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Early spring flora of Ganja Goygol region

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Abstract
The studied area is the early spring flora of Ganja Goygol region. The city of Ganja is located in the north-eastern part of the Small Caucasus, in the Ganja-Gazakh plain, on both banks of the Ganja River. The city of Ganja, located at an altitude of 400-450 m above sea level, is located in the western part of Azerbaijan, in the Ganja-Gazakh plain in the Kur-Araz lowland of the north-eastern foothills of the Small Caucasus. The amount of sunshine during the year is 2000-2400 hours. In terms of the average temperature of the coldest month, the harshness of winter is very mild for the area (2.5 - 0 (, C), soft (0; -5 ° C), mild (-5; -10 ° C), mild-cold (-10; - 15 ° C), the possible evaporation in the hot period (April-October) is in the range of 200-1000 mm. Due to the humidity, the region belongs to the semi-humid and arid zone (Md = 0.10-0.20). Annual precipitation is between 250-410 mm. The active temperature in the region, which is part of the hot climate, reaches only 3800-4400 °. The length of the vegetation period is 213-210 days. Dark gray-brown, steppe-meadow and swamp-meadow soils are more common.

Keywords: flora, family, gender, endemic, early spring flora

Introduction

Goygol region is located in the mountainous and foothill zone in the west of the Republic of Azerbaijan, its highest point is 3724 meters above sea level, it has a unique nature, rich flora and fauna. Climate indicators in Goygol region also vary in altitude. In the foothills and low mountains, the climate is temperate-hot with dry winters, cold with dry winters in the middle mountains, and mountain tundra in the highlands. While the average annual temperature is above 10 degrees in the region, it is 0 degrees in some high mountainous areas. The amount of annual precipitation is 50-100% of the possible evaporation. Temperatures above 10 degrees Celsius range from 3,000 to 4,000 degrees. The average annual temperature is 12-14 degrees, January is 1 degree of frost, July is 24-25 degrees, precipitation is 500-900 mm. The rainy season is early spring and autumn, and the dry season is winter. Winters are mostly mild and the snow cover is not very durable.

Material and Methods: Many botanists have been studying the vegetation of the Ganja Goygol region. Data on the vegetation of the Small Caucasus were first published in 1928-1929 by A.A. Grossheim [1936] [6], V.S. Novruzov [2010] [5], Abstract of the flora of Azerbaijan by A.M. Asgarov [2011] [4]. A.A. Grossheim [1948] in his book “Summer pastures of Ganja region” noted that the vegetation of Kapaz region changed according to vertical belts. L.İ. Prilipko [1954, 1971] [7], V.C. Hajiyev [1990], Y.A. Garibov [2012] [2], A.A. Bayramova [2013], V.Ş. Guliyev [1984], S.M. Afandiyeva [1955] and others divided the vegetation of area into the following zones: alpine meadows, subalpine meadows, mountain forests, etc.

A.A. Grossheim [1948] showed that the diversity of modern vegetation on the north-eastern slope of the Small Caucasus is related to vertical belts, and attributed the vegetation of this region to the forest type of southern Europe.

We conducted research in the Ganja Goygol region in February-March 2020 to determine the early spring flora of the studied area in the Goygol, Hajikand, Togana regions. As a result of the research, 50 species of plants belonging to 14 families were registered, which make up the spring flora of the area. In carrying out research work, morphological, systematic, ecological, phenological, etc. methods were used. Features of plants the 8-volume nomenclature "Flora of Azerbaijan" was written based on S.K. Cherepanova [1995].

The analysis of the species distributed in the early spring flora of Ganja Goygol region is given in tabular form.

Table 1

	Distribution of species by families	Life forms	Geographical elements	Ecological groups	Phenological phases	
					Flowering	Fruit seeds
I Family Poaceae L. – Grain fam.						
1	*Poa bulbosa* L.-Onion	perennial	Mediterranean-Sarmatian	xerophyte	III-IV	IV
2	Anisantha *sterilis* (L.) Nevski- Fruitless	perennial	Mediterranean-Turan	xerophyte	III	VI
3	Anisantha rubena(L.) Nevski- Reddish	annual	Mediterranean	xerophyte	III	VI
II Family Liliaceae Juss.- Lily fam.						
4	*Gagea chanae* Grossh.-Khani.Endem.	perennial	Caucasus	xerophyte	II-IV	IV
5	*Gagea taurica* Stev.-Crimea.	perennial	Crimea-Novasibir	xerophyte	III-IV	IV
6	*Gagea alexeenkoana* Miscz.- Alekseenko.	perennial	Caucasus	xerophyte	III-IV	IV
7	*Gagea commutata* C. Koch.- Variable.	perennial	Caucasus	xerophyte	III-IV	IV

