

DADOXYLON RAJMAHALENSIS SAHNI FROM THE COASTAL GONDWANAS OF INDIA

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ABSTRACT

The paper describes a fossil wood identifiable as *Dadoxylon rajmahalense* Sahni from the Coastal Gondwanas of India. This is the first record of the genus *Dadoxylon* from these beds. Incidentally, a poorly preserved specimen of *Dadoxylon* described from south west of Tiki in Rewah by Sahni has also been identified as *Dadoxylon rajmahalense*.

INTRODUCTION

OUR knowledge of the petrified woods from the Coastal Gondwanas of India is very meagre. Sahni (1931) described three species of *Mesembrioxylon*, two species of *Cupressioxylon* and an indeterminate coniferous wood. In a recent paper (SURYANARAYANA, 1953), I described the structure of a new species of *Mesembrioxylon* from the Sripermatour group near Madras. While continuing my work on these fossil woods I came across a species of *Dadoxylon* not known so far from the east coast Upper Gondwanas of India and hence it is described here.

Locality — Vellum near Sripermatour.

Horizon — Sripermatour group (Kota Stage, Upper Gondwanas, Middle Jurassic).

DESCRIPTION

The wood was collected *in situ* as small pieces measuring 4-5 cm. in length and 2 cm. in breadth. Since it is in a highly friable state, sections were made after boiling in Canada balsam. The preservation is fairly good for generic as well as specific identifications.

From the curvature of the annual rings, it is found that the piece shown in Pl. 1, Fig. 1, is far from the pith. Growth-rings are very distinct even with the naked eye. They are broad and unequal. The cells of the tracheids are thick-walled and circular in cross-section (PL. 1, FIG. 2). The radial diameter of a widest spring tracheid is 56.0 μ and that of narrower autumn tracheid 14.0 μ . Wood parenchyma is absent.

Medullary rays are very prominent, numerous, 1-cell wide and placed at a distance of 3-15 rows of tracheids.

The medullary rays are always uniseriate (PL. 1, FIGS. 5, 6). The height of the rays varies from 1-12 cells, sometimes reaching 20 in number (average 5 cells). The cells are oblong or oval and thick-walled. The average dimensions of the cells are 11 \times 17 μ . The horizontal and tangential walls are always smooth.

Bordered pits are seen only on the radial walls of the tracheids (PL. 1, FIGS. 3, 4). The pore of the pit is not preserved. They are usually arranged in a single row, but occasionally they are biseriate and triseriate. The pits are contiguous as well as separate, flattened above and below. Rarely they are circular. In the triseriate condition they are alternately arranged forming typical hexagons (PL. 1, FIG. 3). The height of a vertical row of ten radial pits is 115.5 μ . The pits in the field are not well petrified. Bars of Sanio are absent.

SYSTEMATIC POSITION

Fossil woods showing Araucarian or Cordaitan type of pitting are termed as *Dadoxylon* (SEWARD, 1917, 1919). They are characterized by multiseriate, alternate, contiguous, polygonal pitting on the radial walls of the tracheids. The alternate disposition accompanied by flattening and hexagonal contour of the pits, absence of Sanio's rims and the uniseriate medullary rays strongly show that the wood is of the *Dadoxylon* type.

COMPARISON

The present specimen is characterized by the well-marked growth-rings, absence of xylem parenchyma, the uni- and triseriate alternately arranged hexagonal pits, the very low height of the medullary rays which are exclusively uniseriate and the smooth horizontal and tangential walls of the medullary rays. The only species which shows the

closest similarities with the above specimen is *Dadoxylon rajmahalense* Sahni (1931). Sahni described two specimens, one from an unknown locality in the Rajmahal Hills and the other from Banchappa, 2 miles south of Mirza Chowki Railway Station in the north-west Rajmahal Hills. In spite of the slight differences in their characters both the specimens were regarded as belonging to the same species. The first specimen collected from the unknown locality in Rajmahal Hills shows greater resemblances with the present one. The resemblances are in the presence of well-marked growth-rings, uniseriate medullary rays, the isodiametric nature of the medullary rays, the height of rays being 1-20 (average about 4-6), uniseriate to triseriate pitting on the radial walls and the flattened hexagonal pits. I have, therefore, described the Vellum specimen under *Dadoxylon rajmahalense*.

