

Analysis of Amino Acids in Soy Flour with the Hitachi L-8900 Amino Acid Analyzer

Amino acids play many essential roles in biological systems, including serving as building blocks for proteins, acting as neurotransmitters, and functioning as intermediates in metabolic pathways. Analysis of the amino acids that comprise proteins and peptides, and of the free amino acids found in materials such as serum or foodstuffs is accomplished through HPLC-based techniques. One common technique involves separation of the amino acids by an ion-exchange mechanism followed by post-column derivatization with ninhydrin. This derivatization step enables the amino acids to be detected by measuring absorbance in the visible range. The Hitachi L-8900 Amino Acid Analyzer is a stand-alone instrument capable of analyzing amino acids in a wide variety of matrices. Presented here is a summary of the performance parameters for the L-8900, including sensitivity, reproducibility, and linearity, as well as a representative analysis of the amino acids in hydrolyzed soy flour.

Results – Peak Area Linearity (5-200 μ M), Peak Area Reproducibility (N = 6 at 100 μ M), and Sensitivity (S/N $\geq$ 3)

	Linearity (R ²)	Reproducibility (RSD)	Sensitivity (pmoles)
Asp	1	0.09	2
Thr	1	0.05	2
Ser	0.9997	0.09	2
Glu	0.9999	0.11	2
Pro*	0.9999	0.23	100
Gly	1	0.14	6
Ala	0.9999	0.21	6
Cys	1	0.14	10
Val	0.9998	0.21	6
Met	0.9999	0.37	6
Ile	1	0.10	4
Leu	1	0.16	4
Tyr	1	0.11	6
Phe	1	0.09	6
Lys	1	0.11	2
His	1	0.12	2
Arg	1	0.10	4

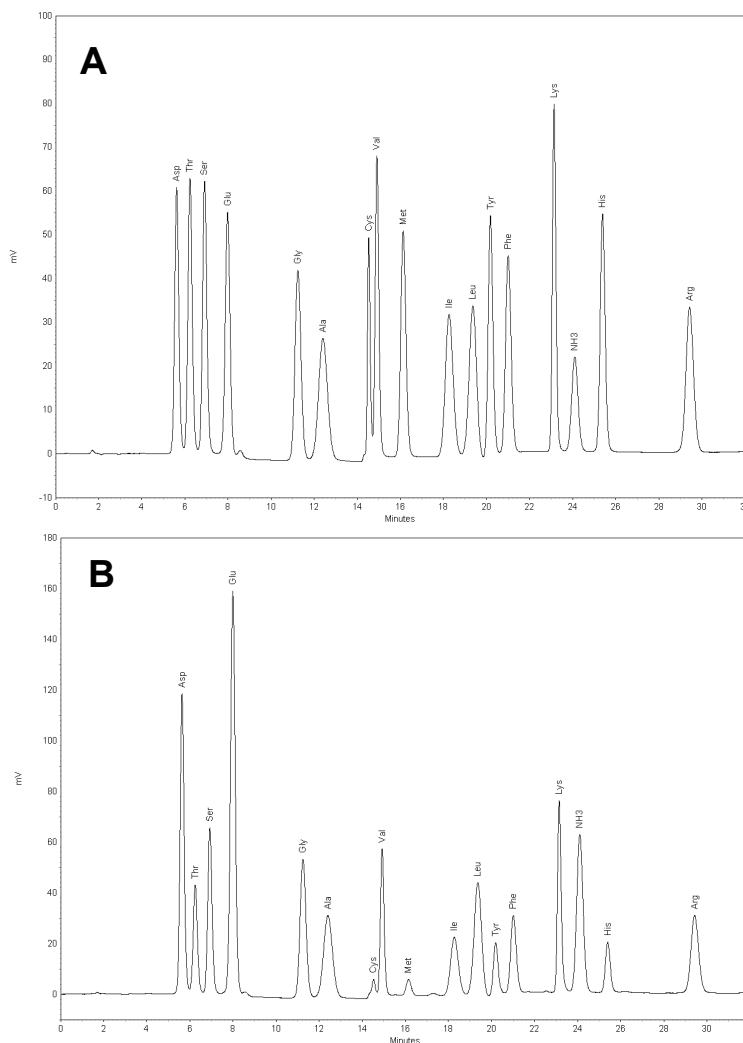
Note: Proline monitored at 440 nm, all other amino acids monitored at 570 nm

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Results – Chromatographs, 570 nm

A.18 Component amino acid standard, 100 μ M each*

B.Soy flour, hydrolyzed



Discussion

The Hitachi L-8900 Amino Acid Analyzer effectively analyzes amino acids with excellent linearity, reproducibility, and sensitivity. The analysis of 18 amino acids in hydrolyzed soy flour can be completed within 32 minutes.

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