

## Electronic Supplementary Information

Zr-based metal organic framework nanoparticles coated with  
a molecularly imprinted polymer for trace diazinon surface  
enhanced Raman scattering analysis

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## 1. Equations

The pseudo-first-order equation is generally expressed as:

$$\ln(Q_e - Q_t) = \ln Q_e - k_1 t \quad (1)$$

The pseudo-second-order equation is generally expressed as:

$$\frac{t}{Q_t} = \frac{1}{k_2 Q_e^2} + \frac{t}{Q_e} \quad (2)$$

where  $t$  (min) is adsorption time;  $Q_t$  (mg/g) and  $Q_e$  (mg/g) are the amounts of the adsorbed diazinon at time  $t$  (min) and at equilibrium, respectively;  $k_1$  is the rate constant of the pseudo-first-order adsorption model,  $k_2$  (g/(mg min)) represents the pseudo-second-order adsorption rate constant.

The Langmuir equation is as follows:

$$\frac{C_e}{Q_e} = \frac{1}{(Q_m K_L)} + \frac{C_e}{Q_m} \quad (3)$$

where  $K_L$  (L/mg) is the Langmuir constant, and  $Q_m$  (mg/g) is the maximum adsorption capacity for monolayer formation on the sorbents,  $C_e$  (mmol/L) is the free analytical concentration at equilibrium.

The linear mathematical expression of the Freundlich model is presented as:

$$\log q_e = \log k_F + (n) \log C_e \quad (4)$$

$k_F$  (g<sup>1-n</sup> L<sup>n</sup>/g) is Freundlich constant related to the adsorption capacity of the adsorbent, and  $n$  signifies adsorption intensity.

## 2. Supporting data

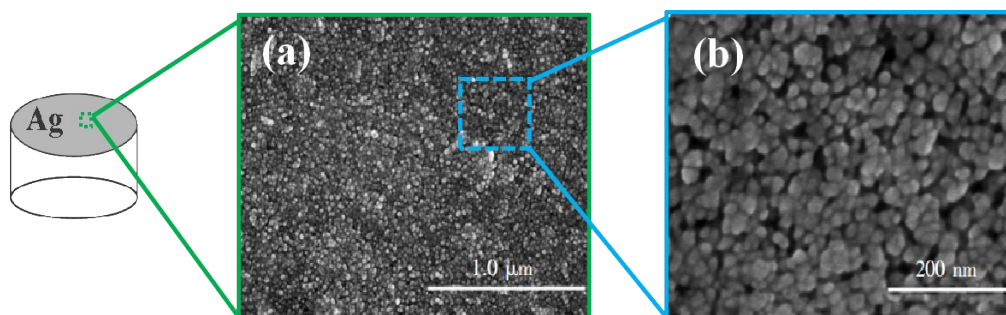
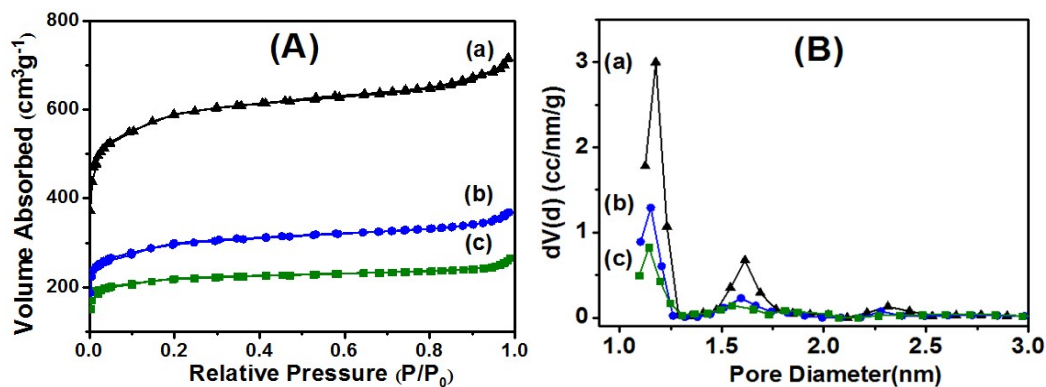
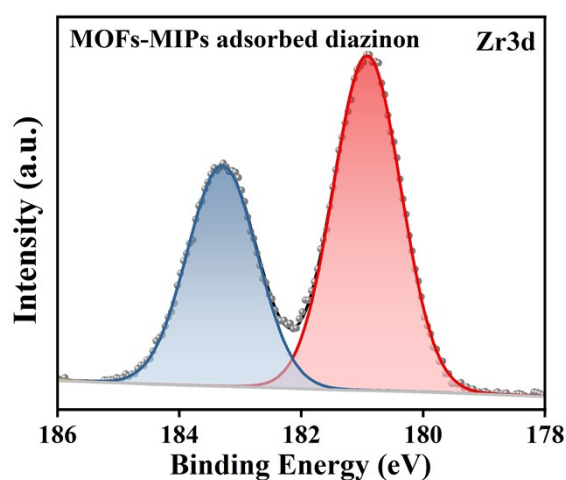


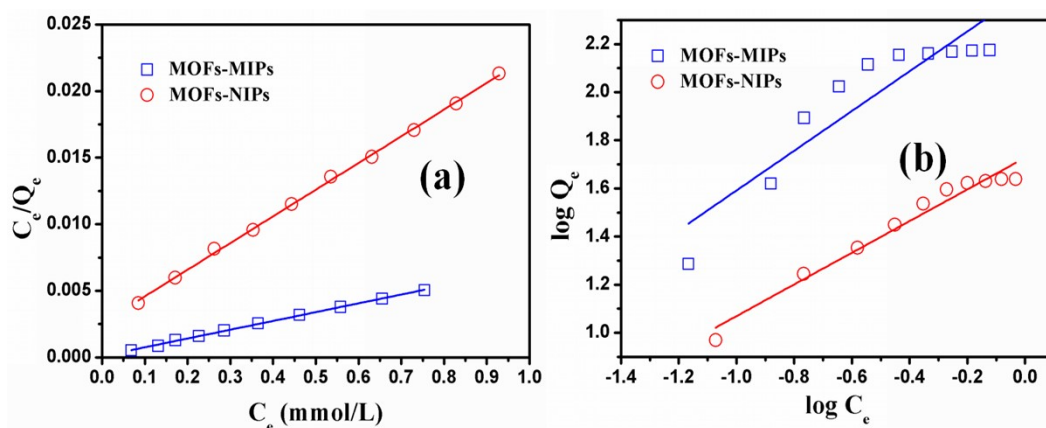
Fig. S1 SEM images of silver plated substrate at different magnifications



**Fig.S2** (A) N<sub>2</sub> adsorption-desorption isotherm of (a) UiO-67, (b) MOFs-MIPs, (c) MOFs-NIPs and (B) pore size distribution of (a) UiO-67, (b) MOFs-MIPs, (c) MOFs-NIPs.



**Fig.S3** Zr3d high-resolution scans XPS spectrum of MOFs-MIPs after adsorption diazinon



**Fig.S4** (a) Langmuir model and (b) Freundlich model of diazinon adsorption by MOFs-MIPs and MOFs-NIPs.