

A REPORT OF RANIGANJ MIOFLORA FROM SEDIMENTS OF DUBRAJPUR FORMATION IN BRAHMANI COALFIELD, RAJMAHAL BASIN

The Brahmani Coalfield lies in the southern part of the Rajmahal Basin, Bihar, India. The geological sequence of Gondwanas in Rajmahal Basin, as given by SHASTRY *et al.* (1977), includes Talchir Formation, Barakar Formation and the Dubrajpur Formation in ascending order. The Dubrajpur Formation includes sediments of Supra-Barakar Group ranging in age from Upper Permian upto Lower Cretaceous.

The present communication is based on a siltstone sample from the hillock near Chaipani Village (24°14'57" latitude and 87°30'30" longitude) situated in the north of the road from Dumka to Rampurhat in Brahmani Coalfield, Bihar. The general geological sequence here indicates that the Barakar Formation is directly overlain by the Dubrajpur Formation consisting of sandstones with few shale bands, the carbonaceous shales being absent. The sandstones of Barakar as well as Dubrajpur formations are very similar in nature except that the latter are more ferruginous than the former. The present sample is from the lower reaches of the Dubrajpur Formation.

The qualitative analysis of the mioflora recovered in this sample indicates the presence of following forms :

Indospora laevigata Bharad. & Sal., 1963; *Lophotriletes rectus* Bharad. & Sal., 1964; *Cyclogranisporites gondwanensis* Bharad. & Sal., 1964; *Cyclobaculisporites minutus* Bharad. & Sal., 1964; *Osmundacidites senectus* Balme, 1963; *Gondisporites* sp.; *Densipollenites invisus* Bharad. & Sal., 1964; *D. densus* Bharad. & Sriv., 1967; *D. magnicarpus* Tiw. & Rana, 1981; *Faunipollenites varius* Bharad., 1962; *F. parvus* Tiw., 1965; *F. bharadwajii* Maheshw., 1967; *Striatopodocarpites diffusus* Bharad. & Sal., 1964; *S. ovalis* Sinha, 1972; *S. decorus* Bharad. & Sal., 1964; *S. rotundus* (Maheshw.) Bharad. & Dwivedi, 1981; *S. subcircularis* Sinha, 1972; *Striatites subtilis* Bharad. & Sal., 1964; *S. tentulus* Tiw., 1965; *S. rhombicus* Bharad. & Sal., 1964; *Verticipollenites gibbosus* Bharad., 1962; *V. finitimus* Bharad. & Sal., 1964; *V. debilis* Venkatach. & Kar, 1968; *Lahirites rarus* Bharad. & Sal. 1964; *L. minutus* Venkatach. & Kar, 1968; *L. raniganjensis* Bharad., 1962; *Crescentipollentia gondwanensis* (Maheshw.) Bharad., Tiw. & Kar, 1974; *Rhizomaspora* sp.; *Chordasporites* sp.; *Lunatisporites pellucidus* (Goubin) Maheshw. & Banerji, 1975; *Lunatisporites* sp.; *Scheuringipollenites maximus* (Hart) Tiw., 1973; *S. tentulus* (Tiw.) Tiw., 1973; *Klausipollenites schaubegeri* (Pot. & Kl.) Jans., 1962; *Falcisporites nuthalensis* (Clarke) Balme, 1970 and *Vestigisporites* sp. However, the quantitative estimation of the mioflora could not be possible as the miospores are not dispersed uniformly in the medium. As such, the striate disaccate pollen dominate the assemblage.

The above association of miospores clearly indicates a late Raniganj age for the assemblage (BHARADWAJ, 1962; BHARADWAJ & TIWARI, 1977; MAHESHWARI & BANERJI, 1975; TIWARI, 1979; RANA & TIWARI, 1980; SINGH & TIWARI, 1982; BHARADWAJ, TIWARI & ANAND-PRAKASH, 1979; TIWARI & SINGH, 1983).

This conclusion has been arrived at due to the occurrence of important elements denoting the Raniganj age along with few genera of early Panchet Formation.

Thus, in totality the assemblage qualifies to be of late Permian (uppermost Raniganj) in age.

This evidence of late Raniganj age within the early reaches of Dubrajpur Formation is very significant because lithologically such determination of age is not possible in this area and the absence of megafossils makes it all the more difficult. This finding is an addition to our earlier report on Bore hole No. RJR-2 near Kazi-gaon in the north-eastern part of the Rajmahal Basin in which microfossils of late Jurassic/early Cretaceous, early Norian and late Carnian ages within the Dubrajpur Formation have been discovered (TIWARI, KUMAR & TRIPATHI, 1984).

Thus it is evident that palynology is proving very helpful in determining the precise age of Dubrajpur sediments in Rajmahal Basin.

The authors are thankful to the authorities of Coal Division, Geological Survey of India for kind co-operation in the procurement of the sample and its details.

REFERENCES

- BHARADWAJ, D. C. (1962). The miospore genera in the coals of Raniganj Stage (Upper Permian), India. *Palaeobotanist*, **9** (1-2) : 68-106.
- BHARADWAJ, D. C. & TIWARI, R. S. (1977). Permian-Triassic microfossils from the Raniganj Coalfield, India. *Palaeobotanist*, **24**(1) : 26-49.
- BHARADWAJ, D. C., TIWARI, R. S. & ANAND-PRAKASH (1973). Permo-Triassic Palynostratigraphy and lithological characteristics in Damodar Basin, India. *Biol. Mem.*, **4** : (1-2) : 49-82.
- MAHESHWARI, H. K. & BANERJI, J. (1975). Lower Triassic palynomorphs from the Maitur Formation, West Bengal, India. *Palaeontographica* **152** B : 149-190.
- RANA, V. & TIWARI, R. S. (1980). Palynological succession in Permian-Triassic sediments in bore-hole RNM-3, East Raniganj Coalfield, W. Bengal. *Geophytology*, **10**(1) : 108-124.
- SASTRY, M. V. A., ACHARYA, S. K., SHAH, S. C., SATSANGI, P. P., RAHA S. C., SINGH, P. K., SINGH, G. & GHOSH, R. N. (1977). Stratigraphic Lexicon of Gondwana Formation of India. *Geol. Surv. India., Miscell. Publ. No. 36* : 1-170.
- SINGH, V. & TIWARI, R. S. (1982). Pattern of microfossils through Permo-Triassic transition in bore hole RAD-2, East Raniganj Coalfield, W. Bengal. *Geophytology*, **12**(2) : 181-186.
- TIWARI, R. S. (1979). Palynological dating of subsurface Triassic strata near Durgapur, West Bengal. *Palaeobotanist*, **26**(2) : 190-197.
- TIWARI, R. S. & SINGH, V. (1983). Microfloral-transition at Raniganj-Panchet boundary in East Raniganj Coalfield and its implication on Permo-Triassic boundary. *Geophytology*, **13**(2) : 227-234.
- TIWARI, R. S., KUMAR, P. & TRIPATHI, A. (1984). Palynodating of Dubrajpur and Intertrappean beds in subsurface strata of north eastern Rajmahal Basin. *Proc. 5th Indian Geophytol. Conf. Lucknow* (1983), Spl. Publ. 1984 : 33-40.

R. S. TIWARI & A. TRIPATHI
*Birbal Sahni Institute of Palaeobotany,
Lucknow-226 007.*