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Supporting Information

Fabrication of an AAO-Based Surface-Enhanced Raman Scattering

Substrate for the Identification of Levofloxacin in Milk

Nan LI, ^{ab} Siqingaowa HAN,^{*ac} Shuang LIN, ^a Xuan-yu SHA, ^a and Wuliji HASI^{*a}

a. National Key Laboratory of Science and Technology on Tunable Laser, Harbin Institute of Technology, Harbin 150080, China.

b. College of Art and Sciences, Northeast Agricultural University, Harbin 150030, China.

c. Affiliated Hospital of Inner Mongolia University for Nationalities, Tongliao 028043, China.

List of supplementary material

Fig. S1 (a) Protein in milk was deposited by 15% trichloroacetic acid, and the sample was shaken slightly. (b) The sample was centrifuged. (c) The supernatant was filtered through a 0.22 μm filter. (d) The filtrate used for testing.

Fig. S2 Raw UV-visible absorption spectra of three different sized Ag colloids

Fig. S3 The number distribution of the three different sized Ag NPs in the AAO holes: (a) 59 nm, (b) 41 nm, and (c) 29 nm.

Fig. S4 UV-visible absorption spectra of a blank AAO template and the Ag NP-AAO SERS substrate

Fig. S5 SERS spectra of the levofloxacin aqueous solution with different concentrations based on AAO-based SERS Substrate with 41 nm Ag NPs. The laser energy is 60 mW and the integration time is 5 s.

Table S1 A performance comparison of Ag NPs with different particle sizes assembled in AAO-based SERS substrate

Table S2 A comparison of methods used for the detection of antibiotics in milk

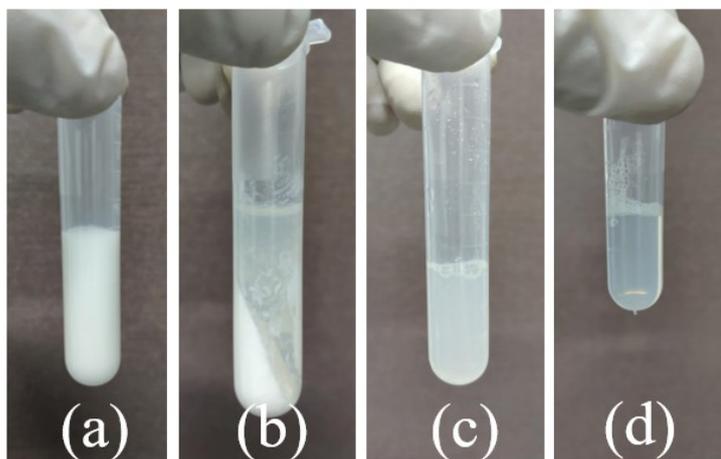


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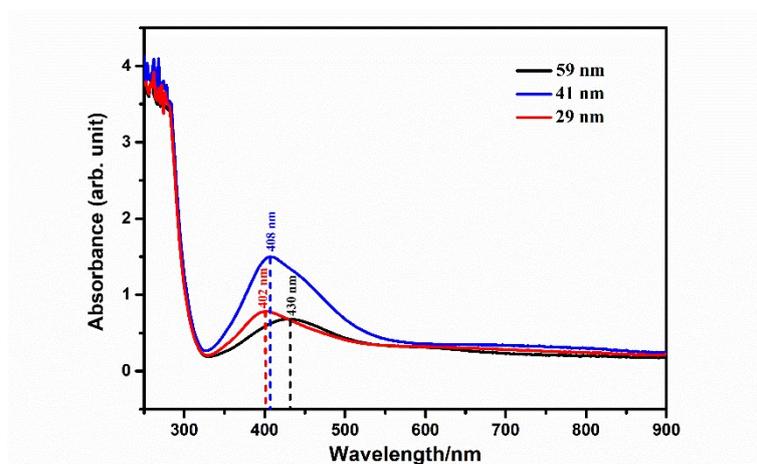


