

***CALOGLOSSA OGASAWARAENSIS* (RHODOPHYTA, DELESSERIACEAE), A FRESH WATER RHODOPHYCEAE NEW TO INDIA**

L. JOSE and R.J. PATEL

Department of Biosciences, Sardar Patel University,
Vallabh Vidyanagar 388 120, India.

ABSTRACT - From a fresh water river in Kerala the occurrence of *Caloglossa ogasawaraensis* Okamura is recorded. This genus is for the first time collected from fresh waters in India and the species will be an addition to the fresh water Rhodophyceae of India.

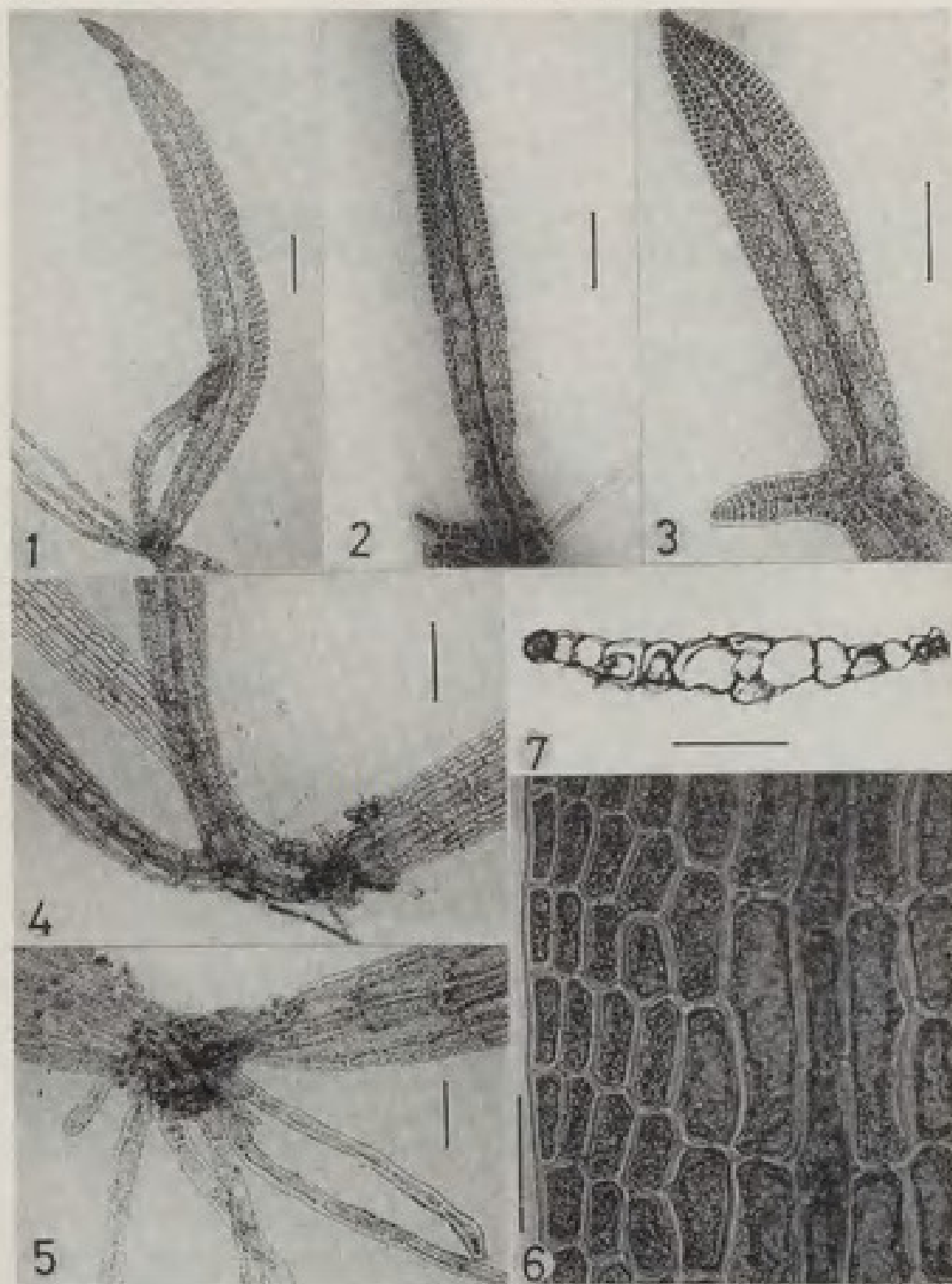
KEY WORDS : *Caloglossa ogasawaraensis*, fresh water Rhodophyceae, India, taxonomy.

INTRODUCTION

In India the genus *Caloglossa* is recorded in marine habitats by Boergesen (1933). It is widely distributed in many marine or brackish estuarine habitats in Asia (Anand, 1943; Durairatnam, 1961; Nural Islam, 1973). So far this genus has not been recorded from the Indian fresh waters.

