

几种不同类型土壤的VIS-NIR光谱特性及有机质响应波段研究

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中文摘要:利用高光谱遥感技术估测土壤有机质含量是精准农业发展的必然要求.本研究测量并分析了7组不同地区不同类型共791个土壤样品在350~2500 nm的光谱反射率及一阶微分曲线,并对土壤有机质含量和光谱反射率进行相关性分析,同时对前人研究中有关有机质的光谱响应波段进行了总结.结果发现,600~800 nm波段可以作为研究区域内不同类型土壤共同的有机质光谱响应波段,这对进一步建立不同土壤类型相对统一的有机质预测模型具有一定意义.研究还发现,有机质含量高于2%并不是高光谱预测土壤有机质含量必要的前提条件.

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VIS NIR reflectance spectroscopy of the organic matter in several types of soils

Abstract:Estimating the content of soil organic matter (SOM) using hyperspectral remote sensing is an inevitable requirement for precision agriculture. In this study, averages of spectral reflectance and first derivative of 791 sample pieces were measured in the visible and near infrared (350~2500 nm) bands, which belong to five different soil types from four provinces, including phaeozem in Heilongjiang, alluvial soil in Henan, paddy soil in Sichuan and Zhejiang, purple soil in Sichuan and Zhejiang, and seashore saline soil in Zhejiang. The correlation coefficients between organic matter content and spectral reflectance were calculated, while the characteristic spectral bands mentioned in precedent researches were summarized. The results show that 600~800nm can be used as common characteristic bands of these different types of soils from different regions in the study, which is important for building the universal model for soil organic matter with alternative parameters. Another conclusion is that above 2% in SOM is not necessary for predicting SOM.

keywords:[hyperspectral](#) [soil organic matter](#) [correlation analysis](#) [characteristic bands](#)

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