

# Accelerated Solvent Extraction of Multiple Antibiotics from Soils. (S02-rubert922743-poster)

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## Abstract:

Our laboratory is developing accelerated solvent extraction (ASE) methods to isolate a variety of veterinary and human antimicrobial agents from soils, sediments and biosolids. The wide range of analyte physico-chemical properties and the complex nature of the matrices present significant challenges in developing extraction methods applicable to all antibiotics of interest. As a first step, we have focused on developing ASE methods for antimicrobial agents of the sulfonamide and tetracycline classes. Two solvent systems are being tested: 80/20 v/v ethyl acetate/1 M citrate buffer and pH 4.0 McIlvaine buffer (0.06 M citric acid, 0.08 M Na<sub>2</sub>HPO<sub>4</sub>, 0.01 M EDTA). Both solvent systems efficiently extracted sulfonamide antibiotics from artificially spiked Ottawa sand with 5-cycle extractions yielding better recoveries than single-cycle extractions. Preliminary extractions of sulfamethazine and sulfamethoxazole from high organic content Pocomoke River sediments using a 5-cycle McIlvaine buffer extraction followed by solid phase extraction cleanup yielded recoveries of 41% and 53%. The optimized ASE methods will be discussed.

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