Determination of 80 Pesticides in Vegetables using LC/MS/MS

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With the demand from consumers for residue free foods; the requirement to meet lower statutory maximum residue levels (MRLs); and, the pressures placed on the food supply chain by the 'Global Marketplace', there has never been a greater need for accurate, sensitive and rapid methods to monitor pesticide residues in foods. The analysis of multi-class pesticide residues in fruit and vegetable samples can be performed with a high degree of confidence in compound identity using targeted Multiple Reaction Monitoring (MRM) and MS/MS. The data shown here illustrates the selectivity provided by Varian's 320-MS Triple Quadrupole Mass Spectrometer in MRM mode. Co-eluting compounds are well separated with excellent quantification and sensitivity. The Polaris™ 3 µm C18-A column provides good peak shapes with a minimum amount of peak tailing. In combination with the QuEChERS sample preparation method, the procedure has been validated for use in a wide range of crop matrices and is suitable for the routine monitoring of pesticides at or below UK/EU MRLs.

Figure 1. Extract of spinach matrix fortified with 80 pesticides at 100 µg/kg using the QuEChERS method.