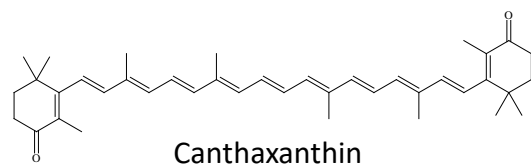
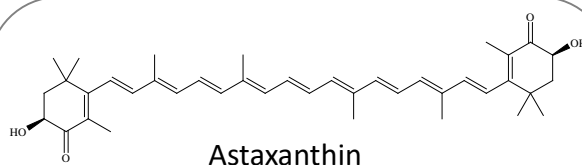


Astaxanthin and cantaxanthin are carotenoids that are used as color enhancers in aquatic animals. The residue limits for cantaxanthin, are set for livestock and fishery foods, and the test methods are described in "Testing methods for pesticide residues in foods, feed additives, or substances that are components of veterinary drugs" (Notification No. 0124001 of the Safety Division, PFSB dated January 24, 2005).

In this report, a High Performance Liquid Chromatography (HPLC) was used with a photodiode array detector (PDA), which is versatile for many diverse applications.

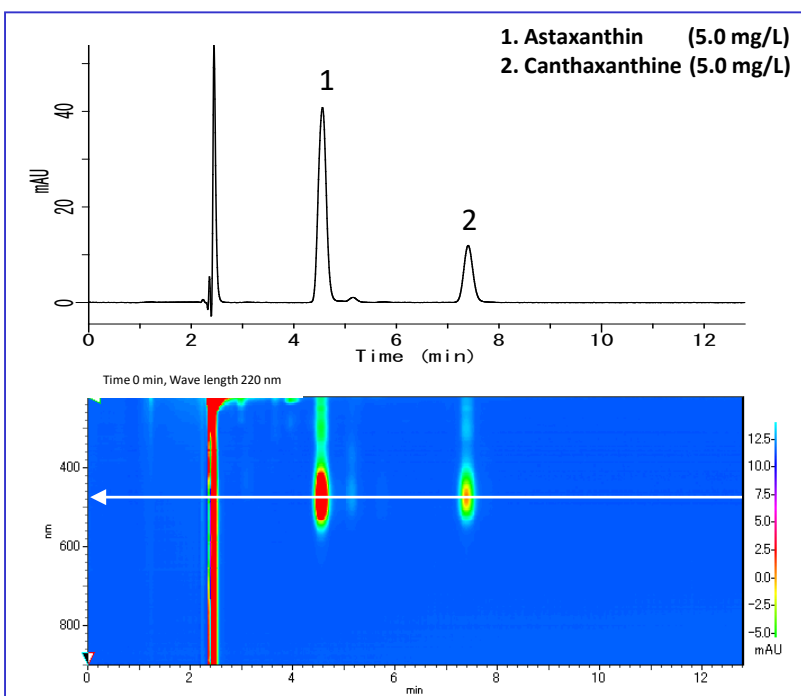
(K. Suzuki)

Structural Formula



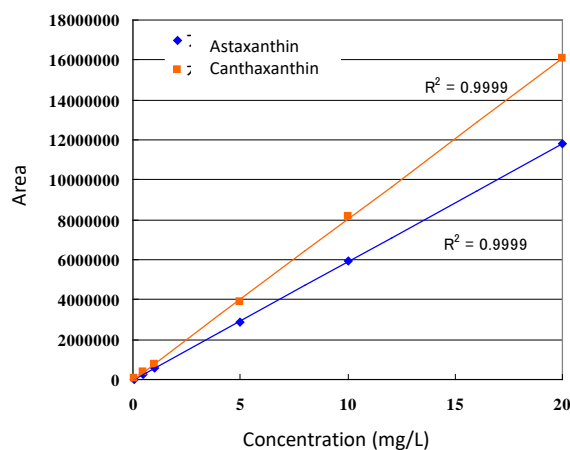
Structures are created using Chemistry 4-D Draw which is provided by ChemInnovation Software, Inc.

