

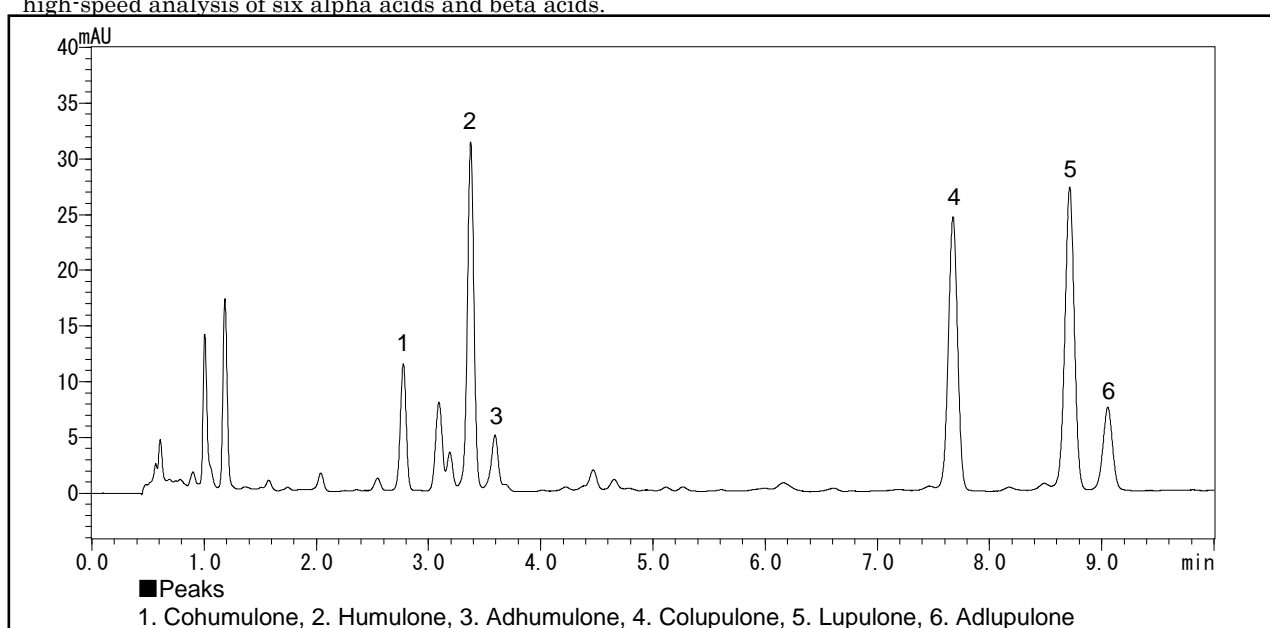
Application Data Sheet

High Performance Liquid Chromatography

No. 71

High-Speed Analysis of Alpha Acids and Beta Acids in Hops

Hops, a major ingredient in beer, contain components called alpha acids (humulones) and beta acids (lupulones). Through the brewing process, alpha acids are converted to iso-alpha acids (isohumulones) which are bitter components of beer. Beta acids are said to influence the bitterness balance. This data sheet shows results of a high-speed analysis of six alpha acids and beta acids.



Analysis of Alpha Acid and Beta Acid Contained in Hop Pellets

[Sample Preparation] *

- 1) Approximately 10 g of hop pellets were homogenized and then exactly 2.5 g of the homogenized pellets was placed in a 100 mL separating funnel.
- 2) 25 mL of toluene (HPLC grade) was added into the separating funnel then the separating funnel was shaken for 30 minutes.
- 3) The toluene extract was centrifuged at 1,000 rpm for 10 minutes.
- 4) 5 mL of the supernatant was concentrated using an evaporator.
- 5) The residue was completely dissolved with 25 mL of methanol (HPLC grade) to prepare HPLC sample.

* Methods of Analysis of BCOJ, edited and revised by the Brewery Convention of Japan [Analysis Committee] of the Brewers Association of Japan, and published by the Brewing Society of Japan (2004)

Analytical Conditions

Instrument	: Prominence UFLCXR system
Column	: HALO® C18 (150 mm × 3.0 mm <i>i.d.</i>)
Mobile Phase	: A) Water/Methanol/Phosphoric acid(85%)/Triethylamine = 300 mL/700 mL/19.6 g/15.1 g B) Methanol B Conc. 0 % (0 min) → 35% (10 min)
Flow Rate	: 1.1 mL/min
Column Temperature	: 50 °C
Detection	: Absorbance at 330 nm with Semi-micro flow cell
Sample Volume	: 4 µL