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A FLORISTIC ANALYSIS OF THE SURROUNDINGS OF LAKE AYBASHEVSKOYE OF THE BIRSKY DISTRICT OF THE REPUBLIC OF BASHKORTOSTAN

Research article

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Abstract

The article presents an analysis of the flora of the surroundings of Lake Aybashevskoye of the Birska district of the Republic of Bashkortostan. It is shown that the flora of the lake's surroundings is represented by 76 species from 68 genera and 36 families. The Asteraceae family is the most numerous, the Poaceae family is the second in terms of the number of species, then the Rosaceae and Fabaceae families go by decreasing the number of species, then 4 families, including 3 species each and 23 families with 1 species. Analysis of the flora of the surroundings of Lake Aibashevskoye shows that its composition is characterized by the predominance of hemicryptophytes — 21 species (28%) and cryptophytes — 19 species (25%), there are also hamefites and therophytes, the least represented are phanerophytes. During the analysis of ecological forms in relation to water in the flora, mesophytes — 50 species, hydrophytes — 14 species, arohydatophytes — 5 species, hydrophytes — 7 species were identified.

Keywords: flora, taxonomic analysis, systematic analysis, ecological analysis in relation to water, analysis by life forms.

ФЛОРИСТИЧЕСКИЙ АНАЛИЗ ОКРЕСТНОСТЕЙ ОЗЕРА АЙБАШЕВСКОЕ БИРСКОГО РАЙОНА РЕСПУБЛИКИ БАШКОРТОСТАН

Научная статья

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Аннотация

В статье представлен анализ флоры окрестностей озера Айбашевское Бирского района Республики Башкортостан. Показано, что флора окрестностей озера представлена 76 видами из 68 родов и 36 семейств. Самым многочисленным является семейство Asteraceae, вторым по числу видов является семейство Poaceae, далее по уменьшению числа видов идут семейства Rosaceae и Fabaceae, затем 4 семейства, включающие по 3 вида и 23 семейства с 1 видом. Анализ флоры окрестностей озера Айбашевское показывает, что для его состава характерно преобладание гемикриптофитов — 21 вид (28%) и криптофитов — 19 видов (25%), присутствуют также хамефиты и терофиты, наименее представлены фанерофиты. При проведении анализа экологических форм по отношению к воде во флоре были выделены мезофиты — 50 видов, гидрофиты — 14 видов, аэрогидатофиты — 5 вида, гидатофиты — 7 видов.

Ключевые слова: флора, таксономический анализ, систематический анализ, экологический анализ по отношению к воде, анализ по жизненным формам.

Introduction

The study of the flora of the surroundings of water bodies shows the general ecological condition of this object and its environmental sustainability. There are quite a variety of methods for studying flora that allow for a more accurate assessment of biological resources [1]. The flora of certain regions and the surroundings of reservoirs in Bashkortostan is actively studied [2], [3].

Aybashevskoye Lake is located in the Birska district of the Republic of Bashkortostan near the village of Berezovka. The lake is usually renewed during the spring flood of the Belaya River. There is a drain into the Belaya River, drying up in summer [4]. In recent years, due to the lack of water in the lake, the water level has slightly decreased and this has led to the death of some fish species, and the coastline has become heavily overgrown. Therefore, the purpose of our study was to study and analyze the flora of the surroundings of Lake Aybashevskoye of the Birska district of the Republic of Bashkortostan.

Research methods and principles

Flora is a historically formed set of plant species growing in a certain territory. One of the most important features of each flora is its systematic structure, i.e. the representatives of different systematic groups included in the flora in certain quantitative ratios, usually characteristic of different botanical and geographical areas. Changes in these ratios in space are one of the most important characteristics of flora [5].

We have studied the taxonomic composition of the flora of the surroundings of this reservoir. The determination of plants was carried out according to the determinants [6], [7], [8], [10].

Main results

We have studied the taxonomic composition of the flora of the vicinity of Lake Aybashevskoye of the Birsky district of the Republic of Bashkortostan. The results are shown in Table 1.

Table 1 - Taxonomic composition of flora

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Taxon	Number of taxos, pcs
Family	36
Genus	68
Species	76

The taxonomic composition of the flora of the vicinity of Lake Aybashevskoye revealed by us showed that 76 plant species from 68 genera belonging to 36 families grow on the territory adjacent to it. We have carried out a systematic composition of the flora of the lake's surroundings, which is presented in Table 2.

Table 2 - Systematic composition of flora

DOI: <https://doi.org/10.23649/JAE.2023.32.2.2>

№	Family	Number of species, pcs
1	<i>Asteraceae</i>	14
2	<i>Poaceae</i>	6
3	<i>Rosaceae</i>	5
4	<i>Fabaceae</i>	4
5	<i>Brassicaceae</i>	4
6	<i>Cyperaceae</i>	3
7	<i>Plantaginaceae</i>	3
8	<i>Salicaceae</i>	3
9	<i>Ranunculaceae</i>	3
10	<i>Lamiaceae</i>	2
11	<i>Campanulaceae</i>	2
12	<i>Caryophyllaceae</i>	2
13	<i>Betulaceae</i>	2
14	<i>Nymphaeaceae</i>	1
15	<i>Polygonaceae</i>	1
16	<i>Apiaceae (Umbelliferae)</i>	1
17	<i>Boraginaceae</i>	1
18	<i>Alismataceae</i>	1
19	<i>Urticaceae</i>	1
20	<i>Onagraceae</i>	1
21	<i>Convolvulaceae</i>	1
22	<i>Aristolochiaceae</i>	1
23	<i>Malvaceae</i>	1
24	<i>Hydrocharitaceae</i>	1
25	<i>Scrophulariaceae</i>	1
26	<i>Crassulaceae</i>	1
27	<i>Celastraceae</i>	1
28	<i>Cannabaceae</i>	1
29	<i>Fagaceae</i>	1
30	<i>Boraginaceae</i>	1
31	<i>Chenopodiaceae</i>	1
32	<i>Araceae</i>	1
33	<i>Hypericaceae</i>	1
34	<i>Equisetaceae</i>	1

