

Genus *Crustaesporites* Leschik, 1956

***Crustaesporites globosus* (Leschik, 1956) emend. Jansonium, 1962**

Plate 16. Fig. 3

Description: The specimens conform to the description of Leschik, 1956 emend. Jansonium, 1962. The specimen illustrated here in is similar to those have been reported from Congo by Maheshwari, 1962. The description and illustration of Maheshwari suggest *Crustaesporites globosus*, but he named it *Trochosporites* sp.

Occurrence: This species is very rare and confined to the Lower Permian portion of the Faraghan formation in Kuh-e-Faraghan.

Age: From the Upper Permian of Germany (Leschik, 1956), the Permian-Triassic of Canada (Jansonium, 1962), the Lower Permian of the Congo (Maheshwari, 1969), the Early Permian of Poland (Jerzykiewicz, 1988), the Early-Upper Permian of Britain (Clarke, 1965) and the Lower Triassic of Australia (Balme, 1963).

***Crustaesporites* sp. A.**

Plate 16. Fig. 6

Description: Pollen grain monosaccate, oval to circular in outline, 50-70 μ m ; central body distinct, thick, multistriate (10-18 taeniae); 40-45 μ m , with secondary fold; saccus thin, intrareticulate, diameter 8-15 μ m . Some specimens show symmetrical constriction on saccus face that might suggest evolution of multisaccate forms from monosaccate morphotypes. This species is very close to *Crustaesporites hessii* Cousminer (1965), but the Faraghan specimens have fewer taeniae and have four primary sacchi.

Occurrence: This species is very rare and confined to the Lower Permian portion of the Faraghan formation in Kuh-e-Faraghan.

Genus *Decussatisporites* Leschik, 1955***Decussatisporites* sp.**

Plate 16, Fig. 9

Description: Pollen grain monocolpate, elliptical to Spindle-shaped, and 70-75 micrometers in diameter. Exine thick, appearing granulose in some specimens; Horizontal and vertical striations are well-developed; Colpus typically well-defined although margins occasionally overlap; partially obscuring the colpus; Horizontal striations 15-20, extending from one margin to other; vertical striations 10-15, straight or slightly oblique, extending from end to end. This species is similar to *Decussatisporites magmus* Bose & Kar (1966), but has fewer vertical and horizontal striations.

Occurrence: This species is very rare and confined to the Lower Permian portion of the Faraghan formation in Kuh-e-Faraghan.

Age: The genus *Decussatisporites* has been reported from the Early Permian of the Congo (Bose & Kar, 1966) and the Barakar stage of India (Bharadwaj & Salujha, 1964), the Lower Permian of Congo (Maheshwari, 1969), the Barakar stage of Badam, India (Venkatachala & Kar, 1968), the Lower Permian of Gabon (Jardine, 1974) and the Lower Permian of India (Tiwari, 1967).

Genus *Ephedripites* Bolkhovitina ex. Potonie, 1958***Ephedripites ellipticus* Kar, 1967**

Plate 7, Fig. 15

Occurrence: It is very rare in the Chal-i-Sheh and also in the Faraghan areas.

Age: From the Lower-Upper Permian of India (Kar, 1967),

Genus *Fusacolpites* Bose & Kar, 1966***Fusacolpites ovatus* Bose & Kar, 1966**

Plate 7, Fig. 16

Description: The specimens conform to the description of Bose & Kar, 1966.

Occurrence: This species is very rare in the Lower Permian portion of the Faraghan formation both in Kuh-e-Faraghan and Chal-i-Sheh area.

Age: From the Lower Permian of Gabon (Jardine, 1974) and the Lower Permian of Congo (Bose & Kar, 1966, 1967, 1968).

Genus *Ginkgocycadophytus* Samoilovich, 1953

***Ginkgocycadophytus cymbatus* (Balme & Hennelly)**

Potonie & Lele, 1959

Plate 16, Fig. 10

Occurrence: This species is restricted to the Lower Permian part of the Faraghan formation in Kuh-e-Faraghan and the productive samples of the Faraghan formation of the Chal-i-Sheh area. It is rare in Kuh-e-Faraghan and very rare in Chal-i-Sheh area.

Age: From the Early Permian of India (Potonie and Lele, 1959), the Early Permian of Gabon (Jardine, 1974), the Barakar stage (Lower Permian) at Badam of India (Bharadwaj & Kar, 1968), the Lower Permian of the Congo (Bose & Maheshwari, 1968), the Late Palaeozoic of Arabian Peninsula (Besems & Schuurman, 1988), the Lower Permian of West-Pakistan (Venkatachala and Kar, 1967, 1968), and the Early Permian of India (Kar, 1966).

