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Raman Microscope (Mapping) DTR8300MP

Features

Full-automated, auto-focusing, auto-scan

Ultra-high sensitivity

True confocal, accurate Raman mapping

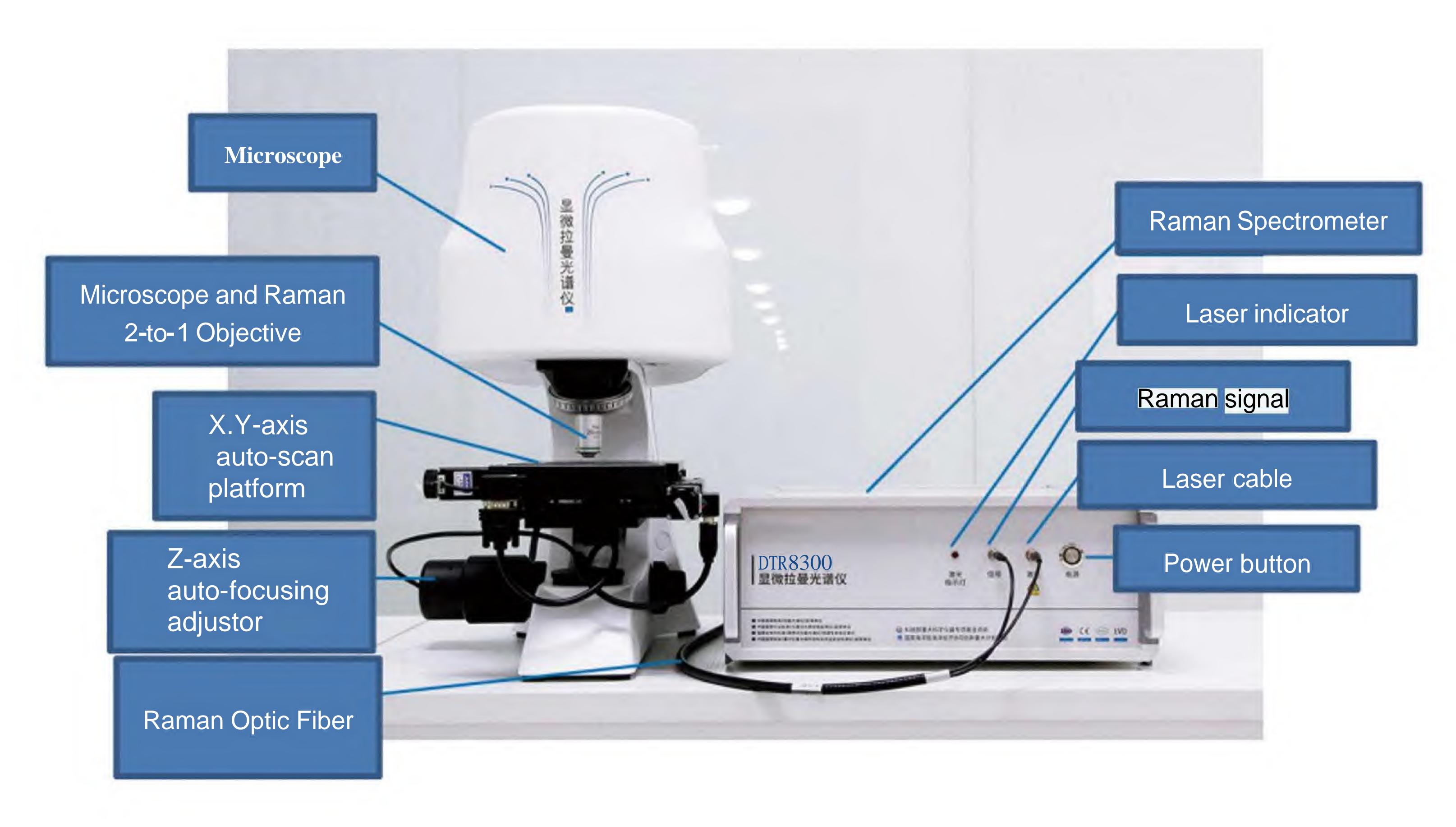


Ultra-high spatial resolution

Unique software controlled to switch optical path Ultra-high stability Excellent performance Fast positioning, quick locate focal position High quality objective, micro spot 3-mega/5-mega pixel camera, crisp clear images Excitation wavelength(Optional): 532,633,785,830,1064 High-performance spectrometer configured USB2.0 in direct connect with PC

DTR8300 Structure indication diagram





Science research Institutions
Bioscience
Forensic identification
Material science
Medical immunology analysis
Agriculture and food accreditation
Gemstones & minerals identification

Description

Drawell provides miniature Raman microscope integrating benefits of microscope and Raman spectrometer into one instrument. It becomes possible to see micro areas of samples on the computer screen with just a single mouse click. When the sample is visualized in accurate position, the observer scan Raman spectrum under various surface conditions, and synchronous

Mapping can be displayed intuitively on the screen in a click. As a result, it takes great convenience to detect micro areas of samples. Combine unique patented conjugate focusing(true confocal) system with accurate image processing algorithm, and it enables a very small sample areas to be analyzed, as well as it requires minimal operator training and maintenance, yet resulting in uniform result not just spectrum.

DTR8300 is equipped with tailor-made objective, and laser spot on the sample becomes very close to diffraction limit, then focal information can be displayed in accurate and intuitive on the screen with 3 -megapixel/5-megapixel camera. This configuration improves Raman spectral quality for overcoming the limitations of Raman systems where the focal plane for Raman signal collection is slightly above or below the imaging plane.

DTR8300 works very stable with no moving components of optical path switch, hence it avoids loss off optical path while imaging being formed, and it gains optimized signal for separating imaging formed from Raman signal collection.



