



## Groundwater Plants Distribution in Bukhara City Circular Collector

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**Abstract:** This article describes the geographical location of the Recirculating Collector, the chemical composition of the water, and the bottom and high water plants found in the collector, which flows through the region of Sohikkor Mahalla in Bukhara city. The collection included 57 different species of benthic algae, which were classified into four groups.

**Keywords:** indicator, saprob, bottom algae, algoflora, ecology, dominant.

Many Uzbek experts are performing scientific research on water bodies and hydrobionts. This will lead to the discovery of fresh scientific facts. A notable illustration of this is scientific research on the species makeup of aquatic plants spread in canals and collectors from our republic's water bodies. M. Yuldashova and D. Saminjonov, in particular, conducted a thorough investigation of bottom water plants scattered in the main, northern and southern Fergana canals of the Fergana Valley (2022). Y.Sh. undertook significant research on the algaflora of the Zarafshan river's middle course, which are indicator saprob species that determine the ecological and sanitary status of the water. Tashpolatov and H. Alimjanovalar implemented (2019). Aquatic plants are found in the marshes of the Bukhara oasis to the northeast. Rashidov (2007, 2020), M.I. Mustafayeva (2020), and many more scientists are researching it. It is critical to investigate the hydrochemical state of the water flowing through the city of Bukhara, as well as the species composition of the microscopic algae and their significance in assessing the ecological and hygienic condition of the water. From this perspective, determining the species composition of bottom water plants in the Circulating collector flowing from the city of Bukhara is reasonable.

### Methodology

To determine the varieties of water plants in Tubak, Apstein net samples were gathered from the reservoir's beginning, middle, and end. Water intake diameter 20 cm, Apstein mesh size No. 76. The material was collected and processed in accordance with industry standards. Samples were taken, a few drops of 4% formalin were applied, and the species was identified. During the investigation, an XDS-3, B-380 microscope was employed. The manual of O. V. Anisimova and M. A. Golobova, as well as the international Algaebase.org database, were utilized to identify the algae species and kinds found in the lake. A mercury thermometer was used to monitor water temperature, and a Secki disk was used to test water clarity. Using indicator paper and an LPU-01 pH meter, the pH of the aqueous medium was determined. The research began in the spring of 2022 and was conducted in both the field and the laboratory.

### Results

The circulating collector runs through Bukhara's Sohikkor area. This collector was built on January 1, 1965, with a branch length of 4 kilometers, and an average water level of 1.5 m<sup>3</sup>. The water level rises mostly during the salt washing process, which occurs in the spring and winter months of the year. The geographical location of the collection and the species composition of bottom water plants

were analyzed as a consequence of the investigation. Water clarity ranges between 0.6 and 0.8 m and has a seasonal nature. It mostly refers to the winter season. This indicator decreases in the spring months (0.15-0.20 m) owing to algae. The pH level is 7-8. The rate of contact of bottom water plants rises when air and water temperatures rise. The temperature of the collector water was 10-12°C in the spring, and the flow speed was 0.40-0.45 m/sec. Water's chemical analysis was performed in a laboratory setting. As a result, the total mineralization ranged between 3.5 and 4.0 g/l. The comparatively low starting water temperature, clarity, and mineral content, along with the relatively rapid flow velocity, resulted in a relatively small number of species. The collector's algaeflora is mostly composed of blue-green, green, and diatom algae. According to the study's findings, 57 dominating species and species of microscopic algae were found. These categories were examined in four sections.

26 species (45.61%) of Bacillariophyta were found. These are *Melosira varians* Ag, *M. distans* (Ehr.) Kütz, *Diatoma vulgare* Bory, *D. anceps* (Ehrenberg) Kirck, *Cyclotella comta* Kütz, *C. bodanica* Eulens, *Cymbella affinis* Kütz, *Navicula cincta* Kutz, *N. cari* Ehren, *N. minima* Grun, *N. mutica* Kütz, *Mastogloia baltica* Grun, *M. lacustris* Grun, *Synedra acus* Kütz, *S. capitata* Ehren, *S. tabulate* (C.Agardh) Kütz, *S. acus* var. *radians* (Kützing) Hust, *Nitzschia acicularis* (Kützing).Smith, *N. communis* Raben, *N. dubia* W.Smith, *Pinnularia fonticola* Hust, *Pinnularia molaris* (Grunow) Cleve, *P. appendiculata* (C.Agardh) Schaarsch, *Stephanodiscus astraea* (Kützing) Grun, *S. dubius* Hust, *Gyrosigma spenceri* (Bailey ex Quekett) Griffith & Henfrey.

It was noted that there are 17 representatives of the Chlorophyta section. Representatives of this department make up 29.82% of the total identified species. These are *Chlorococcum infusionum* Menegh, *Pediastrum boryanum* (Turp) Menegh, *P. simplex* Meyen, *Scenedesmus acuminatus* var. *biseriatus* Reinsch, *S. obliquus* (Turp) Kutz, *S. acutiformis* Schroed, *Ankistrodesmus acicularis* Korschik, *A. arcuatus* Korschik, *A. fusiformis* Corda, *A.minutissimus* Korschik, *Oedogonium intermedium* Wittz, *Chlorella vulgaris* Beyer, *Ch. pyrenoidosa* Chick, *Ulothrix limnetica* Lemm, *Cladofora fracta* Kutz, *C. malinvernianum* De Not, *C.calcareum* Wittr).

A total of 11 species belonging to the Cyanophyta division, i.e., made up 19.29% of the species identified in the circular collector. These are *Merismopedia glauca* (Ehr) Nag, *M. punctata* Meyen, *Gomphosphaeria lacustris* Chod, *Oscillatoria amphibia* Ag, *Spirulina flovovirens* Wisl, *S.mojor* Kutz, *Phormidium retzii* (Ag) Gom, *P. incrustatum* (Naeg) Com, *Lyngbyna salina* Kutz, *L.limnetica* Lemm, *Microcystis pulvereae* f. *holsatica* (Lemm) Elenkin and so forth.

3 species belonging to the Euglenophyta section (5.26%) were found in the circular collector. It was found that there are species like *Eugleno fenestrata* Elenk, *E. bucharica* I. Kissel) *Phacus alatus* Klebs.

In addition, high water plants are also found in the collector. These have a significant effect on the extremely high water flow, mainly on the banks of the collector. They are *Phragmites australis*, *Typha angustifolia*, *Ceratophyllum demersum*, *Potamogeton crispus* and others.

## Conclusion

The circulating collector that runs through Bukhara's Sohibkor area was completed in 1965. Seasonally, the volume of water in the collection, its chemical composition, and the number of species varies. In the reservoir water analyzed, 57 prominent species and types of tiny algae were discovered. These detected species were classified into four groups. *Phragmites australis*, *Typha angustifolia*, *Ceratophyllum demersum*, *Potamogeton crispus* species of high water plants were found in the circulating reservoir.

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