

Vitamin A is a micronutrient found in foods, in addition there are other compounds that have vitamin A activity; retinols such as alcoholic retinol and esterified palmitate retinol, carotenoids such as β -carotene and cryptoxanthin.

See Technical Note No. 28 for An Analysis of Carotenes.

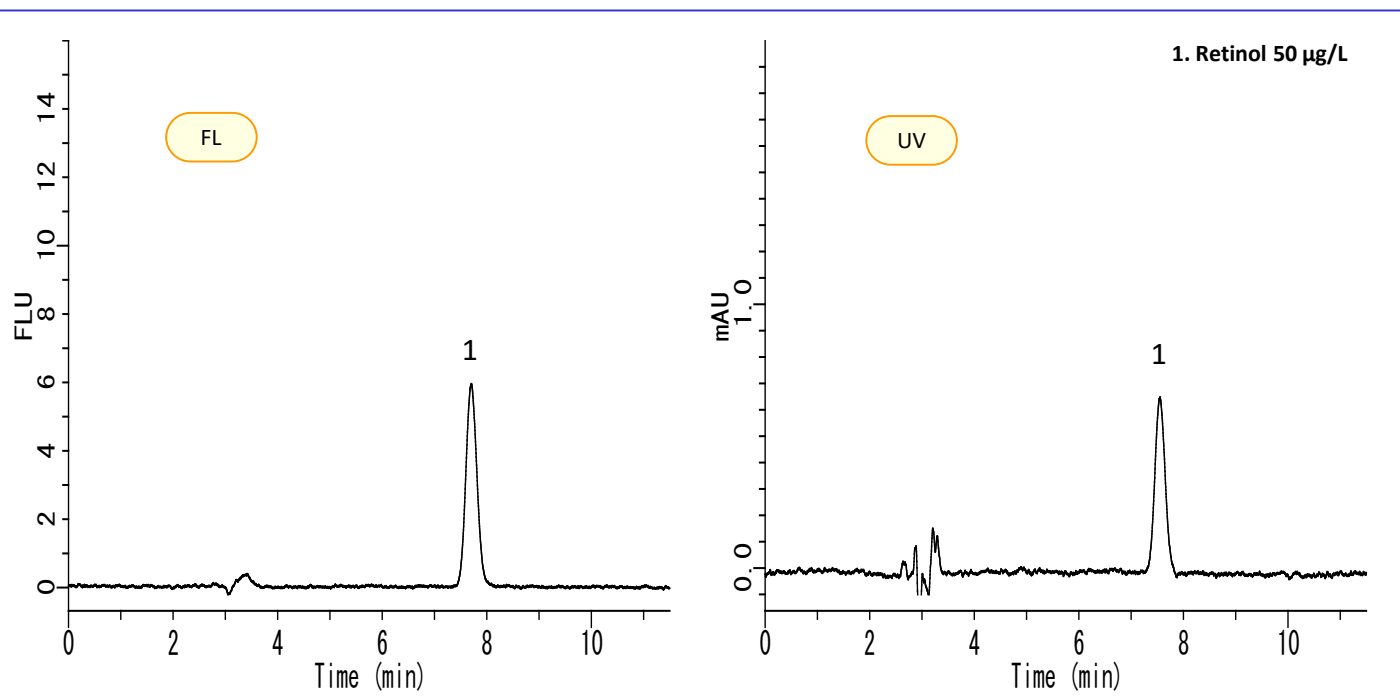
In this report, retinol was analyzed as an ingredient in accordance with the Food Sanitation Inspection Guidelines.

Retinols in samples were saponified and hydrolyzed to retinol. A liquid-liquid extraction was then performed, the concentrated sample was injected onto an HPLC with UV and fluorescence (FL) detectors.

The analysis of vitamin A in foods, as shown in the following pages, can be performed well with UV detection. However, FL detectors are more sensitive for samples with trace amounts of vitamin A.

