

**23. THE USE OF FLUORESCENCE COVALENT MICROBEAD IMMUNOSORBENT ASSAYS (FCMIAS) FOR MULTIPLEXED PESTICIDE BIOMONITORING**

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Body burdens from exposures to pesticides can be estimated from urinary analyses of pesticide parent/metabolites. Pesticide applicators and others are often exposed to numerous unrelated pesticides, either sequentially or simultaneously. Classically, these analyses are performed using chemical/instrumental analysis (CIS) or enzyme linked immunosorbent assays (ELISAs). Both of these technologies can usually measure one analyte (or closely related groups of analytes) per assay. A technology to evaluate the body burdens from these complex combined exposures simultaneously is fluorescence covalent microbead immunoassay (FCMIA), which can be multiplexed (measure numerous related or unrelated analytes simultaneously). Using FCMIA, we developed multiplexed assays for glyphosate (Gly), atrazine (Atz), metolachlor mercapturate (MM) and 2,4-dichlorophenoxyacetic acid (2,4-D) in water and urine. FCMIA's are faster, use less sample, have throughput advantages, are less prone to systematic error, and have sensitivity and dynamic assay ranges similar to CIS or ELISAs, for Gly, Atz, MM, and 2,4-D.

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