

Studia breviora

Upper Ordovician to Llandovery land plant spores and acritarchs from Derwent Heights, SW Bulgaria

During the regional study and mapping of the Derwent Heights some low-grade metamorphic formations of unknown age were sampled and microfossil data were obtained. A palynological assemblage dominated by land plant spores and containing some acritarchs was recovered from a section in the south of the village of Goljamo Šarkovo. These microfossils are of Upper Ordovician to Llandovery age.

The fossiliferous locality is situated in the Derwent Heights, Elhovo region, in some 1.5 km south of G. Šarkovo along the valley of Čakārlija River nearby the Bulgarian-Turkish boundary. Grey-green meta-siltstones and meta-sandstones outcrop which belong to an unnamed formation. They contain no macrofossils. Extraction from the mineral matrix by routine palynological procedure was used to study palynomorphs as well as thin-sections along the bedding plane. The microfossils are poorly preserved due to the metamorphism.

The assemblage is dominated by laevigate alete spores; they occur most commonly in smooth-walled tetrahedral tetrads, dyads or monads with a reticulate perispore. These palynofossils have been called "land plant spores" by Gray (1988), "spore-like fossils" by Miller, Eames (1982) or "cryptospores" by Richardson (1988). They are most abundant in Upper Ordovician to Llandovery shallow water, nearshore marine sediments of non-marine rocks where other fossils are absent (Gray, 1988). The laevigate alete spores found in the G. Šarkovo section and occurring as permanent smooth-walled tetrads with a tetrahedral configuration can be assigned to *Tetraedraletes medinensis* Strother and Traverse, 1979. Spore tetrads of identical morphology which belong most probably to this species have been described and figured sometimes without taxonomical assignment; they have been called "tetrahedral spore tetrads" by Gray, Boucot (1971); "obligate tetrad without perispore" by Gray (1985), etc.

T. medinensis has been recorded from Caradocian to Ludlovian in about twenty formations in North America, Europe, Africa and South America. Most of these formations are of Ashgillian and Llandovery age.

Together with *T. medinensis* and other land plant spores, some acritarchs also occur, e. g. *Baiomniscus camurus* Loeblich, 1970 (its range is from Middle-Upper Llandovery to the lowermost Wenlock), *Leiosphaeridia* sp. and *Moycria* sp. (a possibly freshwater genus). No trilete spores were found at all. The assemblage recovered from G. Šarkovo section is comparable to that of the so-called "Microfossil Assemblage Zone I (mid Ordovician to mid-late Llandovery)" defined by Gray (1985); it is characterized by tetrahedral spore tetrads and lacks single trilete spores. The land plant spore assemblage together with the acritarch evidence may suggest that the formation studied is of Upper Ordovician to Llandovery age and was deposited in a marginal non-marine or shallow-water near-shore marine environment.

References

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