A KARHARBARI MIOFLORA FROM THE KAMPTEE COAL-FIELD, MAHARASHTRA STATE, INDIA

The Kamptee Coalfield bound by latitudes 21° 10′ and 21°20′, and longitudes 78° 50′ and 76°15′, being an important coalfield in Central India, has lately been extensively studied geologically in search of its coal reserves. Five important coal horizons have been established within Barakar Formation which are concealed in the subsurface. In general the Gondwana sediments are bound by Precambrian rocks on the north, east and south-east while on the south, west and south-west Deccan Traps mark the boundary. The Talchir Formation overlie the Precambrian Metamorphics and is in turn overlain by Barakar Formation containing the coal seams. Motur and Kamptee Formations represent the further younger sediments in the order of succession. The Lower Member of the Barakar Formation is devoid of workable coal seams and so also the Upper Member which is practically barren of coal. It is only the Middle Member which contains the important coal-bearing horizons. Thus, there is no differentiation of Karharbari sediments lithologically although a palynological distinction has been made by Agashe and Geetha (1979) from the subsurface near Kanhan. In such similar persuit few coal and associated sediments were collected from the working collieries and the mioflora contained has thus revealed another assemblage pertaining to Karharbari aspect.

The material investigated was collected from different working levels of Fire Khanjra (4B) Reverse Incline of Kamptee Coalfield. The samples have been collected from level No. 11, 12, 13 and 14. The details about the samples has been given in table 1.

The coal samples collected from various levels of Fire Khanjra, Kamptee Coalfield were found barren of miospores except the two collected from level No. 14 which are rich in radial monosaccates along with a few striated and non-striated disaccates. Trilete and aletes are also recorded but have a low percentage distribution.

The miospore genera recorded are : *Horriditriletes*, *Callumispora*, *Jayantisporites*, *Parasaccites*, *Caheniasaccites*, *Plicatipollenites*, *Virkkipollenites*, *Potonieisporites*, *Crucisaccites*, *Striatites*, *Striatopodocarpites*, *Verticipollenites*, *Crescentipollenites*, *Faunipollenites*, *Rhizomaspora*, *Scheuringipollenites* and Aletes.

The mioflora recorded in present study is rich in radial monosaccates particularly the genus *Parasaccites* which is represented by an average of 29.5 per cent. The other monosaccates are *Plicatipollenites* 15 per cent, *Virkkipollenites* 2.5 per cent and *Potonieisporites* 1.5 per cent. The non-striate disaccate genus *Scheuringipollenites* is also recorded to be 16.5 per cent. The striated disaccate present are *Striatopodocarpites* (9.5 per cent), *Crescentipollenites* (5 per cent), *Faunipollenites* (3.5 per cent) and *Striatites* (2.5 per cent). The trilete genera recorded are *Brevitriletes* (1 per cent), *Horriditriletes* (0.5 per cent) and *Callumispora* (5.5 per cent). *Jayantisporites* is recorded here to be 0.75 per cent (Table 2).

Bharadwaj and Srivastava (1973) studied the mioflora from Korba Coalfield. The older phase of Assemblage Zone-2 recorded by the authors in sample nos. 114-92 is dominated by *Parasaccites*, *Scheuringipollenites* and *Brevitriletes*. Srivastava (1973) studied the miofloral assemblage from Giridih Coalfield, the type locality for Karharbari Formation. He has also concluded that the Karharbari sediments are as such divisible into two distinct biozones, the Lower and the Upper Karharbaris. The former is dominated

Table 1—List of samples collected from various levels from Fire Khanjra (4B) Revere Incline, Kamptee Coalfield

Sr. No.	LEVEL	LITHOLOGY	SAMPLE No.	MIOSPORES PRESENT (+) ABSENT (—)
1.	Level No. 11	Coal (Top)	KCK 11/1	—
2.	,,	Coal	KCK 11/2	—
3.	,,	Coal	KCK 11/3	—
4.	,,	Coal	KCK 11/4	—
5.	Level No. 12	Coal (Top)	KCK 12/5	—
6.	,,	Coal	KCK 12/6	—
7.	,,	Coal	KCK 12/7	—
8.	,,	Coal	KCK 12/8	—
9.	,,	Coal	KCK 12/9	—
10.	,,	Coal (Bottom)	KCK 12/10	—
11.	Level No. 13	Coal (Top)	KCK 13/11	—
12.	,,	Coal	KCK 13/12	—
13.	,,	Coal	KCK 13/13	—
14.	,,	Coal	KCK 13/14	—
15.	,,	Coal	KCK 13/15	—
16.	,,	Coal	KCK 13/16	—
17.	,,	Coal	KCK 13/17	—
18.	,,	Coal	KCK 13/18	—
19.	Level No. 14	Coal	KCK 14/19	—
20.	,,	Coal	KCK 14/20	—
21.	,,	Coal	KCK 14/21	—
22.	,,	Coal	KCK 14/22	—
23.	,,	Fine grained sandstone	KCK 14/23	+
24.	,,	,,	KCK 14/24	+
25.	,,	,,	KCK 14/25	—
26.	,,	,,	KCK 14/26	—
27.	,,	,,	KCK 14/27	—
28.	,,	,,	KCK 14/28	—
29.	,,	,,	KCK 14/29	—

