

GENUS *MICRASTERIAS* AGARDH FROM ANDAMANS*

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Abstract

Six species of the genus *Micrasterias* Agardh have been reported for the first time from Andaman and Nicobar islands, out of which one species *M. sol* Ehr. Kuetz. is a new addition to the Indian flora.

Introduction

Our knowledge of Indian Desmidiaceae is mainly confined to the plants occurring in different parts of Indian mainland (Biswas, 1949; Prasad & Mehrotra, 1977a; Sharma & Khan, 1980) and there is very little information on the desmids of tropical islands. The same applies to the Andaman and Nicobar islands, from where up-till now only 25 taxa of desmids have been recorded by the present authors (Prasad *et al.*, 1980, 1982; Prasad & Misra, 1982). In the present account, six species of the genus *Micrasterias* Agardh from these islands have been described along with their distribution on Indian mainland. Out of these, one species *M. sol* (Ehrenb.) Kuetz. is a new addition to the algal flora of India.

Systematic description

All the taxa have been arranged alphabetically. Collection numbers and dates are given in parenthesis with the locality.

Micrasterias apiculata (Ehrenb.) Menegh. Text-fig. 6; Pl. 1, Figs. 1, 2.

West, W. & West, G. S. 1905, **2**, p. 97, pl. 47, figs. 1, 2; Krieger, W. 1937, **13**(1), p. 78, pl. 122, figs. 3, 4.

Cells large, slightly longer than broad, subelliptic in outline, deeply constricted, sinus narrowly linear and slightly open outwards; semicells 5-lobed, polar incisions open and acute angled, lateral incisions narrow, polar lobe exerted with sub-parallel margins at the base and diverge outwardly, apical angles deeply emarginate with two diverging spines and two curved spines on each side of concavity, lateral lobes more or less equal in size with 2 series of rather wide incisions, the ultimate lobelets furnished with 2-3 faintly curved spines; cell wall covered with short spines, except above the isthmus.

Long cell 189-207 μm , lat. cell. 173-179. 5 μm , lat. isthmus 29-32.5 μm .

Locality—Rice field at Chidia Tapu, South Andamans (Coll. No. & Date : AN 749; 9.12.1980).

Distribution—Rajasthan (Patel & Rao, 1975 from Mount Abu); Madhya Pradesh (Agarkar *et al.*, 1979 from Bandhavgarh).

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Micrasterias foliacea Bail. Text-fig. 1; Pl. 1, Fig. 6.

Krieger, W. 1937, **13**(1), p. 76, pl. 120, figs. 8, 9, pl. 121, figs. 1-5; Irene-Marie, F. 1939, p. 219, pl. 34, fig. 6.

Cells rather small, united in filaments by interlocking of polar lobes, rectangular in outline, deeply constricted, sinus narrowly linear; semicells 5 lobed, polar lobe exerted, basal part of polar lobes with sub-parallel sides, upper part greatly expanded and anvil shaped with an excavation in the median portion, base of excavation exhibits 2 asymmetrically produced spines of unequal length, polar and lateral angles uncinata, lateral lobes asymmetrical, superior lobes divergent, inferior horizontally disposed, incisions simple and subacuminate, the ultimate lobelets with truncate, emarginate apices; cell wall smooth.

Long. cell. 53.5-59 μm , lat. cell. 66-73.5 μm , lat. isthmus. 13.5-16 μm .

Locality—Dilthaman tank and pond near Air Port, School-line Port Blair (Coll. Nos. & Dates : AN 168, AN 519; 31.1.1978, 11.10.1979).

This is the only filamentous species of the genus *Micrasterias* Agardh. Cells in this taxon are united in such a way, that gives an appearance of the colonial desmid, why it is not treated under colonial desmids is not known.

Distribution—Bengal (Turner, 1892 as *M. foliacea* Bail. f. *typica* Turner); Assam (Carter, 1926 from Sadiya; Biswas, 1934 from Khasia Hills); Manipur (Bruehl & Biswas, 1926 from Loktak Lake); Delhi (M. Singh, 1966 from Najafgarh); Andhra Pradesh (Suxena & Venkateswarlu, 1966a from Warrangal); Karnataka (Bharati, 1971 from Londa; Hegde and Bharati, 1980 from Agumbe; Bongale & Bharati, 1980 from Raichur); Tamil Nadu (Bharati & Pai, 1972 from Kodai Kanal); Maharashtra (Kamat, 1975 from Vidarbha; Frietas & Kamat, 1979 from Nagpur); Madhya Pradesh (Agarkar, 1975 from Gwalior); Kerala (Patel, Isabella & George, 1977 from Kottayam); Uttar Pradesh (Prasad & Mehrotra, 1977b from Lucknow).

Micrasterias pinnatifida (Kuetz.) Ralfs, Text-fig. 3; Pl. 1, Fig. 4.

