Abstracts

Measurements of leaf water content using terahertz radiation

S. Hadjiloucas, L.S. Karatzas and J.W. Bowen. "Measurements of leaf water content using terahertz radiation." 1999 Transactions on Microwave Theory and Techniques 47.2 (Feb. 1999 [T-MTT]): 142-149.

A novel technique for the noninvasive continuous measurement of leaf water content is presented. The technique is based on transmission measurements of terahertz radiation with a null-balance quasi-optical transmissometer operating at 94 GHz. A model for the propagation of terahertz radiation through leaves is presented. This, in conjunction with leaf thickness information determined separately, may be used to quantitatively relate transmittance measurements to leaf water content. Measurements using a dispersive Fourier transform spectrometer in the range of 100 GHz-500 GHz using Phormium tenax and Fatsia japonica leaves are also reported.

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