

Amino acids have recently been of interest for their use in the booming healthcare supplements industry. Although there is a high demand for analysis, direct measurement by HPLC is not straightforward, this is because UV-visible detection is not selective nor sufficiently sensitive for amino acids in their native form. This application note describes a method of analysis using Post Column-OPA derivitization, which is highly sensitive, highly selective and quantitative for amino acids.

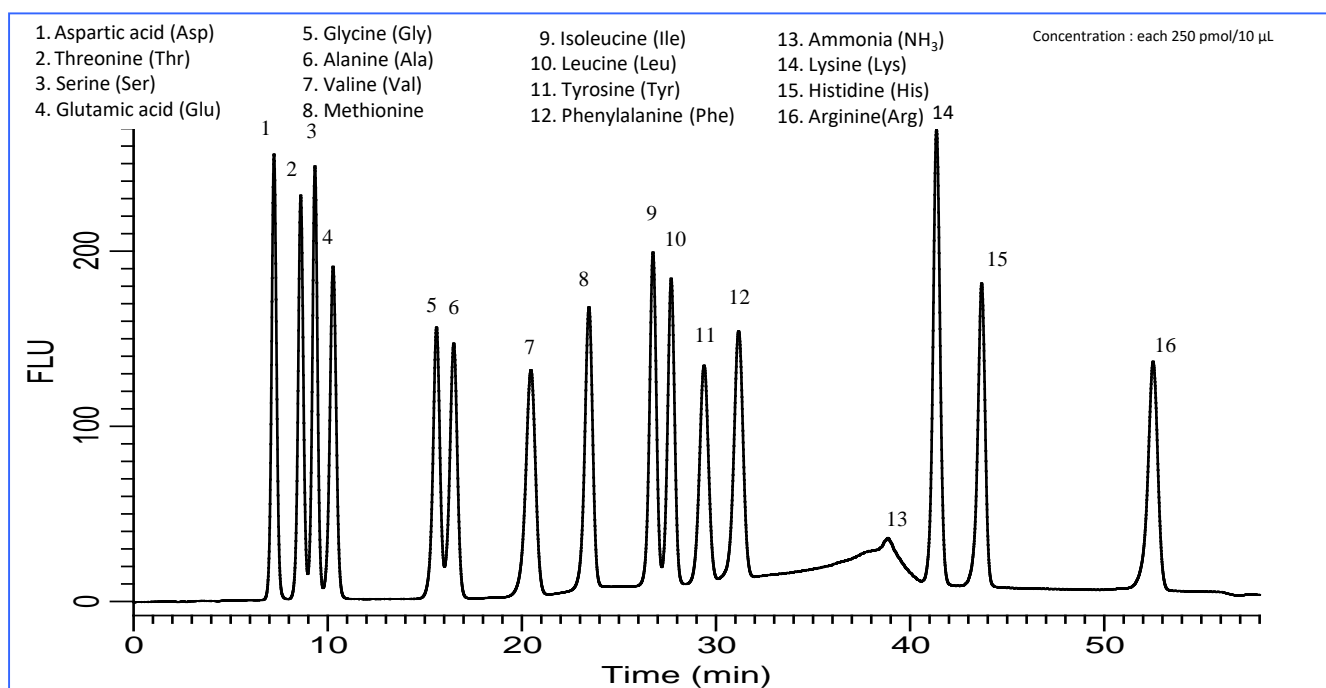
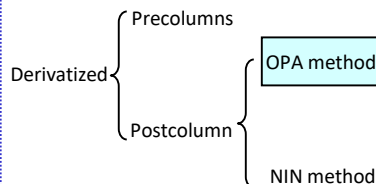
Features of the post-column-orthophthalaldehyde (OPA) method

The post-column derivatization method, in which the components are first separated by a column has the advantage that it does not change the derivatization efficiency due to the presence of contaminants. This results in it being possible to assay a wide range of samples with good quantitation and reproducibility.

