

Further observation on *Meyeripollis* Baksi & Venkatachala, 1970

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INTRODUCTION

MEYER (1958) described some palynological fossils from the Naharkotiya Oilfield, Assam comprising spores of *Ceratopteris* of Parkeriaceae, monocolpate pollen similar to *Asterocaryum* of Areceaceae and tricolpate pollen resembling *Rhizophora* of Rhizophoraceae. Besides, he also observed some morphologically strange type of pollen (Meyer, 1958; figs 5-6) which is covered by small outgrowths called gemmae. He also noticed pairs of ball-shaped outgrowths much larger in size than gemmae, one pair of which is situated on each pole and three pairs arranged in equal distance around the equator. Meyer thought that the pollen is syncolpate and the furrows pass through the pair of outgrowths. On the basis of palynoflora, he advocated a Middle Oligocene or younger age for the assemblage.

Baksi (1962) recovered similar type of pollen and described it as gemmate-syncolpate (Baksi, 1962; figs 38-39) from the Simsang River, South Shillong Front, Meghalaya. The very abundant occurrence of this pollen led him to propose Simsang Palynological Zone III of Oligocene age. Biswas (1962, pl.1, fig. 22) also reported this type as *Nonaperturites evanii*.

Baksi and Venkatachala (1970) instituted *Meyeripollis* to commemorate the name of Meyer who first described this type of pollen with the following diagnosis 'Triangular 26-40 μm ; with rounded angles and prominent convex sides, angles distinguished by the presence of two large tubercles or gemmae on either side; polar compression more than equatorial ones. Trisyncolpate colpi often obscured by the ornamentation. Colpi meeting at distal pole giving the appearance of a trilete mark. Exine ornamented with gemmae, tubercles and verrucae of different sizes, broad prominent gemmae present at the angles of the pollen and at distal pole'.

They designated figs 4 and 5 of plate I, Meyer (1958) as holotype. However, there seems to be a typographical mistake

and it should be figs 5-6 as fig. 4 was described by Meyer (1958) as *Asterocaryum* type of pollen. Thanikaimoni *et al.* (1984) illustrated many specimens of *Meyeripollis* and re-emended the genus as "Pollen grains tricolporate; triangular in polar view; ectoapertures \pm united at the poles; exine with striae warts which are bigger at the equatorial angles as well as at the poles."

Salujha *et al.* (1972, 1977), Nandi (1981) and Mandaokar in a series of papers (1993, 2000a, b) reported *Meyeripollis* from the Tikak Parbat Formation (Oligocene) of Dangri Kumari Colliery; Jeypore Colliery, Assam and Namchik River section, Arunachal Pradesh.

PRESENT OBSERVATION

Many slides containing *Meyeripollis* were studied from the Tikak Parbat Formation, Assam and it was observed that *Meyeripollis* is not syncolpate as advocated by Meyer (1958) and Baksi and Venkatachala (1970). The syncolpate nature is an illusion caused by the translucent long stalk of the gemmae. Often the juxtaposed nature of the long gemmae also provide the appearance of a furrow or a colpus. It was also noticed that all the gemmae irrespective of their size have a stalk. The bigger gemmae have longer stalk except the polar ones which have smaller stalk. The exine is very thin (0.5 μm) and the sculptural elements are arranged on both sides in a peculiar fashion. The four bigger gemmae originate from each polar region, three are having longer stalk and one with shorter stalk. The shorter stalked one confines in the polar region while the longer three spread in the three apical regions. In the fully proximo-distally flattened specimens, the two longer stalked gemmae rest side by side on each apical region while in the polar regions the two gemmae remain juxtaposed. Some times the gemmae may even be superimposed. That the gemmae are present on both sides become evident as any of these moieties are not clearly observed in the same focus.

The sculptural elements of the taxon are of various types. The bigger wart like elements at the poles may be called gemma, whereas the longer ones at the apical region may be termed clava; the smaller sculptures which are generally less than 5 µm in length should be termed as pila. The striations on the sculptural elements are observed in SEM but not in the light microscope (vide Thanikaimoni *et al.*, 1984).

