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A NEW SPECIES OF *CALOPHYLLUM* FROM THE MIOCENE BEDS OF BIRBHUM DISTRICT, WEST BENGAL, INDIA

IN the Miocene beds of Birbhum District in West Bengal, there occur a large variety of petrified woods. So far, only a few fossil dicotyledonous woods have been described from this locality by some authors^{2-6, 11}. The fossil wood dealt with in the present paper was collected by the authors in December 1976 from an area of Srineketan forest, half mile north of Santineketan (23° 42' N, 87° 42' E) near Bolpur, Birbhum District. Thin ground sections of this petrified wood were prepared and its anatomical details studied in comparison with the modern woods. The preservation of the fossil wood is fairly good. It shows the following characters.

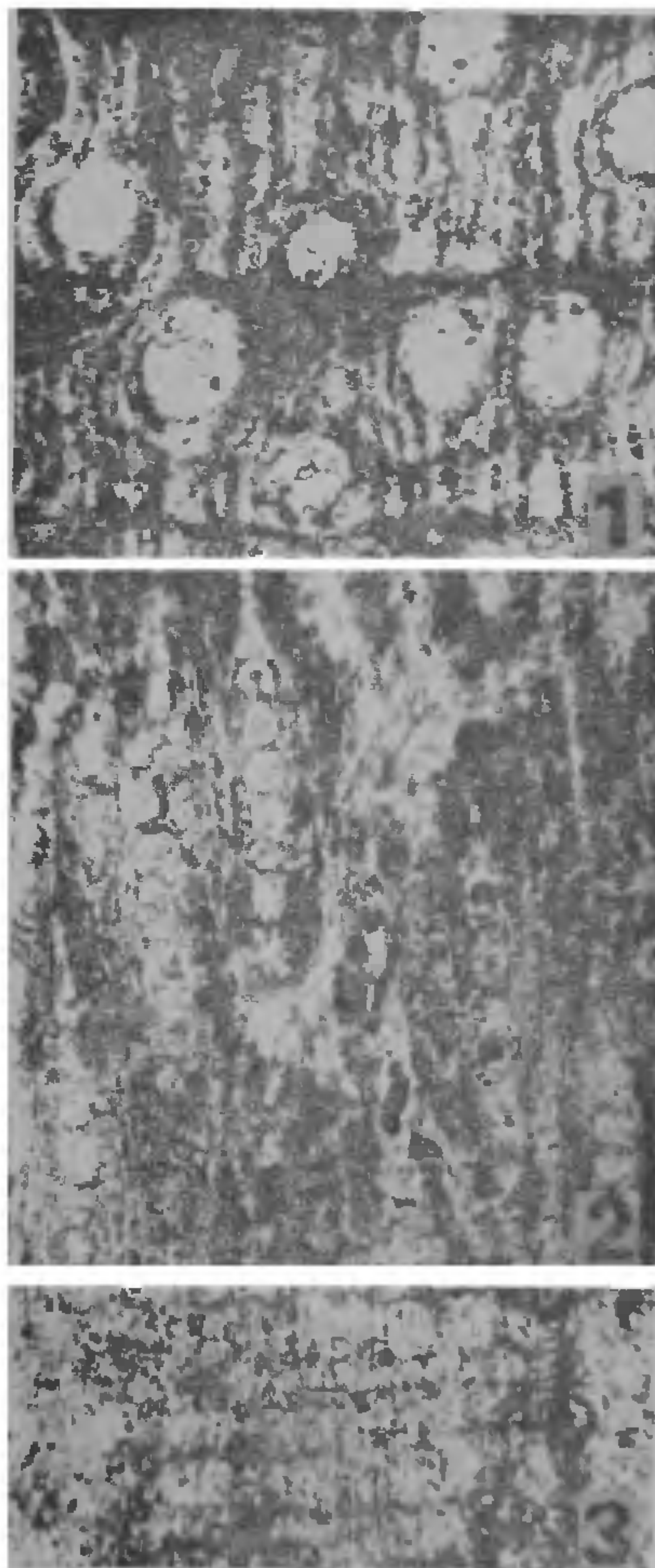
Wood diffuse porous (Fig. 1). *Growth rings* absent. *Vessels* large, almost exclusively solitary, arranged in oblique radial lines; circular to oval in cross-section; t.d. 120-480 μ , r. d. 240-600 μ , vessel members short to medium with truncate ends; *perforation plates* simple; tyloses abundant. *Tracheids* paratracheal, forming 1-3 (mostly 2-3) cells wide sheath around the vessels. *Parenchyma* apotracheal in concentric tangential bands of 2-6 (mostly 2-4) cells wide; bands continuous and also broken into short bands, slightly wavy, ending abruptly, interrupted by xylem rays (Fig. 1). *Xylem rays* very fine, mostly uniseriate, sometimes biseriate (Fig. 2); closely spaced, 15-45 μ broad; 3-18 cells in height and 92-459 μ in length; ray tissue heterocellular, composed of both procumbent and upright cells (Fig. 3). *Fibres* oval to polygonal in cross-section, thin walled, non-septate.

