Soil Fingerprinting via FTIR, pH, and Microscopic Analyses
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Chemical characterization, or “fingerprinting,” of soils and sediments can provide important information in forensic investigations. In this study, soil and sediment samples from several locations in West-Central Illinois are compared via Fourier transform infrared spectroscopy (FTIR), pH testing, and microscopic analysis. FTIR provides a good tool for differentiating soils, by providing an overall chemical fingerprint of the main organic and mineral components in soils. Microscopic analysis is used to profile the different types and ratios of sand, gravel, vegetative debris, and other components of the soil. Determination of soil pH can also provide useful information to help characterize and differentiate soil samples. This study assesses the combined utility of FTIR, pH, and microscopic analysis in providing diagnostic fingerprints of soil samples from the West-Central Illinois region.