

# Studies on the algal flora of Nepal - II: Cyanophyceae and Euglenophyceae

A.P. Sahay\*, P.K. Das\*\* & B.N. Verma\*

\*Phycological Laboratory, University Department of Botany,  
Bihar University, Muzaffarpur - 842 001, Bihar  
\*\*Department of Botany, P.R. College, Sonepur, Bihar

Sahay, A.P., Das, P.K. & Verma, B.N. 1993. Studies on the algal flora of Nepal-II: Cyanophyceae and Euglenophyceae. *Geophytology* **23**(1): 181 — 183.

Maiden reports of 35 species belonging to 14 genera of the class Cyanophyceae and 10 species belonging to 3 genera of the class Euglenophyceae have been made from the foothills of Himalaya in Nepal along the Indo (North Bihar)-Nepal international boundary.

**Key-words**—Algae, Cyanophyceae, Euglenophyceae, Nepal.

## INTRODUCTION

THE foothills of Himalaya along the international Indo-Nepal border in North Bihar are rich in rivers, rivulets and stagnant water bodies of different order. The favourable climatic conditions and mineral rich alluvial soil basin of the entire belt have offered high fertility to these water bodies inviting luxurious growth of diverse algae but unfortunately have not received due attention of phycologists so far. A survey of this area was undertaken in the month of December 1989. In the present communication 35 species belonging to 14-genera of Cyanophyceae and 10 species belonging to 3-genera of Euglenophyceae have been reported.

## ENUMERATION OF TAXA

### Cyanophyceae

*Chroococcus minutus* (Kuetz.) Naeg. — Cells without sheath 5-5.6  $\mu\text{m}$  and with sheath 7-10  $\mu\text{m}$  in diameter. Bakeya River (river bank) and Chandi River at Chandranigahpur.

*C. tenax* (Kirchn.) Hieron. — Cells without sheath 14-18  $\mu\text{m}$  and with sheath 23-23.8  $\mu\text{m}$  in diameter. Chandi River at Chandranigahpur.

*C. limneticus* var. *distans* G.M. Smith — Cells without sheath 6.5-8  $\mu\text{m}$  and with sheath 13-14.4  $\mu\text{m}$  in diameter. Chandi River at Chandranigahpur.

*C. turgidus* (Kuetz.) Naeg. — Cells without sheath 15.5-16.8  $\mu\text{m}$  and with sheath 30-33.6  $\mu\text{m}$  in diameter. Chandi River at Chandranigahpur.

*Synechocystis aquatilis* Sauv. — Cells 4.9-5.5  $\mu\text{m}$  broad. Chandi River at Chandranigahpur and Kara River at Hetauda.

*S. pevalekii* Ercegovic — Cells 2.8-4.2  $\mu\text{m}$  in diameter. Maccha Plan Pond at Hetauda.

*Dactylococcopsis raphidioides* Hansgirg — Cells 1.5-2  $\mu\text{m}$  broad and 21.5-22.8  $\mu\text{m}$  long. Bakeya River (river bank).

*D. acicularis* Lemmermann — Cells 2-2.8  $\mu\text{m}$  broad and 78-85  $\mu\text{m}$  long. Maccha Plan Pond at Hetauda.

*Synechococcus elongatus* Naeg. — Cells 1.5-2.1  $\mu\text{m}$  broad, 7-8.5  $\mu\text{m}$  long. Haldia River at Chandranigahpur.

*Merismopedia punctata* Meyen — Cells 2.5-3  $\mu\text{m}$  broad. Chandi River at Chandranigahpur and Bakeya River (river bank).

*M. glauca* (Ehrenb.) Naeg. — Cells 3.6-4.5  $\mu\text{m}$  broad. Chandi River at Chandranigahpur and Lamaha River (river bank).

*M. elegans* A. Braun — Cells 5-5.6  $\mu\text{m}$  broad. Chandi River at Chandranigahpur and Rapti River at Hetauda.

*M. minima* Beck — Cells 0.5-0.65  $\mu\text{m}$  broad. Chandi River at Chandranigahpur.

*Gloeocapsa nigrescens* Naeg. — Cells without

sheath 5.5-6.3  $\mu\text{m}$  and with sheath 11.5-12.8  $\mu\text{m}$  in diameter. Bakeya River (river bank).

