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Euphorbiaceous wood From Deccan Intertrappean exposures of india

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Abstract
Euphorbiaceous fossil woodparaphyllanthoxylondeccanii sp. nov.reported from Deccan Intertrappean exposures of Ambabagholi, BetulDistt. M.P. India. The wood is diffuse porous, vessels small to medium size, perforation plate simple and transvers, pits bordered, alternate, hexagonal with pit aperture oval, wood parenchyma paratracheal, vasicentricand metatracheal at some places, aliform, fibresseptate and non steroid and medullary rays heterogenous, mostly multiseriate rarely uniseriate. The wood shows affinity with Phyllanthusemblica L. of family Euphorbiaceae.

Key words:-Deccan Intertrappean,Betul, M.P, India,Euphorbiaceous,wood,Phyllanthusemblica L.

INTRODUCTION

Describe wood is collected from new exposures of Deccan Intertrappean series near village Ambabagholi (Lat.21°52'05" N, Long. 78°10'12" E), District Betul, M.P. India. SeveralDicot wood have been describe from Deccan Intertrappean beds of Mohagaonkalan,Mahurjari, Mandala, Nagpur andWardha however the present fossil wood is the first record of Euphorbiaceaefrom this locality.So far many species of fossil wood referred to *ParaphyllanthoxylonBailey* of Euphorabiaceae have been describe from various localities from India & other countries. These are *Paraphyllanthoxylonpfefferi* (Platen, 1908; Madel, 1962); *P.arizoneense* (Bailey, 1924), *P. pseudohobashiraishi* (Ogura, 1933: Watari,1943; Madel,1962),*P. sahnii* (Prakash, 1959, Madel. 1962),*P. bangalomodense* (Navale, 1962), *P. capense* (Madel, 1962),*P. Keriense* (Dayal, 1967) and *P. mohgaonsis* (Upadhye and Patil, 1978). The fossil wood described here is a new species of family Euphorbiaceae.

MATERIAL AND METHOD

The specimen under Investigation is petrified, brown in colour, slightly brittle and is 15.5cm x 14cm. in size.It is dicot wood in which primary xylem with pit is preserved. Peel sections where prepared along transverse, tangential and redial plane for itsanatomical study.

SYSTEMATIC POSITION

Order : Euphorbiales
Family: Euphorbiaceae
Genus:*Paraphyllanthoxylon*
*Paraphyllanthoxylondeccanii*Kapgate sp. nov.
(Plate figures 1-4,Text figures 1-6)

DESCRIPTION

The wood is diffused porous. Growth rings absent. Vessels are seen as a small pore. Medullary rays are seen as radiating lines.Secondary xylem consists of vessels, wood parenchyma, wood fibresand medullary rays.The vessels are uneventlydistributed 28-40 per sq.mm. They are scattered in radial rows of 2-10, usually 2-4,occasionally in clusters of 3-5 (Pl. fig.1 and Text fig.1). Vessels are oval toroundin shape,radial diameter is 60-135µm and tangential diameter is 60-95µm. The length of vesselsegments varies from 215 to 325µm. Perfortionis simple intransverse or oblique plane (Pl. fig. 4 and Text fig. 2). Intervascular pits are bordered, alternate, hexagonal and continuous. (Pl.fig.4 and Text fig. 4). Pit pores are round to oval in shape and 4-3µm in diameter. Vessels are continuous with medullary rays (Pl. fig.3).Parenchyma is pratracheal and vasicentric with 1 to 2 cell layers around the vessels and slightly aliform (Pl. fig.3 and Text fig. 3).Metatracheal parenchyma is scanty, often forms small tangential bands between the vessels (Pl. fig.3). Fibres are septate;rarelyaseptate pointed or blunt at the endsand are nonstoried. They are thickwalled and the pits on wall measures 265 to 325µm in length and 20 to 25 µm in width. They are pentapolygonal in t.s. At places they are oval in shape.Medullary rays are heterogenous being composed of upright and procumbent cells(Pl. fig. 2 and Text fig. 4). They are uniseriate to multiseriate, mostly multiseriate with end cells aretappering and 15-20 per mm. (Pl. fig.4 and Text fig.6). They are 16 to 60 cells high, 335-655µm long and 85-160µm broad.Ray pitting is as like that ofvessel pitting.(Pl. fig.2).

