrub plants, especially woody species of the Rosaceae family, occupy an important place in the structure of Shahbuz district flora. They are part of the bush steppes, form independent groups and form unique formations.

Аннотация. Представлены Rosaceae, распространенные в горно-ксерофитной и степной растительности флоры Шахбузского района. Приводятся сведения о таксономическом составе, жизненных формах, экологических группах, географических типах ареалов и классах древесных видов семейства. По данным проведенных исследований древесных видов горно-ксерофитной и степной зоны флоры Шахбузского района установлены роды и виды семейства Rosaceae: *Rosa* — 21 (37,5%), *Crataegus* — 7 (12,5%), *Pyrus* — 7 (12,5%), *Prunus* — 6 (10,71%), *Sorbus* — 5 (8,92%), *Cotoneaster* — 4 (7,14%), *Rubus* и *Spiraea* — 2 (3,57%), *Malus* и др. — 1 (1,78%) вид рода *Pyracantha*. В структуре флоры Шахбузского района важное место занимают кустарниковые и древесные виды семейства розоцветных. Они входят в состав кустарниковых степей, образуют самостоятельные группы, образуют уникальные сообщества.

Keywords: ecological group, life form, steppe, taxonomic composition.

Ключевые слова: экологическая группа, жизненная форма, степь, таксономический состав.

Due to its rich flora, Nakhchivan Autonomous Republic has always attracted interest by being different from other botanical-geographical regions of Azerbaijan and the Caucasus. As a result of the fact that the Autonomous Republic is a typical mountainous country, vegetation is divided into

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distinct zones. One such zone is the territory of Shahbuz district, which differs from other places due to its vegetation and fertile soil. There are many studies on the composition, structure and dynamics of the vegetation of Shahbuz district. However, little attention has been paid to the characteristics of mountain-xerophyte and steppe vegetation in the region. The research conducted by allows us to determine the important features characteristic of the woody species of the *Rosaceae* family of the mountain-xerophyte and steppe zone flora of Shahbuz district. In the structure of the mountain-xerophyte and steppe complex, shrubs, especially woody species of the *Rosaceae* family, occupy an important place.

Material and research methods

Research has been carried out since 2019. The mountain-xerophyte-steppe zone of the flora of the Shahbuz district of Nakhchivan MR was chosen as the study area, and tree species belonging to the *Rosaceae* family were chosen as the object of study. To clarify the species, we used the books by A. M. Askerov "Flora of Azerbaijan" [1], A. Sh. Ibragimov, M. Z. Piriev, D. Sh. Ganbarov "Trees and shrubs of the *Rosaceae* family on the territory of the Nakhchivan Autonomous Republic" [15] and M. Seidov, S. Ibadullaeva, Kh. Gasymova "Flora and vegetation of the Shahbuz State Nature Reserve" [9].

Discussion and conclusions of the study

Rosaceae family is one of the main families spread in the flora of Nakhchivan Autonomous Republic. The trees and shrub plants of the season were represented by 116 species belonging to 23 genera. As a result of the conducted research, it was found that the woody species of the *Rosaceae* family of the region are characterized by 79 species belonging to 12 genera of the family. As a result of the processing of personal field research materials, it was determined that the woody species of the *Rosaceae* family of the mountain-xerophyte and steppe zone of Shahbuz district flora comprise 56 species belonging to 10 genera of the family. The systematic composition and floristic analysis of the woody species of the *Rosaceae* family spreading in the mountain-xerophytic and steppe vegetation of the studied area is given in Table 1 [3, 4, 6, 8, 10-14].

