ISSN 0376-5561
Geophytology 44(2): 189-192
November 2014

Petrified *Vaucheria*-like siphonous alga from the Late Jurassic sediments of Nipania in Rajmahal Hills, Jharkhand, India

B. D. Sharma

Kath Mandi, Narnaul-123001, India
E-mail: bdsharma14@yahoo.com

Manuscript received: 17 July 2014
Accepted for publication: 06 September 2014

ABSTRACT

Sharma B. D. 2014. Petrified *Vaucheria*-like siphonous alga from the Late Jurassic sediments of Nipania in Rajmahal Hills, Jharkhand, India. Geophytology 44(2): 189-192.

A bunch of petrified *Vaucheria*-like alga is observed in a thin section prepared of Late Jurassic Nipania chert in Rajmahal Hills, Jharkhand, India. It consists of branched siphonous filaments bearing fertile structures, i.e. aplanosporangia, curved antheridial branches and globose oogonia. Some filaments also have akinete-like structures. It is the first report of Siphonales from the Rajmahal Hills, Jharkhand, India.

Key-words: Siphonous alga, Late Jurassic, Nipania, Rajmahal Hills, Jharkhand, India.

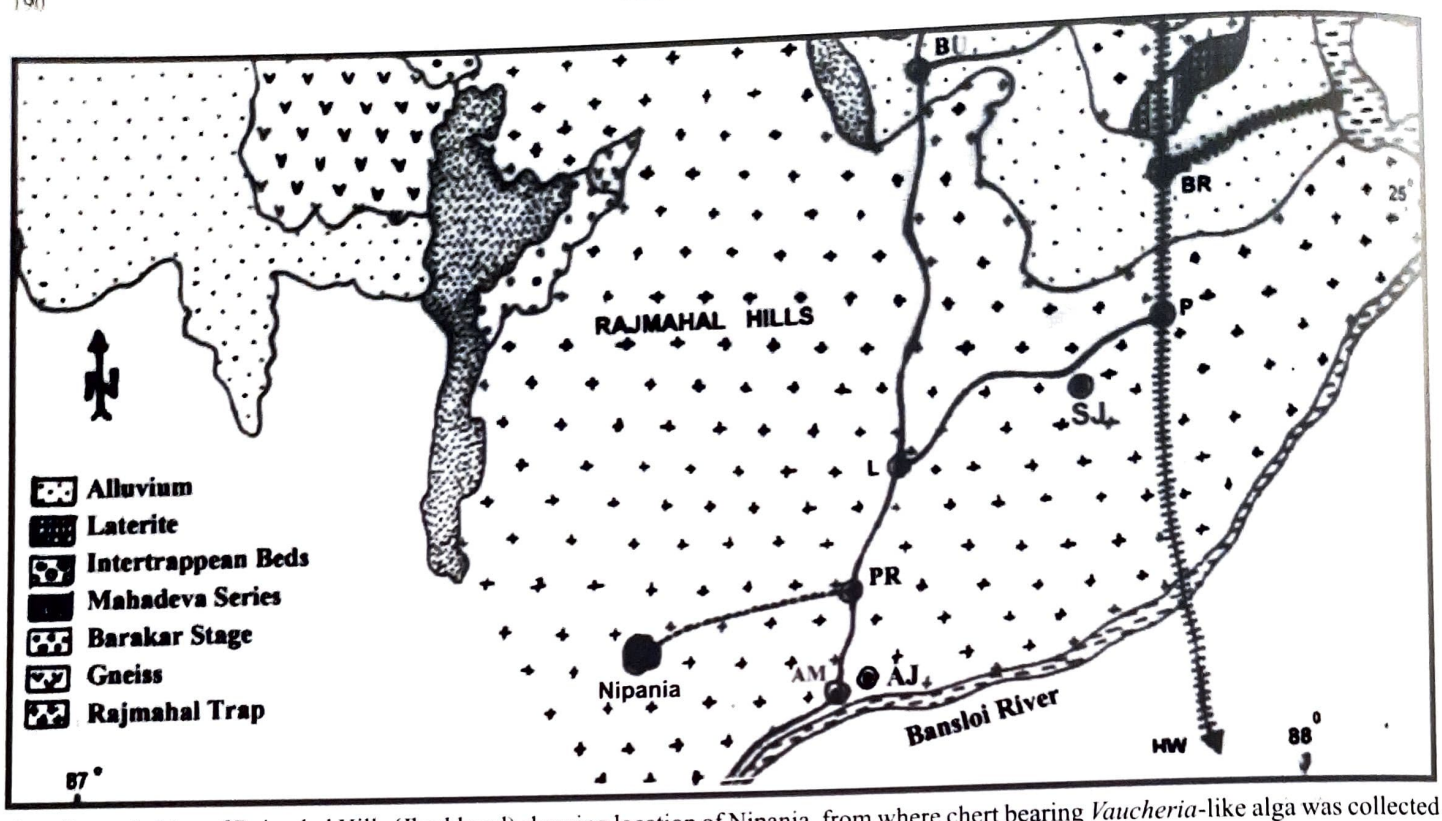
INTRODUCTION

The present algal material was collected from the Late Jurassic sediments of fossiliferous locality Nipania in Pakur District, Jharkhand (Text-figure 1). Earlier, fossil algae, belonging to *Eudorina, Chara, Characiosiphonites, Polysiphonia*, etc., have been recorded from the same locality by Sharma and Harsh (1994) and Sharma and Tripathi (1997). Nipania village is situated about 11 km north-west to Amrapara on Pakur-Dumka Road, in Pakur District, Jharkhand. Fossiliferous blocks are found scattered in the area. Sections were cut by a diamond edge wheel and the slides were prepared by the usual method of grinding and polishing techniques and mounted in dilute canada balsam.

VAUCHERIA-LIKE SIPHONOUS ALGA

Material: Slide No. BD219/Raj N contains the present material in the form of a bunch of algal filaments.

Description: The bunch has a number of simple or branched intermingled siphonous filaments of varying thickness (34-72 μm) and length (1-2 mm) (Plate 1, figure A). Four globose, dark, oogonia-like bodies and subtending base of an antheridial curved branch are observed (Plate 1, figure B). A stalked globose aplanosporangium (*Vaucheria uncinata* like structure) is visible in Plate 1, figure C. The upper arrow in this figure points an antheridial curved hook like branch. Two dark coloured oogonia like bodies (left arrow) and the basal septate portion of an antheridial branch (right arrow) are also seen (Plate 1, figure D). Two dark globular fertile structures (marked by arrow) are seen in Plate 1, figure E, whereas two globular fertile structures of unknown nature are seen in



