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Early spring flora of the Nakhchivan state university campus

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Abstract
The article provides information about the taxonomic composition, ecological groups and geographical area classes of the early spring flora of the Nakhchivan State University campus area. The early spring flora of the studied area is represented by 33 species belonging to 25 genera of 12 families. It was determined that Brassicaceae 9 (27.2%%), Asteraceae 8 (24.4%), Boraginaceae 4 (12.1%), Zygophyllaceae, Caryophyllaceae, Ranunculaceae chapters 2 (6.06%), Peganacea, Lamiaceae, Geraniaceae, Colchicaceae, Fumariaceae, Peganacea are monotypes, each of which is represented by 1 species, which makes up the early spring plants of the area (3.03%). Ecological groups and geographical habitat classes of the species spreading in the area were also studied.

Keywords: spring plants, monotype, family, genus, species

Introduction

The study of the rational use, restoration and protection of biological diversity of regions on a scientific basis are considered to be one of the most important issues of scientific and economic importance as a topical issue. Among natural resources, bioresources have a special place, and as a part of it, the plant world is a nationwide resource that provides the basis for human needs. Therefore, national parks, reserves, sanctuaries and specially protected natural areas are being created in places where the world's biodiversity is under threat for its conservation, efficient and sustainable use. In modern times, drastic changes in environmental conditions the constant increase of anthropogenic factors cause the destruction of many species of wild and cultivated plants, and the threat of extinction of others. Complex research work has been carried out in the areas of comprehensive systematic, biomorphological, bioecological, phytocenological, biochemical and plant resources of the flora of Nakhchivan AR. However, the early spring flora of the Nakhchivan State University campus has not been studied in detail on a scientific basis. Also it is known that over time, the results of researches become obsolete, new species emerge, or species migrate to the area from neighboring countries. That's why there is a great need to study them from time to time and to study their emerging features. Therefore, the study of the early spring flora of the territory of the Nakhchivan State University campus is considered relevant.

Material and Methodology of Research

The research was conducted from February to March 31, 2017-2021 on the territory of Nakhchivan State University campus. The studied area consists of 108 hectares. The object of research was the early spring plants of the campus area. Phenological observations were carried out in the studied area on a regular basis to study the natural conditions of the species' habitats. In the definition of species Flora of the USSR [7], A.A., Grossheim's Flora of the Caucasus [3], Flora of Azerbaijan [6], and many other determinants, the specification of the names of the species was made by A. Askerov [1], L.I. Prilipko [5], S.K. Cherepanov [4], T.H. Talibov and A.Sh. Ibrahimov's works [2] were used.

Discussion and Results of The Research

During the research, the early spring flora of the campus area is represented by 33 species belonging to 25 genera of 12 families. The distribution of these species by families and genera is given below.

Table 1: Taxonomic composition of early spring flora of the Nakhchivan State University campus area

	Family	Genus	Species	%
1	***Colchicaceae DC***	1. *Merendera* Romand.	1.*M. trygyna* Straf	3,03%
2	*Ranunculaceae* Adans.	1.*Ceratocephala Moench*	1. *C. testiculata (Granz) Bess.)*	6,06%
			2. *C. incurva* Steven (*C. falcata* auct. Non (L.) Pers	
3	*Caryophyllaceae Juss.*	1. *Holosteum L*	1. *H. glutinosum (Bieb.) Fisch. &C.A.Mey*	6,06%
		1.*Stellaria L.*	*S. media (L.) Vill.*	
4	*Brassicaceae* Burnett.	1. *Capsella* Medik.	1.C. *bursa – pastoris* (L.) Medik.	27,2%
		2. *Sisymbrium* L.	1.S.*altissimum* L.	
			2.S. *septulatum* DC.[*S. bilobu* (C.Koch) Grossh.]	
			3. *S.irio L.*	
			4. *S. orientalis*	
		3.*Strigosella* Boiss. (*Malcolmia* aict. p. p.)	1.S. *africana* (L.) Botsch. [*Malcolmia laxa* (Lam.) DS.]	
		4. *Brassica* L.	1. *B. campestris* L.	

