GREEN ALGAE OF DARK SEROZOMES OF THE FERGANA VALLEY OF UZBEKISTAN

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ABSTRACT

The study of the water diversity of algae in the dark serozem of the Fergana Valley within the Namangan region of Uzbekistan. 100 species have been identified, of them green 43, blue-green 34, yellow-green 11, diatoms 12, one type of euglene blank Trachelomonas sp. and from cryptomonads Cryptomonas erosa. The predominant order of Chlamydomonadales was a single genus of Chlamydomonas (8 species), a widespread Ch.steinii. The northern slope is rich in algae (35 species) rather than southern (25 species). Of the heterocytic, Anabaenaceae (5) and Nostocaceae (6 species) predominated. Samples of genera Anabaena, Phormidium, heterocytic Nostoc punctiforme f.populorum, N.muscorum, N.linsckia, f.muscorum were more common in the samples. Of the green on the northern slope, 22 species were identified, the southern 29. Among the yellow-green, Bumilleriopsis bevis, Heterothix bristoliana and Tribonema viride were the most common. Of the diatomaceous genus, Navicula is represented by five species and the genus Hantzschi of 4 species, the predominance of Navicula atomus, N.murabilis, Hantzschia amehioxys, H.capitata.

Keywords: algology, species, dark serozem, Fergana Valley (Uzbekistan).

INTRODUCTION

Soil as a habitat, contributes to the mass development of microorganisms. With their participation, the processes of the transformation of substances take place, both the accumulation of elements of the mineral nutrition of plants, and the synthesis of the organic substances of the soil. Algae, being autotrophs, are the first to participate in the initial stages of the soil-forming process in primitive soils of the arid zone. The most studied algae of dark serosomes within the Namangan region of the Fergana Valley (Uzbekistan). The length of the surveyed soil in the northeast is 160 km, it extends 800-1300 above sea level, is distinguished by a change in climatic conditions, vegetation, which naturally should have its effect on the course of soil-forming processes. One of the features of the climatic regime is its sharp two-phase. During the summer phase, the activity of plants in the soil population is suppressed, chemical weathering slows down and movement of salts to surface horizons is observed. In the spring-mesothermic phase, the opposite conditions are created, the humus profile is poorly expressed, rich in phosphorus, potassium calcium. The soil solution has a slightly alkaline reaction. A new stage in the study of soil algae in Uzbekistan began conducting under the guidance of the Doctor of Biological Sciences, Academician AM Muzaffarov. Under his guidance, the study of irrigated chernozem soils of the Tashkent region by K. Yu. Musaev (1960). Under his leadership Sh. U. Umarova (1964) studied algae of cotton fields. Sh. Tojhiboev (1973) studied the algophlor of virgin soils of the Tashkent region and their biochemical features. Recent years have not been conducted to identify and determine soil algae in general in Uzbekistan. This work is the first report on the species composition of seaweeds of gray soils of the dark serosomes of the Ferghana Valley of the Namangan region in Uzbekistan.

Object and methods of research

Soil samples were taken in the genetic horizons by the season of the year, the depth of excavation, the temperature of the surface and the depth of the soil by the thermometer ripened. The method of aquatic cultures and also with fouling glasses according to Hollerbach and Shtin (1969) was used. View crops produced as the signs of vegetation. The growth rate of algae in crops depend on the season, sown in winter developed weaker than in other seasons.

Culture was viewed many times, the interrelationship of the non-simultaneous appearance and disappearance of species. Previously, all appeared green species: Chlamydomonas, Chlorococcum, then diatomaceous, blue-green, yellow-green appeared later.

The results obtained and their analysis

Seaweed algae are represented by 100 species, of which green 43, blue-green 34, diatoms 12 and yellow-green 11. Seven species account for 45% of green algae.

Class Volvocinieae from green algae is represented by a single genus Chlamydomonas with 10 species. Although this quantity is relatively large, it can not be considered as the limit in the studied soils, since in the cultures we have revealed a number of other forms that are in a state of rest that do not adhere to the definition. The abundance of chlamydomonads in various soils is tempered by a number of researchers Gollerbach, Shtina (1969), Shtina, Gollerbach (1979), Kabirov (2005).

Under the conditions of aquatic culture, individuals of the genus Chlamydomonas appear first, accumulating a bright green bloom usually from the consecrated side on the windowsill. With the passage of time, the species of chlamydomonads become palm-lobed. The most abundant in our cultures were Chlamydomonas isogama, which was found in all seasons of the year.

