

## **Plant vulnerability to cavitation: recent advances and perspectives in one of the key mechanisms of vegetation shifts and forest decline.**

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The continuous water column that connects the soil and the upper portions of the plants through the xylem is exposed to tensions generated by water evaporation at the leaf surface. Under drought conditions, these tensions increase and induce the appearance of cavitation events in the xylem conduits that reduce the water transport capacity of the plants. Cavitation, and its associated xylem hydraulic failure, is now considered to be the principal mechanism of drought-induced plant mortality. Under the actual climate change scenario, evaluating the mechanisms of plant resistance to drought is therefore crucial for predicting the effects of the expected increment in drought frequency and severity on the plant species distribution worldwide. During the last years, important advances have been made in this research field that have provided relevant information for addressing one of the main actual questions in Plant Ecophysiology and Ecology: why some plants survive while others succumb to drought? This talk aims to provide an overview of the last advances, knowledge gaps, perspectives and future challenges in the study of the physiological mechanisms of plant survival to drought, with an especial focus on plant vulnerability to cavitation.