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應用手冊

Targeted MRM Methods Using Xevo TQ-GC: Seeing the Whole Picture With RADAR

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This is an Application Brief and does not contain a detailed Experimental section.

Abstract

Simplify method development, and identify unwanted matrix interferences and components not included in targeted MRM methods using Waters Xevo TQ-GC with RADAR functionality.

Benefits

Understand sample complexity by acquiring full scan and MRM in a single run.

Introduction

During targeted analysis for pesticides in complex food matrices interferences and unknown compounds can go unnoticed. Presence of co-extracted matrix can cause ionization interference which can result in target compounds being under reported or in the worst case, not reported at all. Novel compounds, originally omitted from the MRM method, and unwanted co-extractives maybe detected using a complimentary non-targeted

function. The Xevo TQ-GC allows the acquisition of full scan and MRM data concurrently which helps overcome these analytical challenges in GC-MS/MS analysis.

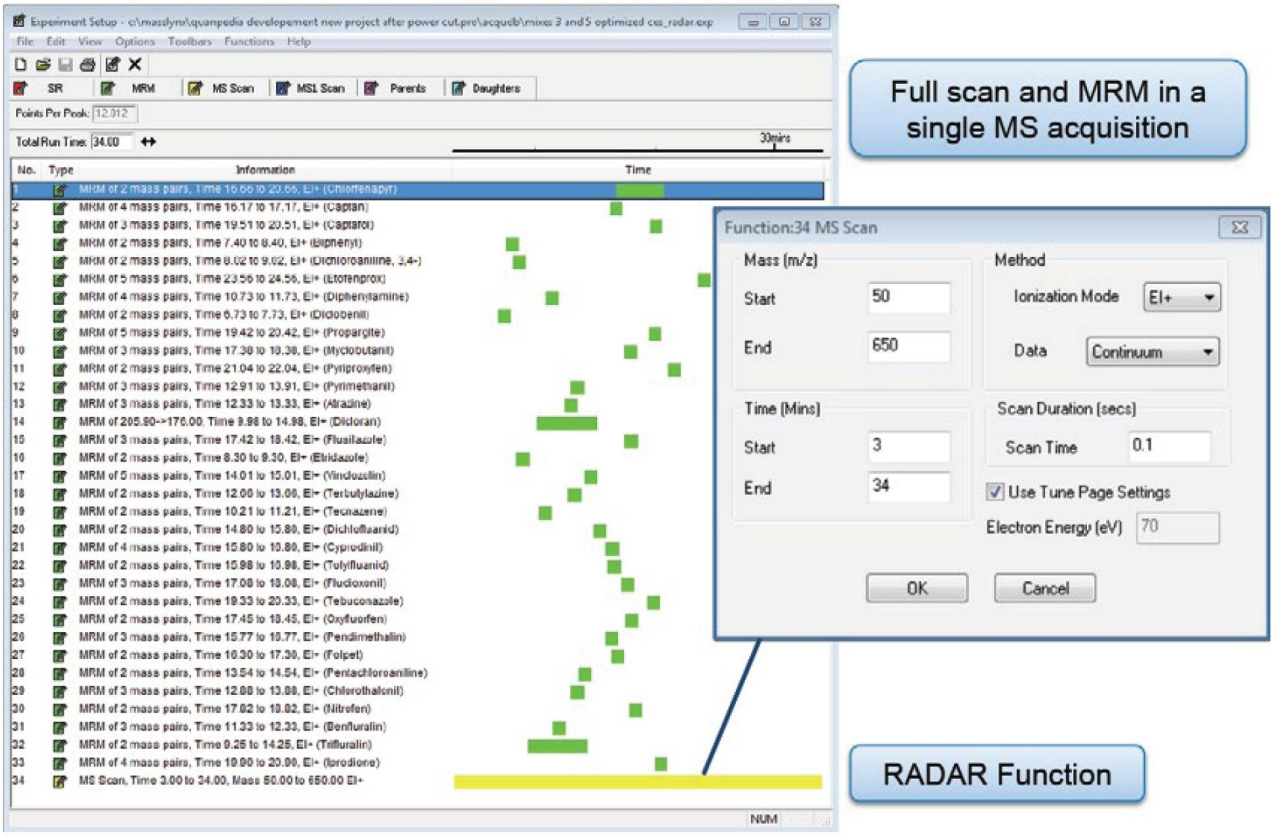

Figure 1. MS editor with RADAR functionality.

