

## **P164. PHTHALATES TOXICITY AND ITS DETERMINATION METHODS IN BIOLOGICAL AND ENVIRONMENTAL SAMPLES**

Emrah DURAL

Cumhuriyet University, Faculty of Pharmacy, Department of Pharmaceutical Toxicology, Sivas, Turkey

The phthalates (PHTs), diesters of benzene-1,2-dicarboxylic (phthalic) acid, are synthetic compounds widely used as plasticizers, solvents and additives in many consumer products because of their excellent properties and compatibility with vinyls and other polymers. Since their wide usage and applications, PHTs may enter the food chain and also the environment. Humans can be exposed to PHTs oral, inhalation, dermal routes, intravenous and parenteral absorptions. PHTs are listed as “chemicals of concern” by the U.S. EPA, because some PHTs can induce reproductive anomalies. Epidemiological studies have indicated that some PHTs which are diethyl phthalate (DEP), dimethyl phthalate (DMP), benzyl butyl phthalate (BBP), bis(2-ethylhexyl) phthalate (DEHP) are carcinogenic and can affect human endocrine and reproductive systems. After entering into body, PHTs can be metabolized to their hydrolytic monoesters and then some monoesters are further transformed into oxidative metabolites after enzymatic oxidation. Previous studies show that PHTs could occur in a variety of body fluids, tissues and organs, which are urine, serum, breast milk, cord blood, fetal liver, placenta and adipose tissue. Various analytical methods have been developed for measuring PHTs and its monoester metabolites separately in biological and environmental samples. Mostly using gas chromatography coupled with mass spectrometry (GC-MS), liquid chromatography coupled with ultraviolet (HPLC-UV), mass spectrometry (LC-MS) or tandem MS (LC-MS/MS). Due to the increasing concern on the PHTs, it is essential to have the sensitive, low cost and efficient analytical methods that can quantify these chemicals and their metabolite levels in human biological materials and also environmental samples.

\* [emrahdural@cumhuriyet.edu.tr](mailto:emrahdural@cumhuriyet.edu.tr)