The class Chlorococcuphyceae is represented by 23 species distributed over 11 families. The largest number of species falls on the family Chlorococcaceae (8), Oocystaceae (7). The Chlorellaceae family is represented by the genus Chlorella Ch.pyrenoidusa, Ch.tericol, Ch.ulgaris and Trochiscia T. aspera, T.granulata, T.p. The family Scenedesmaceae includes, as usual for soils, the widespread species of genera Chlorococcum Ch.humicala, Ch.infusionum and although the radko constantly meets Macrochloris disscta and Plenracoccus vularis.The class Ulothrichopyceae is represented by 11 species belonging to the families of Ulothrichaceae Trentepohliaceae and Microsporaceae. The family Ulothrichaceae contains Ulothrix variabilis Hormidium nitens, Stichococcus minor. Family Trentepohliaceae T.gobii T.piceana these species are found on the northern slope. Among the representatives of Chlorophyta in dark serozem, Chlamydomonas oblonga, Ch.steinii, were widely distributed. Chlorococcum humicola, Ch.infusionum, Chlorella vulgaris, Ch.terricola Gloeocystis rupestris. Trachiscia aspera, Eremusphaeria variabilis f.minor, Macrochloris dissecta, Microspora tumidola, Stichococcus minor. The northern slope is richer in algae (35 species) than the southern (25 species). Of the blue-green class, Chroococcaphyceae is represented by Synechococcus aeruginosis and Gloeocapsa minima, noted both on the northern and southern slopes. The most abundant in dark serozem is represented by the class Hormogoniophyceae, which enumerates 16 species belonging to the heterozygous Anabaenaceae Anabaena (5 species), Nostocaceae (6 species). Of the representatives of these two genera, Anabaena osillarioides, A.constructa, A. variabilis, Nostoc punctiforme

populorum, N.microscopicum and N. linckia f.muscorum were widespread. Among heterocytics, Cylindrospermum muscicolo and C. stagnale were often found in the samples.

The order of Oscollatoriales is also rich in 16 species, most of these species (13) are in the Oscillatoriaceae family. The genus Phormidium includes 7 species, Lyngsbya 3 species. Among the blue-green ones found widespread were Synechococcus aeruginosus, Gloeocapsa minor, Nostoc punctiforme f.populorum. Nostoc microscopicum, Nostoc commune (in the form of a black corrugated plate), Anabaena oscillarioides, A. variabilis, Cylindrospumum stagnale, Phormidum foveolarum, Ph.molle, Microcoleus vaginatus. On the northern slope 22 species were identified, and to the south 29.Yellow-green in dark serozem is represented by 11 species. Of the class Heterococcaphaeae, seven species were found. Representatives of the family Plynrochloridaceae are characteristic of dark gray earth. Of the seeds. Gentiritractaceae identified two species from the genus Bumilleriopsis B. brevis and B.terricola. Nitgate and platangate representatives of the class Heterotrichophyceae were detected and identified: Heterothrix in one H.bristoliana identified on the northern slope, two species of the genus Tribanema-T. viride and T. vulgare and phlegate Heterococcus chodatii. By the number of species, the northern (9), the southern (7) have almost the same number. Almost every soil sample developed Pleurochloris commutata, P.magna, Botrydiopsis arhiza, B. erensis, Heterococcus chodatii. The method of soil cultures with fouling glasses shows that the Bacillariophyta department is one of the most important algal groups in dark serozem. Northern slope of dark serozem is slightly richer (10) than southern (8) species of algae. The genus Navicula contains 5 species, genus Homtzschia 4 species, Nitzschia is represented by N. amphibia and N. palea species. Almost all the specimens included Navicula atomus, N.murabilis, N.matica. Hantzschi amphyoxys, H.capitata and two species from the ode of Nitzschia. The total amount of algae in dark serozem, depends on the meteorological conditions of the year, ranges from 19.8 to 04.0 thousand cells in 1 g of airy dry soil.

CONCLUSIONS

Dark serozem extending from west to east from 800 to 1300 m above sea level with more pronounced humic soybean contains 100 species of algae with predominance of green-43% and green-34%. Soil conditions are more favorable for biological diversity with a predominance of Nostocales (15 species), Chlamydomonadales (10 species), Ulothrichales, Heterococcales (7 species each) and Heterothricales (5 species). Dark green, almost black crusts of Nostoc commune and Microcoleus vaginats and Phormidium foveolarum formed separate spots. They formed a noticeable film.

REFERENCES

1. Gollerbach MM, Shtina E. A. Soil algae. L: Science, 1969. 228 p.
2. Kabirov R. R. Soil vodrosli to the system of ecological rationing. V. Sat: Actual problems of modern algology. Theses dokl. III Intern. Conf. Kharkov, 2005. With 64-65p
3. Musayev K. Yu. Algae of irrigated lands and their significance for the fertility of soils. Izd.AN.UzSSR, Tashkent.1960.
4. Tazhibaev Sh. Zh. Algae of virgin soils. Tashkent region and their nectar biochemical features. Autoref.kand.diss. Tashkent, 1973. 25 sec.