

## STUDIES ON ALGAL FLORA OF CERTAIN FACTORIES EFFLUENTS IN DHULE DISTRICT OF (MS) INDIA

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### ABSTRACT

To study the algal communities from lentic environment of factory effluents the Shradha Paper Mill Warkhedhi Tal and Dist Dhule was selected for collection of algal flora. In the presence study biodiversity of 4 groups of algae were found in the above source. A total of 16 taxa were recorded of which 2 taxa belongs Chlorophyceae and 5 to Cyanophyceae, 9 to Bacillariophyceae and 2 to Euglenineae. These taxa were recorded from different habitats of study area. The population of blue green algae and diatoms were dominant as compared to other groups of algae.

**Key words:** Effluents, biodiversity, algal flora and factory effluent.

### INTRODUCTION

In India, it is reported that 70% of the available water is polluted. The chief source of the pollution is identified to be sewage constituting 84% to 92% of the waste water. Algae are involved in water pollution in number of significant ways. They are one of the detectors of water pollution. Some workers have emphasized the relationship of whole group of algae to pollution studies (Palmer 1969; Gunale and Balkrishnan 1981; Jagdale *et al.* 1987, Mahajan and Nandan 2004). It is essential to study the algal flora from effluents of Dhule district factory viz. was selected for collection of algal flora .

### MATERIALS AND METHODS

Algal and water samples were collected from Shradha paper mill ltd. Warkhedhi Tal./Dist. Dhule, during 2007 for quantitative and qualitative study of algae, algal samples were preserved in 4% formalin for further study of taxonomy. The algal taxa were sketched by the line drawing with the help of camera lucida method. The algal taxa of four groups of algae are identified with the help of standard monographs and recent available literature Hustedt 1930; Pochman 1942; Pringsheim 1956; Randhava 1959; Desikachary 1959; Philipose 1959; Ramanathan 1964; Sarode and kamat 1984)

### TAXONOMICAL STUDY

#### I. Cyanophyceae (Blue green Algae)

- 1) *Gleotheca samoensis* Wille (plate 1, Fig 1)  
Desikachary, 1959, p. 108, Pl. 23, Fig  
Habitat- Shradha Paper Mill Warkhedhi Tal Dist Dhule.
- 2) *Phormidium autumnate* (A.g) Gom. (Plate 1, fig 2)  
Desikachary, 1959, p. 276, Pl.44, Fig 17  
Habitat- Shradha Paper Mill Warkhedhi Tal Dist Dhule.
- 3) *Scytonema coactile mont.* (Plate 1. Fig3)  
Desikachary, 1959, p. 455, Pl. 90, Fig 2  
Habitat- Shradha Paper Mill Warkhedhi Tal Dist Dhule.
- 4) *Oscillatoria brevis* (Kutez) Gom. (Plate 1, Fig 4)

Desikachary, 1959, p. 241

Habitat- Shradha Paper Mill Warkhedhi Tal Dist Dhule.

5) *Lyngbya aestuarii* ex Gomant (Plate 1, Fig 5)

Desikachary, 1959, p. 305, Pl. 52, Fig 8

Habitat- Shradha Paper Mill Warkhedhi Tal Dist Dhule.

#### II. Bacillariophyceae (Diatoms):

6) *Gomphonema parvulum* (Kuetz) Grun (Plate 2, Fig 1)

Hustedt, 1930, P.372, Fig 713

Habitat- Shradha Paper Mill Warkhedhi Tal Dist Dhule.

7) *Gomphonema Lanceolatum* Her (Plate 2, Fig 2)

Hustedt, 1930, P.376, Fig 700

Habitat- Shradha Paper Mill Warkhedhi Tal Dist Dhule.

8) *E. rostellata* Hustedt fig 3

Sarode and kamat, 1984, P. 46, Pl. 4, F86

Habitat- Shradha Paper Mill Warkhedhi Tal Dist Dhule.

9) *E. fallax* A.CL. Var. *gracillima* Krasske F. *densestriata*

Gonzalves et Gandhi fig 4

Sarode and kamat, 1984 P.38, pl. 2, F 55

Habitat- Shradha Paper Mill Warkhedhi Tal Dist Dhule.

10) *E. herbridica* A Berg Var. *bergil* Gandhi fig 5

Gandhi, 195, P. 101, F21

Habitat- Shradha Paper Mill Warkhedhi Tal Dist Dhule.

11) *E. grunowii* A Berg var. *Uplandica* A. Cl. Fig 6

Cleve-Euler, 1953, P. 97, F. 421, j-r

Habitat- Shradha Paper Mill Warkhedhi Tal Dist Dhule.

12) *E. formica* A Berg fig 7

Sarode and kamat, 1983, 66, 27, Pl. 2 F. 21

Habitat- Shradha Paper Mill Warkhedhi Tal Dist Dhule.

