

**On the occurrence of *Sirocladium cuttackense* P. Sarma & Mustafa
(Charophyta: Zygnemataceae) from Madya Pradesh, India.**

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ABSTRACT:

A species (*S. cuttackense* P. Sarma & Mustafa) of the rare genus *Sirocladium* Randhawa is presented in this paper. The species was collected from Narsinghgarh of Madhya Pradesh. Report of *S. cuttackense* from this state is also the first report of the species since its establishment.

KEY WORDS: *S. cuttackense*, distribution, India, Madhya Pradesh.

INTRODUCTION:

Sirocladium Randhawa is a terrestrial member of Zygnemataceae established by Randhawa in 1941. It is a rare genus known to occur in very few localities of the world (Randhawa 1941, 1958a, 1958b, 1959; Islam 1965; Reith 1975a, 1975b; P. Sarma & Mustafa 1981, Pereira & Branco 2007). Randhawa collected the alga from Kumaon Hills in 1939 found growing on soft clay near a water fall and established the genus with its first species *Sirocladium kumaonensis* Randhawa (Randhawa 1941). The alga is unique in many aspects. First of all it is a terrestrial genus. Nature of chloroplast is also unique. It possess two broad, plate like, parallel chloroplast with smooth or laciniate margin. Reproduction is by geniculation forming a loop but without having any conjugation canal. Since it is a terrestrial genus rhizoides are occasionally seen.

Randhawa (1958a, 1958b) established two more species (*S. maharastrense* Randhawa & *S. vandalurense* Randhawa), the former from Maharashtra and the latter from Tamilnadu. Later on Reith (1975a) described a new species (*S. cubense* Reith) from Cuba. The species (*S. himalayense* Santra & Adhya) erected by Santra & Adhya (1977) was considered synonymous to *S. maharastrense* Randhawa by P. Sarma & Mustafa (1981). They (P. Sarma & Mustafa 1981) described a new species (*S. cuttackense* P. Sarma & Mustafa) having ornamented zygospore wall. This was the 2nd species of *Sirocladium* having ornamented zygospore wall next to *S. cubense* Reith. Till then two new species of the genus were described viz. *S. kushautherense* Kargupta & Jha (Kargupta & Jha 2004) from Bihar & *S. robustum* Pareira & Branco by (Pareira & Branco 2007) from Brazil. In this respect 8 species of *Sirocladium* are known and if the views of P. Sarma & Mustafa (1981) are taken into consideration 7 species of the genus could be considered.

This specimen was collected by B. S. Arya in the month of October from Narsinghgarh in Madhya Pradesh.

MATERIAL & METHODS:

Samples were collected from Narsinghgarh in Madhya Pradesh in the month of October from the shoreline of a small pond. The area was open where plants of *Equisetum ramosissimum* Desf. were growing. Sample was preserved in 5 % formalin. In the laboratory slides have been prepared using GWF as mountant (Bando 1988). Photomicrographs were taken from permanent slides using Carl Zeiss Axiostar Plus microscope with Nikon SLR model (D60) camera. The sample is kept in the Algal Herbarium of the department of Botany, The University of Burdwan (BURD).

RESULTS & DISCUSSION:

After detailed study the species was identified as *S. cuttackense* P. Sarma & Mustafa.

***S. cuttackense* P. Sarma & Mustafa**

(P. Sarma & Mustafa 1981, p. 202, f. 1-12)

(Plate-I, f. 1-6)

Thallus filamentous, uniseriate: cells cylindric, 28-36 μm in diameter, 85-110 μm long; cross walls plane; chloroplasts parietal, plate with sometimes undulate margins, always two in number, lying parallel to each other; chloroplasts with several pyrenoides (mostly 5-8) arranged in a row; conjugation by two geniculate gametangia lacking any conjugation canal; both the gametangia inflated but the receptive gametangia always inflated; 44- 60 μm in diameter, 75-100 μm long; zygospore more or less ellipsoid, filling the gametangia laterally, light yellow in colour, 50- 60 μm in diameter, 76-84 μm long; zygospore wall three layered, mesospore wall distinctly scrobiculate.

The present specimen tallies with the type species in all respects except being slightly smaller in size. *Sirocladium* is a rare genus and the occurrence of this species appears to be the first report of the taxon from Madhya Pradesh.

It appears that *Sirocladium* is a tropical genus. This is because it has been recorded from only three more countries except India. These are Cuba (Reith 1975a, 1975b), (Bangladesh (Islam 1965) and tropical Brazil (Pareira & Branco 2007). Although it is a tropical genus its occurrence is noted in the months of the year when the temperature is more or less comfortable (October- November in India and Bangladesh). The alga therefore appears unable to tolerate neither too much hot nor too much cool, although moist lightly exposed situations are apparently the prime requirement for its growth and survival.

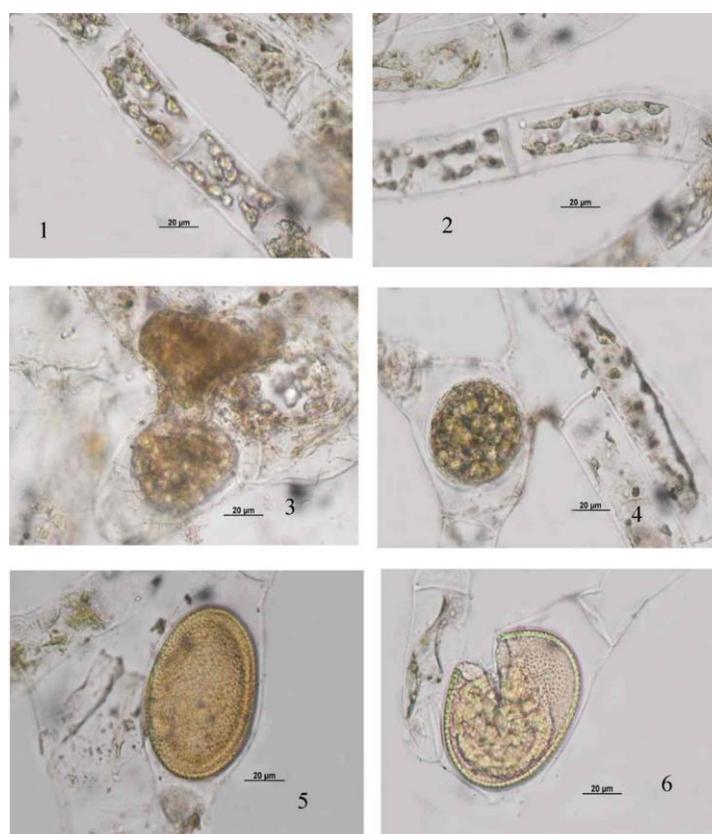


Plate I. Fig 1 & 2. Vegetative filaments. Fig. 3 & 4; Conjugating filaments; Fig. 5 & 6. Zygospore showing ornamentation.

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