Genus *Hamiapollenites* (Wilson) Tschudy & Kosanke, 1966

***Hamiapollenites karrooensis* (Samoilovich) Hart, 1964**

Plate 9, Fig. 6

Occurrence: This species is rare and confined to the Permian part of Faraghan formation in Tang-e-Zakin, Kuh-e-Faraghan.

Age: From the Early Permian of Gabon (Jardine, 1974), the Lower Permian of Tanzania (Hart, 1963, 1964, 1965) and the Upper Permian of the U.S.A. (Clapham, 1970).

***Hamiapollenites perisporites* (Jizba) Tschudy & Kosanke, 1966**

Plate 9, Fig. 7

Occurrence: This species is common in the Lower Permian part of the Faraghan formation in the Faraghan area and abundant in the Chal-i-Sheh area.

Age: From the Early Permian of southwestern Africa (Stapleton, 1977), and the Early Permian of Texas, U.S.A. (Tschudy & Kosanke, 1966).

***Hamiapollenites saccatus* Wilson, 1962**

Plate 9, Fig. 9

Occurrence: This species is abundant and confined to the Lower Permian of the Faraghan formation in the Chal-i-Sheh area.

Age: From the Early Permian of Turkey (Akyol, 1975), the Upper Permian of the United States (Wilson, 1962; Clapham, 1970), the Lower Permian of West-Pakistan (Venkatachala & Kar, 1967).

***Hamiapollenites tractiferinus* (Samoilovich) Hart, 1964**

Plate 17, Fig. 6

Occurrence: This species is rare (2%) and restricted to the Lower productive samples of the Permian part of the Faraghan formation in Kuh-e-Faraghan.

Age: From the Permian of the U.S.S.R. (Samoilovich, 1953), the Lower Permian Saudi Arabia (Hemer, 1965), the Upper Permian of northern Iran (Chataeuneuf, et al., 1979), the Upper Permian of the U.S.A. (Clapham, 1970) and the Late Pennsylvanian-Early Permian of U.S.A. (Jizba), 1960.

Genus *Kosankeisporites* Bharadwaj, 1955***Kosankeisporites elegans* (Kosanke) Bharadwaj, 1962**

Plate 17, Fig. 5

Occurrence: This species is very rare and restricted to the Lower Permian part of the Faraghan formation in Kuh-e-Faraghan.

Age: From the Late Palaeozoic of the United States (Jizba 1962).

Genus *Lueckisporites* (Potonie & Klaus, 1954) emend. Potonie, 1958***Lueckisporites* sp.****Plate 10, Fig. 5**

Description: Disaccate striatiti; diploxytonoid; central body circular or slightly elongate with a proximal cap with one longitudinal rib in polar view; sacci semi-circular in outline, infra-reticulate. This species differs from *Taeniaesporites* in number of ribs.

Occurrence: This species is very rare and restricted to the Lower Permian part of the Faraghan formation in Kuh-e-Faraghan.

Genus *Mabuitasaccites* Bose & Kar, 1966***Mabuitasaccites ovatus* Bose & Kar, 1966****Plate 17, Fig. 8**

Occurrence: This species is very rare (0.1%) and confined to a few productive samples of the Lower Permian part of the Faraghan formation in Kuh-e-Faraghan.

Age: From the Early Permian of Gabon (Jardine, 1974) and the Early Permian of the Congo (Bose & Kar, 1966).

Genus *Nuskoisporites* Potonie & Klaus, 1954***Nuskoisporites rotatus* Balme & Hennelly, 1956****Plate 11, Fig. 1**

Occurrence: This species is rare in the Lower Permian of the Faraghan Formation and the Chal-i-Sheh areas.

Age: From the Early Permian of India (Potonie & Lele, 1959), the Permian Australia (Balme & Hennelly, 1956), the Late Permian of Prince Charles Mountains, Antarctica (Playford, 1967; Balme & Playford, 1967), Early Permian of Tanzania (Hart, 1963).

Nuskoisporites triangularis (Mehta) Potonie & Lele, 1959

Plate 17, Fig. 7

Occurrence: This species is rare in the Lower Permian of both Kuh-e- Faraghan and Chal-i-Sheh areas.

Age: From the Early Permian of India (Potonie & Lele, 1959).

Genus *Pityosporites* (Seward) Manum, 1960

Pityosporites giganteus Balme & Hennelly, 1955

Plate 18, Fig. 1

Occurrence: This species is rare in the Lower Permian part of the Faraghan formation in Kuh-e-Faraghan, but it is common in the Lower Permian of Chal-i-Sheh area.