*Eucapsis minuta* Fritch — Cells 1-1.8  $\mu\text{m}$  in diameter. Haldia River at Chandranigahpur.

*Cylindrospermum majus* Kuetzing ex Born. et Flah — Trichomes 4-4.5  $\mu\text{m}$  broad and cells 5-5.5  $\mu\text{m}$  long, Heterocysts 6- 6.8  $\mu\text{m}$  long and spores 11-12.5  $\mu\text{m}$  broad, 28-30  $\mu\text{m}$  long. Chandi River at Chandranigahpur.

*Oscillatoria limosa* (Roth.) C.A. Agardh — Trichomes 18.5-19.2  $\mu\text{m}$  broad and cells 3.6-4.2  $\mu\text{m}$  long. Chandi River at Chandranigahpur and Kara River at Hetauda.

*O. princeps* Vaucher ex Gomont — Trichomes 30-32.4  $\mu\text{m}$  broad and cells 3.5-4.6  $\mu\text{m}$  long. Kara River at Hetauda and Malangwa.

*O. mougeotii* Kuetz. — Trichomes 5.5-5.8  $\mu\text{m}$  broad and cells 2.8-3.5  $\mu\text{m}$  long. Paddy field at Malangwa.

*O. subbrevis* Schmidle — Trichomes 5.2-5.8  $\mu\text{m}$  broad and cells 1.5-2  $\mu\text{m}$  long. Kara River at Hetauda and Paddy field at Malangwa.

*O. annae* Van Goor — Trichomes 7.5-7.8  $\mu\text{m}$  broad and cells 1.5-2.5  $\mu\text{m}$  long. Kara River at Hetauda and Paddy field at Malangwa.

*O. tenuis* C.A. Agardh — Trichomes 8.4-8.8  $\mu\text{m}$  broad and cells 2.5-3.1  $\mu\text{m}$  long. Rapti River at Hetauda.

*O. agardhii* Gomont — Trichomes 5-6  $\mu\text{m}$  broad and cells 2.8-3.2  $\mu\text{m}$  long. Rapti River at Hetauda.

*O. nigra* Vaucher — Trichomes 8.6-9.0  $\mu\text{m}$  broad and cells 8.2-8.4  $\mu\text{m}$  long. Maccha Plan Pond at Hetauda.

*O. formosa* Bory ex Gomont — Trichomes 5-5.6  $\mu\text{m}$  broad and cells 2.5-2.8  $\mu\text{m}$  long. Bagmati River at Karmaiya.

*O. articulata* Gardner — Trichomes 5-5.6  $\mu\text{m}$  broad and cells 3.8-4.2  $\mu\text{m}$  long. Haldia River at Chandranigahpur.

*Spirulina major* Kuetz. ex Gomont — Trichomes 1.3-1.5  $\mu\text{m}$  broad, spirals 2.5-2.8  $\mu\text{m}$  broad, 2.8-3.2  $\mu\text{m}$  distant. Paddy field at Malangwa and Bagmati River at Karmaiya.

*S. subsalsa* Oerst. ex Gomont — Trichomes 1.5-1.85  $\mu\text{m}$  broad, spirals very close, 3.6-5.2  $\mu\text{m}$  broad. Paddy field at Malangwa and Bagmati River at Karmaiya.

*S. meneghiniana* Zanard. ex Gomont — Trichomes 1.2-1.4  $\mu\text{m}$  broad, spirals 4.5-5  $\mu\text{m}$  broad and 4.1-4.8  $\mu\text{m}$  distant. Maccha Plan Pond and Kara River at Hetauda.

*S. gigantea* Schmidle — Trichomes 3.5-3.6  $\mu\text{m}$  broad; spirals 11.5-11.8  $\mu\text{m}$  broad, 12.5-13.2  $\mu\text{m}$  distant. Maccha Plan Pond at Hetauda.

*S. princeps* W. et G.S. West — Trichomes 4.6-5.2  $\mu\text{m}$  broad, spirals 14-16.5  $\mu\text{m}$  broad and 10.8-12  $\mu\text{m}$  distant. Maccha Plan Pond at Hetauda.

*Arthrospira massartii* Kuffareth — Cells 4.2-4.6  $\mu\text{m}$  broad, 2.5-2.8  $\mu\text{m}$  long and spiral distance 65-72  $\mu\text{m}$ .

