Supporting information

Reliable SERS Detection of Nitrite based on pH and Laser Irradiance-dependent Diazotization through a Convenient Sampling Micro-chamber

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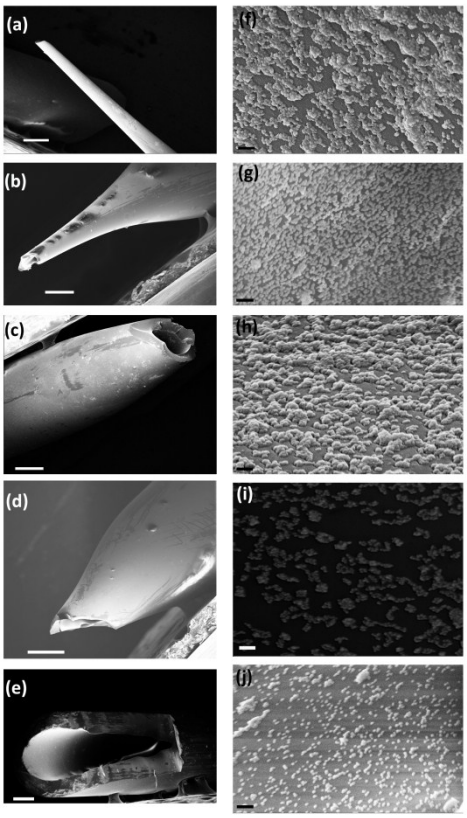

Fig. S1 SEM images of different distal tips (a-e) and its inner surface of micro-chambers morphology (f-j) with different sizes of orifice: (a) 25, (b) 100, (c) 200, (d) 300, (e) 500 µm. Scale bars:(a-e) 100 µm, (f-j) 200 nm.

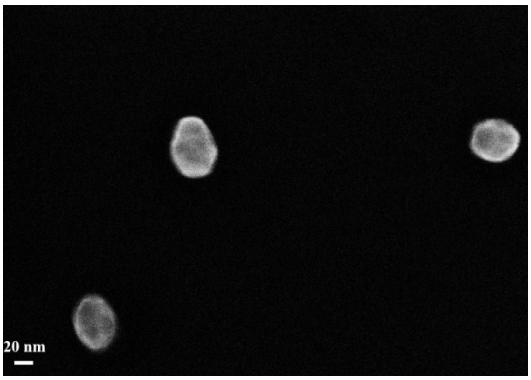

Fig. S2 SEM image of 50 nm Au NPs

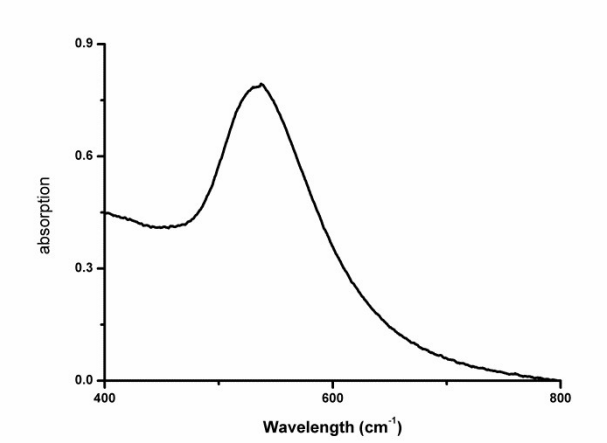

Fig. S3 UV-vis absorption spectrum of 50±5 nm gold collides.

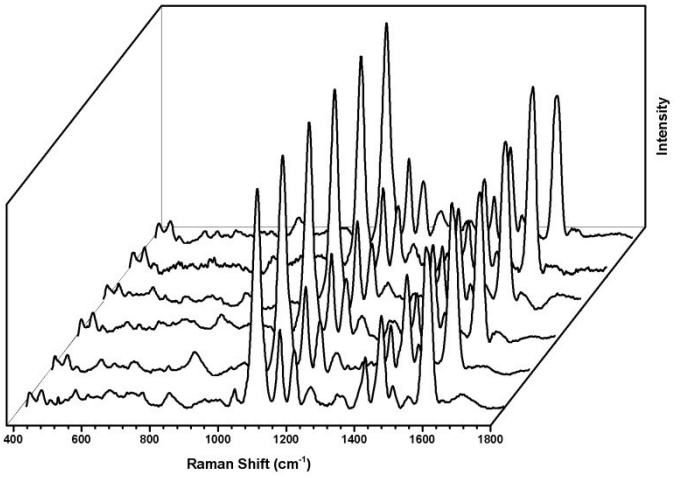

Fig. S4 SERS spectra of PATP reacted with 100 μM NO_2^- ions based in the different micro-chambers (normalized Raman band at 1141 cm^{-1} to the peak intensity at 1078 cm^{-1}; laser power 1.75 mW and pH=1).