Table 2—Percentage distribution of the miospores in the samples from Level No. 14, Fire Khanjra (4B), Reverse Incline, Kamptee Coalfield

Genera			Average
Brevitriletes	1	1	1
Horriditriletes	1	—	0.5
Callumispora	7	4	5.5
Jayantisporites	—	1.5	0.75
Parasaccites	32	27	29.5
Caheniasaccites	1	3	2
Plicatipollenites	18	12	15
Virkkipollenites	3	2	2.5
Potonieisporites	0.5	—	0.25
Crucisaccites	3	—	1.5
Striatites	2	3	2.5
Striatopodocarpites	2	17	9.5
Verticipollenites	—	0.5	0.25
Crescentipollenites	5	5	5
Faunipollenites	3	4	3.5
Rhizomaspora	0.5	—	0.25
Scheuringipolienites	18	15	16.5
Aletes	3	5	4
Sample Nos.	KCK 14/24	KCK 14/23	

by radial monosaccates and *Callumispora* while in the later phase the percentage distribution of these elements decreases. The non-striated disaccates show increase in their percentage distribution. The present findings are much similar to Upper Karharbari mioflora of Srivastava (1973) with respect to the increase in percentage distribution of striated and non-striated disaccates. The non-striated disaccate in the present finding is *Scheuringipollenites* while the author recorded *Illinites* which is absent in the present assemblage. Tiwari (1973) studied the palynological succession from Raniganj Coalfield, except for the absence of *Indotriradites* in present findings the miofloral assemblage Zone-2 described by him is closely comparable. Srivastava (1980) again recorded another Karharbari mioflora from Chirimiri Coalfield. The mioflora recorded from sample no. C-5 which has been considered to be of Upper Karharbari Stage is similar to the mioflora recorded here. However, *Callumispora*, *Faunipollenites* and *Striatopodocarpites* are relatively low in their percentage distribution. *Ginkgocycadophytus*, *Vesicaspora* and *Illinites* are absent in the present miofloral assemblage. Srivastava and Sarate (MS) recorded the mioflora from Bagdona coal seam of Pathakhera Coalfield and also from Shobhapur Block of Pathakhera Coalfield, which is assigned to Upper Karharbari age mio-

floristically. The miofloral assemblage is dominated by radial monosaccates (*Parasaccites*) along with striated and non-striated disaccates and a few triletes and aletes. The present findings closely compare with the miolflora recorded by Srivastava and Sarate (MS). However, *Jayantisporites* is absent in the mioflora of Pathakhera and Shobhapur Block of Pathakhera Coalfield. Agashe and Geetha (1979) carried out miofloral investigation on some bore core samples from Kamptee Coalfield. The mioflora recorded from coal seam KC-4 is rich in radial monosaccates followed by disaccates and triletes. The seam is miofloristically closer to present finding in having the dominance of monosaccates but the percentage distribution of the disaccates and triletes is comparatively more than what has been recorded in the present findings. Agashe (1980) analysed some bore cores of Saoner and Kamptee Coalfields. The mioflora recorded from B. H. Nos. CMKMK-7, CMKMK-16A of Kamptee Coalfield and SUBH-77 from Saoner Coalfield have been assigned Lower Barakar and possibly Upper Karharbari age. The mioflora in present findings has also been assigned to Upper Karharbari age.

References

AGASHE, S. N. (1980). Palynostratigraphic studies of coal-bearing strata from Lower Gondwana of Peninsular India. *V int. palynol. Conf., Cambridge* : 6 (Abst).

AGASHE, S. N. & GEETHA, K. R. (1979). Palaeopalynological studies of Lower Gondwana strata with particular reference to certain coal seams from Kamptee Coalfield, Nagpur District, Maharashtra State. *Geophytology*, **9** (1-2) : 116-125.

BHARADWAJ, D. C. & SRIVASTAVA, SURESH C. (1973). Subsurface palynological succession in Korba Coalfield, M. P., India. *Palaeobotanist*, **20**(2) : 137-151.

SRIVASTAVA, SURESH, C. (1973). Palyno-stratigraphy of the Giridih Coalfield. *Geophytology*, **3**(2) : 184-194.

SRIVASTAVA, SURESH. C. (1980). Palynostratigraphy of Lower Gondwana sediments in Chirimiri Coalfield, M. P., India. *Geophytology*, **10**(1-2) : 62-71.

SRIVASTAVA, SURESH, C. & SARATE, O. S. (MS). Palynostratigraphy of Lower Gondwana sediments from Shobhapur Block, Pathakhera Coalfield. *Palaeobotanist*,

TIWARI, R. S. (1973). Palynological succession in Barakar Type Area. *Geophytology*, **3**(2) : 166-183.

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