

CONTRIBUTION TO THE FRESH WATER DIATOM FLORA OF KERALA

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The present paper deals with 29 taxa of fresh water diatoms collected from Kerala belonging to 9 genera viz:- *Eunotia* (9); *Cocconeis*(1); *Stauroneis* (2); *Neidium* (3); *Navicula* (3); *Cymbella* (2); *Gomphonema* (3); *Pinnularia* (4); and *Surirella* (2). All are addition to the fresh water diatom flora of Kerala.

Keywords : Algae; Diatoms; Kerala; Taxonomy.

Introduction

Our information regarding the algal flora of Kerala is known through the works of Parukutty (1940); Erady (1954); Erady and Rajappan (1958); Venkataraman and Natarajan (1960); Suxena *et al.* (1973); Patel *et al.* (1977); Patel (1982); Patel and Gajaria (1987); Shaji *et al.* (1988); Jose and Patel (1989). Among them Suxena *et al.* (1973) reported nearly one hundred taxa of algae belonging

to various groups including nine species of diatoms. So far no other reports on the fresh water diatom flora of Kerala are available. The present paper deals with the systematic account of 29 taxa of diatoms belonging to 9 genera. The samples were collected from various localities of southern Kerala during December, 1987 to February, 1988. All taxa are the additions to the fresh water diatom flora of Kerala.

Systematic account

Eunotia rostellata Hustedt. Fig. 1.

Gandhi 1959, p. 98, Figs. 10-16.

Valves 47.6 μ m long, 8.2 μ m broad; striae 12-14 in 10 μ m.

Habitat: Fresh water stream near Athirampally (C. No. K44).

Eunotia camelus var. *karveerensis* Gandhi Fig. 2.

Gandhi 1957 (a), P. 49 Figs. 11-13.

Valves 35.2 μ m long, 5.8 μ m broad; striae 11-13 in 10 μ m.

Habitat : Pond in Thiruvalla (C. No. K19).

Eunotia camelus var. *gibbosa* Gandhi Fig. 4.

Gandhi 1957 (a), P. 49. Fig. 14.

Valves 29.4 μm long, 7 μm broad; striae 11–12 in 10 μm .

The present taxa agreed with the type in all respects except in the slightly broader frustules.

Habitat : Pond in Thiruvalla (C. No. K19).

Eunotia alpina (Naeg.) Hustedt Fig. 3.

Gandhi 1957 (a), P. 48 Fig. 6.

Valves 50.5 μm long, 3.5 μm broad; striae 18–21 in 10 μm .

Habitat : Pond in Thiruvalla (C. No. K 20).

Eunotia bigibba var. *pumila* Grunow Fig. 5.

Hustedt 1959, P. 282 Fig. 747. C–4.

Valves 20.5 μm long, 5.8 μm broad; striae 9–10 in 10 μm .

Habitat : Pond in Thiruvalla (C. No. K 19).

Eunotia flexuosa (Breb.) Kutzing Fig. 8.

Hustedt 1959, P. 312. Fig. 778.

Valves 114 μm long, 7 μm broad; striae 13–14 in 10 μm .

The present taxa agreed in all respects with the one described by Hustedt except in slightly broader dimension.

Habitat : Pond in Moovatupuzha (C. No. K 24).

Eunotia pseudopectinalis Hustedt Fig. 9.

Hustedt 1959, P. 314. Fig. 779.

Valves 145 μm long, 7 μm broad; striae 11–13 in 10 μm .

Habitat : Pond in Quilon (C. No. K 35)

Eunotia faba (Ehr.) Grunow Fig. 6.

Hustedt 1959, P. 301. Fig. 767.

Valves 62 μm long, 5.8 μm broad; striae 14–15 in 10 μm .

Habitat : Pond in Thiruvalla (C. No. K 19)

Eunotia tenella (Grun.) Hustedt Fig. 7.

Hustedt 1959, P. 284. Fig. 749.

Valves 23.5 μm long, 4.7 μm broad; striae 19–20 in 10 μm .

