[PD4-22] [2003-10-10 14:00 - 17:30 / Grand Ballroom Pre-function]

Determination of carvedilol in human plasma by high-performance liquid chromatography

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A sensitive and selective liquid chromatographic method for the determination of carvedilol in human plasma was developed and validated. Analytes were separated on a XTerra C18 column with acetonitrile-methanol-30 mM KH_2PO_4 (pH 2.5) (20 : 20 : 60, v/v/v), as mobile phase. One mL plasma were pipetted into glass tubes and spiked with 0.05 mL of internal standard solution. After adding 7 mL of diethyl ether, the plasma sample was then shacked for 15 min. A centrifuged upper layer was back-extracted with 150 uL of 0.05 M sulfuric acid. Twenty uL of the aqueous layer was injected into HPLC. Fluorescence detection was used at an excitation wavelength of 285 nm and an emission wavelength of 340 nm. The method linear over the concentration range 0.5-50 ng/mL with the correlation coefficient of 0.999. Based on a signal-to-noise level (S/N) of 10, the limit of quantification for carvedilol was found to be 0.5 ng/mL. The method has been good precision (intra-day CV(%)≤10.19, inter-day CV(%)≤8.44) and accuracy (92.6-100.83%).

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Blood glucose monitoring under the existence of other blood components by a portable type-NIR spectrometer.

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Many interference in blood should be considered for non-invasive blood glucose level monitoring by near-infrared spectroscopy because blood glucose concentration is about 0.1% (w/v) in normal state. In this study, we investigated the influence of other blood components on blood glucose level monitoring by near-infrared spectroscopy. It carried out by newly developed portable type-NIR system (1100~2200 nm). Spectrum features of NIR diffuse spectral data were investigated for some blood components powder such as hemoglobin, blood serum albumin, urea, uric acid, ascorbate, glucose, cholesterol and as adding glucose powder into other blood components powder mixture. Principle components analysis (PCA) was used to discriminate each blood component. It presented specific paek of glucose at 1600 nm and discriminated each blood component with the use of PCA. NIR diffuse spectra were collected with a 0.5 mm distance fiber optic probe by reflectance method on forearm and finger in human during intravenous glucose tolerance test (IVGTT), in vivo. Partial least squares (PLS) regression was applied for quantitative modeling for blood components monitoring including blood glucose. Calibration modeling results for glucose had less standard error of prediction (SEP) and better correlation than other blood components. This study showed blood glucose was well monitored under the existence of other blood components by the portable type-NIR system.

[PD4-24] [2003-10-10 14:00 - 17:30 / Grand Ballroom Pre-function]

Preparative Resolution of the Pindolol Enantiomers

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Enantiomers of pindolol were prepared by chromatographic method. Racemic pindolol was derivatized with S-(-)-menthyl chloroformate((-)-MCF) forming its diastereomer, R-(+)-pindolol-(-)-MCF and S-(-)-pindolol-(-)-MCF. The diastereomer mixture was then chromatographically resolved to each diastereomer. Each diastereomer was further hydrolyzed with alkali to each enantiomer quantitatively. Racemization was not occurred in this process. Pindolol enantiomers were recovered producing good yield over 30% over all process.