

Fossil wood resembling *Duabanga* from Tipam Sandstone of Makum Coalfield, Assam

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A large number of plant megafossils, especially woods, are known from various localities of Tipam Sandstone of North-East India and have been listed by Prakash *et al.* (1994). Prakash and Awasthi (1970, 1971) described many fossil woods from the western margin of Makum Coalfield but unfortunately, no fossil wood has yet been recorded from its eastern part though lower part of the Tipam Group is exposed there and silicified, semicarbonised and lignitic material are reported to occur at places in the sandstone (Raja Rao 1981, p.47). Recently one of us (BDM) collected a fossil wood from the vicinity of Tipongpani near Tipong Colliery (21°17' : 95°52') of this coalfield. The lithostratigraphic succession in Makum Coalfield is already published in Awasthi and Mehrotra (1995).

Family : **Sonneratiaceae**

Genus : *Duabangoxylon* Prakash & Awasthi 1970

Duabangoxylon tertiarum Prakash & Awasthi
Pl.1, figs 1-5

Material - A piece of well preserved carbonised wood measuring about 14 cm in length and 7 cm in width.

Description - Wood diffuse-porous. *Growth rings* absent. Vessels solitary and in radial multiples of 2-3, rarely in tangential pairs, medium to large, t.d. 120-360 µm, r.d. 160-360 µm, evenly distributed, 4-8 per sq mm, tylosed; perforations simple; vessel members 360-440 µm long with horizontal to oblique ends; intervessel pit-pairs opposite to alternate,

8-12 µm in diameter with lenticular apertures. *Parenchyma* scanty paratracheal to vasicentric, occasionally extending sideways to connect adjacent vessels; parenchyma cells about 30 µm in width and about 50 µm in height. *Xylem rays* 1-2 (mostly 1) seriate, 8-11 per mm, homo- to heterocellular, ray tissue heterogeneous; rays either made up of procumbent cells or procumbent cells in the centre with extensions of upright cells at the margins, 20-32 µm in width and 6-20 cells or 200-800 µm in height; procumbent cells 48-72 µm in radial length and 28-32 µm in tangential height; upright cells about 32 µm in radial length and about 44-48 µm in tangential height. *Fibres* aligned in radial rows, semi-libriform, angular in cross section, non-septate, about 20-40 µm in diameter.

Specimen - Slide No. BSIP 37748

Horizon & Locality - Tipam Sandstone; Tipongpani near Tipong Colliery, Makum Coalfield, Assam.

Age - Middle Miocene

Affinities - The important xylotomic characters of the fossil indicate its affinities with *Duabanga* Buch - Ham. - *D. grandiflora* (Rox 6. ex.DC) Walp. of the family Sonneratiaceae.

The fossil woods showing resemblance with *Duabanga* are usually kept under *Duabangoxylon* Prakash & Awasthi (1970). Its two species, namely *D. tertiarum* Prakash & Awasthi and *D. indicum* (Navale) Awasthi are so far known from the Indian Tertiary sediments : the former from Tipam Series of Buri-Dehing River beds near Jaipur, Assam

