

P124. ANALYSIS OF PHTHALATES ESTERS IN HUMAN BIOLOGICAL SAMPLES

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Phthalates are high-production chemicals commonly used in plastic products and are used in many household and personal care products, toys, and medical supplies, as well as in plastics to improve flexibility. The ubiquitous use of phthalates results in widespread human exposure. Exposure to phthalates has been associated with altered hormone levels, reproductive effects (male fertility), precocious puberty in pubertal girls, increased incidence of chronic disease, and a possible role in the development of cancer. Upon exposure, humans rapidly metabolize phthalate diesters to the corresponding monocarboxylic acid derivatives, the hydrolytic phthalate monoesters, which depends on the phthalate diester that may be oxidized. The hydrolytic phthalate monoesters may be the bioactive species. All these phthalate metabolites are excreted in the urine and feces in their free or glucuronidated forms. Various analytical methods have been developed for measuring phthalate monoester metabolites separately in biological materials (Feces, Urine, Plasma, Sweat, Milk, Placenta, and Amniotic Fluid). Mostly using gas chromatography coupled with mass spectrometry (GC-MS) and liquid chromatography coupled with mass spectrometry (LC-MS) or tandem MS (LC-MS/MS). LC-MS/MS methods, which combine high selectivity and sensitivity, show an advantage over GC-MS methods because of simple sample preparation without the need for derivatization. Due to the increasing concern on the endocrine disrupting chemicals, such as phthalate esters, and the needs to assess their exposure to individuals, it is essential to have a sensitive, low cost and efficient analytical method that can quantify these chemicals or their metabolite levels simultaneously in human biological materials.