Palynology of the Permian coal from Barjora of West Bengal, India

Chhaya Pal & S.K. Roy


Palynological investigations carried out on bore-hole BRJ-003 Barjora of Bankura District in West Bengal, India shows that the assemblage is rich in discal pollen grains with predominance of Scheuringipollenites, Striatopodocarpites, Striatopiticites, Labrolites along with a few trilete-tetrahedral spores and monosulcates. The general characteristics of the assemblage indicate Barakar palynoflora.

Key-words—Palynology, Barakar Formation, Permian, India.

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PALYNOLOGICAL investigations on various Lower Gondwana coal basins have been done earlier by a number of workers like Bhattacharya (1982), Karmakar and Roy (1984), Lele (1974), Lakanpal, Maheshwari and Awasthi (1971), Srivastava (1991) and Tiwari (1974a, b & c). So far, more than 550 species of sporae-dispersae have been described from various Lower Gondwana formations. The palynological investigation on Barjora Basin was previously undertaken by Karmakar and Roy (1984), Das, Karmakar and Roy (1987) and Kulshrestha (1990).

In the present investigation, the authors studied palynoflora from 9-coal seams occurring within Bore-core BRJ-3 in Barjora Basin and 32 genera have been identified. Tiwari (1974) summarized the knowledge about palynoflora recovered from Barakar Formation of different basins in India.

The dispersed spores and pollen grains have been arranged according to Potonie.

List of sporae-dispersae

Psilacinites sp.

Callumispora sp.
Acanthotriletes sp.
Lophotriletes sp.
Lobatisporites sp.
Microbaculispora sp.
Brevitriletes sp.
Indospora sp.
Microfoveolatispora sp.
Densosporites sp.
Altimonoletes sp.
Ghosiaposporites sp.
Densipollenites densis Bharadwaj & Srivastava 1969
Densipollenites sp.
Plicatipollenites indicus Lele 1964
Potoniesporites neglectus Potonie & Lele 1961
Potoniesporites sp.
Barakarites sp.
Vestigiosporites sp.
Scheuringipollenites sp.
Scheuringipollenites barakarensis Tiwari 1964
Vesicaspora sp.
Cuneatisporites sp.
Rhizomaspora sp.
**DISCUSSION**

So far 127 genera of palynomorphs have been described from Barakar Formation in different Lower Gondwana basins in India. A critical qualitative and quantitative analysis of microspores recovered from the coal-seams demonstrate that there are 32 genera in all; out of which, 12 genera are cryptogamic; 4 are monosaccates; 10 are striate disaccates; 5 are non-striate disaccate and *Gnetaceae pollenites* belonging to plicates.

Kulshrestha (1990) identified 3 distinct palynological assemblages in Barjora Basin, Lower Gondwana Formation where he demonstrated that Assemblage-A is dominated by *Scheuringipollenites* with *Faunipollenites* as sub-dominated. This he regards as Lower Barakar stage. Assemblage-B shows predominance of *Faunipollenites* over *Scheuringipollenites* which he regards as Upper Barakar stage and Assemblage-C with preponderance of *Densipollenites* in association with *Faunipollenites* and *Striatopodocarpites* as belonging to Barren-Measures stage. The present authors, however, found that in the coal phase *Scheuringipollenites* is the most dominant taxon followed by *Striatopiceites*, *Labirites*, *Verticipollenites*, *Striatopodocarpites*, *Faunipollenites*, *Scheuringipollenites* and *Vestigisporites*. Thus it is evident that if we consider the coal seam-9 of
Bore core BRJ-3 belonging to Barakar Formation, only then the sub-dominant forms do not match with the results arrived at by Kulshrestha (1990). It is true that Scheuringipollenites is an index fossil of Barakar Formation which is quantitatively represented by little more than 24.5 per cent in the assemblage while Striatopiceites is represented by 11.3 per cent. Others mentioned above vary between 5 to 10 per cent in the assemblage. Cuneatisporites is the least represented which is less than 1 per cent in the assemblage. Text-figure 1. Karmakar and Roy (1984) and Das, Karmakar and Roy (1988) also point out that Scheuringipollenites is the most dominant genus in Barakar Formation of Barjora Basin, Bankura District. However, they pointed out that the Apiculate-zonate forms, viz., Verrucosiporites, Lobatisporites and Horriditriletes occur frequently in the samples. We do not find any of these genera except Lobatisporites. Moreover, among mono-saccates, we find only Barakarites, Densipollenites, Plicatipollenites and Potonieisporites but do not encounter Kamthisaccites, Parasaccites, Crucisaccites and Divarisaccus as reported by previous workers. Thus, it is evident that the coal-phase in Bore-hole BRJ-3 had environmental condition of its own and therefore it does not match well with the palynoflora of shale-phase and sandstone-phase.

REFERENCES


