

# Seasonal Change of Chirchiq City Groundwater Weeds in Different Ecological Environments

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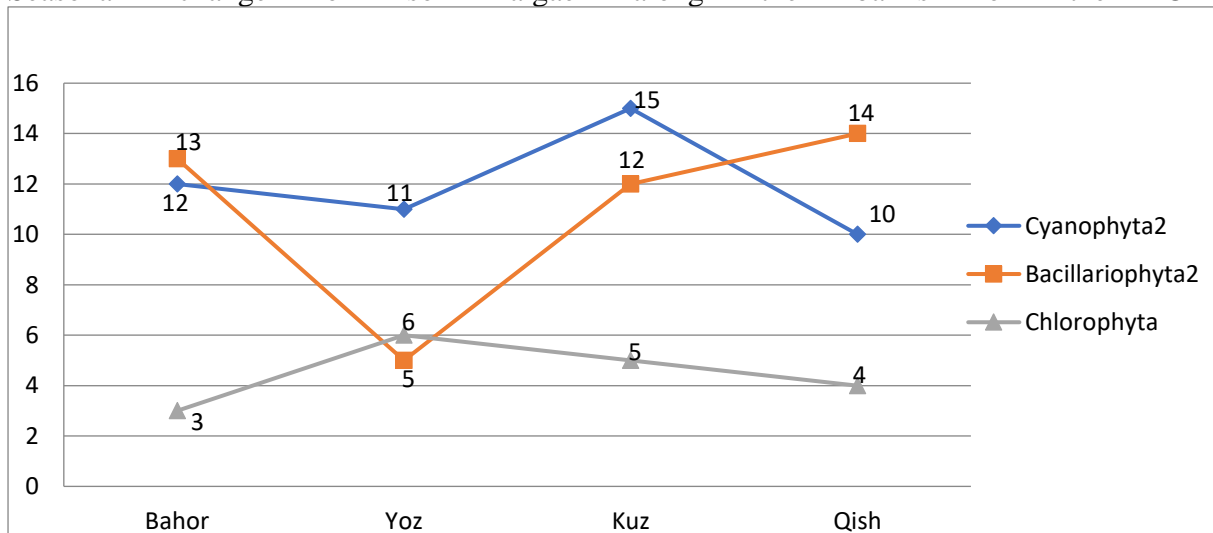
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**Abstract:** There are disagreements among some scientists about the most favorable season for the development of soil algae. Some authors note the rapid development of algae in spring, while others note that it is at the end of summer and beginning of autumn. Seasonal changes of aquatic plants are explained by soil and climatic conditions. Regardless of the season, the growth and development of algae is slow in the dry period, and increases in wet and hot conditions

**Key words:**

There are disagreements among some scientists about the most favorable season for the development of soil algae. Some authors note the rapid development of algae in spring, while others note that it is at the end of summer and beginning of autumn. Seasonal changes of aquatic plants are explained by soil and climatic conditions. Regardless of the season, the growth and development of algae is slow in the dry period, and increases in wet and hot conditions. For example, when the soil dries up in summer, the amount of algae decreases sharply; in autumn, the development of all groups of algae, especially blue-green and diatom algae, is activated in soils moistened by rains. In regions with a continental climate with cold and long winters, the soil warms up slowly and dries up strongly in the summer. At the end of the summer, as a result of the summer-autumn rains, favorable conditions for the growth of algae are created. A similar situation is observed in the arable soils of the city of Chirchik. In the soils of Chirchik river basins, in small forest groves, in meadows, the maximum amount of algae was found at the end of August. Despite unfavorable conditions in winter and spring, it was found that Oscillatoria and diatom algae, which are resistant to cold, are present in the soil. In the spring months, the meeting of Desmidia and Mesothenium species, belonging to the group of diatom algae, was observed. Due to the lack of precipitation in the summer months, the number of species is rare.

