

Taxonomic composition and bioecological features of food plants of flora of the Central Part of Lesser Caucasus (within Azerbaijan)

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Abstract: The article presents the species composition, bioecological features and the possibility of using of food plants in the flora of the Central Part of Lesser Caucasus (CLC) within Azerbaijan. During the taxonomic analysis of the species composition of food plants, 209 species belonging to 157 genera and 59 families were identified. According to the life forms among identified species 95 were perennials and 43 were annual herb plants. Trees are represented by 26 species, shrubs by 24 species, biannual herb plants by 21 species. In relation to moisture, six ecological types were identified. Among them mesophytes predominate with 91 species and xerophytes with 74 species. Mesoxerophytes include 23 species, xeromesophytes 20 species and mesohygrophytes one species. It was found that of the identified food plants, leaves of about 50 species are used both in fresh and cooked form, leaves, roots, rhizomes, bulbs, and fruits of 42 species in fresh, salted and cooked form and 30 species for obtaining of oil.

Keywords: *annual, ecological groups, life forms, mezophytes, perennial, species composition, xerophytes*

INTRODUCTION

Search, study, and familiarization of new species of useful plants in wild flora are one of the main tasks of plant resource science. At present, the use of natural resources, including wild-growing food plants, is becoming increasingly important. This makes it possible to partially satisfy the population's need for fruit, berry, vegetable, spicy aromatic, and other types of wild plants.

Despite a fairly rich set of plant foods in the human

diet, wild food plants have not lost its importance to this day. This is evidenced by studies carried out in various regions of the world to identify new wild-growing food plants [Łuczaj, 2013; Lulekal, 2011].

Many plants used for food are a source of varied natural biologically active substances (BAS) necessary for adaptation to various stressful conditions, as well as for the prevention of many diseases, including cancer.

It is recognized, the Caucasus, as well as Azerbaijan is one of the richest places in the distribution and reserves of wild-growing fruit and berry, nut-fruit, vegetable, dyeing plants containing BAS (flavonoids, carotenoids, anthocyanins, etc.) [Kasumov, 1995-1996; Gasimov et al., 2009; Novruzov, 2010; Mustafayeva, 2015].

Some work on the identification of food plants in the Caucasus and Azerbaijan began in the forties of the twentieth century, which was due to the lack of food during the war and post-war years [Grossheim, 1942, 1946]. Subsequently, the wild flora of Azerbaijan was investigated to study the chemical composition, stock, distribution of many medicinal plants and to identify their area of use, but little attention was paid to the food flora. Only at the end of the XX century, at the beginning of the XXI century, studies were carried out to identify food plants. Some works are devoted to the identification of vegetable food plants in the Nakhchivan Autonomous Republic of Azerbaijan [Gasimov et al., 2009; Ibrahimov, 2001] and Ganja-Gazakh zone of the republic [Asilbekova, 2006]. In these works, the taxonomic spectrum, bioecological features of vegetable plants were established and work was carried out on the introduction of some species growing in the indicated zones of the republic.

High natural fertility, favorable climatic conditions (an abundance of heat and light), the duration of the growing season of plants in the CLC determine the quantitative and qualitative composition of the wild flora. Thus, out of 4500 species of plants growing in the wild flora of Azerbaijan, more than 2336 species grow in CLC. There are many useful plant species (medicinal, essential oil, dyeing, food and others) among them [Ismailov, 1976; Mehdieva, 2008]. Among

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the useful plants growing on CLC, a special place is occupied by wild food plants, which still remain unexplored. The purpose of this work is to identify the species composition, bioecological features, as well as the possibilities of using food plants of the CLC.

MATERIAL AND METHODS

For compiling a list of wild food plants of the CLC, the materials of available published works on wild food plants [Grossheim, 1942, 1946; Kosheev, 1981; Ibrahimov, 2001; Asilbekova, 2006; Gasimov, 2009; Tikhmenev, Chastukhina, 2011] were used. The names of species are given according to the "Flora of Azerbaijan" [1961], The Plant List [http://www.theplantlist.org/], Web Flora Online [http://www.worldfloraonline.org/]. Life forms of plants were defined and ecological groups of plants in relation to moisture were identified according to I.G. Serebyakov [1962] and T.G. Goryshina [1979].