DISCUSSION

From the above mention anatomical charactersthe identifying features of the present wood is - the wood diffuse porous,vessels small to medium size, solitary

as well as in redialmultipleof 2-10 arrange as oblique manner.Perforation plate simple and transvers, pits bordered,continuous, alternate hexagonal with pit aperture oval, wood parenchyma paratracheal, vasicentric and metatracheal at some places,aliform,fibresseptate and non storied and medullary rays heterogenous, mostly multiseriate rarely uniseriate.Above set of characters suggests nearest affinity with families Oleaceae, Celestraceae, Solanaceae and Euphorbiaceae(Metcalfe and Chalk 1950, Pearson and Brown, 1932, Record and Chattway, 1939 and Shallon, 1963). Out of these families the present wood, shows more resemblances to wood of family Euphorbiaceae in having small vessel, vessel frequency, perforation plate, simple intervessel, pitting alternate, bordered, parenchyma paratracheal and medullary ray multiseriate and heterogenous.

The freshly cuts section of *Phyllanthusemblica* L. and *Brideliaretusa*resemble in size, distribution of vessels, perforation, intervessel pit pairs, presense of hetrogenous 1-5 seriate medullary rays and nature of fibresbut present fossil wood differ from *Phyllanthusemblica* L. and *Brideliaretusa* in having height of medullary rays and tylosed vessels. But present wood more resemble to the *Phyllanthusemblica* L. The characters of *Paraphyllanthonxylon*(Bailey 1924) approach very close to this living genara like *Phyllantuhus*L. and *Brideliawilld* of Phyllanthoideae.

Many species of fossil wood are known to be assigned to family Euphorbiaceae by different workers under different genara (Prakash and Breginova, 1970, Bande 1974) of these species have been assigned to *Paraphyllanthoxylon* Bailey 1924. The present fossil specimen closely resembles *Paraphyllanthoxylon* but differs from known fossil species in many respects reported so far. The present specimen thought comparable in many characters with *Paraphyllanthoxylonmohgoansis*(Upadhye and Patil, 1978) the wood from mohagaonkalan.But itdiffers from the same wood in having low vessel frequency and larger vessel pore and length, medullary rays has 1-3 seriate, fibrerays are entirely sepeted and libriform while in present wood it issepeted to asseptate and simple. The present wood being different from all the known living and fossil woods of Euphorbiaceae in specific characters, hence it is named as a newspecies of *Paraphyllanthoxylon*as*Paraphyllanthoxylondeccanii* sp. nov. The specific name is after the Deccan Intertrappean series of India.

DIAGNOSIS

***Paraphyllanthoxylondeccanii*sp. nov.**

Wood diffuse porous, growth rings absent, vessels unevently distributed 28-40 per sq.mm in radial groups of 2-10, circular to oval,60-95µm in tangential diameter, 60-135µm in radial diameter vessel segment 215-325µm long,perforation simple, transverse or oblique,intervessel pits bordered, alternate, hexagonal and continuous. Parenchyma paratracheal, vesicentric forming a ring around the vessels, slightly aliform, metatracheal parenchyma scanty. fibrespolyangular in t.s., abundant, simple, septate to aseptate, with pointed of blunt ends, 265-325µm in length, 20-25µm in breadth. Xylem rays 15-20 per mm.multiseriate, rarely uniseriate, heterogenous, 16-60 cells in height, 335-665µm in length and 85-160µm in breadth.

Holotype : VDK/ANG-WD/SL.NO.1 to 125/ Department of Botany, Institute of science, Nagpur

Locality: Intertrappean beds of Ambabagholi, District Betul, Madhya Pradesh, India.

Horizon : Deccan Intertrappean Series of India.

Age : Eocene.

