

P40. HPLC-FLD METHOD VALIDATION FOR DETERMINATION OF POLYCYCLIC AROMATIC HYDROCARBONS METABOLITES IN URINE

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PAHs are because of inducing chromosomal effects in individuals exposed to PAHs, genotoxic carcinogens. For evaluation of human exposure to such compounds, biological monitoring is an essential process, occupational and non-occupational exposure to PAHs can be monitored by measuring urinary PAH metabolites. In order to determine the method applicability, it was necessary to be validated. In addition, results of the analysis can be used as evidence in court. For this reason, method validation is very important.

In this study; as a marker urinary PAH metabolites exposure level, 1-hydroxypyrene (1-OHP), 3-hydroxybenzo[a]pyrene (3-OHBAP), and 9 – hydroxyphenantrene (9-OHPHE) levels were determined in urine. Assay method was performed by HPLC-FLD. For 1-OHP, 9-OHPHE and 3-OHBAP LOD and LOQ values were determined as 0.0077; 0.0033; 0.0031 and 0.0255; 0.0109; 0.0103 ng / mL urine, respectively. To determine the precision and accuracy of the present system, known high and low concentrations of 1-OHP, 9-OHPHE and 3-OHBaP were added to urine samples of non-smokers. The inter-day precision (repeatability) was determined by six-fold analysis of the urine sample. The spiked sample was analyzed six-fold on different days to evaluate the between days precision (reproducibility). The inter-day R.S.D. ranged between 2.02% (1-OHP) and 8.16% (3-OHBAP) and the between days R.S.D. ranged between 2,48% (1-OHP) and 12,85% (3-OHBAP). Recovery experiments were performed by addition of the standards to a 10 mL urine sample before the enzymatic hydrolysis. The recovery was in the range of 81, 88–97,70%.