Ki-Hwan (Shen-Qi-Wan, SKH) have been used for various kinds of deficiency syndromes, such as 'blood', 'qi', and 'yang', respectively. The objects of this study were to determine the effects of water extracts of three different kinds of traditional Chinese medicine, SMT, BJIKT, and SKH, on the anxiolytic and memory activities in the elevated plus-maze test and to clarify the differences among 'blood', 'qi', and 'yang'. The water extracts of SMT, BJIKT, and SKH were orally administered to male rats or mice, at 1.0 g/kg for 10 days. All rats were subjected to behavioral tests for the anxiolytic activity and all mice for the memory test at 10 days. The SMT for the 'blood' had no significant effects on the first time entry to the closed arms and times spent in the open arms at any test times. However, both BJIKT and SKH prolonged the first time entries to the closed arms and also times spent in the open arms ($p<0.05$). In the memory test, SMT only ameliorated the scopolamine (5 mg/kg)-induced learning deficit in mice. From these findings, it can be speculated that the different anxiolytic and memory effects in the elevated plus-maze test may be come from the meanings of 'qi', 'blood', and 'yang' in oriental diagnostics though the cases are restricted. [Supported by the Kyung Hee University Grant 2000-1U0100010]

Poster Presentations - Field D4. Analytical Chemistry

[PD4-1] [04/19/2001 (Thr) 13:30 - 14:40 / Hall 4]

Determination of the metoprolol enantiomers in human urine by gas chromatography/mass spectrometry

Kim KH[1], Kim JH[1], Kim HJ[1], Ko MY[o1], Kang JS[2], Mar WC[3], Youm JR[4], Lee JH[1]

[1]College of Pharmacy, Kangwon National University ; [2]College of Pharmacy, Chungnam National University ; [3]Natural Product Institute, Seoul National University ; [4]College of Pharmacy, Chung-Ang Univisity

A method for the stereoselective assay of R- and S-enantiomers of metoprolol in human urine was developed using gas chromatography/mass spectrometry with selected-ion monitoring. The method involved purification by liquid-liquid extraction and derivatization with N-methyl-N-(trimethylsilyl) trifluoroacetamide(MSTFA) to form O-silyl ethers followed by subsequent chiral derivatization with (+)-α-methoxy-α -(trifluoromethyl)phenylacetyl chloride to form diastereomeric amide. The reaction is selective and rapid, and diastereomeric derivatives were separated by gas chromatography. Quantitation was performed by selected-ion monitoring quasi-molecular ions of the diastereomers on the electron impact ionization method. The sensitivity, specificity, accuracy and reproducibility of the method were demonstrated to be satisfactory for application to pharmacokinetic studies of metoprolol enantiomers.

[PD4-2] [04/19/2001 (Thr) 13:30 - 14:40 / Hall 4]

Direct enantiomer separation of quinolones including gemifloxacin

Lee W[o1] and Hong CY[2]

[1] College of Pharmacy, Chosun University, Kwangju 501-759, South Korea; [2] Biotech Research Institute, LG Chemical Ltd, Taejon 305-380, South Korea

Gemifloxacin mesylate (brand name: Factive, LB20304a) waiting for the U.S. FDA's approval is a new fluoroquinolone compound with potent *in vitro* and *in vivo* antibacterial profile. The enantiomers of gemifloxacin are resolved on a Crownpak CR chiral column. All of fluoroquinolones including gemifloxacin used in this study are well enantioseparated on Crownpak CR(+) column. These results are the first reported for the direct separation of the enantiomers of quinolones on chiral crown ether coated Crownpak CR column. The behavior of chromatographic parameters by the change of mobile phase additives for the resolution of gemifloxacin is investigated. Also, the effect of structural change of gemifloxacin on chiral recognition is described.

[PD4-3] [04/19/2001 (Thr) 13:30 - 14:40 / Hall 4]

Potentiometric Studies of Ternary Complexes of Acidic Drug-Metal(II)-Dipyridylamine

Ahn MK°, Kim HY, Lee UK, Moon HS, Hwang HK, Jung MM, Hur MH★

College of pharmacy, Kyungsung University ★Pusan regional Food & Drug Administration

Sensitive and fast responding potentiometric sensors for determining the acidic drugs anion is described.
The sensing membrane of the electrode consists of acidic drug-metal(II)-dipyridylamine ternary complex as an ion-exchanger and *o*-nitropheny octyl ether as a plasticizer.
The electrode exhibits a fast, stable and linear response for $1\times10^{-2}\sim5\times10^{-5}$ mol/L ibuprofen with an anionic slope of 54.0±0.3 mV/decade in pH 4~6 of acetate buffer solutions.
Potentiometric selectivity measurements revealed negligible interferences from many aromatic and aliphatic carboxlic acid salts.
The electrode displays useful analytical characteristics for the direct determination of ibuprofen in various pharmaceutical preparations. Results with an average recovery of 98±0.7% of the nominal value were obtained.

[PD4-4] [04/19/2001 (Thr) 13:30 - 14:40 / Hall 4]

Determination of terbutaline enantiomers in human urine by capillary electrophoresis

Kim KH[1], Kim JH[1], Kim HJ[1], Seo SH[1], Jeun EY°[1], Kang JS[2], Mar WC[3], Youm JR[4]

[1]College of Pharmacy, Kangwon National University ; [2]College of Pharmacy, Chungnam National University ; [3]Natural Product Institute, Seoul National University ; [4]College of Pharmacy, Chung-Ang Univisity

A new method for the determination of terbutaline enantiomers in human urine by capillary elctrophoresis has been developed. Separation conditions have been optimised with the respect to different parameters including pH, applied buffer and chiral selectors such as β-cyclodextrin, carboxymethyl-β-cyclodextrin, hydropropyl-β-cyclodextrin. Optimum resolution was achieved using 50mM phosphate buffer, pH 2.5, containing 15mM of hydroxypropyl-β-cyclodextrin as a chiral selector. This method was applied for the quantitative determination of terbutaline enantiomers in human urine. Acceptable quantitative results in precision, sensitivity and linearity were obtained from the real human urine. The reproducibility of the method has been shown to be sufficient for drug monitoring or pharmacokinetic studies.

[PD4-5] [04/19/2001 (Thr) 13:30 - 14:40 / Hall 4]