

عنوان مقاله:

Functional wood anatomy of Betulaceae in related to cavitation resistance and hydraulic conductivity

محل انتشار:

اولین همایش ملی صیانت و حفاظت از جنگلهای ارسباران (سال: 1396)

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خلاصه مقاله:

The wood anatomy of Betulaceae was studied in order to investigate the functional and ecological significance of xylem hydraulic efficiency and safety against drought-induced cavitation. Vessels and pits characteristics were observed and measured using LM, SEM and TEM. Vulnerability curves were based on the cavitron technique. There was a considerable variation in resistance to hydraulic failure caused by drought stress within Betulaceae. Species that were most resistant to embolism formation showed bordered pits with thick intervessel pit membranes, thick intervessel walls, a higher wood density, high implosion index, low aperture fraction and high vessel grouping. Vessel elements with helical thickenings occurred in all cavitation resistant species of *Ostrya* and *Carpinus*. Long and very thick-walled fibers in combination with thick vessel walls were suggested to protect the vessels of *Ostrya* and *Carpinus* under high tension and prevent vessel deformation. Vasicentric tracheids or fiber tracheids in resistant species may retain the water column and/or facilitate embolism refilling

کلمات کلیدی:

Drought tension, Cavitation, Embolism, Betulaceae wood anatomy, Pit, Vessel, Pit membrane

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