

Nutrient resorption is related to drought resistance traits of savanna plants, research finds

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Leaf nutrient resorption and drought resistance are critical for plant growth and survival. However, our understanding of the relationship

between leaf nutrient resorption and plant drought resistance remains limited.

In a study published in [Tree Physiology](#), researchers from the Xishuangbanna Tropical Botanical Garden of the Chinese Academy of Sciences examined the relationships among nutrient resorption efficiency, drought resistance traits, and leaf structural traits in [woody species](#) in a Chinese savanna characterized by severe seasonal drought.

They found a negative association between leaf nitrogen and phosphorus resorption efficiency and plant drought resistance in savanna woody species.

The researchers investigated the nitrogen and phosphorus concentrations in green and senesced leaves, leaf morphological and structural traits, leaf construction costs, leaf osmotic potential at full hydration, xylem water potential at 50% loss of xylem-specific hydraulic conductivity, and seasonal minimum water potential of 18 tree and shrub species in the Yuanjiang savanna ecosystem in Yunnan.

They found that species with lower drought resistance tended to have higher nitrogen and phosphorus resorption efficiencies across woody species studied.

Moreover, leaf structural investment played a role in modulating the trade-off between plant drought resistance and nutrient resorption efficiencies. Species with low structural investment (e.g., leaf mass per area, leaf dry mass content, and leaf construction cost) tended to have high nitrogen resorption efficiency and phosphorus resorption efficiency, while those with high leaf construction costs showed high [drought](#) resistance.

The results suggest that species with a lower [leaf](#) structural investment

have a greater need to recycle their nutrients and exhibit more efficient nutrient resorption.

"To the best of our knowledge, this is the first study to investigate the relationships between nutrient resorption and [drought resistance](#) traits in plants," said Zhang Shubin of XTBG.

More information: Shu-Bin Zhang et al, Leaf nitrogen and phosphorus resorption efficiencies are related to drought resistance across woody species in a Chinese savanna, *Tree Physiology* (2023). [DOI: 10.1093/treephys/tpad149](https://doi.org/10.1093/treephys/tpad149)

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