FLORA OF SEMIDESERT AND DESERT AREA OF WESTERN-KAZAKHSTAN REGION

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Vegetative surface of Western Kazakhstan is defined by a great diversity. It is related to variety of the very conditions of plants' existence, multiplicity of soil-climate areas and sub-areas. On the whole, vegetation of the research area can be referred to two zone types: in the North – to desert-steppe (semidesert) type, and in the South – to desert type.

Absinthial associations mostly dominate in vegetative surface of semidesert. White Artemisia is widely spread and possesses many feeding qualities, especially in combination with bluegrass, summer cypress, and wheat grass [4]. At the same time, Selina, Agriophyllum, blady grass usually grow at the surface of quicksand, and sand Artemisia, Siberian bluegrass, red Artemisia, feather grass, tarsa, calligonum, etc. grow at more fixated surfaces. In kettles among sands, where ground waters are located close to surface, insignificant tangles of trees and bushes can be found, especially Tamarisk. There are usually no trees in low areas between ridge sands; plain areas are covered with Artemisia and mixed herb vegetation, such as izen, shagyr, ebelek, terexen. Just as in sand, spots of swampy and sometimes even dry alkali soils, wastes, and naked takyr can be found in clay deserts. They are the most sterile locations in the desert, often have no vegetation at all, and only small separate areas of them are covered with juicy glasswort (sarzasan, fat glasswort, saltpetrous grass, seepweed, pettrosymonia) [1]. Calligonum associations have the greatest nutritional value for cattle.

Desert communities have a weak density of surface level, here suffrutescent such as Artemisia Lercha, black Artemisia dominate here, and in sands – Artemisia of Chernyayev (sand Artemisia).

Travosta of desert area saline soils is represented by associations of biyugun, grey Artemisia, and white Artemisia. Covered surface in communities of biyurgun varies from 30% to 60%.

In Zhalgan region there are vast massives of scattered sands that are at one of initial stages of overgrowing and are being covered with rare bushes of blady grass or more or less dense bushes of chagyr. Efficiency of such pastures equals approximately 3–3,5 center of hay hectare [3].

Artenisia-less deserts are the most widespres, and it is related to a high level of soil alkaline. They are associated with flat areas with loamy brown soils as well as soils of light mechanical composition, as well as sands [2, 3]. Aside from Artemisia here we can find anabasis, ebelek, sheep fescue, desert blady grass, branched sedge, hair-like and Sareptsk feather grass, etc., and during spring rather many of ephemers emerge. This fact defines spring-autumn use of these pastures, and mostly young branches are consumed, they form 40% of total bush mass. Sand Artemisia deserts usually develop at uneven sands. Psammophillous grass and grain usually participate in them, they can be also combined with bushes (tamarisk, leafless calligonum) and baldy grass bushes in sand dune areas and Artenisia-less, erkerk-Artenisia-less, ephero-Artenisia-less communities at sand and subsand soils at plains, uneven, and small-bump sands [2, 3].

Thus, for all studied regions (Bokeyordinskiy, Zhangalinskiy, Karatobinskiy) kind composition of vegetation is the same, only stages of sand overgrowing with grass and wood-bush vegetation can vary. In lowlands, where depth of ground waters reaches 4 m, tree standings can be found, they are usually formed of oleaster, cottonwood, pine trees, and other breeds, and this fact, of course, plays a significant part in forest industry of the studied regions.

References

1. Geographic essays of watering area in relation to construction of Stalingrad hydroelectric complex. – Alma-Ata: Ed. office of Science academy of Kazakh SSR, 1951. – P. 14–15.

2. Monuments of natural and historical-cultural heritage of Western-Kazakhstan region. Zhangal region [Text]: Volume VIII / ed. by M.N. Sydykov – Uralsk, 2008. – P. 138–162.

3. By-Ural [Text]: ed. by A.Z. Petrenko, M.M. Fartushin, A.V. Potyanin, B.K. Suleymenov, S.S. Kadraliyev, I.M. Mukhanbetaliyev, Z.M. Turemuratov. – Uralsk: "Dastan", 2001, P. 31–78.

4. Yundin I.A. Herbs (Characteristic and methods of using pastures and hayfields of Kazakhstan). Brief essay [Text] / I.A. Yundin. – Alma-Ata: Kainar, 1968. – 32 p.

