

Observations on some desmids from Andaman Islands

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The paper describes twenty desmid taxa belonging to nine genera, collected from the Andaman Islands area. All are hitherto unrecorded in the Indian flora.

Key Index Words: Andaman Islands; Desmidiaceae; Indian flora; new records.

Considerable information is available on phytogeographic distribution of desmids on the Indian mainland. Barring a single report of *Staurastrum andamanense* by PRASAD *et al.*, (1980), no information is available on the desmid flora of the Andaman and Nicobar group of Islands. It consists of a cluster of 323 islands, which lie between 6° to 14° North latitude and 92° to 94° East longitude in the South East Bay of Bengal and forms the most isolated part of India.

While working on freshwater Chlorophyceae of Andaman Islands, the authors came across many interesting desmids. During the course of investigation, twenty taxa were identified which are hitherto unknown in the Indian flora and are being described in the present paper and recorded for the first time in the Indian flora. The collection number and the data of collection of each taxon are given in parentheses at the end of its description.

Systematic descriptions

Genera are listed in the order adopted by SCOTT and PRESCOTT (1961). Species under each genus are enumerated alphabetically.

Cylindrocystis subpyramidata W. WEST et G.S. WEST (Fig. 14)

WEST, W. and WEST, G.S. 1901, p. 162, t. 2, figs. 8-11; WEST, W. and WEST, G.S.

1907, p. 189.

Cells cylindrical, about 1-5 times longer than broad, slightly constricted in middle, cell apices subpyramidal with rounded ends; chloroplast substellate with one large pyrenoid in each semicell.

Long. cell. 28-29.5 μm , lat. cell. 16-17 μm .

Loc.: Poona Nallah (South Andamans), (AN 151, 29-1-1978).

Netrium digitus (Ehrenb.) ITZIGS. et ROTHE var. *constrictum* W. WEST et G.S. WEST (Fig. 2)

WEST, W. and WEST G.S. 1904, p. 65, pl. 6, fig. 17.

Cell about 5.5 times longer than broad, median portion gently constricted, oblong, gradually attenuated from middle towards truncately rounded apices; cell wall smooth, chloroplast with longitudinal plates and notched free margins.

The present specimen is slightly shorter.

Long. cell. 262 μm , lat. cell. 45 μm , lat. apex 18-19 μm .

Loc.: Mile Tilak (Port Blair), (AN 568, 14-10-1978).

Penium cucurbitinum BISS. (Fig. 18)

WEST, W. and WEST, G.S. 1904, p. 94, pl. 9, figs. 13-14.

Cell twice as long as broad, subcylindrical, slightly constricted in middle, gently tapering towards broadly rounded apices, cell wall minutely punctate; chloroplast with longitudinal ridges and with a single