8	*Gagea quasitenuifolia* Levichev- Hole leaves.	perennial	Iran-Turan	xerophyte	III-IV	IV
9	*Gagea chlorantha* (Bieb.) Schult.-Green yellow.	perennial	Caucasus	xerophyte	III-IV	IV
10	Tulipa *eichleri* Regel- Eyxler d.Endem	perennial	Caucasus	xerophyte	VI	V
11	*T. schmidtii* Fomin- Shimid d.Endem.	perennial	Caucasus	xerophyte	VI	V
12	Lilium *ledebourii* (Baker) Boiss-.- Ledobori z.	perennial	Caucasus	xerophyte	V	VI-VII
13	Fritillaria *caucasica* Adams- Caucasus.	perennial	Caucasus	xerophyte	V	VI
III.Family İridaceae Juss.- Iris fam.						
14	İris *imbricata* Lindl.- Tile.	perennial	Iran	xerophyte	V-VI	VI
15	*İ.papadoxa* Stev.- Strange. Endem.	perennial	Caucasus	xerophyte	V-VI	VII
IV Family Chenopodiaceae Vent.- Chenopodiaceae fam.						
16	Chenopodium *botrys* L.- Smelling.	annual	Common ancient Mediterranean.	xerophyte	V-VI	VI
V Family Caryophyllaceae Juss. – Carnations fam.						
17	Cerastium *cerastoides* (L.) Britt- Three males.	annual	Holarctic	xerophyte	VI	VII
18	Holosteum *umbellatum* L. -Umbrella.	annual	Common ancient Mediterranean.	xerophyte	IV-V	VI
19	*H. glutinosum* (Bieb.) Fisch.	annual	Caucasus	xerophyte	IV-V	VI
VI Family Papaveraceae Juss. – Poppy fam.						
20	Hypecoum *pendulum* L. –Hanging fruit.	annual	Mediterranean	xerophyte	IV-V	VI
21	Papaver *orientale* L.–East.	annual	Caucasus	xerophyte	V	VI-VII
22	*P.dubium* L. – Suspicious.	annual	Mediterranean	xerophyte	V-VI	VII
23	Fumaria *officinalis* L. – Pharmacy	annual	Mediterranean	xerophyte	III-IV	V
24	*F.schleicheri* Soy. Will. –Shleykher.	annual	Euro-Siberia	xerophyte	IV	VI
VII Family Brassicaceae Burnett (=Cruciferae Juss.) – Cabbage fam.						
25	Thlaspi *arvense* L. –Steppe.	annual	Polyarctic	xerophyte	V-VI	VII
26	Microthlaspi *perfoliatum* L. – Perforated.	annual	Polyarctic	xerophyte	IV-V	VI
27	Crambe *juncea* Bieb. –Twig.	annual	Caucasus	xerophyte	V	VI
28	Rapistrum *rugosum* (L.) Bess. – Wrinkled.	annual	Mediterranean	xerophyte	V	VI-VII
29	Conringia *orientalis* (L.) Dumort. –East.	annual	Mediterranean	xerophyte	V	VI-VI
30	Arabis *brachycarpa* Rupr. – Cabbage.	annual	Mediterranean	xerophyte	V	VI-VI
31	Draba *nemorosa* L. –Forest.	annual	Panboreal	xerophyte	IV-V	VI
32	Alyssum *desertorum* Stapf. –Desert.	annual	Mediterranean	xerophyte	V	VI-VII
33	*A.parviflorum*-Smallfruit.	annual	Iran	xerophyte	IV	VI-V
34	Sterigmostemum *tomentosum*– Keçətürk s.	annual	Euro-Siberia	xerophyte	V	VI
35	Arabidopsis *thaliana* (L.) Heynh- Talya k.	annual	Polyarctic	xerophyte	V-VI	VII
36	Neslia *paniculata* (L.) Desv., Journ. – Broom.	annual	Euro-Siberia	xerophyte	V-VII	VII
37	Lepidium *atifolium* L.-Wide leave.	perennial	Polyarctic	xerophyte	V	VI-VII
VIII Family Fabaceae Lindl.- Legumes fam.						
38	Trigonella *spruneriana* Boiss.*(= T.torulosa* Griseb.)- Bulging.	annual	Pontic	xerophyte	V-VI	VII
39	*T.calliceras* Fisch. - Beautiful horned.	annual	Caucasus	xerophyte	IV-V	VI
40	*T.spicata* Sibth. et Smith – Spike.	annual	Caucasus	xerophyte	V-VII	VIII
41	*T.striata* L.fil.(=*T.tenuis* Fisch. ex Bieb Slim.	annual	Caucasus	xerophyte	IV-VI	VII
42	*T.astroides* Fisch.et C.A. Mey.-Star.	annual	Mediterranean	xerophyte	IV-VI	VII
43	*T.orthoceras* Kar.et Kir.- Straight horn.	annual	Euro-Siberia	xerophyte	IV-VI	VII
IX Family Geraniaceae Juss.- Geraniums fam.						
44	Geranium *columbinum* L.-Dove.	annual	Mediterranean	xerophyte	V-VI	VII
X Family Violaceae Batsch- Violet fam.						
45	Viola *ambigua* Waldst. et Kit.- Suspicious.	perennial	Pontic- Southern Siberia	xerophyte	IV	VI
46	*V. rupestris* F. W. Schmidt- Rock.	perennial	Euro-Siberia	xerophyte	IV-V	VI
XI Family Primulaceae Vent. – Primrose fam.						
47	Primula *ruprechtii* Kusn.– Ruprext n.Endem	perennial	Caucasus	xerophyte	V-VI	VII
48	*P.pallasii* Lehm. – Pallas n.	perennial	Euro-Siberia	xerophyte	IV-V	VI
XII Family Lamiaceae Lindl. (=Labiatae Juss.)– Lamiaceae fam.						
49	Ajuga *orientalis* L.–East.	annual	Mediterranean	xerophyte	IV-VI	VI
50	Lamium *amplexicaule* L. –Body.	annual	Polyarctic	xerophyte	IV-VI	VI
51	*L.purpureum* L.– Purpur d.	annual	Polyarctic	xerophyte	IV-VI	VI
XIII Family Asteraceae Dumort (=Compositae (Vaill.) Adans.) – Asteraceae fam.						
52	Bombycilaena(DC.)Smoljian.- Bombiklayena	annual	Mediterranean	xerophyte	IV-VI	VII
53	Filago *arvensis* L. –Steppe.	annual	Polyarctic	xerophyte	V-VI	VII
54	Anthemis *altissima* L.-High.	annual	Caucasus	xerophyte	VI	VIII
55	*A.candidissima* Willd. ex Spreng.- Bright.	annual	Kolkhid	xerophyte	VI	VIII