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MORPHOMETRIC SIGNS OF THE LEAF PLATE OF POPLAR (POPULUS NIGRA L.), MARPLE (ACER PSEUDOPLATANUS L.), LIME-TREE (TILIA PLATYPHYLLOS SCOP.) IN THE CITY OF ROME (ITALY)

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Italy is a typical Mediterranean country located in the central part of Southern Europe. It spreads from a forest temperate zone (in the north) to a subtorrid zone (in the south). It is located on the Apennine Peninsula which is surrounded with water

on three sides. The great influence on formation of natural phenomena of Italy, especially its climate, exerts the sea [2].

A variety of climate is determined by longitudinal extent. In the north of Italy, on the Padansky plain, climate is transitional from subtorrid to temperate. There is hot summer and cold foggy winter. Climate of an island part of Italy is mediterranean, 2/3 of a years there is hot and dry summer, and winter is warm and soft [1, 2].

The capital, and also the biggest city of Italy is Rome. Its population exceeds two and a half million people [2]. Lazio is an administrative area in Italy. The capital is the city of Rome. 54 % of the territory is hilly area, 26,1 % (Apennines) are mountains, 19,9 % are plains. The climate is soft, the average temperature of January is + 9–10 °C, July of 24–25 °C. The largest river is Tiber. It has an exit to the Tyrrhenian Sea. Cultural landscapes prevail there. Woods occupy only 20 % of the territory, mainly in mountains and on hills, plains are almost treeless. Along roads and coasts of the rivers plantings of poplars, willows, white acacias prevail [3].

Populus nigra L. is a plant of Willow family, type of the sort Poplar. It is a melliferous, tannic, efiromaslichny, dyeing, officinal, woody, ornamental plant, which is cultivated in gardening. It grows in flood plains of the rivers on the wet alluvial sandy, sand-pebble, sandy salty soils. As a part of inundated woods it carries out important role in water preserving, water regulating, bank protection, kolmatiruyushchy and sanitary and hygienic functions. The poplar black is treated as mikrotermofita that is a cold-resistant plant adapted to existence in the conditions of long severe winter which it endures at rest, showing high winter resistance. It is a hygrophilous inundated plant. It is considered as the most widespread species of the wood plants applied in gardening of settlements and recultivation. It is due to the fact that it is very winter resistant, grows quickly, is ecologically ductile, shows in the conditions of a city high heat – smoke-and gas resistance [7].

Acer pseudoplatanus L. is a tree, a type of the sort Maple. It is remarkable for resistance to wind, city pollution and salt. This is the reason to be cultivated in cities, on the sea coast and along the roads strewed with salt in winter. This plant prefers to grow in warm places, it is shade-requiring and melliferous.

Tilia platyphyllos SCOP. is a deciduous tree of the sort Malvaceae, Linden Family. The large-leaved linden is remarkable for longevity and high adaptation to city conditions. It practically does not suffer from diseases and pests, is not damaged by frosts, is drought-resistant and is very simple in looking after. It is widely applied in landscape architecture and gardening. It is a melliferous herb. The plant is soil nutritious because its leaves contain a large amount of calcium and after defoliation they enrich the soil with nutrients.

In July 2015 selection of leaves was made. For definition of morphological features, used for assessment of stability of development of plantings, samples of leaves (by 20–30 pieces) from one tree were selected. Methods of treatment and collecting materials by V.M. Zakharov and coauthors were used [4].

According to the accepted methods measurements of right and left halves of leaves of a birch by 5 signs were taken: the first sign is width of the left and right halves of a leaf (while measuring the leaf plate is folded up, we combine the top with the bottom of a leaf and unbend a leaf. On the formed fold the distance from the border of the central vein to the leaf edge is measured); the 2nd sign is length of a vein of the second order from the leaf bottom; the 3rd sign is distance between the bottoms of the first and second veins of the second order; the 4th sign is distance between the ends of these veins; the 5th sign is a corner between the main vein and the second from the leaf bottom vein of the second order.

The integral index of stability of development of a poplar black on the territory of Rome makes 0,093. The least index of size of asymmetry 0,052 is revealed by the 5th sign (a corner between the main vein and the second from the leaf bottom vein of the second order). The greatest index of size of asymmetry 0,157 is revealed on the 4th sign (distance between the ends of the first and second veins of the second order) (table 1).