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Models	Functions		
DTR8300BS	Basic Configuration		
DTR8300AF	Auto Focus		
DTR8300MP	Mapping, (higher configuration, auto-focus, auto-scan)		
TR8300MP Raman Microscope Mapping			
Excitation wavelength	785 nm (532,633,830,1064 nm options)		
Spectral resolution	4-9 cm-1		
Spectral range	250-2700, 200-3500, 200-4300 cm-1		
	(available in customer wavelengths range down to 50 cm-1)		
Maximum laser output	500mW (Max. lOOmW for 532nm)		
Spectral Stability	o/p < 0.5% (COT 8 hours)		
Thermal stability	Spectral shift < 1 cm-1 (10-40 °C)		
SN ratio	>6000:1		
Detector	TE cooled, semiconductor laser, 2048*64 pixel, back-thinned, IR enhanced CC InGaAS cooled for 1064nm		
Wavelength range detected	200nm-1100nm		
Pixel size	14 pm * 14 pm		
Dynamic range	13000:1		
Laser center wavelength	785nm (+/-0.5nm)		
Microscope camera	3-megapixel /5-megapixel camera		
Focusing	True confocal		
Laser output	>550mW (software adjustable)		
Laser spot diameter	>lpm		
Laser stability	o/p<±0.2%		
Laser linewidth	0.08 nm		
Connectivity	USB2.0		
Electrical controlled X,Y axis 2D platform	n		
moving range	5 X 5 cm		
Moving resolution	0.1pm		
Positioning accuracy	1pm		
Scan speed	20mm/s		
Zaxis (automated focusing)			
Focusing accuracy	≤ ±0.2pm		
Max. range	20mm		
Focusing speed	Less than 10 s		

