

ULTRASTRUCTURE INVESTIGATIONS ON THE EXINE
OF THE GENUS CASUARINA L.
(SHORT COMMUNICATION)

M. KEDVES, MÁRIA HEGEDŰS and Á. PÁRDUTZ

Department of Botany of the Attila József University
and Electron Microscope Laboratory of the Biological Research Center,
Hungarian Academy of Sciences, Szeged

(Received September 28, 1970)

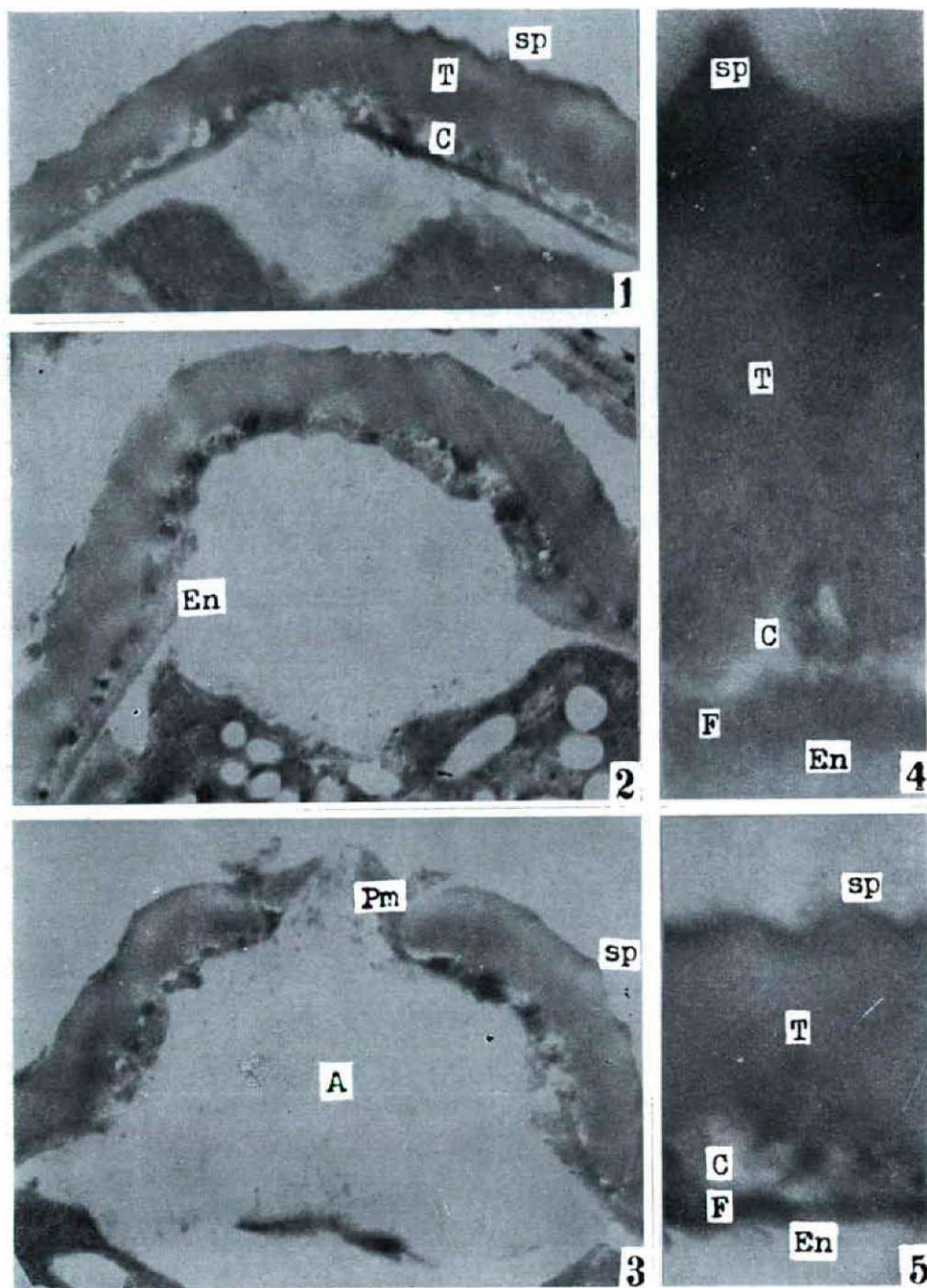
The light-microscopic morphology of the pollen grains of the genus *Casuarina* is similar to that of *Betula*, *Myricaceae*, *Corylaceae*, and some *Juglandaceae* types (ERDTMAN 1952, COOKSON and PIKE 1954, PRAGLOWSKI 1962, KUPRIANOVA 1965). However, UENO (1963) has obtained different results, in contradiction with the earlier findings in applying TEM and light-microscopic papilla-reaction methods. On the basis of his description, the *Casuarina* exine ultrastructure considerably differs not only from the *Amentiflorae* taxons mentioned but also from the rather general basic ultrastructure of *Dicotyledones* (tectum, columellae, foot layer). According to our TEM investigations carried out on the exine of *Casuarina glauca* SIEB. and *Casuarina cumminghamiana* MIQ., we have ascertained that the exine is tectate and, therefore, fundamentally of *Dicotyledonous* type. It can be separated, however, by its columella layer from the *Myrica* pollen that is light microscopically very similar to it. The surface and the columella layer are the most similar to the genus *Betula* and *Carpinus*. By means of ultrastructure investigations it is possible to demonstrate the genus *Casuarina* among the fossil „myricoid” pollen grains.

References

- COOKSON, I. C. and PIKE, K. M. (1954): Some *Dicotyledonous* pollen types from Cainozoic deposits in the Australian Region. — *Australian Journal of Botany* 2, 197—219.
- ERDTMAN, G. (1952): Pollen morphology and plant taxonomy *Angiosperms* (An Introduction to Palynology. I). Almqvist & Wiksell, Stockholm.
- Куприянова, Л. А. (1965): Палинология Серержкоцветных. (*Amentiferae*). Наука, Москва—Ленинград.
- PRAGLOWSKI, J. R. (1962): Notes on the pollen morphology of Swedish trees and shrubs. — *Grana Palynologica* 3, 45—64.
- UENO, J. (1963): On the fine structure of the pollen walls of *Angiospermae*. III. *Casuarina*. — *Grana Palynologica* 4, 189—194.

Address of the authors:

Dr. M. KEDVES
Dr. MÁRIA HEGEDŰS
Department of Botany A. J. University
Dr. Á. PÁRDUTZ
Electron Microscope Laboratory
of the Biological Research Center
Hungarian, Hungarian Academy of
Sciences, Szeged, Hungary



sp = spinac, T = tectum, C = columellae, F = foot layer, En = endexine, Pm = pore membrane, A = atrium.

- 1—3. Germinal exine of *Casuarina cunninghamiana* MIQ. in serial sections x10 000. The foot layer and endexine break off on the basis or in the first one-third of the prominent germinal exine (Figs. 2, 3); in that way, there is atrium without anulus.
4. *Casuarina glauca* SIEB. x100 000.
5. *Casuarina cunninghamiana* MIQ. x25 000. Extragerminal exine. Tectate non perforate, the surface with spinae, taking place on ridges. The columella layer is narrow, with elements of varied shapes. The foot layer is narrower even than the former layer, with an endexine of but a little different electron affinity situated underneath.