Habitat : Pond in Moovatupuzha (C. No. K 24).

Cocconeis placentula Ehrenberg Fig. 26.

Hustedt 1959, P. 347. Fig. 802a.

Valves 341 μm long, 21.7 μm broad; striae 19–24 in 10 μm .

Habitat : A small stream near Athirampally (C. No. K 43).

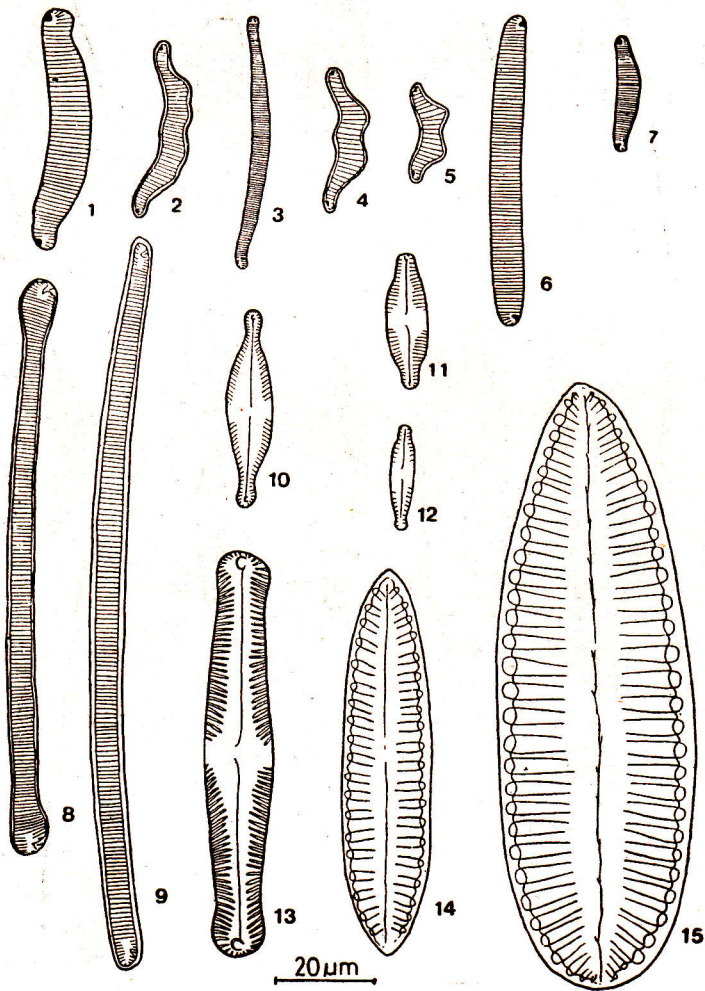


Fig. 1. *Eunotia rostellata*; 2. *E. camelus* var. *karveerensis*; 3. *E. alpina*; 4. *E. camelus* var. *gibbosa*; 5. *E. bigibba* var. *pumila*; 6. *E. faba*; 7. *E. tenella*; 8. *E. flexuosa*; 9. *E. pseudopectinalis*; 10. *Pinnularia braunii*; 11. *P. notata* var. *rostrata*; 12. *P. pusilla*; 13. *P. legumen* var. *florentina*; 14. *Surirella biseriata*; 15. *S. tenera* var. *nervosa*.

