

metabolites (dextromethorphan, dextrorphan, 3-methoxymorphinan, 3-hydroxymorphinan, carisoprodol and meprobamate). Analytes were extracted in 1% HCl in methanol from fine cutting hair for 16 hours. After evaporation under N₂, residues were added 50ul Ethanol and were separated on HP-5MS column during a 16 min program and identified by mass spectrometry with the SIM mode(EI-GC-MS). This method was validated recovery, linearity of calibration, within- and between-day precision, accuracy, limit of detection and quantification. Calibration curves exhibited correlation coefficients > 0.99. Within and between-run precision were calculated at 8, 80 and 160 ng/mg in hair with coefficients of variation less than 10 %. Accuracy at the same concentrations were ±5% of target for all analytes. Recoveries at 10 and 100 ng in hair were over 90 %. After the method validation, we performed that quantitation analysis of dextromethorphan and carisoprodol in abuser's hairs. Dextromethorphan and metabolites were quantitated 8~130ng/mg and 1~27ng/mg, respectively. Carisoprodol and meprobamate were also quantitated 6~33ng/mg and 39 ~304 ng/mg. We present a validated, sensitive and specific GC-MS method to simultaneously quantify dextromethorphan, carisoprodol and metabolites in hair.

[PA4-2] [2003-10-10 09:00 - 13:00 / Grand Ballroom Pre-function]

Determination of MDMA and MDA in 44 hair samples during 2002 to 2003

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The qualitative and quantitative analysis of MDMA and MDA in hair samples by GC/MS were reported. Hairs were collected from subjects aged 22-37 years, who were suspected of abusing MDMA. After washing with methanol, hair samples were cut into small pieces, extracted with methanol containing 1 percent hydrochloric acid for 20h, and the solution was evaporated. MDMA or MDA in the extract were determined by GC/MS using selected ion monitoring after derivatization with trifluoroacetic anhydride. During 2002 to 2003, 791 hair samples submitted from the police were analyzed for the determination of abused drug in this institute. Among them, MDMA and its metabolites, MDA, were simultaneously detected in 40 samples by GC/MS whereas in the 4 samples, MDA only was found. Of these 44 subjects, 35 were negative for both MDMA and MDA in urine, while 9 were positive. We also evaluated concentrations of MDMA and MDA, and metabolite to parent drug ratio. This study proved that the abuse of MDMA and MDA is prevalent among young people in Korea. In addition, MDMA seemed to be more abused than methamphetamine to younger people.

[PA4-3] [2003-10-10 09:00 - 13:00 / Grand Ballroom Pre-function]

Effect of B-ring -OH numbers of 5,7-dihydroxyflavone on the activity of CYP 1 enzymes

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CYP1 enzymes, CYP1A1, CYP1A2 and CYP1B1, are known to bioactivate procarcinogens particularly polyaromatic compounds. Flavonoids are a class of natural compounds that are present in edible plants. Structurally, these compounds are polyphenols with two aromatic rings (A, B) and a heterocyclic ring (C). We observed the differential inhibition of 5,7-dihydroxyflavones which are different in numbers of B-ring -OH, to the activity of ethoxyresorufin O-deethylase (EROD) in human hepatic microsomes with the IC₅₀ values, ie, 0.57 mM, 1.28 mM, and 3.62 mM, chrysin, apigenin, and Luteolin, respectively. Thus, the effect of B-ring -OH numbers of 5,7-dihydroxyflavone on the activity of CYP enzymes was observed in this study. CYP1A2 was inhibited in the order of chrysin (no -OH, IC₅₀, 0.42 mM), apigenin (one -OH, 5.14 mM) and luteolin (two -OHs, 8.85 mM), but CYP1A1 was inhibited with reverse ranks. CYP1B1 was strongly inhibited all of them with less than 0.5 mM of IC₅₀. All of them were shown the mixed type inhibition judging by Dixon plot. Thus, the increase of B-ring -OH number in 5,7-dihydroxyflavones was more strongly inhibited CYP1A1 compared to CYP1A2 and decreases of -OH numbers was shown the stronger inhibition of CYP1A2. These differential inhibition of CYP1 enzymes by B-ring -OH numbers of 5,7-dihydroxyflavone might due to different amino acid residue at the active site of enzymes.