2. Optica | performance

2.1 Spectrum

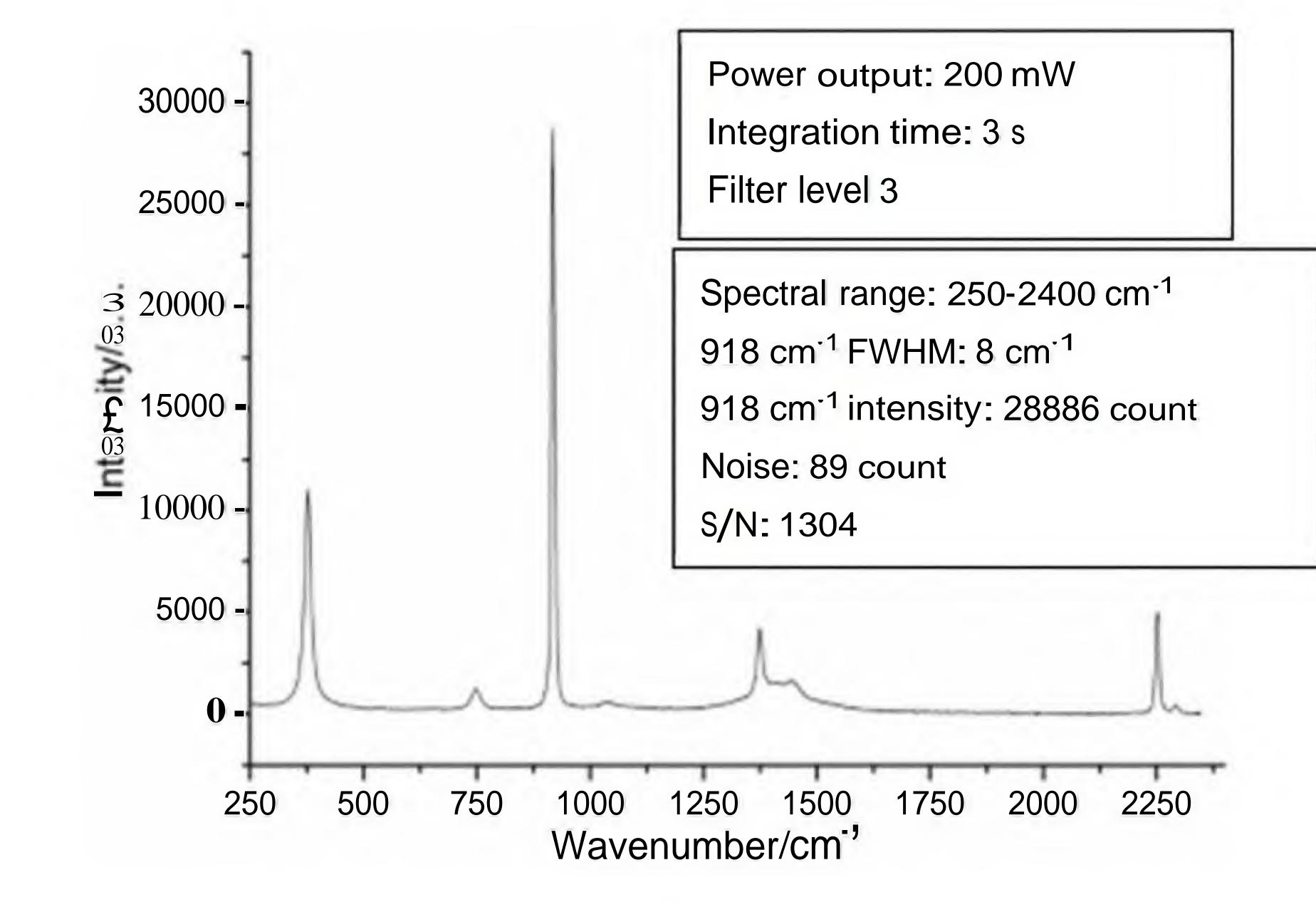