Example: Measurement of standards



HPLC conditions

Column	: Inertsil ODS-SP (5 μ m, 150 x 4.6 mm I.D.)
Eluent	: A) CH ₃ CH B) 0.05 % TFA solution A/B = 97/3, v/v (gradient mixer)
Flow rate	: 0.8 mL/min
Column temperature	: 40 °C
Detected	: PDA 480 nm
Injection volume	: 20 μ L

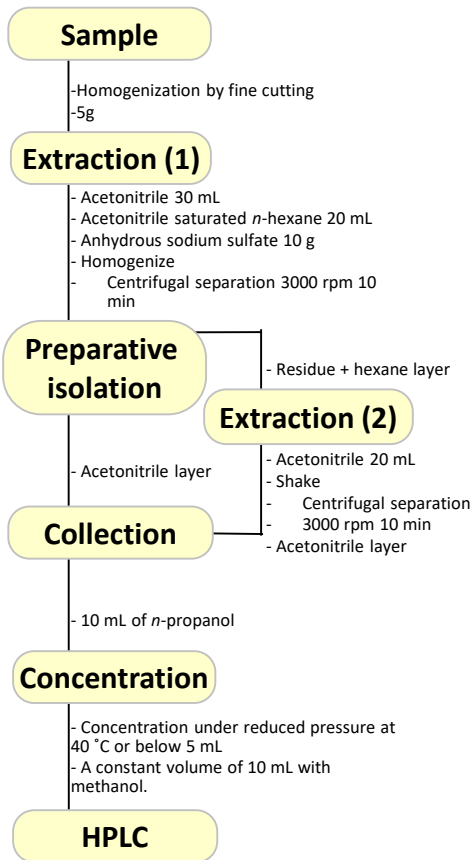


Calibration curve

Measurement example

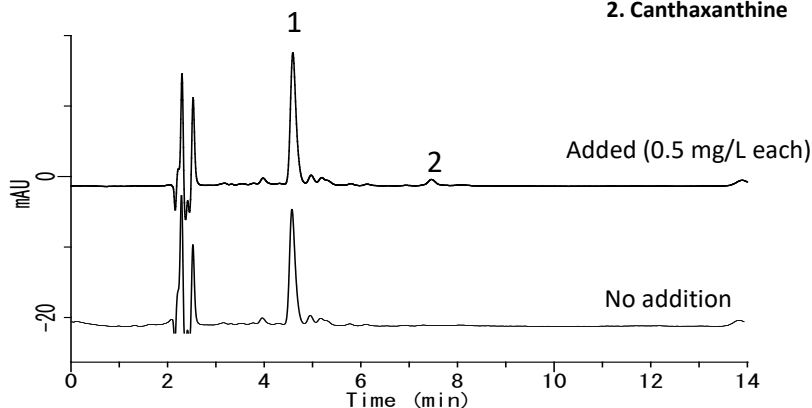
Sample pretreatment example

Pretreatment was performed according to the test method for cantaxanthin described above.

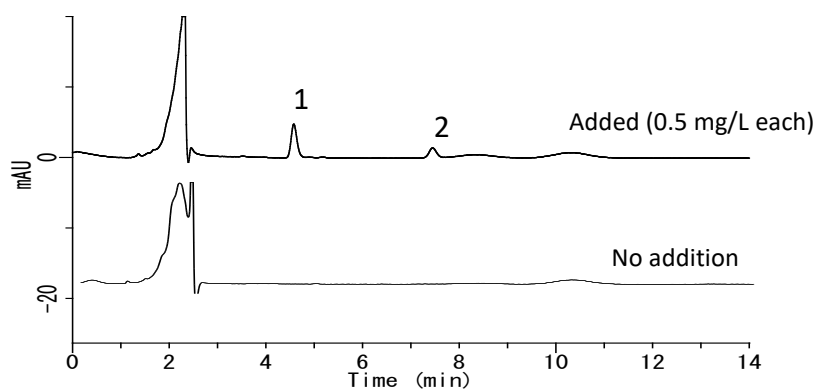


Wakame seaweed

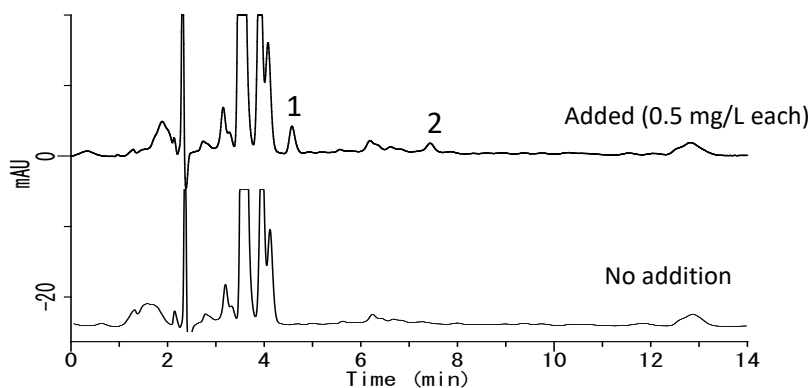
1. Astaxanthin
2. Canthaxanthine



Shrimp extract



Dried shiitake mushroom extract



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