Fig. S2 Raw UV-visible absorption spectra of three different sized Ag colloids

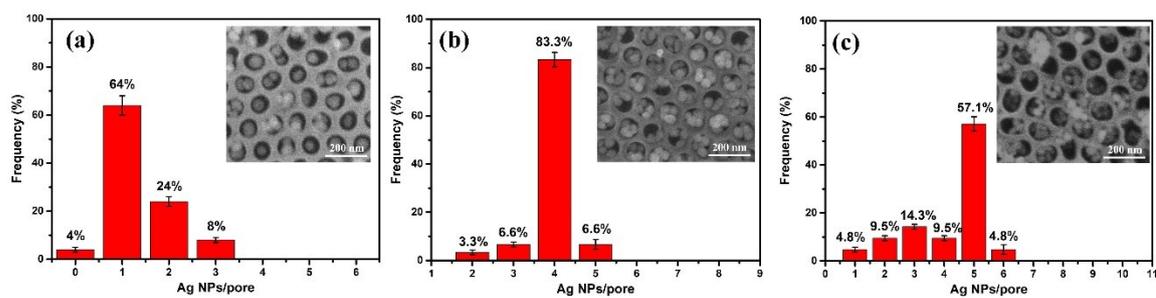


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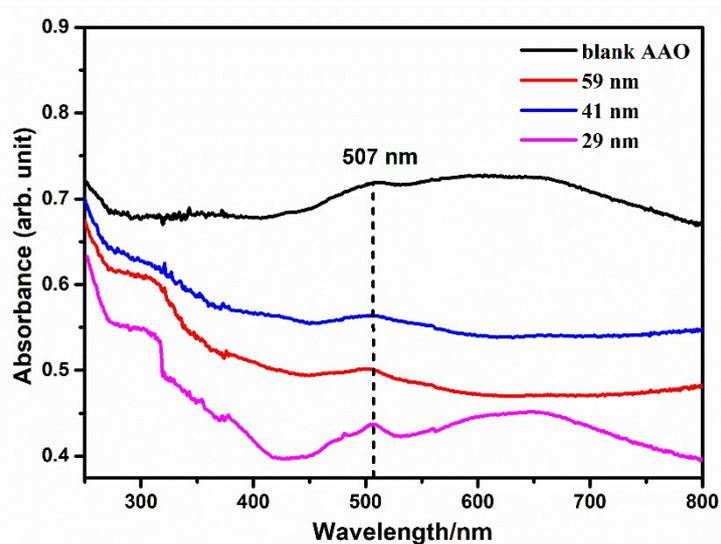


Fig. S4 UV-visible absorption spectra of a blank AAO template and the Ag NP-AAO SERS substrate

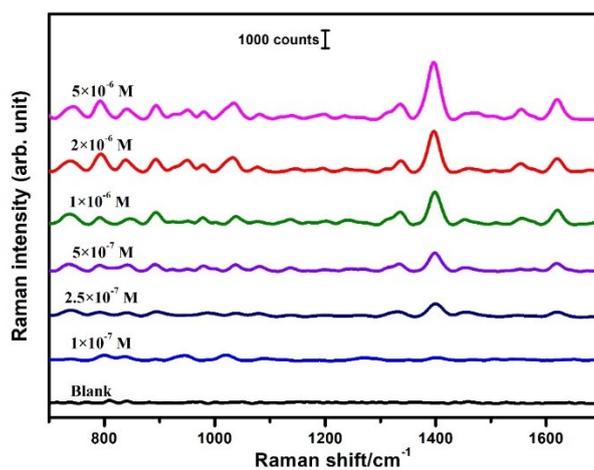


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Table S1 A performance comparison of Ag NPs with different particle sizes assembled in AAO-based SERS substrate

Particle size, nm	The number distribution in the AAO	Yields of distribution, %	AEF
29	5	57.1	1.04×10^6
41	4	83.3	1.17×10^6
59	1	64	0.86×10^6

Table S2 A comparison of methods used for the detection of antibiotics in milk

Method	Limit of detection	Linear range	Time required for detection	Requirement for large-scale instruments	Reference
Liquid chromatography coupled with tandem mass spectrometry (LC-MS/MS)	$3.56 \mu\text{g kg}^{-1}$	$0.5\sim 100 \mu\text{g kg}^{-1}$	30~90 min	Yes	[1]
High performance liquid chromatography equipped with UV detector (HPLC-UV)	$0.02 \mu\text{g mL}^{-1}$	$0.08\sim 2 \mu\text{g mL}^{-1}$	30 min~6 hr	Yes	[2]
SERS	$1.88 \times 10^{-6} \text{ M}$	$1 \times 10^{-6} \sim 2 \times 10^{-5} \text{ M}$	30 min	No	This work

References

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2. M. Negarian, A. Mohammadinejad and S. A. Mohajeri, *Food Chem.*, 2019, **288**, 29-38.