VARIATIONS SEASON AND ANNUAL MAIN INDICATORS EUTROPHICATION SOME PONDS FISH. NOTES (II). THE EVOLUTION OF PHYTOPLANKTON

VARIATII SEZONALE SI ANUALE ALE INDICATORI DE EUTROFIZARE A UNOR BAZINE PISCICOLE. NOTA (II). EVOLUTIA FITOPLANCTONULUI

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The structure in the aquatic ecosystem of the whole can not be neglected in the first place because of the seasons, months, factors and processes that happens, with primary or secondary importance in relation to the problems studied (water quality, phytoplankton evolution, fish production).

Keywords: water quality, phytoplankton, fish ponds

Introduction

The research was carried out in biological period 2008, in the same time with physical and chemical parameter whoa was study. The aim of this paper work was to determinate and identified the phytoplankton taxa and the connect who exist between water quality and the present of some species by phytoplankton. In the biological period we find o great number of taxa belonging to seven division were identified, who belongs to Cyanophyta, Cryptophyta, Bacillariohyta, Chlorophyta, Conjugatophyceae, Euglenophyta, Cryptophyta. In spring season the dominated species was Bacillariohyta, in summer season Chlorophyta, Cyanophyta, Euglenophyta, in autumn season it notice an degree at Chlorophyta taxon. The algal composition, correlate with chemical parameters who was study in the same period shows the mesotrophic characteristic of water on study ponds.

Materials and Methods

Samples for phytoplankton species identification were preserved in 4% formaldehyde, for identification of diatoms was evidence by maintaining on fire 12 hours and identified under a microscope (Bell photonics), taxonomic identification it made compare the species with relevant sours (Krammer K&Langelot – Bartalot, 1991). Similarity index of phytoplankton component was using Jaccard ‘s index, and other Newmann methods (1930) who takes in consideration the
number of Chlorococcales and Cyanophyta species. Relations between different variables (parameters) involved in this study correlated with certain phytoplankton species was achieved by using non-parametric (Sperman)

**Results and Discussions**

Each lakes has a own phytoplanktonic species but there are some common species like: *Gomphosphaeria lacustris, Oscillatoria Agarthy, Achantes minutissima, Cyclotella comta*, *Coconeis placentula, Cymatopleura eliptica, Diatoma vulgar*, *Nitzschia palea, Navicula cryptocephala, Synedra ulna, Ankistrodesmus gracilis, Chlorella vulgar*, *Kirchneriela subcapitata, Koliela planctonica, Monoraphydium contortum, Scenedesmus sp.*, *Tetraedron triangulare, Oycystis lacustris, Trachelomonas hispida, Trachelomonas verucosa, Euglena viridis*. The most species who was founds, belongs mezosaprob-zone.

Phytoplankton as an indicator of eutrophication status, was the 167 (B) 137 (C) 172 (M), 188 (T) algae taxon who belongs at 6 taxonomic groups. (Bacillariophyta, Chlorophyta, Cyanobacteria, Chrysophyta, Euglenophyta şi Cryptophyta). The dominant species, in terms of diversity specific for spring season belongs Bacillariophyta group (species whose strength low thermal gradient is high), followed by taxonomic groups, Chlorophyta and Cyanobacteria in the summer they add Euglenophyta emergence of several species, but whose numerical abundance was high. During spring the lake level B, the lower the pH will lead to the existence of algae *Cosmarium* species, which
disappear with increasing pH values. Also at the same level in the lake throughout the spring season was observed in this taxon Asterionella Formosa, species of clean water, after that it disappear. It notice the growth of phytoplankton species with the submission to the season, the number decreases Bacillariophyta species and increase the number Chlorophyta during and immediately following Cyanophyta species with increasing amount of organic substance. Following this increase, occurring phytoplankton indicator species. Correlation between different physical parameters - chemical water can give some information about the algae species. The correlation between chemical oxygen demand (CCOMn) and the temperature of water is extremely or very significant at ponds level. (Sperman r for: B- r = 0.5762, C – r = 0.5762, M-r= 0.5497, T -r= 0.6396); the same correlation with highly significant meeting between water temperature and dissolved oxygen in water (Sperman for r B-r = 0.903 C -r = -0.8165, M-r = -0.8204, T-r = -0.8947. In this case we founded abundance of Microcystis aeruginosa, in summer season, species who grown at highs temperature (Lund, 1965), but in the same time represents an indicator of impurification (Malacea, 1969). The species presents Fragillaria, Anabaena flos – aqua, Mycroscistis aeruginosa are characteristic of water eutrope characterized by a small quantity of oxygen. Ratio of NO₃ and PO₄ in favor of phosphate in the summer make a contribution to lifting the water degradatin gradient of the fish pond studied. This fact results from abundance and number of individuals of the species Scenedesmus sp. and Ankistrodesmu s sp. The species Cyclotella meneghiniana algae in large numbers during the summer is the result of increasing the amount of organic substances and phosphates. Values were obtained collaborate with values obtained by other authors and Prygiel and Coste , 2000, Lehman, 1979. With the increase of pH value and increase the organic substance at the 4 basins studied, the relationship between these two variables are highly significant (Sperman r for: B- r = 0.8675, C – r = 0.6797, M-r= -0.8242, T -r= 0.7472. This fact is reflected by the disappearance of species Cosmarium botrys that it was present in the first period of the season, when the value of pH in spring season were below pH 6.8 unit.pH and a lower quantity of organic substance. Phytoplankton species diversity in each lake was determined using Jaccard's index's collaborated with other simple method of characterization the water quality. After determining in advance the number of total biological taxon per year and identify species common in lakes, which resulted in the diversity index. Number of species common in pond varies: 100 species in pond B and C, 112 species in pond B and 91 M and between species B and T, 87 and 92 common species were obtained from ponds and C M, C and T, 94 species between M and B, 87 species between M and T. After calculating the diversity index was obtained by a similarity of 96% of phytoplankton ponds between B and C, 97%; between B and M, 65% between C and T ponds, 56% C-M and only 52% between the ponds B-T. Following values obtained can highlight water chemical level of ponds by similarity indices who reflected an higher or lower degree of similarity and it can be concluded that in the lakes where the index is higher with the same fluctuation of physical parameters - chemical study. Using other methods developed to characterize biological basin, data
obtained coincide with the data obtained in that the class of water quality after physical - chemical parameter and Jaccard's index. Newmann method (1930) mentioned by Tülay B, 2004, present in large numbers of taxa from Cyanophyta (22 species (B), 12 species (C), 21 species (M), 25 species (T) and Chlorophyta (69 species (B)), 52 species (C), 71 species (M), 103 species (T) indicates the state of degradation of the pond, more intense in the case of pond T. A simple method for identification of biological water quality saprobe was inserted by GN DRESSER, 1974, which classify waters according to the proportions of certain species of phytoplankton in the waters studied the large number of Cyanophyta + Chlorophyta classified as water like being mesosaprobic

Conclusions

There is a correlation between the nutrients present in the water and number of algae species, each species has certain requirements to elements nutrients, which make their development to be seasonal.

Although algae species are mainly species who indicate the degradation at level water, doesn’t notice the of flowering water phenomenon

References