Text-figure 1. Map of Rajmahal Hills (Jharkhand) showing location of Nipania, from where chert bearing *Vaucheria*-like alga was collected (modified after Ball 1877, Sen Gupta 1988). AJ: Amarjola; AM: Amrapara; BR: Barharwa; BU: Burio; HW: Howrah; L: Litipara; P: Pakur; PR: Parirkola; SJ: Sonajori.

Plate 1, figure F. In Plate 1, figure G, the upper arrows point antheridial branches whereas, the lower two arrows face globular bodies probably the oogonia. An irregular dark coloured structure represents the rhizoidal portion (?). Branching of filaments is seen in Plate 1, figure H and the arrows point towards two circular structures coming out of the filament. They may be zoospores but flagella are not visible. In Plate 1, figure I, three arrows point to the antheridial curved branches with subtending portions. A filament showing akinete formation is seen in Plate 1, figure J. Akinetes are vegetative mode of multiplication. Plate 1, figure K is identical to Plate 1, figure D, but fertile portions are more clear, i.e. darkish globular oogonia and an antheridial narrow, curved septate branch (arrow pointing left). Another thick, septate antheridial branch (arrow pointing right) is also visible.

Remarks: The description given above shows relationship of the present material, i.e. the bunch of algal filaments and associated fertile structures, with an extant taxon *Vaucheria* of the Division Chrysophycophyta, Class Xanthophyceae and Order Vaucheriales (Bold & Wynne 1978, Bold et al. 1987). Collection of better preserved material and further investigation are needed on *Vaucheria*-like filaments in thin sections prepared of Nipania cherts from the Rajmahal Hills, Jharkhand.

→

Plate 1

A-K. *Vaucheria*-like fossil alga. A. Bunch of algal filaments. B. Globose fruiting bodies (? oogonia) and a portion of antheridium. C. A globose aplanosporangium like body and an antheridium with curved body. D. Dark coloured oogonia and basal portion of an antheridium. E. Darkish globose oogonia (?). F. Two globose oogonia like structures. G. Globose oogonial and curved antheridial structures. H. Two globose bodies coming out of filaments may be zoospores. I. Antheridial structures of curved filaments. J. Akinetes in a filament. K. Oogonial and antheridial bodies (Bar A = 80 μm, B–K = 40 μm).

