

Remarks on *Glutoxylon burmense* (Holden) Chowdhury from Lal Mai Hills, Comilla District, Bangladesh

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ABSTRACT

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A fossil wood resembling the extant wood of *Gluta* of the family Anacardiaceae is described from the Lal Mai Hills, Comilla District, Bangladesh. The Lal Mai Hills belongs to Dupi Tila Formation and is of Late Miocene in age. The fossil wood closely resembles *Gluta* in the presence of mostly solitary vessels with tyloses, xylem rays uni to biseriate, apotracheal- paratracheal parenchyma, fibres arranged in radial rows and radial gum canals. The probable cause of extinction of *Gluta* from the eastern parts of India and Bangladesh has also been discussed.

Key-words—Fossil wood, *Glutoxylon*, Late Miocene, Bangladesh.

बांग्लादेश में कोमिल्ला जिले की लाल माई पर्वत श्रेणियों से प्राप्त *ग्लूटॉक्सीलॉन बर्मैन्सी* (होल्डेन) का विवेचन

रंजीत कुमार कर, कृष्ण अम्बवानी, अनिल अग्रवाल एवं एस.के. साहा

सारांश

एनाकार्डिएसी कुल की *ग्लूटा* वंश की मौजूदा काष्ठ के सदृश एक अशिमत काष्ठ बांग्लादेश के कोमिल्ला जिले की लाल माई पर्वत श्रेणियों से अंकित की गई है। लाल माई पर्वत श्रेणियों का सम्बन्ध दुपी टीला शैलसमूह से है तथा इसकी आयु पश्च मायोसीन है। इस अशिमत काष्ठ में टाइलोसीस के साथ अधिकतर एकल वाहिका, जाइलम रेज एकल से द्विपंक्तिक अपवाहिकी-परावाहिकी मृदूतक, अरीय पंक्ति में व्यवस्थित रेशे तथा अरीय गम कैनेल, की उपस्थिति के कारण वर्तमान *ग्लूटा* के निकटतर सदृश है। भारत के पूर्वी भागों एवं बांग्लादेश में *ग्लूटा* के विलोपन के प्रसम्भाव्य कारणों की भी चर्चा की गई है।

संकेत-शब्द—अशिमत काष्ठ, *ग्लूटॉक्सीलॉन*, पश्च मायोसीन, बांग्लादेश।

INTRODUCTION

THE physiography of Bangladesh is predominantly made up of flood plains and delta of the rivers Ganga, Brahmaputra and Meghna. There are, however, three table

lands according to Khan (1991) and Riemann (1993) running more or less parallel to each other and some hilly tracts on the eastern and northern frontier hilly regions. The Lal Mai Hills is situated about 3 km west of Comilla Town is a part of the table land which extends from the marginal low hills of Chittagong