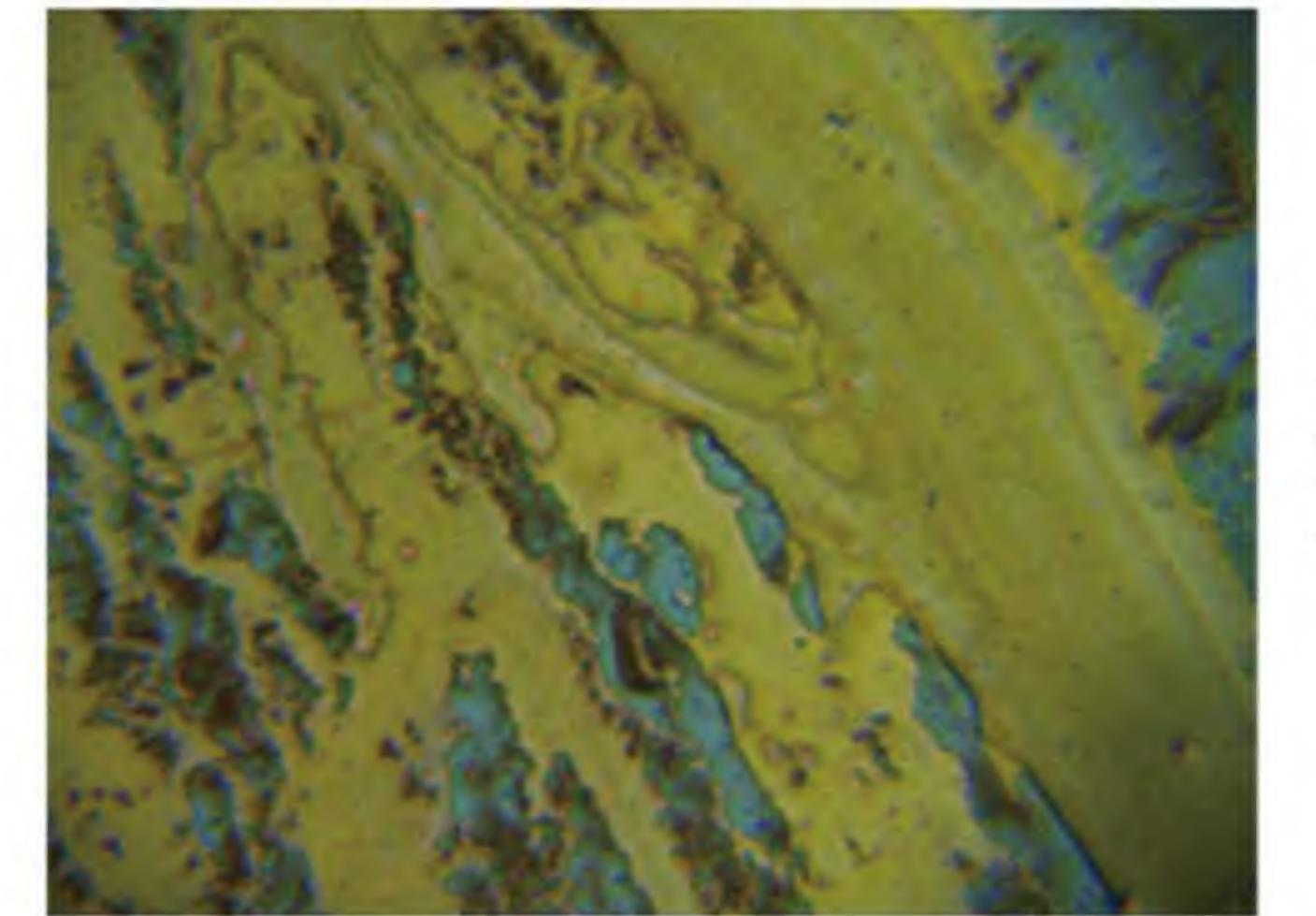
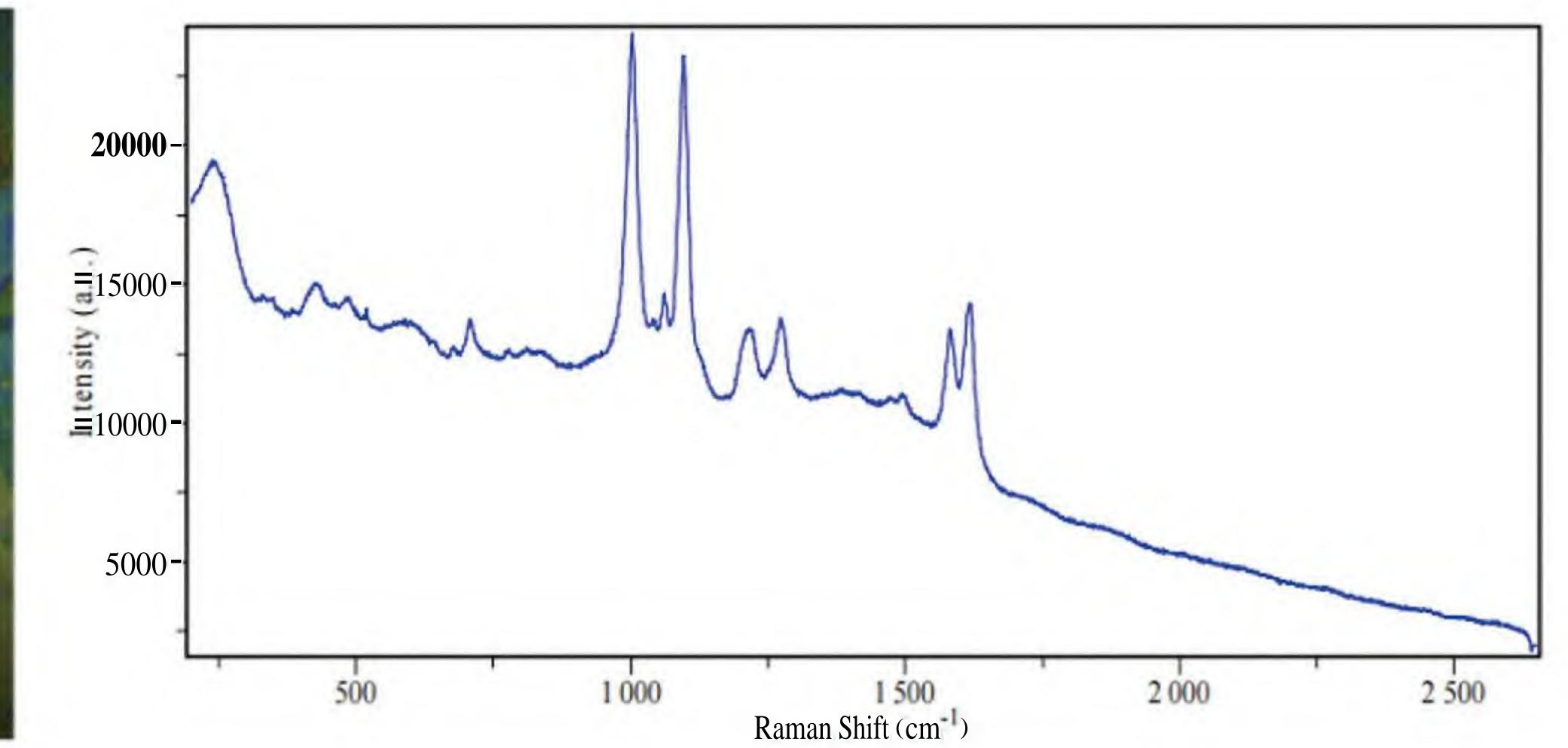


