SHIMADZU

Nexera
Ultra High Performance Liquid Chromatograph

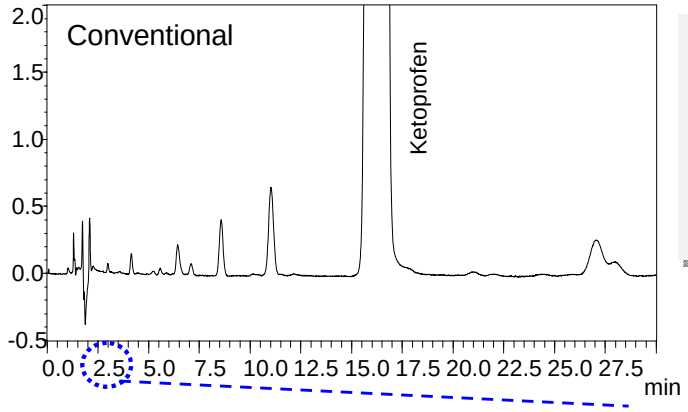
Nexera Application Data Sheet No. 7

Ultra-High-Speed and Ultra-High-Resolution Analysis of Drug Analogs

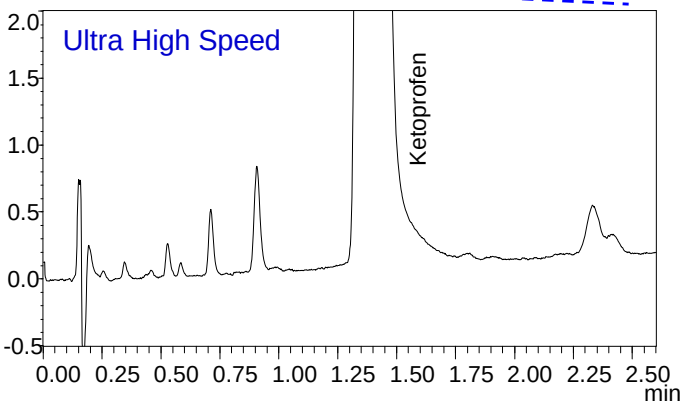
As analogs in drug products often have similar structures, high resolution is demanded for their analysis. A long, sub-2 μm column is effective in such cases but this requires a UHPLC system with high pressure tolerance, such as the Shimadzu Nexera (130 MPa pressure tolerance). This Application Data Sheet introduces the ultra-high-speed and ultra-high-resolution analysis of ketoprofen and its analogs.

Analysis of Ketoprofen and Its Analogs

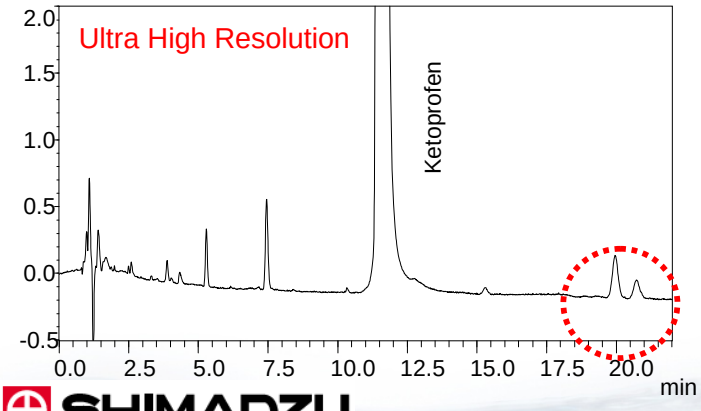
Nexera was used to analyze ketoprofen and its analogs under conventional conditions, ultra-high-speed conditions, and ultra-high-resolution conditions. Ultra-high-speed conditions employ a column with 1.8 μm particle size to increase the linear velocity and reduce the analysis time to one-tenth that for conventional analysis, while maintaining the resolution. Ultra-high-resolution conditions use a 1.8 μm particle size, 250 mm-long column to achieve complete resolution of components that are difficult to resolve under conventional conditions. The 130 MPa pressure tolerance of the Shimadzu Nexera permits selection of the 118 MPa system pressure load required under ultra-high-resolution conditions.



Column	: ODS (150 mmL. x 4.6 mm I.D. , 4.6 μm)
Mobile Phase	: 0.1% Formic acid in Water/ Acetonitrile = 65/35
Flow Rate	: 1.0 mL/min
Column Temp.	: 40 ℃
Detection	: UV 254 nm
Flow Cell	: Conventional cell
Pressure	: 6.5 MPa



Column	: ODS (50 mmL. x 2.1 mm I.D., 1.8 μm)
Mobile Phase	: 0.1% Formic acid in Water/ Acetonitrile = 65/35
Flow Rate	: 0.8 mL/min
Column Temp.	: 40 ℃
Detection	: UV 254 nm
Flow Cell	: Semi-micro cell
Pressure	: 50 MPa



Column	: ODS (250 mmL. x 2.1 mm I.D., 1.8 μm)
Mobile Phase	: 0.1% Formic acid in Water/ Acetonitrile = 65/35
Flow Rate	: 0.5 mL/min
Column Temp.	: 40 ℃
Detection	: UV 254 nm
Flow Cell	: Conventional cell
Pressure	: 118 MPa

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