RESULTS AND DISCUSSION

As a result of processing data on food plants, it was shown that 209 plant species belonging to 157 genera and 59 families are distributed on the CLC. The list of identified species, genera, and families is given below.

POLYPODIACEAE J. Presl. & C. Presl. (R.Br.)

Pteridium L.

P. tauricum V.I. Krecz.

TAXACEAE Gray (Lindl.)

Taxus L.

T. baccata L.;

JUNCAGINACEA Rich.

Triglochin L.

T. maritime L.;

ALISMACEAE Vent. (D.C.)

Alisma L.

A. plantago-aquatica L.;

POACEAE Barnhart (Juss.)

Pennisetum Rich.

P. orientale Rich.

Milium L.

M. effusum L.

Diplachne P.B.

D. serotina L.(Link) syn. of *Cleistogenes serotina*

(L.) Keng

Glyceria R. Br.

G. plicata Fr. (Fr.) syn. of *G. notata* Chevall.

Agropyrum Gaertn

A. repens L.

Aegilops L.

A. squarrosa L. syn. of *A. triuncialis* L.

Hordeum L.

H. bulbosum L.

Dactylis L.

D. glomerata L.;

CYPERACEAE Juss. (J. St. Hill.)

Cyperus L.

C. rotundus L.

Bolboschoenus (Asch.) Palla

B. maritimus (L.) Palla;

ARACEAE Juss. (Neck.)

Arum L.

A. elongatum Stev.;

LILIACEAE Juss. (Hall.)

Hemerocallis L.

H. fulva L. (L.)

Allium L.

A. atroviolaceum Boiss., *A. jajlae* Vved., *A.*

pseudoflavum Vved., *A. rubellum* M.B., *A. rotundum*

L., *A. paradoxum* (M.B.) G. Don.

Ornithogalum L.

O. pyrenaicum L., *O. platyphyllum* Boiss.;

ASPARAGACEAE Juss.

Puschkinia Adams

P. scilloides Adams.

Asparagus L.

A. verticillatus L., *A. officinalis* L.

Polygonatum Adams

P. glaberrimum K. Koch.;

DIOSCOREACEAE R.Br. (Lindl)

Dioscorea L.

Tamus communis L. syn. of *Dioscorea communis*

(L.) Caddick & Wilkin;

IRIDACEAE Juss. (Lindl.)

Crocus L.

C. speciosus M. Bieb.

Gladiolus L.

G. segetum Ker Gawl. syn. of *G. italicus* Mill.;

ORCHIDACEAE Juss. (Lindl.)

Orchis L.

O. schelkownikowii Woron. syn. of *O. punctulata*

Steven ex Lindl., *O. caspia* Trautv. syn. of

Anacamptis papilionacea (L.) R.M. Bateman,

Pridgeon & M.W. Chase, *O. iberica* M.B. ex Wild.

syn. of *Dactylorhiza iberica* (M.Bieb. ex Willd.),

O. palustris Jacq. syn. of *Anacamptis palustris*

(Jacq.) R.M. Bateman, Pridgeon and M.W. Chase,

O. amblyoloba Nevski., *O. purpurea* Huds.

Anacamptis (L.) C. Rich.