		5. *Erysimum* L.	1. *E. cuspidatum* (Bieb.) DC.	
		6. *Alyssum L.*	1. *A. alyssoides* (L.) L. (*A. calycinum* L.)	
5	*Geraniaceae Adans.*	1. *Erodium* L′ Her	1 E.*cicutarium* (L.) L′.	3,03%
6	*Asteraceae* Dumort.	1. *Senecio* L.	1.*S. vernalis* Waldst.& Kit	24,4%
		2. *Tragopogon* L.	1.T. *Buphthalmoides* (DC.) Boiss.	
			2. T. *graminifolius* DC.	
			3. T. *latifolius* Boiss.	
			4. T. *pusillus* Bieb	
			5. T. *reticulatus Bois.* And Huet	
		3.*Taraxacum* Wigg.	1. *T. offcinale* Wigg.	
		4. *Sonchus* L.	1. *S. arvensis* L.	
7	*Boraginaceae* Adans.	1. Genus: *Nonea* Medik.	1.N. *rosea* (Bieb.) Link	12,1%
		2. Genus: *Asperugo* L.	1. *A. procumbens* L.	
		3. Genus: *Lycopsis* L.	1. *L. orientalis* L.	
		4. *Genus: Buglossoides* Moench	1. *B. arvensis* (L.) Johnst. (*Lithospermum arvense* L).	
8	*Lamiaceae* Lindl.	1. *Lamium* L.	1.L. *amplexicaule* L.	3,03%
9	*Fumariaceae* DC.	1. *Fumaria L.*.	1. *F. schleicheri* Soy. Willem.	3,03%
10	*Zygophyllaceae* R.Br.	1. *Tribulus* L.	1. *T. 1.terrestris* L.	6,06%
		2. *Zygophyllum* L.	1. *Z.fabago* L.	
11	*Peganacea* Tiegh.ex Takth.	1. *Peganum* L.	1. *P. harmala* L.	3,03%
12	*Hyacinthaceae* Batsch.	1. *Genus: Muscari* Mill.	1. *M. armeniacum* Leichtlin ex Baker (*M. szovitsianum* Baker)	3,03%

As seen from the table, *Brassicaceae* 9 (27.2%%), *Asteraceae* 8 (24.4%), *Boraginaceae* 4 (12.1%), *Zygophyllaceae*, *Caryophyllaceae*, *Ranunculaceae* 2 (6.06%), *Peganacea*, *Lamiaceae Geraniaceae*, *Colchicaceae*, *Fumariaceae*, *Peganacea* are monotypes, each of which is represented by 1 species, which makes up the early spring plants of the area (3.03%).

The early spring plants of the campus area have adapted to all the complex conditions of the environment in which they live and feed, and have acquired appropriate characteristics against the complex effects of environmental factors. As environmental factors have a complex effect on organisms, the adaptation of plants to external environmental conditions manifests itself not only in physiological processes, but also in external morphological features. The adaptation of plants to all the complex conditions of the environment is also reflected in the life forms of plants. As with other plants, the early spring plants on campus are divided into three major groups, including xerophytes, mesophytes, and mesoxerophytes. There are a number of difficulties in determining the ecological groups of species spreading in the studied area. Because the species varies from xerophyte to mesoxerophyte, taking into account the soil conditions of the campus (due to the fact that some areas are irrigated).