Explanation of Text Figures 1 to 6

***Paraphyllanthoxylondeccanii*sp. nov**

Fig. 1 : T.S. of wood showing distribution of vessels and vessel groups.

Fig. 2 : Medullary rays, fibres, vessels with perforation plate and pitting.

Fig. 3 : T.S. of wood magnified, vessel parenchyma, fibres and medullary rays.

Fig. 4 : Medullary ray, vessels and fibres in r.l.s.

Fig. 5 : To show perforation plate and pitting.

Fig. 6 : A medullary ray in t.l.s.

Explanation of Plate Figures 1 to 4

***Paraphyllanthoxylondeccanii*sp. nov**

Fig. 1 : T.S. wood showing distribution of vessels and vessel groups. X35

Fig. 2 : R.L.S. wood with medullary rays. X150

Fig. 3 : Part of wood showing radial multiples of vessels, fibres and parenchyma. X 85

Fig. 4 : T.L.S. wood showing medullary rays, vessel pitting and perforation plate, fibres and

parenchyma. X220.

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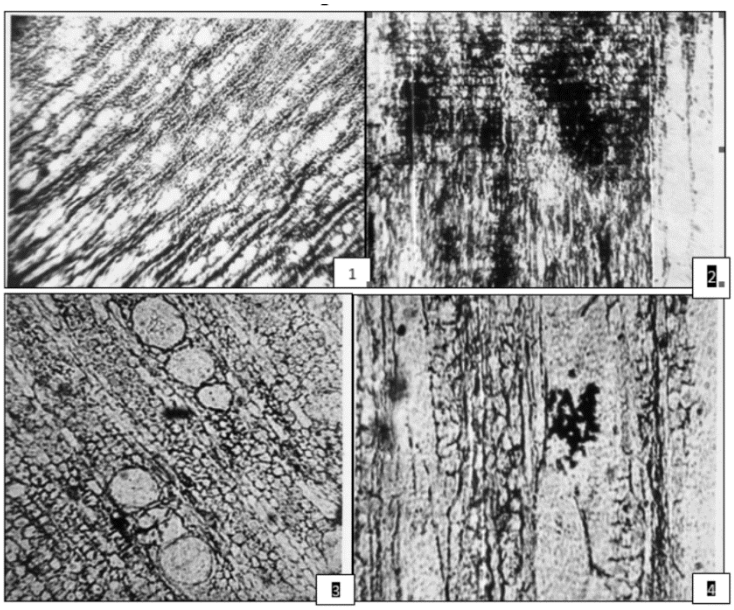
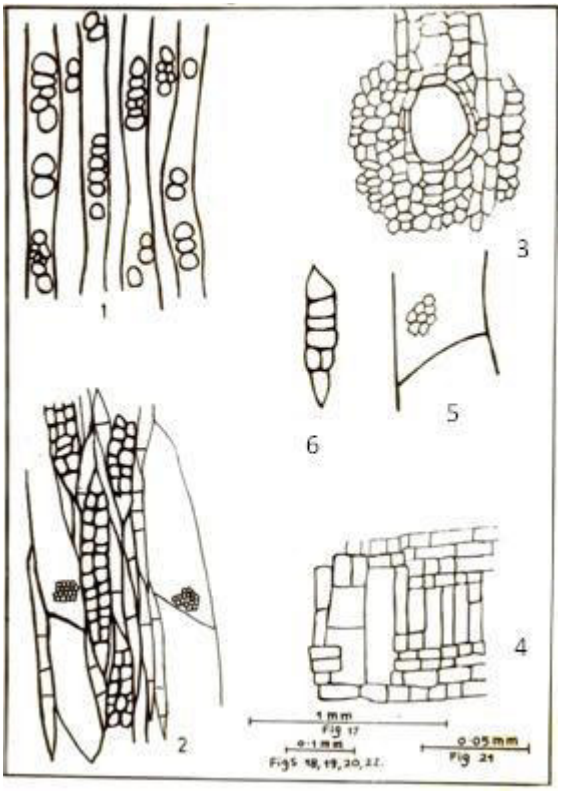
Plate figures – 1 to 4



Text figures - 1 to 6



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