

THE NEW HYPOTHESIS OF RADIAL GROWTH AND REARRANGEMENT OF VASCULAR CAMBIUM OF ARBORESCENT PLANTS

Summary

The common description of radial growth and vascular cambial initials' rearrangement does not sufficiently explain the co-occurrence and the role of cell events, such as intrusive growth and elimination of initials, as well as formation of storeyed pattern and rapid changes in orientation of cambial initials. In this paper participation of such cell events in radial and circumferential growth of cambium and in cambial initials' rearrangement is analyzed on the basis of both classic and recent reports.

There are presented basic assumptions of the new, tigno-osmotic hypothesis of radial growth, which explains in a coherent way the occurrence

of intrusive growth of initials, being the key mechanism of cambial initials' rearrangement. Observations from last several years indicate the occurrence of intrusive growth between tangential walls, instead of radial ones — what has been commonly accepted. The new localization of intrusive growth explains why the intrusive growth and eliminations are two manifestations of the same process. Contrary to general opinion, neither intrusive growth nor eliminations do not take part in cambial circumference increment and are related with cambial initials' rearrangement exclusively.