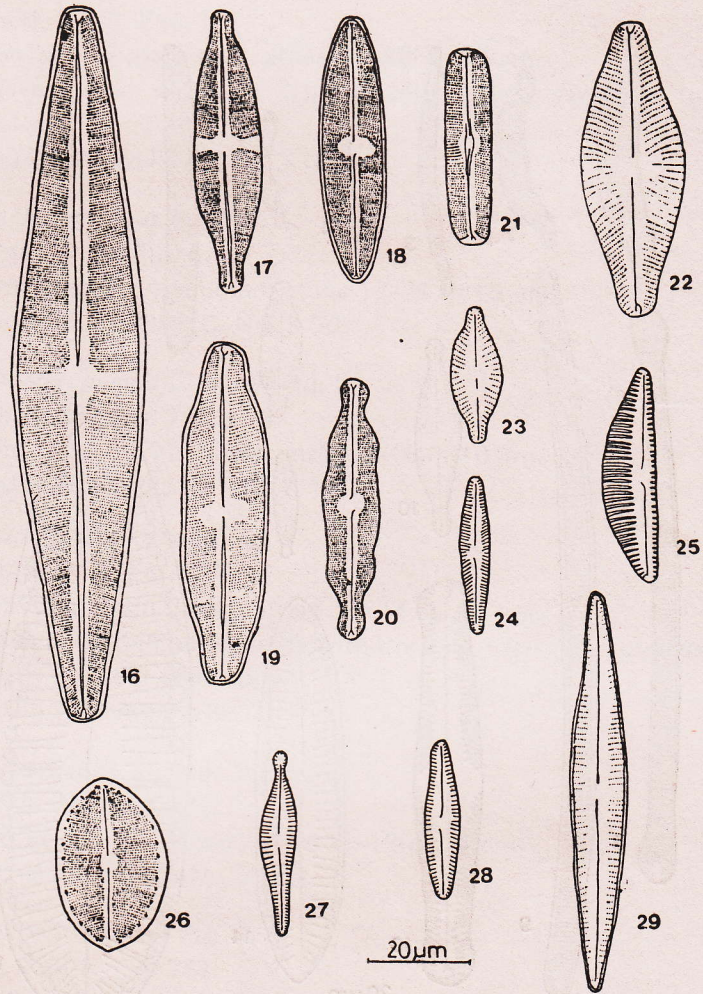


Fig. 16. *Stauroneis phoenicentron*; 17. *S. phoenicentron* f. *producta*; 18. *Neidium amphigomphus* var. *obtusum*; 19. *N. obliquistriatum* var. *rostrata*; 20. *N. gracile*; 21. *Navicula bacillum*; 22. *N. pusilla* var. *lanceolata*; 23. *N. subbengalensis*; 24. *Cymbella aequalis*; 25. *C. turgida*; 26. *Cocconeis placentula*; 27. *Gomphonema sphaerophorum* f. *jogensis*; 28. *G. elevei* f. *acuta*; 29. *G. lanceolatum*.

Stauroneis phoenicentron (Nitzsch) Ehrenbeg Fig. 16.

Hustedt 1959, P. 766 Fig. 1118.

Valves 141 μm long, 24 μm broad; striae 18–22 in 10 μm .

Habitat : Pond in Moovatupuzha (C. No. K 24).

Stauroneis phoenicentron f. *producta* Gandhi Fig 17.

Gandhi 1959, P. 127 Fig. 38.

Valves 55.8 μm long, 13.5 μm broad; striae 21–23 in 10 μm .

Habitat : Pond in Moovatupuzha (C. No. K 24).

Neidium amphigomphus var. *obtusum* Cleve Fig. 18.

Gandhi 1959, P. 104. Fig. 32.

Valves 54.1 μm long, 13.5 μm broad; striae 25–27 in 10 μm .

Habitat : Pond in Moovatupuzha (C. No. K 24).

Neidium gracile Hustedt Fig. 20.

Gandhi 1970, P. 784, Fig. 96.

Valves 51.7 μm long, 10.5 μm broad; striae 22–24 in 10 μm .

Habitat : A small canal in Cochin (C. No. K 41)

Neidium obliquistriatum var *rostrata* Skv Fig. 19.

Gandhi 1959, P. 104. Figs. 34–36.

Valves 67.6 μm long, 16.4 μm broad; striae 20–22 in 10 μm .

The present taxa agreed with the one described by Gandhi except in the slightly larger dimensions of the valves.

Habitat : Pond in Moovatupuzha (C No. K 24)

Navicula bacillum Ehrenbeg Fig. 21.