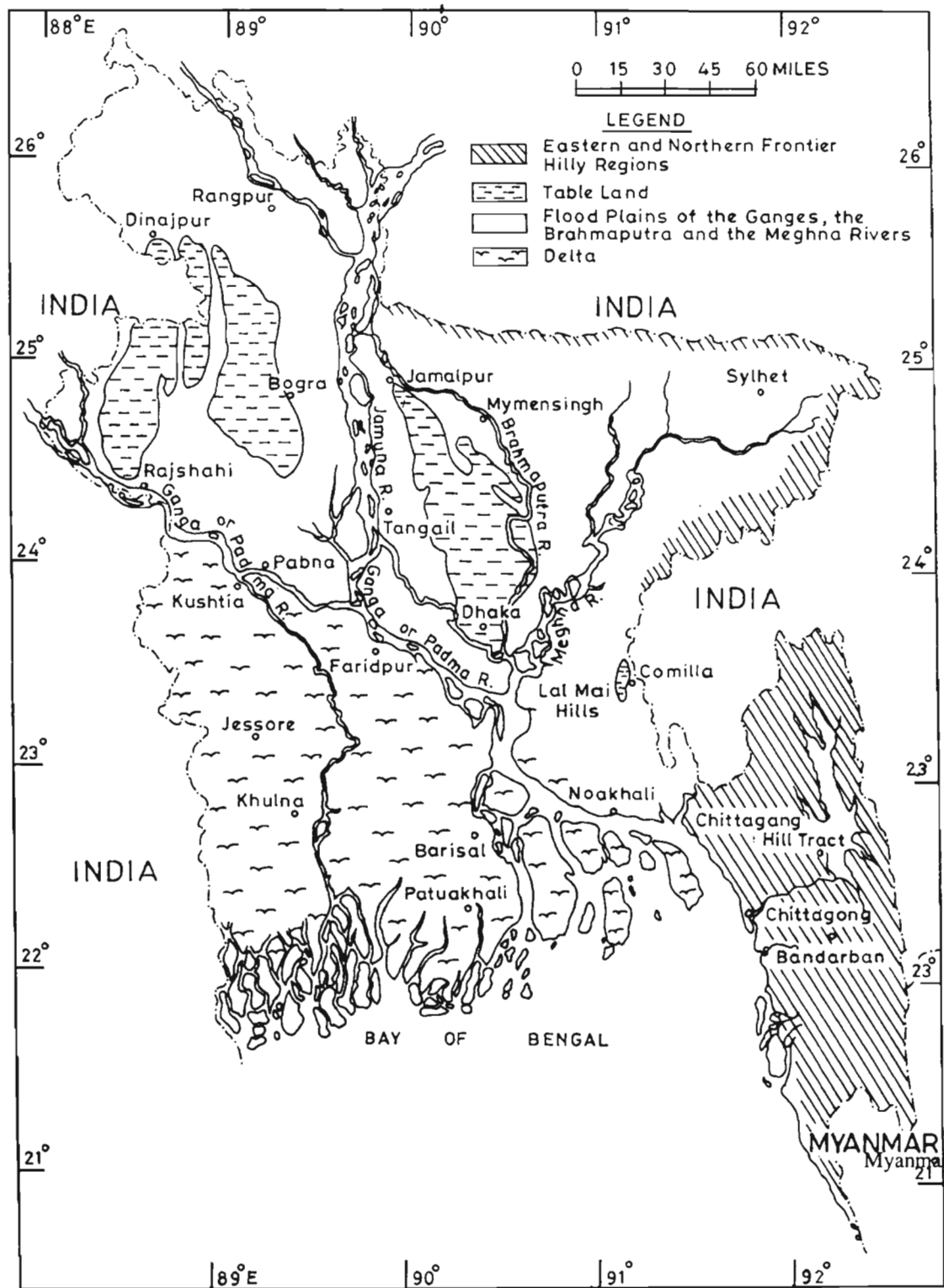


Fig. 1—Map showing locality from where the fossil wood was collected, the dots in the map indicate table land (After Khan, 1991).

and Sylhet in the east through Dhaka and Rajshahi divisions to West Bengal of India. The Lal Mai Hills is a product of horst upliftment during the Pleistocene, covers an area of only 34 sq

km and its highest peak is 45.7 m high (Fig. 1). The Lal Mai Hills belongs to Dupi Tila Formation of Late Miocene age is divisible into lower Dupi Tila Sandstone and upper Dupi Tila

