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LIGHT USE PATTERNS DISTINGUISH NATIVE FROM INVASIVE GRASSES IN A NEOTROPICAL OPEN SAVANNA

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Invasion by introduced African grasses is one of the main threats to the biological and functional diversity in open physiognomies of the Brazilian cerrado. Although native and invasive grasses share similarities in aspects of light use and carbon assimilation, their distinct evolutionary history raise questions on which functional differences could favor invasiveness. Considering that resource-use efficiency is a key aspect of invasiveness in low resource systems we compared native and invasive grasses in a cerrado area invaded by *Urochloa decumbens* (signal grass) and *Melinis minutiflora* (molasses grass) at Parque Estadual do Juquery, located in Franco da Rocha municipality, São Paulo State, Brazil. We made field measurements of traits associated with light use through chlorophyll fluorescence techniques and analysis of gas exchange and crown architectural patterns on six of the most abundant native grass species and the two invaders. We explored our data using multivariate techniques. Ordination analyses results showed a segregation between native and invaders, confirmed with tests performed on the scores. This apparent distinction in terms of light use patterns could be associated with phylogenetic related divergences. By examining the relationships among taxa, we found that the native species were represented by genera usually associated with the NADP-ME photosynthetic pathway, and that the invaders were nested within a PCK clade. Although the relationship between the examined ecophysiological trait variation and the prevalent decarboxylating enzyme used in the C4 pathway is not clear, our data provides empirical evidence relating distinct light use patterns with photosynthetic biochemical pathways which could have implications on invasiveness.

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