

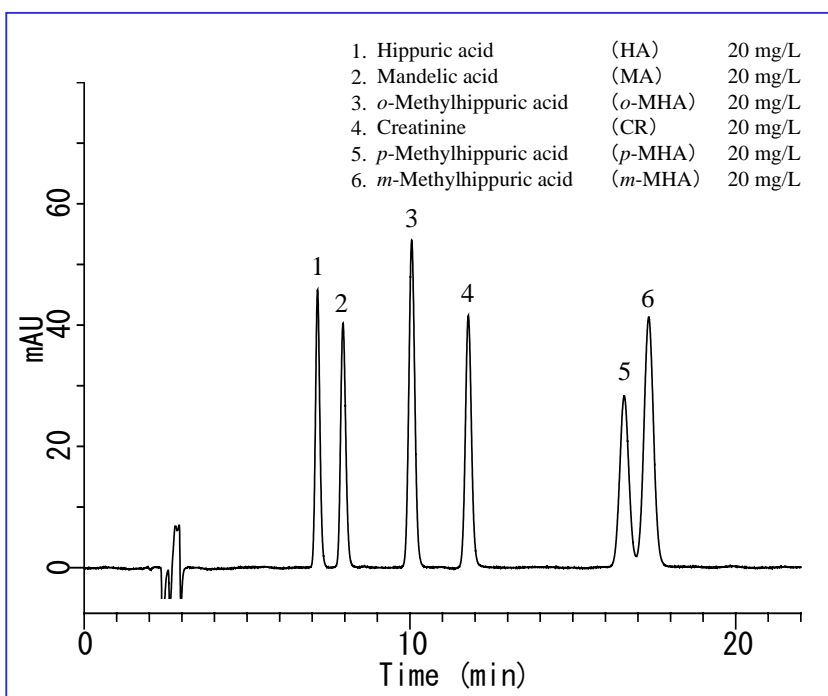
Hippuric acid, methylhippuric acid, and mandelic acid are major urine metabolites of aromatic organic solvents (*e.g.* toluene, xylene, and styrene). Their amounts in urine are most widely used as an indicator of the organic solvent exposure. This note describes a simultaneous determination method for the urinary metabolites and creatinine.

The separation is usually performed with ODS columns

using ion-pair reagents. However, it is difficult to achieve good separation of meta- and para- isomers of methylhippuric acid.

In this note, Inertsil ODS-80A, which offers excellent performance especially in separation of small molecules, was used. As a result, all the analytes were successfully separated within 20 minutes. (K.Suzuki)

A chromatogram obtained from standard solution



Conditions

System : GL-7400 HPLC system

Column : Inertsil ODS-80A
(5 μ m, 250 x 4.6 mm I.D.)
Cat.No. 5020-01602

Eluent : A) 2-propanol
B) 10 mM phosphate buffer (pH 2.5)
containing 2 mM sodium
1-nonanesulfonate
A/B = 10/90, v/v
(Mixed by a gradient mixer)

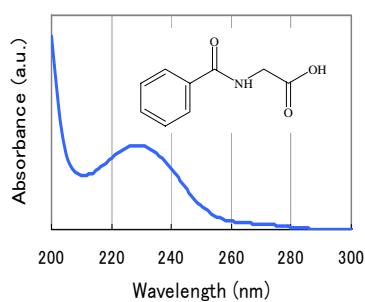
Flow rate : 1.0 mL/min

Col. Temp. : 40 $^{\circ}$ C

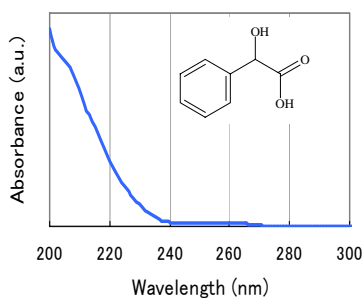
Detection : PDA 210 nm

Inj. Vol. : 10 μ L

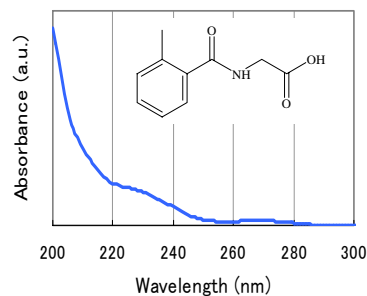
The chemical structures and the absorption spectra obtained by PDA



