

ABOUT TAXONS OF FLORA OF SANDY DESERTS IN UZBEKISTAN

Introduction

By definition of the specialists, sandy deserts are territories with low annual quantity of precipitation (up to 150 mm), where main soil substratum are sands, and vegetation is – strongly xerophyzed

At present time during the process of aridization of desertification is global problem in republics of Central Asia, including Uzbekistan, as other whole world.

Aridization – is precondition for desertification. If this problem were geological before, now it is progressing in the result of antropogenic and technogenic influences.

Vegetation of the sandy deserts is different depending on ground-soil conditions.

Purpose

Purpose of the research is revealing and studying floristic composition of the taxons of the sandy deserts of Uzbekistan and evaluation of influences of antropogenic and technogenic factors on aridization.

Materials and methods

Floristic investigation of the sandy deserts of Uzbekistan conducted from 2000 to 2007 years in Kizilkum, Karakum (Uzbek part), inside oasis sands of Fergana valley, Horezm region and lower down stream of Amudarya river. Flora of sands in southern part of Uzbekistan (Sundikli, Kattakum)-were made by literature data.

Results and Discussions

About flora of the sandy deserts of Uzbekistan still not exact information on quantity and species composition of taxons. If in the middle of last century (60-70 years) the quantity of the sandy deserts' plants of Central Asia counted approximately 350 species (5), from them 320-belonged to Uzbekistan (6). During last years in the result of drying of the Aral Sea acclimation of sandy deserts under crops and others, areas occupied before by psammophytes and xerophytes are reduced distinctly. However, in the result of aridization of the region quantity of plants of sandy deserts increased greatly and by our data at present time (taking into account literature data) consists on the whole approximately 500 species (7) through republic. From these species, accustomed to only sandy lands (types – sands, sand-dune (barkhan), barkhan chains, uneven, loose, bed, fixed, compacted and saline soils) consist approximately 270 species.

In many literatures, dedicated to sandy deserts of Uzbekistan, still absent common consensus of opinion among researchers on quantity and species composition of plants. By definition one of expert of sandy deserts and its vegetation world V.P. Drobov (1), it is "Area with low annual quantity of precipitation (up to 150 mm), where soil forming rocks are sand of different structure with original vegetation (xerophytes, ephemeredes, ephemeris) and climate".

Early information about sandy deserts of Central Asia belongs to A.P.Fedchenko (2), who recorded, that one of the first pioneer of sands are juzgun, than some legumes (Smyrniumes and astragals species) and asters (kayak). On the base of herbarium materials, collected by O.A.Fedchenko, he noted that flora of sandy deserts occupy more than 220 species. Later a quarter of century C.I.Korjinsky (3) traveling from Caspian through Turkmenia to Pamir, in sands of Karakum noted Saxaul (Haloxylon), Selevin's mouse (Selevinia), species Calligonum, Ephedra (*E.strobilacea*), Sandy Acacia (*Ammodendron conollyi*), *Carex physodes*, *Capsella elliptica*, Cistanche (2 species). By them belongs the earliest proposition, that mobility of sands depend on human activity exceptionally (cutting down and pasture livestock).

Among numerous literature, devoted to sandy deserts and its vegetation particularly is to be mentioned works of the last century V.P.Drobov, M.G.Popov, M.M.Ilin, E.P.Korovin, M.P.Petrov, B.L.Fedorovich, L.Ya.Kurochkina, R.D.Melnikova, A.G.Babaev and others. Overwhelming part of sands of sandy massifs in one or other level fixed vegetation, which now accepted refer as psammophilous.

By data E.P.Korovina (4), quantity of plants of sandy desert massifs of Central Asia counted approximately 350 species. However, L.Ya. Kurochkina (5) only for sandy deserts of Kazahistana counted 718 species, but R.D.Melnikova (6) using information "Floras of Uzbekistan" (I-YI volume) for republic counted 320 species (134 genus, 30 family). Difference relatively by quantity of species L.Ya. Kurochkina (5) explained by different capacity of ideas on «sandy deserts» among researchers. In fact, to sandy flora before were included plants of the gypsumized sands, sandy ecotypes and foothills slopes, sabulous soils, red sands, sandy plots and even sand-bed deserts and others.

Sandy deserts of Uzbekistan Karakum (northern-eastern part), Kizilkum (southern-western part), near Aral Karakum, inside oasis's sand of Horezm region and Fergana valley, sans of Sundikli and Kattakum in south, as most deserts of Central Asia, under plants, belong to xerophytes, succulents, halophytes, ephemeredes (burrowing mayflies-Ephemeridae), ephemeras, adapted to arid conditions. Area of under psammophilous species of vegetation in republic by «Map of Plants of Uzbekistan» consists more than 9000 thousand ha (6).

Formation of sands occurring present times as well due to aeration of layers, and also dispersing of modern alluvial drifts. Under influence of wind forms peculiar forms of the relief (form of sandy accumulation). Relief genesis of the sandy deserts and its classification still remains debatable. Without going into analysis of the existing points of view on issue of genesis of the relief of sandy deserts of the republic we distinguished-barchans (mobile, fixed), uneven, bed, mobile, loose, fixed, semi fixed, compacted and saline sands.

