ELITE

MS² Vertical 9100

liquid mass spectrometry system

About Us

Suzhou Elite Science & Technology Co., Ltd is a high-tech enterprise specializing in the R&D, production and sales of liquid chromatography and other scientific instruments. Our products cover a wide range of fields such as analysis, separation & preparation and clinical diagnosis systems. Our main products include high performance liquid chromatography (HPLC), gas chromatography(GC), chromatographic workstation software, LC/MS, preparation/purification chromatography system, metering pump, chromatographic column and HPLC accessories. Our customers are widely distributed in scientific research institutions, universities, pharmaceuticals, food, petrochemicals and environmental protection & testing organizations.

Elite Technology has developed for over 30 years since it' s first established. In the past years, we have always sticked to the principle of innovation and exploration. We have developed 6 generations of liquid chromatography products including various pumps, detectors and autosampler etc. Meanwhile we also provided a wide range of method development and application cases for various types of users, ensuring rapid pre-sales response and excellent after-sales experience. We dedicated ourselves in the field of liquid chromatography and have successfully established an outstanding brand all over the world.

Products

The Elite MS² Vertical 9100 Liquid-Mass Chromatography System, with dual ion source design, allows you to easily switch between different ion sources. The use of heat source-induced desolvation technology obtains better sensitivity, higher reproducibility and makes the instrument system more stable. The matching chromatography workstation simplifies the entire mass spectrometer workflow, such as method development, data processing and report printing, etc.; at the same time, no re-optimisation of mass spectrometry parameters is required for inter-instrumental method transfer, and analysis and detection can be carried out directly. Its advanced technology and functions can meet the needs of routine laboratory analysis, and has a wide range of applications in the detection of pesticide residues, mycotoxins and other harmful substances in food, blood drug concentration analysis in the medical field, environmental testing, judicial security

Higher sensitivity,aster efficiency

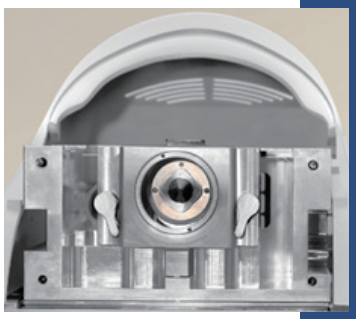
Higher throughput,more stable operation

Understand your needs better

Products

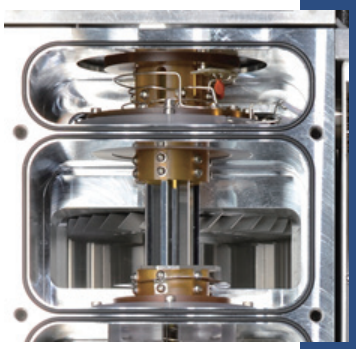
Higher sensitivity

Solvented charged ions can be further desolventised in a high temperature gas stream, reducing chemical background noise and increasing instrument sensitivity.



Longer run times

Heating-induced desolventisation, combined with orthogonal mass spectrometry sampling interface technology, provides perfect self-cleaning and reduces routine maintenance time, resulting in longer mass spectrometry runtimes.

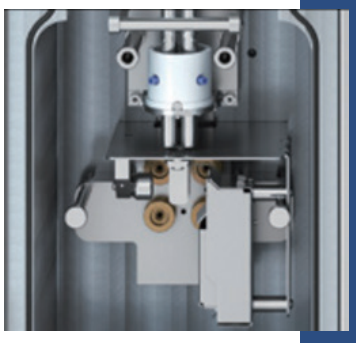


No need for frequent tuning

The ions pass through the mass spectrometer interface and enter the mass analyser via the laminar ion transport channel. The entire ion transport process is conducted by airflow, eliminating the need for an axial electric field. The ion transport system is unaffected by fluctuations in the electric field, thus eliminating the need for frequent instrument tuning and maintenance and ensuring longer operating times.

