

ON *CHARA HAITENSIS* TURPIN FROM GUJARAT

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ABSTRACT

Morphology and cytology of *Chara haitensis* Turpin collected from a pond at Usarwan in Gujarat are described. The chromosome number as $n=42$ is first time determined in Indian species, *C. haitensis*. It is first record of its occurrence from Gujarat.

INTRODUCTION

The studies on Charophytes of Gujarat are known through DIXIT (1935, 1940, 1942), PAL *et al.* (1962), VAIDYA AND GONZALVES (1963) and PATEL AND JAWALE (1979 a, b). The morphology and cytology of *Chara haitensis* Turpin collected from a pond at Usarwan near Dahod, Gujarat, is described for the first time from Gujarat.

Cytology of Indian Charophytes has been studied by SARMA AND KHAN (1965), KHAN AND SARMA (1967), SARMA AND RAMJEE (1971), CHENNAVEERAIHAH AND BHARATI (1974), CHATTERJEE (1976), SINHA *et al.* (1977) and SUNDARLINGAM AND BHARATHAN (1978).

No karyological studies have been carried out so far in Charophytes of Gujarat except PATEL and JAWALE (1979a, b).

OBSERVATION

Morphology

Chara haitensis Turpin Pl. 1, Figs. 1-11

V. W. Proctor, D. G. Griffin & A. T. Hotchkiss, *Amer. J. Bot.*, **58** (10) : 895-897, 1971.

Plants monoecious to 66 cm high, slightly incrusting. Axis moderately stout, 462-663 μm in diameter; internodes 1-2 times as long as the branchlets, to 6.85 cm long; cortex 3-corticated; spine-cells solitary, small, acute, sparse on the older internodes, 50-286 μm long, 30-67 μm broad. Stipulodes in 2 tiers, 2 sets per branchlet, well developed, acute or acuminate, sometimes apiculate; uppers 2-3 times as long as lowers, longer than basal branchlet segment, 715-1037 μm long, 69-108 μm broad; lowers 252-524 μm long, 75-105 μm broad. Branchlets 10-12 in a whorl, 1.7-3.2 cm long, 335-515 μm in diameter; segments 10-11 of which all except basal segment $5/4$ - $3/2$ times longer than wide; end segment one celled, acuminate. Bract-cells 5-7, unilateral or verticillate, anteriors $3\frac{1}{2}$ -6 times longer than posteriors, 1000-1480 μm long, 105-161 μm broad; posteriors 147-312 μm long, 56-92 μm broad. Bract-teoles 2, about $1\frac{1}{4}$ times as long as the mature oogonia. Gametangia conjoined 751 μm wide; convolutions 14-16; coronula 115-158 μm high, 190-236 μm wide at base, erect or spreading. Oospores brown, 731-748 μm long, 531-561 μm wide;

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striae of 12-14 ridges; fossa 50-67 μm across; membrane pitted. Antheridia 378-433 μm in diameter, octoscutate.

Habitat—Pond at Usarwan, near Dahod, November, 1977 (No. 3520).

Cytology—Resting nucleus 11.4-13.9 μm in diameter. Nucleolus single, 2.4-2.8 μm in diameter. Chromocentre 1. Chromosome number $n=42$, 8 large, 24 medium and 10 small; slender; 1.75-7.45 μm long, 0.87 μm thick. Out of 8 large chromosomes, 1 with median, 6 with submedian and 1 with sub-terminal centromeres; 9 with median, 14 with submedian and 1 with terminal centromeres; of 10 small chromosomes, 2 with median, 2 with submedian and 6 with terminal centromeres.

DISCUSSION

The present species closely agrees with *C. zeylanica* var. *zeylanica* described by WOOD AND IMAHORI (1965). As the quadriscutate and octoscutate forms of *C. zeylanica* do not interbreed, the octoscutate forms have been considered as an independent species, viz. *C. haitensis* (cf. SARMA & RAMJEE, 1969; PROCTOR, GRIFFIN & HOTCHKISS, 1971). Hence this octoscutate form of *C. zeylanica* var. *zeylanica* is considered as an independent species, *C. haitensis*.