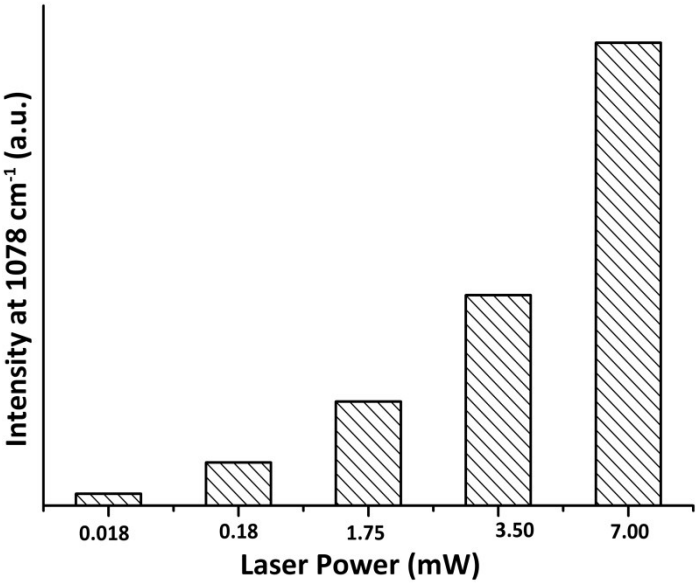

Fig.S5 The intensity of SERS band at 1078 cm^{-1} under different laser power illumination (pH=7)

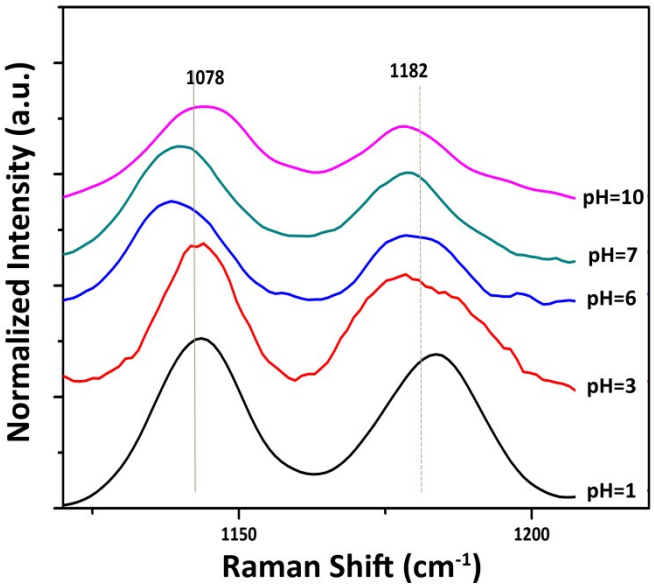

Fig. S6 The enlarged panel of the characteristic peaks at 1141 and 1182 cm^{-1} of PATP-capped micro chambers reacted with 100 μM NO_2^- under different conditions. (Power laser 1.75 mW)

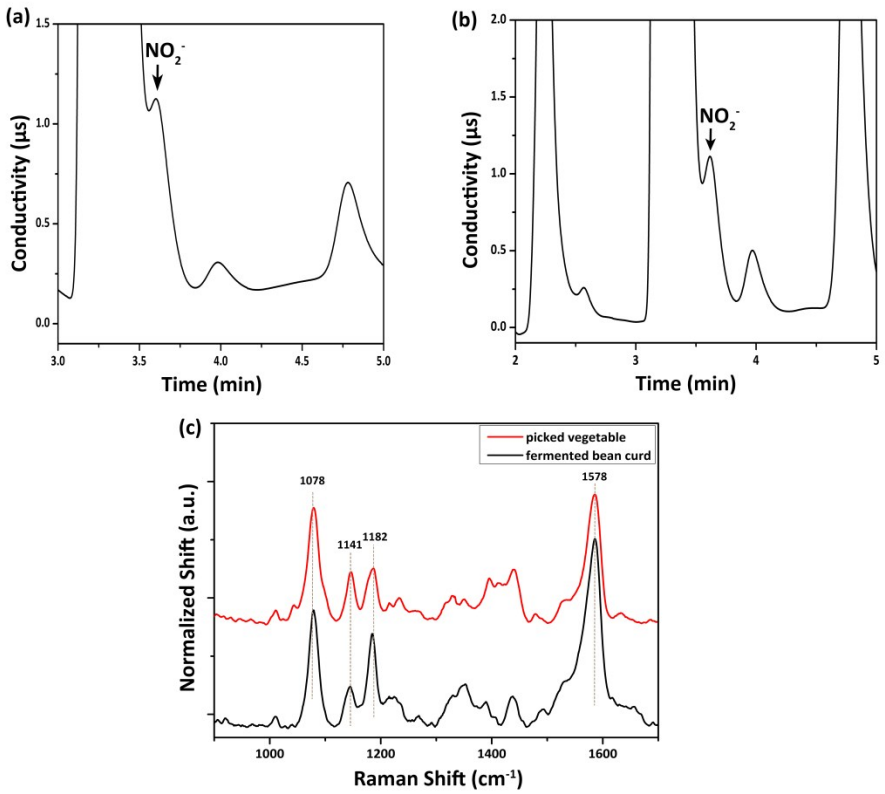

Fig. S7 The ion chromatography of fermented bean curd (a) and picked vegetable (b), the SERS spectra of real samples. (c) The SERS spectra of NO_2^- reacted with PATP-capped micro-chamber in real samples.

Table S1 Quantitative Result of NO_2^-ions in real samples through SERS and IC measurement respectively

	$C_{SERS\ measurement}$ (μM)	$C_{IC\ measurement}$ (μM)	relative error	RSD
fermented bean curd	83.52	72.62	0.1501	0.2114
pickled vegetable	133.8	116.6	0.1475	0.1908