Ion sources can be combined at will

The dual ion source of the MS² Vertical 9100 Triple Quadrupole Liquid Mass Spectrometry System consists of two completely independent ion sources. Ion source modes can be combined in any dual source combination, and the acquisition can be switched flexibly in dual source mode.



Positive and Negative Ion Switching in Microseconds

When the MS² Vertical 9100 detector is in positive ion mode, the positive ions first hit the high energy striking electrode, releasing electrons to the pulse counting detector, and in negative ion mode, the negative ions can hit the pulse counting detector directly. Therefore, there is no need to switch between positive and negative ions without the need for high voltage switching. The polarity changeover takes only a few microseconds, and the simultaneous detection of positive and negative ions significantly improves the efficiency of the mass spectrometer.

Products

Dual Source Ion Sources

Two independent ion sources provide flexible grouping of different ion sources.

Ion Derived Cleaning

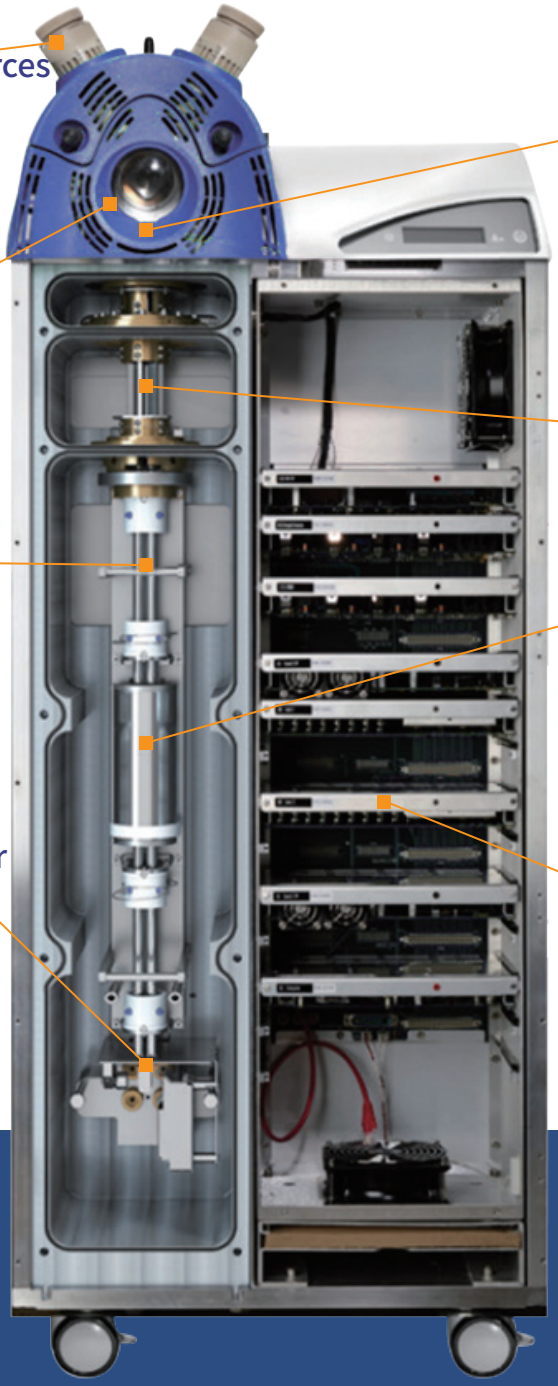
Provides high sensitivity while nsuring Long-Term instrument operation.

Mass analyser

Highly accurate four-stage rod mass analyser provides high stability and accuracy in mass analysis precision.

Unified field detector

Positive and negative ion mode acquisition without high voltage switching.



Mass spectrometry interface

Suitable for any liquid phase flow rate, providing lower background noise and more reliable data results for routine analyses.

Laminar ion transport

Electric field-free ion transport technology.

Collision Cell

Fast collision cell design for short scanning cycles while ensuring zero cross-contamination.