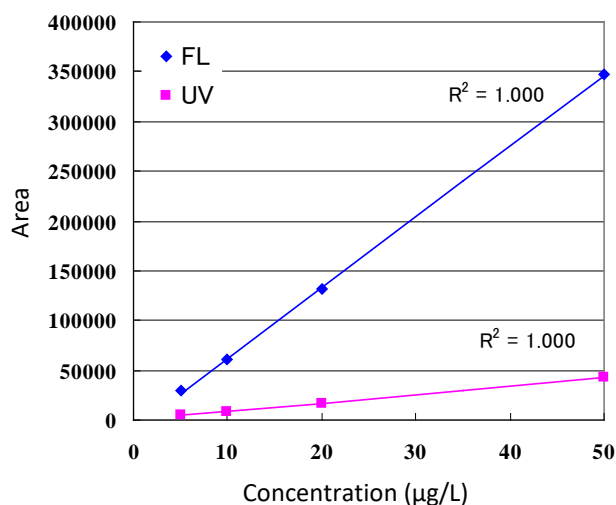
(K.Suzuki)

Example: Measurement of Standard

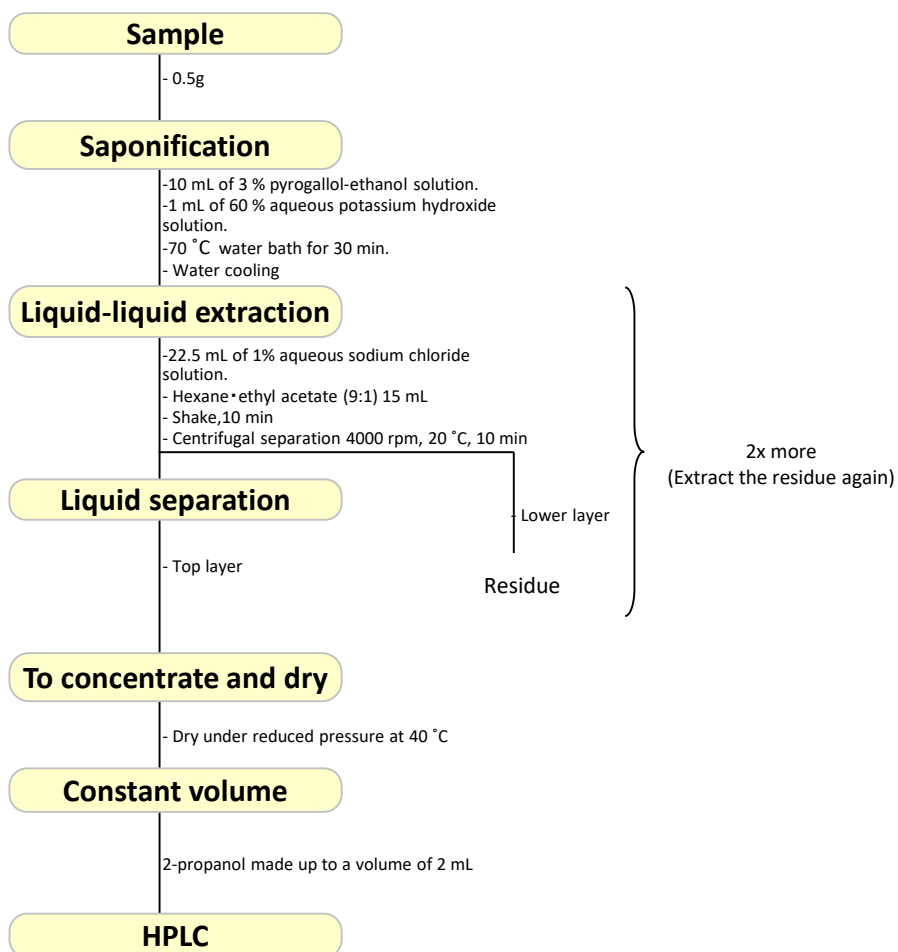


HPLC conditions

Column	: Inertsil ODS-3 (5 µm, 250 x 4.6 mm I.D.)
Eluent	: A) CH ₃ OH B) H ₂ O A/B = 95/5, v/v
Flow rate	: 1.0 mL/min
Column temperature	: 40 °C
Detected	: UV 325 nm FL Ex 340 nm Em 460 nm
Injection volume	: 20 µL



