

# Analysis of Chlorogenic Acid in Coffee Using the LaChromUltra HPLC System with UV Detection

**C**hlorogenic acid is an antioxidant found in several types of plants, including foods such as coffee beans and peaches. It is a biologically important phenolic molecule involved in several biosynthetic pathways, and has been shown to affect the level of glucose in the bloodstream. Due to its significant role in biological systems, it is important to know the concentration of this compound in various foodstuffs. Presented here is a method for analysis of chlorogenic acid in coffee using the Hitachi LaChromUltra HPLC. Chlorogenic acid is separated from other compounds in coffee with reverse phase chromatography, and is detected with UV absorbance within 5 minutes.

## Experimental Conditions

Module	Conditions
Pump (L-2160U)	Mobile Phase A: 10 mM KH <sub>2</sub> PO <sub>4</sub> , pH 3 Mobile Phase B: CH <sub>3</sub> CN Flow Rate: 0.3 mL/min*
Autosampler (L-2200U)	Injection Volume: 1 µL
Oven (L-2300)	Temperature: 25 °C
Detector (L-2400U)	327 nm
Column (891-5001)	Hitachi LaChromUltra C18, 2 µm, 2 x 75 mm

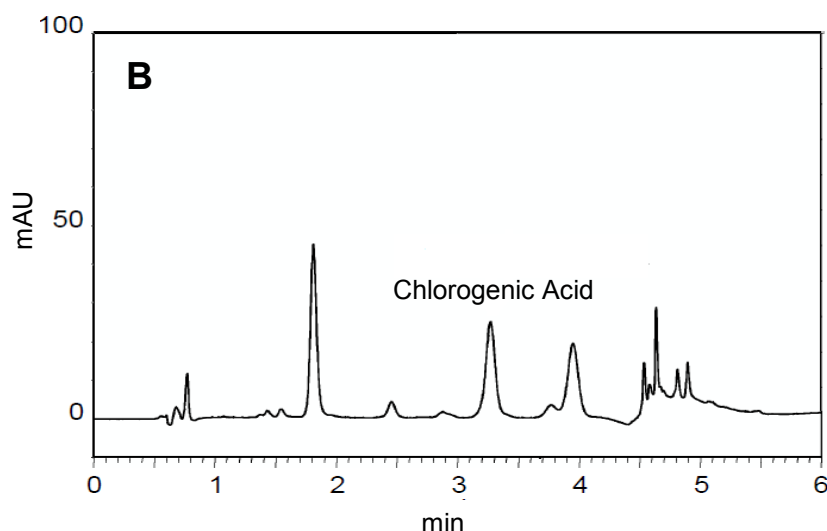
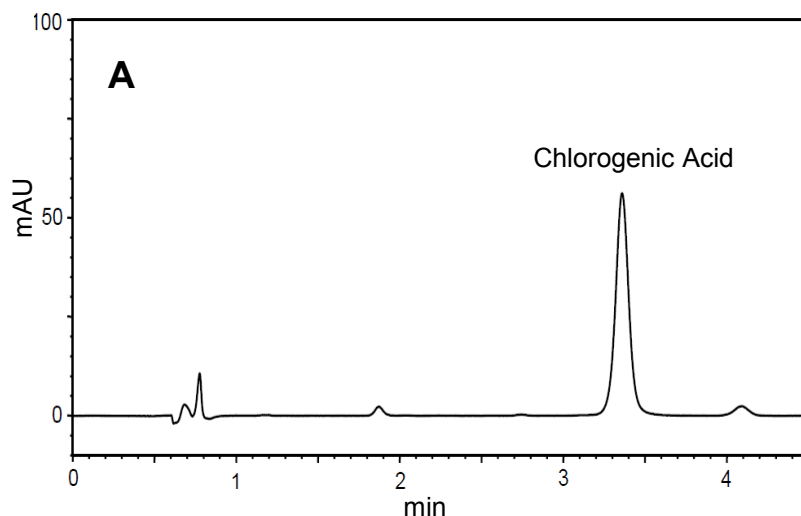
## \*Gradient

Time	%A	%B
0	90	10
2.5	90	10
2.6	50	50
3.5	50	50
3.6	90	10
8	90	10

## Results – Chromatographs

A. Chlorogenic acid standard: 10 mg/L

B. Coffee



## Discussion

Hitachi's LaChromUltra liquid chromatography system with UV detection is effective at rapid analysis of chlorogenic acid. The linearity of response ( $R^2$ ) for this molecule over a range of 10 mg/L to 200 mg/L is 1.0000. The amount of chlorogenic acid in coffee can be analyzed in five minutes.

**Hitachi High Technologies America, Inc.**

Life Sciences Division

1375 North 28<sup>th</sup> Avenue, Dallas, TX 75261

Toll Free: (800) 548-9001

Email: [Sales-LS@hitachi-hta.com](mailto:Sales-LS@hitachi-hta.com) Website: [www.hitachi-hta.com/hplc](http://www.hitachi-hta.com/hplc)

## References-

1) Hitachi High Technologies application note LCU80026