Table 1

SYSTEMATIC COMPOSITION AND FLORISTIC ANALYSIS OF WOODY SPECIES OF THE *Rosaceae* FAMILY SPREADING IN THE STUDIED AREA

№	*Species name*	*Life forms*	*Ecological groups*	*Geographical area Classes*
1.	*Cotoneaster integerrimus*	nanophanerophytes	xerophytes	Europe
2.	*C. melanocarpus*	nanophanerophytes	xerophytes	Palearctic
3.	*C. multiflorus*	nanophanerophytes	xerophytes	Central Asia
4.	*C. suavis*	nanophanerophytes	xerophytes	Central Asia
5.	*Crataegus caucasica*	microphanerophytes	xeromesophytes	Atropatene
6.	*C. cinovskisii*	microphanerophytes	mesophytes	Atropatene
7.	*C. meyeri*	microphanerophytes	mesoxerophytes	Front Asia
8.	*C. orientalis*	microphanerophytes	mesoxerophytes	Eastern Mediterranean
9.	*C. pontica*	microphanerophytes	mesoxerophytes	Northern Iran
10.	*C. pseudoheterophylla*	microphanerophytes	mesoxerophytes	Front Asia
11.	*C. szovitsii*	microphanerophytes	xerophytes	Caucasus
12.	*Malus orientalis*	microphanerophytes	mesophytes	Caucasus
13.	*Prunus communis*	microphanerophytes	mesophytes	Front Asia
14.	*P. divaricata*	mesophanerophytes	mesophytes	Eastern Mediterranean

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№	Species name	Life forms	Ecological groups	Geographical area Classes
15.	*P. fenzliana*	microphanerophytes	xerophytes	Front Asia
16.	*P. incana*	nanophanerophytes	xerophytes	Iran
17.	*P. mahaleb*	microphanerophytes	mesophytes	Mediterranean Sea
18.	*P. nairica*	nanophanerophytes	xerophytes	Atropatene
19.	*Pyracantha coccinea*	nanophanerophytes	mesophytes	Eastern Mediterranean
20.	*Pyrus medvedevii*	mesophanerophytes	xerophytes	Atropatene
21.	*P. oxyprion*	mesophanerophytes	xerophytes	Atropatene
22.	*P. raddeana*	microphanerophytes	mesoxerophytes	Atropatene
23.	*P. salicifolia*	mesophanerophytes	mesophytes	Iran
24.	*P. syriaca*	mesophanerophytes	mesophytes	Eastern Mediterranean
25.	*P. voronovii*	mesophanerophytes	mesophytes	Atropatene
26.	*P. georgica*	mesophanerophytes	xerophytes	Iberia
27.	*Rosa buschiana*	nanophanerophytes	mesophytes	Caucasus
28.	*R. boissieri*	nanophanerophytes	mesophytes	Asia Minor
29.	*R. canina*	nanophanerophytes	mesophytes	Western Palearctic
30.	*R. corymbifera*	microphanerophytes	mesophytes	Europe
31.	*R. floribunda*	nanophanerophytes	mesoxerophytes	Asia Minor
32.	*R. hemisphaerica*	nanophanerophytes	xeromesophytes	Front Asia
33.	*R. hracziana*	nanophanerophytes	xerophytes	Atropatene
34.	*R. iberica*	nanophanerophytes	xerophytes	Asia Minor
35.	*R. karjaginii*	nanophanerophytes	mesoxerophytes	Atropatene
36.	*R. marschalliana*	nanophanerophytes	mesophytes	Caucasus
37.	*R. nisami*	nanophanerophytes	mesophytes	Atropatene
38.	*R. orientalis*	nanophanerophytes	xerophytes	Atropatene
39.	*R. sachokiana*	nanophanerophytes	xerophytes	Albania
40.	*R. sosnovskyana*	nanophanerophytes	mesophytes	Caucasus
41.	*R. rapinii*	nanophanerophytes	xerophytes	Front Asia
42.	*R. spinosissima*	nanophanerophytes	mesoxerophytes	Southern Palearctic
43.	*R. pulverulenta*	nanophanerophytes	xerophytes	Atropatene
44.	*R. teberdensis*	nanophanerophytes	mesophytes	Caucasus
45.	*R. tomentosa*	nanophanerophytes	mesophytes	Europe
46.	*R. tuschetica*	nanophanerophytes	xeromesophytes	Caucasus
47.	*R. zangezura*	nanophanerophytes	mesophytes	Atropatene
48.	*Rubus caesius*	nanophanerophytes	mesophytes	Western Palearctic
49.	*R. ibericus*	nanophanerophytes	mesophytes	Caucasus
50.	*Spiraea crenata*	nanophanerophytes	mesoxerophytes	Pontic Sarmatian
51.	*S. hypericifolia*	nanophanerophytes	mesoxerophytes	Pontic Sarmatian
52.	*Sorbus graeca*	microphanerophytes	mesoxerophytes	Eastern Mediterranean
53.	*S. persica*	microphanerophytes	mesoxerophytes	Iran
54.	*S. luristanica*	microphanerophytes	xeromesophytes	Iran
55.	*S. roopiana*	microphanerophytes	mesophytes	Iran
56.	*S. turcica*	microphanerophytes	xerophytes	Atropatene

