Impact of drought on Eucalyptus wood chemistry by near infrared hyperspectral imaging

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The aim is to study tree development submitted to different water and mineral constraints. The objective is to correlate spatial distribution of wood chemistry with wood density. Two approaches were performed on wood discs from 6 species cultivated under different water availability conditions. For each disk, we acquired an image with a near infrared hyperspectral camera (650-750nm) that captures absorbance spectra (1500-4000 cm^-1) of biomass samples. We evaluated the relative contributions of chemical, anatomical, density and growth traits to the explained variation in chemical traits. Our results show that water availability plays a central role in shaping wood cell traits in response to drought stress. These stresses in the future will likely reduce the uncertainties and skewed interpretation of models on how the forest will perform in the future.