JEDIC
Journal of Ethics and Diversity in International Communication
| e-ISSN: 2792-4017 | www.openaccessjournals.eu | Volume: 2 Issue: 7

Comparative Analysis of the Taxonomic Composition of Algae Flora of the Fergana Valley on Soils

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Annotation: The purpose of the research is to make a comparative analysis of the taxonomic composition of algae of the basic types of soils of the Fergana valley, and to determine their distribution in separate types of soils.

Comparative analysis of taxonomic composition on the soils, exposed on algae in oak, brown soils; The main task of the research is to examine the distribution of algae along the profile of the soil, and to analyze the distribution of Alta taxa, particularly green-grass, diatomaceae, and green algae on the studied soils.

Keywords: typically serosem, light serosem, dark serosem, typically brown, grey soil,blue-green, diatom, yellow-green, green and algae flora.

Introduction.

Microorganisms play an important role in increasing soil fertility. In their participation, metabolic processes take place, the mineral element necessary for the nutrition of higher plants is formed, the soil is enriched with organic matter. Soil is a month of life for microorganisms, and in their presence increases crop yields.

In our country, especially in the Fergana Valley, the types of algae distributed in the main types of soils have not yet been taxonomically and systematically studied. The study and analysis of the taxonomic composition of soil algae in them plays an important role in the study of biodiversity and determines the relevance of the research work.

Object, subject of research: The object and material of research are the main types of soils of the Fergana valley: systematic, taxonomic composition of algae identified from gray soils, light brown, light gray soils.

Research methods: Algological, geological and statistical methods, laboratory analysis were used in the research. The number of living aquatic cells in the soil was carried out according to the method of E.A.Shtina (1977).

The results obtained

When comparing the taxonomic composition of algae by soil type, the biological diversity in the algoflora of greedy, typical gray soils was stronger due to the influence of environmental factors on dark gray soils. This is due to the humus-rich nutrients in the dark gray soils, the diversity of the composition of the grasses, and the Nostoc commune Vauch. we explain it by the abundance of its shells.

In gray soils, blue-green algae accounted for 44.4%, diatoms for 9.52%, and yellow-green algae for 11.1%. In samples taken from these soils, *Oscillatoriales* with 15 species (22.7%), *Chlorococcus* regimens with 13 species (19.7%), *Oscillatoriaceae* 7, Chlamydomonadaceae family with 6 species were more common than others. In these soils the species of *Phormidium, Synechococcus, Chlamydomonada, Chlorella* families are more common than others. *Synechococcus sallensis, Anabaena birgei f.minor* were recorded only in fertile soils, they were not found in other soils. [14,C.415-418; 13,C.406-415]

In typical gray soils, blue-greens accounted for 36.7%, greens for 36.5%, diatoms for 11.11%, yellow-greens for 7.93%, *Oscillatotiales* and *Nostocales* regimens accounted for 13.43% with 9 species each, and *Chlamydomonadales* 7 species for 10.45%.

The families of the families Nostocaceae, Oscillatoriaceae, Anabaenaceae, Chlamydomonadaceae, Nostoc, Cylindrospermum, Chlamydomonas, Chlorella are very common. [1,C.26-28; 3,C.128]

Edaphic factors in typical brown, light brown soils, hydrothermal conditions are better than in hungry, typical gray, dark gray soils, which has led to an increase in the biodiversity of algae. The number of aquatic cells counted from the samples taken from the soil surface also represents the specificity of these soils.

The number of algae taxa is close to that of typical brown and light brown algae, with 32 species distributed.

Such proximity consists of 33 species in typical brown and dark gray soils. The species that were common among typical gray and dark gray soils were 6 species. The data presented indicate that all the soils studied in the taxonomic composition of algae have not only specific but also common types of algae. All the processes that form and take place in the soil affect the formation of taxonomic structures of living organisms, including algae.

The taxa of blue-green algae, which do not carry out nitrogen fixation in hungry and typical gray soils, have been noted, and the number of nitrogen-collecting taxa has increased among the dominant species of blue-green algae, from dark gray soils to typical brown soils. Oscillatorides in gray soils, taxa of Nostocales order families in typical brown and light soils were numerous. Gloeocapsa G.alpina, G.minor, G.turgida Stiganema hormoides of Chroococcales order were found in light soils. [12,C.405; 11,C.248-250; 9,C.249]

17 species of typical brown and light brown soils of the mountain were identified. They are: Borzia trilocularis, Palmella hualina, Tetracoccus botryoides, Ulothrix subtilissima, U.tenerrima, Hormidium dissecta, Stichococcus bacillus, Polyedriella Helvetica, Bumilleriopsis brevis, Bumilleria variacia, Num. Most of these taxa listed have a mostly fibrous structure.

