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Modern Status And Ecology Of Algotcenosis Of Fergana Valley

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Abstract

In this article, the level of occurrence of algocenoses in the plains of the northern, southern, eastern and western parts of the Fergana Valley, the abundance of Cyanophyta species, the level of salinity in irrigated soils, mobile phosphorus, exchangeable potassium, NSO3, SL, Sa, Mg, SO4, Na+K and humus in the soil amount, types of soil, climate and specific nature are considered.

Key words:

Methods of scientific research

Sampling was carried out using generally accepted methods in algology (Gollerbach and Shtina, 1969; Shtina and Gollerbach, 1976, 1980; Antipina G.S., 1986; Khaziev and Kabirov, 1986; Vasser, 1989; Kuzyahmetov and Dubovik, 2001). Topography, slope, slope exposure, moisture level, pollution, floristic composition and soil type were taken into account when selecting sampling sites.

When taking soil samples, the physico-chemical parameters of the soil, soil temperature and humidity depending on the season are determined. Different levels of anthropogenic impact on the soil and plant cover are described in all studied areas.

A suspension was prepared from the soil sample taken for microbiological analysis. For this, 10 grams of the soil sample was taken, mixed with 90 ml of sterilized water and shaken for 5 minutes, then 1 ml of suspension was taken with a pipette and placed in 9 ml of water in a sterilized test tube. This process was continued serially, diluted to 1:1000000 and repeated 3 times. 1 ml of the liquid from the test tube was inoculated into special solid selective nutrient media in a Petri dish in three replicates, i.e. meat peptone medium (GPA) with ammonifiers, Pikovsky medium with phosphorus-degrading bacteria, Zaka medium with potassium-degrading bacteria, Ashby medium with oligonitrophils and free-living nitrogen fixation bacteria, Chapeka micromycetes and actinomycetes were planted in the nutrient medium based on "dilution" and examined [1;2;3;4].

Results and conclusions

Research was conducted in the northern part of the plain region of the Fergana valley. The soil of the village of Langarbobo, Toragorgon district, is mainly irrigated light-colored gray soil, it is not saline, humus content is 0.6%, mobile phosphorus is 9.5 mg/kg, exchangeable potassium is 98 mg/kg, that is, it was determined in a very low amount. In addition, NSO3 -0.027, SL-0.009, Sa-0.010, Mg-0.007, SO4-0.030, Na+K-0.005, dry residue was 0.097%. Species adapted to live in these soils are Synechococcus elongatus (9), Gloeocapsa varia (9), Oscillatoria subtilissima (9), Phormidium foveolarum (9), Phormidium lusidum (9), Phormidium boryanum (9), Xanthophyta Bumilleria klebsiana (9), Palmella miniata (9) from the division Chlorophyta was seen to be very abundant (Fig. 1).

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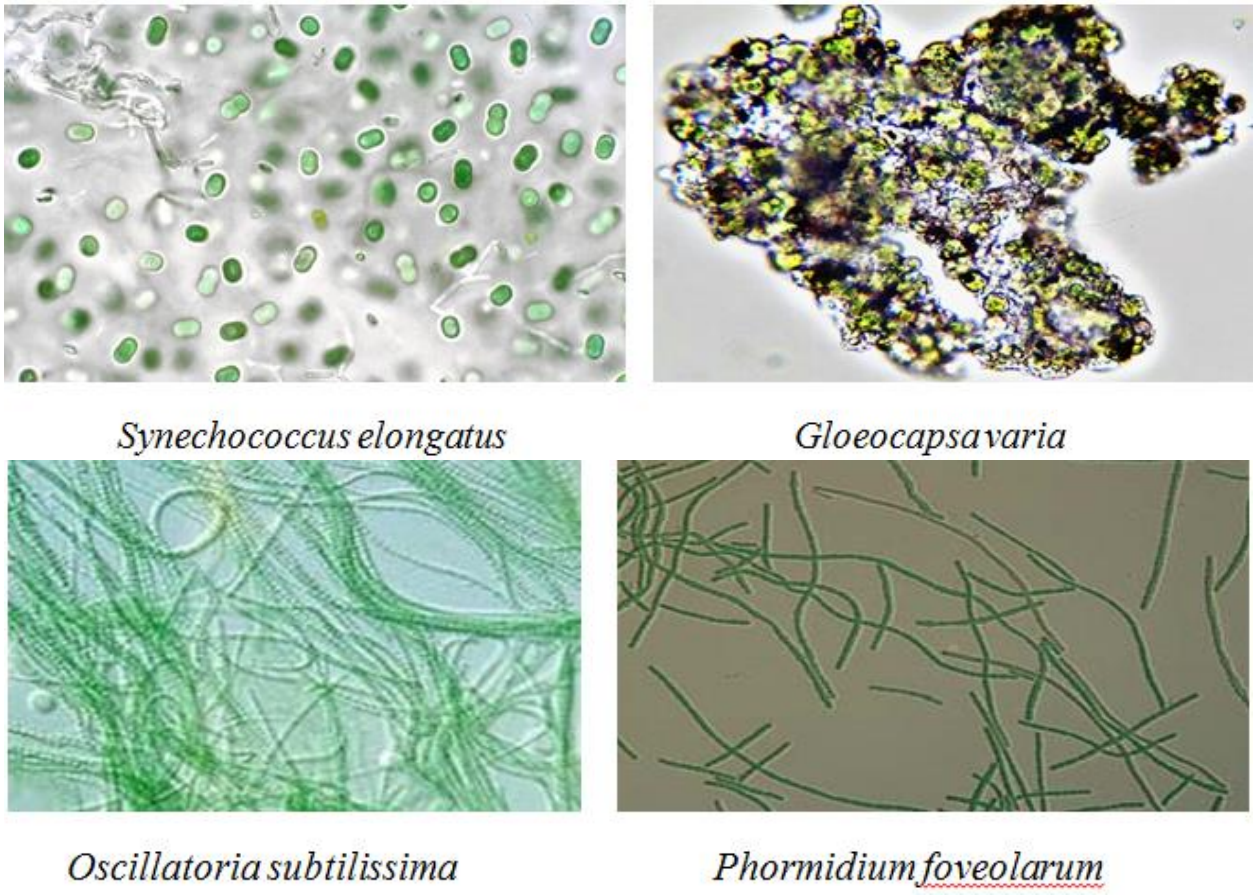

Figure 1. Soil algae are very common in soils.

