

Flintiella sanguinaria F. D. Ott (Porphyridiales, Rhodophyta) New to India

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फ्लिन्टीएला संगुईनेरिया एफ.डी. ओट (पोर्फायरीडिएलिस, रोडोफायटा) - भारत की नवीन शैवाल

रतुल भट्टाचर्जी, जय माल एवं जय प्रकाश केशरी

सारांश

अलवणीय जल में पाए जाने वाली फ्लिन्टीएला संगुईनेरिया एफ.डी. ओट नामक एककोशिकीय लाल शैवाल की एक दुर्लभ प्रजाति पहली बार भारत से ज्ञात हुआ है। यह एकप्ररुपिय एवं एक दुर्लभ लाल शैवाल है। यह शैवाल राजहाट, चिनसुरा, पश्चिम बंगाल के कीचड़युक्त धान के खेतों की नमीयुक्त जली हुई मिट्टी के ऊपर पाउडर सदृश्य आवरण के रूप में उगती हुई पायी गई एवं इसे जनवरी माह में संग्रहित किया गया। यह विश्व के बहुत ही कम क्षेत्रों से ज्ञात है। संभवतः एशियाई महाद्वीप से इस वंश एवं प्रजाति का पता पहली बार चला है।

ABSTRACT

A rare freshwater unicellular red alga *Flintiella sanguinaria* F. D. Ott has been reported for the first time from India. It is a monotypic taxon and a rare alga. The alga was found growing as powdery covering on moist burnt soil of a damp paddy field from Rajhat, Chinsurah, West Bengal and collected in the month of January. It has been reported from very few localities of the world. Probably, this is the first report of the genus and species from the Asian subcontinent.

Keywords: Asian subcontinent, *Flintiella sanguinaria*, first report, freshwater red alga, Porphyridiales, West Bengal, India

INTRODUCTION

Only a few genera of freshwater unicellular red algae are known (Desikachary, al., 1990; Kumano, 2000; Sheath & Vis, 2015). They grow in uncommon situations. For example, *Porphyridium* Nägeli grows in shady, eutrophic places; *Cyanidium* Geitler as powdery covering on the stones, in and near acidic hot springs (Geitler, 1933; Kumano, 2002; Sheath & Vis, 2015), & *Flintiella* F. D. Ott near springs (Sheath & Vis, 2015). Of these *Porphyridium* Nägeli is known worldwide in shady eutrophic situations, while, *Cyanidium* Geitler is common near acidic hot springs. *Flintiella* F. D. Ott (Bourrelley, 1970) is not very common and known from very few localities of the world (Sheath & Vis, 2015). Of the three genera, *Flintiella* F. D. Ott is the largest in size and represented by only one species i.e. *F. sanguinaria* F.

D. Ott, which was first reported from the Bartou Springs, Texas, U.S.A. (algaebase.org). In the present study, *Flintiella sanguinaria* F. D. Ott has been reported from a paddy field where paddy crop was harvested a few days back. The straw remains of the cut heads of the early crop were burnt as a part of land preparation for the next crop. The alga was found on the chunks of burnt little moist soil in the month of January. The specimen appeared orangish-red powdery covering on the soil.

MATERIAL AND METHODS

The specimen was collected from paddy fields of Rajhat (22°56'41.3"N, 88°20'06.6"E), Chinsurah, Hooghly District of West Bengal in the month of January, 2020 (Fig. 1). The collected specimen was brought to the laboratory. The soil chunks were put in petridish with

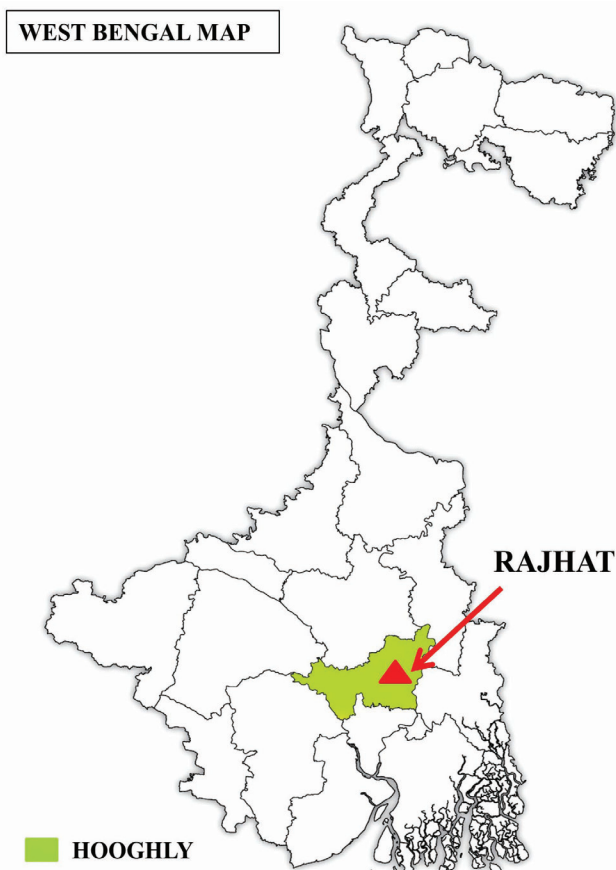


Fig. 1: Showing the collection spot, Rajhat, Hooghly District of West Bengal, India.

water to moisten the soil so that the alga could be removed. After careful removal of soil particles, the specimen was mounted under GWF solution & observed under the microscope. The images were taken using Axiocam 508 digital camera fitted on Zeiss A-1 Axioscope microscope.