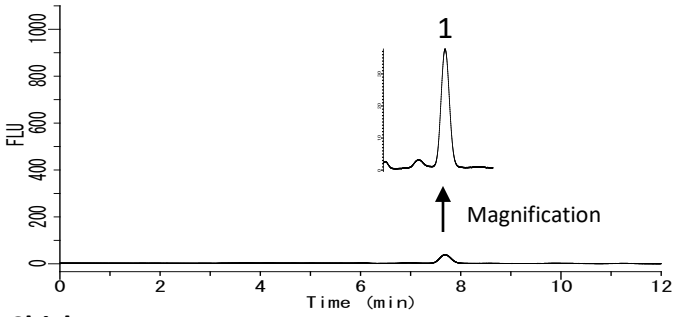
Example of pretreatment



Example: Sample Measurement

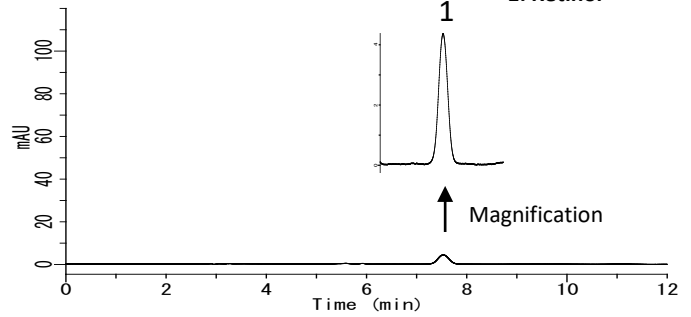
FL

Powdered milk

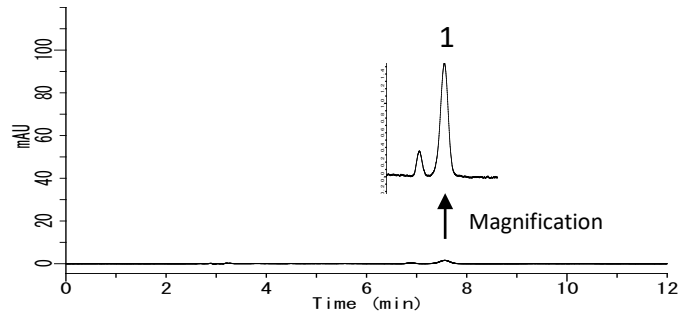
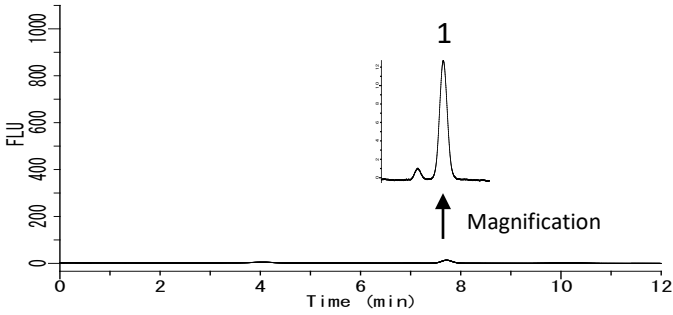


