

**INVESTIGATIONS ON THE MICROSCOPIC  
PLANT REMNANTS AND THE  
RADIOACTIVE ELEMENT CONTENTS  
OF SOME MUD SAMPLES OF THE HUNGARIAN PLAIN**

M. KEDVES and T. SZEDERKÉNYI

(Received: April 23, 1985)

In our previous short communication we published (1985) our results about the dark coloured plant, firstly xylem remains, and the radioactive material content of the mud of the Lake Vadkert. But a problem remained whether there was a veritable and of universal validity connection between this two phenomena. We continued further controlling studies. One part of the samples was collected near Szeged, in this way these results may be useful in the realization of the medicinal water program of this town. Material: River-side mud samples from the Lake Sziksóstó (Dorozsma); 5/5, 5/1, 5/2, 5/3, sample from the mud of the canal near the lake — 5/4 -, and from the sodic marsh -2/1 — near the canal. Dr. G. GYULAI collected samples for our investigations from the mud of the backwater of the River Tisza; Tiszaalpár-1,3, Töserdő-2, swamp, Bokros-4,5,6. The personal communications of I. BAGI, and E. SZALMA about the recent vegetation of the latter mentioned localities are very useful in respect of the pollen content of the mud samples. The analyses of the radioactive elements were made by I. VADOS (Pécs, MÉV). Results, in PPM: Dorozsma-5/3 = U > 5, Ra > 5, Th: 5, K > 0.5; Dorozsma-2/1 = U > 5, Ra > 5, Th: 5, K > 0.5; Tiszaalpár-1 = U > 5, Ra > 5 Th: 4, K > 0.5; Tiszaalpár-3 = U > 5, Ra > 5, Th: 6, K > 0.5.

So, the radioactive material content of the different localities are essentially the same. But the organic material content, and in connection with this the conditions of preservations are also different. In the samples of the Lake Sziksóstó (Dorozsma) the pollen content is very poor, but in some cases the preservation is excellent, e.g.: *Cyperaceae* (fig. 1, prep. Dorozsma-5/3-1), *Typha* (fig. 2, prep. Dorozsma-5/4-3). The occurrence of the dark colored xylem remains (fig. 7,8) and the other non-colored tissue (fig. 5,6) and fungal remains is abundant (fig. 4 = *Mycophyta* conidangium, with *Typhodiscus*-like wall structure). The above mentioned characteristic features indicate a very high biological activity. The presence of the genus *Pseudoschizaea* is worth mentioning in all investigated localities (fig. 3, prep. Töserdő-2-2). The samples of the backwater of the River Tisza are generally rich in pollen grains, the most important palynological characteristic features are as follows: Tiszaalpár-1 = *Gramineae* dominance, Tiszaalpár 3 and Töserdő-2 = *Gramineae* and *Salix* pollen grains are abundant. In sample Bokros-4, the *Chenopodiaceae*, *Gramineae*,

