STUDIES IN THE GLOSLOPTERIS FLORA OF INDIA—
37. FURTHER CONTRIBUTION TO THE MIOSPORE
ASSEMBLAGE OF THE COAL-BEARING BEDS OF THE UMARIA
COALFIELD, MADHYA PRADESH

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ABSTRACT

15 species of miospores belonging to twelve
genera are described from the shales of the coal­
bearing beds of the Umaria Coalfield. The evi­
dences of miospores further substantiates the fact
that the coal-bearing beds are homotaxial to the
Karharbari Stage of the Giridih Coalfield.

INTRODUCTION

The miospores from the coal-bearing
beds of the Umaria Coalfield were
described by Maithy (1966). Some
more shale samples from the collection
of the New Umaria Colliery, Umaria Coal­
field were macerated recently. A study
of these preparation revealed the presence
of several miospores in addition to those
earlier recorded. The same new records
are described here.

DESCRIPTION

For the taxonomic treatment of the
miospore assemblage the system proposed
by Potonie (1956, 1958) and by Bharadwaj
(1962) has been followed.

Anteturma — Sporites H. Pot.
Turma — Triletes (Reinsch) Pot. & Kr.
Subturma — Azonotriletes Luber
Infraturma — Laevigati (Benn. & Kidt.) Pot.

Genus Granulatisporites (Ibr.) Pot. & Kr. 1954

Species recorded here:
1. Granulatisporites sp. (Pl. 1, Fig. 1).
Few grains in the assemblage. Size 90-110
μ. Outline ± circular, exine covered with
closely spaced bacula; bacula are big with
truncate apex. No mark is perceptible.

Turma — Zonales (Benn. & Kidst.) Pot.
Subturma — Zonotriletes Waltz.
Infraturma — Cingulati Pot. & Kl.

Genus Dentatispora Tiwari, 1964

Species recorded here:
1. Dentatispora gondwanensis Tiwari, 1965
(Pl. 1, Figs. 3, 4).

Anteturma — Pollenites R. Pot.
Turma — Saccites Erdtman
Subturma — Monosaccites (Chitaley) Pot. & Kr.
Infraturma — Apertacolpiti Lele

Genus Plicatipollenites Lele, 1964

Species recorded here:
1. Plicatipollenites trigonalis Lele, 1964
(Pl. 1, Fig. 7).
2. Plicatipollenites diffusus Lele, 1964 (Pl.
1, Figs. 5, 6).
3. Plicatipollenites gondwanensis Lele, 1964
(Pl. 1, Fig. 8).

Genus Virkkipollenites Lele, 1964

Species recorded here:
1. Virkkipollenites densus Lele, 1964 (Pl.
1, Fig. 9).

Infraturma — Parasacciti Maheshwari

Genus Parasaccites Bharadwaj &
Tiwari, 1964

Species recorded here:
1. Parasaccites korbaensis Bharadwaj &
Tiwari, 1964 (Pl. 1, Fig. 10).
2. Parasaccites bilateralis Tiwari, 1965
(Pl. 1, Fig. 11).
Infrafurma — *Amphisacciti* Lele

Genus *Crucisaccites* Lele & Maithy, 1964

Species recorded here:
1. *Crucisaccites latissulcatus* Lele & Maithy, 1964 (Pl. 1, Fig. 12).

Genus *Vescaspora* (Schemel) Wilson & Venkatashana, 1964

Species recorded here:
1. *Vescaspora* sp. (Pl. 1, Fig. 17).

Few grains in the assemblage. Size 150-189 μ × 80-120 μ. Body oval on the terminal sides, exine intramicoreticulate, mark or striation absent. Saccus attachment subequatorial both on the proximal and distal side of the body, lateral continuation very narrow, saccus exine intramicoreticulate. Saccus free body area is fairly wide.