The absolute predominance of the area in the early spring flora is the Cabbage (Brassicaceae), Lily (Liliaceae) and Legumes (Fabaceae) families. These three seasons make up about half of the total spring flora (29). Among other families, Papaveraceae and Asteraceae cover 16 species (%) of the remaining 8 genera of common species (10). During the study, it can be concluded from the general analysis of The species that a small part of the early spring flora of Ganja Goygol region is ephemeroids, and most is

ephemeral. This result is confirmed by the analysis of species life forms.

There are 4 endemics of Azerbaijan in the area - Gagea chanae Grossh, Tulipa eichleri Regel, T. schmidtii Fomin, Primula ruprechtii Kusn.

Table 2: Distribution of species by areal types

	Areal types	Number of species	Percentage of species
1	Caucasus	17	30.9
2	Mediterranean	14	25.5
3	Polearctic	7	12.8
4	Euro-Siberia	6	10.9
5	Iran-Turan	3	5.5
6	Common ancient Mediterranean	2	3.6
7	Pontic-South Siberia	2	3.6
8	Panboreal	1	1.8
9	Holarctic	1	1.8
10	Crimea-Novasibir	1	1.8
11	Kolkhid	1	1.8

Conclusion

The analysis of the species by habitat type shows that 30.9% of the area's early spring flora is Caucasian, 22.5% Mediterranean, 12.8% Polearctic, 10.9% Euro-Siberian, 5.5%, Iran-Turan, 3.6% Common Mediterranean, Pontic-Southern, 1.8% Panboreal, Holarctic, Crimean-Novosibirsk, Colchidal species. The study concludes that most of the species belonging to the early spring flora in the area are xerophytic habitat species. Most species are found in areas with low humidity.

According to biomorphs, 37 species of annual grasses predominate, 71%. They are mainly ephemeral plants, which complete their vegetation in a short time. This is due to the short-term favorable conditions. The presence of 29% of 18 species of ephemeroids is due to the spread of onion plants in the area. In general, the study of the early spring flora of the Ganja Goygol region shows that the spring flora is quite widespread in the area. This also plays an important role in the formation of flora.

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