

Analysis of Isoflavones Using the Hitachi LaChromUltra® Liquid Chromatography System

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Isoflavones are di- or tri- hydroxyl substituted derivatives of isoflavone found in legumes such as soybeans, chick peas, alfalfa, and peanuts. While this class of compounds has antioxidant properties, it has also been linked to negative health effects. As such, it is desirable to measure the amount of isoflavones in foods such as soybean products. Here we describe a method for the rapid analysis of isoflavones using the highly flexible LaChromUltra® HPLC system. Isoflavones are separated by reverse phase chromatography and analyzed by diode array detection. This method is suitable for analysis of a variety of food matrices including soymilk and tofu. The data here specifically describes the analysis of the isoflavone content of tofu within five minutes.¹

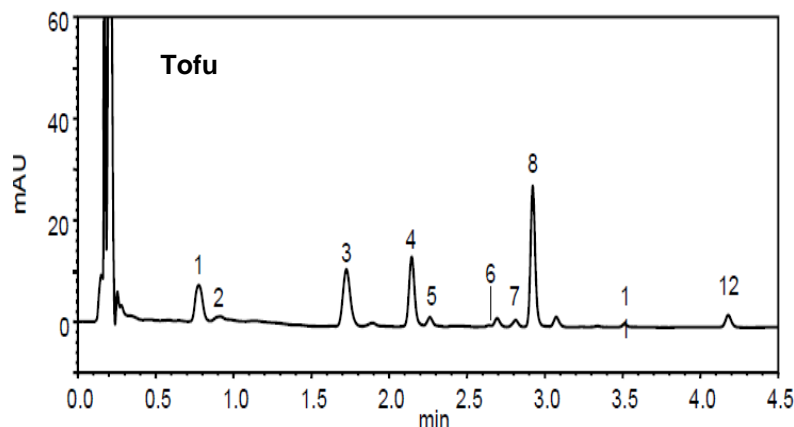
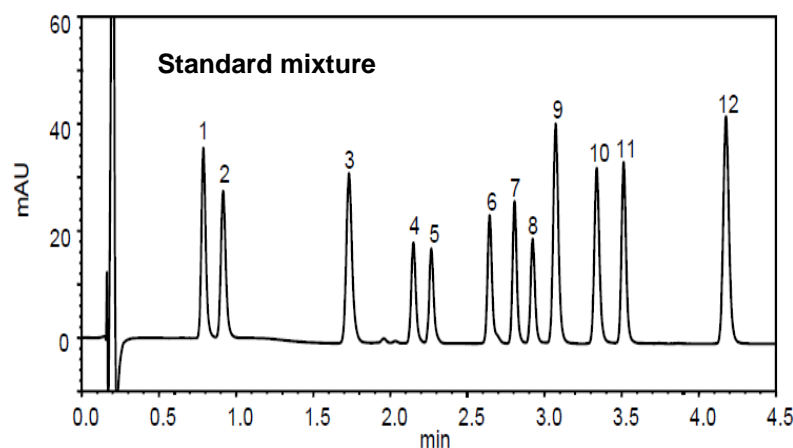
Experimental Conditions

Module	Conditions
Pump (L-2160U)	Mobile Phase A: 15% CH ₃ CN, 0.05% H ₃ PO ₄ Mobile Phase B: 35% CH ₃ CN, 0.05% H ₃ PO ₄ Gradient: 0-100% B in 4.2 min., 100% B from 4.2 min. to 4.6 min. Flow Rate: 0.8 mL/min.
Autosampler (L-2200U)	Injection Volume: 2 µL
Column	Hitachi LaChromUltra C18, 2 µm, 2.1 x 50 mm
Oven (L-2300)	Temperature: 35 °C
Detector (L-2455U)	DAD 254 nm
Standard	12 component isoflavone mixture, 10 mg/L each

Reference:
1 – Technical Data LCU100003_E, Hitachi High Technologies Corporation.

Results

Chromatograph of Standard Isoflavone Mixture: 1) Daidzin, 2) Glycitin, 3) Genistin, 4) Malonyldaidzin, 5) Malonylglycitin, 6) Acetyldaidzin, 7) Acetylglycitin, 8) Malonylgenistin, 9) Daidzein, 10) Glycitein, 11) Acetylgenistin, 12) Genistein



Discussion

Hitachi's LaChrom Ultra® liquid chromatography system is extremely effective at rapid analysis of isoflavones in a variety of matrices.

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