Infrafurma — *Vesicolomonoraditi* (Pant) Bharadwaj

Genus *Sahnites* Pant, 1955

Species recorded here:

Remarks — Bharadwaj (1964) emended the generic diagnosis of *Potonietsporites* in the light of the evidences laid by the *in situ* spores from the cones of *Lebachia*, *Ernstiodendron* and *Walchia* and concluded that the dispersae spore genera *Sahnites* Pant (1955) and *Vestigitisporites* Balme & Hennelly (1955) to be synonymous to *Potonietsporites*. In the present assemblage comparable grains to that of the *Sahnites* were recorded. A critical examination of them reveals that the grains are organizationally different from that of *Potonietsporites* Bharadwaj. They support the original organizational concept of the Pant (1955), i.e., the saccus attachment at the para position (subequatorial on both the sides of the body). The grains from the coal-bearing beds of Umaria are 140-180 μ ± 70-100 μ, oval in outline, body ± circular, distinct, exine intramicoreticulate, a distinct monolette mark is occasionally present occupying ± 1/2 of the body diameter. Saccus dilated laterally and constricted at two vertical ends, attachment subequatorial on both the sides of body, ± conforming to the body outline on the proximal side and vertically oval on the distal side. The distal zone of saccus attachment associated with two distinct body folds. Saccus exine intrareticulate, muri and lumina of equal width. The grains are organizationally similar to *Sahnites gondwanensis* (Mehta) Pant (1955). Owing to the para condition of the saccus attachment the grains are comparable to *Parasaccites* Bharadwaj & Tiwari (1964) but the former is distinguished by the presence of body folds, saccus attachment subquatorial, circular on the proximal side and vertically oval on the distal side and monolette mark.

Genus *Vestigitisporites* Balme & Hennelly

Species recorded here:
1. *Vestigitisporites densus* Singh, 1964 (Pl. 1, Fig. 16).

Remarks — The grains from the coal-bearing beds of the Umairia Coalfield are organizationally similar to those of *V. densus* Singh (1964, PL 46, FIGS. 2, 3) from the Permian of Iraq. Bharadwaj (1964) considered *Vestigitisporites* synonymous to *Potonietsporites* Bhardwaj, on basis of the study of Palaeozoic conifer cones. In the same cone he noticed grains with fold components and without folds. Since in the present assemblage no transitional forms were recorded, in between the grains with folds and without folds. Therefore, it is preferred here to retain on grounds of morphology *Vestigitisporites* separate from *Potonietsporites*.

Subfurma — *Disaccites* Cookson

Infrafurma — *Striatiiti* Pant

Genus *Lunatisporites* (Lesch.) Bharadwaj, 1962

Species recorded here:
1. *Lunatisporites amplis* (Balme & Hennelly) Potonié, 1958, (Pl. 1, Fig. 18).

Infrafurma — *Podocarpoidiiti* Pot., Thomas & Thierg.

Genus *Cuneatisporites* Leschik, 1955

Species recorded here:
1. *Cuneatisporites* sp. (Pl. 1, Fig. 19).

Size range 80-110 μ, diploxyloindoid, body distinctly circular, thick, dense brown in colour, exine intramicoreticulate, mark or striations absent. Sacci sub-spherical twice bigger than the body, saccus attachment striaght, distal zone of saccus free area wide,
saccus exine intrareticulate, muri and lumina are of equal width. Only few grains in the assemblage, therefore, a detailed comparison was not possible.

DISCUSSION

Our knowledge of the miospore assemblage of the coal-bearing beds of Umaria Coalfield was confined to 15 genera and 18 species. The present record brings the number to 20 genera and 34 species. Earlier Maithy (1966) on the basis of the plants and miospore evidences supported the view of Pascoe (1959) that the beds are homotaxial with the Karharbari Stage of the Giridih Coalfield. The present record of miospores further supports this fact. The miospore assemblage of the coal-bearing beds agree closely to the Giridih Coalfield, however, the flora of the Umaria differs by the presence of the characteristic element *Stellapollenites* of the Talchirs and the Barakar element *Dentatispora*. These elements are so far unknown from the Karharbari beds of the Giridih Coalfield. The occurrence of these two genera supports the fact that the flora of the coal-bearing beds is an admixture of the Talchir and the Barakar elements. However, in the assemblage the Talchir elements show a dominance and the incoming of the Barakar elements are noticed in addition to the presence of typical Karharbari elements of its own.

REFERENCES


EXPLANATION OF PLATE

PLATE 1

(Slides preserved at the Museum of the Birbal Sahni Institute of Palaeobotany, Lucknow)

1. *Granulatisporites* sp. × 500. Slide No. 2799.
2. cf. *Horriditritites* sp. × 500. Slide No. 2798.
17. *Vescaspella* sp. × 250. Slide No. 2799.
19. *Cuneatisporites* sp. × 250. Slide No. 2798.