Results: Following observations were made:

***Flintiella sanguinaria* F. D. Ott (Fig.2)**

(F. D. Ott in Bourrelly, *Les Algues d'eau douce. Initiation à la systématique. Tom III. Les Algues bleues et rouges. Les Eugléniens, peridiniens et Cryptomonadines* 1970, p. 194, pl.48, figs. 1-4)

Thallus clumpy mass having spherical cells, united in gelatinous matrix; cells remain free or adjoined together; cell wall thick, glistening & fibrous; cells 16–30 µm in diameter with an average of 20 µm; each cell containing a massive, parietal chloroplast lacking pyrenoid, dark red in colour; asexual reproduction by vegetative division of cells.

Dimensions: Diameter of cells 16–30 µm in diameter with an average of 20 µm.

Discussion: Members of Porphyridiales are not well known in India (Desikachary & al., 1990; Iyengar, 1985; Gaikwad & al., 2009; Ganesan & al., 2018). *Porphyridium purpureum* (Bory) K. M. Drew & R. Ross has been reported by Gaikwad & al., (2009) from the humid situation of an inland area of Regional Fruit Research Centre, Pune. The other alga of Porphyridiales *Chrootheca richterianum* Hansgirg was recorded by late Professor M. O. P. Iyengar from the moist walls of an irrigated well of the Agri-horticultural Garden, Teyanampet, Madras (Iyengar, 1985). *Flintiella* F. D. Ott is a monotypic genus represented by *Flintiella sanguinaria* F. D. Ott (*in* Bourrelly, 1970). It is known from few localities of the world (Sheath & Vis, 2015 *in* Wehr, & al., 2015; Guiry & Guiry, 2021). The alga looks like *Porphyridium* in external appearance, but differs from it in having chloroplast lacking pyrenoid and comparatively bigger cell size.

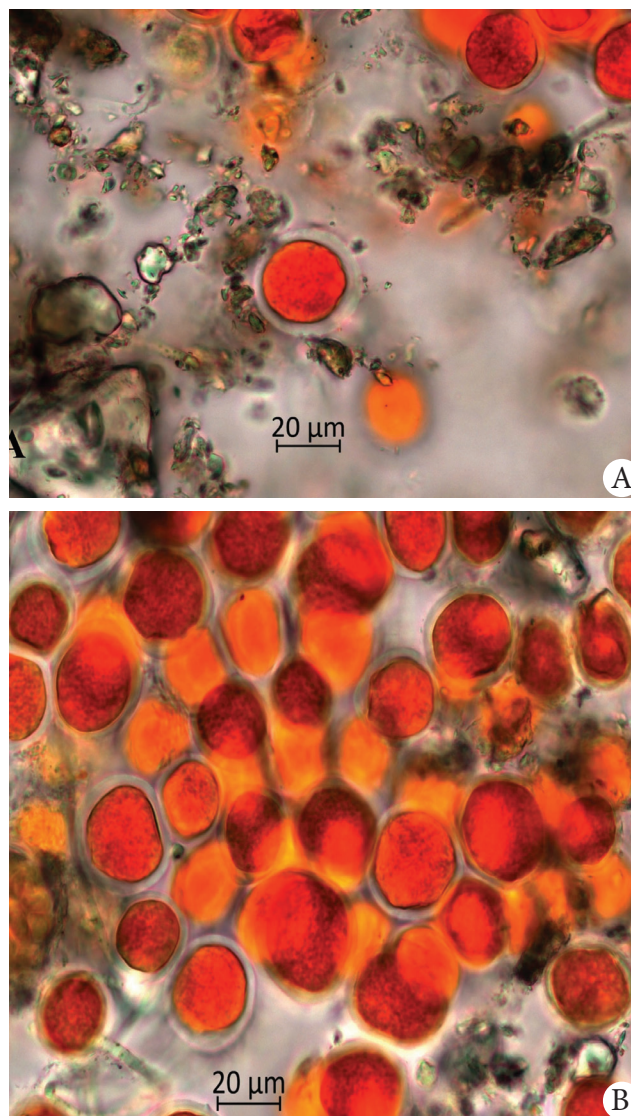


Fig.2. A. A single cell showing details of cell structure; B. Group of cells on the substratum

CONCLUSION

It appears that our knowledge of Porphyridiales and freshwater red algae in particular is not well understood in spite of a good quantum of work done in last few decades (Ganesan & al., 2018; Koley & al., 2020). This is due to lack of proper investigation & not due to scarcity of habitats. The present report reveals the occurrence of this rare fresh water red alga *Flintiella sanguinaria* F. D. Ott from the Rajhat, West Bengal and reported here as a new addition to the algal flora of India.

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