Modular

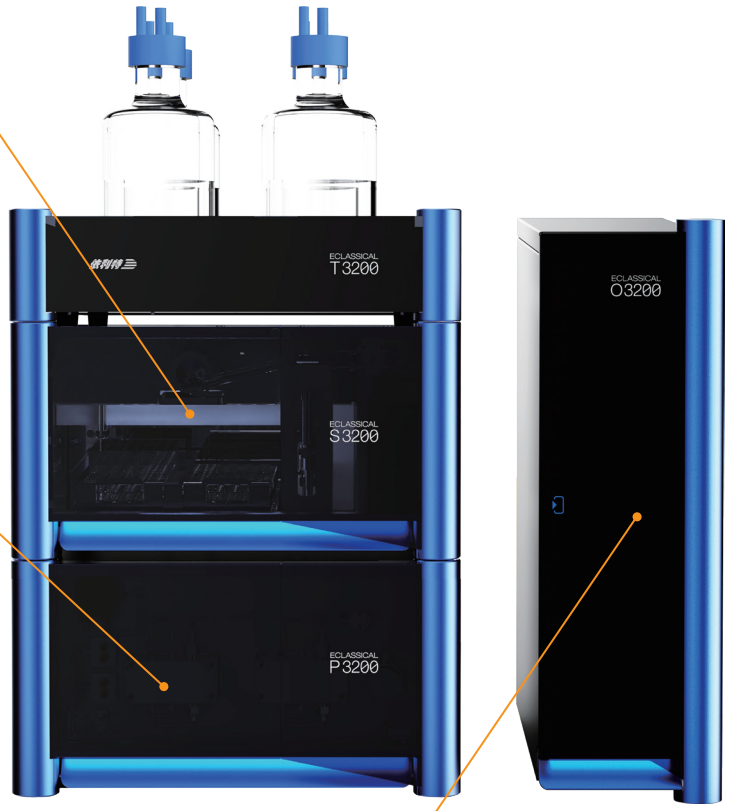
Maintenance-friendly modular design, plug and play.

Products

EClassical3200L high performance liquid chromatograph is an important part of Elite MS² Vertical 9100 liquid mass spectrometry system. The multiple temperature control modes of the column temperature chamber make the temperature more accurate; the autosampler's "high-speed injection" mode makes the analytical process faster, and the micro-injection mode is more suitable for mass spectrometry detection; the new cooling function ensures the stability of the sample analysis process; the EMC electromagnetic compatibility function of the whole system can avoid other electromagnetic interference; the whole system can avoid other electromagnetic interference. The new cooling function ensures the stability of the sample analysis process; the EMC function of the whole system can avoid other electromagnetic interference and make the instrument more stable.

Ultra-efficient and Faster

- The patented inlet design and unique cleaning method ensure ultra-low sample residue.
- The cooling function of the sample tray makes the sample analysis process more stable.
- Supports the "Ultra-Speed Injection" mode, which can inject samples within 1s at the fastest.
- The microfeeding mode is also very accurate.



Ultra Stable, More Pressure Resistant

- Patented design low pulsation high precision tandem double plunger high pressure constant flow pump to minimise pulsation.
- Multi-stage microporous mixing with labyrinth design mixer for more uniform mixing and lower pulsation.