The present genus belongs to the family Delesseriaceae of the order Ceramiales in Rhodophyta. They have lanceolate leafy thalli with frequent constrictions. Branches and bundles of rhizoids arise from the constricted portions. The speciation in this genus is mainly based on the size, and the mode of ramification of the thalli.

So far only two species of the genus *Caloglossa* are known from fresh waters. They are *C. lepricurii* Mont. and *C. ogasawaraensis* Okamura. Both of them grow in brackish estuarine and fresh water habitats. Howe (1902) found *C. lepricurii* in mountain stream. The second species *C. ogasawaraensis* is mostly a fresh water form established by Okamura in 1897. Post (1936) found this species in brackish water. Ratnasabapathy (1977) and Ratnasabapathy & Kumano (1982) reported this species from fresh water habitats of Thioman Island in peninsular Malaysia. Kumano (1978) described a new va-



Figures 1-7. *Caloglossa ogasawaraensis* Okamura. 1, 2. Showing the flattened leafy segments of thalli. Scale bar 1 = 200 μ m; scale bar 2 = 100 μ m. 3. A frond showing sub-dichotomous branching. Scale bar = 100 μ m. 4. Dichotomous branching at the base of frond. Scale bar = 200 μ m. 5. A bundle of rhizoids arising from the constricted portion of leafy segment. Scale bar = 100 μ m. 6. A part of frond showing pit connection between cells and the midrib cells with lateral pericentrals. Scale bar = 50 μ m. 7. Transversal section of a frond showing single layered cells, with a central 3 cell thick midrib. Scale bar = 50 μ m.

riety *C. ogasawaraensis* var. *latifolia* Kumano from Sungai Cherok in peninsular Malaysia.

MATERIAL AND METHODS

The specimens of a fresh water species of the genus *Caloglossa* were collected in February 1988 near Athirampally water falls of Sholayar river in Kerala State. It was collected from the shallow sandy bottom of the river bed. The materials were preserved in 4% formaldehyde. Photomicrographs were taken by Carl Zeiss photomicroscope. The specimens are kept in authors's herbarium C. No. K.15, S.P. University.

SYSTEMATIC ACCOUNT

Caloglossa ogasawaraensis Okamura (Figs. 1-7).

Okamura, 1897: 13, Fig. a-d; Bourrelly, 1970: 276-79, pl. 77 (7-8), pl. 78 (1-3).

Thalli flat, leafy, purple to red in colour, upto 2.5cm high; consisting of articulate leafy segments with their apices commonly inrolled, segments linear lanceolate or nearly so, attenuating more narrowly towards the base, upto 5.1mm long and 0.3mm broad. Rhozoides and similar leafy segments produced from the constricted portion or from the injured portion of the frond. The fronds di- or trichotomously branched. Sometimes without branching. Thalli unistratose except the midrib regions; midrib 3 celled thick a central cell and two median pericentrals. Rows of lateral pericentral cells present on both sides of midrib. Upto seven rows of cells present on each side of the midrib. The midrib cells upto 170µm long and 30µm broad. The length of cells decreasing from the midrib to periphery. Pit connections seen between all the cells including rhizoids. The rhizoids multicellular elongate and cylindrical upto 26µm in diameter and upto 218µm long. Reproduction not known in the present specimens.

Habitat: growing attached to the sandy bottom of Sholayar river near Athirampally water falls in Kerala State.

DISCUSSION

Some species of the genus *Caloglossa* exhibit close relationship among themselves. Fairly good similarities exist between at least four of them. They are *C. leprieurii*, *C. zanzibariensis* Goebel, *C. ogasawaraensis* and *C. bombayensis* Boergesen. Concrete demarcating characters based on their reproductive structures are yet to evolve in the speciation of this genus. The present plant is distinguished from *C. leprieurii* by the absence of repeatedly forking nature of thalli, mode of ramification and by the nature of cells. Boergesen (1933) while establishing *C. bombayensis* refers to two related species. They are *C. zanzibariensis* and *C. ogasawaraensis*. According to him *C. zanzibariensis* differs from *C. bombayensis* in having eight rows of cells in the seg-

ment against four in the latter. It also differed in having the broader segment of 250-400µm against 70µm of *C. bombayensis*. In his opinion *C. zanzibariensis* is closely related to *C. ogasawaraensis*. But the later plant is much broader 2-3mm as given by Okamura (1897) and the segments are much narrower at the nodes thus becoming ellipsoid in shape. But Ratnasabapathy & Kumano (1982) described a much smaller specimens of *C. ogasawaraensis*. The present specimen is also slightly smaller than the one described by the above workers.

CONCLUSIONS

The present specimens are identical with *C. ogasawaraensis* described by Ratnasabapathy (1977), Ratnasabapathy & Kumano (1982), and Bourrelly (1970). The smaller size of the present specimens may be due to the ecological and nutritional condition existing in the habitat. The first occurrence of this species in India is a significant record considering its wide distribution in Malayan region.

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