A new *Crinum*-like pseudostem from Deccan Intertrappean beds of Mohgaonkalan, India

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A new petrified *Crenum*-like pseudostem, *Crinum eocenum* sp. nov., comparable to modern *Crinum asiaticum* L. of Amaryllidaceae has been described from the Intertrappean beds of Mohgaonkalan, Madhya Pradesh.

Key-words—Petrified pseudostem, Deccan Intertrappean beds (India).

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सारांश

भारत में मोहगाँवकलाँ की दक्खिन अन्तर्ट्रेपी संस्तरों से एक नया क्रिनम-सदृश आभासी तना

जी० वी० पाटिल एवं ई० वी० उपाध्ये

मध्य प्रदेश में मोहगाँवकलाँ की दक्खिन अन्तर्ट्रेपी संस्तरों से अमेरिल्लीडेसी कुल के वर्तमान **क्रिनम् एशियाटिकम** एल० से तुलनीय एक नया अश्मीभूत **क्रिनम**-सदृश आभासी तना वर्णित किया गया है। इस तने को **क्रिनम् ईओसेनिकम्** नव जाति से नामांकित किया गया है।

THE specimen under investigation, a broken piece of chert, was recovered from the Deccan Intertrappean beds of Mohgaonkalan, Madhya Pradesh. The anatomical study has been made through serial peel sections taken along transverse and longitudinal planes.

The pseudostem and leaf sheaths belonging to Musaceae (Rao & Menon, 1963; Jain, 1964; Trivedi & Verma, 1972); Cannaceae (Trivedi & Verma, 1971) and Gramineae (Paradkar, 1975; Patil & Singh, 1984) are well known from the Deccan Intertrappean beds exposed around Mohgaonkalan, Madhya Pradesh.

Genus—*Crinum* L.

Crinum eocenum sp. nov.

Diagnosis—Axis small with four concentric leaf-sheaths; vascular bundles 4-5, collateral and closed, scattered in parenchymatous ground tissue, broad at one end and narrow at the other end; leaf-sheaths four, broad in centre and gradually become narrower towards margins; and lower epidermis distinct, cells compactly placed with stomata; vascular bundles in a row, collateral and closed; xylem elements 4-5 with protoxylem and metaxylem, having spiral thickening.

Holotype—Pl. 1, figs 1-7; Specimen no. MOH/GVP-EVU/14, Department of Botany, Institute of Science, Nagpur.

Type locality—Deccan Intertrappean beds, Mohgaonkalan, Madhya Pradesh, India.

Age—Eocene.

Description—Specimen 1.5 cm in length and 3.2-4.6 mm in diameter; central axis broader at one end and tapers at the other end (Pl. 1, figs 1, 6), measuring 120-610 μm in diameter; encircled by four leaf-sheaths arranged concentrically (Pl. 1, fig. 1), first leaf-sheath varies from 175-235 μm and second from 140-290 μm in thickness, both sheaths broader in the middle region, gradually thin out towards margins, third leaf-sheath 200-350 μm and fourth 165-360 μm in thickness; central axis epidermis single layered with compactly arranged

