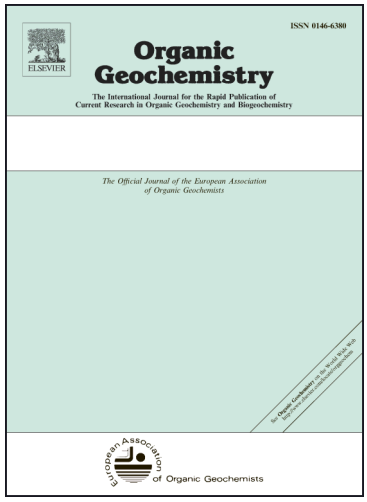

Note

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Modern *n*-Alkane Abundances and Isotopic Composition of Vegetation in a Gymnosperm-Dominated Ecosystem of the Southeastern U.S. Coastal Plain

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Abstract

Prior analyses of *n*-alkyl lipids in vegetation indicate low concentrations of *n*-alkanes in gymnosperm leaves and significant offsets in lipid carbon isotope values of angiosperms and gymnosperms. This finding has implications for paleoenvironmental studies utilizing *n*-alkyl lipid proxies in gymnosperm-dominated ecosystems, such as the pine ecosystems of the U.S. southeastern coastal plain. I provide here the *n*-alkane abundances and distributions for 19 of the most dominant taxa in the longleaf pine ecosystem along with *n*-C_{29} alkane $\bullet^{13}C$ values ($\bullet^{13}C_{n\text{-c29}}$). Additionally, I assess modern relationships between stable hydrogen isotope values of *n*-C_{29} alkanes ($\bullet^{2}H_{n\text{-c29}}$) and mean annual precipitation to constrain apparent fractionations ($\bullet^{2}H_{n\text{-C29/MAP}}$) necessary to conduct regional paleoclimate reconstructions. Gymnosperms of the coastal plain have extremely low *n*-alkane abundances relative to angiosperms and are unlikely to contribute significantly to sedimentary archives. Lake surface sediment *n*-alkane distributions, $\bullet^{2}H_{n\text{-c29}}$, and $\bullet^{13}C_{n\text{-c29}}$ values indicate that they are primarily sourced from less-dominant angiosperms. The $\bullet^{2}H_{n\text{-C29/MAP}}$ values are ~10.0‰ VSMOW more positive for gymnosperms relative to angiosperms and $\bullet^{13}C_{\text{alkane/leaf}}$ values are ~1.5‰ VPDB more positive for gymnosperms relative to angiosperms, but with overlap.