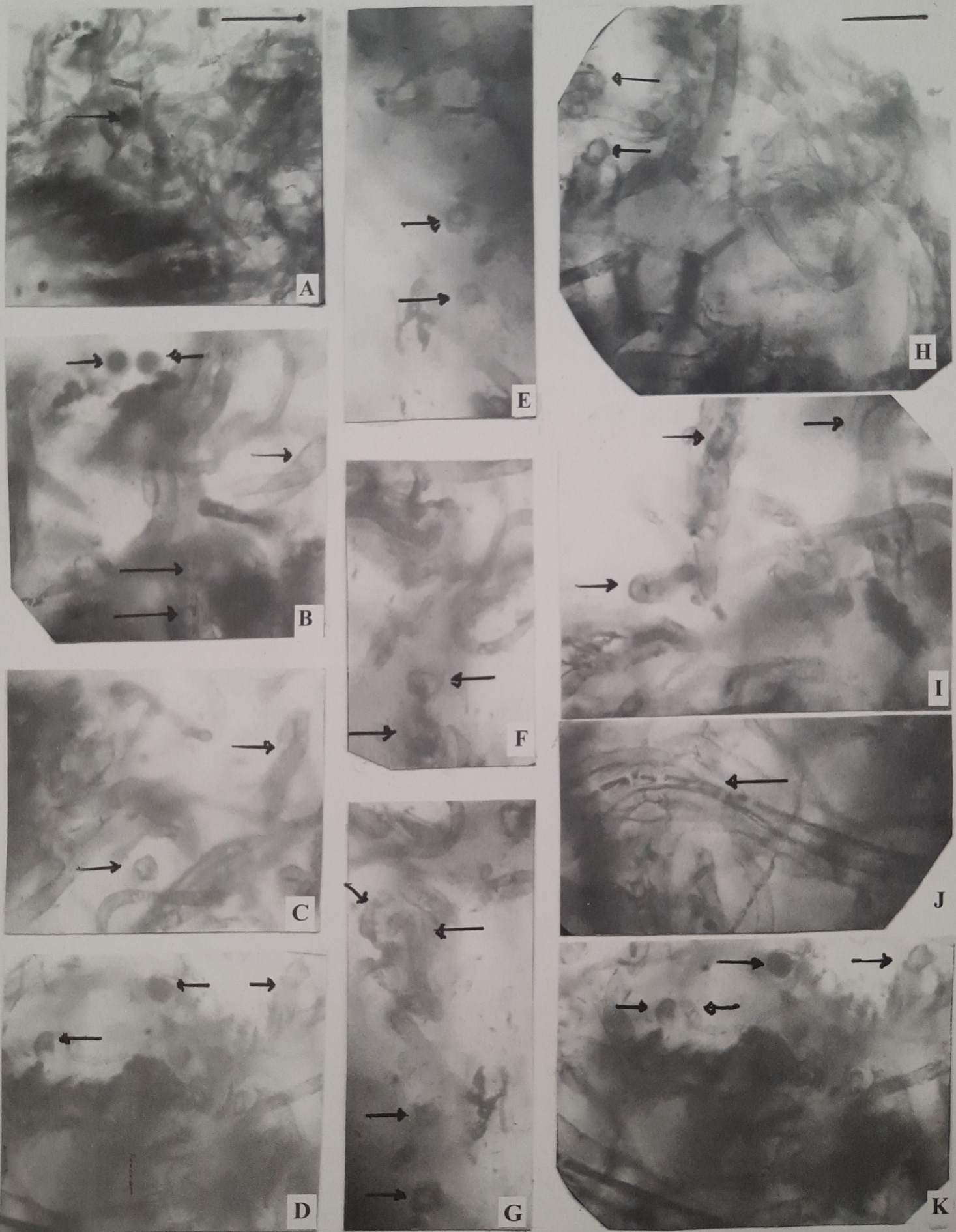


Plate 1

ACKNOWLEDGEMENTS

The author is thankful to Dr. O. P. Suthar who prepared the slide and to other scholars of the Palaeobotany Laboratory of Botany Department, Jai Narain Vyas University, Jodhpur for fruitful discussion and suggestions.

REFERENCES

Ball V. 1877. Geology of Rajmahal Hills. Mem. Geol. Surv. India. 13(2): 1-94.

Bold H. C., Alexopoulos C. J. & Delevoryas T. 1987. Morphology of plants and fungi. Harper & Row Publishers, New York.

Bold H. C. & Wynne M. J. 1978. Introduction to the Algae. Structure and reproduction. Prentice Hall, Englewood Cliffs. N.J. (USA).

Sen Gupta S. 1988. Upper Gondwana stratigraphy and palaeobotany of Rajmahal Hills, Bihar, India. Mem. Geol. Surv. India. Palaeont. Indica (n.s.) 48: 1-182.

Sharma B. D. & Harsh R. 1994. Polysiphonous algae from the Mesozoic non-marine deposits of the Rajmahal Hills, India. Phytomorphology 44: 261-264.

Sharma B. D. & Tripathi R. P. 1997. A petrified coenobial alga from the Mesozoic rocks of the Rajmahal Hills, Bihar, India. Phytomorphology 47(4): 371-374.