

## **Algal Flora of Maize Field Soil in Ahmednagar District of Maharashtra.**

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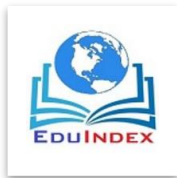
### **ABSTRACT**

Soil algae are one of the significant components of soil microflora. They play an important role in fertility of soil. Blue green algae fixes atmospheric nitrogen and increases the fertility of soil. The cultivated field ecosystem provides a favourable environment for the growth and development of algae. Present research work deals with the study of algal flora of Maize (*Zea mays* L.) field, located in Shrirampur tehsil area of Ahmednagar district of Maharashtra. In order to study algal flora of maize field, algal samples from moist places of field were collected at regular intervals from July 2017 to October 2017. Bold's basal medium was also used to culture algae from soil of maize field. Collected and cultured algal samples were observed with the help of standard literature on algae. A total of 47 species under 29 genera belonged to Chlorophyceae, Bacillariophyceae and Cyanophyceae were recorded. Cyanophycean algal taxa were found dominant in the soil of maize field. *Gloecocystisgigas*, *Gloeocystis major*, *Chlorococcumhumicola*, *Chlorella vulgaris*, *Nitzschiapalea*, *Aphanothcenidulans*, *Aphanothcesaxicola*, *Oscillatoriaobscura*, *Phormidiumjenkelianum*, *Phormidiummolle*, *Phormidiumusterii*, *Microcoleusacutissimus*, *Microcoleuslacustris* and *Plectonemagracillimum* were found abundant. Algal flora of maize field is rich and it is in diverse form.

**Key words:** Algal flora, maize field, soil.

### **Introduction**

Soil algae is one of the important component of soil microflora. They occur on or in soil, grow luxuriantly and found in diverse form. Soil algae are ecologically important as it protects soil from wind erosion and also act as an absorptive organ for water. Cyanophycean algae fixes atmospheric nitrogen and enhances the fertility of soil. Almost all species of soil algae helps in retention of soil moisture. Cultivated field ecosystem provides a favourable environment for the



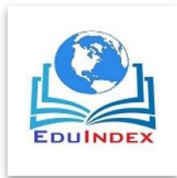
growth and development of soil algae with respect to their requirement of light, water, temperature and nutrient availability. Soil algae have attracted the attention of phycologists since last few decades (Meeting 1981, Bongale 1985, Prasad 2005, Auti and Pingle 2007, Jadhav 2010 and Nimbhore and Jadhav 2014). Soil algal flora of paddy, banana, wheat, sugarcane have been studied extensively by earlier research workers (Bongale and Bharati 1980, Kolte and Goyal 1985, Kottawar and Pachpande 1986, Nayak et. al. 2001, Patil and Chaugule 2004, Prasad 2005, Auti and Pingle 2006, Nimbhore and Jadhav 2014). Maize (*Zea mays* L.) is one of the cereal crop of India. It is also cultivated on large scale in Maharashtra. Review of literature reveals that, very rare attention has been paid towards algal flora of maize field. Therefore, it has been decided to work systematically on algal flora of maize field soil.

### **Material and Methods**

A maize field located in Shrirampur tehsil area of Ahmednagar district of Maharashtra has been selected for collection of algal samples. Algal samples which are grown on moist soil surface of maize field were collected at regular intervals from July 2017 to October 2017. Algal samples were collected in sterilized collection bottles. Collected algal samples were brought to the laboratory for observation and identification. Sun dried soil samples collected from same maize field were examined for their algal components by petriplate culture method. 1 gm of pulverized soil poured and spread uniformly into petriplates containing agarized Bold's basal medium (Bold 1942). Liquid nutrient medium was poured into the plates at the time of keeping those for incubation and frequently supplemented with the same. Petriplates were incubated under tubelights having 1000 to 1500 lux capacity in algal culture chamber. Petriplates were checked for the growth of algal colonies. After sufficient growth, algal colonies were picked up for identification. Collected and cultured algal samples were observed under microscope.

### **Results and Discussion**

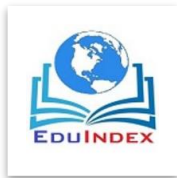
A total of 47 species under 29 genera were identified of these 8 species under 7 genera belonged to Chlorophyceae, 7 species under 7 genera to Bacillariophyceae and 32 species under 15 genera to Cyanophyceae (Table 1). Cyanophycean algae dominated algal flora of maize field soil. Similar observations were made by Bongale and Bharati (1985), Kottawar and Pachpande



(1986), Auti and Pingle (2006) and Nimbhore and Jadhav (2014). Algal taxa which were found dominant during present study were *Gloeocystisgigas*, *Gloeocystis major*, *Chlorococcumhumicola*, *Chlorella vulgaris*, *Nizschia palea*, *Aphanothece nidulans*, *Aphanothece saxicola*, *Oscillatoria obscura*, *Phormidium usterii*, *Microcoleus acutissimus*, *Microcoleus lacustris* and *Plectonema gracillimum*. Chaporkar and Gangawane (1984) reported abundance of *Phormidium*, *Nostoc*, *Anabaena*, *Scytonema* and *Fischerella* from sorghum, wheat, sugarcane, and cotton fields. Prasad (2005) recorded dominance of *Chorella* and *Chlorococcum* while studying algal flora of wheat field. Bongale (1985) recorded dominance of diatoms such as *Navicula*, *Pinnularia*, *Cymbella*, *Hantzschia* and *Nitzschia* from cultivated soils of Karnataka. Thus it is concluded that algal flora of maize field soil is rich and found in diverse form. Cyanophycean algae are found dominant followed by Chlorophyceae and Bacillariophyceae.

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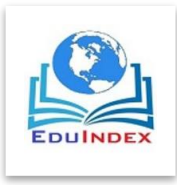
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**Table 1: Algal flora of maize field soil.**

<b>Chlorophyceae</b>
<i>Gloeocystis gigas, Goeocystis major, Tetraspora lamellosa, Chlorococum humicola, Trebouxia humicola, Chlorella vulgaris, Scenedesmus caudricauda, Spirogyra subsalsa</i>
<b>Bacillariophyceae</b>
<i>Fragilaria brevistriata, Navicula cupsidata, Pinnularia sp., Cymbella aspera, Nitzschia palea, Gomphonemasp., Suriella ovata.</i>
<b>Cyanophyceae</b>
<i>Chroococcus minutus, Chroococcus turgidus, Gloeocapsa rupestris, Gloeothece palea, Aphanothece nidulans, Aphanothece saxicola, Chlorogloea microcestoides, Myxosarcina burmensis, Arthrospira platensis, Spirulina subtilissima, Oscillatoria acuta, Oscillatoria obscura, Oscillatoria subbrevis, Phormidium abronema, Phormidium angustissium, Phormidium bohneri, Phormidium corium, Phormidium jenkelianum, Phormidium molle, Phormidium usterii, Lyngbya hieronmussi, Microcoleus acutissimus, microcoleus lacustris, Microcoleus sociatus, Nostoc commune, Nostoc punctiformae, Nostoc muscorum, Plectonema gracillimum, Plectonema puteale, Plectonema radiosum, Scytonema bohneri, Scytonema schmidtii.</i>



**Think India Journal**  
*ISSN: 0971-1260 Vol-22, Special Issue-31*  
**National Conference ETDAB-2019**  
Held on 23th & 24th December 2019  
Organized by: Deptt. of Botany, Deogiri College, Aurangabad, M.S



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