An efficient method for the simultaneous profiling analysis of organic acids and amino acids combined with a simple graphic pattern recognition method was developed for more objective diagnosis of organic acidurias and amino acidurias. In this method, extractive ethoxycarbonly (EOC) reaction of amino and sufhydry groups with ethyl chlorofomate was followed by methoxime (MO) formation of carbonyl group in aqueous solution. Following acidification, the resulting N(O,S)-EOC amino acids and organic acids were recovered by solid-phase extraction using Chromosorb P in normal phase partition mode, with subsequent tert.-butyldimethylsilyl (TBDMS) derivatization of carboxyl and remaining polar groups for the direct gas chromatographic (GC) analysis. The method was validated with excellent linearity ($r \geq 0.995$), with good overall precision (% RSD <10%), and satisfactory recovery of organic acids (>60%). The present profiling analysis of urinary organic acids and amino acids combined with simple I spectral and star symbol pattern recognition methods is expected to become an useful tool for diagnosis of inherited metabolic disorders.

[OD-9] [10/18/2002 (Fri) 16:50 - 17:00 / Hall B]

Depth-profiling of skin in the near infrared using fiber optic probes

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In previous study, we showed the feasibility of the in vivo use of portable near infrared system for the determination of human skin moisture. In order to optimize the acquiring condition of NIR spectrum of skin, skin depth profiling was investigated changing the distance and gap size between illumination and receiving of radiation in the terminal of fiber probe. The colleted light information could be controlled depending the distance and gap of fiber optic probe. It was confirmed that the longer distance we used, the deeper site from the skin surface we could get information from. Four kinds of probes with distances such as 0.03 mm, 0.1 mm, 0.5 mm, and 1.0 mm were used. In addition, the gap size from 0.3 mm to 3.0 mm was studied to control the intensity of water absorbance effectively and to avoid saturation of water absorption. We also investigated the reference materials depending the reflectance ratio for water absorption not to be saturated because of the strong absorptivity of water. This study would be great help to condition the acquiring of NIR spectrum for the non-invasive blood components monitoring as well as human skin moisture.

[OD-10] [10/18/2002 (Fri) 17:00 - 17:10 / Hall B]

Comparison of isoBOC derivatives, TBDMS derivatives, with US EPA Method in the sensitivity of Alkylphenols, Chlorophenols, and Bisphenol A potential field-screening applications of GC/MS-SIM

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The alkylphenols, chlorophenols and bisphenol A were determined by gas chromatography/mass spectrometry-selected ion monitoring mode followed by three work-up methods for comparison; EPA method, isoBOC derivatization method and TBDMS derivatization method. Eleven phenols in water samples were extracted with dichloromethane. Also, solid-phase extraction (SPE) with XAD-4 and subsequent conversion to isobutoxycarbonyl derivatives or tert.-butyldimethylsilyl derivatives for sensitive analysis with the selected ion-monitoring (SIM) mode. The recoveries were 85.1 ~ 109.9 % (EPA method) and 90.3 ~ 126.6 % (isoBOC derivatization and TBDMS derivatization), respectively. The