Seasonal change of soil algae along the banks of the Chirchik River



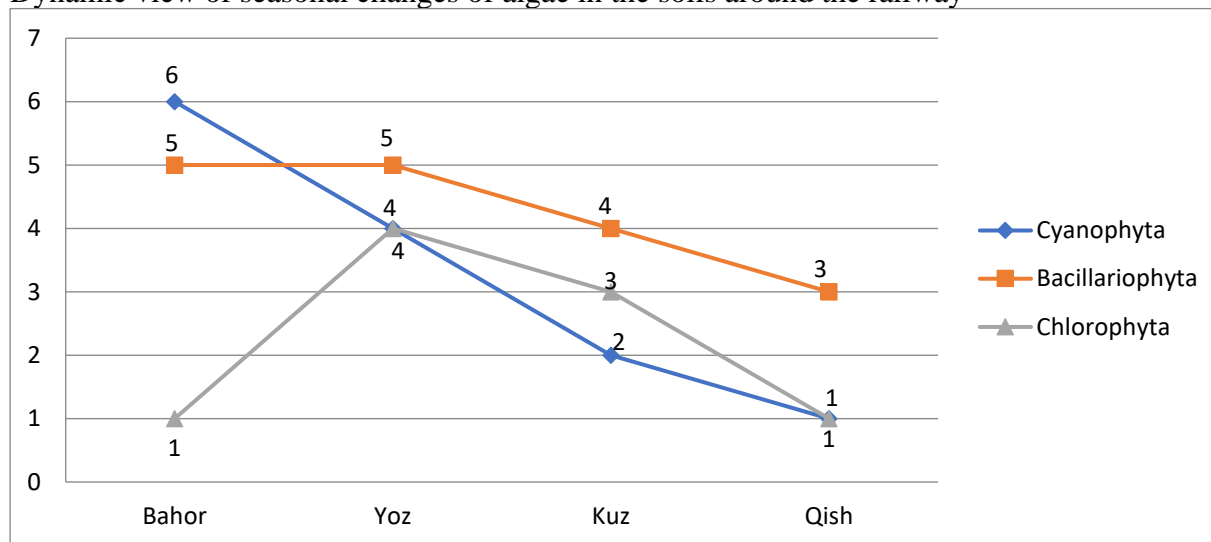
51 species of algae belonging to 32 genera were found along the banks of the Chirchik River, including: 17 species belonging to 12 genera belonging to the Cyanophyta division, Bacillariophyta - 17 genera Although 27 species belonging to chlorophyta and 7 species belonging to 6 families of Chlorophyta were found, these indicators changed during the seasons as follows:

In the spring, there are 12 species of 9 families belonging to the Cyanophyta division, 13 species belonging to 11 families of Bacillariophyta, 3 species belonging to 3 families of Chlorophyta, and 11 species belonging to 10 families in the summer. 5 species belonging to the Cyanophyta division, 5 genera belong to the Bacillariophyta division, and 4 genera to 6 species belong to the Chlorophyta division. In total, 22 soil algae belonging to 20 categories were found in the summer season.

In autumn, 32 species belonging to 29 genera were identified, among them: 11 genera and 15 species of Cyanophyta, 12 species of Bacillariophyta-10 genera, and 5 species belonging to Chlorophyta-4 genera. In winter, 28 species belonging to 21 genera were found, of which: Cyanophyta - 7 genera and 10 species, Bacillariophyta - 14 species belonging to 10 genera, and Chlorophyta - 4 genera and 4 species were found.

Thus, it was observed that the amount and type of algae in the soil changes with the change of seasons in the soils along the banks of the Chirchik River.

Dynamic view of seasonal changes of algae in the soils around the railway



12 types of algae were found in the spring. Of these, 6 species of Cyanophyta, 5 species of Bacillariophyta, and 1 species of Chlorophyta were found.

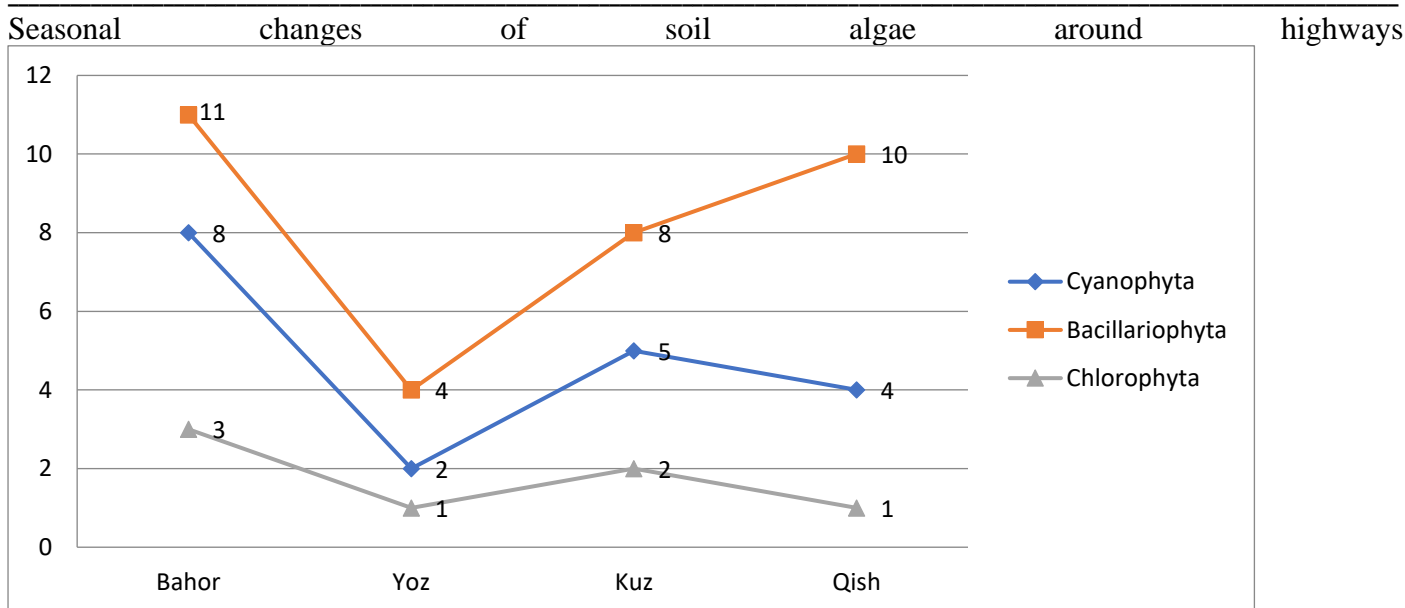
In summer, 4 species belong to the Cyanophyta section, 5 species to the Bacillariophyta section, and 4 species to the Chlorophyta section.

