



Advantages of the scheduled selected reaction monitoring algorithm in liquid chromatography/electrospray ionization tandem mass spectrometry multi-residue analysis of 242 pesticides: a comparative approach with classical selected reaction monitoring mode

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Résumé en anglais

This paper illustrates the advantages of using the scheduled selected reaction monitoring (sSRM) algorithm available in Analyst® Software 1.5 to build SRM acquisition methods in the application field of pesticide multi-residue analysis. The principle is to monitor the SRM transitions only when necessary. Based on the analytes' retention times, the scheduled SRM algorithm decreases the number of concurrent SRM transitions monitored at any point in time, allowing both cycle time and dwell time to remain optimal at higher levels of SRM multiplexing. To compare the scheduled SRM and the classical SRM modes, a mixture containing 242 multi-class pesticides has been analyzed ten times by three acquisition methods, using liquid chromatography/tandem mass spectrometry (LC/MS/MS) with an API 4000 QTrap™ mass spectrometer. The scheduled SRM mode demonstrates better results in all fields: more data points per peak, better reproducibility (coefficients of variation (CVs) <5%) and higher signal-to-noise ratio (S/N), even when the number of SRM transitions is doubled. The use of scheduled SRM mode instead of the classical one gives an enhancement of the limits of quantification by a factor two or even higher (up to six), depending on the analyte transitions. Copyright © 2010 John Wiley & Sons, Ltd.

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