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Fossil wood from the Tipam Group of North Hlimen, Mizoram

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ABSTRACT

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Cynometroxylon holdenii (Gupta) Prakash and Bande (1980) is described for the first time from Builum area situated near North Hlimen, Kolasib District, Mizoram and belongs to the Tipam Group of Late Miocene in age. Its occurrence indicates warm and humid climate in the region during the deposition of the sediments.

Key-words—Fossil wood, North Hlimen, Late Miocene, Palaeoecology.

मिज़ोरम में उत्तरी ह्लिमैन के टीपम समूह से प्राप्त काष्ठ जीवाश्म

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सारांश

मिज़ोरम में कोलासिब जिले के उत्तरी ह्लिमैन के निकट स्थित बुइलम से *सायनोमेट्रोक्सीलॉन होल्डेनीयाई* (गुप्ता) प्रकाश एवं बॉडे (1980) पहली बार अभिलिखित की गई है तथा यह टीपम समूह के अंतिम मध्यनूतन आयु से संबंधित है। अवसादों के निक्षेपण के दौरान क्षेत्र में इसकी प्राप्ति कोष्ण एवं आर्द्र जलवायु का संकेत करती है।

संकेत-शब्द—काष्ठ जीवाश्म, उत्तरी ह्लिमैन, अंतिम मध्यनूतन, पुरापारिस्थितिविज्ञान।

INTRODUCTION

Mizoram lies in the eastern most part of India bordered by Bangladesh to the west and south-west, Assam to the north and Manipur to the northeast respectively; it is connected with Assam and rest of the country through the adjoining Cachar District of Assam lying to the north (Karunakaran, 1974).

The Tertiary sediments of Mizoram are mainly represented by the Barail, Surma and Tipam groups. Though the state is rich in plant fossils (Mehrotra *et. al*., 2005), yet it is not fully explored as far as the fossils are concerned. During the field work a well preserved fossil wood is discovered from the Tipam Group which is of Late Miocene in age.

The locality situated near Builum, 6.5 km west of North Hlimen in the Kolasib District is a new fossiliferous locality in the Mizoram State (Fig. 1).

SYSTEMATICS

Family—FABACEAE

Genus—CYNOMETROXYLON Chowdhury and Ghosh, 1946

Cynometroxylon holdenii (Gupta) Prakash and Bande, 1980

(Pl. 1.1-5)

Material—The study is based on a solitary piece of well-preserved secondary xylem measuring 12 cm in length and 5 cm in width.

Description—Wood diffuse porous. Growth rings absent. Vessels small to medium, t.d. 66-100 µm, r.d. 110-187 µm, solitary and in radial multiples of 2-3, circular to oval, evenly distributed, 3-6 per sq mm, tyloses absent; vessel members 180-300 µm in height with oblique to horizontal ends; perforations simple; intervessel pits bordered, alternate, hexagonal due to crowding. Parenchyma paratracheal banded; bands 3-6 celled thick and 70-88 µm in width, distance between two bands 120-200 µm. Xylem rays 1-3 seriate, frequently biseriate, 28-72 µm in width and 18-24 cells or 440-660 µm in height; ray tissue weakly heterogeneous; procumbent cells 44-55 µm in radial length and 21-22 µm in tangential height, upright cells 16-22 µm in radial length and 50-61 µm in tangential height. Fibres aligned in radial rows, semilibriform, polygonal in cross-section, non-septate, about 10 µm in diameter and 400 µm in length.

