03-04: Lignin – I see you!

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Raman microscopy is a fast way of probing plant material in the native state. While morphological changes are often easy to see on intensity maps, the chemical information is harder to extract, because all substances found at a pixel contribute to its spectrum. Lignin is frequently identified as a major contributor in plant cell wall spectra. Despite its rich structural diversity, the major contribution in the Raman spectrum stems from conjugated aromatic structures such as cinnamyl aldehydes or alcohols [1]. These substances are frequently identified in Raman studies, although their quantitiy in lignin is usually about 5% each [2]. Biphenyls and dibenzodioxocins are also conjugated structures and their share in spruce lignin is estimated to be around 20% [2]. With the help of quantum-chemical calculations, we discuss Rama

n spectra of three model compounds and present an updated assignment of the lignin spectrum.

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References

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