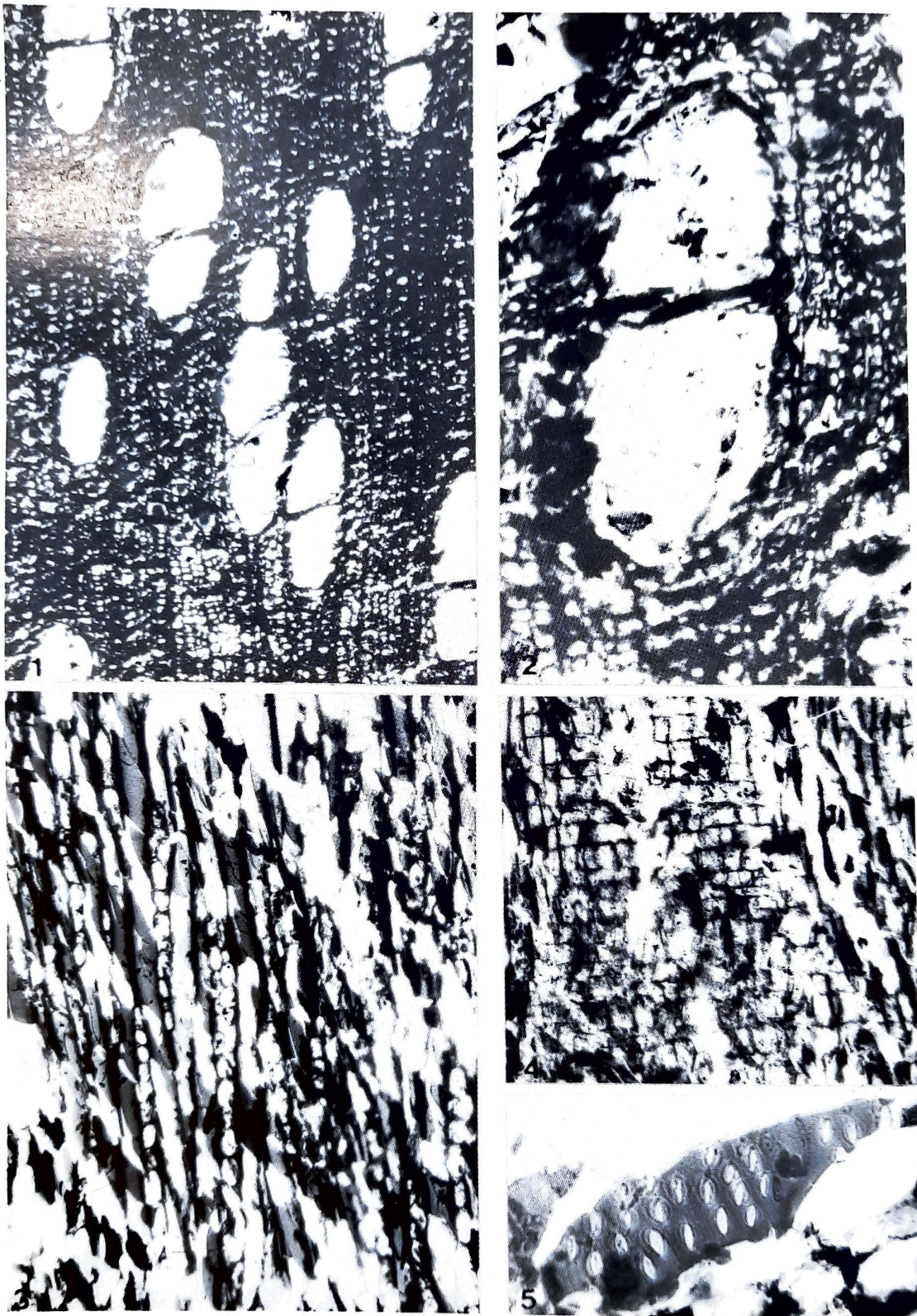


PLATE 1

Duabangoxylon tertiarum Prakash & Awasthi

- Fig. 1 Cross section of the fossil wood in low power showing shape, size and distribution of the vessels. x 40; Slide No. BSIP 37748-I.
 Fig. 2 Cross section enlarged to show parenchyma and fibres x 95; Slide No. BSIP 37748-I.

- Fig. 3 Tangential longitudinal section to show structure of xylem rays. x 95; Slide No. BSIP 37748-II.
 Fig. 4 Radial longitudinal section to show xylem ray tissue. x 95; Slide No. BSIP 37748-III.
 Fig. 5 Intervessel pit-pairs magnified. x375; Slide No. BSIP 37748-II.

(Prakash & Awasthi 1971) while the latter from Cuddalore Series near Pondicherry (Awasthi 1981) and Siwalik sediments of Kalagarh area (Awasthi & Prasad 1988). *D. tertiarum* is also known from the Tertiary of Java and Sumatra (Kramer 1974). The present fossil is identical to *D. tertiarum* Prakash & Awasthi in almost all the xylotomical characters.

The genus *Duabanga* consists of 3 species distributed in the Indo-Malayan region (Willis, 1973). *D. grandiflora*, the only species occurring in India, is a deciduous tree which is distributed in eastern sub-Himalayan tract ascending to 900m from Nepal to North Bengal, North-east India, Andaman Islands, Bangla Desh and Myanmar (Kazmi 1982).

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