STRUCTURE OF EDAPHIC ALGOFLORA ON AGRICULTURAL LAND CULTIVATED WITH LUCERNE IN THE SOUTHERN DISTRICTS OF THE REPUBLIC OF MOLDOVA

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Abstract: This article addresses the problem of edaphic algal flora, characteristic of lucerna cultivated lands in the southern districts of the Republic of Moldova. Based on the taxonomic structure of some dominant species of algae, their study becomes important for agricultural Biotechnologies with application in agriculture.

Introduction

One of the most alarming problems facing society today is the catastrophic depletion of natural resources, primarily the depletion of food. Although, in general, the quantity of food products increases from year to year, yet on the globe there is a shortage of them in the population's diet. One of the best solutions to improve this situation is found in biotechnologies focused on the use of algae as plant growth stimulators. Algae can contribute directly to the increase of food products through the direct use of their biomass and, indirectly, by applying algae as biological stimulators to the cultivation of agricultural plants and the raising of domestic animals, being used at the same time as biological fertilizers of the soil, as a source remediation of degraded soils.

Material and method

The collection of samples and their analysis was carried out according to the widely applied methods in edaphic algology. The analyzed soil samples represent a mixed soil sample consisting of 10 individual samples with a volume of 5 cm³ each, collected from an area equal to 100 m². Then transported and analyzed under laboratory conditions.

Results and discussions

The species are most often found in these soils from cyanophytes are: Oscillatoria brevis Kütz. ex Gom with a coefficient of spread of 70% and Phormidium tenue (Ag. ex Gom.) Anagn. et Kom – 60% Phormidium fragile Gom, Schizothrix friesi (Ag.) Gom, Lyngbya kuetzingii var. distincta (Nordst.) Elenk. Gom with a coefficient of spread of 45% each. Xanthophytes diversity is slightly less, the most representative species being represented by Pleurochloris anomala with a coefficient of spread of 60%, Botrydiopsis arhiza Borz, Botryochloris cumulata, Gloeobryas chlorinus, Chlorophyta incrustans and Pleurochloris sp with 30% each. From chlorophytes these are: Klebsormidium flaccidum (Kütz.) Silva, Mattox et Blackwell – with 60% and Desmococcus vulgaris (Näg.) Brand și Chlorella vulgaris Beijer with 45% and 30% each. Diatoms in these soils are present with only two species, both of which belong to the dominant species group, Hantzschia amphioxys (Ehrb.) Grun. in Cl. et Grun. var. Amphioxys with 100% and Navicula mutica f. goeppertiana (Bleisch) H.L. Smith with 30%.

Conclusions

The analysis of soil samples collected from lucerna sown fields revealed a fairly varied edaphic algal flora consisting of 79 species and varieties of algae: Cyanophyta – 35; Xanthophyta – 23; Chlorophyta – 17; Bacillariophyta – 4. Cyanophytes have been shown to be the most numerous in these biotopes, also having potential with the prospect of use in Biotechnologies as growth stimulators for crop plants, source of nitrogen in the soil and as a factor to improve soil quality. Xanthophytes and chlorophytes, due to the high numerical frequency, have great importance regarding the accumulation of bioactive substances in the soil and of microelements that are also of practical interest for agricultural Biotechnologies.