Haldia River at Chandranigahpur.

*Anabaena iyengari* Bharadwaja — Trichomes 4.8-5.5  $\mu\text{m}$  broad, cells as long as broad, heterocysts 7-7.5  $\mu\text{m}$  broad and 9-10.2  $\mu\text{m}$  long. Chandi River at Chandranigahpur.

*Gloeotrichia natans* Rabenhorst ex Born. et Flah. — Thallus 7.8  $\mu\text{m}$  broad, cells at the base as long as broad and upper cells longer than broad, heterocysts 10.5-11.8  $\mu\text{m}$  broad, spores 10.5-12.5  $\mu\text{m}$  broad and 40.5-42.4  $\mu\text{m}$  long. Lamaha River (river bed).

*Hapalosiphon welwitschii* W. et G.S. West — Filaments 5.8-6.2  $\mu\text{m}$  broad, cells 3-4.5  $\mu\text{m}$  broad, 14-16.5  $\mu\text{m}$  long, heterocysts 5.2-5.8  $\mu\text{m}$  broad and 7.8-8.2  $\mu\text{m}$  long. Bagmati River at Karmaiya.

The diagnoses of the specimens agreed completely with that of Desikachary (1959) for the respective taxa except the species of *Dactylococcopsis*, the diagnostic features of which resemble those given by Prescott (1962).

### Euglenophyceae

*Phacus pseudowirenkoi* Prescott — Cells 30.6-32.2  $\mu\text{m}$  broad and 38.2-39.5  $\mu\text{m}$  long. Kara River at Hetauda.

*P. trequeter* (Ehrenb.) Dujardin — Cells 29.5-31.2  $\mu\text{m}$  broad and 36.5-38.4  $\mu\text{m}$  long. Kara River at Hetauda.

*P. lemmermanii* (Swir.) Skvortzow — Cells 30-32.4  $\mu\text{m}$  broad and 43.2-45.5  $\mu\text{m}$  long. Kara River at Hetauda.

*P. longicauda* (Ehrenb.) Dujardin — Cells 42.5-45.6  $\mu\text{m}$  broad and 84.2-85.5  $\mu\text{m}$  long. Maccha Plan Pond at Hetauda.

*Trachelomonas charkowiensis* Swirenko ex Deflandre — Test 18.2-20  $\mu\text{m}$  broad and 25.4-27.2  $\mu\text{m}$  long. Chandi River at Chandranigahpur and Kara River at Hetauda.

*T. armata* var. *longispina* (Playf.) Deflandre — Test 28.8-30.5  $\mu\text{m}$  broad and 39.6-41.4  $\mu\text{m}$  long. Kara River at Hetauda.

*T. lacustris* Drezepolski — Test 14.4-15.8  $\mu\text{m}$  broad and 30-32.4  $\mu\text{m}$  long. Kara River at Hetauda.

*T. intermedia* Dangeard — Test 18-19.6  $\mu\text{m}$  broad and 24-25.2  $\mu\text{m}$  long. Haldia River at Chandranigahpur.

*T. hispida* var. *crenulatocollis* fa. *recta* Deflandre — Test 24-25.4  $\mu\text{m}$  broad and 33-34.5  $\mu\text{m}$  long. Maccha Plan Pond at Hetauda.

*Lepocinclis fusiformis* (Carter) Lemmermann — Cells 14.8-16.2  $\mu\text{m}$  broad and 20.4-22.2  $\mu\text{m}$  long. Maccha Plan Pond at Hetauda.

The diagnoses of the specimens identified above agreed completely with the respective taxa described by Prescott (1962, 1970).

### ACKNOWLEDGEMENTS

The authors are thankful to Professor A.B.Prasad, Head, University Department of Botany, Bihar University, Muzaffarpur for extending laboratory facilities and to Shri R.S.P. Sinha, Lecturer in Botany, S.R.K.G. College, Sitamarhi for his valuable contribution in the collection of material.

### REFERENCES

- Desikachary, T.V. 1959. *Cyanophyta*. I.C.A.R., New Delhi.  
Prescott, G.W. 1962. *Algae of the Western Great Lake Area*. Wm. C. Brown Company, Dubuque, Iowa.  
Prescott, G.W. 1970. *How to Know the Fresh Water Algae*. Wm. C. Brown Company, Dubuque, Iowa.