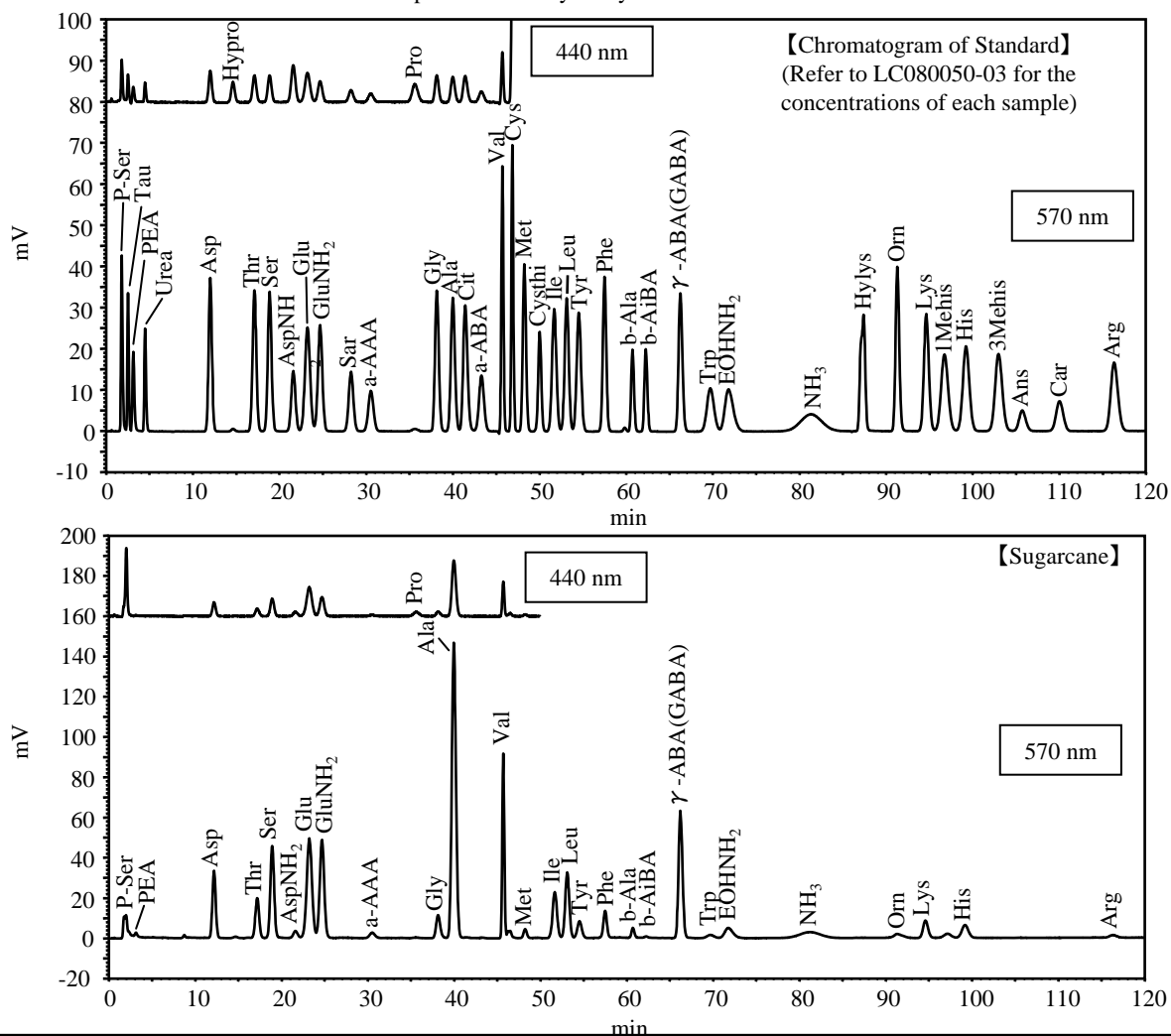


**Analyses of Free Amino Acids in Sugarcane, Cucumber, Watermelon and Supplement Drink
using Method for Physiological Fluids (L-8900)**

Citrulline is an amino acid and expected to have various effects such as vasodilation and arteriosclerosis inhibitory effects as it increases the production of nitric oxide (NO). It is richly contained in cucurbits such as watermelon and cucumber. Recently, supplement drink with citrulline is being sold. In this analysis, free amino acids contained in these food products were analyzed by L-8900 Amino Acid Analyzer. By using the method for physiological fluids, alanine (Ala) and α -aminobutyric acid (α -ABA) which elute around citrulline are well separated. It was also found that more citrulline is contained in watermelon than in cucumber. Refer to LC080051 for the examples of the analyses by L-2000 series.



