

water. The main separation was performed on a semi-microbore C18 column (250 x 1.5 mm I.D.) using 40% acetonitrile in water. The limit of quantification was 25 ng/ml. The accuracy of the assay was from 96.04% to 115.54% while the intra- and inter-day coefficient of variation of the same concentration range was less than 15%. In the concentration range of 25–2000 ng/ml, and linear regression analysis revealed correlation coefficients > 0.999. Also, we applied the developed method to analyze cilostazol in human plasma.

[PD4-26] [10/18/2002 (Fri) 13:30 – 16:30 / Hall C]

Simultaneous determination of thirteen cosmetic preservatives in skin creams by HPLC–PDA method

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Combination of two or more preservatives are commonly used in cosmetic creams to prevent alteration and degradation of the product formulation, but preservatives are one of the main causes of allergic contact dermatitis from the use of cosmetics.

In this study, HPLC–PDA method for simultaneous determination of the most widely used 13 preservatives in cosmetic cream – benzyl alcohol, phenoxyethanol, sorbic acid, benzoic acid, salicylic acid, chlorphenesin, dehydroacetic acid and methyl-, ethyl-, propyl-, isopropyl-, butyl-, isobutyl paraben – was developed for application to cosmetic skin creams. Chromatography was performed under gradient condition using mixture of water, acetonitrile and phosphoric acid as mobile phase at a flow-rate of 1.0 ml/min and monitored at 220nm. Capcellpak C₁₈(5µm, 250*4.6mm I.D.) was used for the column. An extraction method using 50% acetonitrile with 1% H₃PO₄ was developed and validated in order to apply this chromatographic method to a commercial cosmetic creams.

[PD4-27] [10/18/2002 (Fri) 13:30 – 16:30 / Hall C]

Analysis of DA-6034, a New Flavonoid Derivative in Biological Fluids by Fluorescence Detector

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A high performance liquid chromatographic method was developed for the determination of DA-6034 in biological fluids using fluorescence detector. The method involved deproteinization of biological sample with the same volume of acetonitrile, 0.2M zinc sulphate, and 0.15M barium hydroxide. The aliquot of supernatant was injected onto Nova-pak C18 column and detected by fluorescence detector. Emission and excitation wavelength of detector were 336nm and 440nm. The detection limit of DA-6034 in plasma was 0.5 ng/ml. The method is precise, specific, accurate and reproducible. Recoveries were higher than 90% and there were no interference from endogenous substances. This method seemed suitable for the pharmacokinetic studies of DA-6034 in plasma.

[PD4-28] [10/18/2002 (Fri) 13:30 – 16:30 / Hall C]

Risk assessment of endocrine disruptors in cosmetics

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Dimethyl phthalate(DMP), diethyl phthalate(DEP), di-n-butyl phthalate (DBP), butyl benzyl phthalate(BBP), bis(2-ethylhexyl)phthalate(DEHP) and di-n-octyl phthalate(DOP) in lotions was determined by gas chromatography.

and benzyl benzoate was used as the internal standard. The separation of the six phthalates and internal standard was optimized, and the optimal analytical conditions were as follows : column, DB-1701 (I.D. 0.25mm); mobile phase, helium; oven temperature 200°C(10 min) → 10°C/min → 260°C(30min), injector temperature 230°C, detector temperature 280°C. The linearity of the method was investigated for the range 10–100µg/mL for the six phthalates and correlation coefficients were between 0.9950 and 0.9992. The limit of detection (LODs) of the six phthalates were between 0.27 and 0.95 µg/mL. Methanol, acetonitrile and hexane was used as extraction solvents. The recoveries of DEP and DEHP were about 96.5–105.7% when analyzed DEP and DEHP in cosmetics using hexane as a solvent. Hexane was proved to be the best solvent to extract phthalates in the lotions. Commercial lotions were analyzed by the above analytical method, and no phthalates was detected in them.

[PD4-29] [10/18/2002 (Fri) 13:30 – 16:30 / Hall C]

Simultaneous determination of seven major human cytochrome P450 activities using LC/MS/MS

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A LC/MS/MS method for the simultaneous determination of the activities of seven major human drug-metabolizing cytochrome P450s (CYP3A4, CYP2D6, CYP2C9, CYP1A2, CYP2C19, CYP2A6, and CYP2C8) was developed. This method used an in vitro cocktail of specific substrates (midazolam, bufuralol, diclofenac, ethoxyresorufin, S-mephenytoin, coumarin, and paclitaxel) and LC/MS/MS. The assay incubation time is 20 min and the analysis time is 8 min/sample. The seven metabolites were quantified by multiple reaction monitoring (MRM) method. Potent specific inhibitors of the seven enzymes (ketoconazole, quinidine, sulfaphenazole, tranilcypromine, quercetin, furafylline, and 8-methoxypsoralen) were evaluated in cocktail and individual substrate incubations. This cocktail method offers an efficient, robust way to determine the cytochrome P450 inhibition profile of large numbers of compounds. The enhanced throughput of this method greatly facilitates its use to assess CYP inhibition as a drug candidate selection criteria. This method was successfully applied to the screening of new drug screening.

[PD4-30] [10/18/2002 (Fri) 13:30 – 16:30 / Hall C]

Studies on the evaluation of efficacy of functional cosmetics(I) –Studies on the in vitro SPF test method of sunscreen products

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The present study was undertaken to develop the in vitro sun protection factor(SPF) test method having good correlation with in vivo method using human, 8% homomentyl salicylate, P3 reference standard and commercially available sunscreen products were measured by the in vitro method using SPF 290S analyzer, and the SPF_s were compared with the SPF_s measured by in vivo test method. In vitro SPF_s of 8% HMS and P3 reference standard were 4.59 ±0.12 and 14.94 ±0.83. There are good correspondence, correlation coefficients were 0.9506 and 0.9769 respectively, between the in vitro and in vivo SPF_s for the sunscreen creams and lotions. Correlation coefficients of makeup base/liquid foundation, lotion labeled with "shake before use" and compact powder were 0.8812, 0.8632 and 0.5984 respectively. The optimum mixture ratio of compact powder and cream base represents 1:0.8. These results suggest that the in vitro SPF test method will be able to be used as an alternative method for in vivo SPF in case of lotion and cream.

[PD4-31] [10/18/2002 (Fri) 13:30 – 16:30 / Hall C]

Comparison of CE and HPLC as analytical methods of (-)-yatein enantiomer from Cupressaceae plants

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