Gandhi 1970, P. 769 Pl. II Fig. 47.

Valves 39 μm long, 9.4 μm broad; striae 19–20 in 10 μm .

Habitat : Pond in Moovatupuzha (C. No. K 24).

Navicula subbengalensis Gandhi Fig. 23.

Gandhi 1970, P. 779, Figs. 85–87.

Valves 27 μm long, 10.5 μm broad; striae 9–10 in 10 μm .

The present species agreed with the type except in the valves being slightly longer.

Habitat : Pond in Moovatupuzha (C. No. K 24).

Navicula pusilla var. *lanceolata* Grunow Fig. 22.

Gandhi 1966, P. 145. Figs. 116–119.

Valves 57.6 μm long, 20.5 μm broad; striae 8–11 in 10 μm .

Habitat : Fresh water stream near Athirampally (C. No. K 43).

Cymbella turgida Cleve Fig. 25.

Gandhi 1967, P. 256. Figs. 32, 57.

Valves 42.3 μm long, 10.5 μm broad; striae 10–12 in 10 μm .

Habitat : Fresh water stream near Athirampally (C. No. K 43).

Cymbella aequalis W. Smith Fig. 24.

Werff and Hules 1976, PPG XVII Fig. 128.

Valves 30.5 μm long, 5.8 μm broad; striae 13–14 in 10 μm .

Habitat : A small canal in Cochin (C. No. K41)

Gomphonema clevei f. *acuta* Gandhi Fig. 28.

Gandhi 1966, P. 132. Figs. 142–144.

Valves 31.1 μm long, 6.4 μm broad; striae 12–14 in 10 μm .

Habitat : A stream near Athirampally (C. No. K 43).

Gomphonema sphaerophorum f. *jogensis* Gandhi Fig. 27.

Gandhi 1966, P. 136. Fig. 149.

Valves 36.5 μm long, 7 μm broad; striae 12–13 in 10 μm .

Habitat : A small canal in Cochin (C. No. K 41).

Gomphonema lanceolatum Ehrenberg Fig. 29.

Gandhi 1964, P. 374. Figs. 85, 95–97.

Valves 73.5 μm long, 10.5 μm broad; striae 9 in 10 μm .

Habitat : A pond in Thiruvalla (C. No. K 19).

Pinnularia notata var. *rostrata* A. Cl. Fig. 11.

Gandhi 1958, P. 498. Fig. 22.

Valves 27 μm long, 8.2 μm broad; striae 13 in 10 μm .

Habitat : A small canal in Cochin (C. No. K 41)

Pinnularia pusilla Gandhi Fig. 12.

Gandhi 1959, P. 111. Pl. II. Figs. 59–62.

Valves 20.5 μm long, 4.1 μm broad; striae 11–12 in 10 μm .

Habitat : A small canal in Cochin (C. No. K. 41).

Pinnularia braunii Cleve Fig. 10.

Gandhi 1960, P. 81. Fig. 4.

Valves 38.2 μm long, 8.8 μm broad; striae 11–13 in 10 μm .

Habitat : Small canal in Cochin (C. No. K 41).

Pinnularia legumen var. *florentina* Grunow Fig. 13.

Gandhi 1957(b), P. 847. Figs. 5, 6.

Valves 80.5 μm long, 14.1 μm broad; striae 9-10 in 10 μm .

Habitat : Pond in Moovatupuzha (C. No. K 24).

Surirella biseriata Brebisson Fig. 14.

Gandhi 1962, P. 85. Fig. 14.

Valves 74 μm long, 22 μm broad; costae 30 in 100 μm .

The present plant differed from the one described by Gandhi in having slightly shorter length.

Habitat : A small canal in Cochin (C. No. K 41).

Surirella tenera var. *nervosa* A. S Fig. 15.

Gandhi 1957(c), P. 19. Fig. 17.

Valves 117.6 μm long, 38 μm broad; costae 23 in 100 μm .

Habitat : A small canal in Cochin (C. No. K 41).

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