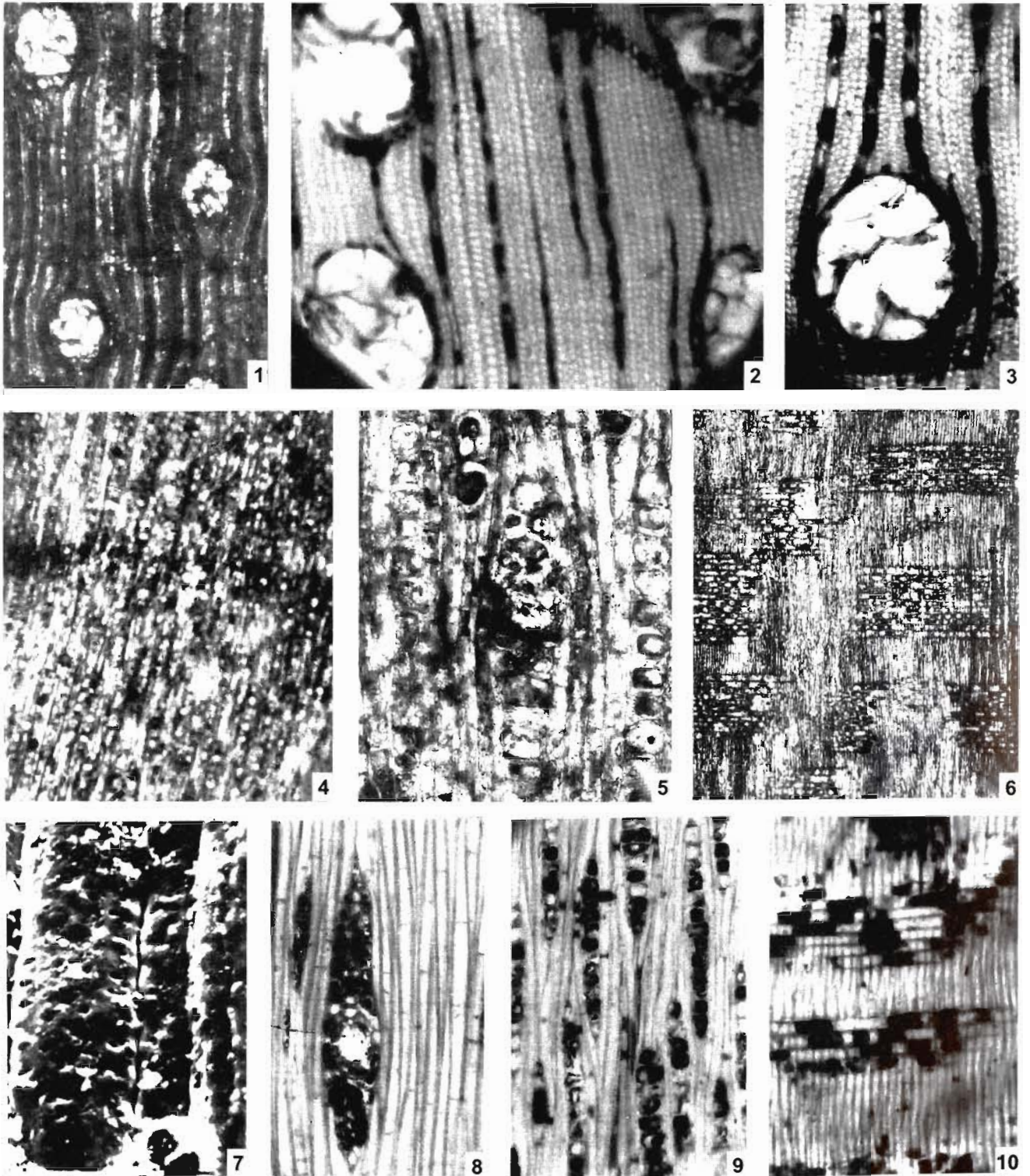


PLATE 1

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| <p>1 Transverse section of <i>Glutoxylon burmense</i> (Holden) Chowdhury showing distribution of vessels with tyloses. x 150.</p> <p>2. Transverse section of <i>Gluta travancorica</i> showing distribution of vessels with tyloses. x 450.</p> <p>3 Transverse section of <i>Gluta renghas</i> showing vessel with tyloses x 450.</p> <p>4 T.L.S of fossil showing uniseriate to biseriate rays. x 250</p> | <p>5. A part of T.L.S. of fossil showing gum canal in xylem ray and septate fibres. x 800.</p> <p>6. R.L.S. of fossil showing xylem rays x 350.</p> <p>7 Part of vessel in fossil showing simple pits on the wall. x 6000 (SEM).</p> <p>8. R.L.S. of fossil showing crystals in ray cells. x 800.</p> <p>9 T.L.S. of <i>Gluta renghas</i> showing uniseriate ray cells. x 450.</p> <p>10. R.L.S. of <i>Gluta renghas</i> showing xylem rays. x 450.</p> |
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Claystone. The Dupi Tila Sandstone rests unconformably on Girujan Clay of Tipam Group (Middle Miocene) and Dupi Tila Claystone is overlain also unconformably by Dihing Formation (Pliocene). The Dupi Tila Sandstone is medium to coarse grained, grey to yellow in colour with clay balls, quartz pebbles and thin coal lenses. It is the most common lithological unit in Bangladesh.

