

Dual-Phase SPE QuEChERS method with CarbonX/PSA for use in Cleanup of 18 Pesticide Residues in Spinach Analyzed by GC/MS.

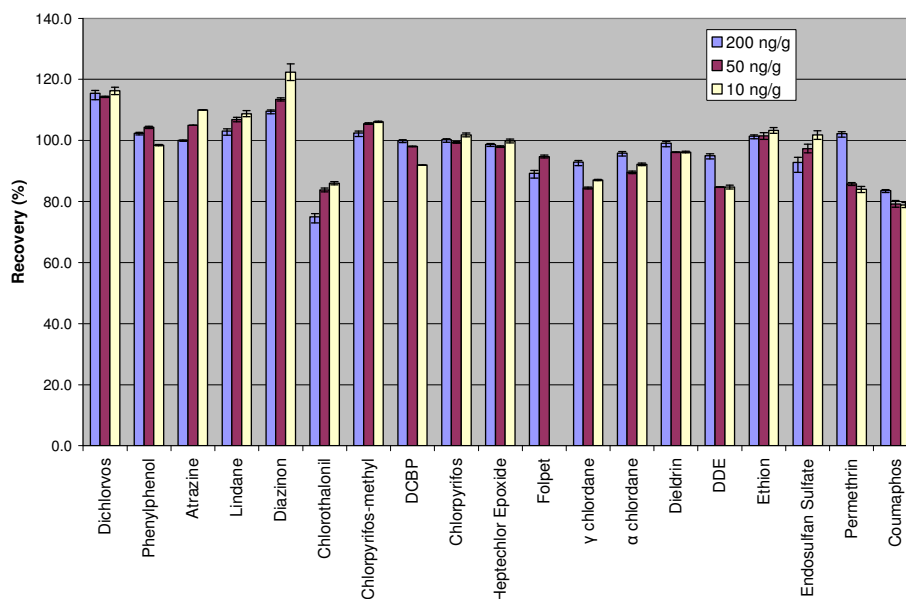
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Introduction: A new modified Schenck SPE QuEChERS method is described below. This method employs a pass-through SPE method and gives good recoveries of 18 GC/MS amenable pesticides while removing the pigment from the spinach extract.

Reagents and Chemicals: United Science Schenck QuEChERS tubes with 500 mg CarbonX for QuEChERS and 500 mg of PSA (P/N 1605344173) were used for sample cleanup. Spectral grade Acetonitrile (ACN) from MPBio was used along with glacial acetic acid from Ampresco.

Method: Initially, 15 g of spinach (cryo communiton) is extracted with 1% acetic acid in ACN (AAACN) and an AOAC QuEChERS salt packet (P/N 1601161160). From this extract, the tube is preconditioned with 2 mL of AAACN under vacuum flow. This fraction is discarded. Then 3 mL of extract is loaded under gravity flow and the eluent is collected.. Following the initial loading, the cartridge is extracted with 12 mL of AAACN under gravity flow. . The collected ~15 mL is then evaporated to 3 mL and analyzed via GC/MS. See app note “Analysis of 18 Pesticide Residues in Spinach Using CarbonX for QuEChERS AOAC dSPE Kits by GC/MS” for complete GC/MS conditions.

Recoveries: Recoveries for a 200 ng/g pesticide spiking experiment are shown below.



The SPE QuEChERS method provides good recoveries of all of the pesticides, including planar pesticides such as Chlorothalonil, Dichlorobenzophenone, Folpet, and Coumaphos without the need for toxic solvents such as toluene.