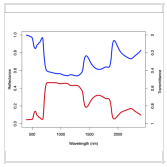

Version 1

Jun 22, 2020

Processing of leaf spectra V.1

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1 Works for me dx.doi.org/10.17504/protocols.io.bhsdj6a6

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ABSTRACT

Steps for processing leaf spectra measured with an integrating sphere

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1 This step is taken care of by the CABO leaf spectra processing pipeline: Absolute reflectance and transmittance are calculated based on the most recent reference panel calibration. Depending on leaf size, calculations for absolute reflectance and transmittance are based on either 17 (Protocol “Measuring large leaves with an integrating sphere”, dx.doi.org/10.17504/protocols.io.q56dy9e) or 29 measurements (Protocol “Measuring small/narrow leaves with an integrating sphere”, dx.doi.org/10.17504/protocols.io.p8pdrvn) per leaf. Calculations for small leaves are based on Noda, H. M., T. Motohka, K. Murakami, H. Muraoka, and K. N. Nasahara. 2013. Accurate measurement of optical properties of narrow leaves and conifer needles with a typical integrating sphere and spectroradiometer. Plant, Cell & Environment 36:1903– 1909. https://doi.org/10.1111/pce.12100

2 Load output .csv files with absolute reflectance and transmittance from the processing pipeline

3 Match data (from processing pipeline) and metadata (from Fulcrum App)

Remove repeated wavelengths at the sensor overlap regions

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4

5 Linear interpolation to 1 nm

6 Optional: Average spectra per individual plant for transmittance and reflectance

7 Optional: Apply Savitzky Golay filter to each spectral region (VIS, NIR, SWIR1, SWIR2)

8 Optional: Trim wavelengths to 400-2400 nm

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