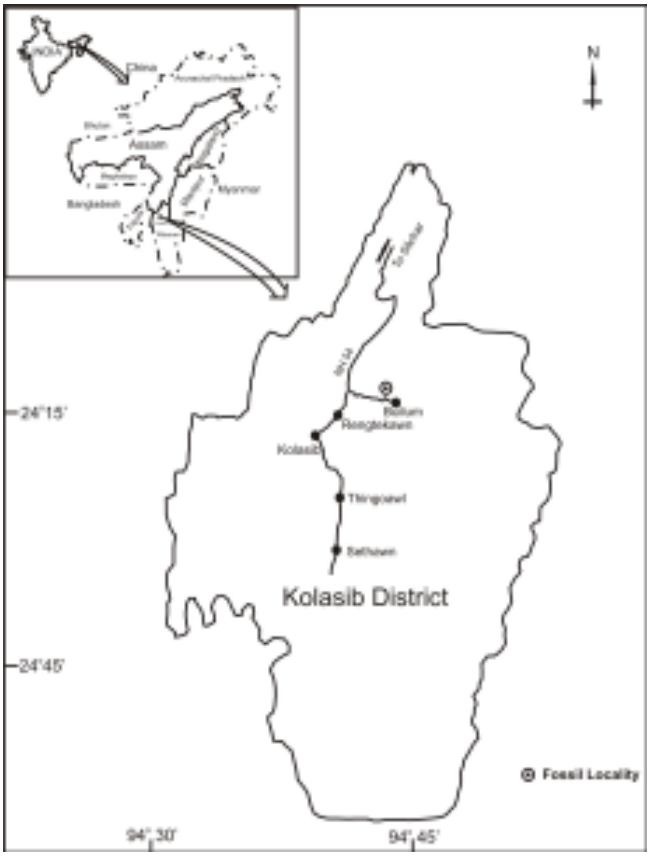

Fig. 1—A map of the Kolasib District, Mizoram showing a new fossiliferous locality.

Figured Specimen—Specimen No. BSIP 39554.

Repository—Birbal Sahni Institute of Palaeobotany, Lucknow.

Occurrence—Builum, 6.5 km west of North Hlimen, Kolasib District, Mizoram.

Affinities—The diagnostic features of the fossil, viz., diffuse porous wood, absence of tyloses, simple perforation plates, banded paratracheal parenchyma,

PLATE 1

Cynometroxylon holdenii (Gupta) Prakash & Bande, 1980

1. Cross section showing shape, size and distribution of vessels and parenchyma bands. x 40; Slide No. BSIP 39554-I.
2. Tangential longitudinal section showing structure of the xylem rays. x 100; Slide No. BSIP 39554-II.
3. Cross section magnified to show parenchyma bands. x 100; Slide No. BSIP 39554-I.
4. Radial longitudinal section showing nature of the ray tissue. x 100; Slide No. BSIP 39554-III.
5. Tangential longitudinal section magnified to show the presence of vestured bordered pits in vessels. x 400; Slide No. BSIP 39554-II.