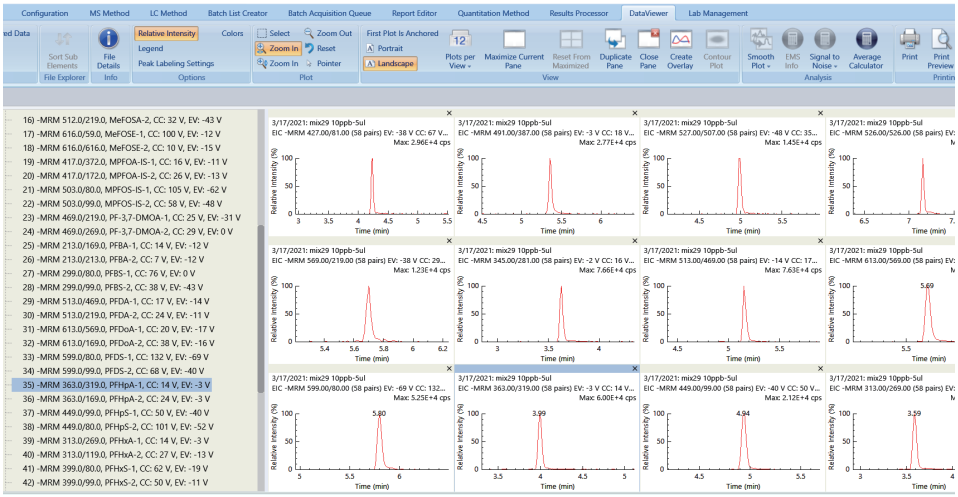
Super Intelligent, More Convenient

- Multiple temperature control modes are available, customers can choose heating mode, cooling mode or intelligent mode according to their needs.
- Pall-paste element temperature control, together with the air circulating wind, makes the cooling speed faster.
- Optional selector valve can be used to complete the selection experiment of up to 6 columns under unattended condition; at the same time, it can also be equipped with two-position six-way valve to achieve the function of multi-system switching.

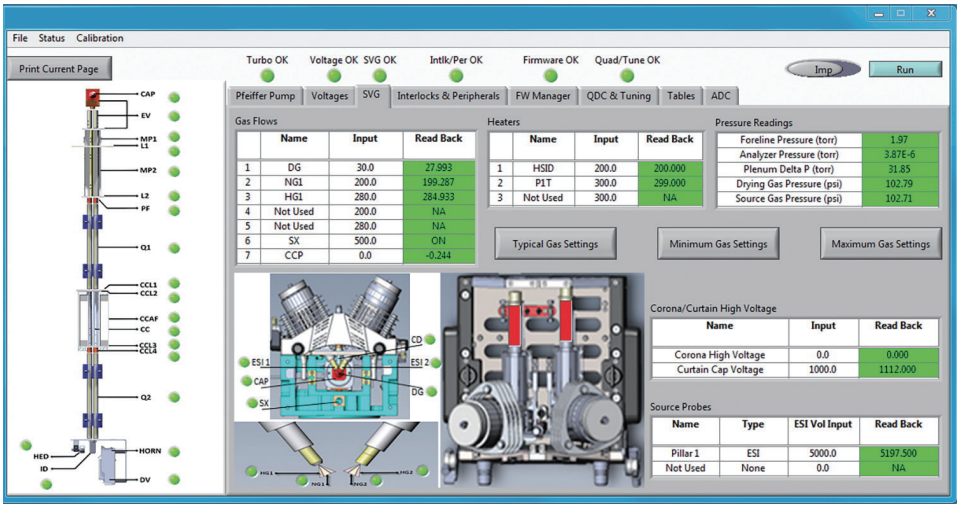
Software

Modular design, simplicity and clarity puts everything under control

- The Data Acquisition Module is automated, making method creation and batch data acquisition easier.
- Allows multi-window viewing, spectral overlay and signal-to-noise calculations.
- Total Ion Charts (TICs) and Extracted Ion Charts (XICs) are available for data analysis and evaluation.
- Data Processing Software quickly loads data from collected data files, making it easy to handle high-throughput sample analysis.
- Troubleshooting software allows you to view set and actual values of instrument parameters to quickly diagnose and troubleshoot hardware problems.