Age: From the Early Permian Australia (Balme & Hennelly, 1955), the Early Permian of Bolivia (Cousminer, 1965) and the Lower Permian of the Congo (Maheshwari & Bose, 1969).

Genus *Plicatipollenites* Lele, 1964

Plicatipollenites indicus Lele, 1964

Plate 11, Fig. 4

Occurrence: This species is rare in both Kuh-e- Faraghan and Chal-i-Sheh areas.

Age: From the Lower Permian of northern Iran (Chateauneuf, et al., 1979), the Lower Permian West-Pakistan (Balme, 1970), the Lower Permian of Congo (Kar & Bose, 1967; Bose & Maheshwari, 1968), the Lower Permian of Arabian Peninsula (Besems & Schuurman, 1988) and the Lower Permian of India (Kar, 1967).

Genus *Platysaccaus* (Naumova) ex. Potonie & Klaus, 1954

***Platysaccus papilionis* Potonie & Klaus, 1954**

Plate 11, Fig. 3

Occurrence: This species is very rare and found in the Lower Permian part of the Faraghan Formation in Kuh-e-Faraghan.

Age: From the Permian of Canada (Jansonius, 1962), the Upper Permian of the United States (Wilson, 1962), the Permian of the U.S.A. (Clapham, 1970) and the Lower Permian of Rhodesia (Chandra, Kar & Lacey, 1977).

***Platysaccus densus* Kar, 1967**

Plate 17, Fig. 11

Occurrence: This species is very rare and restricted to the Lower Permian part of the Faraghan formation in Kuh-e-Faraghan.

Age: From the Lower Permian of India (Kar, 1967).

Genus *Potonieisporites* Bharadwaj, 1954

***Potonieisporites granulatus* Bose & Kar, 1966**

Plate 11, Fig. 7

Occurrence: This species is rare in Kuh-e-Faraghan and common in the Chal-i-Sheh.

Age: From the Early Permian of Gabon (Jardine, 1974) and the Early Permian of Congo (Bose & Kar, 1966).

***Potonieisporites neglectus* Potonie & Lele, 1959**

Plate 18, Fig. 12

Occurrence: This species is very rare and restricted to the Lower Permian part of the Faraghan formation in Kuh-e-Faraghan.

Age: From the Early Permian of India (Potonie & Lele, 1959; Lele, 1973), the Early Permian Gabon (Jardine, 1974), the Lower Permian of northern Iran (Chataeuneuf, et al., 1979), and the Lower Permian of the Congo (Bose & Maheshwari, 1968).

Genus *Protohaploxypinus* (Samoilovich) emend. Hart, 1964***Protohaploxypinus diagonalis* Balme, 1970**

Plate 17, Fig. 10

Occurrence: This species is abundant in the Lower Permian part of the Faraghan formation at Tang-e-Zakin and rare in the Faraghan formation of the Chal-i-Sheh area.

Age: From the Lower-Upper Permian of West-Pakistan (Balme, 1970) and the Early Permian of Southwest of Africa (Stapleton, 1977).

Genus *Rhizomaspora* Wilson, 1962***Rhizomaspora radiata* Wilson, 1962**

Plate 18, Fig. 2

Occurrence: This species is rare and restricted to the productive samples of Permian part of the Faraghan formation in Kuh-e-Faraghan.

Age: From the Upper Permian of the United States (Wilson, 1962), the Lower Permian of the Congo (Bose and Maheshwari, 1968), the Lower Permian of West Pakistan (Venkatachala & Kar, 1967), the Lower Permian of Gabon (Jardine, 1974), and the Lower Permian of India (Tiwari, 1968).

Genus *Schizopollis* Venkatachala & Kar, 1964***Schizopollis* sp.**

Plate 18, Fig. 8

Description: Pollen grain monosaccate (lobed saccus may appear polysaccate); central body dense, oval 60-70 μ m, dissected by more than 12 striae; Exine, exclusive of striae, is intramicroreticulate. The Faraghan specimens are similar to those reported from the Congo (Bose & Maheshwari, 1968).

Occurrence: This species is very rare and restricted to the Lower Permian part of the Faraghan formation in Kuh-e-Faraghan.

Age: From the Lower Permian of India (Venkatachala & Kar, 1964), the Lower Permian of Congo (Bose & Maheshwari, 1968), and the Lower Permian of northern Iran (Chatacuneuf, et al., 1979), and the Barakar stage of Badam Basin of Bihar, India (Venkatachala & Kar, 1968).

Genus *Striatoabietites* (Sedova) Polukhina ex. Hart, 1964

***Striatoabietites multistriatus* (Balme & Hennelly) Hart, 1964**

Plate 13, Fig. 11

Occurrence: This species is rare and confined to the Lower Permian part of the Faraghan formation in Kuh-e-Faraghan.