Our field researches conducted in Kizilkum, Amudarya sands, Karakum (on the border of Horezm region), internal sands of Fergana valley (within the territory of Uzbekistan) and the Khorezm oasis, and also using data of the accessible literature [1-6] have allowed to determine quantity of plants of sands of sandy desert of Uzbekistan by order 266 species, belonging to 123 genus and 37 families

Fabaceae-8 genus (Ammodendron-4 species, Ammothamnus-1, Alhaqi-1, Astragalus-21, Eremosparton-2, Onobrychis-2, Psoralea-1, Smirnovia-1), Chenopodiaceae-17 (Aellenia-3, Agriophyllum-5, Arthropytum-1, Atriplex-2, Ceratocarpus-2, Ceratoides-1, Cornulaca-1, Corispermum-4, Climocoptera-2, Halimocnemis-2, Haloxylon-1, Hammada-1, Horaninovia-3, Kirilovia-1, Kochia-3, Londesia-1, Salsola-9), Asteraceae-20 (Artemisia-9, Centaurea-2, Chondrilla-2, Cirsium-1, Cousinia-8, Echinops-1, Epilasia-3, Evax-1, Hyalea-1, Jurinea-2, Koelplinia-1, Lipskiella-1, Mausolea-1, Microcephala-1, Microrhynchus-1, Scorzonera-1, Pteroteca-1, Rhabtoteca-1, Senecio-1, Tragopon-1).

Polygonaceae-1 (Calligonum-22), Poaceae-11 (Achnatherum-1, Anisantha-2, Aristida-4, Eremopyrum-4, Schismus-1, Hordeum-1, Secale-2, Danthonia-1, Bromus-1, Elymus-1, Stipa-2), Brassicaceae-12 (Citharelome-2, Litvinovia-1, Mattiola-2, Isatis-1, Malcolmia-1, Goldbachia-1, Strigosella-2, Streptoloma-1, Tetracme-1, Tetracmidion-2, Syrenia-1, Octoceras-1), Apiaceae-8, (Aphanopleura-2, Cryptodiscus-1, Cuminum-1, Dorema-1, Ferula-4, Psammogeton-1, Zosimia-1, Schumannia-1).

Ranunculaceae-2 (Ceratocephalus-1, Consolida-2), Scrophulariaceae-2 (Linaria-1, Scrophularia-1), Euphorbiaceae-4 (Chamaesyce-1, Chrozophora-2, Cystidospermum-1, Euphorbia-4), Boraginaceae-4 (Lappula-1, Arnebia-1, Heliotropium-4, Tournefortia-1), Alliaceae-1 (Allium-5), Carvovillaceae-3 (Acantohpyllum-2, Gypsophila-1, Silene-2), Convolvulaceae-1 (Convolvulus-4), Rubiaceae-2 (Asperula-1, Crucianella-3), Rutaceae-1 (Haplophyllum-3), Asparagaceae-1 (Asparagus-3), Asphodelaceae-1 (Eremurus-3), Tamaricaceae-1 (Tamarix-3), Liliaceae-3 (Gagea-3, Merendera-1, Tulipa-2), Cyperaceae-1 (Carex-2), Iridaceae-1 (Iris-2), Orobanchaceae-2 (Cistanche-1, Orobanche-1), Thymelaeaceae-1 (Dendrostellera-1), Valerianaceae-1 (Valerianella-1), Zygopyllaceae-2 (Tribulus-1, Zygophyllum-1), Araceae-1 (Eminium-1), Asclepiadaceae-1 (Cynanchum-1), Cucurbitaceae-1 (Bryonia-1), Ephedraceae-1 (Ephedra-1), Hypecoaceae-1 (Hypecoum-1), Lamiaceae-1 (Chamaesphacos-1, Lycium-1), Nitrariaceae-1 (Nitraria-1), Papaveraceae-1 (Roemeria-1), Solanaceae-2 (Hyoscyamus-1, Lycium-1), Geraniaceae-1 (Erodium-1), Plantaginaceae-1 (Plantago-1).

Conclusions

Thus, on the basis of literature data and in the result of own investigation it is established, that in sandy deserts (sands, fixed, compacted, bed, barchans, barchan chains, uneven, etc.) In Uzbekistan quantity of plants consists of 266 species belonging to 123 genus and 37 families.

Among them have trees (4-species), bushes (45), shrubbery (17), semi-shrubbery (5), perennial grassy (84), biannual grasses (2), annual or biannual grasses (1), annual grasses (108 species) plants.

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By the result of our investigation determined that in the sandy deserts of Uzbekistan grows 36 families, 123 genus, 266 plant species. From them 4 species are trees, 45-bushes, 17-shrubbery, 5-semi-shrubbery, 84-perennial grassy, 2-biannual grasses, 1-annual or biannual grasses, 108 annual grasses species.

Key words: flora, desert.