

Family Apiaceae Lindl In Flora Of Jizzakh Region

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Abstract

The article presents the features of the flora of the Jizzakh region, which contains 1980 wild species of vascular plants from 613 genus and 105 families. It has been established that about 91 species (41 genus) of representatives of the family (Apiaceae Lindl.) Grow on the territory of Jizzakh region. Among the representatives of the Apiaceae families, Prangospabularia, Mediasiamacrophylla, Prangos fedtschenkoi, Heracleum lehmannianum and species of the genus Ferula L. are of particular interest. They grow in different ecological conditions of the region.

Keywords: *flora, fodder, honey plants, life forms, segetal and pasture weeds.*

1. INTRODUCTION

The study of the flora of the territory of the Jizzakh region, was begun with the expeditions of A.P. Fedchenko (1866), P. Kapyu and G. Bonvalo (1881), A. Regel (1882) and V. I. Lipsky (1890), which passed through the valley of the Sanzar river and in the vicinity of the city of Jizzak. Since 1910, a systematic and purposeful study of flora and vegetation began in Central Asia. In the first half of the XX century and in 1950-1970 a number of large botanical expeditions worked on the Turkestan, Malguzar and Nurata ranges and in the Hungry Steppe. The main collectors of herbarium collections made on the territory of the Jizzakh region in the XX century are B.A. Fedchenko, E.P. Korovin, V.P. Drobov, M.G. Popov, I.I. Sprygin, M.V. Kultiasov, B. S. Zakrzhevsky, S. N. Kudryashev, P. A. Gomolitsky, M. M. Sovetkina,

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In recent years, a number of new publications on the flora and vegetation of this region have appeared (Beshko2000, Batoshov et al. 2013). The flora of the Jizzakh region contains 1980 wild species of vascular plants from 613 genus and 105 families.



Figure 1. Different types of mountain cenoses in the Jizzakh region

Trees and shrubs are represented in the flora of Jizzakh region by 155 species, and 104 species are semi-shrubs. Herbaceous plants (1721 species) predominate, of which 1043 are perennials. The most numerous group of useful plants is fodder plants - 558 species, medicinal plants - 446 species. Honey plants are 410 species, 388 species are wild ornamental plants, 154 are essential oil, 123 are dye plants. In the flora of the Jizzakh region, 136 species of food plants have been identified, including wild vegetable, fruit, nut-bearing, spicy-aromatic species (Tojibaev et al. 2018).

At the same time, a significant role in the vegetation cover of the Jizzakh region is played by various ruderal, segetal plants, and pasture weeds (355 species), as well as poisonous or thorny plants not eaten by livestock. In the flora of Jizzakh region, 103 species are poisonous and can cause poisoning of people or farm animals.

Jizzakh region was organized in 1973. This large administrative region is located in the central part of the Republic of Uzbekistan. The area of the region is 21.2 thousand km² (about 5% of the country's territory), of which about 23% is arable land, 2.2% are orchards and vineyards, 36% are pastures, about 7.7% are covered with forest. In the east and north-east, Jizzakh region borders on Syrdarya, in the west with Navoi, in the south with Samarkand region and Tajikistan, in the north with Kazakhstan Republic.



Figure 2. Grazing in the mountains and foothills on different types of pastures

Physically and geographically, the study area is located between the Syrdarya and Zeravshan rivers. It includes the southeastern part of the Kyzylkum Desert, the eastern half of the Aydar-Arnasai system of lakes, the western part of the Hungry steppe, the eastern part of the Nurata Mountains with adjoining outliers and a foothill plain (Farsh desert), the Malguzar ridge and the northern slope of the Turkestan ridge. The Jizzakh region is divided into two sharply different parts - the plain northern and mountainous southern.

The natural boundary between the plain and mountainous parts of the region in the west (at the foot of the Nuratau ridge) runs approximately horizontally 380-400 m above sea level, and in the east (at the foot of the Turkestan ridge) - in the east about 480-500 m above sea level. The absolute height of the terrain varies considerably - from 240 m above sea level near the water line of Aydar - Anasai lakes up to 4029m above sea level on the Turkestan Range (summit of the Shaukartau mountain) (Geographic Atlas of Uzbekistan. 2012).