Holotype—No. 230 of the palaeobotanical collection, Dept. of Botany, Burdwan University.

Locality—Srineketan forest near Santineketan (23° 42' N, 87° 42' E) Birbhum District, West Bengal.

Age—Miocene.

In possessing vasicentric tracheids; apotracheal parenchyma bands, obliquely arranged solitary tylosed vessels, uniseriate or rarely biseriate rays and non-septate fibres, the fossil wood described here resembles the modern genus *Calophyllum* especially with *C. tomentosa* Wight and *C. inophyllum* L. of the family



FIGS. 1-3. *Calophylloxylon bengalense* sp. nov. Fig. 1. Cross-section showing distribution of vessels and parenchyma bands, $\times 50$. Fig. 2. Tangential longitudinal section showing xylem rays, $\times 100$. Fig. 3. Radial longitudinal section showing heterocellular rays, $\times 100$.

Guttiferae^{1, 6, 9} group B. It also shows resemblance in gross features with the genera *Kaya* and *Mesua* of the same family. But the genus *Kaya* can be distinguished from the fossil wood in having wider rays (2-3 cells) and the genus *Mesua* also differs from the fossil wood in having very thick walled fibres and much more closely placed parenchyma bands.

Lakhanpal and Awasthi⁷ instituted the genus *Calophylloxylon* for the fossil woods showing similarity with the modern wood of *Calophyllum*. So far three species of fossil woods of *Calophyllum* are known from India. These three fossil woods show marked differences from the present fossil wood. *C. cuddalorese*⁷ and *C. indicum*⁷ differ from the present fossil wood in possessing smaller vessels, thicker (2-7 seriate) parenchyma bands and long xylem rays. Though the present fossil wood shows some resemblance with *C. coinophyllum*¹⁰ but differs from it in having very large vessels (t. d. 120-480 μ), r. d. 240-600 μ) and absence of enlarged crystalliferous ray cells.

From the above comparison it is quite evident that the present fossil wood is distinct from all other known species, and hence it has been assigned to a new species, *Calophylloxylon bengalense* sp. nov., the specific name indicating its occurrence in West Bengal.

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these landraces in July and harvest them in November. The panicles are semicompact with deciduous awns (Fig. 1). The glumes are hairy with a characteristic transverse crease. Specimen heads were identified as belonging to the race *durra*. Seeds are dimpled (Fig. 2), white in color, and have a floury endosperm. The 1000 grain weight was 22.6 g. Chemical analysis of the seeds showed that they contained 9.6% protein; the percentage of lysine in the protein was 2.1.



FIG. 1. Panicles of *basmati* sorghum. 1. Col. No. KEP-475; 2. Col. No. KEP-472; 3. Col. No. KEP-477.

