

A NEW MONOSACCATE POLLEN FROM THE BARAKAR COALS OF INDIA

ANAND-PRAKASH

Birbal Sahni Institute of Palaeobotany, Lucknow

ABSTRACT

In the present paper a new miospore genus *Misrapollenites* found in the coals of Lower Barakar Stage has been described. It is a pollen grain monosaccate in organization and circular, sub-circular to bilaterally oval in shape. Central body is usually well defined and oval to circular in shape. Proximally the body exine does not bear any germinal mark or any kind of grooves or striations.

INTRODUCTION

DETAILED study of a large number of dispersed miospore forms in the coals of Barakar Stage from PENCH-KANHAN, WARDHA and PATHAKHERA coalfields has revealed this new monosaccate genus. The material for the palynological study was collected during 1968 from the PENCH-KANHAN Coalfield, and the bore-hole samples from Pathakhera Coalfield, were sent to us from the Coal Survey Station, Nagpur. So far no account of *Sporae dispersae* is available from this area.

SYSTEMATIC DESCRIPTION

- Anteturma — *Pollenites* Potonié, 1931
Turma — *Saccites* Erdtman, 1947
Subturma — *Monosaccites* (Chitaley) Potonié & Kremp, 1954
Infraturma — *Vesiculomonoraditi* (Pant) Bhardwaj 1956

Genus — *Misrapollenites* gen. nov.

Genotype — *Misrapollenites barakarensis* sp. nov.

Generic Diagnosis — Monosaccate pollen grains without any haptotypic mark or striations. Saccus subequatorially attached to central body, on proximal as well as distal sides. Proximal zone of saccus attachment indistinct, while distally a well defined sulcus delimited by it. Saccus intrareticulate.

Generic Description — Pollen grains are monosaccate in organization and circular, subcircular to bilaterally oval in shape. Central body is usually well defined with oval to circular shape. Proximally the

body exine does not bear any germinal mark or any sort of grooves or striations. In the species studied here even a vestigial tetrad mark is not present. The body exine is without any sculpture but is intramicroreticulate structured. Saccus is either uniformly broad around the central body in proximodistally flattened grains, or narrower on the two lateral sides; the latter condition results into the bilaterally oval shape of the pollen grain. In any case, a typical disaccoid condition is not attained. The monosaccus completely girdles the central body. The saccus encroaches the body proximally beyond the equatorial line but gradually merges with the body exine to leave no sharp line of attachment. Distally also, the saccus is subequatorial in attachment but this zone is well defined and encloses a sulcus which may be very narrow to wide. The body wall is variously folded and results into linear, \pm square or polygonal arrangement of semi-lunar folds.

Organisation — Text-figure-1

Comparison — Monosaccate genera *Plicatipollenites*, *Virkkipollenites* (Lele, 1964), *Parasaccites* Bharad. & Tiw. (1964) and *Crucisaccites* Lele & Maithy (1964) differ from the present genus either in the presence of a trilete mark or in their organisation. *Korbapollenites* Tiwari (1965) apparently a similar grain, possesses reticuloid striations on the proximal face of the central body and hence, is different from the present genus. *Ibisporites* Tiwari (1968) although has subequatorially encroaching saccus and has a tendency of sacchi to continue laterally, differs in having usually notched lateral sides, more or less ill-defined sulcus and no folds in the body along the distal zone of saccus attachment. *Florinites* Schopf, Wilson & Bentall (1944), resembles *Misrapollenites* in general shape and nature of saccus, but essentially differs in having a different mode of saccus attachment and in organisation. In the former the "bladder membrane is expanded

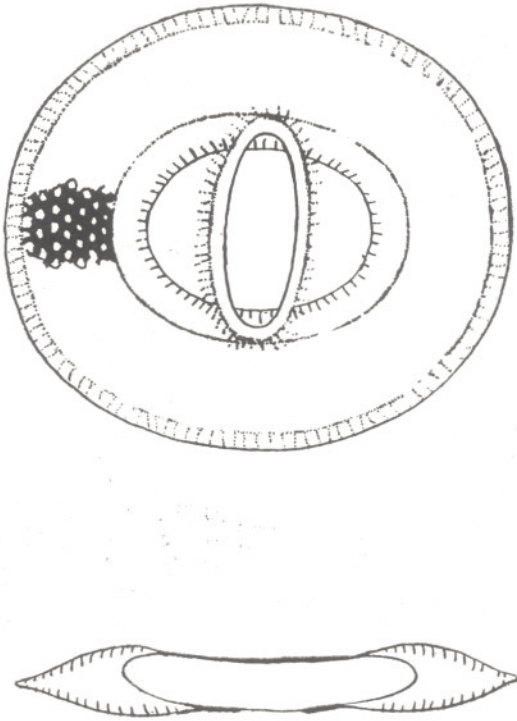


FIG. 1

on all sides of the body except for a small distal area" (Schopf, Wilson & Bentall, 1944, p. 56), while in the latter genus the saccus free areas are on proximal as well as on distal faces of the body. *Florinites* is also known to be distributed mostly in the Pennsylvanian and Upper Carboniferous of Northern hemisphere. *Densipollenites* Bharad. (1962) is different in having an enveloping saccus rather than the girdling one as is the case in the present genus.

Derivation of the Name—After Prof. R. C. Misra, Head of the Geology Department, Lucknow University, Lucknow.

Misrapollenites barakarensis sp. nov.

Pl. 1, Figs. 1-7

Holotype—Pl. 1, Fig. 1, Reg. No. 4215; Slide No. 2/12.

Isotype—Pl. 1, Fig. 2; Reg. No. 4216; Slide No. 5/3.

