

Mass Detection for Undergraduates

Utilizing mass detection to introduce students to the fundamentals of Mass Spectrometry

ACCESS TO MASS DATA FOR EVERYONE

Mass Spectrometry is a technique that was once regarded as pervasive and is now widely accepted in academic research and industry, providing qualitative and quantitative information for a variety of applications. However there are still many academic laboratories where long perceived barriers associated with mass spectrometry, including complexity, size, and affordability, have prohibited scientists in realizing the benefits of mass data. The ACQUITY QDa Detector was introduced to specifically reduce these barriers and meet the growing requests to deliver routine mass data to new analysts and laboratories.

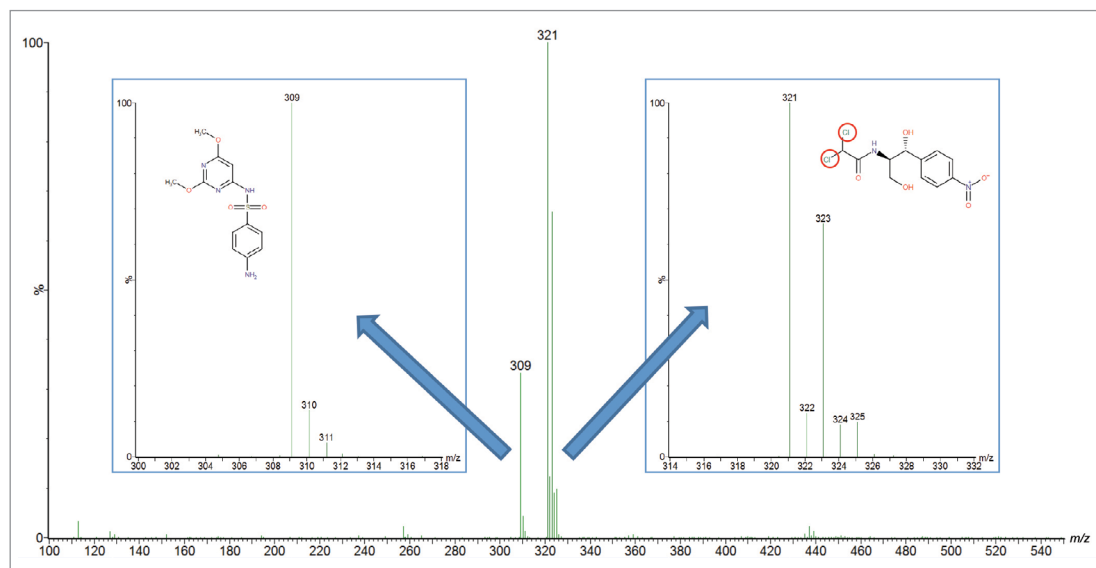
Making your students industry-ready

As an intuitive and robust mass detector, the ACQUITY QDa is the perfect tool to introduce undergraduates to the principles of mass spectrometry and mass spectral interpretation.² A simple and accessible set-up involving loop injection using an isocratic pump and the ACQUITY Diverter Valve can readily support this application. Allow your students to gain practical hands-on experience exploring the following fundamentals of mass spectrometry:

- Mass-to-charge ratio
- Monoisotopic versus average mass
- Isotopic patterns
- Formation of adducts
- Multiple-charging
- Fragmentation

...and many more.

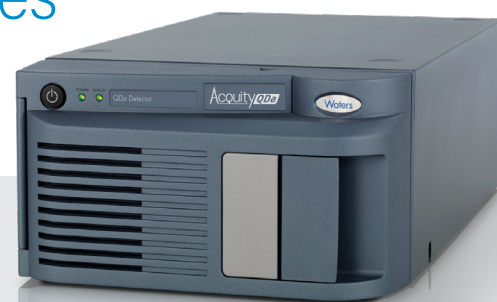
Example showing a negative ion mass spectrum, demonstrating the isotopic patterns of two compounds using the ACQUITY QDa Detector.



►► Ask your local Waters representative about our practical educational package to support the teaching of MS fundamentals using the ACQUITY QDa

References

1. The emergence of low-cost mass spectrometry detectors for chromatographic analysis. *Trends in Analytical Chemistry* 82 (2016) 22-34 doi.org/10.1016/j.trac.2016.04.025
2. An education in ESI. *The Analytical Scientist*, September 2016 theanalyticalscientist.com/issues/0916/an-education-in-esi/



"If you want a reliable, robust, small and easy-to-use MS system, the ACQUITY QDa is your perfect choice."

Dr. Gernot Poschet,
University of Heidelberg

"The system is really education-ready. Why not drag your MS courses into the 21st century?"

Professor Michel Nielen,
University of Wageningen²

Waters™

Mass Detection for Research and Routine Analysis

Support varied application types with multiple configuration options

While designed for accessibility, ACQUITY QDa does not give up key capabilities that make it a versatile tool to support academic research. These include:

- Compatibility with Waters' HPLC, UHPLC, and UPLC™ Systems, ACQUITY UPC²™ and LC and SFC Purification Systems
- Powerful data acquisition and analysis through MassLynx™ or Empower™ Software

Accessibility benefits of the ACQUITY QDa Detector:

- Fully automated Invisible Calibration
- Minimized footprint and site requirements
- Completely tool-free routine maintenance
- Simply switch OFF after use – rapid start-up to ready time

Specifications of the ACQUITY QDa Detector:

- Pre-optimized electrospray ionization (ESI)
- Mass range m/z 30–1250
- Full scan and selected ion recording (SIR) modes
- Positive and negative polarity switching

RADIAN ASAP

The RADIAN™ ASAP replaces the pump and diverter valve with the Atmospheric Pressure Solids Analysis Probe (ASAP) for true direct analysis using thermal desorption to volatilize the sample.

Specifically designed for rapid, easy and low-cost analysis of liquids and solids, the RADIAN ASAP enables quality results for non-MS users in a compact footprint ideal for busy academic laboratories wanting to cover a wide variety of applications with a robust and reliable solution.



“ The ACQUITY QDa allows any chromatographer with zero MS experience to obtain useful mass information.”

Caroline West,
Assistant Professor
University of Orleans, France



“ The accessibility of the RADIAN ASAP enables students to have real hands-on experience working with mass spectrometry providing a solid foundation to enter industry or continue in academia.”

Dr Patrick Sears,
University of Surrey, UK

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