Cyanophyta - 2 species, Bacillariophyta - 4 species and Chlorophyta - 3 species were identified in autumn.

In winter, 1 species of Cyanophyta, 3 species of Bacillariophyta and 1 species of Chlorophyta algae were identified.

Thus, 24 types of soil algae were identified in the soils around the railway and their seasonal changes were studied. Due to the fact that the ecological situation is unfavorable for the development of soil algae, it can be seen that the number of algae and the type of algae are very low at our station selected for the collection of these algological samples. Analyzing by seasons, it became clear that representatives of algae belonging to the Cyanophyta and Bacillariophyta divisions are found in spring. During the year, we found 12 species belonging to 8 genera from the Bacillariophyta division, and 8 species from 7 genera belonging to the Cyanophyta division.

4 species belonging to 4 families were found from the division Chlorophyta. Representatives of Chlorophyta were mostly found in summer, only one species was found in spring and winter.



When we analyzed our algal samples taken from Chirchik city highways in laboratory conditions, it was found that 27 species of algae belonging to 3 divisions, 6 classes, and 13 families, 21 genera were found, and among them: Cyanophyta 9 species belonging to 7 genera belonging to the department, 15 species belonging to 11 genera Bacillariophyta and 3 species belonging to 3 genera Chlorophyta were found, but during the seasons The indicators changed as follows:

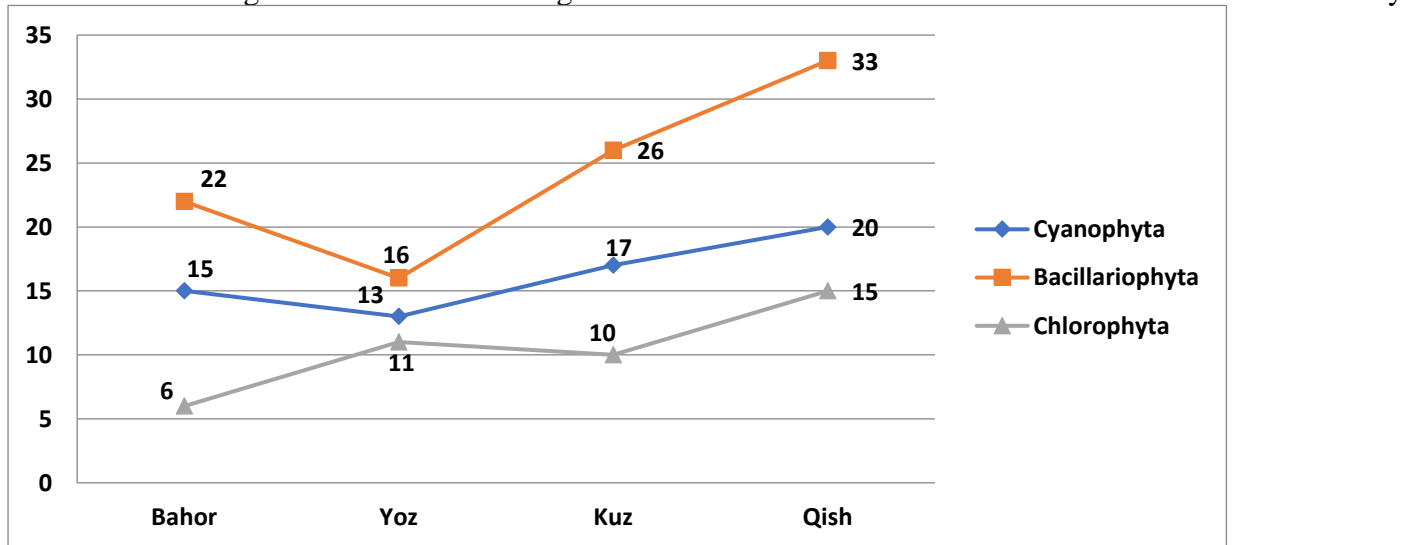
In the spring season, 22 species of 21 genera were found, and they are distributed as follows: 7 genera and 8 species belonging to the Cyanophyta section, Bacillariophyta - 11 species belonging to 11 genera, Chlorophyta - 3 genera. contains 3 types.

