

Reflectance spectrophotometry of cyanobacteria within soil crusts - A diagnostic tool

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Abstract

Identification of cyanobacterial soil crusts is important for mapping apparently barren soils. The letter presents a diagnostic tool for the identification of cyanophyte within soil crusts by means of in vivo reflectance spectrophotometry measurements. Spectral reflectance spectra of the crust samples were measured under several conditions-dry, after wetting, after their phycobilin pigments had been removed, and after the crust had been immersed in paraffin oil. Differences in the reflectance were enhanced by calculating ratio spectra. It is shown in this letter that relative higher reflectivity of the crust in the blue region is caused by the spectral characteristics of the phycobilins. This work is a first step towards mapping biogenic crusts by using airborne or spaceborne sensors which have the capability to detect in the blue band.