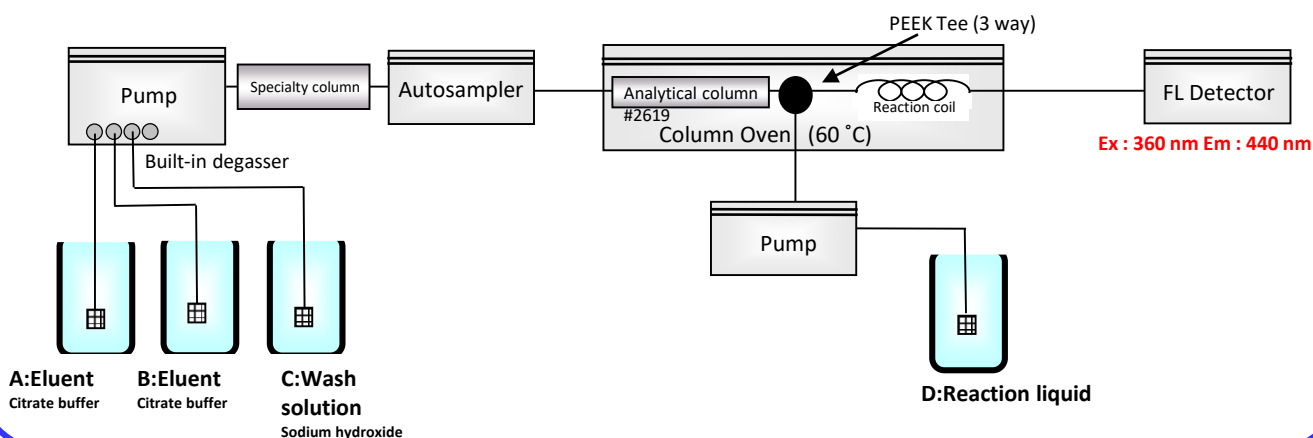
The OPA method selectively derivatizes the amino group found on both amino acids and contaminants after separating them with the ion exchange column for fluorometric detection.

Because of its greater selectivity compared to other derivatization methods, the assay can be performed with simple pretreatment. Using fluorescence detection, the sensitivity is also superior.

