LT048

GL Sciences Inc.

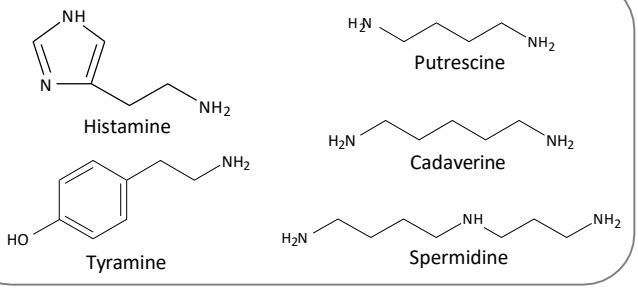
Analysis of Putrefactive Non-Volatile Amines in Food by Pre-column HPLC

This note describes a determination method for non-volatile putrefactive amines in food using pre-column derivatization.

Putrefactive amines in food are produced by microorganisms. Many of the biogenic amines are known to be responsible for food-poisoning. To determine these amines, HPLC systems coupled with pre-column or post-column derivatization methods are frequently used.

Based on the inspection guideline by Japan Food Hygiene Association, pre-column derivatization method using DNS-Cl (5-dimethylaminonaphthalene-1-sulfonyl chloride) was adopted in this note. The putrefactive amines were successfully fluorescently derivatized, and the calibration curves showed excellent linearity. (K.Suzuki)

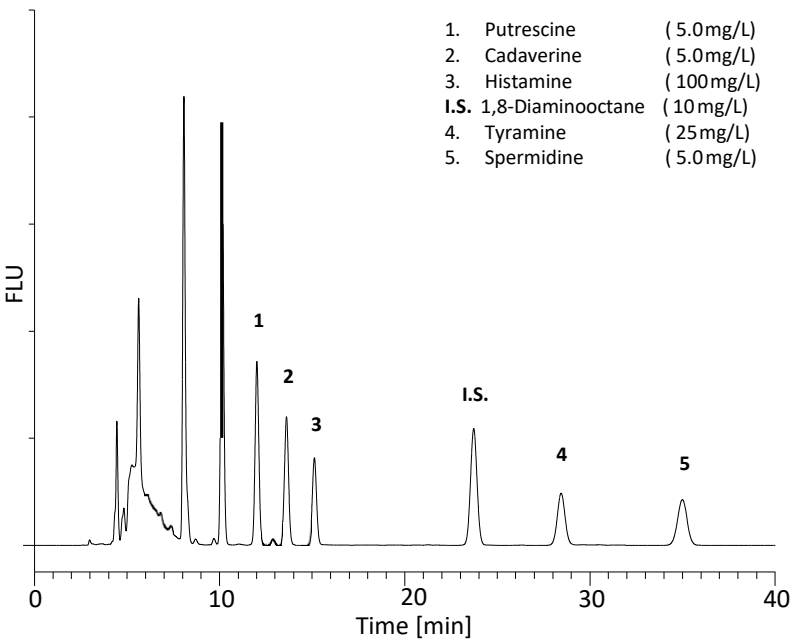
Chemical Structures



Structures are created using Chemistry 4-D Draw which is provided by ChemInnovayion Software, Inc.

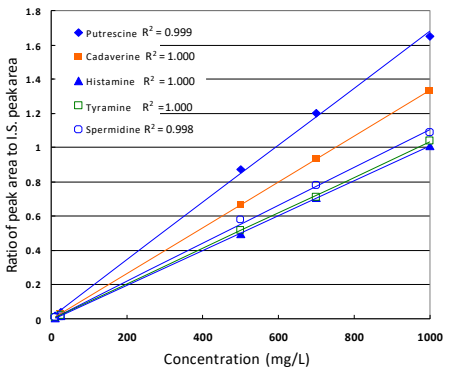
A Chromatogram Obtained from Standard Solution

Standard solution derivatized by DNS-Cl was analyzed.



Conditions

Column	Inertsil ODS-SP (5 µm, 250 x 4.6 mm I.D.) Cat.No. 5020-02746
Guard column	Cartridge Guard Column E ODS-SP (5µm, 10 x 4.0 mm I.D.) Cat.No. 5020-08520
Eluent	A) CH_3CN B) H_2O A/B= 65/35, v/v , 1.0 mL/min
Column Temp.	40 °C
Detection	FL Ex 325 nm, Em 525 nm
Injection Vol.	10 µL



