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New records of some freshwater green algae from Bihar, India

A. N. KARGUPTA*, SHIPRA KUMARI AND SWATI KUMARI

Post Graduate Department of Botany, L. N. Mithila University, Darbhanga, Bihar (846004), India
e-mail:shiprajhabotany@gmail.com

***Corresponding author's e-mail: an.kargupta@gmail.com**

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ABSTRACT

The present communication deals with the description of 2 taxa of green algae (Chlorophyceae) belonging to the genera *Aphanochaete and Stigeoclonium.* These two taxa (*A. polychaete and S. curvirostrum)* have been reported for the first time from the localities of Bihar, India.

Keywords: *Bihar, Green algae, India, New record, Taxonomy*

INTRODUCTION

During the taxonomic investigation of freshwater green algae from Bihar, the authors have come across with some members of the order *Chaetophorales* hitherto unreported from this region. Till date four taxa of *Aphanochaete* A. Braun (*A. magna* Godward, *A. pilosissima* Schmidle, *A. polychaete* (Hansg.) Fritsch and *A. repens* A. Braun (Biswas, 1949; Sarma and Khan, 1980; Prasad and Fatma, 1981; Kargupta, 1987; Krishnamurthy, 2000 and Keshri and Sarma, 2004) are represented in India. The genus *Stigeoclonium* includes about 104 species and varieties described by various workers from different parts of the world in the past (Islam ,1963; Islam and Haroon ,1978 and Sarma and Kargupta,1987), while only 38 taxa of this genus have been reported in India (Sarma and Khan, 1980; Kargupta, 1987; Krishnamurthy,2000; Kargupta and Ahmad, 1991; Kargupta and Jha ,1997 and Gupta, 2012).

It appears from the review of literatures on the group that no serious attempts have so far been taken to explore algae of this region, this group in particular. Only a few workers are known to have surveyed algae of this group (Kargupta,1987; Kargupta and Ahmad,1991 and Kargupta and Jha,1997)

MATERIALS AND METHODS

Algal materials were collected from fresh water bodies of Darbhanga and Sitamadhi districts of Bihar, India during 2013-2015. There preserved in FAA (Fomaldehyde, Glacial acetic acid and 90% Alcohol). Each litre of the preservative contained 100ml of formaldehyde, 500ml of glacial acetic acid, 150 ml. of ethyl alcohol and 350ml. of water. To each litre of this solution, 50 ml. of glcerine was added to prevent the material from dessication.

Slides were prepared using 10% glycerine. KOH (Potassium hydroxide) was used to dislodge the epiphytes and decolorize the chloroplast. Lactic acid was used to have clear observation. Observations were made on Olympus research microscope. Prism type camera lucida was used for drawing and photographs of the material were taken.

RESULTS

Descriptions

1. *Aphanochaete polychaete* (Hansg.) Fritsch 1902 Plate - 1, Fig. - A

Thallus filamentous, creeping, unbranched consisting of rounded,rectangular or polygonal cells;12-15 µm long, 8-12 µm width,with 1-4 setae, appear to be laterally arranged.

Habitat:

Collection no.SK14, Date-15.11.2013, growing on aquatic angiospermic plant (pH-5-6, Temp.-27^{0}C), Place –Sahila, Darbhanga.Growing epiphytically on the species of *Oedogonium.*

This is the first report from Bihar.

Distribution in India: Jammu and Kashmir (Kant and Gupta, 1998), Maharashtra (Kamat 1974), Uttarakhanda (Gupta, 2005).