Life forms, as types of adaptation structures, demonstrate on one hand the ways in which different types of plants adapt to the same conditions, and on the other hand, the possibilities of similarity of these ways in unrelated plants belonging to different species, genera and families. Therefore, the classification of life forms cannot be compatible with the usual classification of

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systematics based on the structure of reproductive organs and reflecting the common origin of plants. The classification of life forms is based on the structure of vegetative organs.

Taking into account the above, the life forms of the woody species of the mountain-xerophyte and steppe zone of the Shahbuz district flora, which are included in the Rosaceae family, are grouped into 3 subtypes of phanerophytes. Mesophanerophytes are trees up to 8–30 m tall, microphanerophytes are trees and shrubs up to 2–8 m tall, and nanophanerophytes are shrubs less than 2 m tall. Of the woody species of the mountain-xerophyte and steppe zone of the Shahbuz district flora, 31 are nanophanerophytes, 18 are microphanerophytes, and 7 are mesophanerophytes (Figure 1), [5].

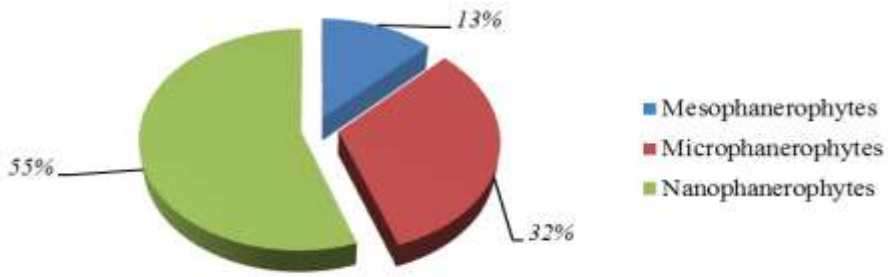

Figure 1. Life forms of woody species belonging to the *Rosaceae* family of the mountain-xerophyte and steppe zone of Shahbuz district flora

Water is important as an ecological factor in spreading plants over wide areas under different climatic conditions, spreading them in different areas and forming different groups. Plants are divided into different ecological groups. Spreading of woody species of the Rosaceae family of Nakhchivan MR by ecological groups was carried out according to Shennikov's classification system.

Mesophytes occupy an intermediate position between hydrophytes and xerophytes in their relation to moisture and their requirements. Mesophytic plants are mainly forest, shrub, subalpine, alpine plants. Xerophytic species are plants that spread mainly in dry areas and have acquired various adaptations to moisture deficiency. This group of plants includes desert, dry steppe, thorn sparse forest, rocky, etc. refers to the plants common in the areas. There are also plants that are mesophytic in origin and lead a relatively xerophytic lifestyle by adapting to their ecological environment. These plants are mesoxerophytic plants. Xeromesophytes occupy an intermediate position between xerophytes and mesoxerophytes. They are mostly found in forest clearings and sparse bush areas, and especially in the north-west and south-west of the mountain slopes [2].

