

Clean-up of cereal extracts for gas chromatography-tandem quadrupole mass spectrometry pesticide residues analysis using primary secondary amine and C18 - DTU Orbit (08/11/2017)

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The level of co-extracted matrix in wheat and oat extracts obtained by the QuEChERS method (EN 15662) is high and the occurrence of free fatty acids generates a major matrix peak in TIC chromatograms (rt. 13-22min). Matrix can compromise the analytical performance in pesticide analysis using GC-MS/MS. In order to reduce the amount and the effects of matrix we tested the effect of using six different amounts of primary secondary amine (PSA) (0, 25, 50, 100, 150 and 200mg/ml extract) with and without the addition of six different amounts of C18 (0, 25, 50, 100, 150 and 200mg/ml extract) in the dispersive solid phase extraction (dSPE) procedure. dSPE clean-up using 25mg/ml extract significantly reduced the major matrix peak observed for wheat extracts. Higher amounts of PSA reduced the analytical response for iprodione and malathion. For oat extract 50-150mg PSA/ml extract was needed to obtain equally low intensity of the matrix peak. For oat the analytical responses of the target pesticides generally increased with increasing amount of PSA. C18 had no significant effect on the intensity of the major matrix peaks and even resulted in lower analytical responses for several of the target pesticides. Based on the present study it is concluded that the optimal dSPE clean-up procedure employs 25mg PSA/ml extract for wheat and 150mg PSA/ml extract for oat.

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