West, W. & West, G. S. 1905, **2**, p. 80, pl. 41, figs. 7-11, 13; Krieger, W. 1937, **13**(1), p. 16, pl. 99, figs. 6-9.

Cells small, slightly broader than long, deeply constricted, sinus linear but slightly open outwards; semicells 3-lobed, interlobular incisions deep and broadly rounded, lateral lobes horizontal, semifusiform with minutely bifid apices exhibiting acuminate ends, polar lobe with basal portion subrectangular and apical portion with extremities like lateral lobes but relatively shorter in length; cell wall minutely punctate.

Long. cell 42-53.5 μm , lat. cell. 51-57 μm , lat. isthmus 12.5-14 μm .

Locality—Pond at Paharganj, near Port Blair (Coll. No. & Date ; AN 29; 27-1-1978).

Distribution—Bengal (Wallich, 1860 as *Holocystis oscitans* (Ralfs) Hassall; Turner, 1892 as *M. pinnatifida* (Kuetz.) Ralfs of f. *typica*; Carter, 1926 from Chittagong now in Bangladesh); Manipur (Bruehl & Biswas, 1926); Tamil Nadu (Iyengar & Vimala Bai, 1941; Bharati & Pai, 1972 from Kodaikanal); Maharashtra (Gonzalves & Joshi, 1946 from Bombay; Kamat, 1968a from Alibagh); Uttar Pradesh (Lakshminarayana, 1963 from Varanasi; Pandey & Pandey, 1980 from Allahabad); Delhi (Singh, 1966 from Najafgarh); Andhra Pradesh (Suxena & Venkateswarlu, 1966 from Warrangal); Madhya Pradesh (Agarker, 1969, 1973 from Gwalior; Agarkar & Agarker, 1973 from Vindhyan Region; Dikshit & Agarker, 1974 from Bandhavgarh); Kerala (Patel, Isabella & George, 1977 from Kottayam); Karnataka (Bongale & Bharati, 1980 from Raichur).

Micrasterias radians Turner, Text-fig. 4; Pl. 1, Fig. 5.

Turner, W. B. 1892, **25**(5), p. 91, pl. 5, fig. 6a; Krieger, W. 1937, **13**(1), p. 67, pl. 115, fig. 8, pl. 116, fig. 1.

Cells of medium size, sub-circular, very deeply constricted, sinus with apical portion linear and outer open; semicells 5-lobed with deep, radial and widely open incisions, polar lobe with subparallel sides showing retusely emarginate and some what expanded apex with furcate-acuminate extremity, each lateral lobe divided into two lobules by incision as between polar and lateral lobes; lobules with furcate acuminate extremities; cell wall smooth.

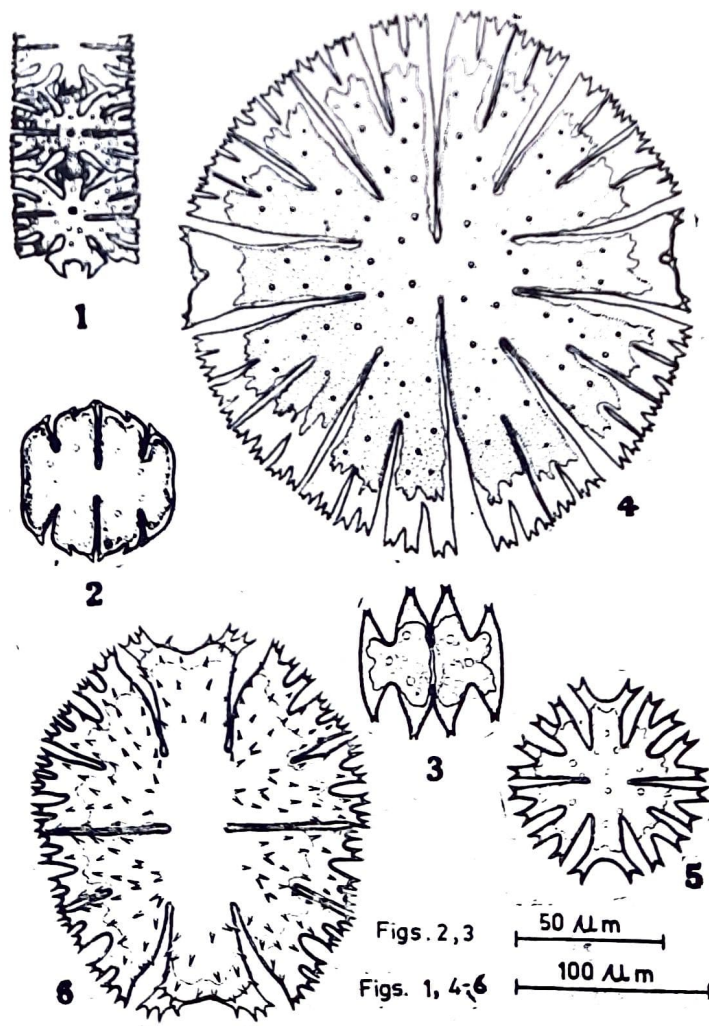
Long. cell. 104.5-110 μm , lat. cell. 96-101 μm , lat. isthmus 15-17.5 μm .