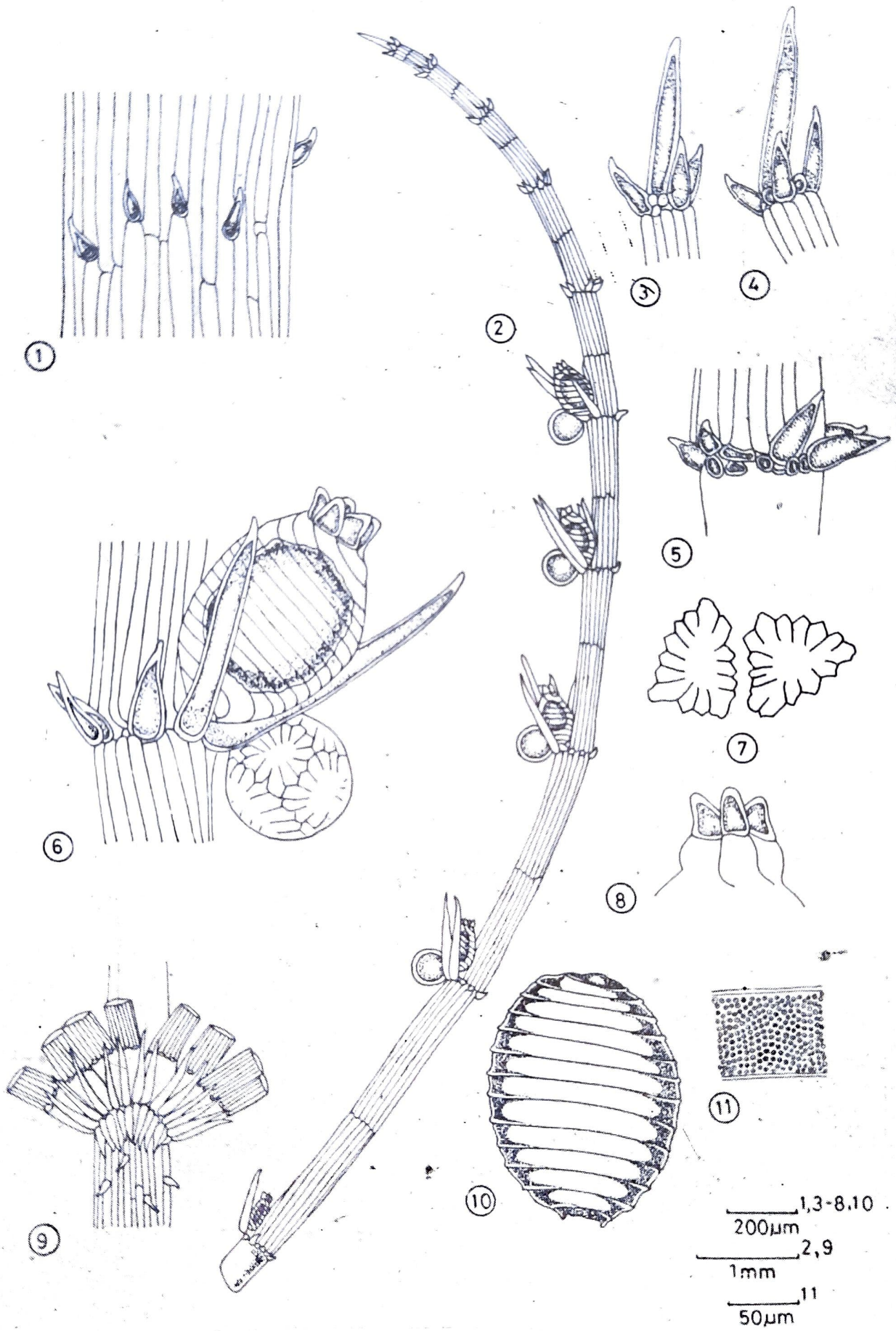
The chromosome number, $n=42$ confirms the previous count of GRIFFIN AND PROCTOR (1964) in octoscutate form of *C. zeylanica*. The count of 56 reported by GRIFFIN AND PROCTOR (1964) and SARMA AND RAMJEE (1969) in octoscutate form of *C. zeylanica* is not agreeable with the present count. The different chromosome counts are because of the cytological races of the taxon.

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EXPLANATION OF PLATE 1

Figs. 1-11 *Chara heitensis* Turpin

Figs. 1. Part of the axis showing 3-corticated cortex and spine-cells. 2. Branchlet with basal and terminal ecorticate segments. 3-4. Apices of branchlets. 5. First node of branchlet. 6. Branchlet node with conjoined gametangia, bract-cells and bracteoles. 7. Shield cells of antheridium. 8. Corona. 9. Axial node with stipulodes in 2 tiers, 3-corticated axis and basal part of branchlets. 10. Cospore. 11. Oospore membrane-pitted.