Fig. 1 DTR8300 collect acetonitrile spectra



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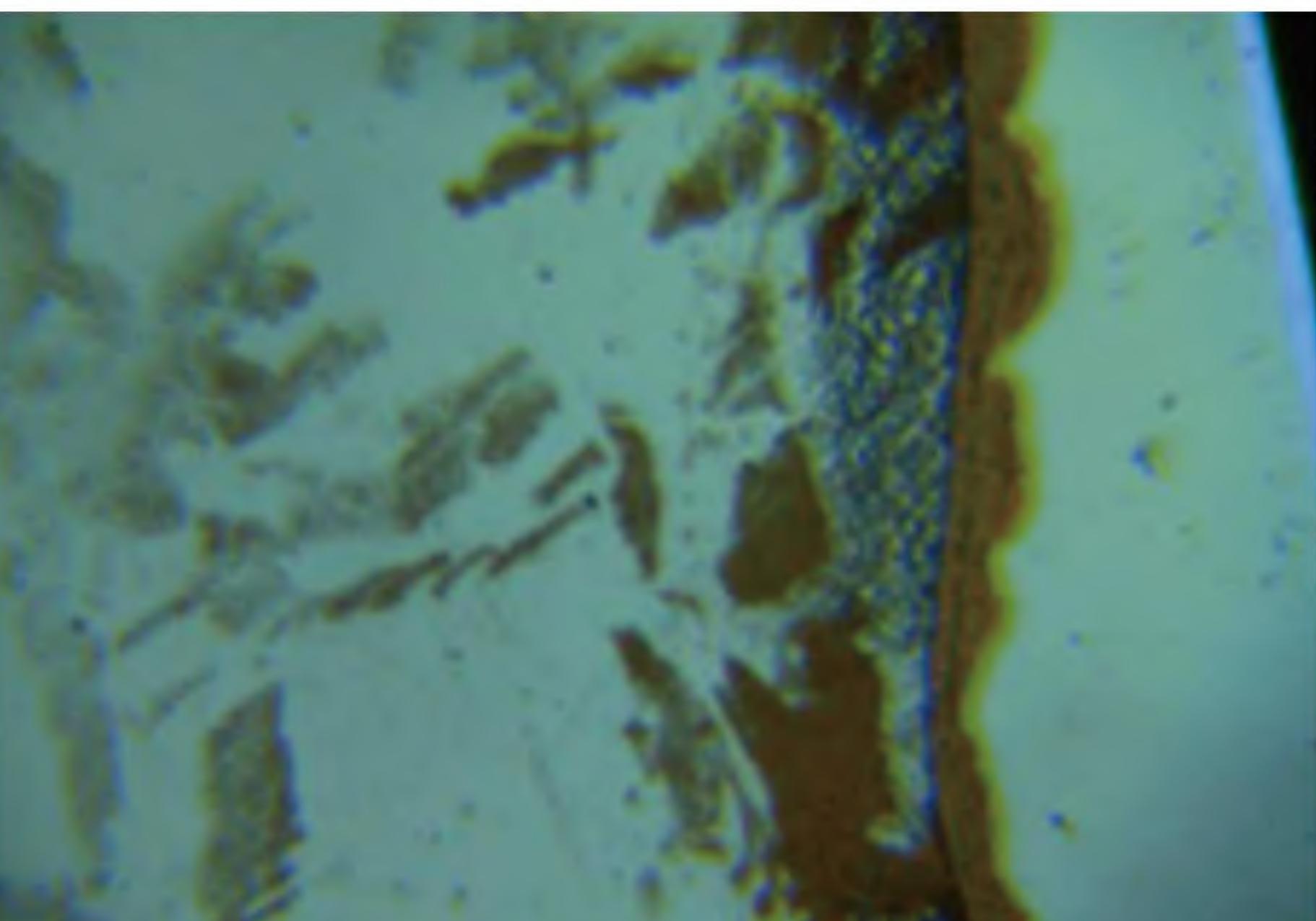
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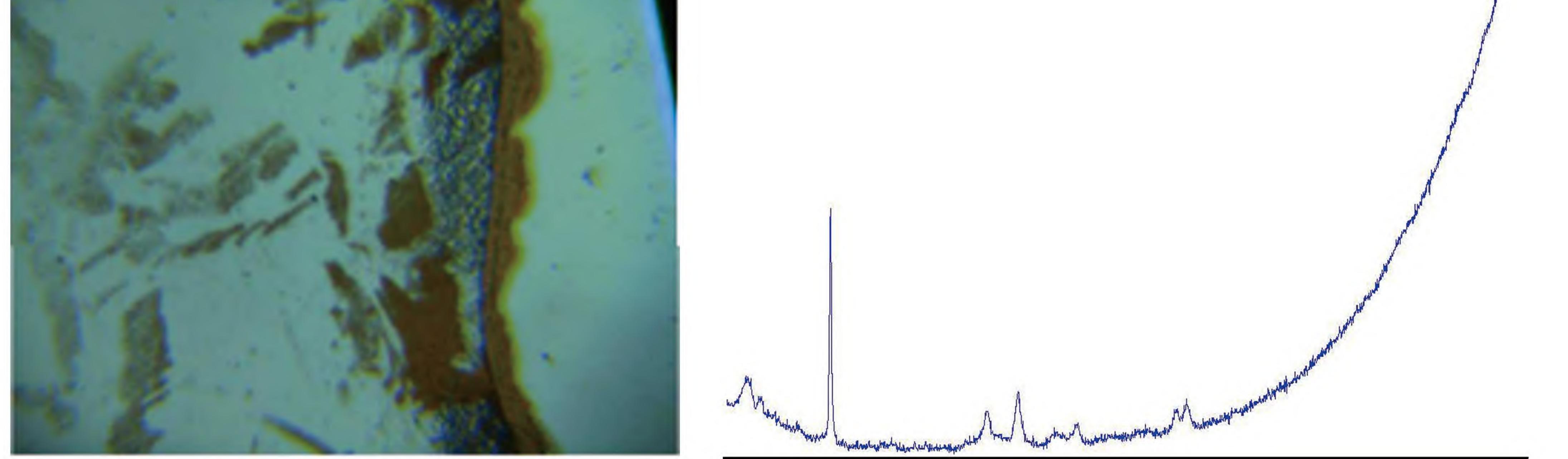
Fig.2 DTR8300 Sers experiment 1 (Left picture is sample, and right picture is Sers Raman spectra)

