



Pyrolysis GC-orbitrap MS en GC-orbitrap MS

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Brand

Thermo Scientific

Type



Contact

Peter de Gijssel (peter.degijssel@wur.nl)

Organisation

Agrotechnology & Food Sciences Group

Department

Food Chemistry

Description

Highly sensitive and accurate mass spectrometry (OrbiTrap MS) connected to a pyrolysis-GC combination for a versatile and dedicated application to characterise and quantify lignin in complex (insoluble) matrices as plant materials including biomass. A second GC unit connected to the OrbiTrap MS widens the number of applications of the system to quantify and identify unknown compounds, in particular fat and fat oxidation products, in complex mixtures. The OrbiTrap MS is a powerful technique for unambiguous accurate mass determinations to 0.0001 amu (atomic mass unit (Da)) accuracy. The OrbiTrap has internal mass calibration and is equipped with multiple ionization possibilities (EI, VeV, CI) allowing detailed mass spectra for precise identification.

Technical Details

Pyrolysis unit:

- FrontierLab Double-shot Pyrolyzer 3030D, with a cartridge heater (max: 900 °C), EGA temperature programming possibilities. Equipped with autosampler.

Gas chromatography:

- GC1 (coupled to pyrolysis and the OrbiMS): Trace 1300; high resolution GC (125 °C/min till 450 °C).
- GC2 (coupled to FID (instantConnect FIDdetectionmodule) or OrbiMS): Trace 1300; high resolution GC (125 °C/min till 450 °C). With cold trap for large volume head space injections (TriPlus RSH multifunctional injectionrobot); with instantConnect BEST PTVLV backflush injectiemodule and Cold on Column injector.

Mass spectrometer:

Thermo Scientific Exactive series EI/VeV/CI quadrupoleOrbitrap mass spectrometer:

- mass-range 30>1000 amu
- hyperquad mass filter with resolution from 0.4 amu
- high resolution (60k) Orbitrap mass analyser with Ctrap ionfocussing
- mass accuracy 0.0001 Da
- sensitivity from 6 fg and linear dynamic range from >8 decades
- ExtractaBrite EI/CI cassette with repeller and Rf MSprefilter
- double digital gascontrol unit for Clgas

Applications

- Pyrolysis-GC-MS for lignin analysis
- GC-MS with cold trap facilities for head space injection, i.e. for fat and fat oxidation product analysis