UV

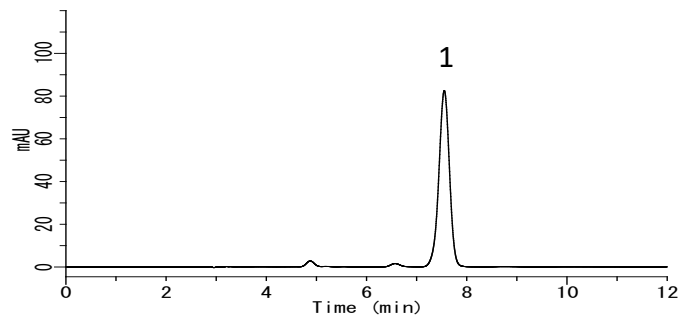
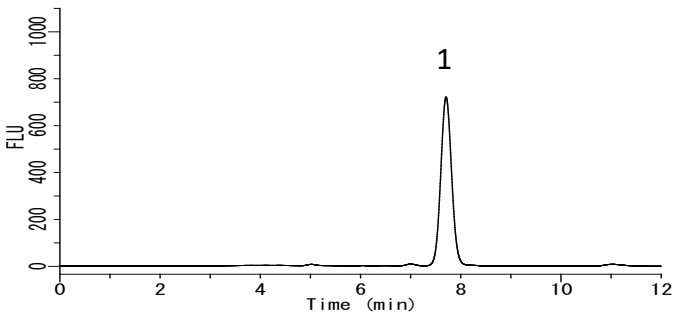
1. Retinol



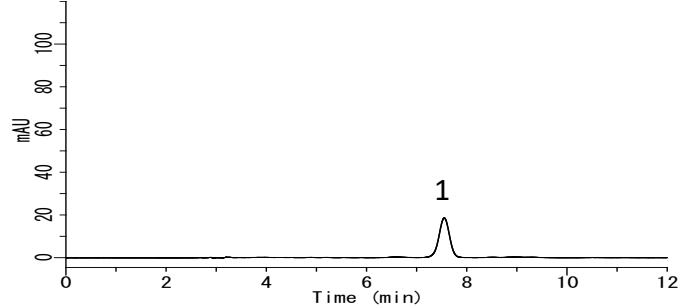
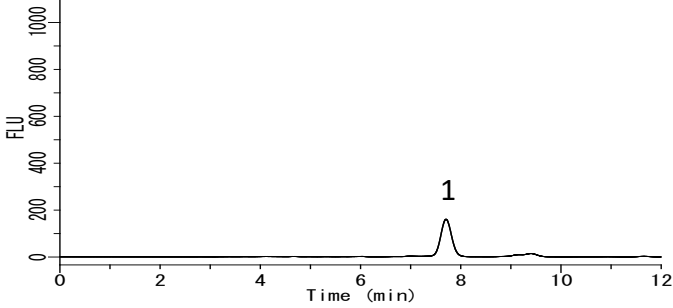
Chicken



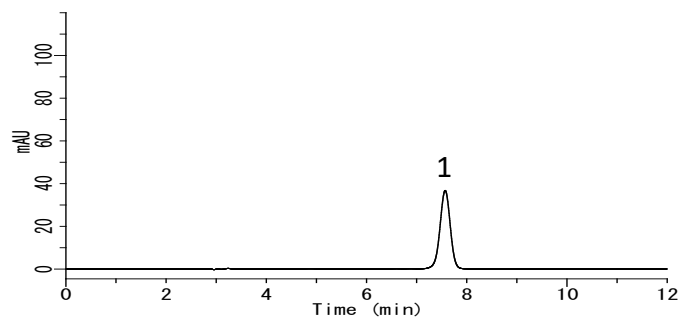
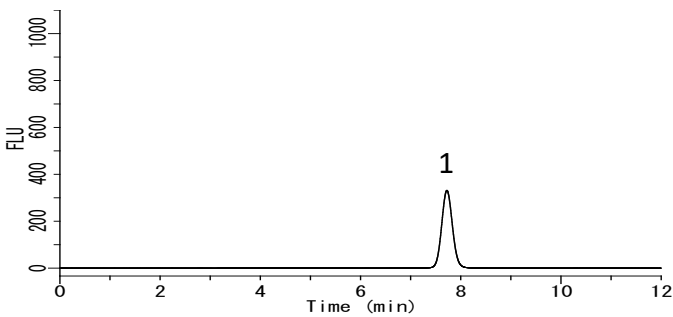
Broiled eel



