

Pesticide residue determination in surface waters by stir bar sorptive extraction and liquid chromatography/tandem mass spectrometry

Giordano, A.

Fernández-Franzón, M.

Ruiz, M. J.

Font, G.

Picó, Y.

In this stir bar sorptive extraction (SBSE) method, 16 pesticides were extracted from surface water samples by sorption onto 1 mm polydimethylsiloxane layer coated on a 10-mm-length stir bar magnet. After liquid desorption of the analytes with 1 ml of methanol, the detection was performed on a liquid chromatography-tandem mass spectrometry with a triple quadrupole (QqQ) analyzer using selected reaction monitoring mode via electrospray ionization. Parameters affecting SBSE operation, including sample volume, salt addition, extraction time, stirring rate, and desorption conditions, have been evaluated. The optimized SBSE method required two 50 ml aliquots of surface water samples, one aliquot was added of 30% NaCl and stirred at 900 rpm during 1 h for testing five pesticides with $\log K_{ow} < 3$, and the other aliquot was directly extracted following the same procedure for the rest of the pesticides with $\log K_{ow} > 3$. The method was validated in spiked surface water samples at limits of q