According to its natural and climatic conditions, the territory of Jizzakh region as a whole belongs to the zone of a sharply continental climate, summers are hot and dry, winters are moderately cold. The vast desert plain of Kyzyl Kum, located in the north and northwest, and the presence of powerful mountain ranges in the south and southeast, have a great influence on the climate of the Jizzakh region. In the plain and foothill areas of the Jizzakh region, the average annual air temperature ranges from 12 to 15 ° C, the average July temperature reaches 27-29 ° C, the average January temperature ranges from -4.4 in the north of the region to 0.1-0°C in foothills (Alibekov et al. 1978, Williams et al. 2008).

2. MATERIALS AND RESEARCH METHODS

The following methods are used during the implementation: Description of vegetation studies, taking into account its floristic composition, according to the Drude method generally accepted in geobotany. Clarification of the area was carried out on the basis of literature data and surveys of distribution within the Jizzakh region. Age-related changes in plants according to Rabotnov's method (1964). The species setting of plants was specified according to Cherepanov (1961) and IdentifierKeys to Plants of Central Asia (vol. I-X, 1968-1993). Herbarium materials from the Institute of Botany and Samarkand State University served as the material for the study. A series of studies (2010-2019) were carried out in the Jizzakh

region. The list of the Apiaceae family is compiled on the basis of existing literature data and materials collected during expeditions.



Figure 3. Different types of foothill and desert cenoses of the Jizzakh region

3. RESULTS AND DISCUSSION

ApiaceaeLindl is one of the most beneficial families of covered seed plants for humans. In this family, there are many food, fodder, spicy aromatic, essential oil, medicinal and other plants used by humans since ancient times. The species of the Apiaceae family contain a variety of physiologically active substances - coumarins, flavanoids, sesquiterpene lactones, triterpene saponins, other terpenoids, alkaloids, and others. Apiaceae is undoubtedly the most important family in terms of the variety of coumarin compounds. Apiaceae are distributed on all continents except Antarctica, but very unevenly. In the most general terms, it can be stated that the greatest diversity of Apiaceae is confined to temperate latitudes and mountain systems. The maximum species and generic diversity of Apiaceae is concentrated in Asia.

Table 1. List of plants of the ApiaceaeLindl. family in the Jizzakh region.

№	Genus	Number ofspecies	%
1	<i>Eryngium L.</i>	3	0,15
2	<i>Anthriscus Pers.</i>	1	0,05
3	<i>SchrenkiaFisch. Et C.A. Mey</i>	3	0,15
4	<i>Schtschurowskia Regel et Schmalh.</i>	1	0,05
5	<i>PrangosLindl</i>	4	0,20
6	<i>Bupleurum L.</i>	1	0,05
7	<i>ElaeostictaFenzl</i>	4	0,20
8	<i>Bunium L.</i>	4	0,20
9	<i>Apium L.</i>	1	0,05
10	<i>Sium L.</i>	1	0,05
11	<i>Berula Koch</i>	1	0,05
12	<i>Seseli L.</i>	7	0,35
13	<i>LibanotisPimenov</i>	1	0,05
14	<i>MediasiaPimenov</i>	1	0,05

15	<i>Conioselinum</i> Hoffm.	1	0,05
16	<i>Angelica</i> L.	3	0,15
17	<i>Ferula</i> L.	19	0,95
18	<i>Semenovia</i> Regel et Herd.	3	0,15
19	<i>Echinophora</i> L.	1	0,05
20	<i>Kozlovia</i> Lipsky	1	0,05
21	<i>Lipskya</i> Nevski	1	0,05
22	<i>Korshinskya</i> Lipsky	1	0,05
23	<i>Aulacospermum</i> Ledeb.	3	0,15
24	<i>Galagania</i> Lipsky	2	0,10
25	<i>Hyalolaena</i> Bunge	2	0,10
26	<i>Oedibasis</i> Koso-Pol	2	0,10
27	<i>Falcaria</i> Farb.	1	0,05
28	<i>Alposelinum</i> Pimenov	1	0,05
29	<i>Heracleum</i> L.	2	0,10
30	<i>Daucus</i> L.	1	0,05
31	<i>Conium</i> L.	1	0,05
32	<i>Carum</i> L.	1	0,05
33	<i>Pimpinella</i> L.	1	0,05
34	<i>Scandix</i> L.	3	0,15
35	<i>Torilis</i> Adans	2	0,10
36	<i>Turgenia</i> Hoffm.	1	0,05
37	<i>Orlaya</i> Hoffm.	1	0,05
38	<i>Coriandrum</i> L.	1	0,05
39	<i>Eremodaucus</i> Bunge	1	0,05
40	<i>Cuminum</i> L.	1	0,05
41	<i>Aphanopleura</i> Boiss	1	0,05
	<i>Total</i>	91	



Figure 4. a)Prangospabularia, b) Psoraleadurpacea

The main life forms of the Apiaceae Lindl family growing on the territory of the Jizzakh region (Table 2).