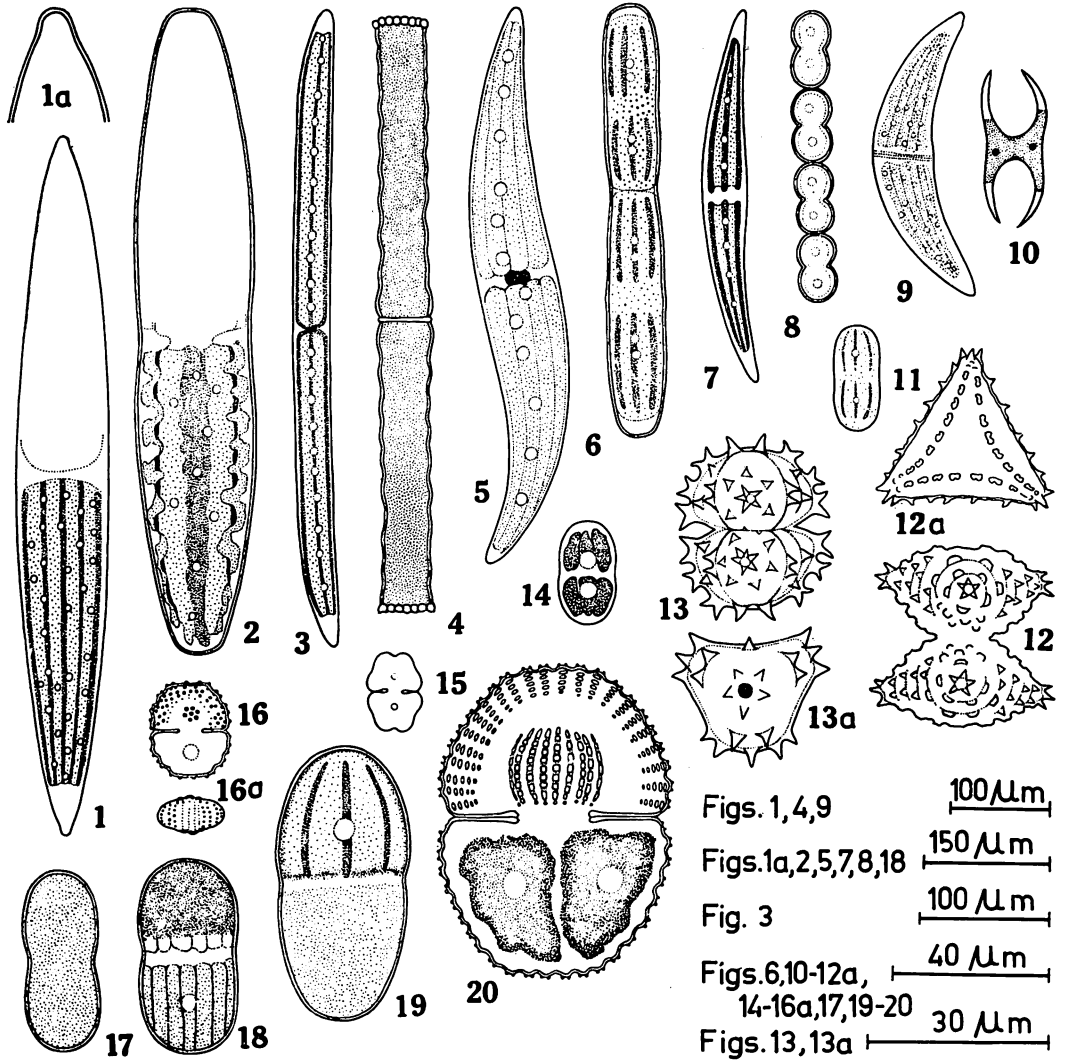


Fig. 1-1a, *Closterium lunula* var. *massartii* f. *nasutum*; 2, *Netrium digitus* var. *constrictum*; 3, *Closterium acerosum* var. *angolense*; 4, *Pleurotaenium coronatum* var. *fluctuatum*; 5, *Closterium sigmoideum*; 6, *Penium minutum* var. *crassum*; 7, *Closterium littorale*; 8, *Cosmarium moniliforme* var. *limneticum*; 9, *Closterium croasdale*; 10, *Arthrodesmus incus* from JOSHUA; 11, *Penium spinospermum*; 12-12a, *Staurastrum scabrum*; 13-13a, *S. egregium*; 14, *Cyliandrocytis subpyramidata*; 15, *Euastrum angolense* var. *brasiliense*; 16-16a, *Cosmarium subalatum*; 17, *Penium cucurbitinum* f. *minor*; 18, *P. cucurbitinum*; 19, *P. cucurbitinum* var. *subpolymorphum*; 20, *Cosmarium miscellum*.

pyrenoid in each semicell.

Long. cell. 73.5-76 μm , lat. cell. 35.5-37.5 μm .

Loc.: Bakutala (Rangat Bay, Middle Andamans), (AN 275, 10-11-1978) and Sipighat (Port Blair, South Andamans) (AN 515, 10-10-1979).

P. cucurbitinum BISS. var. *subpolymorphum* NORDST. (Fig. 19)

WEST, W. and WEST, G. S. 1904, p. 95, pl. 9, figs. 19, 20.

Cells more attenuated towards subtruncately rounded apices; cell wall densely punctate.

The apices of the present variety are more attenuated.

Long. cell. 67.5 μm , lat. cell. 33.5 μm .

Loc.: Mile Tilak (Port Blair), (AN 568, 14-10-1979).

P. cucurbitinum BISS. f. *minor* W. WEST et G. S. WEST (Fig. 17)

WEST, W. and WEST, G. S. 1904, p. 95, pl. 9, fig. 16.