Since *Meyeripollis* has no syncolpate structure or any other aperture the question naturally arises whether it is a pollen. The exine is very thin and it does not exhibit any stratification of sexine and nexine. At the same time it has also no trilete or monolete mark. So the genus is considered here as inaperturate.

In view of these observations, the genus is redefined with the following diagnosis.

Genus—MEYERIPOLLIS Baksi & Venkatachala, 1970 emend.

Type species—MEYERIPOLLIS NAHARKOTENSIS Baksi & Venkatachala, 1970 emend.

Holotype—Meyer, 1958, pl. 1, figs 5-6.

Type locality—Sediments assignable to Middle Oligocene, Naharkotiya Oilfield, Assam.

Emended Diagnosis—Taxon triangular-subtriangular, 25-40 µm, apices rounded, interapical regions straight-convex, inaperturate. Exine more or less 0.5 µm thick, heavily sculptured with gemma, clava and pila on both sides. At each polar region robustly built one gemma and three clava originate, due to shortness of stalk the gemma remains in polar region whereas other three extend beyond apices, both moieties remain juxtaposed; gemma 6-10 µm and clava 10-15 µm in length and 3-5 µm in breadth; rest region heavily sculptured by pila, pila 3-5 µm in length, 2-3 µm in breadth.

MEYERIPOLLIS NAHARKOTENSIS Baksi & Venkatachala, 1970

(Pl. 1.1-13)

Emended Diagnosis—as per the generic diagnosis.

Remarks—The sculptural pattern in *Meyeripollis* is rather unusual and we have no other record of this kind. In

Dandotiaspora Sah *et al.* (1971), an index fossil of Late Palaeocene, we have thickening of the exine on the distal side opposite to the trilete rays; but the thickening is devoid of stalk. Here in *Meyeripollis* all the sculptural elements have distinct stalk. In some fern spores, oil globules are found and these are distributed all over the body (e.g., *Dipteris*, *Platyserium*).

The big sized clava and gemma that originate from both the polar regions signify a gyroscopic function that would produce a propelling action in air or water. However, some hermogathic function of these structures is also not ruled out.

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PLATE 1

(All photographs are enlarged *ca.* x 1000 unless otherwise mentioned)

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|-----------|--|--------|--|
| 1-4, 5-8. | <i>Meyeripollis naharkotensis</i> Baksi & Venkatachala emend. (SEM). | 6-7 | note the superimposed position of the clava. |
| 1-3. | showing the gemma in the polar region. | 9-13. | <i>Meyeripollis naharkotensis</i> in LM. |
| 4, 8. | showing the pseudocolpus. | 9-10. | showing the stalk of the clava. |
| 5 | note the striate sculptural elements. | 12-13. | showing the stalk of the pila. |