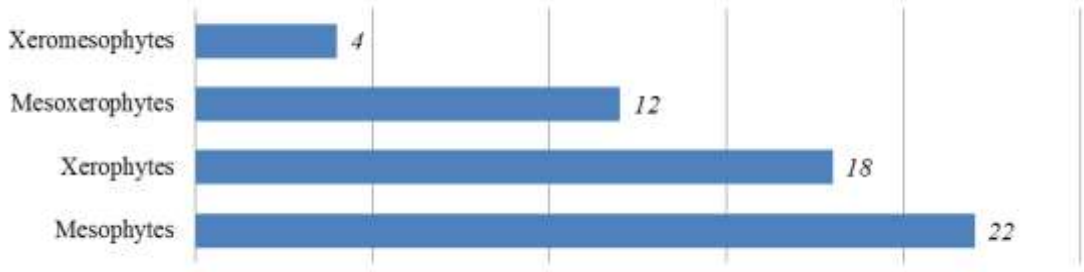

Figure 2. Ecological groups of woody species belonging to the *Rosaceae* family of the mountain-xerophyte and steppe zone of Shahbuz district flora

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From image 2, it is known that in the studied area there are 22 mesophytes, 18 xerophytes, 12 mesoxerophytes, and 4 xeromesophytes (Figure 2).

Areal types of species reflect the relationship between the flora of the studied region and the flora of large areas surrounding this region, leading to the study of species' migration routes from a historical point of view. Based on available literature sources and our personal field research, it was determined that the woody species of the *Rosaceae* family of the mountain-xerophytic and steppe zone of Shahbuz district belong to different areal types and classes, which allows us to determine the migration routes of the species to the area.

Based on zonal and regional principles, the woody species of the family spreading in the studied area were analyzed in 4 types of geographical areas and 15 areal classes [7].

Figure 3. Areal types of woody species belonging to the *Rosaceae* family of the mountain-xerophyte and steppe zone of Shahbuz district flora

As can be seen from the given diagram, the Xerophilic areal type includes 37 species, the Caucasian areal type — 10, the Boreal areal type — 7, and the Desert areal type 2 species (Figure 3).

Thus, as a result of the conducted research, the taxonomic composition of 56 woody species of the mountain-xerophytic and steppe zone of the Shahbuz district flora included in the Rosaceae family was determined and grouped according to their life form, ecological group and areal classes.

The result of the research was considered an important scientific base for studying the flora of the mountain-xerophyte and steppe zone of Shahbuz district flora.

Conclusions

1. As a result of the conducted research, it was determined that the flora of Shahbuz district is characterized by 56 species belonging to 10 genera of woody plants belonging to the *Rosaceae* family of the mountain-xerophyte and steppe zone.

2. When the woody species of the Rosaceae family of the studied area were characterized by genera, it was found that *Rosa* — 21 (37.5%), *Crataegus* — 7 (12.5%), *Pyrus* — 7 (12.5%), *Prunus* — 6 (10.71%), *Sorbus* — 5 (8.92%), *Cotoneaster* — 4 (7.14%), *Rubus* and *Spiraea* — 2 (3.57%), *Malus* and *Pyracantha* — 1 (1.78 %) type is found.

3. The analysis of life forms shows that woody species belonging to the *Rosaceae* family of the mountain-xerophyte and steppe zone of Shahbuz district flora are grouped into 3 subtypes of phanerophytes. It was found that mesophanerophytes are represented — 7 (13%), microphanerophytes — 18 (32%), and nanophanerophytes — 31 (55%) species. According to their ecological groups, mesophytes are represented — 22 (39.28%), xerophytes — 18 (32.14%), mesoxerophytes — 12 (21.41%), xeromesophytes — 4 (7.14%) species.

4. Among the woody plants belonging to *Rosaceae* family of mountain-xerophyte and steppe zone of Shahbuz district flora, Xerophyll areal type — 37, Caucasian areal type — 10, Boreal areal type — 7, and Sahara areal type include 2 species.

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