

## Algal Flora of Rice Fields from Tiswadi Taluqua, Goa

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### ABSTRACT

The present communication deals with algal flora of paddy fields from Mercas (Taluca-Tiswadi), North Goa. Frequent collections were made every fortnight from 5 paddy fields of Mercas. Algal colonies were picked up by hand picking method. Epilithic, epiphytic and planktonic algae were collected. The present survey has resulted in the report of 46 algal taxa. Cyanophyta and Chlorophyta were the dominant algal groups. Altogether 25 genera with 30 species of green algae were recorded from this area. *Spirogyra*, *Zygnema*, *Cosmarium*, *Closterium*, and *Pediastrum* were the dominant genera of green algae. 14 genera with 16 species represented the Cyanophyta. The dominant blue-green algae were *Merismopedia*, *Nostoc*, *Anabaena* and *Gleocapsa*.

### Introduction

Fresh water algae have gained importance due to their role in the natural environment. BGA due to their ability to fix atmospheric  $N_2$  aids to maintain the Nitrogen status of irrigated Rice fields. Where as other groups of algae together with BGA and other microbes are well known in conditioning the soil and help to ease infiltration. Many of them are known to produce herbicides, antibiotics and other compounds with hormone like activities (Metting et al., 1988).

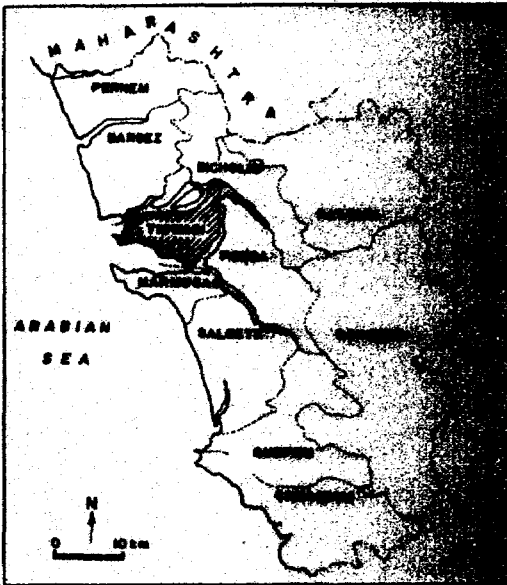
Enormous information is available on BGA flora of Rice fields of North India and South India. Many workers have given good distributional and taxonomic account of various fresh water Chlorophyceae. Literature survey revealed that fresh water algal flora of Goa has received incidental

attention. Only two reports are available for this region. Bongale, (1981) has enlisted algae from Panjim Paddy Fields. Kerkar and Madkaikar (2002), have reported in their random survey 46 species of 23 genera of BGA from taxonomic point of view. No work has been done on other groups of algae.

The present work is carried out in Tiswadi taluqua of Goa and it deals with diversity of two dominant groups from paddy fields i.e. Chlorophyta and Cyanophyta.

### Materials and Methods

Study area and its features - Goa is Geographically situated between 73 40 - 74 20'E and 14 47'N with Sindhudurg district of Maharashtra state on north and North canara district of Karnataka state on South, the western ghats on the east and Arabian sea on the west.



**Fig.1. Map of Goa showing station studied**

The region is drained by two major rivers; the Mandovi (61.6 Km long) and Zuari (62.4 Km Long). Along the coastal Plains, cultivated fields, Khazan lands and ponds are common. Geology - Three types of soils are mainly observed in Goa. i) Laterite ii) Red gravelly soil along the river beds iii) Alluvial soil along the coastal belt.

**Climate :** The climate of Goa can be classified into four seasons. The summer from March to May. The south west Monsoon from June to September, The post monsoon from October to November and the Winter from December to February with a Distinct dry period of 6-7 Months from Nov to May.

**Rainfall :** The area receives heavy rainfall during during the south west monsoon seasons from June to September. The rains are often

associated with very strong winds. The annual rainfall varies from 280 to 350 cms.

**Humidity :** Due to its proximity to the coast and due to the presence of a lot of water courses and forests, the humidity is high and usually varies from 70-95%.

**Temperature :** The hot season is during March to May with maximum temperature varying from 35 to 37°C and minimum temperature from 15 to 16°C.