35	<i>Ulmaceae</i>	1
36	<i>Aceraceae</i>	1
Total species		76

The most numerous family in terms of the number of species (14) is the Asteraceae. The next in number of species are the families *Poaceae* and *Rosaceae* with 6 and 5 plant species in each family, respectively. There are 2 families with 4 species (*Fabaceae* and *Brassicaceae*). The *Cyperaceae*, *Plantaginaceae*, *Salicaceae* and *Ranunculaceae* contain 3 species each. According to 2 species, it includes 4 families: *Lamiaceae*, *Campanulaceae*, *Caryophyllaceae* and *Betulaceae*. By 1 species, they contain 23 families. For example: *Equisetaceae*, *Cannabaceae*, *Lamiaceae*, *Boraginaceae*, *Asteraceae*, *Chenopodiaceae*, *Aristolochiaceae*, *Scrophulariaceae*, etc.

In all phytocenological and floristic studies, special attention is usually paid to the biotypic analysis of species, since the composition of life forms is an important indicator of the habitat of plants and the possibility of comparing different floras by their biotypic spectra gives very valuable information about the ecological specifics of the studied plant aggregates.

We conducted an analysis of life forms according to Raunkier. The results are shown in Table 3.

Table 3 - Life forms of the flora of the vicinity of the lake Aybashevskoe by Raunkier

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Life forms	Number of species, pcs
Hemicryptophytes	21
Cryptophytes	19
Therophytes	14
Hamefits	14
Phanerophytes	8

Analysis of the flora of the surroundings of Lake Aybashevskoye showed that the predominance of hemicryptophytes (perennial herbaceous plants with aboveground shoots dying by winter, whose renewal buds are protected by dead leaves on the soil surface) is characteristic — 21 species, which is 28%, for example: *Achillea millefolium* L. Cryptophytes (perennial herbaceous plants, with buds of renewal on rhizomes, tubers, bulbs located underground (geophytes) or underwater (hydrophytes)) — 19 species (25%), for example: *Plantago major* L., etc. Hamefits of 14 species (18%) are small shrubs, semi—shrubs and herbaceous plants (creeping forms), whose renewal buds are located above the soil surface, for example: *Corylus avellana* L. Another predominant life form is therophytes — 14 species (18%) are annual plants that survive in the form of seeds at an unfavorable time of the year. In the forest zone, this group is mainly represented by weeds, for example: *Melilotus albus* L. Phanerophytes are also present in the flora — 8 species (11%) are perennial plants, buds whose renewals are quite high above the soil level and tolerate an openly unfavorable period, for example: *Acer negúndó* L., *Quercus robur* L., etc.

We analyzed the ecological groups of the flora of the surroundings of the studied lake in relation to the water (Table 4). Based on this analysis, the following groups were identified: hydrophytes, hydrophytes, mesophytes, arohydatophytes.

Table 4 - Ecological groups in relation to the water flora of the vicinity of the lake Aybashevskoe

DOI: <https://doi.org/10.23649/JAE.2023.32.2.4>

Ecological group	Number of species, pcs.
Mesophytes	50
Hydrophytes	14
Hydatophytes	7
Aerohydatophytes	5

In the flora of the vicinity of Lake Aybashevskoye, mesophytes are the predominant group — 66% (50 species) are plants of temperate habitats, for example, *Trifolium repens* L. Hydrophytes are also present in the flora — 14 species (18%) are plants completely submerged in water, only their flowering occurs above water, for example, *Lemna trisulca* L. and others. Aerohydatophytes are the smallest in number — 5 species (7%) — with leaves floating on the surface of the water and stems and roots submerged in water, for example: *Nymphaea alba* L., etc. 7 species of hydatophytes (9%) are aquatic plants that are completely or mostly submerged in water, for example: *Sagittaria sagittifolia* L. and others.

Conclusion

Thus, we have analyzed the flora of the surroundings of Lake Aybashevskoye of the Birsky district of the Republic of Bashkortostan. Taxonomic analysis has shown that this flora is represented by 36 families, 68 genera, which include 76 species. The most numerous is the family *Asteraceae*, which includes 14 species. The second largest number of species is the *Poaceae*, which includes 6 species. Further decreasing the number of species are the families *Rosaceae* and *Fabaceae*, which

include 5 and 4 species, respectively. Then 4 families include 3 species (for example: *Cyperaceae*, *Salicaceae*, etc.). We have registered 23 families with 1 species (for example: *Hydrocharitaceae*, *Araceae*, *Violaceae*, etc.). Analysis of the flora of the surroundings of lake Aybashevskoye shows that its composition is characterized by the predominance of hemicryptophytes — 21 species (28%) and cryptophytes — 19 species (25%), there are also hamefites — 14 species (18%) and therophytes — 14 species (18%), the least represented phanerophytes — 8 species (11%). During the analysis of ecological forms in relation to water in the flora, mesophytes — 50 species, hydrophytes — 14 species, arohydatophytes — 5 species, hydrophytes — 7 species were identified.

Конфликт интересов

Не указан.

Рецензия

Все статьи проходят рецензирование. Но рецензент или автор статьи предпочли не публиковать рецензию к этой статье в открытом доступе. Рецензия может быть предоставлена компетентным органам по запросу.

Conflict of Interest

None declared.

Review

All articles are peer-reviewed. But the reviewer or the author of the article chose not to publish a review of this article in the public domain. The review can be provided to the competent authorities upon request.

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