SPECTRAL EVOLUTION

Studying Microbial Diversity Using NIR Spectroscopy

Studying microbial growth and diversity is essential for understanding everything from human health to climate change. NIR spectroscopy can be an effective tool for understanding microbial diversity, growth and selenium production both in the field and in the lab. Using a SPECTRAL EVOLUTION spectroradiometer like the PSR+ or the SR-1901 can help researchers develop new approaches that will yield better understanding of microbial communities.

For example, our field portable spectroradiometers are used in studies on radiation energy availability and variability in sand flats. Measurements taken with the PSR-3500 include incident radiation, reflectance by surface sand, and light penetration through the top layers of sand to a depth where phototropic bacteria colonies thrive by using sand-filtered radiation. Experiments *in situ* on sand flats include collecting and analyzing multi-spectral data on the diurnally changing environmental conditions between light and dark in both wet and dry areas of tidal fluctuation.

These spectroradiometers also provide benefits in the laboratory. Here, an NIR spectroradiometer can be used to:

- Follow the growth of pigmented microbes in experimental cultures without withdrawing samples
- Define the light qualities and fluxes for microbial communities for optimal growth
- Record the spectra of individual microbial colonies on agar plates
- Measure selenium production without sampling from tubes

UV/VIS/NIR spectroradiometers from SPECTRAL EVOLUTION deliver faster, more accurate, and more flexible ways to measure microbial diversity and growth than traditional estimations or wet chemistry. NIR spectroscopy brings the following benefits to your research:

- Fast collection of data in minutes
- Minimal or no sample preparation
- Precision, accuracy, and a wealth of information
- Non-destructive technique
- Affordable measurement technology
- *In situ* measurement with rugged, portable, field spectroradiometers

With a field portable spectroradiometer, such as SPECTRAL EVOLUTION's PSR+ or the SR-1901, a scientist can measure organic functional groups either in the lab or *in situ*, in the traditional VIS range and for the VNIR and SWIR ranges where new and exciting data can be collected.

SPECTRAL EVOLUTION field spectroradiometers are simple, non-destructive, reliable, fast and accurate.

The PSR + is a full range UV/VIS/NIR, high resolution, field spectroradiometer for remote sensing applications including soil studies, water body research, climate studies, and vegetation research.

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