

FURTHER OBSERVATIONS ON *JUGASPORITES*—COMPLEX

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ABSTRACT

The present note is in sequel to the observations carried out on *Jugasporites*—complex by Tiwari and Singh (1984). Here, a few comments concerning the morphotaxonomy of certain species of *Jugasporites*, *Limitisporites*, *Sahnitzs*, *Vestigisporites* and *Illinites* are being added. This has been done to supplement the earlier studies in order to evaluate nomenclature and taxonomic positions of the related forms.

INTRODUCTION

In continuation of our studies on *Jugasporites*-complex (Tiwari & Singh, 1984), the following brief nomenclatural comments and a few taxonomic observations are being made here in order to annex the earlier study.

OBSERVATIONS

Jugasporites LESCH., 1956 emend. TIWARI & SINGH, 1984

Jansonius and Hills (1979) have remarked (See Card number 3562 in Genera File of Fossil Spores) that Leschik (1956) has not validly proposed the new combination for *Jugasporites delasauei*, because he has referred his own specimen as the type for *Jugasporites delasauei* (Pot. & Klaus). However, in our opinion as such, Leschik has given full reference to the original author's work and his mentioning of his figure does not intend to indicate it as "type specimen". The intentions of Leschik are clear because in the diagnosis of this genus also, he (Leschik, 1956; p. 132) has again cited the work of Potonié and Klaus (1954, p. 536), where there is only one specimen illustrated under this caption. Hence, it is better if Leschik's intentions are not misunderstood (cf. Jansonius & Hills, 1979) so as to consider Leschik's specimen as the type for *Jugasporites delasauei* (Pot. & Klaus) Leschik, 1956. It is, therefore, opined here that the new combination of *Jugasporites delasauei* proposed by Leschik is valid and consequently the type specimen remains the same as illustrated by Potonié and Klaus (1954, pl. 10, fig. 6).

Beside this, while dealing with the genus *Limitisporites* Leschik (1956), Jansonius and Hills (1976) have commented that Potonié (1958, p. 55) is the first author to unite *Jugasporites* and *Limitisporites* considering the

straight and bent mark as a variable feature of the same nature; they have further stated that his (i.e. Potonié's) choice of *Limitisporites* must be followed. See Card number 1494 in Genera File of Fossil Spores of Jansonius and Hills, 1976). However, the comment given by Potonié (1958, p. 55) suggests that he had only recommended that such forms (i.e. *Jugasporites* and *Limitisporites*) should not be kept separately, but he did not formally merge them together. Therefore, this casual proposal is not considered valid although his remark might suggest the merger.

In view of these discussions, the proposal made by Tiwari and Singh (1984) for *Jugasporites* to be a valid genus on priority basis is followed.

Illinites KOSANKE, 1950

"*Illinites disectus* (HART) SRIVASTAVA, 1970" (in SRIVASTAVA, 1970)

This species should be treated as *Vestigisporites disectus* Hart emend. Tiwari & Singh, 1984 because *Illinites* includes disaccate pollen with two lateral tenuitates on the body which, however, this species does not possess. For details see (Tiwari & Singh, 1984; p. 177-178 196).

"*Illinites delasauei*" (in TIWARI, 1965)

Tiwari (1965) has illustrated some specimens (pl. 7, figs. 163-166) referring them to *Illinites delasauei* (Pot. & Kl.) Grebe & Schweitzer (1962). These specimens are, however, similar to *Vestigisporites disectus* (Hart) Tiwari & Singh (1984; text-fig. H) and should be considered under its synonymy. As such, no specimen has been reported from India which could be assigned to typical *I. delasauei*.

“*Illinites novus* (TIW.) SRIVASTAVA, 1970” (IN SRIVASTAVA, 1970)

The above proposed new combination by Srivastava (1970) is not acceptable to the present authors in view of the typical organization of the genus *Illinites* Kosanke, 1950 as discussed above; and hence, this species, i.e., *Vestigisporites novus* Tiwari, 1965 must be maintained as such (for details see Tiwari & Singh, 1984; p. 198).

