other. The MS spectra by LLE included many other peaks due to impurities and analogues(some metabolites) as well as the targeted drugs. However, the MS spectra by microextraction included only the target drugs and the other peaks were almost disappeared. The resolution and selectivity of the targeted drugs on MS-spectra were much improved by the solvent microextraction. Those improvement in resolution and detection limit of the target drugs in microextraction were due to its simultaneous back extraction. Furthermore the recovery by solvent microextraction were almost the same as that by LLE. The detection limit of MS by the solvent microextraction was ng unit, which was 10 times more sensitive than that by LLE when the detection limit was defined with 3 times of the background signals.

Poster Presentations - Field A4. Toxicology

[PA4-1] [10/18/2001 (Thr) 14:00 - 17:00 / Hall D]

Establishment of bioassay to detect estrogenic flavonoids using stable MCF-7-ERE cell and MCF-7 cell proliferation assay.

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Stable MCF-7-ERE cells, in which pERE-Luc reporter gene has been stably integrated into the genome of the MCF-7 cells, were used to detect the estrogenic activity of various dietary flavonoids.in either pure chemical or mixtures. Estradiol (E2) induced luciferase activity in dose dependent manner and this activity was inhibited by tamoxifen (Tam) concomitant treatment. A large series of flavonoids showed estrogenic activities, corresponding to EC50 values between 0.2 and 9 microM and their mixtures didn't show additive or synergistic effects. And we could find some structure and activity relationship. First, 4-methoxylation and catechol structure decreased estrogenic activities. Second, hydroxylation of 3 position reduced estrogenic effect. Third, glycosides of flavonoids showed weak estrogenic activity or no activity. Interestingly, when tested at high concentrations, genistein, kaempferol, biochanin A and chrysin elicited luciferase induction higher than that of the maximum induction by estradiol. And these effects of genistein and kaempferol could not be fully inhibited with tamoxifen
The estrogenic activity of the dietary flavonoids was further investigated using MCF-7 cell proliferation assay. In this system, several flavonoids were capable of mimicking natural estrogens and thereby induced cell proliferation. Among the investigated flavonoids, 7 compounds elicited the significant cell proliferation. whereas remaining flavonoids were weak estrogenic or devoid of estrogenic activity

[PA4-2] [10/18/2001 (Thr) 14:00 - 17:00 / Hall D]

Study of resveratrol and its derivatives on the regulation of gene expression in MCF-7 cells transfected with either pERE-Luc or phCYP1A1-Luc.

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Resveratrol (trans-3,4',5-trihydroxystilbene), which is a polyphenolic compound found in a variety of plants such as grapes and wine, has been reported to have a variety of anti-inflammatory, anti-platelet, and anti-carcinogenic effects. Recently resveratrol was reported to serve as an estrogen agonist in MCF-7 cells Based on its structural similarity to diethylstilbestrol, a synthetic estrogen, we examined whether resveratrol and its derivatives might be estrogenic using stable MCF-7-ERE cells. Resveratrol functioned as a superagonist at high concentrations (i.e., produced a greater maximal transcriptional