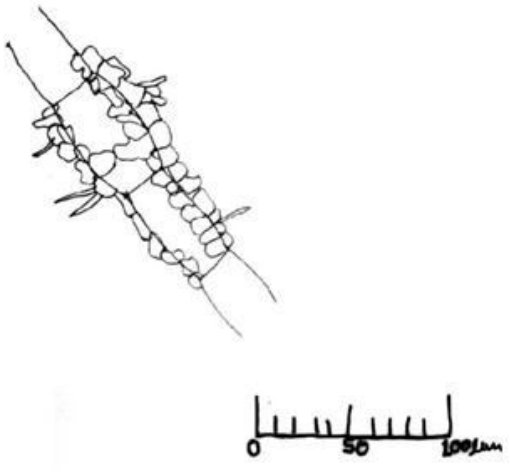

Plate- 1, Fig. - A: Camera lucida drawing of *Aphanochaete polychaete* (Hansg.) Fritsch

2. *Stigeoclonium curvirostrum* Skuja(Skuja 1949,*p*.73,pl. 12, f. 4-8; Islam 1963, *p*. 72, pl. 12, f. 1-4: pl.44.f. 6-8) **Plate - 2, Fig. – B & C**

Thallus bushy,bright green, both prostrate and erect parts well developed, attached to substratum by rhizoids, prostrate cells angular,mostly tetrahedral; 4-12µm long, 4-8 µm broad; erect filaments dichotomously branched or sparsely branched,branching sometimes very few,restricted to upper part only, cells of erect system are cylindrical or inflated, 8-20 µm in length, 4-8 µm broad, branchtips curved like sickle, sometimes with long multicellular hairs, choloroplastsingle, parietal with many pyrenoids.

Habitat:

Collection no.SK10, Date-15.11.2013, growing on aquatic angiospermic plant (pH-5, Temp.25°C),

In flowing water as an epiphyte. Place-Samastipur

In the original description, Skuja (1949) observed mucilage covering and the presence of rhizoids whereas in the Indian specimen, the mucilage covering is not obvious and rhizoids in some collections are not found.

This is the first report from Samastipur, Bihar.

Distribution in India: Bihar (Kargupta and Ahmad, 1991), West Bengal (Kargupra and Sarma, 1986).

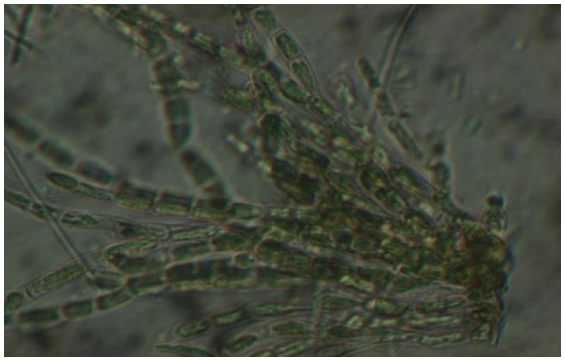

Fig. – B: General habit

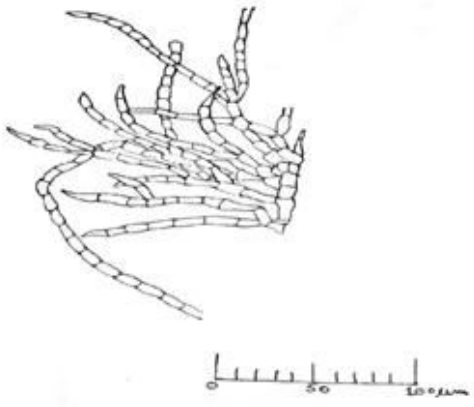

Fig. - C: Camera Lucida drawing (*S. curvirostrum* Skuja)

Plate - 2

DISCUSSION

Two taxa described above are not common in freshwater bodies of India as is reflected from distribution survey in India and outside India (Sarma, 1986). *A. polychaete* is generally confused with creeping animals. Minute observation at the cellular level and presence of hairs demarcate them from animal kingdom. On the other hand the genus *Stigeoclonium* is commonly encountered in almost all freshwater bodies including polluted habitats. The species *S. curvirostrum* is unique in itself because of sickle shape of the apical cell. In Islam's terminology it stands as a good species and it finds a place in his list of good species. Cox and Bold while studying cultural observation of the genus also recommended the present status of this species.

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