

6. TRANSMISSION ELECTRON MICROSCOPY OF THE CONNECTIVES OF THE POLLEN GRAINS OF GINKGO BILOBA L.

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Short communication

There are several publications concerning the pollen grains of *Ginkgo biloba* L. LM data of recent and fossil pollen grains was reviewed in 1961 (KEDVES). Preservation of cycad and *Ginkgo* pollen was investigated by FREDERIKSEN (1978). TEM data by UENO (1960), AUDRAN and MASURE (1975, 1978 in this latter paper the differences between the exine ultrastructure of *Ginkgo biloba* and the Cycadales were emphasized), Further TEM data by XI YI ZHEN and WANG FU-HSIUNG (1989), XI YI-ZHEN (1990). KEDVES and PÁRDUTZ (1997) investigated the alterations in the ultrastructure of the pollen grains of *Ginkgo biloba* in consequence of the X-ray irradiation. During our experimental studies on the high temperature etc. effect on gymnosperm pollen grains (KEDVES, TÓTH and FARKAS, 1991) peculiar connectives were observed between two pollen grains of *Ginkgo biloba* L. This feature was observed in 1% of the pollen grains, and is believed to be an early characteristic. Stained with Toluidine blue the so-called pore or pseudopore was violet coloured, the other parts of the ectexine are greenish-blue. The stain acceptance indicated differences in the molecular structure of the different parts of the exine.

During one of the programs of our laboratory, different kinds of partial degradation were carried out on the pollen grains of this species too, and a great number of TEM pictures were made. At a very few ultrathin sections of two experiments (T-12-224 and T-12-225) we observed of these peculiar connectives. Our up to date results following the different experiments may be summarized as follows: No important differences were found between the ultrastructure in the two experiments from this point of view.

Fig. 1 (Plate 6.1.) illustrate well the ultrastructure of the inter-apertural and the apertural area, and the extremely swollen intine. The reduction of the tectum and the infratectal layer is well shown. The ultrastructure of the connectives may be summarized as follows: The tectum around the pseudopores thickened in an important measure, approximately twofold. (Plate 6.1., fig. 2). The elements of the infratectal layer are also longer than in the other part of the inter-apertural area. No alterations were observed in the ultrastructure of the foot layer and the intine (Plate 6.1., figs. 1-3). In the middle of the connectives there is a depression of the tectum or a complete disappearance of this layer (Plate 6.1-3.).

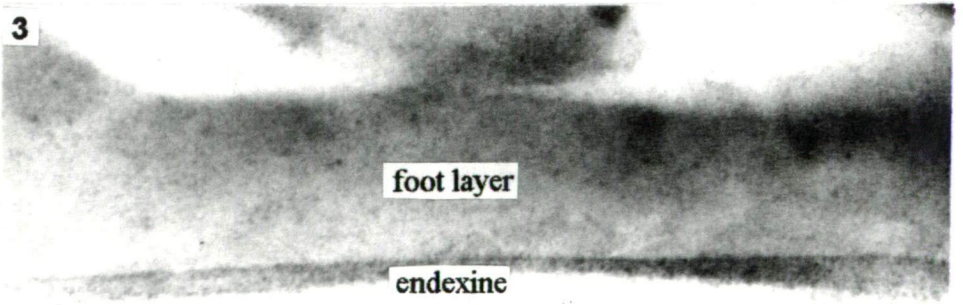
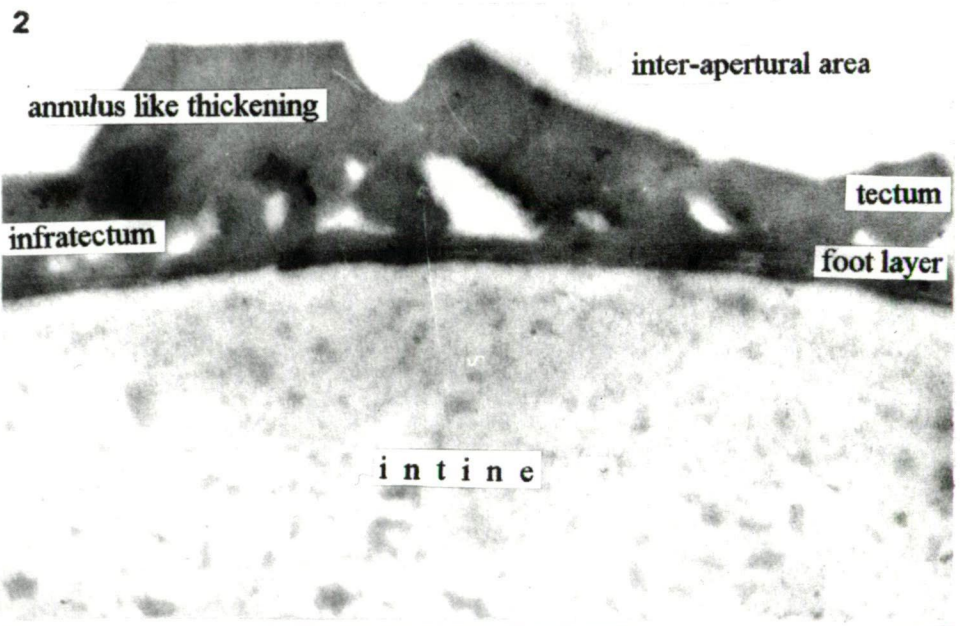
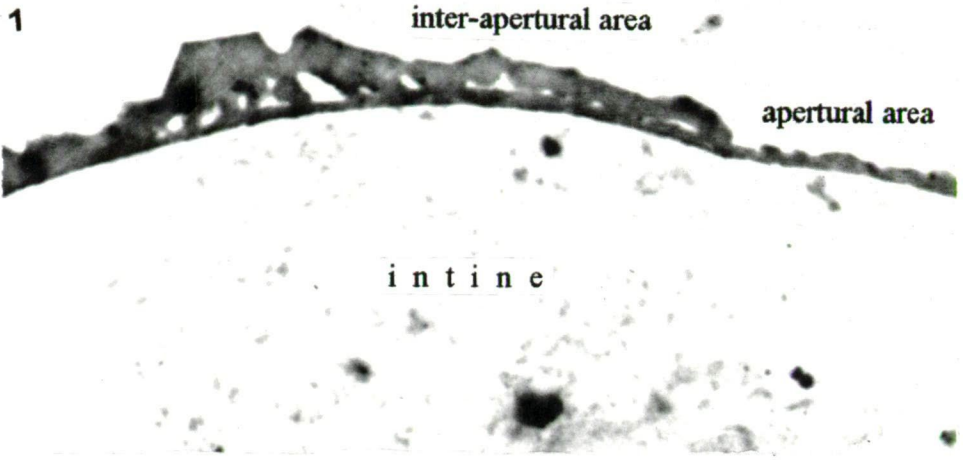


Plate 6.1.



Plate 6.1.

- 1- 3. *Ginkgo biloba* L. Ultrastructure of partially degraded pollen grains
 - 1,2. Experiment: T-12-224 (5 mg dry pollen + 2 ml 2-aminoethanol, length of time: 48 hours, washing, + 2 ml merkaptoethanol. Temperature: 30°C). 1. 10.000x, Negative No.: 9468, 2. 25.000x, Negative No.: 9470.
 3. Experiment: T-12-225 (5 mg dry pollen + 2 aminoethanol, length of time: 72 hours, washing, + 2 ml merkaptoethanol Temperature: 30°C). 100.000x, Negative No.: 9510.
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In short we observed for the first time the ultrastructure of this really extremely scarce morphological characteristic feature of this early pollen type.

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