

## CHROMOSOME NUMBER IN THE ALGA, *CHARA SOCOTRENSIS* F. *SOCOTRENSIS* RDW; A NEW RECORD FOR INDIA

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The Charophytes constitute a sharp and fascinating group of green algae due to their well developed erect system of the thalli complex reproductive organs and protonemal type of oospore germination. The work on the taxonomy of Charophyta has drawn remarkable considerations because of the prevailing controversy in terms of inter- and intraspecific recognitions of their taxa (Pal et al., 1962; Wood & Imahori, 1965). Cytological studies have been found useful in solving some of the taxonomical puzzles (Khan & Sharma, 1967 a,b; Pundhir & Vidyavati, 1994; Pundhir & Chauhan, 1997). During the course of studies on Charophytes, *Chara socotrensis* f. *socotrensis* RDW has been recorded with different chromosome numbers. Therefore, attempts have been made to study morphology, cytology and cytomorphology of this species.

Materials were collected from rice-fields, Ratha road, Bhubaneswar (Orissa), during January 1995. Young growing fertile upper healthy tips were fixed in absolute alcohol: glacial acetic acid (3 : 1) for cytological studies. Plants were further preserved in 4% formalin for morphological observations. Identification was made following Wood & Imahori (1965). Godward's iron-alum acetocarmine technique (1948) was employed for squashing spermatogenous antheridial filaments. Slides were made permanent using propionic acid - butanol schedule and mounted in euperal. Chromosome numbers were determined at metaphase.

Plants were monoecious, upto 13.0 cm long. Axes were heavily incrustated, moderately stout and 495-750  $\mu\text{m}$  in diameter. Stipulodes were present, 1 per branchlet, alternate, variable, rudimentary to well developed and 300-675  $\mu\text{m}$  long. Branchlets 10-11 in a whorl with 3-5 segments. Bract cells 1-2 and unilateral. Bracteoles two in number and longer than mature oogonia. Gametangia were conjoined at 1-2 lowest branchlet nodes. Oogonia are heavily incrustated, 570-675  $\mu\text{m}$  long and 480-570  $\mu\text{m}$  wide with 10-11 convolutions. Oospores dark brown to black, 510-600  $\mu\text{m}$  and 360-450  $\mu\text{m}$  wide with 8-9 conspicuous ridged striae. Antheridia were octoscutate and 285-330  $\mu\text{m}$  in diameter.

Squash of antheridial filaments revealed 14 chromosomes at metaphase. Cells length varies from 10.5-16.5  $\mu\text{m}$  and breadth 9.0-12.0  $\mu\text{m}$ . Resting nuclei are spherical showing 7.5-9.0  $\mu\text{m}$  diameter. Two to four darkly stained chromocentres have been found attached with 1-2 nucleolus.

Chromosomes are minute to medium in size varying from 0.87-3.5  $\mu\text{m}$  in length and 0.75-1.0  $\mu\text{m}$  in thickness. Karyotype in general, is symmetrical consisting of 10 chromosomes with median centromeres (out of which one is satellite chromosome with secondary constriction), one with subterminal centromere and remaining with terminal centromeres.

The forms of *C. socotrensis* f. *socotrensis* are characterised with unilateral bract cells, well developed stipulodes and conjoined solitary gametangia. It is one of the four taxa of *C. socotrensis* complex as conceived by Wood & Imahori (1965), viz., *C. socotrensis*, *C. fulgens*, *C. pashanii* and *C. nuda*. It has been once studied from Ballia (U.P.) by Ramjee & Sarma (1971). Morphology of the present material resembles with Ballia plant, except some variations in numbers of branchlets, bract cells and convolutions of oogonia. The record of present chromosome number ( $n=14$ ) is not in conformity with the count of  $n=28$  reported by Ramjee & Sarma (1971) and hence, it is a new record for India.

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