Analysis of Organic Acids Using the Hitachi LaChromUltra® High Speed Liquid Chromatography System

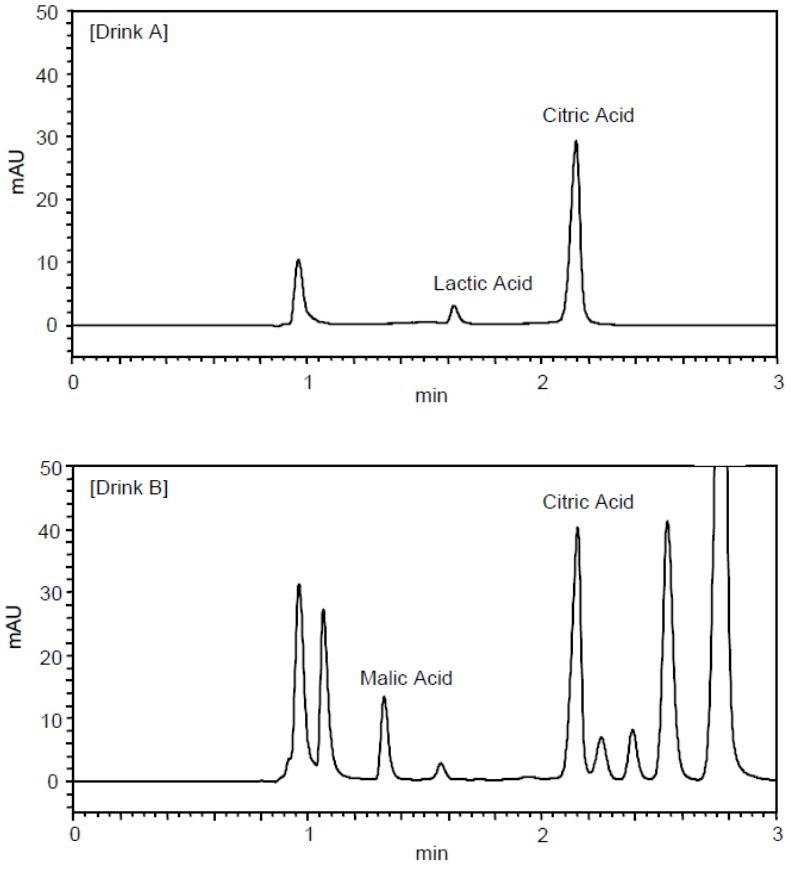
Hitachi High Technologies America, Inc.

Organic acids such as citric acid are found in a variety of beverages. Both in-process and final product testing of these acids in commercial drinks is critical for quality control. Methodology has been developed for the rapid analysis of organic acids using the highly flexible Hitachi LaChromUltra® U-HPLC system via reverse phase chromatography and ultraviolet detection. The data here specifically describes the analysis of organic acids in a sport drink and a vitamin drink in under three minutes[1].

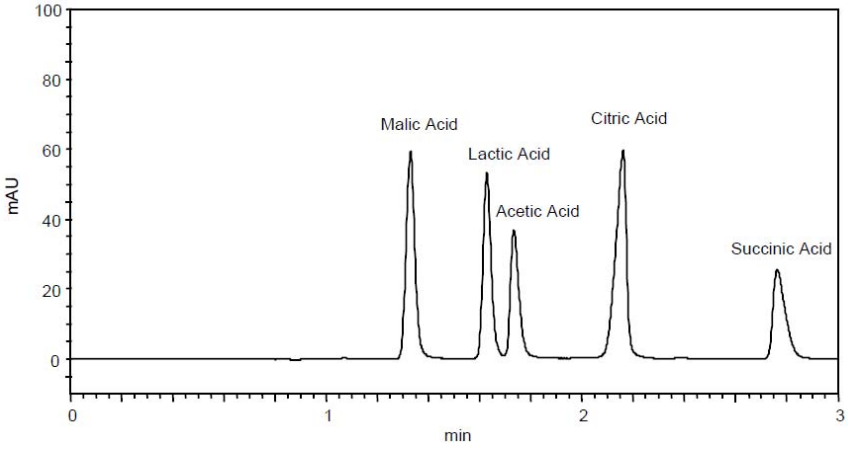
Experimental Conditions

Module	Conditions
Pump (L-2160U)	Isocratic Mobile Phase: 1 mM H_2SO_4, 8 mM Na_2SO_4 Flow Rate: 0.4 mL/min
Autosampler (L-2200U)	Injection Volume: 2 µL
Column	Hitachi LaChromUltra C18-AQ, 2 µm, 2.0 x 75 mm x 2 columns
Oven (L-2300)	Temperature: 40°C
Detector (L-24205U)	210 nm
Standard	5 organic acid mixture

Results – Chromatograms of Commercial Sports Drink (A) and Vitamin-Fortified Drink (B)



Results – Chromatogram of Standard Organic Acid Mixture



Discussion

Hitachi's LaChromUltra® liquid chromatography system is extremely effective at rapid analysis of organic acids in beverages. The organic acids are well resolved from additional UV-absorbing components present in the sample matrix, and the system exhibits a linear response across two orders of magnitude ($R^2 \geq 0.999$)[2].

Reference:
1 – Technical Data LCU090023, Hitachi High Technologies Corporation.
2 – Technical Data LCU090024, Hitachi High Technologies Corporation.

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