

Rapid Analysis of Resveratrol Using the Hitachi LaChromUltra® Ultra High-Speed Liquid Chromatography System

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Resveratrol is an antioxidant produced by some plants that is associated with a reduced risk of heart disease as well as a number of other health benefits. It has been found in foods and beverages such as red wine, grapes, peanuts, cranberries, and blueberries, and is commercially available as a dietary supplement. Here, we describe a method for the analysis of resveratrol in beverages using the highly flexible Hitachi LaChromUltra® U-HPLC system. Resveratrol is separated from other sample components via reverse phase chromatography and is detected with UV absorbance. This method is suitable for a wide range of samples including red wine and fruit juices. This data specifically describes the U-HPLC analysis of a red wine sample completed in under five minutes.

Experimental Conditions

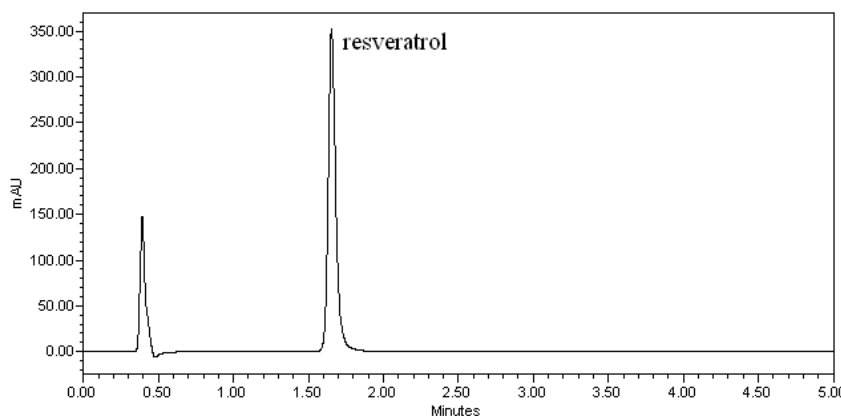
Module	Conditions
Pump (L-2160U)	Mobile Phase: 25% CH ₃ CN, 0.1% formic acid Flow Rate: 0.4 mL/min.
Autosampler (L-2200U)	Injection Volume: 10 µL
Oven (L-2300)	Temperature: 25 °C
Column	Hitachi C18, 2 x 50 mm, 2 µm
Detector (L-2455U)	DAD, 307 nm
Standards	<i>trans</i> -resveratrol, 0.1, 0.75, 1.5, 3.0, 6.0, and 12 mg/L in H ₂ O

Results- Reproducibility and Linearity

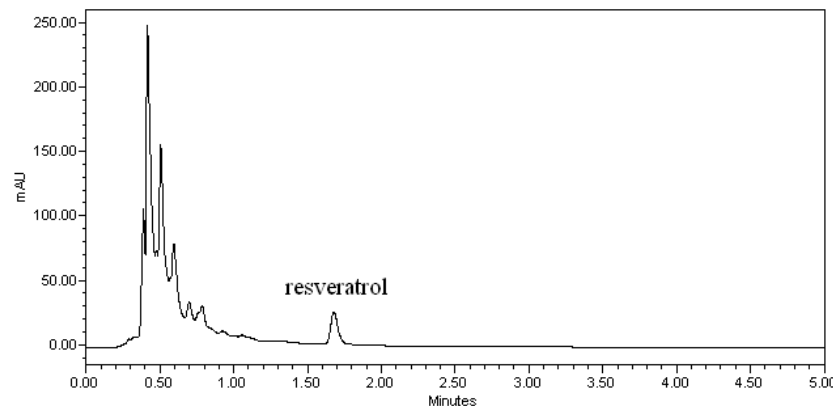
Reproducibility (N = 3), 0.75 mg/L	RSD (%) = 2.56
Linearity (0.1 – 12 mg/L)	R ² = 0.9996

Results- Chromatographs of Standards (A) and Red Wine (B)

A. Chromatograph of 12 mg/L *trans*-resveratrol standard



B. Chromatograph of red wine



Discussion

Hitachi's LaChromUltra® U-HPLC system is effective at rapid analysis of resveratrol in red wine. Using the 2 µm particle size Hitachi C18 column, a sample can be analyzed within five minutes. The data are linear over several orders of magnitude and show good reproducibility.

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