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DTR8300 Sers experiment 2 (left picture is sample, right picture is Sers Raman spectra)

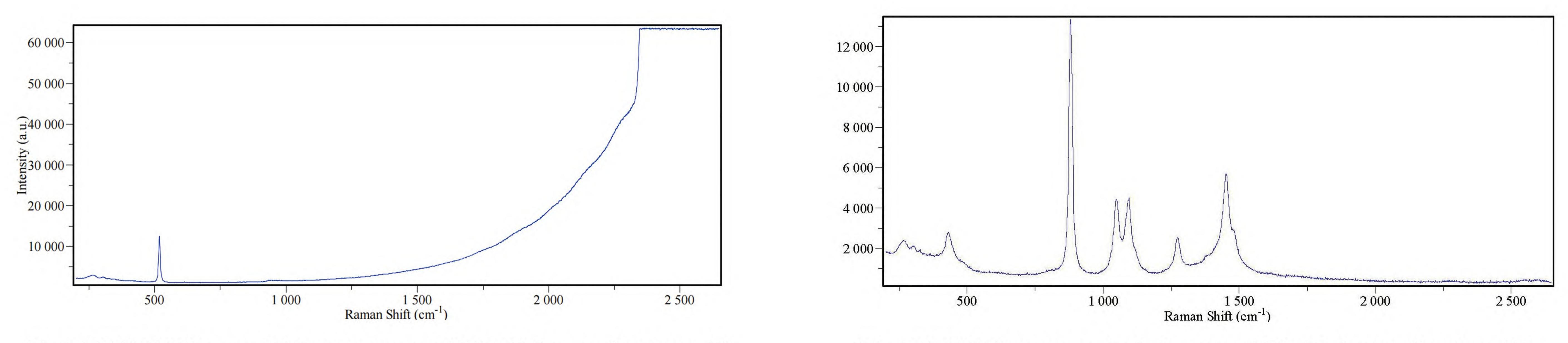


Fig 3 DTR8300 Measure Si Raman spectra (500mW, integration time: 1S)

Fig 4 DTR8300 measure alcohol spectra (500mW, integration time:1S)

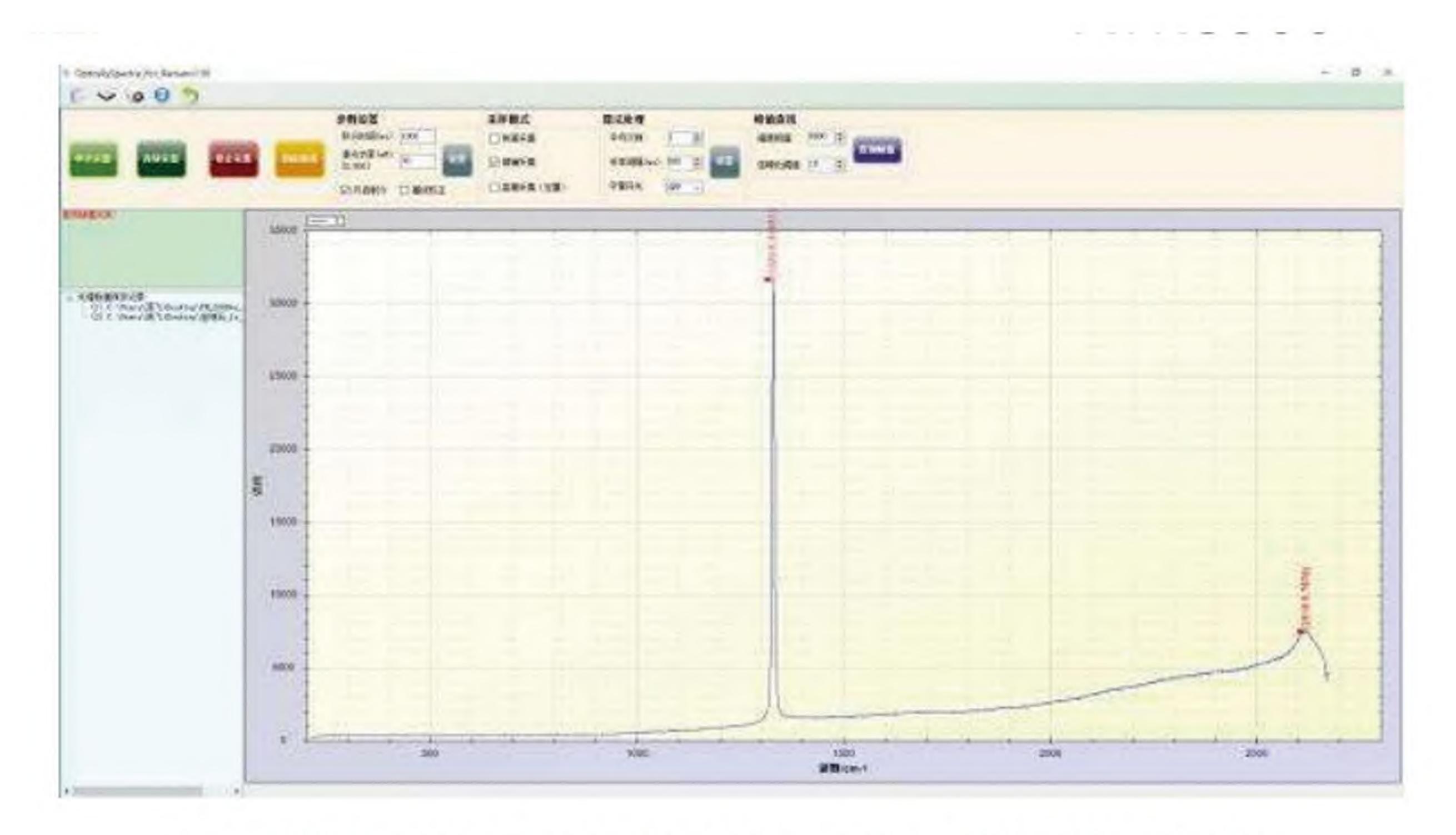


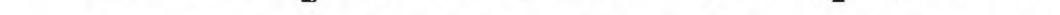
Fig 5 ATR8300 measure diamond Raman spectra (30mW, integration time: 1S)