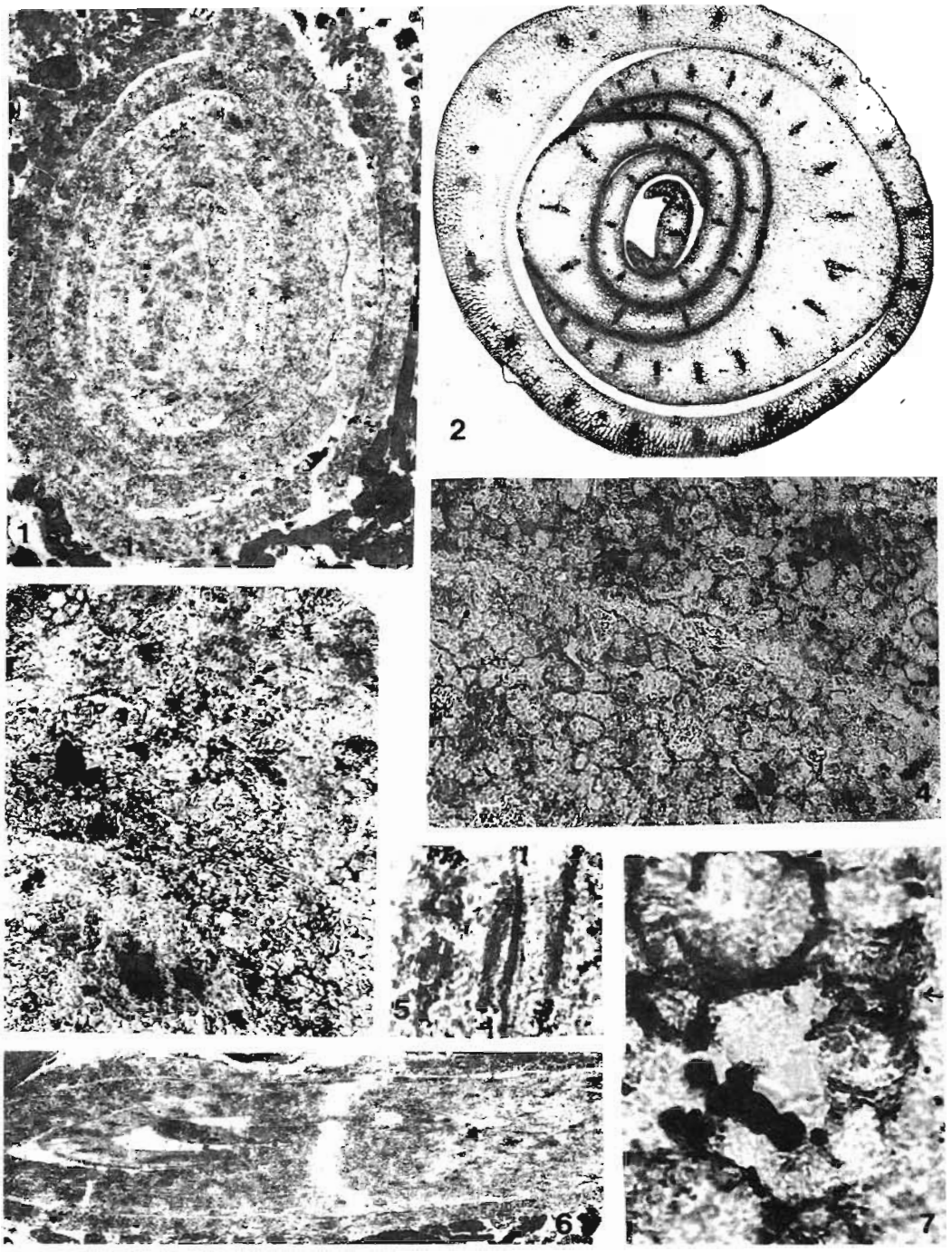

PLATE 1

1. Fossil pseudostem in transverse section showing four leaf-sheaths and axis, × 18
2. Transverse section of pseudostem of *Crinum asiaticum* showing four leaf sheaths, × 18.
3. Transverse section of fossil pseudostem showing three leaf-sheaths, × 90.
4. Mesophyll tissue of fossil leaf-sheaths showing loosely arranged parenchyma, × 150
5. Vessels in longitudinal section to show thickening in case of fossil, × 350
6. Longitudinal section of fossil pseudostem, × 9.
7. Epidermis with stoma and substomatal chamber, × 350.

cells; parenchymatous loosely arranged and without air chambers; vascular bundles 4-5 in number, embedded in irregular fashion in ground tissue, collateral and closed. Xylem vessels show spiral thickening (Pl. 1, fig. 5); due to bad preservation details of phloem could not be seen.

DISCUSSION

The present fossil has been compared with pseudostem and leaf sheaths of living and fossil taxa of monocotyledons. Its structures have been compared with the pseudostems of *Crinum* species, *Pancratium maritinum, Amaryllis vittata* and *Zephyranthes tubispatha* of Amaryllidaceae. It closely resembles the pseudostem of *Crinum* L. The species of *Crinum*, viz., *C. giganteum, C. asiaticum* and *C. meldensia* of Amaryllidaceae were considered for comparison. A freshly cut section of pseudostem of *Crinum asiaticum* L. shows similar characters of the fossil, eg., four leaf-sheaths arranged concentrically (Pl. 1, fig. 2). They are 4.4-5.2 μm in diameter. First leaf-sheath is 175-350 μm thick, second 170-790 μm thick, third 280-1360 μm thick and fourth leaf-sheath is 640-980 μm thick. Outer leaf-sheaths are wider in middle and gradually become narrower towards margins. Mesophyll of leaf-sheath is parenchymatous without air chambers. Vascular bundles are collateral and closed. Xylem elements are 18-30 μm in diameter.

In view of the above, it is apparent that the present fossil closely resembles the pseudostem of *Crinum* L., particularly to *Crinum asiaticum* L. of Amaryllidaceae. But the size differences of various constituents of this pseudostem suggest its new specific status.

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