

LIVE TRACKING OF WATER MOVEMENT IN PLANTS USING PORTABLE RAMAN MICROSPECTROMETERS

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1. ABSTRACT

In the dawn of climate change, plant biologist are desperate to find tools to image water content and movement across the plant tissue. While some methods exist, such as MRI [1] or neutron scattering [2], their large space footprint, lack of portability and elevated costs hindrance their real-world application. With these issues in mind, we have develop a series of methods and instruments to probe water movement *in situ*, *in vivo* and in a not invasive manner by combing water stable isotopes and Raman microspectroscopy. To show case our method, we have studied and demonstrated the presence of the controversial foliar water uptake in the mangrove tree *Avicennia marina*. In this poster, we will show how we can track down foliar water uptake by identifying the water entry points at cellular level and trace the fate of absorbed water inside the plant. Cross validation for foliar water uptake will be presented against the conventional methods using fluorescent tracers [3]. We will also talk about our strategies to image water movement in plants and our field based Raman microspectrometers.

2. REFERENCES

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