Synchronised view of multi-channel MRMs



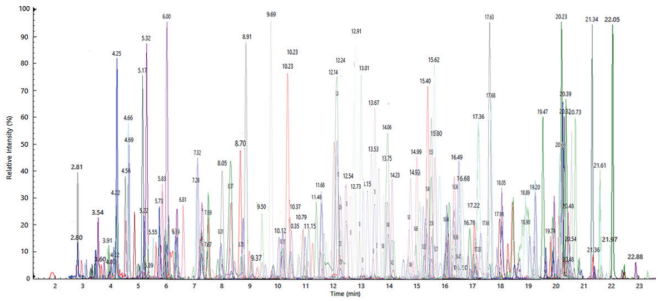
Intuitive interface, real-time view, easy to troubleshoot the instrument

Application Analysis

Determination of 331 pesticides and their 44 metabolites (375 components) in foods of plant origin.

Reference 23200.121-2021 "Determination of 331 pesticides and their metabolite residues in food of plant origin by liquid chromatography-mass spectrometry".

Multi-reaction monitoring with positive-negative switching mode was used for the determination of 375 compounds, of which 365 compounds were collected in positive ion mode and 10 compounds were collected in negative ion mode.



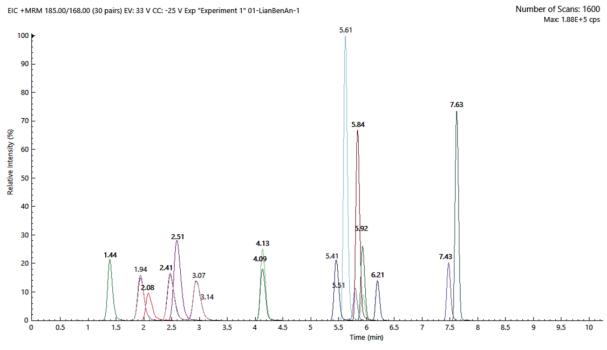
Extracted ion superposition spectra of 375 compounds

The high throughput detection means, its detection limit is much lower than the detection limit requirements in the standard, and its reproducibility and linearity are better, providing a reliable guarantee for the determination of pesticide residues in high throughput samples.

Determination of aniline and benzidine compounds in soil and sediment

Refer to HJ 1210-2021 "Determination of 13 anilines and 2 benzidine compounds in soil and sediment by liquid chromatography-triple quadrupole mass spectrometry".

When analysing a variety of complex soil and sediment matrix samples, it is possible to analyse a large number of samples without cleaning or maintenance and without loss of sensitivity, saving maintenance time and costs.



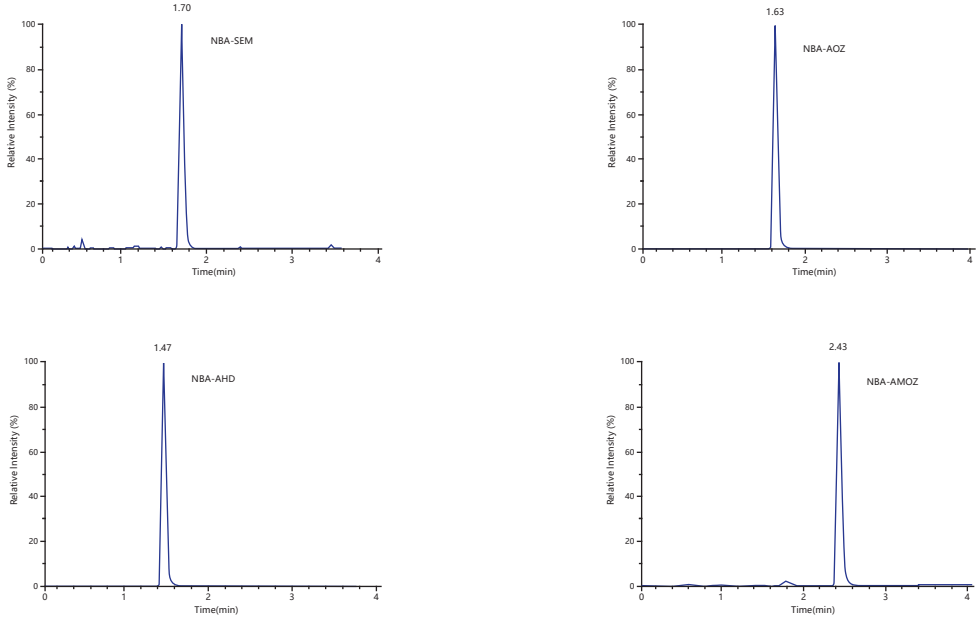
Extracted ion stacking spectra of 15 anilines and benzidine compounds (at 10 μg/L, except 3-nitroaniline at 20 μg/L)

Rapid and accurate characterisation was carried out based on retention time and ion ratio, and the detection limits fully met the requirements of the standard detection limits.

