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CoreFocus Report

No.437

LC | Reversed-phase | Shim-pack™ Series

Shim-pack Scepter™ C18-120
Shim-pack UFPLC
Preparative Purification of Ibuprofen and Its Related Substance

Keywords: NSAIDs, anti-inflammatory, cold medicine

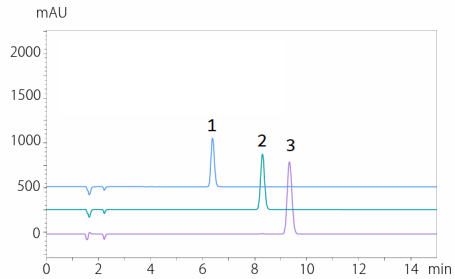

Fig.1 Chromatogram of Fraction Obtained by Nexera UFPLC (Nexera XR)

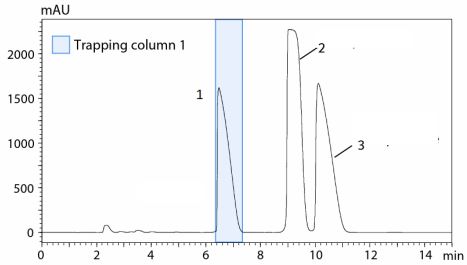

Fig. 2 Preparative LC Chromatogram of Ibuprofen (2000µL Injection, Nexera UFPLC)

1. Ibuprofen
2. Valerophenone
3. 4-Isobutyl-acetophenone (1.0 µmol/L each)

Table 1 Analytical Conditions for Purity Verification

System	:	Nexera™ XR*1
Column	:	Shim-pack Scepter C18-120 (150 mm L x 4.6 mm I.D., 5 µm) , P/N : 227-31020-05
Mobile phase	:	A) 1% (wt/v) Chloroacetic acid in water (pH 3*2) B) Acetonitrile A/B = 40 : 60 (v/v)
Flow rate	:	0.8 mL/min
Column temp.	:	30 ˚C
Detection	:	230 nm (SPD-40V, Standard flow cell)
Injection vol.	:	10 µL

*1 600 mm ×0.3 mm I.D. tubing was used to connect the SIL-40C XR autosampler to the column inlet
*2 pH 3.0 adjusted with ammonium hydroxide

Table 2 Preparative and Purification LC

System	:	Nexera UFPLC
Preparative LC Conditions		
Column	:	Shim-pack Scepter C18-120 (150 mm L x 20 mm I.D., 5 µm) , P/N : 227-31102-03
Mobile phase	:	A) 1% (wt/v) Chloroacetic acid in water (pH 3*2) B) Acetonitrile A/B = 40 : 60 (v/v)
Flow rate	:	20 mL/min
Column temp.	:	Ambient
Detection	:	230 nm (SPD-M40, High pressure prepared flow cell)
Injection vol.	:	2000 µL
Rinsing Conditions		
Colum	:	Shim-pack UFPLC 20 x 30 (30 mm L x 20 mm I.D., 20 - 30 µm) , P/N : 228-80220-41
Rinse solvent	:	A) Acetonitrile/water = 2 : 98 (v/v) B) 0.2 % Formic acid in water C) Water
Time program	:	A 40 mL/min (0.01-3 min) →B 15 mL/min (3.01-11 min) →C 40 mL/min (11.01-15.9 min)
Elution Conditions		
Eluent	:	Acetonitrile
Flow rate	:	9 mL/min
Detection	:	230 nm (SPD-40V, Preparative flow cell)

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