Cell smaller than specific, morphologically same as the species.

Long. cell. 44.5 μm , lat. cell. 20.0 μm .

Loc.: Sipighat (Port Blair), (AN 515, 10-10-1979).

P. minutum (RALFS) CLEVE var. *crassum* W. WEST (Fig. 6)

WEST, W. and WEST, G. S. 1904, p. 105, pl. 10, figs. 11-13.

Cell 4.5 times longer than broad, stout with truncate apices, slightly inflated in middle, cell wall smooth; chloroplast axile with ridges containing 4 pyrenoids in a row.

Long. cell. 71 μm , lat. cell. 15.5 μm .

Loc.: Mile Tilak (Port Blair), AN 568, 14-10-1979).

P. spinospermum JOSH. (Fig. 11)

WEST, W. and WEST, G. S. 1904, p. 78, pl. 8, figs. 6, 7.

Cell 2.5 times longer than broad, uncontracted, very slightly attenuated towards rounded apices; cell wall smooth, each chloroplast with three ridges and one pyrenoid.

Long. cell. 26.5 μm , lat. cell. 11.5 μm .

Loc.: Sipighat (Port Blair), (AN 518, 10-10-1979).

Closterium acerosum (SCHRANK) EHRENB. var. *angolense* W. WEST et G. S. WEST (Fig. 3)

WEST, W. and WEST, G. S. 1904, p. 149, pl. 18, fig. 6.

Cell 16-17 times longer than broad, lateral margins parallel, attenuated near rounded apices; cell wall smooth, chloroplast with 4-5 ridges and 13-15 pyrenoids arranged in a row.

The present alga agrees closely with the description of the species (W. WEST and G. S. WEST, 1904) but is shorter than the

British plant.

Long. cell. 500-510 μm , lat. cell. 30.0-31.5 μm .

Loc.: Tylerabad (Port Blair), (AN 380, 19-11-1978) and near Air Port (Port Blair), (AN 650, 30-11-1979).

C. croasdaleae N. ISLAM (Fig. 9)

Nurul Islam, A. K. M. 1970, p. 910, pl. 19, fig. 1, pl. 20, figs. 4-6.

Cells 4-6 times longer than broad, outer margin sharply curved inner margin concave but slightly tumid in middle, apices slightly recurved with rounded ends; cell wall smooth, with a median girdle; chloroplast with ridges, containing numerous scattered pyrenoids.

Andaman desmid exhibits slightly larger dimensions than recorded by N. ISLAM (1970) in Bangladesh plants.

Long. cell. 479-485 μm , lat. cell. 87.0-89.5 μm .

Loc.: Jirkatang (Port Blair), (AN 130, 29-1-1978).

C. littorale GAY (Fig. 7)

WEST, W. and WEST, G. S. 1904, p. 155, pl. 19, fig. 14; TIFFANY, L. H. and BRITON, M. E. 1952, p. 173, pl. 51, f. 543.

Cells about 9-10 times longer than broad, slightly curved, outer margin 40-45° degrees of arc, inner a little concave and slightly tumid in middle, gradually attenuated towards obtusely rounded apices; cell wall smooth, chloroplast with 5-6 ridges containing 8-10 pyrenoids arranged in a row.

The present desmid is slightly larger and the number of pyrenoids is more than recorded for the type.

Long. cell. 232-239 μm , lat. cell. 22.5-24.0 μm .

Loc.: Bednabad (AN 24, 27-1-1978) and Beachdera (Port Blair), (AN 140, 29-1-1978).

C. lunala (MULL) NITZSCH var. *massartii* (WILDEM.) KRIEG. f. *nasutum* SCOTT et PRESCOTT (Fig. 1, 1a)

SCOTT, A. M. and PRESCOTT, G. W. 1961, p. 12, pl. 1, fig. 30.

Cell almost straight with convex margins, abruptly attenuated near slightly truncate apices, cell wall smooth, chloroplast with

7-8 ridges, containing numerous scattered pyrenoids.

Andaman desmid is slightly longer and narrower than Indonesian form.

Long. cell. 694 μm , lat. cell. 93.5 μm , lat. apex 12 μm .

Loc.: Kedamtalla (Rangat Bay, Middle Andamans), (AN 271, 10-11-1978).