A. pyramidalis (L.) Rich.

- Gumnadaenia** R.Br.
G. conopsea (L.) R.Br.
- Platanthera** C. Rich.
P. chloranta (Custer) Rehb.
- Listera** R.Br.
L. ovata (L.) R.Br. syn. of *Neottia ovata* (L.) Bluff and Fingerh.;
- XANTHORRHOACEAE Dum.
- Eremurus** M.B.
E. spectabilis M.B.;
- SALICACEAE Mirb. (Lindl.)
- Populus** L.
P. hybrida M.B.;
- JUGLANDACEAE DC. ex Perleb (Lindl.)
- Juglans** L.
J. regia L.;
- BETULACEAE Gray
- Corylus** L.
C. avellana L.
- Betula** L.
B. raddeana Trautv.;
- FABACEAE Juss. (A.Br.)
- Quercus** L.
Q. iberica Steven ex M.B.;
- ULMACEAE Mirb.
- Celtis** L.
Celtis caucasica Willd. syn. of *Celtis australis* subsp. *caucasica* (Willd.) C.C. Towns.;
- MORACEAE Lindl.
- Morus** L.
M. nigra L., *M. alba* L.
- Ficus** L.
F. carica L.;
- POLYGONACEAE Juss. (Lindl.)
- Oxyria** Hill.
O. elatior R.Br. ex Meissn. syn. of *O. digyna* (L.) Hill
- Rumex** L.
R. scutatus L., *R. acetosella* L., *R. acetosa* L.
- Polygonum** L.
P. heterophyllum L., *P. aviculare* L., *P. alpinum* All.
- Persicaria** Mill.
Polygonum hydropiper L. syn. of *Persicaria hydropiper* (L.) Delarbre;
- AMARANTHACEAE Juss.
- Chenopodium** L.
C. album L., *C. foliosum* Asch.
- Amaranthus** L.
A. blitum Rehb. ex Steud.;
- CARYOPHYLLACEAE Juss.
- Stellaria** L.
S. media (L.) Vill.
- Silene** L.
S. italica (L.) Pers., *S. wallichiana* Klotzsch.
- Gypsophylla** L.
G. bicolor (Freyn. And Sint.) Grossh., *G. paniculata* L.;
- RANUNCULACEAE Juss.
- Caltha** L.
C. palustris L., *C. polypetala* Hochst. syn. of *C. palustris* L.
- Nigella** L.
N. sativa L.
- Ranunculus** L.
R. repens L.;
- BERBERIDAERAE Torr. et Gray
- Berberis** L.
B. vulgaris L.;
- PAPAVERACEAE Juss.
- Glaucium** Adans.
G. corniculatum (L.) Curt.
- Papaver** L.
P. orientale L.;
- CRUCIFERAE Juss.
- Lepidium** L.
L. draba L., *L. campestre* (L.) R.Br.
- Capsella** Modik.
C. bursa-pastoris (L.) Medik.;
- BRASSICACEAE Burnett
- Sisymbrium** L.
S. irio L.
- Thlapsi** L.
T. arvense L.
- Alliaria** Heist. ex Fabr.
A. officinalis Andr. ex. M.B.
- Arabidopsis** Heynh. in Holl & Heynh.
A. thaliana (L.) Heynh.
- Descurainia** Webb. et Berth.
D. sophia (L.) Webb ex Prantl
- Brassica** L.
B. juncea (L.) Czern., *B. nigra* (L.) K. Koch.
- Bunias** L.
B. officinalis L.;
- Barbarea** R.Br.
B. arcuata Rehb. syn. of *B. vulgaris* R.Br.
- Nasturtium** R.Br.
N. officinalis (L.) R.Br.;
- SCHLEGELIACEAE Reveal
- Synapsis** L.
S. arvensis L.;

CAPPARACEAE Lindl.

Capparis L.*C. spinosa* L.;

CRASSULACEAE D.C.

Sempervivum L.*S. globiferum* L., *S. caucasica* Rupr. ex Boiss., *S. pumilum* M.B.**Sedum** L.*S. caasicum* (A. Gross.) Boriss. syn. of *S. maximum* subsp. *ruprechtii* (Jalas) Soo;

GROSSULARIACEAE DC.

Ribes L.*R. biebersteinii* Berl. ex DC. syn. of *R. petraeum* Wulfen, *R. orientale* Desf.;

ROSACEAE Juss.