Sahnites PANT, 1954 *ex* PANT 1955 emend. TIWARI & SINGH, 1984

The year of publication for the genus *Sahnites* is 1955, and not 1954 as it has been validly published in the year 1955 along with the proposal of a new combination for type species—*Sahnites gondwanensis* (Mehta) Pant 1955. Therefore, his genus should be cited as *Sahnites* Pant 1954 *ex* Pant 1955. Regarding this genus, Jansonius and Hills (1976; Card number 2480 in Genera File of Fossil Spores) have observed that there were striations or taeniae on proximal face of central body in the type specimen of *Sahnites gondwanensis*. However, the Holotype of the type species *Sahnites (Pityosporites) gondwanensis* (Mehta) Pant 1955 as illustrated by Mehta (1944; pl. 1, fig. 2) is missing and its type material is also not traceable; therefore, Tiwari and Singh (1984) had already proposed a neotype. A close perusal of the photomicrograph as well as the study of a large number of similar specimens in the material from type locality, suggests that no striations or taeniae are present on the body. In the photomicrograph of the type, monolete mark is in focus, and had there been some striations on the body, they might have also been focused at the same time; therefore, it is concluded that the striations or taeniae are absent in the type, the conclusion which also corroborates with Pant's observation.

Sahnites methoris (HART) MAHESHW & BOSE, 1969 emend. TIWARI & SINGH, 1984

Holotype : Hart, 1960; pl. 2 fig. 20.

Remarks : Maheshwari and Bose (1969) proposed a new combination for the *vestigisporites methoris* Hart, 1960 to *Sahnites methoris*. The same, however, has been again proposed by an overlook by Tiwari & Singh (1984). Thus, the former transfer remains acceptable. However, the organizations in these two genera, and the characters of the type specimen accord with the emended diagnosis proposed by Tiwari and Singh (1984, p. 191) which expresses the morphology of these taxa.

Vestigisporites BALME & HENNELLY emend. TIWARI & SINGH, 1984

Jansonius and Hills (1976, in Genera File of Fossil Spores, Card number 3213) have stated that the central part of body in the type specimen of this

genus, possesses a laesura which may possibly be in contact with an internal laesura. They also opine that structurally a relationship of *Vestigisporites* might exist with the genus *Lueckisporites*.

In our opinion, however, there is no internal laesura in the *Vestigisporites* type of pollen and as the study of a large number of specimens from Gondwanic material has suggested, they do not resemble *Lueckisporites* type of pollen in structure. In *Vestigisporites* the central body is simple with a monolete mark in the exoexine which in its turn has intramicroreticulate exine, and no folds at the zone of saccus attachment. Now, it has been established that *Vestigisporites* is not synonym of *Sahnites* (see Tiwari & Singh, 1984).

Vestigisporites monosaccatus KAR, 1968

Holotype : Kar, 1968; pl. 1, fig. 31.

Type Locality : G. S. I. Borehole No. J. K. 5, Jharia Coalfield, Bihar, India.

Horizon & Age : Barren Measures, Lower Permian.

Diagnosis : See Kar, 1968, p. 125

Salient features : Monosaccoid with broad lateral connectives of sacci; central body well defined, horizontally oval, distinct. Monolete mark distinct.

Comparison : *V. granulatus* Singh, 1964 is comparable to the present species but differs in being slightly bigger in overall size and also by having dense central body. From other species of *Vestigisporites*, *V. monosaccatus* is easily distinguishable by the shape and size of central body. Thus, the identity of the species within this genus has been ascertained.

CONCLUSION

Specific analysis further suggests that the northern elements of *Jugasporites-Limitisporites-Illinites*-complex are almost non-existent in the Indian Gondwanas. The distinction remains mainly in the genetically controlled sexine distributional difference on the body and that of the tenuitates.

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