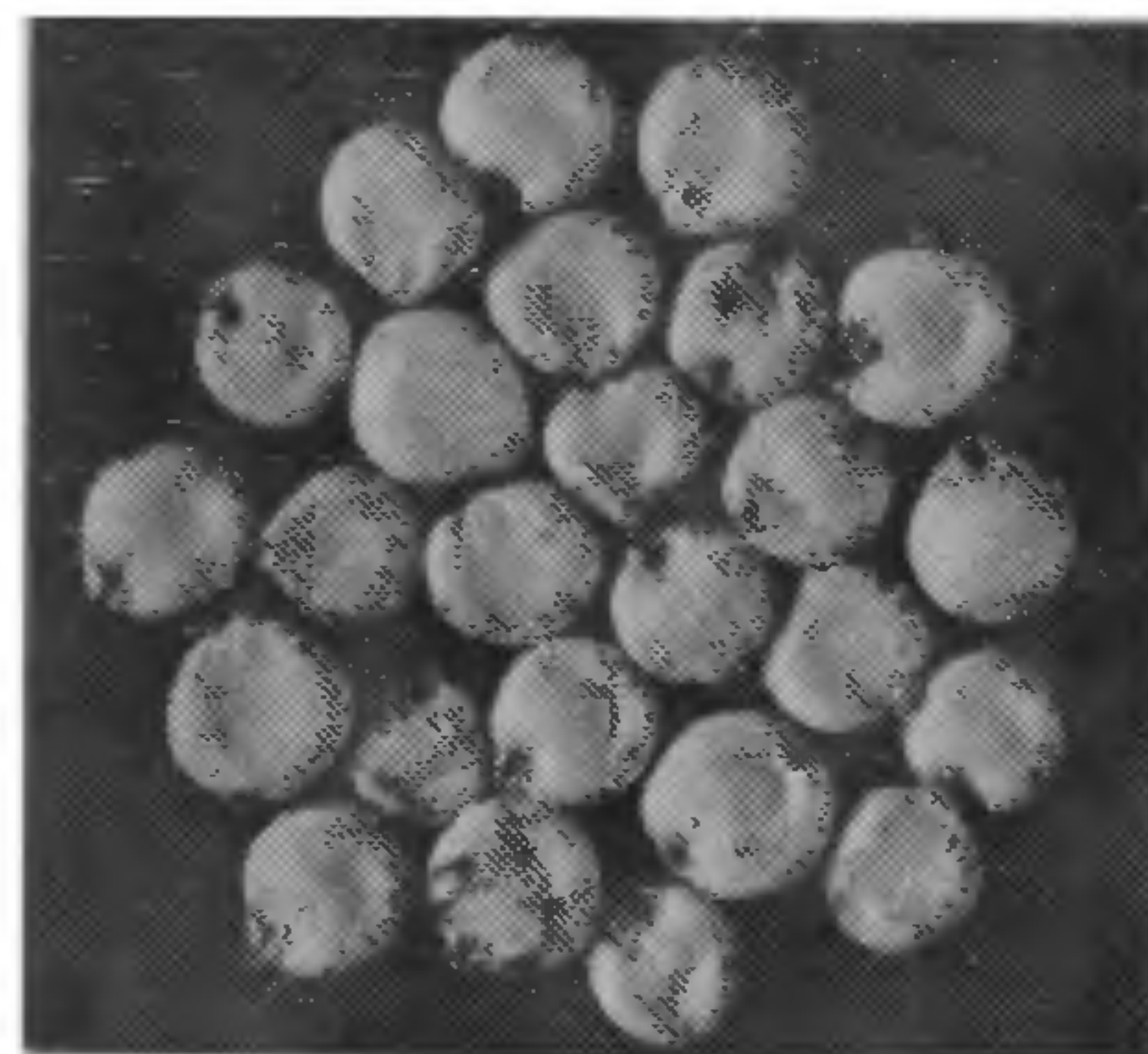


FIG. 2. Seeds of Col. No. KEP-472 showing dimpled nature.

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A *BASMATI* (SCENTED) SORGHUM FROM MADHYA PRADESH

In a recent ICRISAT germplasm collecting trip to the Madhya Pradesh region of India, head and seed samples of three sorghum landraces with the local name *basmati* (Col. Nos. KEP 472, KEP 475 and KEP 477) were collected in the Karri and Sarwa villages of Chattarpur District (25° N, 79° E; alt. 300 m). Farmers plant

Observations with particular reference to the scented nature of the grain from sorghum Col. No. KEP 472 were made at ICRISAT. The grains emit a mild scent, typical of that of *basmati* rice. The leaves of the plant also emit the scent when crumpled. Food recipes, particularly the stiff porridge (*sangati*) made from the *basmati* seeds was distinctly scented, but the boiled seeds were less so. Unleavened bread (*roti*) was also less scented. The scent is more noticeable if the flour is completely cooked.