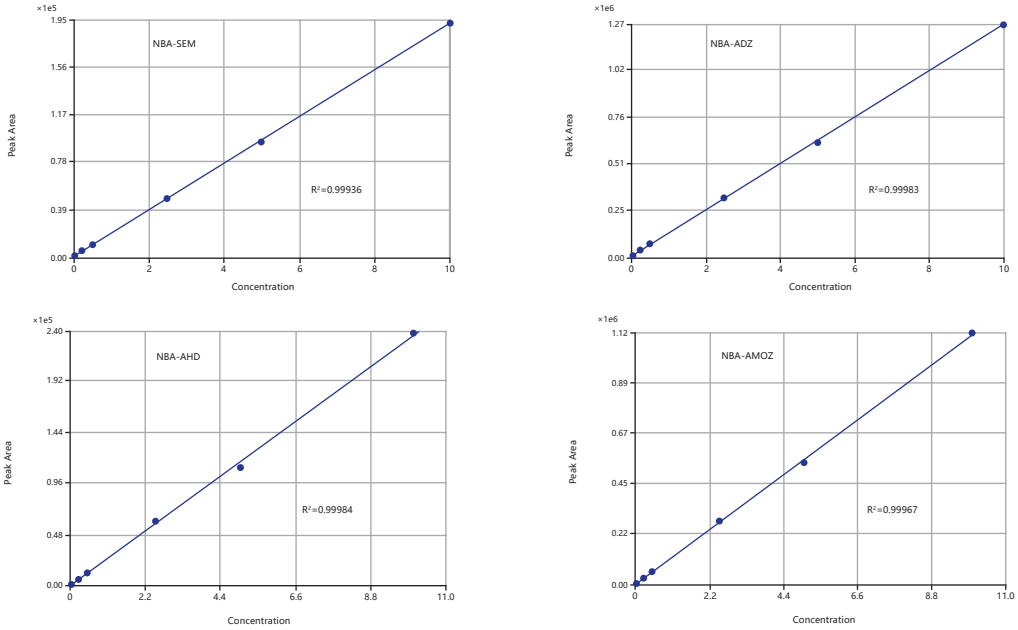
Application Analysis

Determination of nitrofuran metabolite residues in aquatic products

Reference Ministry of Agriculture Circular No. 783-1-2006 Determination of nitrofuran metabolite residues in aquatic products Liquid Chromatography-Tandem Mass Spectrometry (LC-MS/MS).

