SCAS Sumika Chemical Analysis Service
株式会社 住化分析センター

● Low Bleed HPLC Column “SUMIPAX™ ODS Z-CLUE”

TN375E

[Abstract]

It is important to minimize background noise in HPLC, which requires reducing the elution of degradants (bleed) from the stationary phase. In the case of ODS columns, inadequate chemical bonding of the ODS groups and end-capping treatment will result in significant bleed.

When using high-sensitivity detectors such as LC-MS and fluorescence detector, column-derived bleed cannot be ignored as it may affect the measurement.

In the case of LC-MS, large bleed increases background noise, which decreases the signal-to-noise ratio, and the analyte is subjected to ion suppression, which also decreases sensitivity.

SUMIPAX™ ODS Z-CLUE achieves low bleed by our unique manufacturing technology.

[Applications (bleed)]

Figure-1 compares the total ion chromatogram (TIC) after three passages of mobile phase by gradient without sample injection using LC-MS.

(b) SUMIPAX™ ODS Z-CLUE shows very little bleed with little change compared to (a) no column.

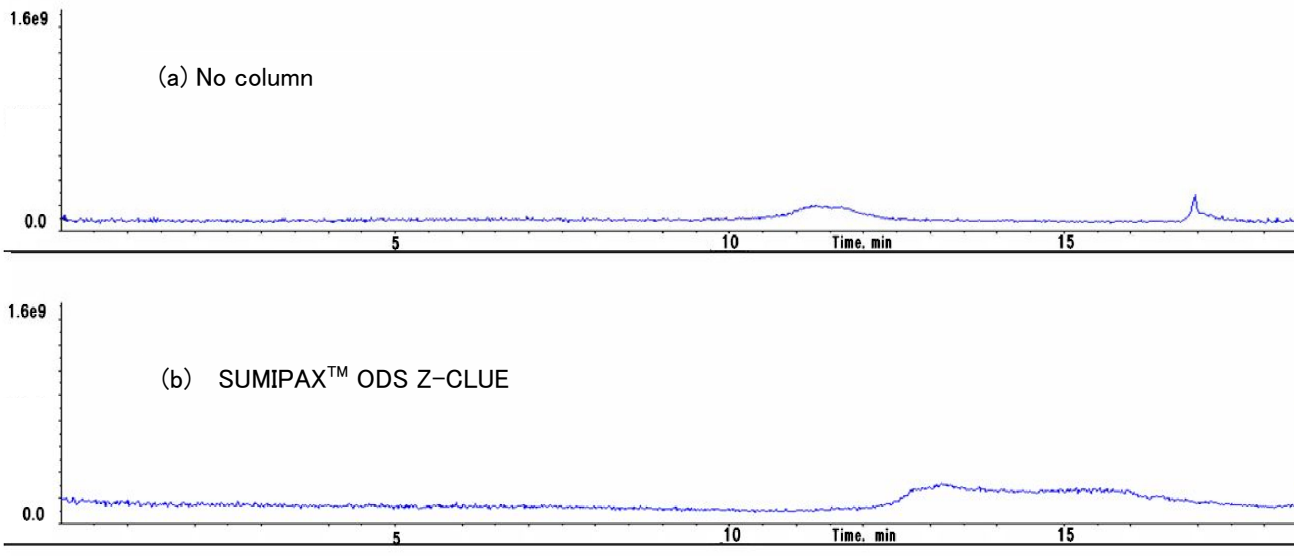


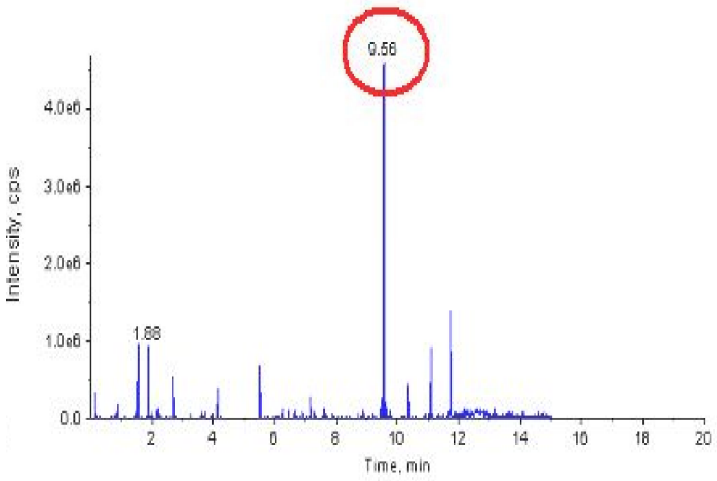
Fig.1 Comparison of TIC after three repeats of gradient

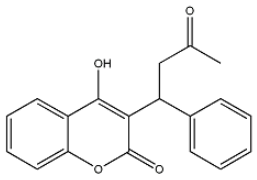
Column	SUMIPAX™ ODS Z-CLUE 2 mmi.d.×150 mm, 3μm
Mobile phase	A) 0.1% formic acid in water
	B) 0.1 % formic acid in acetonitrile 5-100 % B (0-10min) → 100-0 % B (15 - 15.1 min)
Flow rate	0.2 mL/min
Column temperature	40 ℃
Detector	ESI positive, TIC (Mass Range : 50-1000)

[Applications （sensitivity）]

A mass chromatogram of 20 μL (about 60 pg) of warfarin (10 nmol/L) injected into SUMIPAX™ ODS Z-CLUE is shown in Fig-2.

SUMIPAX™ ODS Z-CLUE has less bleed derived from ODS columns, which reduces ion suppression and increases sensitivity, enabling high-sensitivity detection of trace amounts of sample.





Warfarin

$C_{19}H_{16}O_4$ M.W. 308.3

Column	SUMIPAX™ ODS Z-CLUE 2 mmi.d.×150 mm, 3μm
Mobile phase	A) 0.1% formic acid in water B) 0.1 % formic acid in acetonitrile 5% (0 min)→ 100% (10 min)→ 100% (15 min) → 5% (15.1 min -20 min)
Flow rate	0.25 mL/min
Column temperature	40 ℃
Injection volume	20μL
Detector	MS ESI Positive

Fig.2 Comparison of LC-MS chromatogram (m/z 309.3) for 20 μL injection of 10 nmol/L warfarin

SUMIPAX is a registered trademark.