

Seasonal variations in *n*-alkanoic acid $\delta^{13}\text{C}$ values in temperate forest trees from southern Ohio

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The carbon stable isotopic composition of *n*-alkanoic acids ($\delta^{13}\text{C}_{n\text{-alkanoic acid}}$) are increasingly used in geologic archives to infer paleovegetation, often as an alternative to *n*-alkanes. However, little is known about seasonal controls on $\delta^{13}\text{C}_{n\text{-alkanoic acid}}$ and their distributions across the growing season. This study investigated temporal changes in $\delta^{13}\text{C}_{n\text{-alkanoic acid}}$ and abundance in temperate forest trees (4 deciduous and 1 evergreen) in southern Ohio from buds to leaf litter, and were compared to *n*-alkanes from the same trees. *n*-C₂₄ alkanolic acid concentrations were generally higher than the other chain lengths (C₂₆-C₃₀). *n*-Alkanolic acids concentrations in early leaves (Apr-May) were highly variable, and were higher than *n*-alkanes. Early leaves had higher $\delta^{13}\text{C}_{n\text{-alkanoic acid}}$ values than mature leaves (Aug-Oct). Changes in bulk $\delta^{13}\text{C}_{\text{leaf}}$, $\epsilon_{n\text{-alkanoic acid-leaf}}$ and average chain lengths at different growing stages will also be presented. The results of this study will help reduce uncertainties in using sedimentary $\delta^{13}\text{C}_{n\text{-alkanoic acid}}$ values for paleoenvironment interpretations.