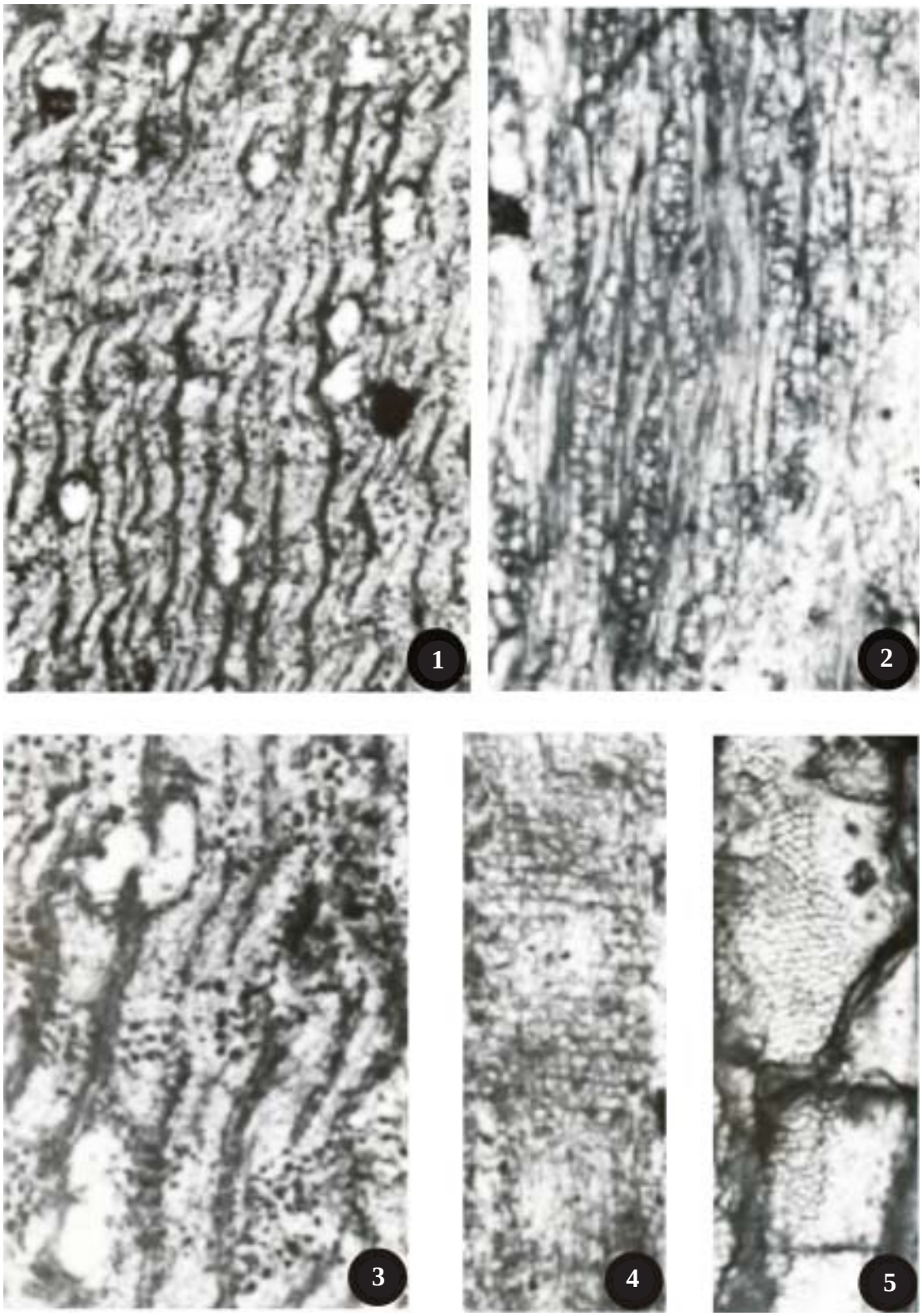

PLATE 1

mostly biseriate xylem rays, vestured pits, weakly heterogeneous xylem ray tissue and non-septate fibres indicate its closest affinity with *Cynometra* L., especially with *Cynometra ramiflora* L. of Fabaceae (Metcalfe & Chalk, 1950; Kribs, 1959; Ramesh Rao *et al.*, 1972; Ilic, 1991).

The fossil woods resembling *Cynometra* L. are generally placed under the genus *Cynometroxylon* Chowdhury and Ghosh (1946). The present fossil is identical to *Cynometroxylon holdenii* (Gupta) Prakash and Bande (1980) which is very common during the Neogene of India.

DISCUSSION

This is the first record of *Cynometra* L. from the Tertiary deposits of the Mizoram State. The genus comprises about 60 species of evergreen trees or shrubs found in the tropics of Indo-Malayan region, Philippine Islands, Australia Pacific Island, Mexico, Brazil and Africa (Ramesh Rao *et al*., 1972). *Cynometra ramiflora* L. with which the fossil wood shows maximum resemblance, is a small to medium sized tree commonly found in the tidal forests of Andamans and Sunderbans but rather scarce in southern travancore, Myanmar and Sri Lanka. Therefore, the occurrence of its fossil wood in the vicinity of North Hlimen area of Mizoram indicates warm and humid climate (Champion & Seth, 1968) during the Late Miocene.

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