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Fig 6 DTR8300 measure boron carbide (PN) spectra (200mW, integration time: 2S)

2.2 Raman resolution 2.2.1Tylenol Raman spectra

2.2.2 Petrol Raman spectra



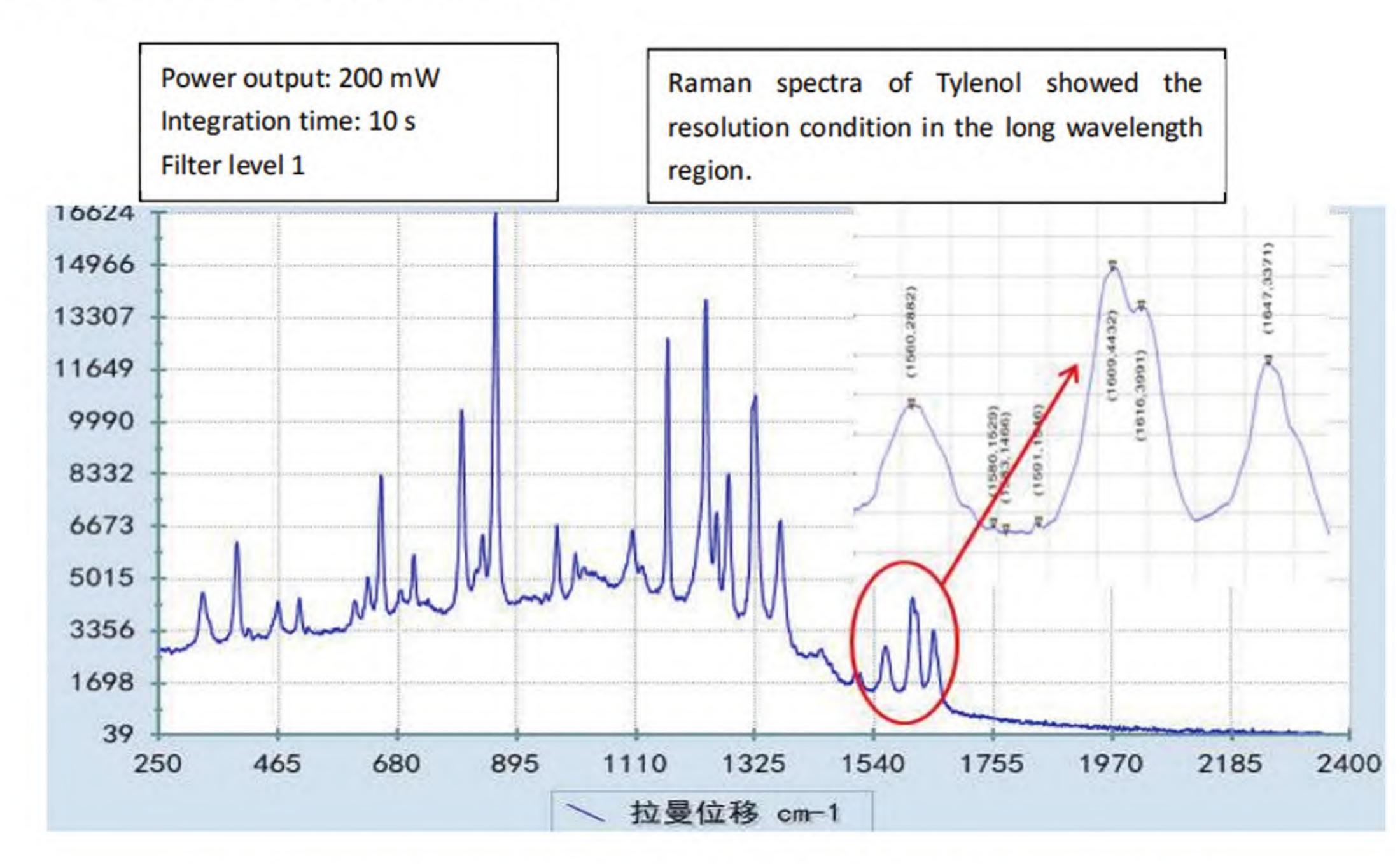


Fig 7 Tylenol spectra shows clear 1610/1615 cm-1vibration peak

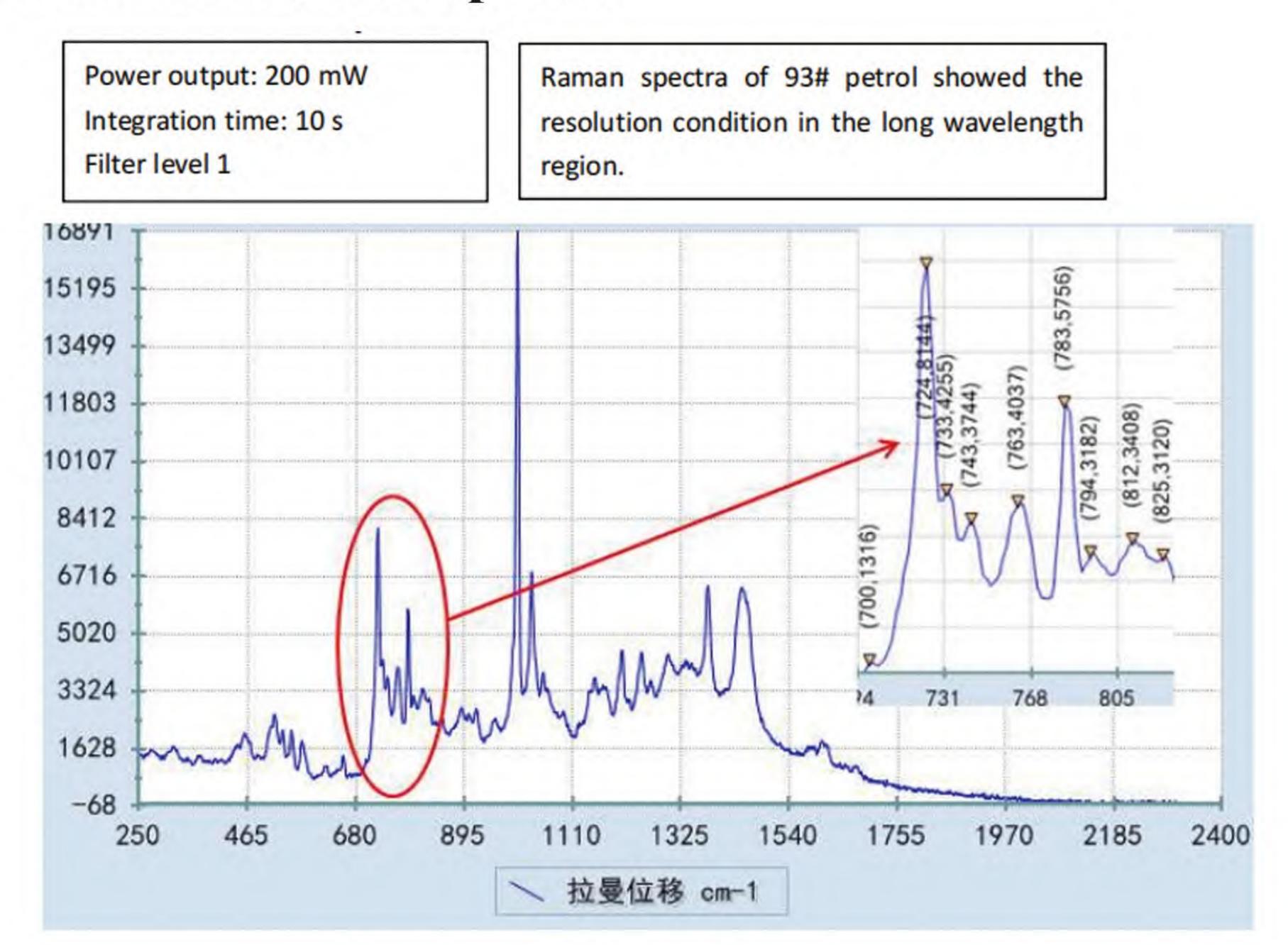


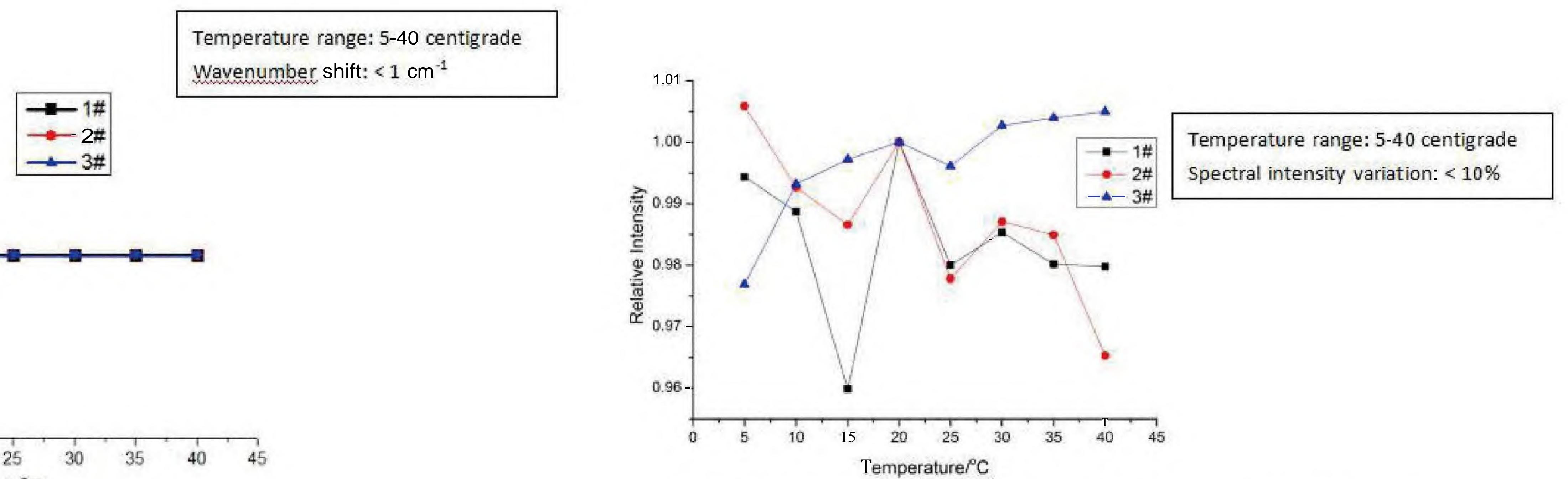
Fig 8 93# petrol Raman spectra, 723/732/742cm-1 spectral shift is clearly recognized

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3.Reliability

Fig3.1, Fig3.2 temperature stability is measured by DTR8300, keep stable above an hour for each temperature node ranging between $5-40_{\circ}$ C. Sample measured is acetonitrile, wavenumbers shift<lcm-l (Fig 3.1), peak top intensity change < 10% (Fig 3.2)