SAMPLE	20 μ L Sample Soln. *	PRESSURE	
PACKING MATERIAL	#2622PF[HITACHI]	TEMPERATURE	32 - 70°C
COLUMN SIZE		SEPARATION METHOD	Ion exchange
for separation	4.6 mm I.D. \times 60 mm [#2622PF]	DETECTOR	VIS 570 nm, 440 nm
for ammonia trap	4.6 mm I.D. \times 40 mm [#2650L]		
ELUENT	L-8500 PF-Kit	INSTRUMENTS	L-8900 (Amino Acid Analyzer)
FLOW RATE	0.35 mL/min		

NOTE * Refer to LC080050-03 for the sample preparation method.
 Reaction reagent = ninhydrin reagent, Reaction reagent flow rate = 0.3 mL/min
 Reaction unite temperature = 135°C
 L-8900 Physiological Fluids Analysis Method was used for this analysis.

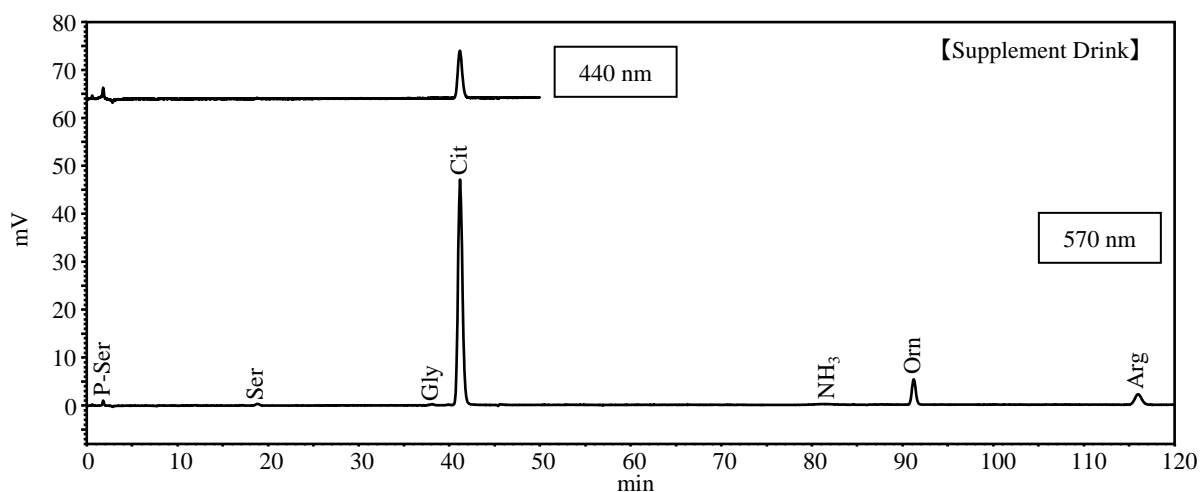
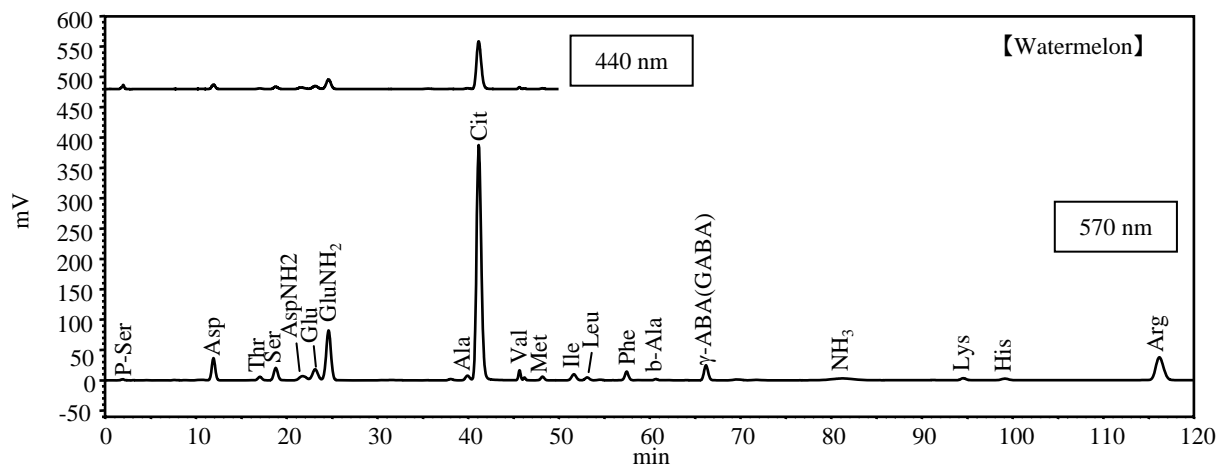
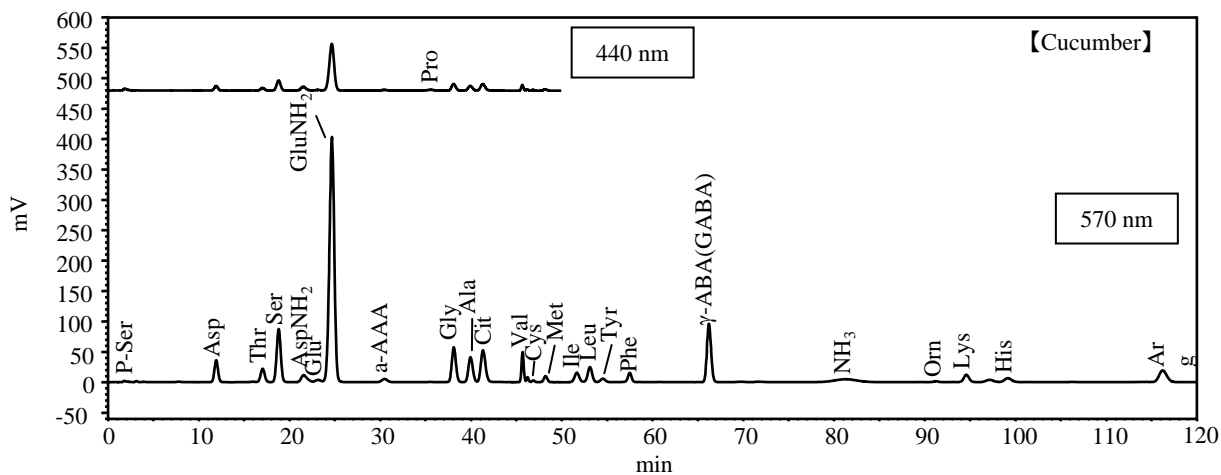
KEY WORDS

