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Studies on Algal Biodiversity of Tapti River in Burhanpur District of Madhya Pradesh, India

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Abstract: ***The present investigation was undertaken with a view to saudy algal biodiversity of Tapti river in Burhanpur Distric of Madhya Pradesh, India. The research Work was performed during june 2015 to May 2017, Altogether 26 genera were indentified and recorded from different to sites of Tapti river during the two year period of investigation.of these 13 genera belonged to chlorophyceac 06 genera belonged to Becillariophyeeac, 04 genera belonged to eyanophyeeac, 02 genera belonged to charophyeeac and ol genera belonged to Euflenophyeeac. The members of chlorophyeeac were dominant followed by becillariophyeeac, charophyeeac and euglenophyeeac. Diversity of algae in terms quantity and quality were observed at all selected sites of Tapti river. Unicellular, colonial and filamentous algal forms were reported throughut the period of investigaton. The algal gehera whose specirs recorde at all sites of study area were sjzivogyra, zygnemo cosmarium, Nit$_3$sehia, Euglena, Chlorococcus, oscillatoria and shormidium (see table :1 & table:2)***

Keywords: Algal Biodiversity, Algal blooms, Burhanpur, Tapti river, Madhya Pradesh , India

1. Introduction

Algal are the most widespread and abundant photosynthetic life in aquatic as well as terrestrial ecosystem. Algae gain its importance in the modern time not only as alternative potential source of protein for the hungry man but also as the primary solirec & food for equatic animals. Palmer (1969), Trivedy and goel (1980) have reported different algal forms as an indicator of waat pollution.

The accumulation of algae at or heat source f the water is called as “Algal Blooms” or “mats” riew f literature reveals that the algal biodiversity in East Nimar is still in infacy. Therefore to fulfil this lacuna, it has been dicided to work on algal biodiversity of Tapti river in Burhanpur Distric of Madhya Pradesh, India.

2. Materials and Methods

Fortnightly collection of water sample was done from all the 10 Sites (Before samshan ghat [S_1] Tapti river [S_{10}]) of Tapti river in Burhanpur, M.p India (Sec table:1) Physiochemical parameters where analyzed wing standard methods of APHA (1998) and Khanna and Bhuliai (2008). The algal sample collection carried out with the help of truneate eone shape plankton net the plankton net is made of bolting Silk No. 25 Standard grade. This has aperture size of o.64 mm. The Sample Was eoncentrated by Sedimentation method, removing this Supernatant by decanting and the desired final volume was obetained . For eounting, 1 ml of Eoncentrated sample was taken and placed Sedgwick Rafter Counting cell following the Standard methods of APHA (1998).Trivedi And Goel (1986) hut Chinson (1967) and Khanna and Bhutiani (2008) The Eoncentrated was preserved in U% Formatin for study (Wetch,1952). (See Table:1 & Table:2) Given Formula is used to calculate percentage.

$$\text{Percent} = \frac{\text{No. of gener}}{\text{Total No. of genera}} \times 100$$

Table: Sample Collected from to different Sites location.

S.No.	Sourec	Sample Location	Sites
01	Tapti river	Before Samshn ghat	S_1
02	Tapti river	Shamshan ghat	S_2
03	Tapti river	Nagzhiri ghat	S_3
04	Tapti river	Rajghat	S_4
05	Tapti river	Jainabad Bridge	S_5
06	Tapti river	Satiyara ghat-1	S_6
07	Tapti river	Satiyara ghat-2	S_7
08	Tapti river	Big Pool Bridge	S_8
09	Tapti river	Small Pool Bridge	8_9
10	Tapti river	After Small Pool	8_{10}

Table 2: Algal genera common 4 in water habitat of Tapti river in Burhanpur. Distric of Madhya Pradesh, India

S.No	Name of Algae / genera	Class	Total No. of genera	Percentage %
01	Chlorella, Cosmarium, oedogonium,Pediastum,scendesmus,Spirogyra, Ulothrix,Hydrodictyon,Chladophora,Ehloroeoccus,Desmidium, 3ygnema, and volvox	Chlorophyeeac	13	50.0
02	Navicula, Nitzsehia, Fragilaria, Pinnularia, Cymbelola. And eyelotella.	Becillariophyeeac	06	23.7
03	Oscillatoria, Spirulina, Nostoc, Phormidium	Eyanophyeeac	04	15.3
04	Chara, Nitella	Charophyeeac	02	7.6
05	Euglena	Euglenophyeeac	01	3.8
Total	26	05	26	100.4

3. Results and Discussions

The information on algal biodiversity is essential in monitoring and management of a aquatic ecosystems.
The result & Discussions are summarized as below:-