Bumilleriopsis brevis (2) belonging to Xanthophyta section was very rare among the species detected in the plain region. The remaining species were found to have fewer, more, and more cells in the visual field [5].

The plain regions of the western part of the Fergana valley are the territory of the Margizor village of the Pop district, whose soils are not saline. In such irrigated pale gray soils, NSO3 -0.030, SL-0.018, Sa-0.010, Mg-0.006, SO4-0.121, Na+K-0.003, dry residue 0.265%, humus content 1.4%, mobile phosphorus 176 mg/kg, exchangeable potassium 362 mg/kg i.e. high amount was determined.

Spirulina jenneri from the Cyanophyta section (2), Bumilleriopsis brevis from the Xanthophyta section (2), Chlorella vulgaris from the Chlorophyta section are found in the soils of the plain region of Western Fergana. globosa (2) species and species occurrence rate was very low.

In addition, only Nostoc punctiforme f., belonging to the Cyanophyta division, adapted to live in these soils. punctiforme (9), Oscillatoria subtilissima (9), Oscillatoria mougeotii (9), Oscillatoria amphibia (9), Oscillatoria deflexa (9), Phormidium foveolarum (9), Symploca cartilaginea (9), Microcoleus vaginatus f. polythrichoides (9) species and subspecies encounter rate was very high.

It has been proven that some species of the genus Oscillatoria are especially abundant in soils with high soil fertility.

The southern part of the flat regions of the Fergana Valley is the territory of the Uchkoprik district of the Fergana region, the village of Qurbankashkar, and the soils are meadow soils. In irrigated low salinity soils, NSO3 -0.041, SL-0.003, Sa-0.074, Mg-0.094, SO4-0.534, Na+K-0.003, dry residue 0.902%, humus content 1.1% (low), mobile phosphorus 83, 7 mg/kg (very high), exchangeable potassium 54 mg/kg It was noted that it was detected in (very small) amounts [6;7].

The climate is continental, and the Kurama, Chatkal and Fergana mountain ranges block the cold winds from the north. That's why the winter here is warm. The average annual temperature is 15.4°C. In July it is 27-28°C, the highest temperature is 42°C, in January it is 10°C, the lowest temperature is -23°C. The vegetation period lasts 235-240 days. Average annual humidity in 2022 was 54%. This soil is adapted to the climatic conditions, and the level of cells in the field of vision is Microcystis pulverea f. parasitica (9),

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Gloeocapsa varia (9), Nostoc punctiforme f. populorum (9), Nostoc punctiforme f. punctiforme (9), Oscillatoria subtilissima (9), Oscillatoria irrigua (9), Oscillatoria splendida (9), Oscillatoria lemmermannii (9), Phormidium valderiae f. majus (9), Lyngbya amplivaginata f.hyalina (9), Symploca cartilaginea (9), Botrydiopsis eriensis (9), Bumilleria klebsiana (9) from the Xanthophyta division, and species and varieties were noted to be very abundant.

Andijan region, located in the eastern part of the Fergana valley, has its own natural conditions. The eastern part of the Fergana valley is the plain region of Pakhtaabad district of Andijan region, Shura village area, the soil is not saline. In irrigated pale gray soils, humus content is 1.4% (average), mobile phosphorus is 13.0 mg/kg (very low), exchangeable potassium is 65 mg/kg (very low), NSO3 -0.138, SL-0.007, Sa- 0.026, Mg-0.004, SO4-0.042, Na+K-0.001, dry residue was 0.104% [8;11].

The climate is sharply continental, and the climate of Andijan region is characterized by long duration of sunny days (up to 3000 hours a year), dry and hot summer, and cold winter, as well as significant differences in hydrothermal standards. Due to the heat of the climate, a large amount of water evaporates from the surface of the soil, which in turn leads to the use of artificial irrigation in agriculture.

The average temperature of July is 29.3°C, January -3.5°C. The lowest temperature is -26°C, the highest temperature is 42°C. Average annual rainfall is 300-400 mm. The annual humidity in 2022 was 59%. Rain falls mainly in winter and spring. The number of algae in the field of view of algae adapted to this soil climate is more than 60, and Microcystis pulverea f. Holsatica (9), Gloeocapsa varia (9), Nostoc punctforme f.populorum (9), Oscillatoria irrigua (9), Oscillatoria lemmermannii (9), Oscillatoria schultzii (9), Botrydiopsis eriensis (9) from the section Xanthophyta and species. level was very high [9;10].

Microcoleus paludosus (2) from some Cyanophyta section, Pleurogaster lunaris (2) from Xanthophyta section, Bumilleriopsis brevis (2), Characium naegelii (2) from Chlorophyta section, Chlorella mucosa (2) species in the field of view was found to be no more than 1).

The relative humidity of the atmosphere in the Fergana Valley (30-40%) is much higher than in other regions. Thus, the climate of the Fergana Valley is somewhat unique and quite favorable, and the soil and climatic conditions are very favorable for the growth and development of heat-loving plants.

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