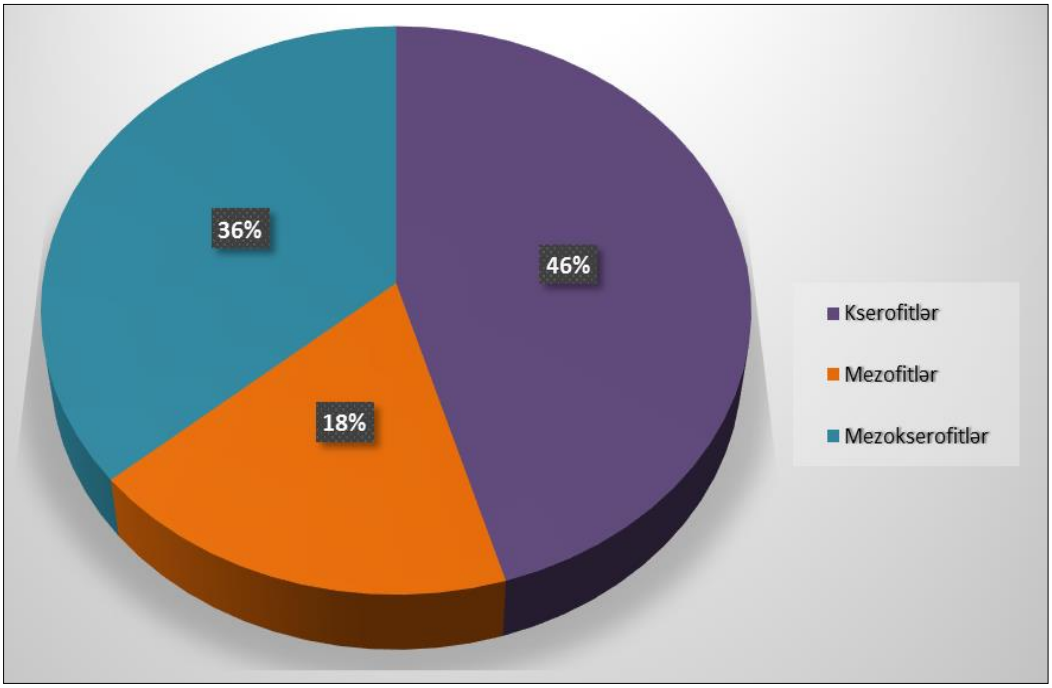

Fig 1: Ecological groups of early spring plants on university campus

Xerophytic species include *Tribulus terrestris*, *Merendera trigyna Zygophyllum fabago*, *Peganum harmala*, *Alyssum alyssoides Ceratocephala testiculata*, etc., mesophytes *Lamium amplexicaule*, *Stellaria media*, *Asperugo procumbens*, etc. Mesoxerophytes include *Erysimum cuspidatum*, *Senecio vernalis*, *Capsella bursa - pastoris*.

Fig 2: *Merendera trigyna*

At present one of the most important issues is the development of botanical-geographical and historical systems of plants, analysis of species spreading and genesis and specification of habitat types of species allow to identify migration routes from a historical point of view.

Studies have shown that the species in the studied area are spreading in the Mediterranean, Europe, Eastern Mediterranean, Central Asia, Asia Minor, Holarctic, Paleoarctic, Central Asia, Caucasus, Western Paleoarctic geographical area classes. *Peganum harmala, Zygophyllum fabago, Tribulus terrestris, Lycopsis orientalis, Erodium cicutarium, Alyssum alyssoides, Sisymbrium altissimum, Holosteum glutinosum*, etc. belong to the Mediterranean areal class, *Senecio vernalis* to the European areal class, *Senecio vernalis* to the Eastern areal class, etc. areal class *Brassica campestris*, Asia Minor areal class *Tragopogon latifolius, Tragopogon buphthalmoides*, Holarctic areal class *Capsella bursa - pastoris*, etc., Paleoarctic areal class *Asperugo procumbens*, etc. *Lamium amplexicaule*, etc. belong to the class of Paleoarctic area.

Undoubtedly, the above mentioned species do not fully reflect the early spring flora of Nakhchivan State University. In future studies, it is considered expedient to study the flora of the studied area in a comprehensive way.

Conclusion

1. As a result of the research, for the first time, early spring plants were studied in the territory of Nakhchivan State University campus. It was determined that the early spring plants of the studied area are represented by 33 species belonging to 25 genera of 12 families.
2. It was determined that *Brassicaceae* 9 (27.2%), *Asteraceae* 8 (24.4%), *Boraginaceae* 4 (12.1%), *Zygophyllaceae, Caryophyllaceae, Ranunculaceae* chapters 2 (6.06%), *Peganacea, Lamiaceae, Geraniaceae, Colchicaceae, Fumariaceae, Peganacea* are represented by 1 species each, which makes up the early spring plants of the area (3.03%).

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