

**PT2 Monitoring volatile organic compounds from eucalypts by direct analysis in real time (DART) mass spectrometry**

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Biogenic VOCs, tissue specific compounds, eucalyptus

Temperature-dependent analysis of biogenic emissions of eucalypt in real-time

A method is described for the rapid identification of biogenic, volatile organic compounds (VOCs) emitted by plants, including the analysis of the temperature dependence of those emissions. Direct Analysis in Real Time (DART) mass spectrometry [1] enabled the ionisation of VOCs from stemwood and leaf of several eucalyptus species. Plant tissues were placed directly in the gap between the DART ionisation source skimmer and the capillary inlet of the time-of-flight mass spectrometer. Temperature-dependent emission of VOCs was achieved by adjusting the temperature of the helium gas into the DART ionization source to enable the direct evaporation of compounds up to the onset of pyrolysis of plant fibres (~300 °C). Over thirty compounds were detected ranging from simple organic compounds (i.e. methanol and acetone) to a series of terpenes (i.e. pinene, camphene, cymene, eucalyptol, diterpene) common to many plants, as well as several less abundant sesquiterpenes and flavonoids specific to eucalyptus species. These results demonstrate that DART is a powerful analytical tool for rapid identification of compounds from plant tissues.

[1] R.B. Cody, J.A. Laramée, H.D. Durst, *Anal. Chem.* 2005, 77: 2297-2302.