Table 2
Apiaceae family by life forms in Jizzakh region

Life forms	Number of genus	Number of species	%
Polycarpics	18	36	1,81
Monocarpics	18	40	2,02
Biennials	4	4	0,20
Annuals	8	11	0,55
Total		91	

Analysis of the identified plant species based on their life form made it possible to divide them into the following groups:

#	Species based on their life form
Polycarpics	
1	<i>Eryngium octophyllum</i> Korovin
2	<i>Anthriscus glacialis</i> Lipsky
3	<i>Schrenkianthus Regel & Schmalh</i>
4	<i>Schischkowskianthus Regel & Schmalh</i>
5	<i>Prangos ornata</i> Kuzmina
6	<i>P. pabularia</i> Lindl.
7	<i>Bupleurum falcatum</i> L. (<i>B. exaltatum</i> M. Bieb)
8	<i>Elaeosticta polycarpa</i> (Korovin) Kljuykov, Pimenov & V.N. Tikhom
9	<i>Bunium capusii</i> (Franch) Pimenov & Kljuykov.
10	<i>B. chaerophylloides</i> (Regel & Schmalh) Pimenov & Kljuykov
11	<i>B. intermedia</i> (Korovin) Pimenov & Kljuykov
12	<i>B. persica</i> (Boiss) Pimenov & Kljuykov
13	<i>Apium nodiflorum</i> (L.) Lag.
14	<i>Sium sisaroides</i> DC.
15	<i>Semenovia dasycarpa</i> (Regel & Schmalh) Korovin.
16	<i>S. heterodonta</i> Manden
17	<i>S. pimpinelloides</i> (Nevski) Manden.
18	<i>Berula erecta</i> (Huds) Coville
19	<i>Seselicalycinum</i> (Korovin) Pimenov & Sdobnina
20	<i>S. korovinii</i> Schischk
21	<i>S. lehmannianum</i> Boiss
22	<i>S. mucronatum</i> (Schrenk) Pimenov & Sdobnina
23	<i>S. tenuisectum</i> Regel & Schmalh
24	<i>S. turbinatum</i> Korovin
25	<i>Libanotis schrenkiana</i> C.A. Mey. ex Schischk

26	<i>Mediasiamacrophylla</i> (Regel &Schmalh) Pimenov
27	<i>Conioselinumvaginatum</i> (Spreng) Thell
28	<i>Angelica ternata</i> Regel &Schmalh
29	<i>Ferula angreni</i> Korovin
30	<i>F.dshizakensis</i> Korovin
31	<i>F.fedchenkova</i> Koso-Pol.
32	<i>F.ferganensis</i> Lipsky ex Korovin
33	<i>F. molis</i> Korovin
34	<i>F. moschata</i> (H.Reinsch) Koso-Pol. (<i>F.sumbul</i>)
35	<i>F.ovina</i> (Boiss) Boiss
36	<i>F. penninervis</i> Regel &Schmalh
	Monocarpics
1	<i>Eryngiumcaeruleum</i> M.Bieb
2	<i>E.macrocalyx</i> Schrenk
3	<i>Echinophoratenuifolia</i> (Guss) Tutin
4	<i>Kozloviapaleacea</i> Lipsky
5	<i>Schrenkiagolikeana</i> B.Fedtsch
6	<i>Sch. vaginata</i> (Ledeb) Fisch. &C.A.Mey
7	<i>Lipskya insignis</i> Nenski
8	<i>Korshinskyaolgae</i> Lipsky
9	<i>Aulacospermumroseum</i> Korovin
10	<i>A.simplex</i> Rupr
11	<i>A.tenuisectum</i> Korovin
12	<i>Prangosdidyma</i> (Regel) Pimenov&V.N.Tikhom
13	<i>P.fedtschenkoi</i> (Regel &Schmalh) Korovin
14	<i>Elaeostictaallioides</i> (Regel &Schmalh) Kljuykov, Pimenov&V.N.Tikhom
15	<i>E.hirtula</i> (Regel &Schmalh) Kljuykov, Pimenov&V.N.Tikhom
16	<i>E.vvedenskyi</i> (Kamelin) Kljuykov, Pimenov&V.N.Tikhom
17	<i>Galaganiafragrantissima</i> Lipsky
18	<i>G.tenuisecta</i> (Regel &Schmalh) M.G.Vassiljeva&Pimenov
19	<i>Hyalolaenadepauperata</i> Korovin
20	<i>H.jaxartica</i> Bunge
21	<i>Oedibasisapiculata</i> (Kar. &Kir) Koso-Pol.
22	<i>O.tamerlanii</i> (Lipsky) Korovin ex Nevski
23	<i>Falcaria vulgaris</i> Bernh
24	<i>Seseliseravschanicum</i> Pimenov&Sdobnina
25	<i>Alposelinumalbomarginatum</i> (Schrenk) Pimenov
26	<i>Angelica brevicaulis</i> (Rupr) B.fedtsch.
27	<i>A.archangelica</i> (Ledeb) Kuvaev
28	<i>Ferula diversivittata</i> Regel &Schmalh
29	<i>F.foetida</i> (Bunge) Regel.
30	<i>F.helenae</i> Rakhm. &Melibaev