Cotoneaster Medik.*C. melanocarus* G. Lodd., *C. racemiflorus* (Desf.) K. Koch.**Pyrus** L.*P. salicifolia* Pall., *P. caucasica* Fed.**Malus** L.*M. orientalis* (Uglitzk.) Juz.**Sorbus** L.*S. torminalis* (L.) Crantz.**Pyrocantha** Roem.*P. coccinea* M. Roem.**Mespilus** L.*M. germanica* L.**Crataegus** L.*C. orientalis* Pall. ex M. Bieb., *C. kyrtostyla* Fingerh.**Rubus** L.*R. caesius* L., *R. sanguineus* Friv. syn. of *R. sanctus* Schreb.**Fragaria** L.*F. vesca* L.**Geum** L.*G. rivale* L., *G. urbanum* L.**Filipendula** Adans.*F. hexapetala* Gilib.**Sanguisorba** L.*S. officinalis* L.**Poterium** L.*P. polygamum* W. et K.**Rosa** L.*R. canina* L., *R. spinosissima* L., *R. corymbifera* Bork.**Prunus** Mill.*P. divaricata* Lebed. syn. of *P. cerasifera* Ehrh., *P. spinosa* L.*A. fenzliana* (Fritsch) Lipsky. syn. of *Prunus**fenzliana* (Fritsch) Lipsky**Potentilla** L.*P. anserina* Jeps.;

LEGUMINOSAE Juss.

Melilotus Adans.*M. officinalis* (L.) Lam.**Trifolium** L.*T. pratense* L.**Lotus** L.*L. caasicus* Kupr. syn. of *L. corniculatus***Glycyrrhiza** L.*G. glabra* L.**Latinyrus** L.*L. cicera* L.;**Dictamnus** L.*D. caasicus* (Fisch.) Grossh. syn. of *D. albus* L.;

EUPHORBIACEAE Juss. (J.St. Hib)

Chrizophora Neck.*C. hierosolymitana* Spreng. syn. of *C. tinctoria* (L.)

A. Juss.;

ANACARDIACEAE R.Br. (Lindl.)

Rhus L.*R. coriaria* L.;

SAPINDACEAE Juss.

Acer L.*A. trautvetteri* Medw. syn. of *A. heldreichii* subsp.*trautvetteri* (Medw.);

RHAMNACEAE Juss. R.Br.

Frangula Mill.*F. alnus* Mill.**Rhamnus** L.*R. pallasii* F. Et C.A. Mey.;

VITACEAE Lindl.

Vitis L.*V. silvestris* Roth;

TILIACEAE Juss.

Tilia L.*T. caucasica* Rupr.;

MALVACEAE Juss.

Malva L.*M. silvestris* L., *M. mauritana* L.;

DATISCEAE Lindl.

Datisca L.*D. cannabina* L.;

ELAEGNACEAE Lindl.

Hippophae L.*H. rhamnoides* L.,**Elaeagnus** L.*E. angustifolia* L.;

LYTHRACEAE J.St.-Hil.

Punica L.

