

# Hydrobiological studies in the upstream of river Kunda at Khargone, Madhya Pradesh

Bharti Khare

Botany Department, Govt. P.G.College, Barwani

## Abstract

The present paper deals with the hydrobiological observation on the upstream water of river Kunda at Khargone, M.P. The data revealed that 4 major groups of algae i.e. Chlorophyceae, Bacillariophyceae, Cyanophyceae and Euglenophyceae are present in the upstream of Kunda river.

**Key words:** *Phycology, fresh water biology, algal taxonomy, limnology, water analysis.*

## Introduction

Algae plays an important role in all types of water bodies. Polluted water harbour characteristic types of algal taxa. Algae in general and blue green algae in particular cause additional problems in water supplying. Kunda river, a tributary of Narmada is sufficiently rich in various types of algae. Earlier works on the algal flora of M.P. by Desikachary and Mall (1955), Agarkar and Agarkar (1962), and others reveal that our knowledge regarding the algal flora of M.P. is scanty. Seerwani (1963) and Mahajan (1987 & 1991) have published some research papers on the algae of Khargone. Recently physico-chemical and biological characterization of the river Kunda at downstream of Khargone has been reported (Mahajan *et al.*, 2002 and Mahajan, 2005) but till now no such type of work has been done on the upstream of this river. Therefore the present investigation has been taken up.

## Material and Methods

Water samples were collected during 2005-06 from the Dargah site of the river Kunda near water filtration and purification plant of Khargone city. This place is only 3 Km away from the city. Algal taxa were identified after consulting the standard literature and monographs (Desikachary, 1959; Randhawa, 1959; Prescott, 1964 and Phillipose, 1967) and every attempt has been made to bring the nomenclature up-to-date. Enumeration of algal members of different classes is shown in Table 1. Physico-chemical characteristics of water samples were determined following Golterman and Clymo, 1969; Trivedi and Goel (1986) and APHA (1989) and the data are shown in Table 2.

## Results and Discussion

It is revealed from Table 1 that altogether 21 algal taxa are reported, out of which 10 taxa belong to Chlorophyceae, 5 to Bacillariophyceae, 4 to Cyanophyceae and 2 to Euglenophyceae. Important members reported are *Zygnema* and *Scenedesmus*. Occurrence of *Anacystis* and *Schizomeris* is significant because these taxa are new records for West Nimar district. Fertile stages of *Zygnema* and *Spirogyra* were also reported. Apart from this, 3 members of zooplankton are also reported i.e. *Daphnia*, *Cyclops* and *Rhabditis*. From Table-2 the water analysis shows that pH of water is alkaline (7.7), DO is maximum in winter months while minimum during monsoon months. The values of Conductivity, Total alkalinity, Hardness, Magnesium, Calcium and Chlorides are maximum in summer while minimum in winter months.

## Acknowledgements

The author is grateful to Dr. S.L. Yadav, Principal, Govt. P.G. College, Barwani for facilities and encouragements and Dr. S.K. Mahajan, Ex-Professor of Botany, Govt. P.G. College, Khargone for going through the manuscript and helpful suggestions.

## References

- Agarkar, D.S. and Agarkar, M.S., 1972. Contributions to demids of M.P. (India), Port, *Acta, Biol.* 12 :159-178.
- A.P.H.A., American Public Health Association 1989. *Standard methods for examination of water and waste water*, Washington D.C., USA, 17th Edition. 1452 pp.
- Desikachary, T.V. and Mall, L.P., 1955. On the occurrence of *Lyngariella tirupatiensis* Des. *Curr.Sci.* 24 : 245-246 from Pachmarhi.
- Desikachary, T.V., 1959. Cyanophyta, I.C.A.R., New Delhi. p. 700.
- Golterman, H.L. and Clymo R.S., 1969. *Methods for the Chemical analysis of Fresh Water*. B.P. handbook no. 8, *Blackwell Sci. Pub. Oxford* 166 pp.
- Mahajan, S.K., 1987. Algal flora of Pawagiri Oon, Madhya Pradesh, *Phykos*, 26 (1 & 2): 61-62.
- Mahajan, S.K., 1991. Algal flora of Choolgiri Hills, Madhya Pradesh. *Phykos*, 30 (1 & 2) : 87-89.
- Mahajan, S.K., Garde, Yogesh; Bhawsar, Rakesh and Sharma, Sharad, 2002. Physico-chemical and Biological characterization of the river Kunda at downstream of Khargone (Madhya Pradesh), India. *Environment Conservation Journal*, 3 (2): 53-55.
- Mahajan, S.K., 2005. Algal flora of a recently constructed dam on river Dalki in West Nimar district of M.P., *Indian Hydrobiology*, 8 (2): 113-116.
- Philipose, M.T., 1967. *Chlorococcales*, pub. ICAR, New Delhi.
- Prescott, G.W., 1964. *The freshwater algae*, W.M.C. Brown Co., Publ. Dubuque, pp. 258.
- Randhawa, M.S., 1959. *Zygnemaceae*, Pub. ICAR, New Delhi.
- Seerwani, A.B., 1963. Occurrence of Enteromorpha at Khargone, Madhya Pradesh, *Curr. Sci.*, 32: 182.
- Trivedy, R.K. and Goel, P.K., 1986. Chemical and Biological Methods for Water Pollution Studies, 2nd edn., *Environmental Publishers*, Karad, M.S., 250.

**Table 1. Algal taxa reported in the upstream water of river Kunda at Khargone, M.P.**

### Chlorophyceae

1. *Chlorella* sp.
2. *Cosmarium* sp.
3. *Mougeotia abnormis*
4. *Scenedesmus armatus*
5. *S. brasiliensis*
6. *Schizomeris* sp.

7. *Spirogyra condensata*
8. *S. sinensis*
9. *Staurostrum sp.*
10. *Zygnema himalayensis*

**Bacillariophyceae**

1. *Fragillaria rumpens*
2. *G. sphaeroperum*
3. *Navicula cuspidata*
4. *N. pupula*
5. *Nitzschia*

**Cyanophyceae**

1. *Anacystis nidulens*
2. *Gomphosphaeria sp.*
3. *Oscillatoria princeps*
4. *O. sancta*

**Euglenophyceae**

1. *Euglena*
2. *Phacus*

**Table 2. Physico-chemical parameters of upstream water of river Kunda at Khargone, M.P.**

Parameters	Upstream
<b>Physical -</b>	
Air temperature (°C)	28.4
Water temperature (°C)	23.5
Turbidity (NTU)	17.5
Conductivity (mhos)	125
pH	7.9
<b>Chemical -</b>	
Dissolved oxygen (mg/l)	15
B.O.D. (mg/l)	1.5
Total Solids (mg/l)	51
Total Hardness (mg/l)	180
Chlorides (mg/L.)	128
Calcium (mg/L.)	26.05
Magnesium (mg/L.)	7.62
Total Alkalinity (mg/l)	85