

GONDIASTRIATITES GEN. NOV.: A NEW NAME FOR THE HITHERTO KNOWN WELWITSCHIAPITES BOLKHOVITINA FROM THE LOWER GONDWANAS OF INDIA

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ABSTRACT

Hitherto known *Welwitschiapites* Bolkhovitina described by various authors from the Lower Gondwanas of India has been placed into *Gondiastriatites* gen. nov., because *Welwitschiapites magniolobatus*, the type species of *Welwitschiapites*, is costate and resembles schizaeaceous spores. The pollen grains described under *Welwitschiapites* from the Lower Gondwanas, on the other hand, are longitudinally striate. Due to this basic difference they have been separated from *Welwitschiapites* and accommodated into a new genus.

Key-words — *Gondiastriatites*, *Welwitschiapites*, Lower Gondwana, India.

सारांश

गोंडियास्ट्रिआटाइटिस नव वंश - भारत के अधर गोंडवाना से अभी तक ज्ञात वेल्विश्चियापाइटिस बोल्खोवितिना का नया नाम - रंजीत कुमार कर

भारत के अधर गोंडवाना से विभिन्न वैज्ञानिकों द्वारा वर्णित अभी तक ज्ञात वेल्विश्चियापाइटिस बोल्खोवितिना को गोंडियास्ट्रिआटाइटिस नवीन वंश में स्थानान्तरित किया गया है क्योंकि वेल्विश्चियापाइटिस की प्ररूप जाति वे. मेग्निओलेटस शिरायुक्त है तथा शाइजियेसीय बीजाणुओं से समानता प्रदर्शित करती है। इसके विपरीत अधर गोंडवाना से वेल्विश्चियापाइटिस के अन्तर्गत वर्णित परागकण अक्षीय धारीदार हैं। इसी मुख्य भेद के कारण इनको वेल्विश्चियापाइटिस से अलग करके एक नवीन वंश में रखा गया है।

BOLKHOVITINA (1953) instituted miospore genera *Ephedripites* and *Welwitschiapites* from the Lower Cretaceous of western Kazakhstan, U.S.S.R. She designated *Ephedripites mediolobatus* Bolkhovitina and *Welwitschiapites magniolobatus* Bolkhovitina as the respective type species. Potonié (1958) also recognized those species as genotypes of the two genera. Since then, the pollen grains comparable to *Ephedripites* and *Welwitschiapites* have been recorded from different horizons by various authors (Kirchheimer, 1950; Kuyll *et al.*, 1955; Wilson, 1959; Steeves & Barghoorn, 1959, and others).

From the Lower Gondwanas, Bharadwaj (1962) first recorded pollen grains assignable to *Welwitschiapites* from the Raniganj Formation followed by Bharadwaj and Salujha (1964), Tiwari (1965), Maithy (1965, 1966), Kar (1968, 1969) and others.

Bolkhovitina in a later communication opined that *Ephedripites mediolobatus* and *Welwitschiapites magniolobatus* should be transferred to *Schizaea* (*Catalogue of Fossil Spores and Pollen*, vol. 8, pp. 90, 91). *Welwitschiapites alekhinii* was thought to be dispersed spores of *Aneimia* by her.

It is apparent from the above statement that *Ephedripites* and *Welwitschiapites* have no close resemblance to the extant pollen grains of *Ephedra* and *Welwitschia*. Both the genera are costate as in Lower Cretaceous schizaeaceous spores. Jansonius (1962) regarded *W. magniolobatus* as the damaged spore of *Appendicisporites* Weyland & Krieger (1953). He also merged *Ephedripites* in *Gnetaceapollenites* (Thiergart) Jansonius (1962) since both possess several to numerous longitudinal ribs formed by exoexinal differentiation and separated

by more or less deep valleys in which a groove is present.

Bharadwaj (1963) studied the pollen grains of *Welwitschia mirabilis* Hooker and found that the pollen grains are oval with rounded ends and well-developed colpus and longitudinal striations. He thought that the pollen grains of extant *Welwitschia* point towards a Bennettitalean affinity.

In view of these circumstances, it is felt necessary that the pollen grains hitherto described under *Welwitschiapites* from the Lower Gondwanas should be transferred to another genus as they do not show any costate appearance characteristic of the schizaeaceous spores. The pollen grains described under *Welwitschiapites* from the Lower Gondwanas have simple longitudinal striations. This basic difference as well as the disparity of age between the two strata have necessitated the institution of a new genus to accommodate these pollen grains.

Genus — *Gondiastriatites* gen. nov.

Type Species — Gondiastriatites (Welwitschiapites) tenuis (Bharadwaj & Salujha) comb. nov.

Generic Diagnosis — Pollen grains oval to spindle-shaped. Exine generally laevigate and intrastriated, mostly longitudinally striated.

General Description — Pollen grains generally with equally broad lateral ends, 36-115 μm in size. Striations longitudinal, 5-22, \pm parallel with each other, running almost end to end, sometimes bifurcating, a few vertical connections may also be found in some specimens. Exine up to 3 μm thick, generally laevigate, intrastriated variable, may be granulose, baculate or punctate, and irregularly folded in between striations.

Comparison — *Tiwariaspis* Maheshwari & Kar (1967) closely resembles the present genus in shape and size range. *Tiwariaspis* is, however, distinguished by its verrucose sculptural elements on one side and striations on the other. *Gnetaceapollenites* (Thiergart) Jansonius (1962) also approximates the present genus in shape but differentiated by the presence of longitudinal ribs formed by exoexinal differen-

tiation and separated by more or less deep valleys in which a groove may be present. *Striasporites* Bharadwaj (1955) has striations which are interconnecting with each other and possess a well-developed monolet mark. *Costapollenites* Tschudy & Kosanke (1966) has striations and laevigate exine but it is distinguished by the presence of rudimentary sacci. *Gondwanaeaplicates* Kar (1969) is oval-subcircular in fully flattened condition and has an incipient zona-like structure, 2-5 striations, exine much folded in longitudinal direction and is generally intrapunctate.

Gondiastriatites (Welwitschiapites) tenuis (Bharadwaj & Salujha) comb. nov.

1962 *Welwitschiapites* Bolkhovitina Bharadwaj, p. 99, pl. 5, figs 88-91.

1964 *W. tenuis* Bharadwaj & Salujha, p. 213, pl. 12, figs 164, 165.

1965 *W. tenuis* Bharadwaj & Salujha: Tiwari p. 206, pl. 9, figs 196, 107.

1968 *Ephedripites ellipticus*; Kar, pl. 4, figs 94, 95.

Holotype — Bharadwaj, 1962, pl. 5, fig. 90.

Diagnosis & Description — Bharadwaj & Salujha, 1964, p. 213.

Gondiastriatites (Welwitschiapites) magnus (Maithy) comb. nov.

1965 *Welwitschiapites magnus* Maithy, p. 302, pl. 7, figs 48, 49.

1966 *Welwitschiapites magnus* Maithy: Maithy, p. 57, pl. 4, fig. 24.

Holotype — Maithy, 1965, pl. 7, fig. 48.

Diagnosis & Description — Maithy, 1965, p. 302.

Gondiastriatites (Welwitschiapites) minutus (Maithy) comb. nov.

1965 *Welwitschiapites minutus* Maithy, p. 302, pl. 7, fig. 50.

Holotype — Maithy, 1965, pl. 7, fig. 50.

Diagnosis & Description — Maithy, 1965, p. 302.

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