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STOMATAL PATTERNS OF WOODY PLANT COMMUNITIES ACROSS A SAVANA-FOREST GRADIENT IN THE AMAZON-CERRADO TRANSITION

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Plants have the ability to respond to different stress factors, especially in the face of global changes and in ecosystems under natural disturbances. In general, they show a set of functional traits crucial to their establishment, survival, and reproductive success. Our aim was to analyze and compare patterns of leaf anatomical traits (stomata and trichomes) of tree species representing four savanna and forest communities in Mato Grosso Amazon-Cerrado transition. In each vegetation type (cerrado rupestre, typical cerrado, cerradão and seasonal forest) we selected five individuals from the seven species with the highest importance value index. We collected healthy and fully expanded leaves and determined stomata and trichomes density as well as the length and width of guard cells using either epidermal dissociation techniques and / or foliar surface impression with resin. We photographed the slides using an optical microscope and determined the anatomical parameters. Plant species from forest environments showed higher stomata density, and lower guard cells length and width, while species from savanna communities showed higher trichome density. While the presence of trichomes and the arrangement of stomata seem to be associated with phylogeny, stomatal density and guard cell size reflect adaptations to water use and economy, directly influencing the survival and fitness of these species. Our findings are essential to better understand how plant species can respond to climate changes and extreme drought events.

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