In summer, 2 species belonging to 2 families belong to Cyanophyta, 4 species belong to Bacillariophyta, 4 families and 1 species belong to Chlorophyta. In total, 7 soil algae belonging to 7 categories were found in the summer season.

In the autumn season, 15 species belonging to 15 families were identified, among them: 5 species were identified in 5 families Cyanophyta, 8 species were identified in Bacillariophyta -8 families, and 2 species were identified in 2 families Chlorophyta.

In the winter season, 15 species belonging to 15 families were found, of which: Cyanophyta - 4 families and 4 species, Bacillariophyta - 10 species belonging to 10 families, and Chlorophyta - 1 family and 1 species were found.

Seasonal change of soil algae around water bodies of Chirchik city



As a result of the analysis of algal samples, the seasonal changes of algae species found around the water bodies of Chirchik city include 3 sections, 8 classes, 20 families, 40 genera and 70 species. Algological

samples of soil taken from around the water bodies were very rich in species of algae. The following changes occurred in the change of seasons of aquatic plants:

In the spring, 15 species of 12 species of Cyanophyta, 22 species of 18 species of Bacillariophyta, and 6 species of 5 species of Chlorophyta were found out of 43 species belonging to 29 families.

In the summer season, it is known that 40 species of soil water algae belonging to 28 families can be found in this area, and they are distributed as follows: 13 species belonging to 8 families of the Cyanophyta department, 16 species of 11 families belonging to the Bacillariophyta department, and Chlorophyta water 11 species belonging to 9 families were found.

In autumn, 43 species of 34 genera and 17 species of Cyanophyta were identified in 12 genera. 16 genera and 26 species belong to Bacillariophyta and 6 genera and 10 species from Chlorophyta algae, 39 genera and 68 species were identified in winter, of which 12 genera and 20 species are Cyanophyta, 19 genera and 33 species. Bacillariophyta, 9 families and 15 species belonged to Chlorophyta algae.

As a result of the analysis of algalogical samples of the seasonal changes of algae species found around Chirchik city water bodies at the beginning of the winter season, we were convinced that the quality of the environment, good irrigation and lighting, the development of algae and the abundance of species One of the important factors in biodiversity is the diversity of plant species, including unicellular algae species.

*S. aquatilis* Sauv from the *Synechocystis* family of Cyanophyta. *S. sallensis* Skuja., *M. elegans* from *Merismopedia* A. Br. *M. punctata* Meyen, *N. coeruleum* Lyngb of the genus *Nostoc*. *A. elliptica* Lemm., *A. levanderi* Lemm. from the family *Anabaena*. *O. amphibia* Ag from the genus *Oscillatoria*. Species such as *O. prolifica* (Grev.) Gomont., were found in all seasons of the year, and algal samples formed a film on the top of pots grown for germination under laboratory conditions, and it was possible to identify them to the species level. The species belonging to the Bacillariophyta division dominated and in all seasons of the year *Navicula arguens* Skv. *N. bicapitellata* Hust. *N. falaisiensis* Grün. *N. fragilarioides* Krasske. *N. radiosa* Kuetz. *Pinnularia karelica* Cl., *Caloneis hultenii* Boye P., *Gyrosigma baicalense* Skv., *Amphora altaica* Poretzky, *A. veneta* Kuetz., *Cymbella aequalis* W. Sm., *C. aspera* (Ehr.) CL, *C. borealis* CL, *S. cymbiformis* (Ag. Kuetz.) V. H. Chlorophyta algae *Scenedesmus incrassatulus* Bohlin, *S. obliquus* (Turp.) Kuetzing, *Ulothrix moniliformis* Kuetz., *U. mucosa* Thur., *U. tenerrima* Kuetz., *U. zonata* (Web. et Mohr) Kuetz., *Cladophora fracta* (Mull, ex Wahl) Kuetz., *C. glomerata* (L.) Kuetz., *C. kosterae* Hoek species were also observed in all seasons of the year.

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