**Multiresidue extraction of current-use pesticides from complex solid matrices using energized dispersive extraction with analysis by gas and liquid chromatography tandem mass spectroscopy**

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Multiresidue pesticide analysis of environmental solids can be challenging due to complex matrix effects and time required for sample preparation and cleanup. Pressurized Liquid Extraction (PLE) is the most conventionally used technique for the extraction of residues from environmental solids, but this work presents a new method using Energized Dispersive Guided Extraction (EDGE) that requires approximately 60% less extraction time in comparison to PLE and cuts solvent volumes approximately in half. The method was tested and validated in soil for more than 200 pesticide and pesticide transformation products and analyzed via liquid and gas chromatography tandem mass spectrometry. Multiple solvent-extraction mixtures and clean up solvents were evaluated. Ultimately, an acetonitrile-based extraction with carbon clean-up eluted with acetonitrile and dichloromethane was validated for 167 compounds in soil, bed sediment, and biosolids. Method detection levels ranged from 0.09 to 2.5 ng/g for a 5 g sample. Concentrations for field collected sediments and biosolids were compared using the new method to a previously developed PLE method, and a strong correlation between the two methods was observed (R2>0.999). This method represents a solid-matrix sample preparation technique that measures environmentally relevant concentrations, reduces preparation and extraction times and solvent requirements compared to PLE methods.