The calibration curves for the putrefactive amines

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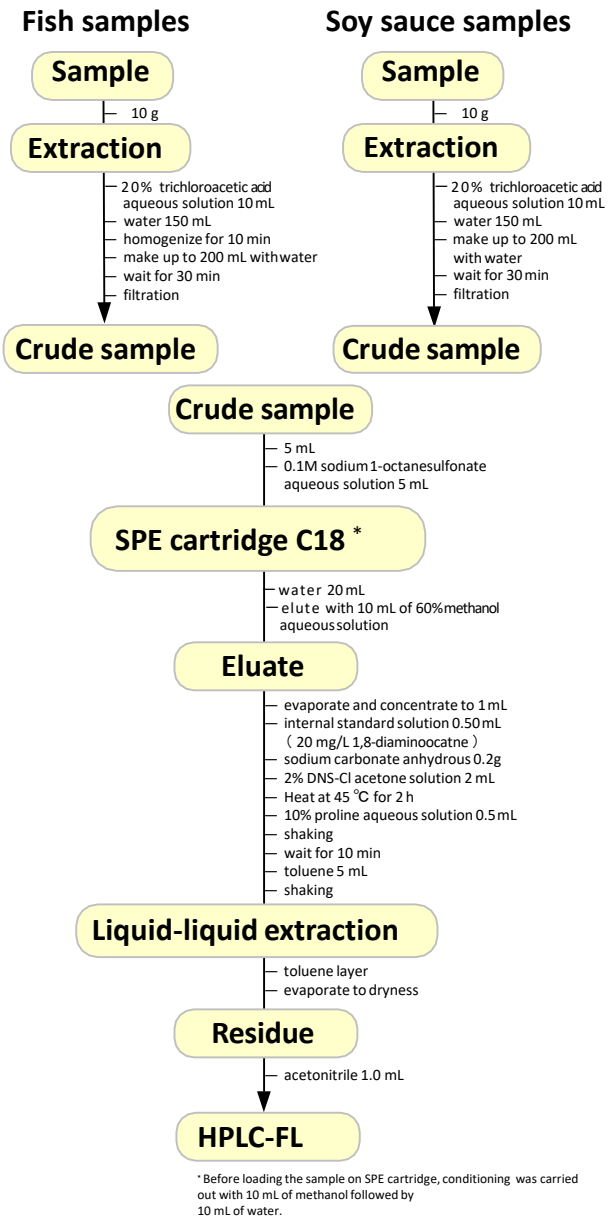
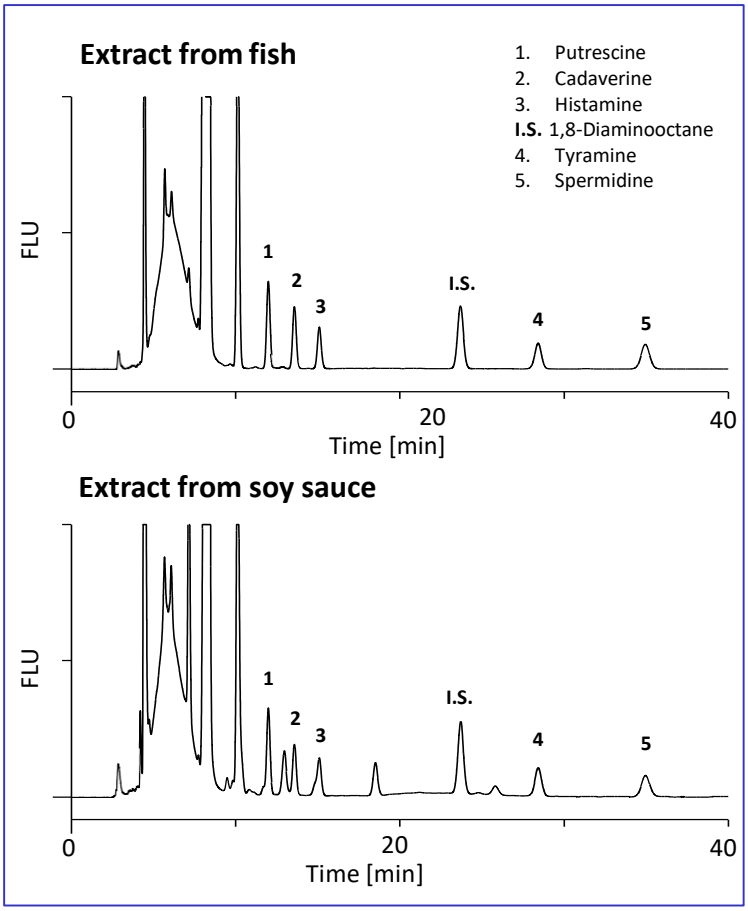
Examples of Sample Pretreatment

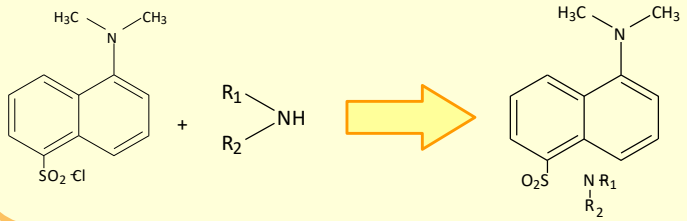


* Before loading the sample on SPE cartridge, conditioning was carried out with 10 mL of methanol followed by 10 mL of water.



Derivatization reaction by DNS-Cl

DNS-Cl reacts with primary and secondary amines. As a result, fluorescent derivatives are generated.



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