- P. granatum* L.;
ONAGRACEAE Lindl.
Epilobium L.
E. montanum L.
Chamaenerum Adans.
C. angustifolium L.;
APIACEAE Lindl.
Chaerophyllum L.
C. caucasicum (Fisch.) chischk
Anthriscus (Pers.) Hoffm.
A. nemorosa (M.B.) Spreng.
Scandix L.
S. pecten-veneris L.
Turgenia Hoffm.
T. latifolia (L.) Hoffm.
Coriandrum L.
C. sativum L.
Bifora Hoffm.
B. radians M.B.
Smyrniium L.
S. perfoliatum L.
Falcaria Bernh.
F. sioides Asch. syn. of *F. vulgaris* Bernh
Caucalis L.
C. lappula Grande syn. *C. platycarpus* L.
Carum L.
C. carvi L.
Libanotis L.
L. montana Crantz syn. *Seseli libanotis* (L.) W.D.J.
Koch.
Foelniculum Mill.
F. vulgare Mill.
Laser Borkh.
L. trilobum (L.) Borkh.
Peucedanum L.
P. ruthenicum M. Bieb.
Daucus L.
D. carota L.;
CORNACEAE Link.
Cornus L.
C. mas L.;
ERICACEAE Juss. (D.C.)
Vaccinium L.
V. myrtillus L.;
PRIMULACEAE Batsch ex Borkh. (Vent.)
Primula L.
P. macrocalyx Bunge.;
OLEACEAE Hoffmanns. & Link. (Lindl.)
Fraxinus L.
F. excelsior L.
Ligustrum L.
L. vulgare L.;
BORAGINACEAE Juss. (G. Don.)
Asperugo L.
A. procumbens L.
Anchusa L.
A. italica Retz.;
VERBENACEAE J.St. - Hil. (G. Don.)
Verbena L.
V. officinalis L.;
LABITAE Juss. (Lamiaceae Martinov.)
Teucrium L.
T. scordium L. subsp. *scardioides* Schreb.
Sideritis L.
S. montana L.
Prunella L.
P. vulgaris L.
Phlomis L.
P. tuberosa (L.) Moench
Lamium L.
L. maculatum (L.) L.
Leonorus L.
L. cardiaca L.
Stachys L.
S. annua (L.) L., *S. palustris* L
Melissa L.
M. officinalis subsp. *inodora* Bornm
Satureja L.
S. laxiflora K.Koch.
Clinapodium L.
C. vulgare L.
Hyssopus L.
H. angustifolus M.B. syn. of *H. officinalis* L.
Origanum L.
O. vulgare L.
Mentha L.
M. longifolia (L.) L., *M. aquatica* L., *M. rotundifolia*
(L.) Huds., *M. pulegium* L.;
PLANTAGINACEAE Juss.
Veronica L.
V. beccabunga L.
Plantago L.
P. major L.;
HYPERICACEAE Juss.
Hypericum L.
H. perforatum L.;
SOLANACEAE Juss. (Pers.)
Solanum L.
S. nigrum L. syn. of *S. americanum* Mill.
Physalis L.
P. alkekengi L.;
ADOXACEAE E.Mey.

Sambucus L.*S. ebulus* L., *S. nigra* L.;

CAPRIFOLIACEAE Juss. (Vent.)

Lonicera L.*L. caucasica* Pall.**Cephalaria** Schrad.*C. syriaca* (L.) Schrad.;

CAMPANULACEAE Juss.

Campanula L.*C. latifolia* L., *C. lactiflora* M.B.

COMPOSITAE (Vail.) Adans.

Eupatorium L.*E. cannabinum* L.**Inula** L.*I. helenium* L.**Bidens** L.*B. tripartita* L.**Chondrilla** L.*C. juncea* L.**Sonchus** L.*S. asper* Hill.**Lactana** L.*L. serriola* L.**Achillea** L.*A. millefolium* L.**Arctium** L.*A. lappa* L., *A. transcausicum* D. Cosn.**Carduus** L.*C. toermeriv* Weinm.**Onopordum** L.*O. acanthium* L.**Centaurea** L.*C. cyanus* L.**Carthamus** L.*C. lanata* M.B.**Cichorium** L.*C. intubus* L.**Lapsana** L.*L. communis* L., *L. grandiflora* M.B.**Leontodon** L.*L. hispidus* L.**Picris** L.*P. hieracioides* Sibth. & Sm.**Myselis** Cass.*M. muralis* (L.) Dumort syn. of a synonym of *Lactuca muralis* (L.) Gaertn.**Artemisia** L.*A. absinthium* L.**Taraxacum** L.*T. officinale* Wigg., *T. grossheimik* Schischk., *T.**pratcola* Schischk.

The presented taxonomic spectrum shows that the main species of wild food plants are concentrated in the following families: Compositae (19 genera, 21 species), Rosaceae (14 genera, 25 species), and Labiateae (13 genera, 17 species). The next place is occupied by the families Apiaceae (13 genera, 15 species), Poaceae (8 genera, 8 species), Brassicaceae (7 genera, 8 species), Leguminoceae (6 genus, 6 species), Orchidaceae (4 genera, 9 species), Polygonaceae (4 genera, 8 species), Liliaceae (3 genera, 9 species). The families Caprifoliaceae, Betulaceae, Cyperaceae, Onagraceae, Rhamnaceae, Elaeagnaceae, Papaveraceae, Iridaceae, Oleaceae, Boraginaceae and Caprifoliaceae are represented by 2 genera and 2 species, Moraceae (2 genera, 3 species), Ranunculaceae (4 genera, 4 species). Families Polypodiaceae, Juncaginaceae, Dioscoreaceae, Xanthorrhoeaceae, Salicaceae, Juglandaceae, Fabaceae, Ulmaceae, Berberidaerae, Schlegeliaceae, Capparaceae, Anacardiaceae, Euphorbiaceae, Sapindaceae, Vitaceae, Taseanaceae, Taxaceae, Araceae are represented by one genus.