Type of derivatization method

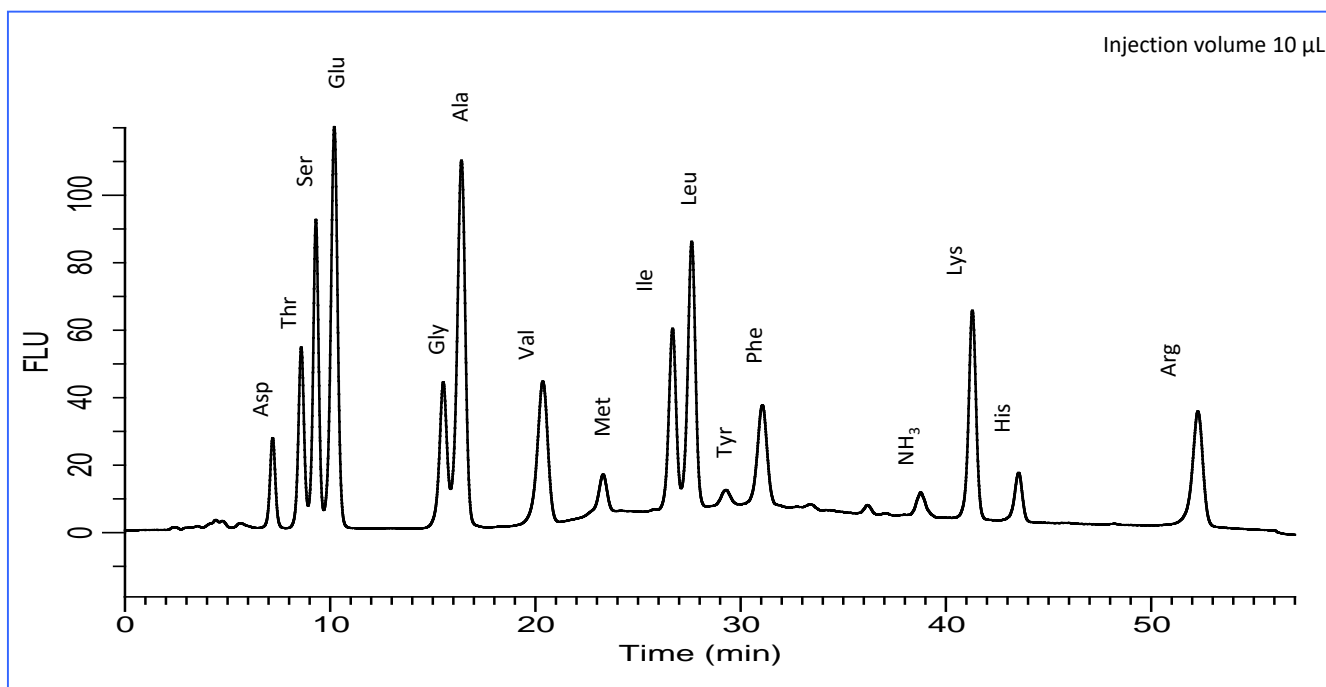


Analytical conditions and flow chart



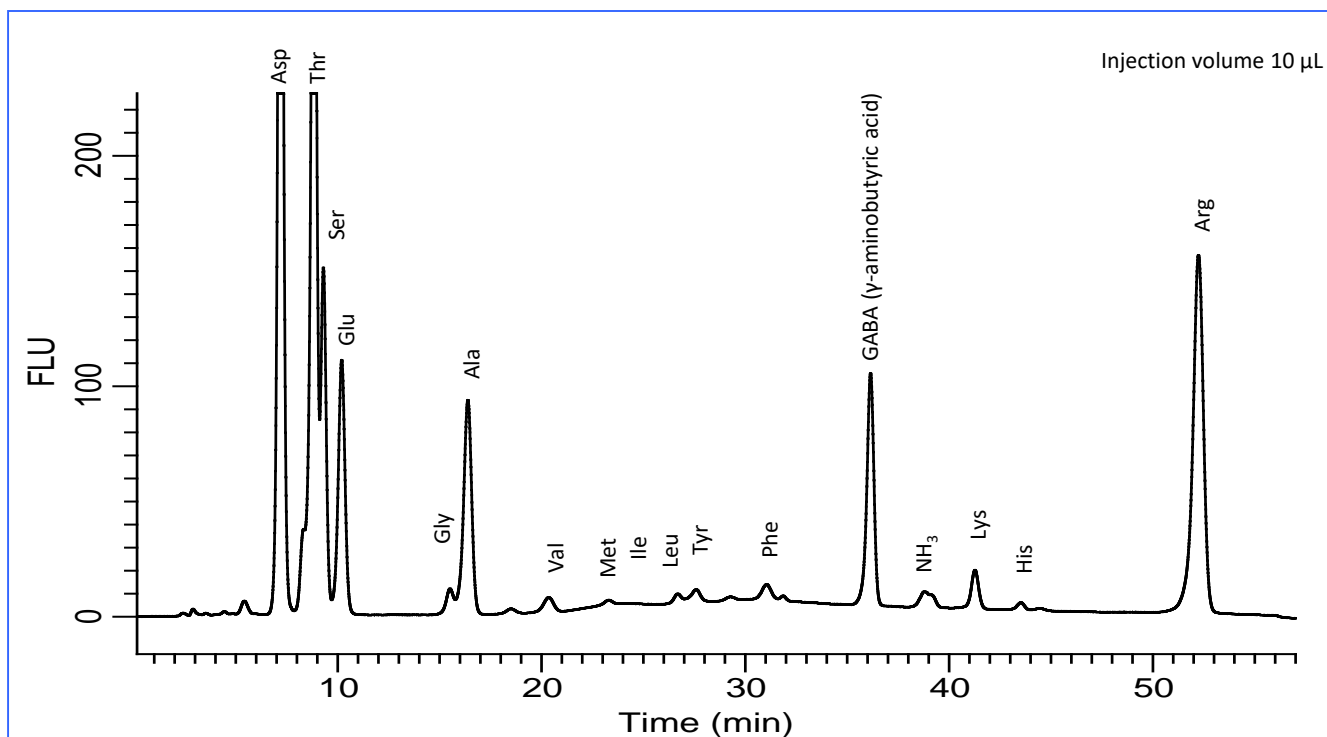
Amino acids in soy sauce

Pretreatment: Dilute soy sauce 200-fold with water and filtered



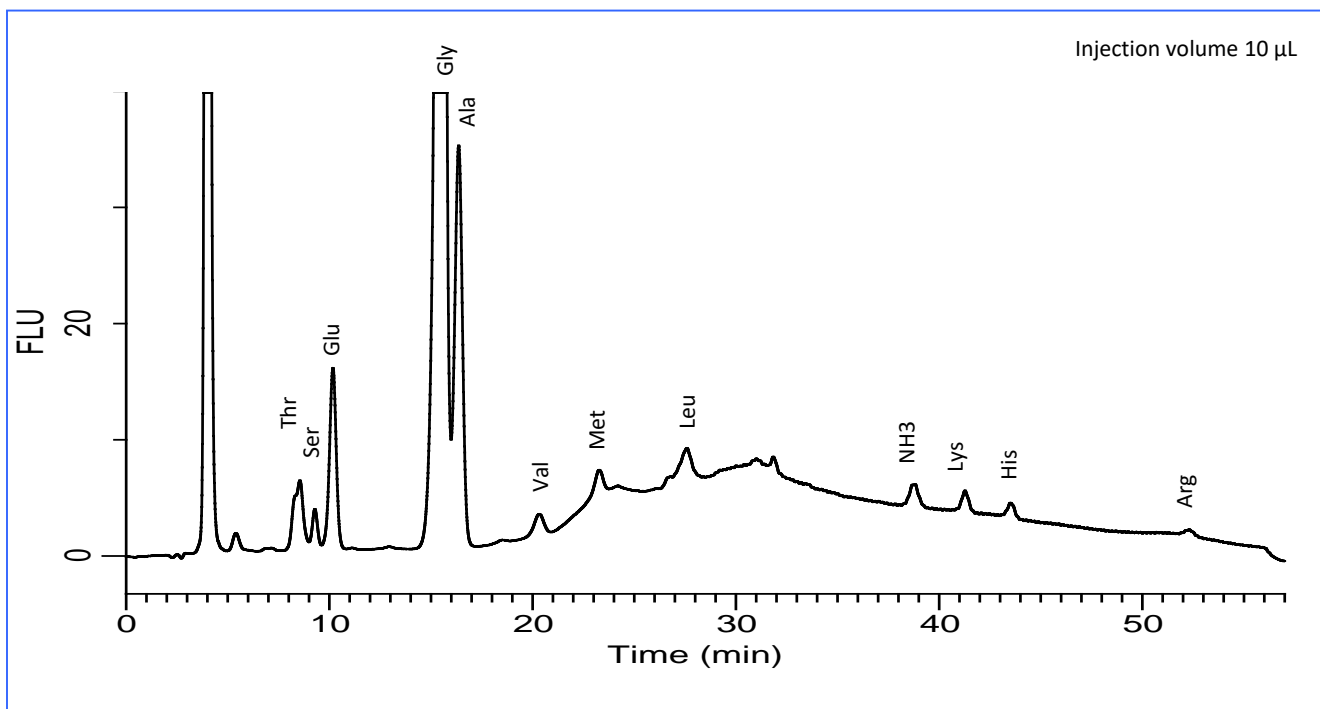
Amino acids in Mandarin oranges

Pretreatment: Dilute squeezed mandarin orange 50-fold with water and filtered