Butter

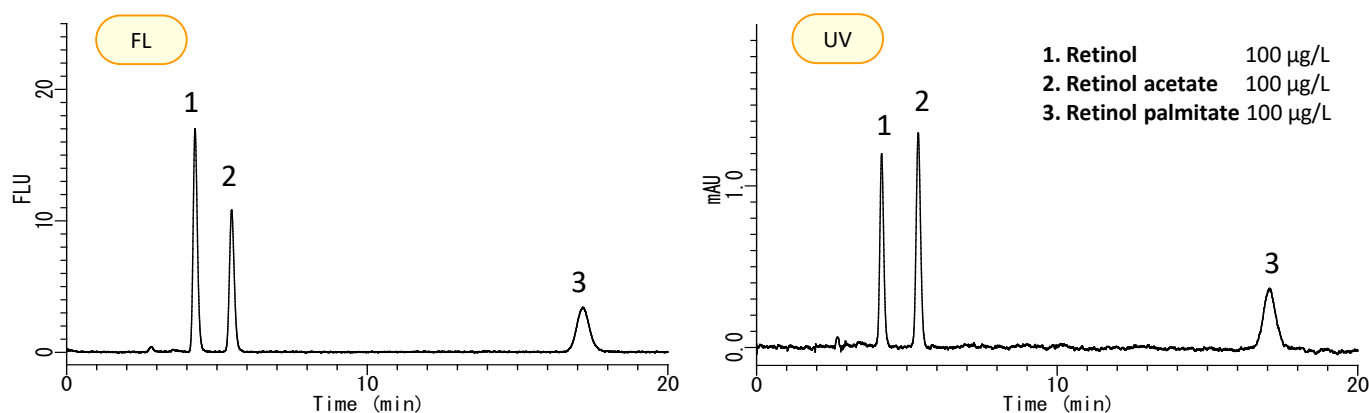


Pork (liver)



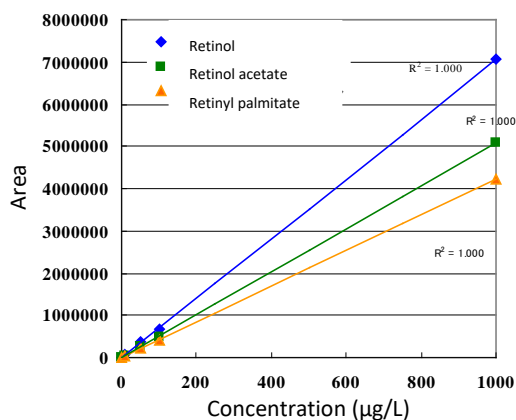
Example: Measurement of Standard

It has been reported that the retinol can be separated and detected by extracting and analyzing samples without saponification.



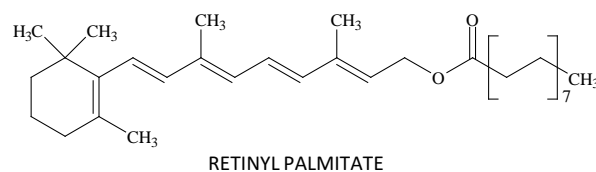
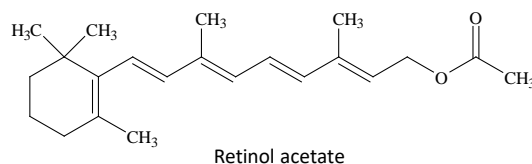
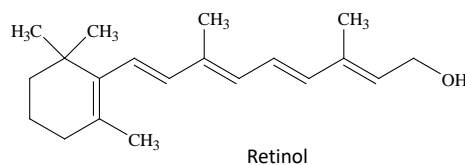
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Detected	: UV 325 nm FL Ex 340 nm Em 460 nm
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Example of a calibration curve using a fluorescence detector.

Structural formula



Structures are created using Chemistry 4-D Draw provided by ChemInnovation Software, Inc.

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