MATONIDIUM CINGULATUM N. SP. FROM KACHCHH, INDIA

ZEBA-BANO & M. N. BOSE
Birbal Sahni Institute of Palaeobotany, 53, University Road, Lucknow-226 007, India

ABSTRACT

Matonidium cingulatum n. sp. is based on detached sterile and fertile pinnae collected from three different localities in Kachchh. The specimens, in external features, resemble M. goepperti (Ettingshausen) Schenk described by Harris (1961), but they differ from the latter in the details of spore character. In M. cingulatum the spores have a narrow cingulum and they do not show any thickening of exine around the trilete mark.

Key-words—Matonidium, Pteridophytes, Upper Jurassic, Kachchh (India).

INTRODUCTION

From Kachchh the genus Matonidium was first reported by Roy (1968) from Trambau. He, however, did not describe or figure any of his specimens. During the last two years several detached pinnae of Matonidium have been collected from Walkamota, Dharesi and Trambau in Kachchh. Most of the specimens collected are preserved in the form of incrustation. Spores could be isolated only from a few fertile pinnae from Walkamota and Trambau.

DESCRIPTION

Genus—Matonidium Schenk, 1871

Matonidium cingulatum n. sp.
Pl. 1, figs 1-11; Text-figs 1A-D, 2A-F

Diagnosis—Detached sterile and fertile pinnae, substance of lamina thick. Pinnae linear, gradually narrowing towards base and apex, largest specimen measuring 12.6 cm in length and 2.7 cm in width. Pinna rachis slender, about 2 mm wide, basal part (about 1.3-1.5 cm in length) devoid of pinnales, grooved. Pinnules closely set, mostly sub-opposite, at places opposite or alternate, contiguous, narrow, linear-falcate slightly convex. Basal pinnales deltoid in shape, 2.5-4 mm long and 2.0-2.5 mm broad near base; pinnales of middle region linear, falcate, 1.5-2.3 cm long and 0.5-0.2 cm broad near base, gradually tapering towards apex, apical pinnales smaller in size, narrow, 4.0-6.0 mm in length and 1.5 mm in breadth. Pinnules attached to rachis by their entire base at an angle of 55°-80°, bases of adjoining pinnales mostly joining each other; apex acute, sometimes subacute; margin entire, thick. Midrib prominent, slightly depressed, traversing from base to apex; lateral veins arising at an angle of 85°-90° from midrib at a concentration of 2 per mm, mostly forking once either just after emergence or slightly away from midrib, each branch reaching up to margin.
TEXT-FIG. 1 — A-C. Matonidium cingulatum n. sp., showing a few detached sterile pinnae; B.S.I.P. nos 287/521, 15/2083 and 99/2001; A × 4; B × 1 and C × 2. D. Showing a few sori; B.S.I.P. no. 112/2001 × 10.

Fertile pinnules having uniformly arranged sori on either side of midrib, cover almost entire length of pinnule. Sori about 8-10 in basal pinnales and 16-20 per pinnule near middle region, placed in between margin and mid-vein, circular to elliptical in shape, slightly bulging upward from surface of lamina. Each sori having about 4-5 sporangia with prominent annulus, arranged more or less in a ring, showing a central rounded scar probably of placenta. Each sporangia having a rounded-tetrahedral spore mass, about 100 μm in size. Spores triangular-subtriangular, 45 μm in size,
apices angular, interapical margins straight or convex. Trilete rays narrow, equal, extending up to three-fourth radius; commissure distinct. Cingulum narrow, slightly broader at apices; exine laevigate and inter-punctate, 2 μm thick.

Epidermal cells of rachis square to rectangular in shape, serially arranged, anticlinal
wall straight or slightly wavy, unevenly thickened; surface smooth.

**Holotype** — No. 65/2001 of Birbal Sahni Institute of Palaeobotany, Lucknow.

**Locality** — Walkamota, Trambau (Type locality) and Dharesi, Kachchh.

**Horizon & Age** — Bhuj Formation (Biswa, 1977); ?Upper Jurassic.

**Comparison** — In general morphology of pinnae and pinnules *Matonidium cingulatum* resembles closely *M. indicum* Sahni (1936) described by Banerji *et al.* (in Press) from Lower Cretaceous of Himmatnagar and Than, Kathiawar. In the latter species the pinnae bases join together to form a sort of “funnel” just at the top of petiole. In *M. indicum* the number of sporangia in each sorus and nature of the spores is not known. In the present species the pinnae are detached, therefore, the nature of attachment of pinnae bases to the petiole is not known. In general morphology of pinnae and pinnules, *M. cingulatum* looks like *M. goepperti* (Ettingshausen) Schenk described by Harris (1961) from Jurassic of Yorkshire and Appert (1973) from Madagascar. The Yorkshire specimens have typically about 10 sporangia in each sorus, whereas, in *M. cingulatum* the number of sporangia is 4-5. The spores of *M. goepperti* described by Harris (1961) differ in having broad and strongly thickened borders, also they are devoid of cingulum. Like *M. cingulatum*, the fertile pinnules of *M. goepperti* from Madagascar have occasionally 5 sporangia in each sorus. The spores from the latter species have so far not been described.

**REFERENCES**


**EXPLANATION OF PLATE**

**PLATE 1**

*Matronidium cingulatum* n. sp.

1-3. Showing three detached pinnae; nos 1 & 2 are fertile and no. 3 is sterile. B.S.I.P. nos 73/2001, 65/2001 and 22/878. × 1.


5. A portion of a fertile pinna showing sori. B.S.I.P. no. 98/878. × 4.