Locality—Pond near Air Port, School Line, Port Blair (Coll. No. & Date : AN 519; 11-10-1979).

Distribution—Bengal (Turner, 1892); Manipur (Bruehl & Biswas, 1926); Delhi (Singh, 1966 from Najafgarh); Tamil Nadu (Bharati & Pai, 1972 from Kodaikanal); Maharashtra (Kamat, 1975 from Vidarbh); Madhya Pradesh (Agarkar and Agarker, 1973 from Vindhyan Region; Agarkar *et al.*, 1979 from Bandhavgarh).

Micrasterias sol (Ehrenb.) Kuetz. Text-fig. 4; Pl. 1, Fig. 3.

West, W. & West, G. S. 1905, **2**, p. 95, pl. 46, figs. 1, 2; Krieger, W. 1937, **13**(1), p. 93, pl. 131, Fig. 1.



Text-figs. 1-5. Fig. 1. *Micrasterias foliacea* Bail.; Fig. 2. *M. zeylanica* Fritsch, Fig. 3. *M. pinnatifida* (Kuetz.) Ralfs, Fig. 4. *M. sol* (Ehrenb.) Kuetz.; Fig. 5. *M. radians* Turner; Fig. 6. *M. apiculata* (Ehrenb.) Menegh.

Cells of medium size, round, very deeply constricted sinus narrowly linear with faintly undulate margins in apical half and open outwards; semicells 5-lobed with deep and slightly open incisions between lobes and lobules, polar lobe with subparallel sides at the base and expanded apex, apical margin retuse-emarginate with a small acuminate spine near the emarginate-dentate angles, lateral lobes by 3 incisions divided into 4 equal lobules, polar and lateral lobules bifid; cell wall smooth.

Long. cell. 237-258 μm , lat. cell. 263-275 μm , lat. isthmus 21-24 μm .

Locality—Freshwater ditch at Jirkatang, South Andamans (Coll. No. & Date : AN 833; 11-11-1981).

Distribution—Not reported.

Micrasterias zeylanica Fritsch, Text-fig. 2.

Fritsch, F. E. 1907, p. 245, fig. 4c; Krieger, W. 1937, 13(1), p. 37, pl. 101, fig. 13.

Cell rather small, almost as long broad, deeply constricted, sinus narrowly linear and slightly open outwards; semicells scarcely 5-lobed, incisions between the polar and lateral lobes deep and slightly open, incisions between the lateral lobes rather shallow, polar lobe broadly cuneate with faintly retuse outer margin, polar and lateral angles somewhat acuminate, each furnished with a small, inclined and subacute spine; cell wall smooth.

Long. cell. 51 μm , lat. cell. 53.5 μm , lat. isthmus 9.5 μm .

Locality—Pond at Mile-Tilak, Port Blair (Coll. No. & Date : AN 568; 14-10-1979).

This species was originally spelled $\gg zeylanica \gg$ by Fritsch (1907) but Krieger (1937) used the spelling incorrectly as $\ll ceylanica \gg$, which was later adopted by other workers (Skuja, 1949; Lind, 1967). As stated by Grönblad *et al.* (1958) and according to the rules of nomenclature, the original spelling must be retained.

Distribution—Bengal (Wallich, 1860 as *Holocystis incisa* (Bréb.), Wallich & Turner 1892 as *M. incisa* Bréb. var. *aculeata* (Turner); Manipur (Bruehl & Biswas, 1926 as *M. incisa* var. *brevissoniana* and *M. incisa* var. *ceylanica* (Fritsch) Bruehl & Biswas) Andhra Pradesh (Suxena & Venkateswarlu, 1966, 1968 as *M. ceylanica* Fritsch from Warrangal); Maharashtra (Kamat, 1968 from Alibagh, 1975 from Vidarbha); Madhya Pradesh (Agarkar *et al.*, 1979 from Bandhavgarh).

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Explanation of Plate

- 1, 2. *Micrasterias apiculata* (Ehrenb.) Menegh., Fig. 1 $\times 360$; Fig. 2 $\times 125$
3. *M. sol* (Ehrenb.) Kuetz. $\times 200$; Fig. 1.
4. *M. pinnatifida* (Kuetz.) Ralfs $\times 460$;
5. *M. radians* Turner $\times 335$;
6. *M. foliacea* Bail. $\times 300$.