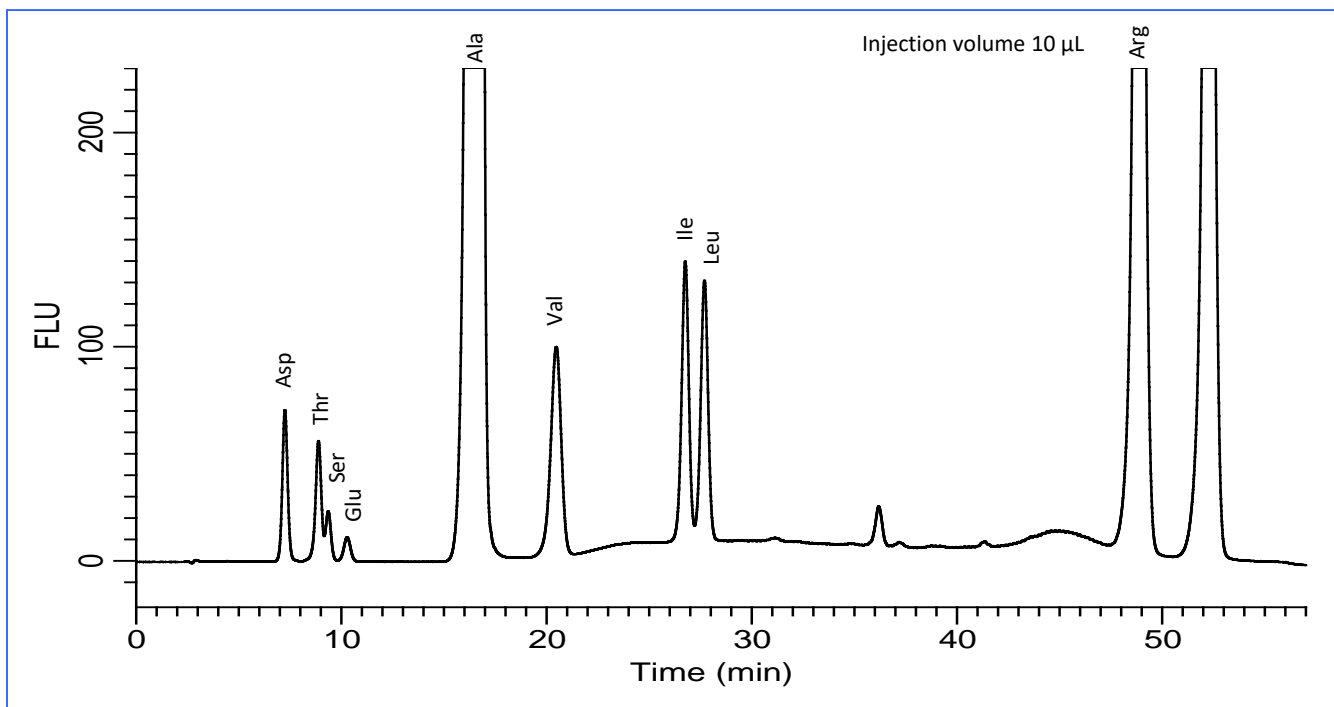
Amino acids in scallops

Pretreatment method: 15 mg of the adductor muscle of raw scallops was homogenized in 2 mL of water and filtered



Amino acids in soft drinks containing amino acids

Pretreatment: 10-fold dilution of soft drink in water and filtered



Example of application

The measurement of polyamines and guanidine compounds is also possible considering the eluent.

Polyamines

- Detection of allergic substances such as histamine
- Food freshness checks

Guanidine compounds

- Some compounds have been suggested to be associated with cancer

γ -Aminobutyric acid (GABA), which lowers blood pressure, can also be measured.

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