Age: From the Lower Permian (Sakmarian-Kungurian) of western Australia (Segroves, 1969), and the Lower Permian of Gabon (Jardine, 1974).

**Genus *Striatopodocarpites* Zoricheva & Sedova ex. Sedova
emend. Hart, 1964**

***Striatopodocarpites cancellatus* (Balme & Hennelly) Hart, 1964**

Plate 13, Fig. 12

Occurrence: This species is rare in the Lower Permian part of the Faraghan formation of Kuh-e-Faraghan and very rare in the Lower Permian of Chal-i-Sheh area.

Age: From the Lower- Upper Permian of West Pakistan (Balme, 1970), the Lower- Upper Permian of Gabon (Jardine, 1974), the Lower to Upper Permian of western Australia (Segroves, 1969), the Lower Permian Tanzania (Hart, 1963), and the Upper Permian of Britain (Clarke, 1965).

***Striatopodocarpites rarus* (Bharadwaj & Salujha) Balme, 1970**

Plate 18, Fig. 5

Occurrence: This species is abundant in the Lower Permian part of the Faraghan formation in Kuh-e-Faraghan.

Age: From the Lower-Upper Permian of West Pakistan (Balme, 1970), and the Lower Permian of Gabon (Jardine, 1974).

Genus *Striomonosaccites* Bharadwaj, 1962

***Striomonosaccites ovatus* Bharadwaj, 1962**

Plate 18, Fig. 6

Occurrence: This species is very rare and restricted to the Lower Permian part of the Faraghan formation in Kuh-e-Faraghan.

Age: From the Upper Permian of India (Bharadwaj, 1962) and the Early Permian of Southwest Africa (Stapleton, 1977).

Genus *Sulcatisporites* Leschik, 1956

***Sulcatisporites splendens* Leschik, 1956**

Plate 14, Fig. 1

Occurrence: This species is abundant in the Faraghan formation of Chal-i-Sheh and rare in the Lower Permian part of the Faraghan formation of Kuh-e-Faraghan.

Age: From the Lower Permian of Western Australia (Segroves, 1969), and the Early Permian of the United States (Tschudy & Kosanke, 1966).

Genus *Vesicaspora* Schemel, 1951

***Vesicaspora* sp.**

Plate 14, Fig. 15

Remarks: This species is rare and present in the Dorud formation. It is a bisaccate pollen grain which has two haploxynoid sacchi and central body. This species is a lower Permian taxa which are found in the lower Permian of Faraghan formation (Ghavidel-syooki, 1988) and the Samples of Dorud formation in the type locality.

Genus *Vittatina* Luber ex. Wilson, 1962***Vittatina costabilis* (Wilson) emend. Tschudy & Kosanke, 1966**

Plate 14, Figs. 13-14

Occurrence: This species is common in the productive upper samples and the Faraghan formation of Chal-i-Sheh area and rare in the Lower Permian part of Faraghan formation in Faraghan area.

Age: From the Early Permian of the United States (Tschudy & Kosanke, 1966), the Upper Permian of the U.S.A. (Clapham, 1970), the Upper Permian of Poland (Jerzykiewicz, 1988), and Early Permian of Southwest of Africa (Stapleton, 1977).

***Vittina lata* Wilson, 1962**

Plate 14, Fig. 16

Description: The specimens conform to the description of Wilson 1962, except that the Faraghan specimens have two secondary folds.

Occurrence: This species is rare and restricted to the Lower Permian portion of the Faraghan formation in Kuh-e-Faraghan.

Age: From the Upper Permian of the United States (Wilson, 1962), the Barakar of stage in the Badam Basin of Bihar, India (Venkatachala & Kar, 1968).

***Vittatina subsaccata* Samoilovich, 1953**

Plate 14, Fig. 16

Occurrence: This species is abundant in the Lower Permian part of the Faraghan Formation in Kuh-e-Faraghan.

Age: From the Lower Permian of Russia (Samoilovich, 1953), the Lower Permian of Gabon (Jardine, 1974), the Lower Permian of the Congo (Bose & Kar, 1966, 1967), the Lower Permian of Tanzania (Maheshwari, 1969), and the Early Permian of Southwestern Africa (Stapleton, 1977).

Genus *Walikalesaccites* Bose & Kar, 1966
Walikalesaccites ellipticus Bose & Kar, 1966

Plate 15, Fig. 19

Occurrence: This species is very rare and confined to the Lower Permian Part of the Faraghan formation in Kuh-e-Faraghan.

Age: From the Lower Permian of the Congo (Bose & Kar, 1966), and the Early Permian of Gabon (Jardine, 1974).

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