13) *E. major* (W smith) Rabh. Var *Indica* (Grun) A° Berg

fig 8

Sarode and kamat, 1980, 32:801, Pl. 1 F. 10

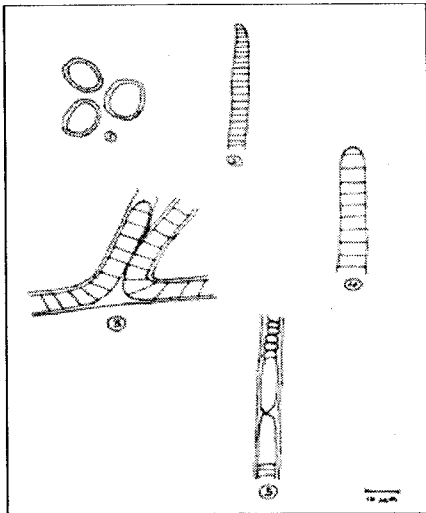
Habitat- Shradha Paper Mill Warkhedhi Tal Dist Dhule.

14) *E. ovate* A berg fig 9

Cleve-Euler, 1953, P. 114, F. 451 a-b.

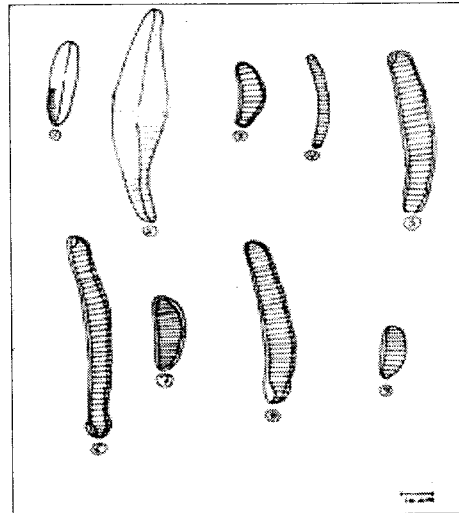
Habitat- Shradha Paper Mill Warkhedhi Tal Dist Dhule.

#### III) Chlorophyceae (Green algae)



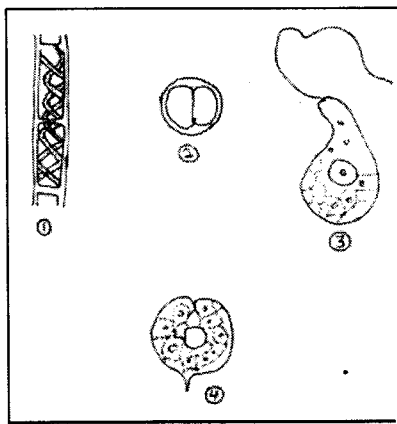
**PLATE – 1**

- Fig 1 : Gleotheca Somoensis Wille
- Fig 2 : Phormidium autumnate (Ag) Gom
- Fig 3 : Scytonema Coactile mont
- Fig 4 : Oscillatoria brevis (Kutez) Gom
- Fig 5 : Lyngbya aestuarii liemb ex.Gomant



**PLATE – 2**

- Fig 1 : Gomphonema parvulum (Kuetz) Grun
- Fig 2 : Gomphonema lanceolatum Her
- Fig 3 : E.rostellata Hustedt
- Fig 4 : E.fallax A.Cl.Var.gracillima  
Krasske F.densestriata Gonzalves
- Fig 5 : E.herbridica A<sup>o</sup> Berg Var bergil Gandhi
- Fig. 6 : E.grunowill A<sup>o</sup> Berg Var Uplandica A.Cl.
- Fig. 7 : E.Formica A<sup>o</sup> Berg
- Fig.8:E.Major (W.Smith) Rabh.Var.Indica (Grun) A<sup>o</sup> Berg
- Fig.9: E.Ovata A<sup>o</sup> Berg.



**PLATE – 3**

- Fig 1 : Spirogyra transamuiana Jao
- Fig 2 : Chlorella Vulgaris (Bejjerinck)
- Fig 3 : Petalomonas prototheca Skuja
- Fig 4 : Phacus acuminatus stokes

- 15) *Spirogyra transamuiana* Jao (Plate 3, fig 1)  
Randhava, 1959, P. 366 Fig 395  
Habitat- Shradha Paper Mill Warkhedhi Tal Dist Dhule.
- 16) *Chlorella vulgaris* (Bejjerinck) (Plate 3, ig 2)  
Habitat- Shradha Paper Mill Warkhedhi Tal Dist Dhule.
- IV) **Euglenineae (Euglenoids)**
- 17) *Petalomonas Prototheca* Skuja (plate 3, fig 3)  
H.Skuja, 1948, P. 214, Fig 16  
Habitat- Shradha Paper Mill Warkhedhi Tal Dist Dhule.
- 18) *Phacus Acuminatus* Stokes (plate 3, Fig 4)  
Habitat- Shradha Paper Mill Warkhedhi Tal Dist Dhule.

**RESULTS AND DISCUSSION**

The algal communities from lentic environment of factory effluents the Shradha Paper Mill Warkhedhi Tal and Dist Dhule was selected for collection of algal flora. In present investigation 18 algal taxa belonging to 4 groups of algae were recorded from study area. In present study, algal taxa of diatoms and blue green algae were dominant as compared to other group of algae Out of 18 taxa, 8 pollution tolerant genea Viz. *Chlorella*, *Phacus*,

*Oscillatoria*, *Lyngbya*, *Phormidium*, *Scytonema*, *Navicula* and *Gomphonema* were observed from study area.

These taxa were recorded from different habitats of study area. The population of blue green algae and diatoms were dominant as compared to other groups of algae.

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