- In present study overall 26 genera were record from five groups of algae i.e chlorophyeeac, Bacillariophyeeac, eynophyeeac, charophyeeac and eliglinophyeeac.
- Chlorophyeeac group Was dominant as it was represent by (13) genera, Becillariophyceeac(06) genera, eyanophyeeac (4) genera, charophyeeac (2) genera and euglenophyeeac (01) genera. (See Table:2)
- The composition of chlorophyeeac was greater in genera composition as compered to the other group of algae.
- Class wise parcentage contribution study of algal genera reveals that light contribution was of chlorophyeeac (50.0%) followed by Becillariophyeeac (23.7%) eyanophyeeac (15.3%), chlorophyeeac (7.6%) and euglenophyeeac (3.8%).(See Fig:1 & Fig:2)
- During present inventigation it is observed that algal bloom formation starts in ther month of September reaching a peak in the month of November to January . The blooms exists up to may.
- Algal genera of 10 selected sites of Tapri river is very rich and it is found in diverse form. (See Table:1:)

4. Conclusion

- **Algae Biodiversity Composition:**
  In present investigation algal genera such as vos marium, spirogura, sechedesmus, zygnema, ulothrix, pediastum, phoromidium, ascillatoria, spirulina, Fragilaria pinnularia, and eulena were dominant.
- **Seasohal Variation:**
  Winter and slimmer reasons are found favocrable for the growth of algae.
- **Pollution index:**
  For Pollution index study, Pollution tolerant genera of algae were recoarded from all Sites of Study area. The Pollution tolerant genera which were recorded at all sites are euglena, Oscillatoria, Secnedesmus, promidium, spirogyra, and cosmarium.
- **Algal genera of satnding and running water habitals:**
  Maximum algal forms were found at stauding water sites as compared to running water sites.
- **Algal Blooms:**
  Algal blooms are cladophara, zygnema, Oscillataria, phormidium and hydrodictyon
- **Epiphytic Algal:**
  Algae epiphytic on aquatic angiosperms like cyperus sp. , ipomoea sp. And Typha sp. Were collected and observed. Ex. Ulothrix, Oedogonium pinnularia,

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Author Profile

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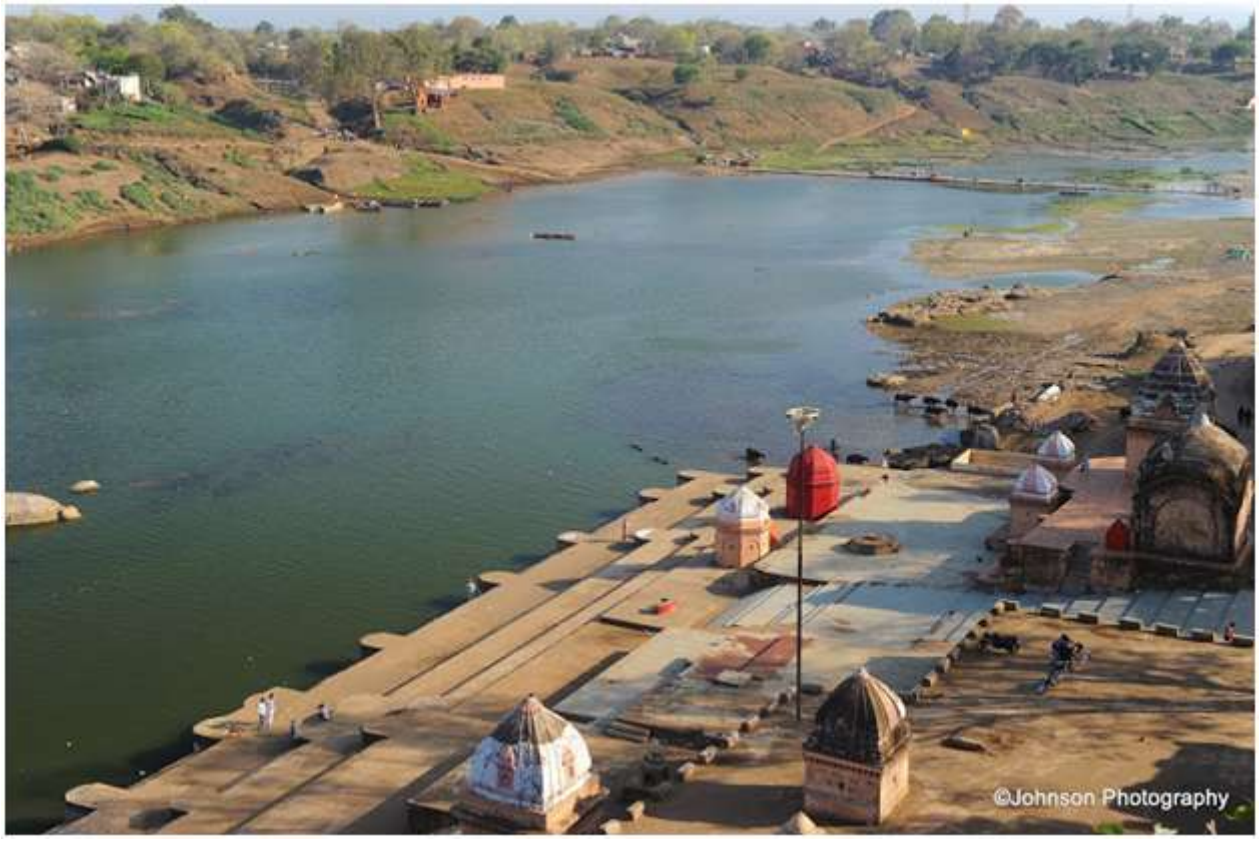
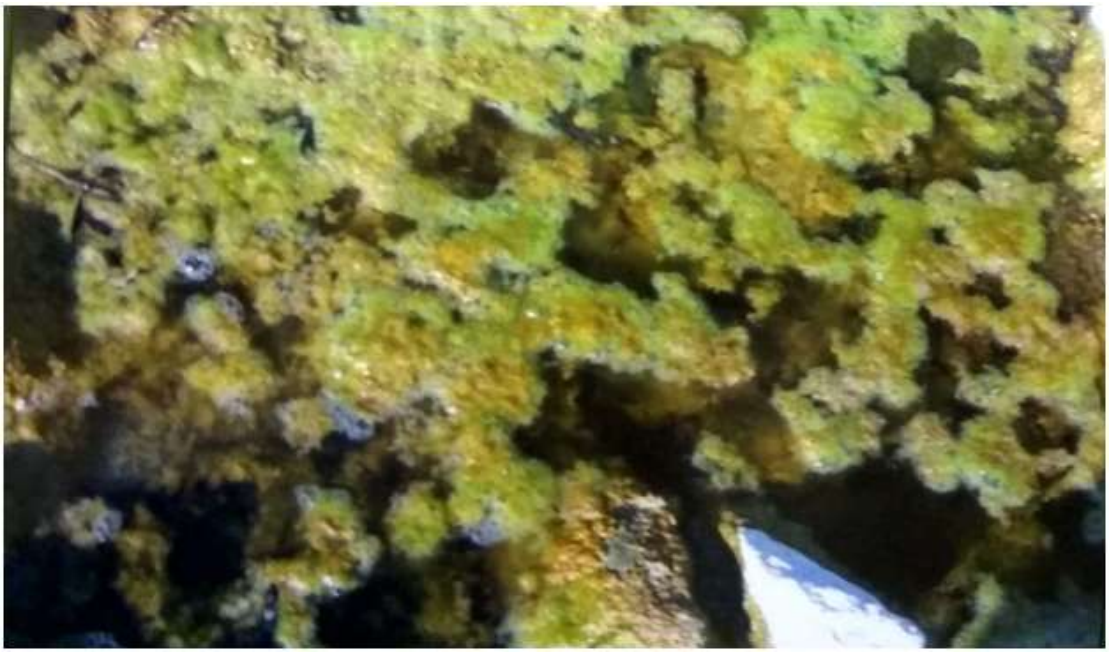