The integral index of stability of development of a maple white on the territory of Rome makes 0,065. The least index of size of asymmetry 0,043 is revealed on 1 and on 3 signs (width of the left and right halves of a leaf and distance between the bottom of the first and second veins of the second order). The greatest index of size of asymmetry 0,090 is revealed on the 5th sign (a corner between the main vein and the second from the leaf bottom vein of the second order) (table 2).

Table 1

Morphometric signs of a leaf plate of *Populus nigra* L. on the territory area of Pyramida

Number of a sign					Asymmetry size
1	2	3	4	5	
0,064	0,056	0,137	0,157	0,052	0,093

Table 2

Morphometric signs of a leaf plate of *Acer pseudoplatanus* L. on the territory of Via Galvani

Number of a sign					Asymmetry size
1	2	3	4	5	
0,043	0,088	0,043	0,061	0,090	0,065

Table 3

Morphometric signs of a leaf plate of *Acer pseudoplatanus* L. on the territory of Via Marmorata

Number of a sign					Asymmetry size
1	2	3	4	5	
0,074	0,041	0,056	0,168	0,035	0,075

Table 4

Morphometric signs of a leaf plate *Tilia platyphyllos* SCOP. on the territory of Via Marmorata

Number of a sign					Asymmetry size
1	2	3	4	5	
0,032	0,029	0,262	0,107	0,139	0,114

The integral index of stability of development of a maple white on the territory of Rome makes 0,075. The least index of size of asymmetry 0,035 is revealed on the 5th sign (a corner between the main vein and the second from the leaf bottom vein of the second order). The greatest index of size of asymmetry 0,168 is revealed on the 4th sign (distance between the ends of the first and second veins of the second order) (table 3).

The integral index of stability of development of a large-leaved linden on the territory of Rome makes 0,114. The least index of size of asymmetry 0,029 is revealed on the 2nd sign (length of a vein of the second order from the leaf bottom). The greatest index of size of asymmetry 0,262 is revealed on the 3rd sign (distance between the bottom of the first and second veins of the second order) (table 4).

To sum up, the assessment of stability of development of wood plants on the basis of definition of morphological features of leaves the adaptive reactions bound to change the size of asymmetry of leaf plates of different types of wood plants were revealed [5, 6, 8].

References

1. Galkina T., Sysoyev N. Italy. – M.: Thought, 1972. – 464 p.

2. Cities of the world. Encyclopedia / Originator E.A. Vorontsova. – M.: CJSC ROSMEN-PRESS, 2009. – 208 p.

3. Gratsiansky A.N. Nature of Mediterranean / A.I. Gratsiansky. – M.: Thought, 1971. – 509 p.

4. Zakharov V.M., Borisov V.I., Valetsky A.V., Kryazheva N.G., Chistyakov E.K., Chubinishvili A.T. Zdorovye of the environment: assessment technique. M.: Center of environmental policy of Russia. 2000. – 68 p.

5. Kulagin A.Yu., Tagirova O.V. Forest plantings of the Ufa industrial center: the current state in the conditions of anthropogenous influences. – Ufa: Gilem, Bashk. Encyclopedia. 2015. – 196 p.

6. Kulagin A.Yu., Tagirova O.V. Monitoring of a condition of wood plantings of a birch of povisly (Betula pendula Roth) in the conditions of the Ufa industrial center // The Bulletin of the Orenburg state university, 2015. – № 10 (185). Orenburg. – P. 27–29.

7. Determine manual of the higher plants Bashkir ASSR / Alekseev Yu.E., Alekseev E.B., Gabbasov K.K., Gorchakovsky P.L., Gubanov I.A., Gufranova I.B., Kuzyakhmetov G.G., Kulagin Yu.Z., Kucherov E.V., Minibayev R.G., Naumova L.G., Nazirova Z.M., Shurova E.A., Hayretdinov S.S. – M.: Science, 1988. – Ch. I. – 316 p.

8. Tagirova O.V., Kulagin A.Yu. The characteristic of the condition of plantings of the birch (Betula pendula Roth) with use of methods of the relative biotic condition of trees and the integral index of stability of development of plants (Ufa industrial centre, Republic of Bashkortostan // News of the Ufa scientific center of RAS. – 2015. – № 4(1). – P. 160–167.

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