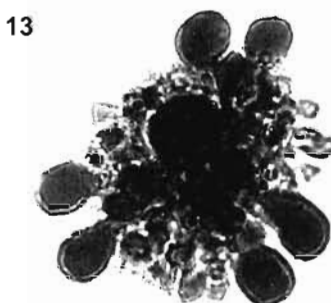
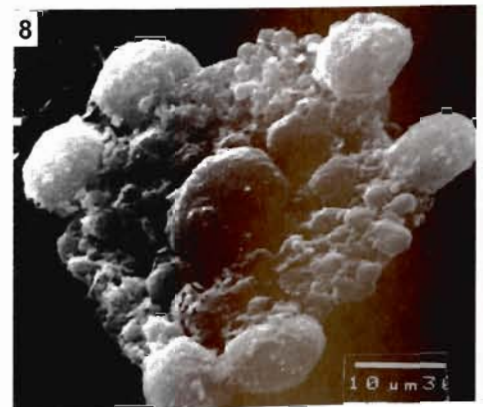
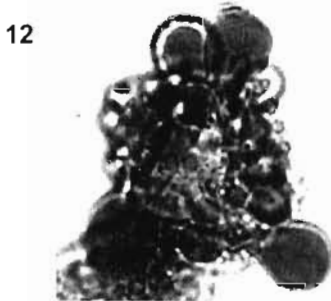
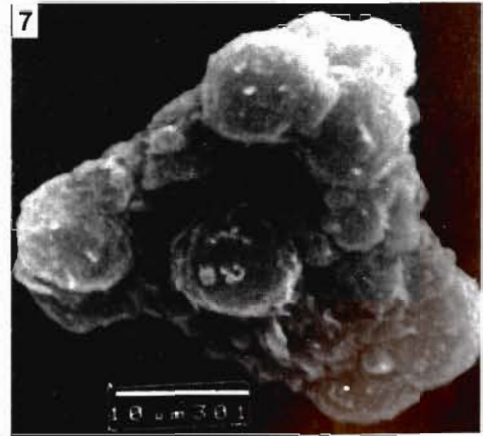
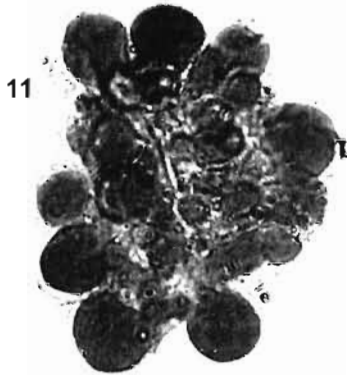
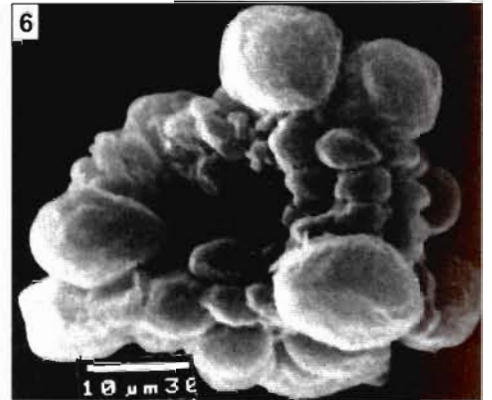
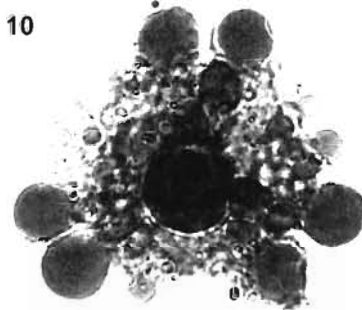
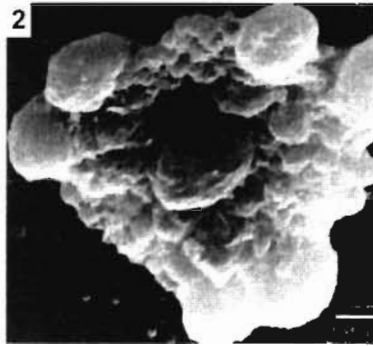
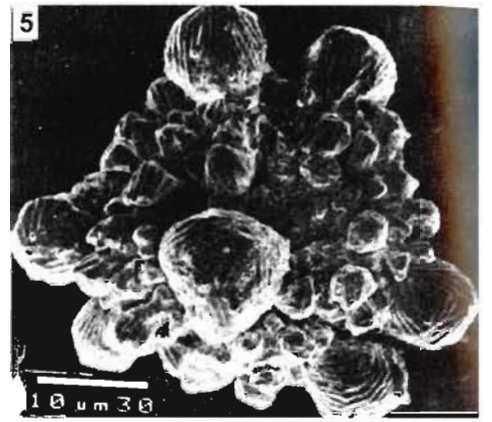
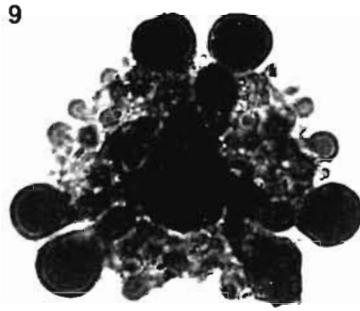
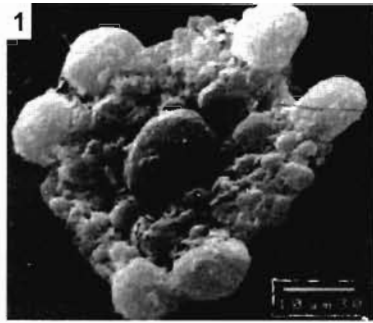


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