The species composition of food plants is defined for the genus *Allium* (6 species), *Mentha* (4 species), *Rosa*, *Taraxacum*, *Prunus*, *Polygonum*, *Rumex*, *Sempervivum* (3 species each). *Ornithogallum*, *Asparagus*, *Morus*, *Chenopodium*, *Silene*, *Cypsophylla*, *Caltha*, *Brassica*, *Lepidium*, *Ribes*, *Cotenoastr*, *Pyrus*, *Crataegus*, *Rubus*, *Geum*, *Malva*, *Stachys*, *Sambucus* *Campanula*, *Arctium*, *Lapsana* consist of two species of each genera. The rest of the genera is represented by one species.

All life forms are represented among food plants. Among the identified food plants, perennial grasses predominate with 95 species (46%), annual grasses with 43 species (20.5%), followed by woody 26 species (12.4%), shrubs 24 species (11.5%), the smallest number of species is concentrated in group of biennial grasses of 21 species (10%).

As a result of processing data on food plants in relation to moisture, six ecological types were identified. Among them, mesophytes predominate with 91 species (43.46%) and xerophytes with 74 species (35.46%), and mesoxerophytes with 23 species (11.0 %). Mesohygrophyte groups are represented by only one species.

As is known, many cultivated food plants use both aboveground and underground parts or individual organs for food. We have grouped wild food plants according to plant organs that are used for food purposes. It

was found that among the identified food plants, the dominant species are those in which the leaves are used both fresh and boiled (49 species): *Eremurus spectabilis*, *Allium rotundum*, *Oxyria elatior*, *Rumex acetosa*, *Lepidium draba*, *Sinapsis arvensis*, etc., in 42 species, along with leaves, are simultaneously used underground parts - roots, rhizomes, bulbs and tubers. Of the herbaceous food plants identified, 28 species use aboveground parts and 7 species use underground parts along with aboveground ones. The seeds of many food plants are raw materials for obtaining fatty oil (31 species). Young shoots and roots, leaves-tubers, rhizomes, fruits, flowers-tubers, leaves-bulbs, etc. of more than 50 species are simultaneously used. Among the identified food plants related to trees, shrubs and some herbaceous plants, there are many species in which fruits and berries (61 species) are used.

CONCLUSION

As a result of the research, a rich species diversity of wild-growing food plants in the flora of the CLC of Azerbaijan was established. It is represented by 209 species belonging to 157 genera and 59 families. The information provided by the article analyzes served as a basis for the formation of a national database on food plants. To this end, descriptor sheets containing information for 14 parameters for each kind were prepared. Electronic databases allows to analyze, process and maintain data on the wild flora of Azerbaijan. Global access will be provided to electronic database.