Results and Discussion

The Xevo TQ-GC is equipped with RADAR, which enables MRM and full scan in a single acquisition. Novel compounds and unwanted co-extractives can be identified from the full scan MS spectra by searching a spectral library, e.g. NIST. Information about the chemical composition of the sample extract helps guide modification of extraction and cleanup protocols or chromatographic conditions to intelligently remove potential unwanted interferences and sources of poor chromatography. For routine use, RADAR can track the presence of certain co-

extractives over time and be used to detect and identify pesticide metabolites or emerging contaminants of interest, not part of the original scope of the method. Such review can be undertaken retrospectively to determine the distribution of such compounds over time and once identified, the novel compounds can be added to the MRM acquisition method for future analysis.

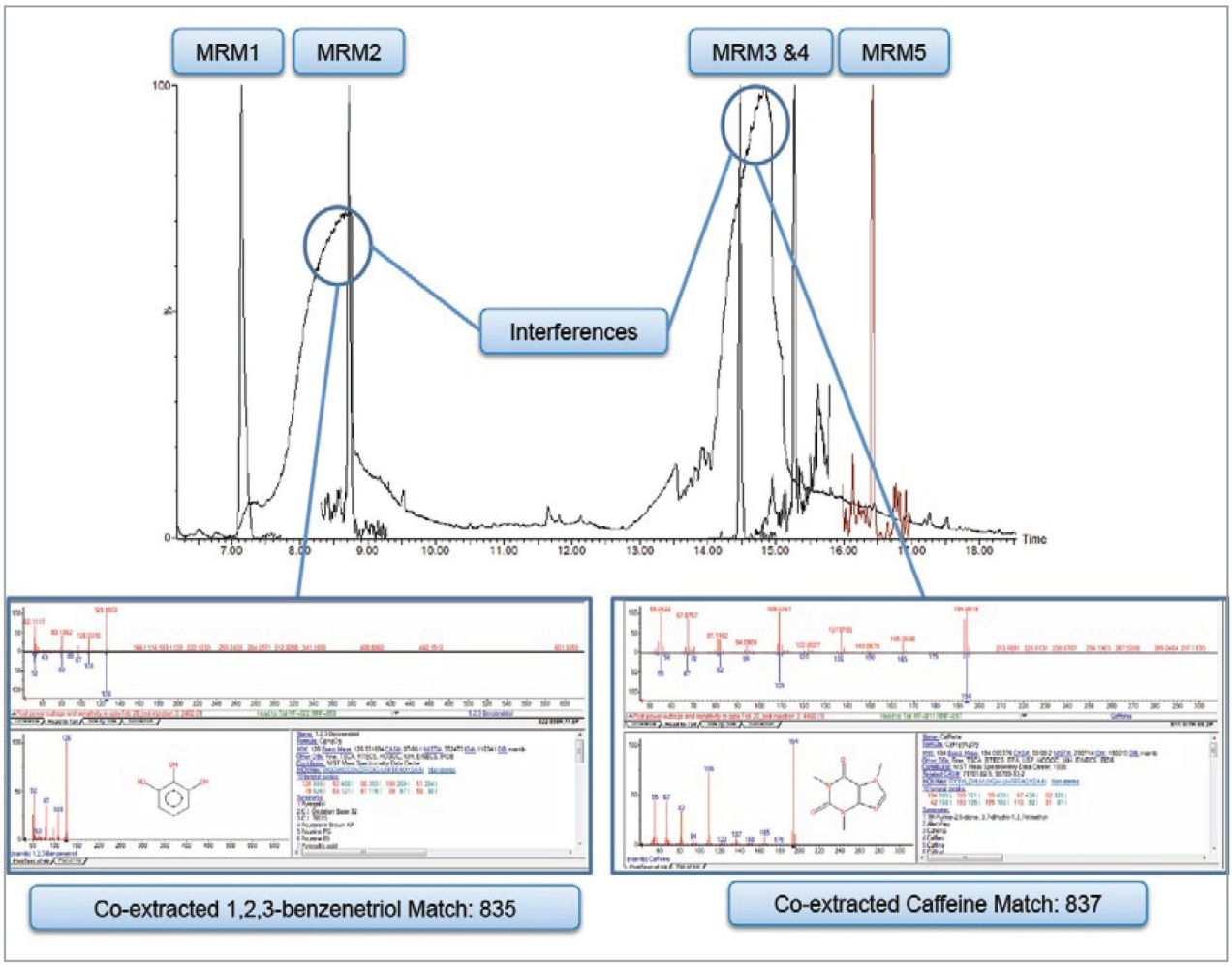

Figure 2. Use of RADAR and NIST library search to identify co-extraction in a green tea matrix.

Conclusion

The use of RADAR with the Xevo TQ-GC aids in method development and routine analysis. By having not only targeted MRM information, but also full scan data available, all of your sample information is available for interrogation.

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RADAR <https://www.waters.com/134798882>

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