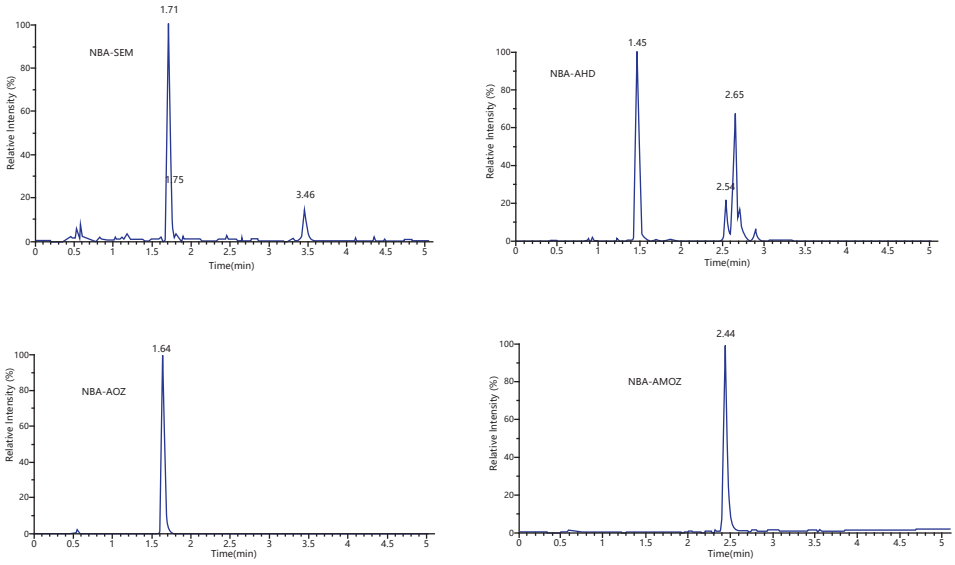


Typical chromatograms of 1.0μg/L NBA-SEM, NBA-AHD, NBA-AOZ and NBA-AMOZ



NBA-SEM, NBA-AHD, NBA-AOZ and NBA-AMOZ showed good linearity in the concentration range of 0.05 μg/L-10 μg/L with correlation coefficients ⩾ 0.995.

Application Analysis

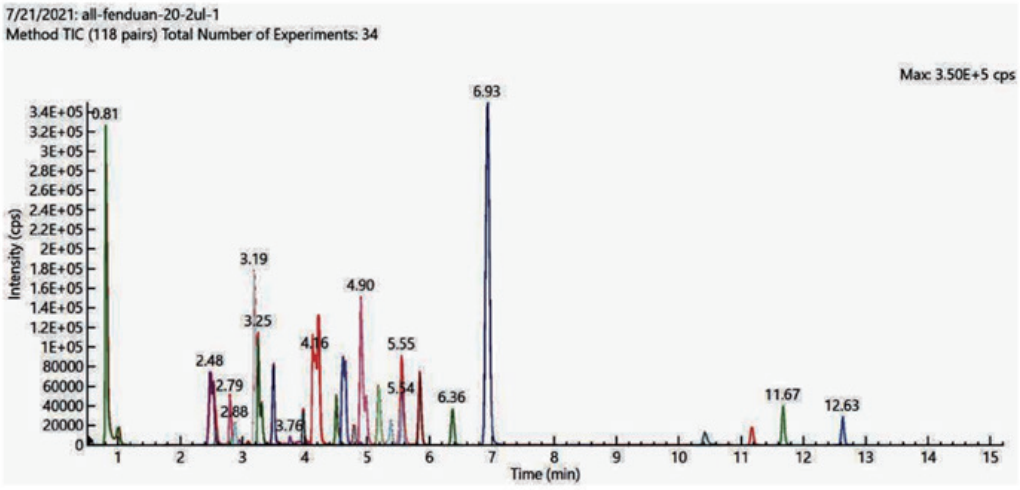


Quantitative chromatograms of fish samples spiked at levels of 0.5 μg/kg NBA-SEM, NBA-AHD, NBA-AOZ and NBA-AMOZ.

The limit of quantification (LOQ) for all four nitrofuran metabolites was less than 0.05 μg/L, which is 20 times lower than the regulatory MRPL (1.0 μg/L).

Detection of 48 Foodborne Stimulants

Rapid qualitative and quantitative analytical method for 48 foodborne stimulants, with rapid and accurate characterisation based on retention times and ion ratios, and accurate quantification by standard curves made from quantitative ion chromatographic peak areas.