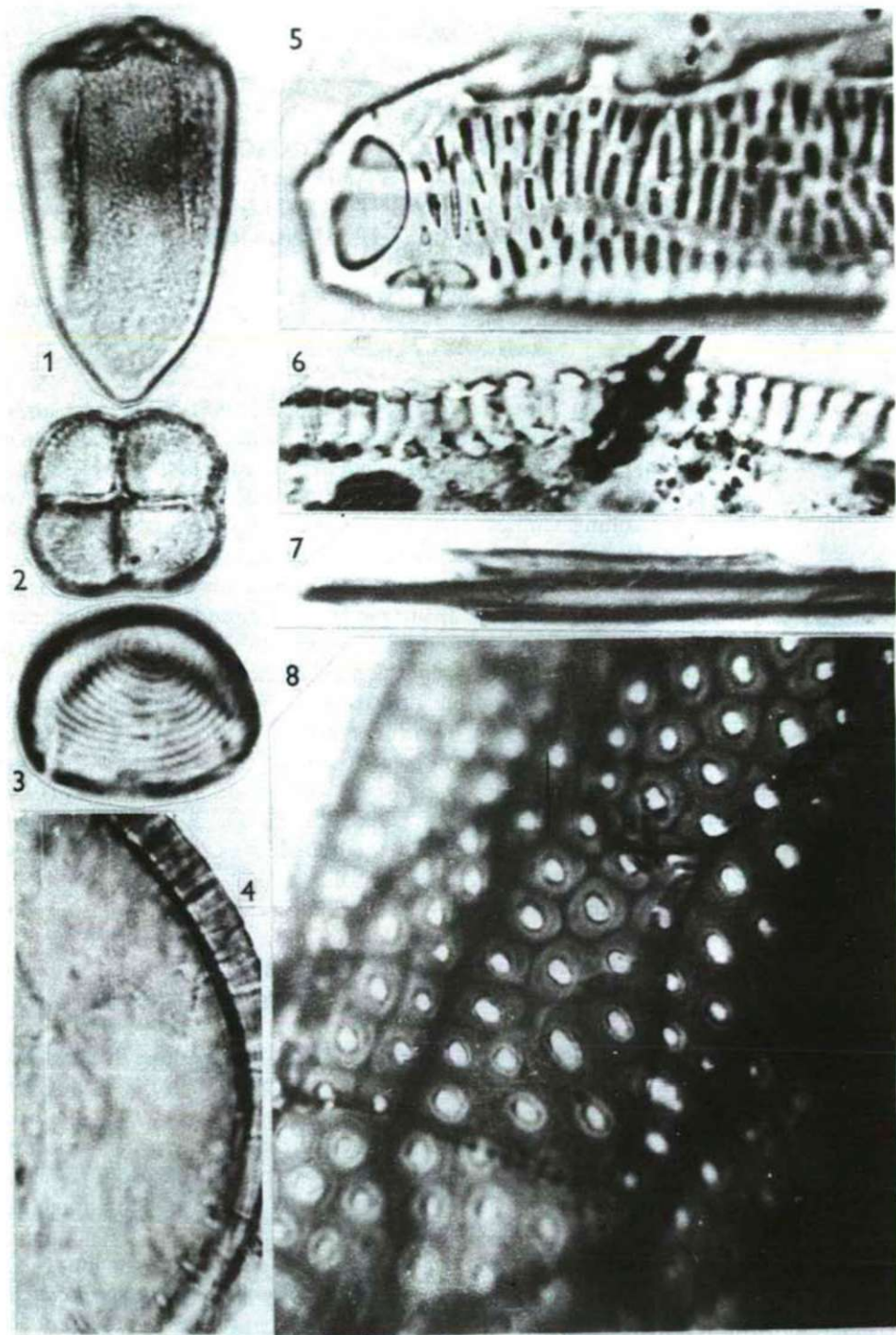


Fig. 1-8.

and *Ambrosia* in the sample Bokros-5, *Typha*, *Ambrosia* and *Gramineae*, and in the sample Bokros-6 the pollen grains of *Ambrosia* and *Gramineae* are abundant. The conditions were generally advantageous for the preservation of the organic material. On the basis of our present data it may be concluded, that the different conditions of the sedimentations don't influence the quantity and quality of the radioactive elements, they are in connection with the rebedded xylem remains, as it has been emphasized several publications.

In comparison our present data with those of the Lake Vadkert, we must emphasize, that the quantity of the radioactive elements in the samples of the present investigations is much less. The reason of this is the considerable sediment-dilution with quicksand. Whether the investigated mud is suitable for therapeutical purposes can be decided only by physician of this field of researches.

### Reference

- KEDVES, M. and SZEDERKÉNYI, T. (1985): The importance of spore-pollen investigations in the recognition of the radioactive element content of the lake mud. — Acta Biol. Szeged.