C. sigmoideum LAGERH. et NORDST. (Fig. 5)

WEST, W. and WEST, G.S. 1904, p. 153, pl. 19, figs. 1,2.

Cell about 7 times longer than broad, slightly sigmoid, gradually attenuated towards slightly recurved and obtusely rounded apices, cell wall smooth, chloroplast with 10-12 pyrenoids, arranged somewhat irregularly on median row.

The present desmid is slightly shorter than the type.

Long. cell. 218 μm , lat. cell. 33 μm , lat. apex 5-6 μm .

Loc.: Dilanipur (Port Blair), (AN 527, 12-10-1979).

Pleurotaenium coronatum (BRÉB.) RABENH. var. *fluctuatum* W. WEST (Fig. 4)

WEST, W. and WEST, G.S. 1904, p. 200, pl. 28, figs. 1, 2; SCOTT, A.M. and PRESCOTT, G.W. 1961, p. 15, pl. 3, fig. 6.

Cells 10-11.5 times longer than broad, margins undulate, basal inflation prominent; apical tubercles large, 14-16 in number; cell wall finely scrobiculate.

Long. cell. 586-605 μm , lat. base 50-52.5 μm , lat. apex 41.0 μm .

Loc.: Kalighat (North Andamans), (AN 313, 14-11-1978) and Mile Tilak (Port Blair, AN 558, 14-10-1979).

Euastrum angolense (W. WEST et G.S. WEST) KRIEGER var. *brasiliense* KRIEGER (Fig. 15)

BICUDO, C.E.M. and BICUDO, R.M.T. 1969, p. 16, figs. 34, 35; FÖRSTER, K. 1964, p. 348, tab. 3, fig. 9, tab. 39, fig. 9.

Semicells bilobed, apex quadrangular with rounded angles, apex with prominent median incision, sinus narrowly linear with extremity slightly dilated, cell wall smooth.

Long. cell. 20 μm , lat. cell. 13.5 μm , lat.

isthm. 3.5 μm .

Loc.: Mile Tilak (Port Blair), (AN 568, 14-10-1979).

Cosmarium miscellum SKUJA (Fig. 20)

SKUJA, M. 1964, p. 222, tab. 39, fig. 11.

Cell large, slightly longer than broad, sides converging upwards from a broad base to somewhat narrow and flattened apex, apical angles not rounded, basal angles rounded; isthmus bilipped, narrowly linear; each semicell with 23-26 marginal crenulations, each crenulation furnished with a pair of granules, marginal crenulations followed by 5-6 regular, radial and concentric rings of crenulae, central tumour with 7-8 vertical and one basal series of granules; each semicell with 2 axile chloroplasts containing two pyrenoids.

Long. cell. 78 μm , lat. cell. 61 μm , lat. isthm. 20.5 μm .

Loc.: Chidyatapu (Port Blair), (AN 749, 9-12-1980).

C. moniliforme (TURP.) RALFS var. *limneticum* W. WEST et G.S. WEST (Fig. 8)

WEST, W. and WEST, G.S. 1908, p. 23, pl. 67, figs. 6, 7; SCOTT, A.M. and PRESCOTT, G.W. 1961, p. 63, pl. 27, figs. 11-12.

Cells commonly seen attached in pairs of 2 or 4, apices slightly angular, isthmus broad, sinus obtuse, cell wall smooth each semicell with an axile chloroplast and one pyrenoid.

Long. cell. 28-34 μm , lat. cell. 18-21 μm , lat. isthm. 8-9 μm .

Loc.: Diltaman Tank (Port Blair, AN 166, 31-1-1978).

C. subalatum W. WEST et G.S. WEST (Fig. 16, 16a)

WEST, W. and WEST, G.S. 1908, p. 255, pl. 90, figs. 1-3.

Cells small, slightly longer than broad, deeply constricted, sinus narrowly linear; semicells widely truncate to pyramidate, sides tricriate, angles rounded, apex with two small crenations (excluding apical angles), all the crenations bigranulate, central tumour rounded with 7 granules arranged in circular fashion; vertical view elliptic, chloroplast axile with one pyrenoid

in each semicell.