Locus typicus—3rd Seam, Chandameta Colliery, Pench-Kanhan Coalfield, M.P., India.

Stratum typicum—Barakar Stage, Damuda Series, Lower Gondwana; India.

Diagnosis—Monosaccate pollen grains bilaterally subcircular in shape. Holotype size $108 \times 120 \mu$. Central body mostly distinct, vertically oval to subcircular in shape. Distally a narrow to wide vertical sulcus present. Saccus peripherally limboid; intrareticulation of coarse muri.

Description—Pollen grains are subcircular to oval in shape. Size ranges from $133 \times 113 \mu$ to $87 \times 75 \mu$. Central body ranges from $95 \times 67 \mu$ to $50 \times 37 \mu$. It bears no mark or striations. Saccus is subequatorially attached on both the sides of the body. The zone of saccus attachment on the proximal side is of merging nature, but on the distal side it forms a well-defined sulcus. The width of the sulcus is variable. In some specimens it is narrow slit-like but in others it is 8μ to 16μ wide. Exine of the body is mediumly thick and intramicroreticulate in structure. The body exine is mostly peripherally folded. The saccus surrounds the body from all the sides without any notch, but the length of saccus is more on the lateral sides in the specimens having vertically oval body. Saccus intrareticulation consists of thick muri with small meshes. Saccus wall is thick in texture, rarely folded and peripherally often faintly bordered, i.e. limboid.

Misrapollenites sp.

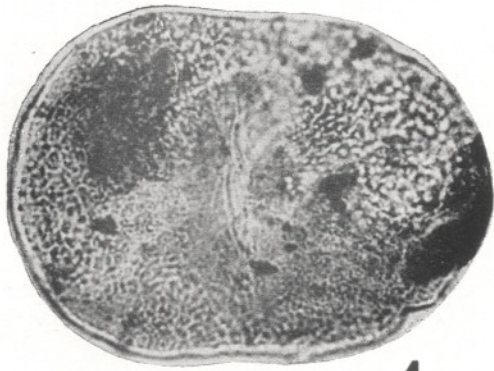
Pl. 1, Fig. 8

Description—Pollen grain is oval to subcircular in shape. The overall size of the spore is $237 \times 220 \mu$. Central body is oval in shape, distally bearing a narrow indistinct sulcus. Saccus intrareticulation is of medium size.

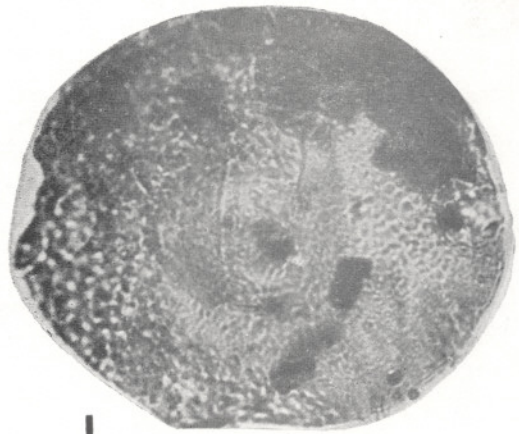
Remarks—The present specimen differs from the genotype in the size and shape of the body as compared to its overall size.

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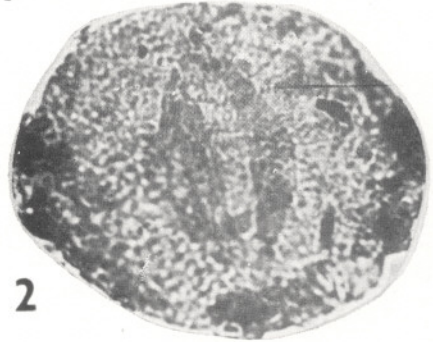
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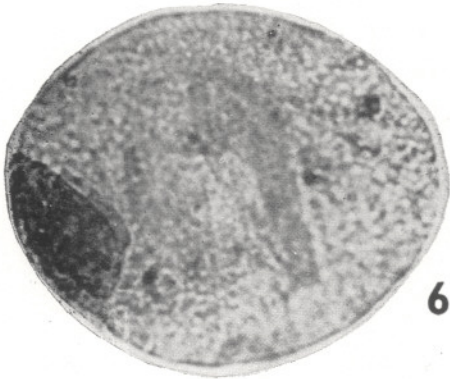
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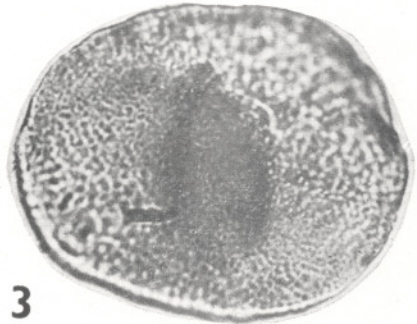
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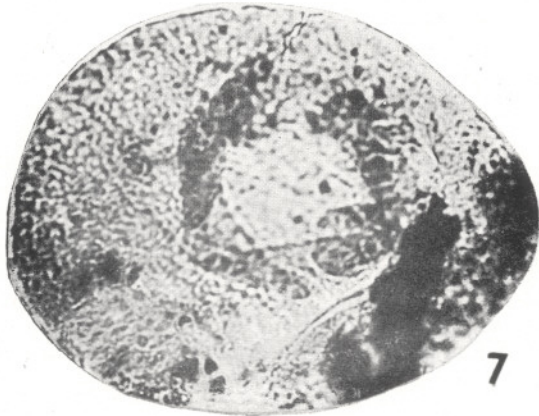
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EXPLANATION OF PLATE

PLATE 1

- 1-7. *Misrapollenites barakarensis* sp. nov. 8. *Misrapollenites* sp. (magnified. 250 ×).
(magnified. 500 ×).