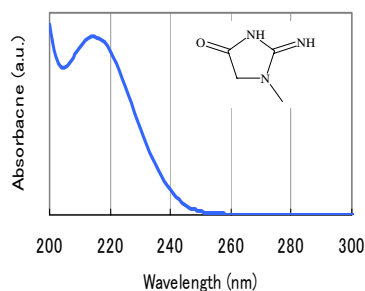
Hippuric acid



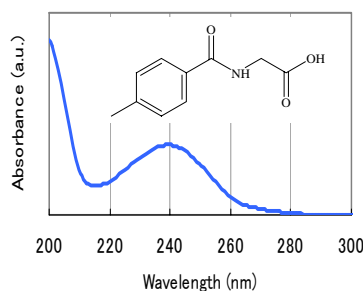
Mandelic acid



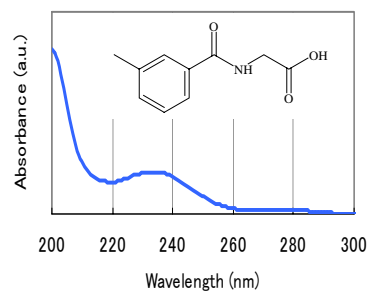
o-Methylhippuric acid



Creatinine



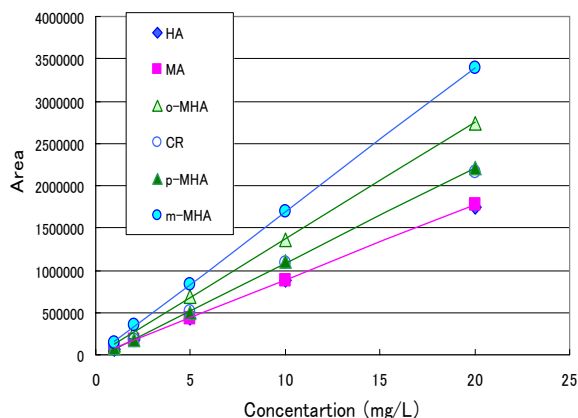
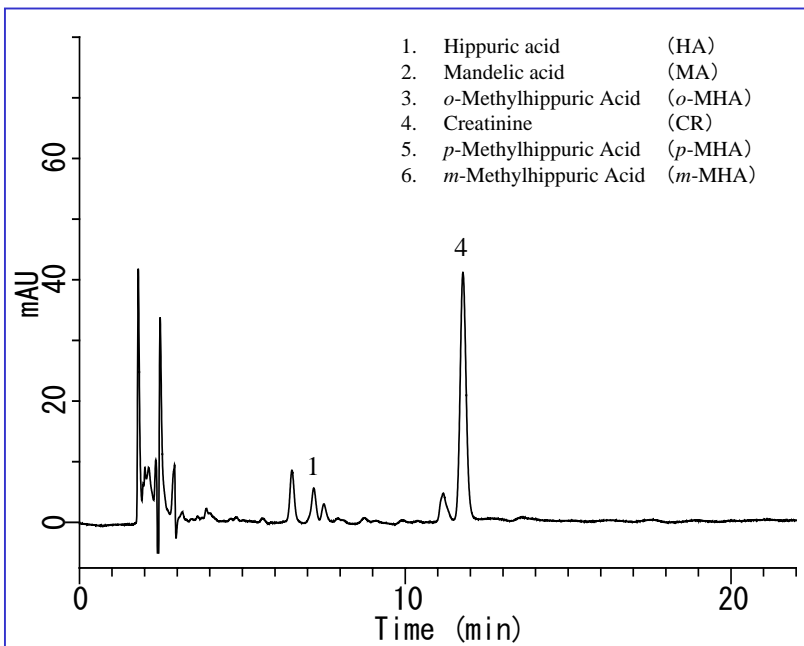
p-Methylhippuric acid



m-Methylhippuric acid

An analysis of human urine sample

After 100-fold dilution with water, the sample was filtrated using a 0.45 μ m-membrane filter. The filtrate was injected into the HPLC system.



	R ²
1. HA	: 0.9999
2. MA	: 1.000
3. <i>o</i> -MHA	: 0.9999
4. CR	: 0.9998
5. <i>p</i> -MHA	: 0.9995
6. <i>m</i> -MHA	: 0.9999

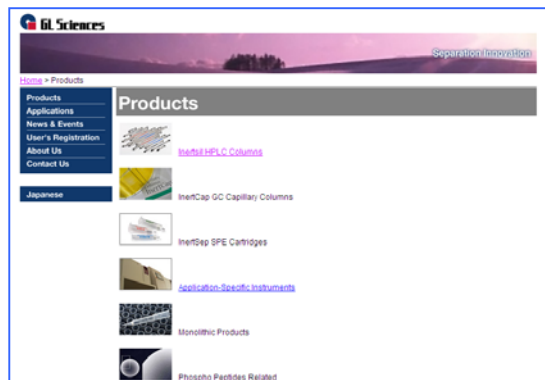
The calibration curves and their correlation coefficients

Visit our Website on

<http://www.glsciences.com/>

<http://www.inertsil.com/>

GL Sciences also offers an extensive range of GC and LC consumables.



Contact us

GL Sciences, Inc. Japan

22-1 Nishishinjuku 6-chome, Shinjuku-ku, Tokyo, 163-1130 Japan

TEL: +81-3 (5323)6620 FAX: +81-3 (5323)6621

GL Sciences, Inc. USA

4733 Torrance Blvd. Ste 255, Torrance, CA 90503

Tel: (310)265-4424 FAX (310)265-4425

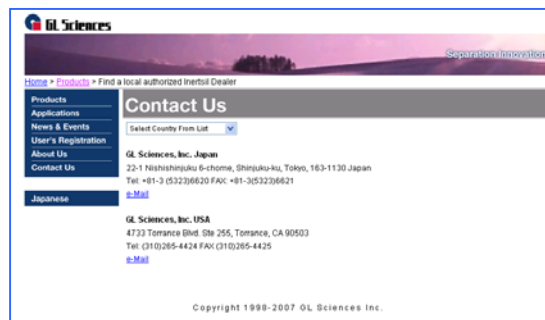
Distributors Outside of Japan and USA

GL Sciences uses distributors in many countries.

You can find a local distributor in your country in the following url.

<http://www.glsciences.com/products/contact.html>

E-MAIL: world@glsc.co.jp



Copyright 1998-2007 GL Sciences Inc.