Long. cell. $24.5 \mu\text{m}$, lat. cell. $20.0 \mu\text{m}$, lat. isthm. $4.5 \mu\text{m}$.

Loc.: Jir Katang (South Andamans), (AN 569, 14-10-1979).

The present species is being recorded for the first time from India. However, PRASAD and MEHROTRA (1977) have described *C. subalatum* W. WEST et G. S. WEST var. *lucknowense* PRASAD et MEHROTRA from North Indian paddy fields.

Arthrodesmus incus (BREB.) HASS. forma JOSHUA (Fig. 10)

JOSHUA, W. 1886, p. 644, pl. 24, figs. 10-12).

Cells dumb-bell shaped with the sides faintly concave, angles rounded and furnished with one long, convergent and pointed spine, isthmus narrow and unstricted, cell wall smooth, chloroplast inconspicuous, pyrenoid one in each semicell.

Long. cell. $13-15.5 \mu$ lat. cell. with spines $41-43 \mu\text{m}$, lat. cell. without spines $12-14.5 \mu\text{m}$, lat. isthm. $5-6 \mu\text{m}$.

Loc.: Near Mundram temple (Port Blair), (AN 661, 1-12-1979).

Staurastrum egregium W. WEST et G. S. WEST, (Fig. 13, 13a)

WEST, W. and WEST, G. S. 1897, p. 177, t. 369, fig. 12; WATANABE, M., PRESCOTT, G. W. and YAMAGISHI, T. 1979, p. 64, fig. 41.

Cell dumb-bell shaped, slightly longer than broad; sinus open, isthmus broad, each semicell furnished with 4 rings of short, stout and emarginate spines of almost equal size, the second ring consists of 2 projecting, slightly curved and bigger spines at apices of each semicell, top view triangular exhibiting concave sides with rounded angles.

In the present specimen, each semicell possesses an additional pair of spines on periphery and one ring in the centre.

Long. cell. with spines $31.5 \mu\text{m}$, long. cell. without spines $27.5 \mu\text{m}$, lat. cell. with spines $22.5 \mu\text{m}$, lat. cell. without spines $20.0 \mu\text{m}$, lat. isthm. $8.5 \mu\text{m}$.

Loc.: Sipighat (South Andamans), (AN 518,

10-10-1979).

S. scabrum BREB. ex RALFS (Fig. 12, 12a) CROASDALE, H. and SCOTT, A. M. 1976, p. 549, pl. 13, figs. 6.

Cells as long as broad, semicells elliptic with blunt spines at the angles and 5 parted verrucae of which 2 are on apex and 3 are on each side of a smooth median area, 2 verrucae present on lower margin and paired smaller ones near the isthmus.

Long. cell. $46 \mu\text{m}$, lat. cell. $47.5 \mu\text{m}$, lat. isthm. $12.5 \mu\text{m}$.

Loc.: Garacharma (Port Blair), (AN 360, 19-11-1978).

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B. N. プラサド・P. K. ミシュラ・R. K. メロートラ: アンダマン島産ツヅミモ数種についての観察

本論文では、アンダマン島から採集した、ツヅミモ 9 属 20 種について述べている。これらの全ては、今までインドにおいては全く記録されていないものばかりである。

第11回国際海藻学会議のお知らせ

第11回国際海藻学会議 (XIth International Seaweed Symposium) が1983年6月19~25日に中華人民共和国の青島市で開催される。第2次サーキュラーによると、プログラムの概略や参加申込み手続きなどは下記の通りである。

プログラム

- 1 特別講演 内容は第3次サーキュラーで発表。
- 2 シンポジウム 3つのシンポジウムが開かれる。
(1)香料および医薬用としての海藻 (2)微細藻の生産と利用 (3)紅藻オゴノリ属の分類
以上の詳細は第3次サーキュラーに発表。
- 3 一般講演 (1)有用海藻の生物学 (2)海藻の化学と生化学 (3)藻類の生産と利用と生産物。
- 4 ポスター

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6月19日 中国科学院主催リセプション, 6月24日青島市招待晩餐会, 6月19~25日 同件者のためのエクスカージョン, 6月25日ポートによる昆布養殖等の見学(費用10ドル)。

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さらに詳しい内容は第3次サーキュラーに掲載の予定であるので, 希望者は下記に申込みこと。

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