column temperature were studied using chiral CBH column. The structure of CBH, contains three regions, a catalytically active core, an inter-connecting region, and a cellulose-binding domain consisting of 36 amino acids forming two disulfide-bridged loops. Especially the retention factors as well as the enantioselectivity of amine were strongly dependent on pH. Especially betaxolol and pindolol weren't separated at pH 7.0, but as the pH was decreased to 6.0 and 5.0, chromatographic parameters were markedly increased. And most of the amine have the pKa values above 7.0. This means that they mainly are present as cations in the pH range studied. Thus the amines should be retained by electrostatic attraction or as a neutral complex(ion-pair) with an ion of opposite charge. Therefore, in this study electrostatic interaction was more important than hydrophobic interaction in chiral separation mechanism of amine moiety drugs using chiral CBH column.

[PD4-10] [10/19/2000 (Thr) 15:00 - 16:00 / [Hall B]]

Water-Methanol Mixture Analysis using NIR Spectral Data and ITTFA

Cho JH°

College of Pharmacy, Sookmyung Women's University

Water-methanol mixture is frequently used as an HPLC solvent and strong hydrogen bonding between water and methanol is well-known. But a detailed aspect of water-methanol mixture has not been shown with direct spectral evidence. Recently, near infrared spectroscopy and chemometric data refinery have been successfully combined in many applications. On the basis of factor analytical methods, the spectral features of water-methanol mixtures were studied to reveal the detail of mixtures.
Eleven water-methanol mixtures were prepared with varying concentration of each constituent and near infrared spectral data were acquired in the range of 1100-2500nm with 2-nm interval. The data matrix(11 by 700) was analysed with ITTFA(Iterative Target Transform Factor Analysis) algorithm implemented as MATLAB codes written in-house.
As a result, the concentration profiles of water, methanol and two different water-methanol complexes were resolved and the spectra of water-methanol complexes were calculated, which cannot be acquired with pure complexes. Those complexes cannot be isolated by any physical separation but their complete NIR spectra were acquired by ITTFA algorithm. The concentration profiles of two complexes were different by added amount of water and methanol. Those results will be shown on poster.

[PD4-11] [10/19/2000 (Thr) 15:00 - 16:00 / [Hall B]]

A dipyridylamine-metal membrane sensor for potentiometric determination of metal ion

Jung MM°, Nam SJ, Moon HS, Lee MA, Hur MH, Ahn MK

Pusan regional Food & Drug Administration, Kyungsung Univ.

A liquid membrane electrodes for metal ion Fe^{2+}, Cu^{2+}, Co^{2+}, Ni^{2+} were investigated. The electroactive substance of the membrane electrode consists of ternary complex of tetraphenylborate and metal-dipyridylamine. The dipyridylamine-metal(II) complex reacts with tetraphenylborate to form a water insoluble ion association complex soluble in some plasticizer mediators. The liquid membrane was plasticized with nitrophenyl ether derivatives. The sensor exhibits fast Nernstian response for dipyridylamine-metal ion with a cationic calibration slope of Fe^{2+}, Cu^{2+}, Co^{2+}, Ni^{2+} were 27.0±0.1 mV/dec., 26.7±0.1 mV/dec., 29.5±0.1 mV/dec., 25.2±0.1 mV/dec. down to 4×10^{-7} mol/L dipyridylamine-metal ion at pH 5~10.
Interferences from common inorganic cations were negligible.