MRM superimposed spectra of 48 stimulant analogues (10ng/ml)

(Clenbuterol, salbutamol, ractopamine, terbutaline, salmeterol, fenoterol, tolbuterol, pentobuterol, cimaterol, epinephrine, propranolol, atenolol, metoprolol, clenpropil, norepinephrine, tretinoin, metandrostenolol, metandrostenolone, stanozolol, methytestosterone, testosterone propionate, nandrolone, nandrolone propionate, nandrolone phenylpropionate, boldenone, ultramustralon, testosterone, zelenor, Dehydroepiandrosterone, Zilpaterol, Prednisone, Prednisolone, Dexamethasone, Betamethasone, Fludrocortisone, Methylprednisolone, Beclomethasone, Cortisone, Hydrocortisone, Acetazolamide, Canrenone, Chlorthalidone, Furosemide, Spironolactone, Bendroflumethiazide, Chlorthalidone, Hydrochlorothiazide, Amphotericin, Argisolamide)

The method has good linearity, high sensitivity and good reproducibility, etc. It fully meets the requirements of screening and quantitative and qualitative analysis of food-borne stimulants.

Chromatographic Columns

Supersil Chromatography Columns

Name	Particle size/μm	Pore size/ Å	Name	Particle size/μm	Pore size/ Å
Supersil ODS2	1.8/3/5/10	100/120	Supersil Diol	5	100
Supersil ODS-B	5/10	120	Supersil CN	5	120
Supersil AQ-C18	3/5/10	100/120	Supersil HILIC	5	100
Supersil C8	3/5/10	120	Supersil Amide	5	120
Supersil Phenyl	5	120	Supersil HILIC ARG	5	100
Supersil Polar-Phenyl	5	120	Supersil NH2 Plus	5	120
Supersil PFP	5	120	Supersil NH2-S Plus	5	120
Supersil C4	5	120/300	Supersil SAX	5	120
Supersil C30	3/5	120	Supersil SCX	5	120/150/300
Supersil SiO2	5/10	120			

Nuclear Shell Chromatographic Columns

Name	Particle size/μm	Pore size/ Å	Name	Particle size/μm	Pore size/ Å
Supersil Coreshell C18	1.7/2.6	100	Supersil Coreshell BIO C18	1.7/2.6	300/1000
Supersil Coreshell C18 Plus	1.7/2.6	100	Supersil Coreshell BIO C18 Plus	1.7/2.6	300/1000
Supersil Coreshell C8	1.7/2.6	100	Supersil Coreshell BIO C8	1.7/2.6	300/1000
Supersil Coreshell C4	1.7/2.6	100	Supersil Coreshell BIO C4	1.7/2.6	300/1000
Supersil Coreshell BP	1.7/2.6	100	Supersil Coreshell BIO BP	1.7/2.6	300/1000
Supersil Coreshell PH	1.7/2.6	100	Supersil Coreshell BIO PH	1.7/2.6	300/1000
Supersil Coreshell PH Plus	1.7/2.6	100	Supersil Coreshell BIO PH Plus	1.7/2.6	300/1000
Supersil Coreshell PFP	1.7/2.6	100	Supersil Coreshell BIO PFP	1.7/2.6	300/1000
Supersil Coreshell CN	1.7/2.6	100	Supersil Coreshell BIO CN	1.7/2.6	300/1000
ECoreshell SOS C18	2.7	90	ECoreshell RPR C18	2	100

SinoPak BEH Series

Name	Particle size/μm	Pore size/ Å
SinoPak BEH T-C18	1.8/3/5	130
SinoPak BEH AQ-C18	1.8/3/5	130
SinoPak BEH T-C8	1.8/3/5	130
SinoPak BEH Phenyl	1.8/3/5	130

Note: A variety of column sizes are available.

Kit

Serial number	Equipment name	Article number
1	UPS uninterruptible power supply	
2	Peak Scientific nitrogen generator for mass spectrometry	

About Elite
Suzhou Elite Science & Technology Co., Ltd.
701#, Building 10, LianDong U-Valley Industrial Park, No.179 Zhujiawan Street,
Gusu District, Suzhou City, Jiangsu Province , P.R. China.
Tel: 0411-84732368
E-mail:export@elitehplc.com
Web:http://www.elitehplc.com

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