



## PLANT WORLD OF THE KYZYL KUM DESERT

**Kaipov Kydyrbay Pakhretdinovich**

*Doctor of Philosophy in Biological Sciences (PhD), Department of General Biology and Physiology  
Karakalpak State University named after Berdakha The Republic of Uzbekistan*

### ANNOTATION

*The article is devoted to the peculiarities of the flora of the Kyzylkum desert. The flora of the Kyzylkum desert is diverse. Here you can find trees, shrubs, semi-shrubs, geophytes, perennial and annual grasses, among which herbaceous plants occupy more than half of the total vegetation.*

**KEY WORDS:** *Aralkum, desert, climate, vegetation, xerophytes, psammophytes.*

The Kyzylkum Desert (from Turkic - red sands) is one of the greatest deserts in Asia, located in the interfluvium of the Amu Darya and Syr Darya rivers, on the territory of Uzbekistan, Kazakhstan and partly Turkmenistan. Occupying an area of about 300 thousand km, the desert is limited in the northeast by the Syrdarya River, in the southwest by the Amu Darya River, in the east by the spurs of the Tien Shan and Pamir-Alai (Nurata Range), in the northwest by the Aral Sea and the resulting drying up of the Aral Sea, Aralkum desert.

The Kyzylkum Desert in the northwestern part merged with the new Aralkum Desert, which includes the entire territory of the island chain from the Muynak Upland (Tokmak-ata Island) in the south to the Kulandy Peninsula in the north; these are the former islands of Lazarev, Konstantin, Vozrozhdeniya, Komsomolsky and the "banks" of Bellingshausen, Komsomolskaya and Beninga. Previously, the ridge divided the Greater Aral into two basins: Western and Eastern. The united territory is now conventionally called the Renaissance Peninsula. Together with the drained part of the seabed within the territory of Uzbekistan - an area, according to various sources, of over 3 million hectares represents the Aralkum desert.

The Kyzylkum Desert is a plain with a general slope to the northwest (height from 300 m in the southeast to 53 m in the northwest); has a number of extensive closed depressions and isolated strongly dissected remnant mountains - Bukantau (764 m), Kuldzhuktau (up to 785 m high), Tamdytau (up to 972 m high), etc. Most of the desert is occupied by sand massifs formed by sands semi-fixed by vegetation, but there are also massifs of pure sand dunes. The most common are sandy ridges with a meridional orientation. The relative height of the ridges is from 3 to 30 m, the maximum is up to 75 m. There are many takyrs and salt marshes in the northwest of the desert.

The climate in Kyzylkum is sharply continental. Summer is hot, the average temperature in July is from 26 to 29 °C, (maximum - 51 °C), in January from 0 to -9 °C. Precipitation 100-200 mm per year; fall mainly in winter and spring. There is not a single surface watercourse throughout the entire territory (except for the drying up Zhanadarya River), but there are rich reserves of fresh pressurized groundwater.

The flora of the Kyzylkum desert is diverse. Here you can find trees, shrubs, subshrubs, geophytes (bulbous and tuberous plants), perennial and annual herbs.

The sparse vegetation cover of sandy deserts is formed by psammophyte grasses (i.e., adapted to life in shifting sands). Among them are the seline grass (*Aristida*), shrub zhuzgun (*Calligonum*), tree and shrub saxaul (white and black), semi-shrub wormwood (white, Turanian, etc.). There are also loose sands devoid of vegetation, but there are relatively few of them. Desert plants are well adapted to prolonged drought, overheating, mobile or saline and always poor soils. Adaptations such as leaflessness, which reduces evaporation (saxaul, zhuzgun, etc.), rapid rooting, and hibernation during heat (bulbous and tuberous plants), are widespread. Their fauna was formed in full accordance with the ecological characteristics of deserts.

The vegetation of the dried bottom of the Aral Sea is characterized by a small number of species. Only a small part of the drained part of the bottom of the Aral Sea is occupied by sparse desert vegetation. The basis of the vegetation is made up of biyurgun-keireuk complexes.



Black saxaul, kuyandyk, kandym, and feather grass are found in the Kyzylkum sands. However, a significant part of the Aralkum is represented by wet salt marshes on the site of former bays, as well as sandy-clayey salt marshes. This area is devoid of vegetation and animals. The surface is armored with powerful salt crusts up to 5 cm thick.

In Kyzylkum, about 700 species grow from the wild flora of Karakalpakstan (a little over a thousand species). They are represented by typical desert life forms. More than half of them are herbaceous plants (representatives of the families Chenopodiaceae, Buckwheat and Compositae), slightly less than a quarter of the species are shrubs, and the rest are subshrubs and subshrubs.

The predominance of sandy areas in the Kyzylkum desert determines the noticeable development of psammophytes and xerophytes in the flora. Moreover, the vegetation of sandy deserts is the richest compared to other types of deserts and is very adapted for existence on a loose, moving substrate. Thus, psammophytes have the ability to enhance shoot formation and rapid growth when covered with sand. And the protection of some of the roots exposed when sand is blown out is provided by cork tissue developing on the roots, or by caps made of grains of sand stuck together around the root.

Plant seeds are also adapted to desert conditions. The spherical kandym fruits have dense bristles. These spherical fruits are rolled by the wind, causing the seeds to spread. The fruits of saxaul, boyalych, and cherkez have outgrowths and wings. Thanks to them, the wind carries flying seeds far. A special group of desert plants; ephemerals are annual herbaceous plants that complete their development in a very short wet period of spring, and ephemeroïds are perennial herbs that bloom in the spring, and in the summer the above-ground part dies off, leaving only underground rhizomes, bulbs and tubers.

A special type of adaptation occurs in plants of saline deserts - halophytes: fleshy organs and a slow type of development.

Thus, the flora of the Kyzylkum desert is represented by typical desert life forms and more than half of them are herbaceous plants, less than a quarter of the species are shrubs, the rest are subshrubs and subshrubs.

## LITERATURE

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