Tapti River Showing Selected Sites (Before Shamshan Ghat **S1** To After Small Bridge **S10**)

Map of District Burhanpur Showing Sampling Sites (**S1** To **S10**) in Tapti Rever



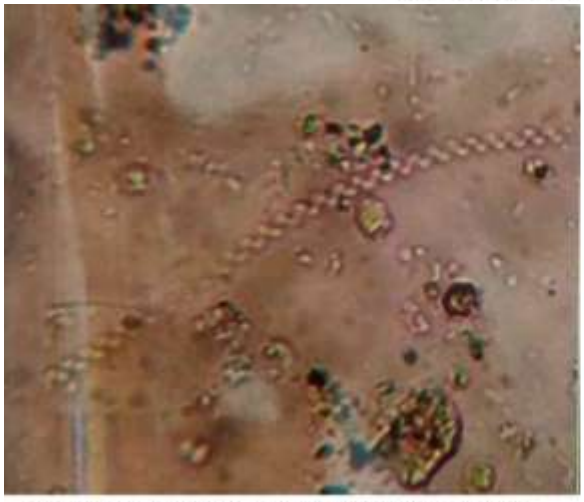
Algal Blooms

Floating Algae

EPIPHYTIC ALGAE

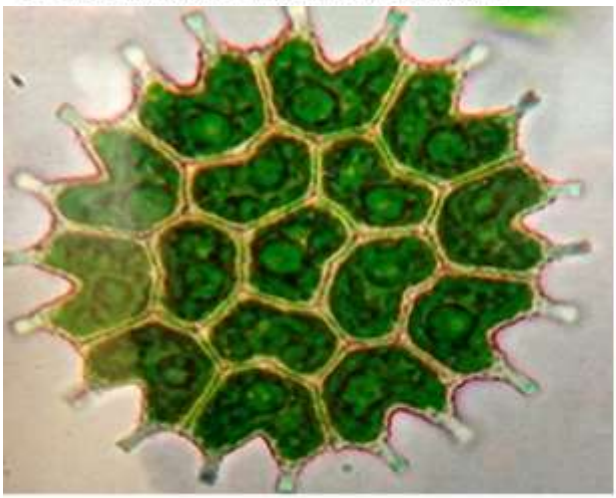
ALGAL POLLUTION

NITZSCHIC CLOSTERIUM W.SMITH



SPIRULINA MAJOR KUETZ EX GOMONT

ULOTHRIX SUBTITILISIMA RADENHORTS



PEDIASTRUM BORYANUM(TRUP.) MEHEGHINI

HYDRODICTYON RETICULATUM L. LAGERHEIM