Special Issue

Impact of Climate Change on Anatomical Traits and Chemical Composition of Wood

Message from the Guest Editors

Climate change is increasingly affecting forest ecosystems, altering both the anatomical traits and chemical composition of wood. Climatic stressors such as drought and elevated temperatures significantly affect xylem anatomy, and drought conditions often lead to a reduction in vessel diameter and an increase in vessel frequency, enhancing hydraulic safety but potentially compromising conductivity. Shifts in phenology due to climate change may also disrupt the balance between earlywood and latewood formation, thereby altering the functional properties of wood.

Simultaneously, the chemical composition of wood responds to environmental stress. Lignin content often increases as a protective adaptation, whereas cellulose and hemicellulose may decline, affecting mechanical strength and industrial processability. Secondary metabolites such as tannins and phenolics tend to accumulate, influencing wood durability and decomposition.

This Special Issue invites research exploring the complex interactions between climate, wood anatomy and chemical properties across diverse ecological and geographic contexts.

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