The present work is carried out in Tiswadi taluca of Goa (Fig.1). which is a coastal taluca situated in north Goa District. Periodic collections were made from 5 fields from Mercedes, Cujira, Cudca, Taleigoan areas. Planktonic, large filamentous and epiphyllous algae were collected for a period of June- September 2002. Paddy cultivation is carried out in most of the parts of Tiswadi. In some parts rainfed paddy is followed by rabbi paddy and vegetables. From May, parts of the field are used for cultivating watermelons, brinjal, cow-pea etc.

## RESULT AND DISCUSSION

The present random survey has resulted into the report of 46 algal taxa. Cyanophyta and Chlorophyta were found to be the dominant algal groups. Altogether 14 genera and 16 species representing five families of blue green algae and 25 genera and 30 species representing 13 families of green algae were recovered. The dominant families of blue green algae were Chroococcaceae, Oscillatoriaceae, Nostocaceae and Scytonemataceae. Zygnemataceae,

21. *Dactylococcopsis raphidoides* Hansg
22. *Oscillatoria raoi* De Toni
23. *O. proboscidea* Gomont.
24. *O. limosa* Ag. ex. Gomont.
25. *Spirulina gigantea* Schmidle
26. *Lyngbya birgei* Smith G.M.
27. *Cylindrospermum stagnale* (Kuetz). ex Born et Flah
28. *Nostoc paludosum* (Kuetz) Born. et Flah
29. *Aulosira implexa* Born. et Flah
30. *Anabaena torulosa* (arb) Lagerh exx
31. *Anabaena ambigua* C.B Rao,
32. *Scytonema coactile* Montagne ex Born
33. *Calothrix javanica* de Wilde

### Conclulsion

The present preliminary work has resulted into the report of 46 algal species of which 25 genera with 30 species of Chlorophyta and 14 genera with 16 species of Cyanophyta. The further systematic survey may result into the discovery of many more taxa.

### Acknowledgement

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Scenedesmaceae, Desmidiaceae and Hydrodictyaceae were the dominant families of green algae.

*Nostoc*, *Merismopedia*, *Anabaena* and *Geocapsa* were dominant genera of blue green algae. *Spirogyra*, *Zygnema*, *Cosmarium*, *Closterium* and *Pediastrum* were the dominant green algae. Green and blue green algae collected during the study period are enlisted below.

#### CHLOROPHYTA

1. *Chlorogonium* sp.
2. *Pandorina morum* (Muell) Borry
3. *Sphaerocystis schroederi* Chodat
4. *Tetraspora* sp.
5. *Pediastrum tetres* (Her) Ralf
6. *Pediastrum duplex* var. *gracillium* Moym
7. *Hydrodictyon reticulatum* (Lenn) Leguheim
8. *Ankistrodesmus spiralis* (Turner) Lemm var. *fasciculatus* G. M. Smith
9. *Kirchneriella obesa* (W. West) Schmidle
10. *Scenedesmus bijugatus* (Turp) Kuetz.
11. *S. dimorphus* (Turp) Kuetz.
12. *S. denticulatus* Lagerhein var. *australis*
13. *Coelastrum microsporum* Naeg.
14. *Dictyosphaerium* sp
15. *Tetrallantos* sp.
16. *Spirogyra consensata*
17. *Zygnema* sp
18. *Mougeotia* sp.
19. *Netrium digitus* (Ehr) Itzigs. var. *constrictum*
20. *Straurastrum recurvatum* Turner
21. *Closterium purvulum* Naeg
22. *C. cynthia* De Not
23. *C. tumidum* Johns
24. *Cosmarium speciosum* Lund
25. *C. nitidulum* De
26. *C. awardhense* Prasad et Malhotra
27. *Euastrum coralloides* Josh var. *trigibbe*
28. *E. spinulosum* Delp var. *burmense*
29. *E. sinosum* var. *reductum* W. et G.S. West
30. *E. dubium* Naeg var. *tritum* W. et G.S. West
31. *Penium minutum* (Ralf) Cleve var. *crassum* W. West
32. *Oedogonium* sp
33. *Bulbochaetae* sp
34. *Microspora floccose* (Vaucher) Thuret
35. *Pithophora varia* Wille

#### Cyanophyta

1. *Microcystis aeruginosa* Kutz.
18. *Geocapsa punctata* Nag.
19. *Aphanocapsa roseana* de Bary
20. *Merismopedia tenuissima* Lemm.