It may be recalled here that Sahni (1931) described a poorly preserved specimen of *Dadoxylon*, obtained from south-west of Tiki in Rewah. This specimen was named as *Dadoxylon (Araucarioxylon) sp. α* due to lack of details in the structure. This shows similarities with the Vellum specimen in the presence of growth-rings, contiguous uniseriate and biseriate alternate radial pits, uniseriate medullary rays which are 1-20 cells in height, average being about 6 and smooth horizontal and tangential walls (see Table 1).

TABLE 1

	<i>Dadoxylon</i> sp. α (SAHNI, 1931)	<i>Dadoxylon</i> <i>rajmahalense</i> (VELLUM)
1. Radial diameter of widest spring tracheid	55 μ	56 μ
2. Radial diameter of narrowest autumn tracheid	20 μ	15 μ
3. Height of a vertical row of 10 radial pits	167 μ	115.5 μ
4. Average height of medullary rays (20 random counts)	6 cells	5 cells
5. Average dimensions of medullary ray cells as seen in end view	12 × 24 μ	11 × 17 μ

Describing the species *Dadoxylon (Araucarioxylon) sp. α* (SAHNI, 1931, p. 71) Sahni says, "Whether the characters given in the above diagnosis are constant features is a question which can only be settled on the discovery of better preserved material." Since my specimen, which resembles the above species in all the characters, shows fairly good preservation at several places, the features noticed are taken as constant and of specific value. Therefore, *Dadoxylon sp. α* can now be included in *Dadoxylon rajmahalense*.

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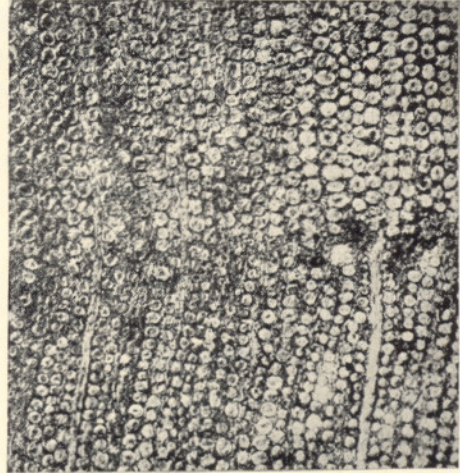
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EXPLANATION OF THE PLATE

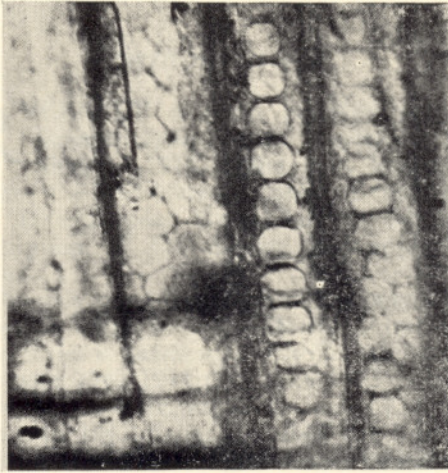
1. Transverse section of the wood under lower power showing growth-rings. × 15.
2. Transverse section of the wood showing tracheidal cells. × 100.
3. Radial section showing the nature of bordered pits. × 480.
4. Another radial section showing the pits. × 480.
5. Tangential section showing the distribution of medullary rays. × 120.
6. Tangential section under high power showing the medullary ray cells. × 420.



1



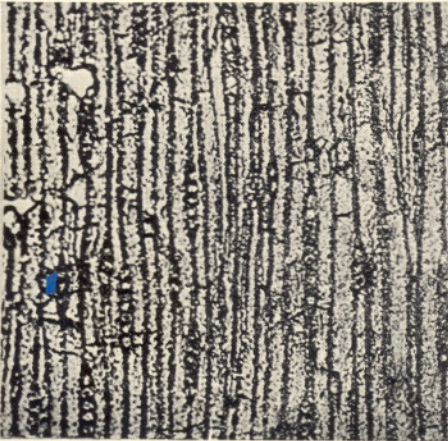
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