REFERENCES

- Asilbekova T.M. (2006) Bioecological features, introduction, and prospects for the use of some wild vegetable plants common in Ganja-Gazakh zone. Abstract of the thesis. Ganja, 22 p. [Асилбекова Т.М. (2006) Биоэкологические особенности, интродукция и перспективы использования некоторых дикорастущих овощных растений, распространенных в Гянджа-Казахской зоне. Автореферат диссертации. Гянджа, 22 с.]
- Flora of Azerbaijan. Baku: Publishing house of the Academy of Sciences of Azerbaijan SSR, 1952-1961, Vol. 1-8. [Флора Азербайджана. Баку: Издательство АН Азербайджанской ССР, 1952-1961, Вып. 1-8.]
- Gasimov G.Z., Kuliev V.B., Ibadullaeva S.D. (2009) Wild food plants in the Nakhichevan Autonomous Republic of Azerbaijan on the basis of ethnobotanical research. *Plant resources.*, 45(2): 110-116. [Гасымов Г.З., Кулиев В.Б., Ибадуллаева С.Д. (2009) Дикорастущие пищевые растения в Нахичеванской Автономной Республике Азербайджана по материалам этноботанических исследований. *Растительные ресурсы*, Изд. Наука, 45(2): 110-116]
- Goryshina T.K. (1979) Plant ecology. M.: Higher school, 368 p. [Горышина Т.К. (1979) Экология растений. М.: Высшая школа, 368 с.]
- Grossheim A.A. (1942) Wild food plants of the Caucasus. Baku: AzFAN Publishing House, 1942, 72 p. [Гроссгейм А.А. (1942) Дикорастущие растения Кавказа. Баку: Издательство АзФАН, 1942, 72 с.]
- Grossheim A.A. (1946) Plant resources of the Caucasus. Baku, 611 p. [Гроссгейм А.А. (1946) Растительные ресурсы Кавказа. Баку, 611 с.]
- Gubanov I.A., Krylova I.L., Tikhonova V.L. (1976) Wild-growing useful plants of the USSR. Resp. ed. T.A. Rabortnov. Moscow: Mysl, 360 p. [Губанов И.А., Крылова И.Л., Тихонова В.Л. (1976) Дикорастущие полезные растения СССР. Москва: Мысль, 360 с.]
- Ibrahimov A.Sh. (2001) Wild food plants of Nakhchivan AR. *Proceedings of Nakhchivan Regional Science Center*, 68-70. [İbrahimov A.Ş. (2001) Naxçıvan MR-nin yabanı yem bitkiləri. *Naxçıvan Regional Elm Mərkəzinin Sənədləri*, 68-70]
- Ismailov N.M. (1976) Alkaloid plants of Azerbaijan. Baku, 199 p. [Исмаилов Н.М. (1976) Алкалоидоносные растений Азербайджана. Баку, 199 с.]
- Kasumov M.A. (1995-1996) Floristic analysis of dye plants in Azerbaijan. *Reports of the Azerbaijan Academy of Sciences*, 51-52: 23-26. [Касумов М.А. (1995-1996) Флористический анализ красильных растений Азербайджана. *Доклады АН Азербайджана*, 51-52: 23-26.]
- Kosheev A.K. (1981) Wild-growing edible plants in our diet. M.: Food industry, 256 p. [Кощеев А.К. Дикорастущие съедобные растения в нашем питании. М.: Пищевая промышленность, 256 с.]
- Łuczaj Ł., Köhler P., Pirożnikow E., Graniszewska M., Pieroni A., Gervasi T. (2013) Wild food plants of Belarus: from Rostafiński's questionnaire of 1883 to the present. *J Ethnobiol Ethnomed.*, 9: p. 21
- Lulekal E., Asfaw Z., Kelbessa E., Van Damme P. (2011) Wild food plants in Ethiopia: a review on