Food, Amino Acid, Physiological Fluid Analysis Method, Ninhydrin Method, UV-VIS Spectrometry, L-8900, Ion Exchange

**High Performance Liquid
Chromatograph (HPLC)**

Sheet No. LC080050-01

Analyses of Free Amino Acids in Sugarcane, Cucumber, Watermelon and Supplement Drink
using Method for Physiological Fluids (L-8900)



Refer to LC080050-03 for the preparation method of each sample.

High Performance Liquid Chromatograph (HPLC)

Sheet No. LC080050-02

Sample Preparation for Analyses of Free Amino Acids in Sugarcane, Cucumber, Watermelon and Supplement Drink and Amino Acid Components Analyzed

【Preparation Method for Sugarcane, Cucumber, and Watermelon】

Sample Sugarcane juice (squeezed), watermelon juice, cucumber juice (grated)

↓

Centrifuge 10,000 rpm, 10 min

↓

Filtration Pore Size 0.2 μm

 ← Dilute to 5 times with purified water (no dilution for sugarcane)

 ← Dilute to 2 times with 5 % TCA (trichloroacetate)

↓

Centrifuge 10,000 rpm, 10 min

↓

Sample for injection

【Preparation Method for Supplement Drink】

Sample Supplement drink 1 mL

 ← Dilute to 25 times with 0.02 mol/L HCl

↓

Filtration Pore Size 0.2 μm

↓

Sample for injection

【Table of Amino Acid Compounds】

(Unit of concentrations: nmol/20 μL)

Abbrev.	Compound	Std. Concentrations	Abbrev.	Compound	Std. Concentrations
P-ser	Phosphoserine	1	Cysthi	Cystathionine	1
Tau	Taurine	1	Ile	Isoleucine	2
PEA	Phospho ethanol amine	1	Leu	Leucine	2
Urea	Urea	40	Tyr	Tyrosine	2
Asp	Aspartic acid	2	Phe	Phenylalanine	2
Hypro	Hydroxy proline	2	b-Ala	β-Alanine	2
Thr	Threonine	2	b-AiBA	β-Amino iso butyric acid	2
Ser	Serine	2	γ-ABA	γ-Amino – n – butyric acid	2
AspNH ₂	Asparagine	2	Trp	Tryptophan	2
Glu	Glutamic acid	2	EOHNH ₂	Ethanol amine	2
GluNH ₂	Glutamine	2	NH ₃	Ammonia	2
Sar	Sarcosine	5	Hylys	Hydroxylysine	2
a-AAA	α-Amino adipic acid	1	Orn	Ornithine	2
Pro	Proline	2	Lys	Lysine	2
Gly	Glycine	2	1Mehis	1-Methylhistidine	2
Ala	Alanine	2	His	Histidine	2
Cit	Citrulline	2	3Mehis	3-Methylhistidine	2
a-ABA	α-Amino-n-butyric acid	1	Ans	Anserine	2
Val	Valine	2	Car	Carnosine	2
Cys	Cystine	2	Arg	Arginine	2
Met	Methionine	2			

High Performance Liquid
Chromatograph (HPLC)

Sheet No. LC080050-03