31	<i>F.kokanica</i> Regel &Schmalh
32	<i>F.kuhistanica</i> Korovin
33	<i>F. lehmannii</i> Boiss
34	<i>F.oopoda</i> (Boiss&Buhse) Boiss
35	<i>F.ovczinnikovii</i> Pimenov
36	<i>F. samarkandica</i> Korovin
37	<i>F. schtschurowskiana</i> Regel &Schmalh
38	<i>F.varia</i> (Schrenk) Trautv
39	<i>Heracleumlehmannianum</i> Bunge
40	<i>H.olgae</i> Regel &Schmalh
	Biennials
1	<i>Daucuscarota</i> L.
2	<i>Conium maculatum</i> L.
3	<i>Carumcarvi</i> L.
4	<i>Pimpinella peregrine</i> L.
	Annuals
1	<i>Scandixnodosa</i> L.
2	<i>S. pecten-veneris</i> L.
3	<i>S.stellata</i> Banks & Sol
4	<i>Torilisarvensis</i> (Huds.) Link.
5	<i>T.leptophylla</i> (L.) Rchb.f.
6	<i>Turgenialatifolia</i> (L.) Hoffm.
7	<i>Orlaya grandiflora</i> (L.) Hoffm.
8	<i>Coriandrumsativum</i> L.
9	<i>Eremodaucuslehmannii</i> Bunge
10	<i>Cuminumsetifolium</i> (Boiss) Koso-Pol
11	<i>Aphanopleuracapillifolia</i> (Regel &Schmalh) Lipsky



Figure 5. a) *Ferula samarkandica*, b) *Ferula foetida*

4. CONCLUSIONS

Thus, research has established that in the Jizzakh region of the family Apiaceae Lindl there are about 91 species of plants (41 genera). Among the representatives of the Apiaceae families, *Prangospabularia*, *Mediasiamacrophylla*, *Prangosfedtschenkoi*, *Heracleumlehmannianum* and species of the genus *Ferula* L. (*F.dshizakensis*, *F.ovina*, *F.penninervis*, *F.foetida*, *F.kuhistanica*, *F.varia*, *F.schtschurowskiana*, *F.samarkandica*, etc.)

5. REFERENCES

- [1] Alibekov L.A., Nishanov S.A. Natural conditions and resources of the Jizzakh region - Tashkent, Uzbekistan, 1978, 254 p.
- [2] Batoshov A.R., Beshko N.Yu. Features of flora and vegetation of the Nuraty outlier ridges // *Aroid ecosystems*, 2013, Vol. 19, No. 3 (56). from. 73-78 p.
- [3] Beshko N.Yu. New information about rare species of flora of the Nurata reserve // *Conservation of biodiversity in specially protected areas of Uzbekistan*. - Tashkent, Chinor ENK, 2000. 17-20 p.
- [4] *Geographic Atlas of Uzbekistan*. - Tashkent, Ed. Goszemgeodezkadastr, 2012, 144p.
- [5] Tojibaev K.Sh., Beshko N.Yu., Esankulov A.S., Batoshov A.R., Azimova D.E. *Flora cadastre of Uzbekistan: Jizzakh region*. Tashkent, 2018, 488 p. (Rus)
- [6] Williams M.W., Konovalov V.G. *Central Asia temperature and precipitation data, 1879-2003*. – USA National Snow and Ice Data Center, 2008.