- their potential to combat food insecurity. *Afr Focus*. 24, p. 71–121.
- Mehdieva N.P. (2008) Comparative analysis of the medicinal flora of the Lesser Caucasus (within Azerbaijan). *Reports of the Azerbaijan Academy of Sciences*, 94: 63-70. [Мехтиева Н.П. (2008) Сравнительный анализ лекарственной флоры Малого Кавказа (в пределах Азербайджана). *Доклады АН Азербайджана*, 94: 63-70.]
- Mustafaeva L.A. (2015) Bioecological, phytochemical features of wild fruit and berry plants of the Greater Caucasus (within Azerbaijan) and their scientifically grounded use. Abstract of the thesis. Baku, 50 p. [Мустафаева Л.А. (2015) Биоэкологические, фитохимические особенности дикорастущих плодово-ягодных растений большого кавказа (в пределах Азербайджана) и их научно-обоснованное использование. Автореферат дисс. на соискание ученой степени доктора биологических наук. Баку, 50 с.]
- Novruzov E.N. (2010) Pigments of plant reproductive organs and their significance. Baku: Elm, 310 p. [Новрузов Э.Н. (2010) Пигменты репродуктивных органов растений и их значение. Баку: «Элм», 310 с.]
- Serebryakov I.G. (1962) Ecological morphology of plants. Life forms of angiosperms and conifers. M.: Higher school, 378 p. [Серебряков И.Г. (1962) Экологическая морфология растений. Жизненные формы покрытосеменных и хвойных. М.: Высшая школа, 378 с.]
- Tikhmenev E.A., Chastukhina S.A. (2011) Food and medicinal plants of the flora of the Magadan region. Magadan, 104 p. [Тихменев Е.А., Частухина С.А. Пищевые и лекарственные растения флоры Магаданской области. Магадан, 104 с.]
- The plant list. Available at <http://www.theplantlist.org>
- World Flora Online (2020) WFO. Available at <http://www.worldfloraonline.org>

Mərkəzi Kiçik Qafqaz (Azərbaycan hüdudlarında) florasının qida bitkilərinin taksonomik tərkibi və bioekoloji xüsusiyyətləri

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Məqalədə mərkəzi Kiçik Qafqazda (Azərbaycan hüdudlarında) florasının qida bitkilərinin taksonomik tərkibi, bioekoloji xüsusiyyətləri, yeyintidə istifadəsi haqqında məlumat verilir. Aparılmış taksonomik analiz nəticəsində ərazidə 59 fəsilə, 157 cinsə aid 209 növ qida bitkisi aşkar edilmişdir. Müəyyən edilmiş növlər arasında həyati formalarına görə çoxillik bitkilər 95 növ, birillik ot bitkiləri isə 43 növ ilə üstünlük təşkil edir. Ağaclar 26 növ, kol bitkiləri 24 növ, ikiillik ot bitkiləri isə 21 növlə təmsil olunur. Rütubətə münasibətinə görə altı ekoloji tip müəyyən edilib. Onlar arasında mezofitlər 91 növ, kserofitlər 74 növ ilə üstünlük təşkil edir. Mezokserofitlər tipinə 23, kseromezofitlər 20, mezohiqrofitlərə isə bir növ aiddir. Müəyyən edilmiş qida bitkilərindən təxminən 50 növün yarpağı təzə və bişirilmiş halda, 42 növün yarpağı, kökü, kökümsovnu, soğanağı və meyvəsindən çiy, duza qoyulmuş, bişirilmiş halda istifadə olunur, 30 növdən isə yağ alınır.

Açar sözlər: *ekoloji qruplar, qida bitkiləri, Kiçik Qafqaz, həyati formalar, növ tərkibi*

Таксономический состав и биоэкологические особенности пищевых растений флоры центрального Малого Кавказа (в пределах Азербайджана)

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В статье приводится видовой состав, биоэкологические особенности и возможность использования пищевых растений флоры центрального Малого Кавказа Азербайджана. В ходе выполнения таксономического анализа видового состава пищевых растений было выявлено 209 видов, объединенных в 157 родах, относящихся к 59 семействам. Среди выявленных пищевых растений преобладают многолетние травы (95 видов), однолетние травы (46 видов), за ними следуют кустарники (24 видов), деревья (26 видов), а наименьшее число видов представлено в группе двулетние травы (21 видов). По отношению к влаге выявлено 6 экологических ти-

пов, среди них преобладают мезофиты (91 видов) и ксерофиты (74 видов), затем следуют мезоксерофиты (23 видов), ксеромезофиты (20 видов), мезоигрофиты (1 вид). Установлено, что из выявленных пищевых растений у около 50 видов используются листья, как в свежем, так жареном виде, у 42 видов

листья, корни, корневище, луковицы и плоды употребляются в свежем, маринованом и жареном виде, а из 30 видов получают масло.

Ключевые слова: экологические группы, пищевые растения, Малый Кавказ, жизненные формы, видовой состав