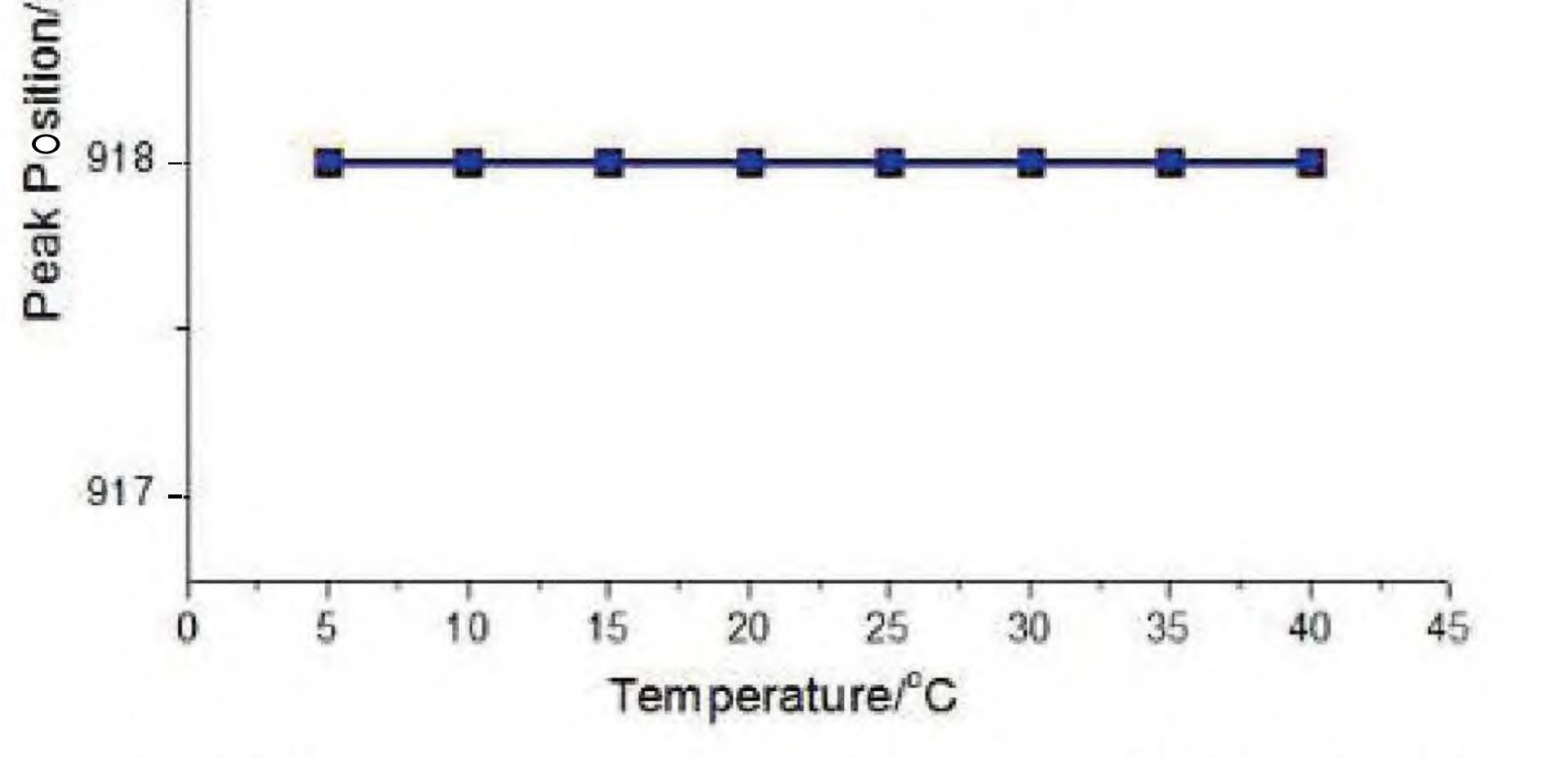


Fig. 3.2 Intensity variation testing from 5 °C to 40 °C of fives ATR2000 portable Raman spectrometers

Fig. 3.1 Wavenumber shift results testing from 5 °C to 40 °C of fives ATR2000 portable Raman spectrometers

4.Order guide

PN			Wavenumber range/cm-1	Resolution/cm-1
DTR8300-633	633	50	200 ~ 3500	4
DTR8300-785-27			200-2700	4
DTR8300-785-35	785	600	200-3500	6
DTR8300-785-43			200-4300	8
DTR8300-830	830	600	150-4000	7
DTR8300-1064	1064	600	200-2600	10-12
Available in custom wavelen	gth			

5. Details

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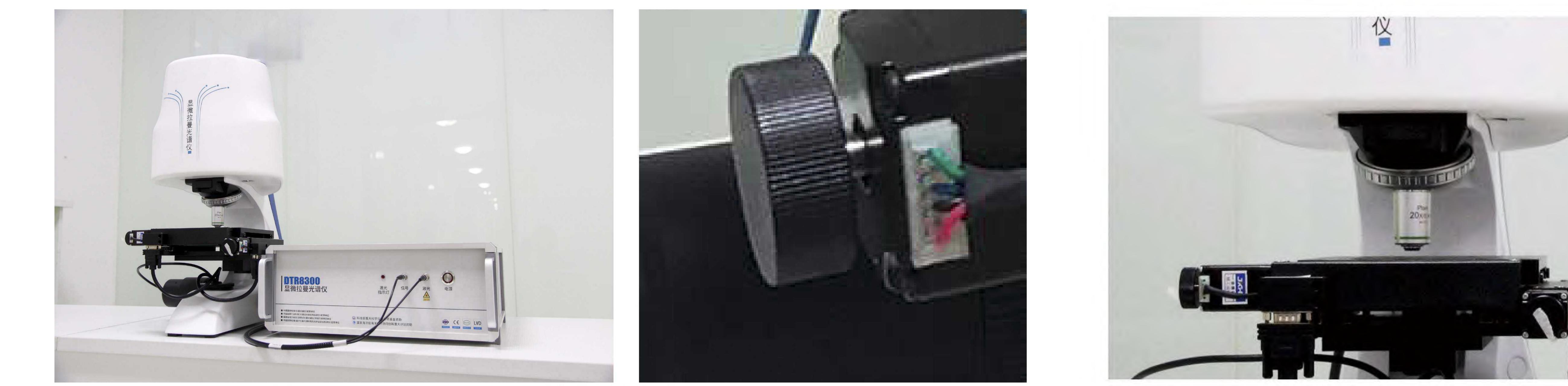


Fig 9 branded high stable microscope platform; X、Y、Z-axis precision adjustable; Adjustable knob work smooth, weight up to 5.6 Kg, very stable.

Fig 10 Raman signal high transmission objective, objective focal length up to 8mm

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Fig 10 Power button, button on/off as many asl,000,000 times, high strength laser cable, signal cable is verystrong, and laser indicator can intuitively display operating status.



Fig 11 Simple interface: Raman spectrometer: power socket +USB2.0 connector