From one type of soil, 24 species of blue-green algae, 2 euglena, 1 cryptophyte, 2 yellow-green, 5 species of green algae were identified, a total of 32 species and species. They are: 1) blue-green algae Synechococcus elongates, S.sallensis, Merismopedis minima, Gloeocapsa alpine, G.minor, G.turgida, Nostoc spaeroides: 2) Euglena algae- Euglena mutabilis, Trachelomonas rabusta: 3) Cryptomonas algae- erosion; 4) Yellow-green algae - Tribonema minus, Arachnochloris major; 5) Green algae Chlamydomonada longistigma, Ch.minutissima, Dactyococcus irregularis, Vaucheria terrestris, Gleocystis rupestris. [7,C.225, 6,C.223; 10,C.36-38; 5,C.350].

Of the two types of soil, 10 were blue-green algae, 13 were yellow-green algae -4, diatom algae were 7, and green algae were 13 species.

They are:

1) blue-green algae: Anabaena costaguei, Aphanothecc costagnei, A.saxicola, Anabaena constricta, Cylindrospermum majus, Oscillatoria brevis f.variabilis, O.schroeterii, O.tenuis f.tergestina, Lyngbya martensiana f.aophic. boryanum

2) Yellow-green algae: Trachychloron simplex, Bumilleria klebsiana, Heterotrix exilis, H.stichococcoides

3) Diatom algae: Navicula cryptocephala, N.minuscula, N.mutica, N.mutica var.nivalis, Pinnularia borealis, P.mesolepta, Nitzschia virgate var borealis

4) Green algae: Chlamydomonas acuta, Ch.gloeogama, Ch.gloeogama f.humicola, Ch.globosa, Ch.oblongella, Characium ovatum, Ch.strictum, trochiscialare, Trentepohlia piceana. [8,C.200-201;14,C.415-418]

Table 1. The number of algae taxa identified from soil types

Systematic groups, soils	In a type of soil	In two types of soil	In three types of soil	In four types of soil	Five types of soil
Blue-green algae	24	10	13	6	9
Euglena algae	2		1		
Cryptophyte algae	1				
Yellow-green algae	2	4	6	3	3
Diatom algae		7	2	2	3
Green algae	5	13	16	10	12
Total:	34	34	38	21	27

No taxa of diatom algae were recorded from systematic groups found in only one type of soil. Euglena and cryptophyte algae are less common in soils, so their species numbers are also less common, only detected in dark gray soils.

While the yellow-green algae were soil-specific, the number of species encountered in one type was 2.

Of the 249 species of blue-green algae, 15.09% of the total 159 algae taxa are distributed in the same type of soil.

While the number of taxa detected from two types of soils was one species more than that of the same type, the number of blue-green algae taxa decreased by 14, 7 species of diatom algae were identified, and the number of yellow-green algae increased to 4.

There were 12 species of three types of soils, uniform blue-green algae, 1 species of euglena algae, 6 species of yellow-green algae, 2 species of diatom algae, 15 species of green algae, a total of 37 species, species, forms.

1) Blue-green algae: Synechococcus aeruginosus 2) Euglena algae-Trachelomonas volvocina; 3) Yellow-green algae-Pleurochloris magna 4) Diatom algae-Navicula dicephala, Gomphonema acuminatum; 5) Chlamydomonas steinii from green algae [14,C.415-418].

Of the four types of soils, 6 species were blue-green, 2 species were diatoms, 3 species were yellow-green, 9 species were green algae, a total of 20 species, species, and algae.

1) Nostoc linckia f.muscorum, Anabaena oscillariodes, Cylindrospermum stagnala, Oscillatoria brevis, Phormidium autumnale, Ph.subfuscum from blue-green algae;
2) Diatom algae-Navicula murabilis, Nitzschia palea;
3) Yellow-green algae -Heterococcus chodatii, Tribonema vulgare, Heterothrix bristoliana;
4) Green algae - Chlamydomonas atoctogama.

There are 27 species in all five types of soils studied, including 9 species of blue-green algae, 3 species of yellow-green algae, 3 species of diatoms, and 12 species of greens.

Conclusions:

1) The taxa of blue-green and green algae accounted for 68.55%, the main in the total algae flora. Taxae found in mountain soils have a range of 62.89 to 66.66%.
2) among the systematic groups in gray soils, blue-green algae accounted for 44.4% and in typical gray soils 36.7%. The number of green, yellow-green algae taxa has been recorded in typical brownish, light brown soils, more than in ipsimon mountain soils.
3) Each type (subtype) of soil has only those species of taxa that are common to them and to them. The number of taxa recorded in typical gray and dark gray soils was 6 species, while in dark gray and typical brown soils this number was 33 species.
4) The number of taxa recorded from one type of soil ranged from 20 to 37, with a maximum of 13-15 among two or three types of soil.

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