The fossil wood described here was collected by Dr SK Saha from Lal Mai Hills. It is 10 cm long and 4 cm in diameter. The anatomical features of the wood are well preserved and it shows close resemblance with the wood of Anacardiaceae. Sen (1930) first recorded the occurrence of *Dipterocarpoxyton* sp. from the Lal Mai Hills. Chowdhury (1934) while instituting *Glutoxyton* included that specimen under this genus. Mukherjee (1941) reinvestigated the specimen and supported the contention of Chowdhury. Agarwal *et al.* (2000) described fossil wood of *Barringtonia* (Lecythidaceae) from the Chittagong Hill tract, Bangladesh. Poole and Davies (2001) noted the occurrence of *Glutoxyton sitakundensis* from the Sitakund anticline, Bangladesh.

SYSTEMATICS

Family—ANACARDIACEAE

Genus—GLUTOXYLON Chowdhury, 1934

GLUTOXYLON BURMENSE (Holden) Chowdhury, 1952

(Pl. I.1-10)

Description—Wood diffuse-porous, growth rings not prominent, demarcated by thin parenchymatous bands. Vessels distinct, mostly solitary, occasionally in radial multiples of 2-4, tyloses common. Parenchyma paratracheal as well as apotracheal, the former generally vasicentric, apotracheal parenchyma in the form of thin bands. Xylem rays uniseriate, sometimes 2-3 seriate, ray tissue homogenous. Fibres arranged in radial rows, thick walled, non-septate, polygonal in cross section. Gum canals radial, occasionally present in multiseriate rays.

Remarks—Chowdhury (1934) instituted this genus to accommodate fossil woods resembling those of extant *Gluta* L. and *Melannorrhoea* Wall. He included in this species *Dipterocarpoxyton burmense* Holden (1916), *Irrawadioxyton burmense* Gupta (1935) described from the Pliocene of Myanmar, and *Dipterocarpoxyton annamense* Colani (1919) from the Tertiary sediments of Indo-China, *Dipterocarpoxyton* sp. reported by Sen (1930) from the Pliocene of Lal Mai Hills, Bangladesh and *Glutoxyton assamicum* Chowdhury (1936) from the Miocene of Assam. Subsequently, Awasthi (1966) recorded *G. cuddalorensis*, Prakash and Tripathi (1974) *G. cacharensis* and Guleria (1984) *G. garbetaense* Roy & Ghosh, (1981) from the various Tertiary localities of India. Poole and Davies (2001) described a new species of *Glutoxyton* viz.,

G. sitakundensis from the Sitakund anticline (Mio-Pliocene) of Bangladesh and claimed this to be the first record of *Glutoxyton* from Bangladesh. However, as has been stated *Dipterocarpoxyton* sp. already recorded from Bangladesh was transferred to *Glutoxyton* by Chowdhury (1934). The genus *Gluta* at present is mostly confined to south-east Asia including Myanmar, Thailand, Malaysia and Indo-China. Only one species of *Gluta* viz., *G. travancorica* is confined to the Western Ghat, India while *G. tutur* in Madagascar. The Tertiary fossil wood record of *Gluta* in India and Bangladesh points out that it was indeed a common species growing in this region during that time. Why this genus later became extinct is an important issue to ponder upon. Perhaps the competition became very tough which forced *Gluta* to migrate to other regions. There could also be a subtle change in the microclimate which could also lead to the migration. The case of *Heritiera fomes (sundari)* could be cited here as an example. Once this species was growing on both sides of Sunderban comprising West Bengal and Bangladesh. It needs a constant supply of fresh water for its growth. When the river Ganga changed its course roughly 500 years ago, part of Sunderban in West Bengal did not get sufficient supply of fresh water causing the disappearance of *Heritiera* from that region.

Other than *Gluta*, there are also many forms which thrived in India during Tertiary but became extinct later but still found in Malaysia. The family Gonystylaceae which produce polyporate pollen and known as *Cryptopolyporites* Venkatachala and Kar (1969) in the fossil state occurred in Lower Eocene of Kutch and so also *Durio* (Bombacaceae) pollen named as *Lakiapollis* by Venkatachala and Kar (1969). It seems that these plants migrated to Malaysia via India and still growing luxuriantly in Malaysia while became extinct in India.

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