SUPPLEMENTARY MATERIALS

Synthesis of organic phosphoric acid-based multilayer SERS imprinted sensor for selective detection of dichlorophenol

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The calculated process was presented as following:

$$G = I_{SERS} / I_{REF} \quad (1)$$

$$EF = (I_{SERS} / N_{SERS}) / (I_{REF} / N_{REF}) \quad (2)$$

$$N_{SERS} = CVN_A A_{Raman} / A_{sub} \quad (3)$$

$$N_{REF} = phA_{Raman} N_A / M \quad (4)$$

where I_{SERS} and I_{REF} were the SERS and Raman scattering spectra of 2,6-DCP under the same conditions. N_{SERS} and N_{REF} were the number of 2,6-DCP molecules inside the laser radiation. C was the corresponding concentration of 2,6-DCP used in the Raman spectra, V was the volume of the droplet, N_A was Avogadro constant. A_{Raman} was the laser spot area of Raman scanning. The calculation results were as follows that N_{SERS} was 2.36×10^3 and N_{REF} was 1.02×10^{11}. Accordingly, The G and EF at 1596 cm^{-1} were respectively 10.8 and 4.67×10^8 for the 2,6-DCP solution, indicating that the substrate had considerably good SERS activity. This might be because on the one hand IP_6 and MIL-101 (Fe) shell layer play a protective effect on Ag nanoparticles, preventing Ag nanoparticles from being oxidized during the detection process, and on the other hand, because MIL-101 (Fe) had a good the adsorption capacity and could adsorb the target analyte to the active site of Ag nanoparticles. Therefore, AIM@MIPs substrate showed superior SERS activity to 2,6-DCP detection.

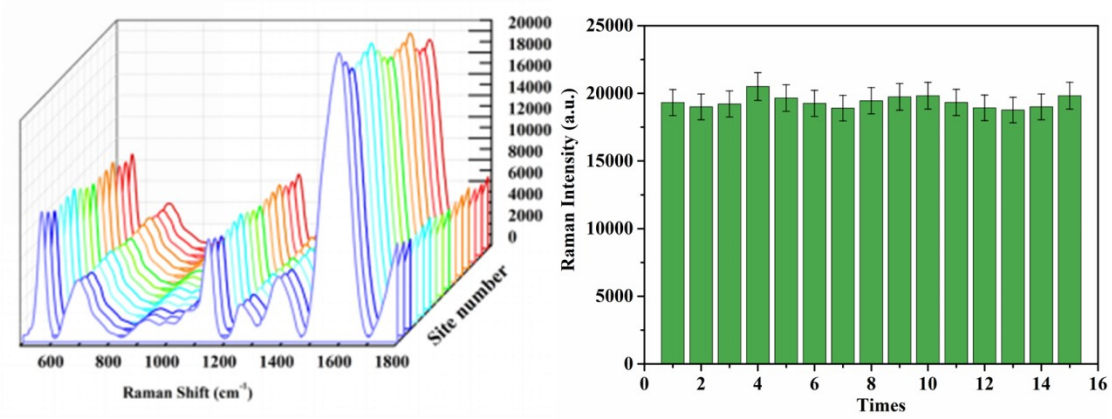

Figure S1. Raman intensity at 1596 cm^{-1} with 15 different points on the same substrate

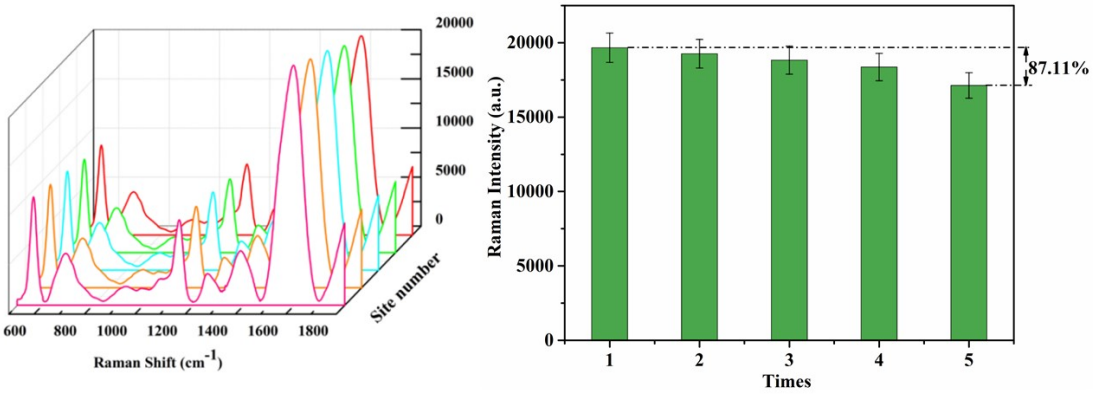

Figure S2. Raman intensity of 2,6-DCP at 1596 cm^{-1} on the same substrate was repeatedly detected 5 times.