

Supplementary Information (SI)

Construction of magnetic $\text{MoS}_2/\text{NiFe}_2\text{O}_4/\text{MIL-101}(\text{Fe})$ hybrid nanostructures for separation of dyes and antibiotics from aqueous media

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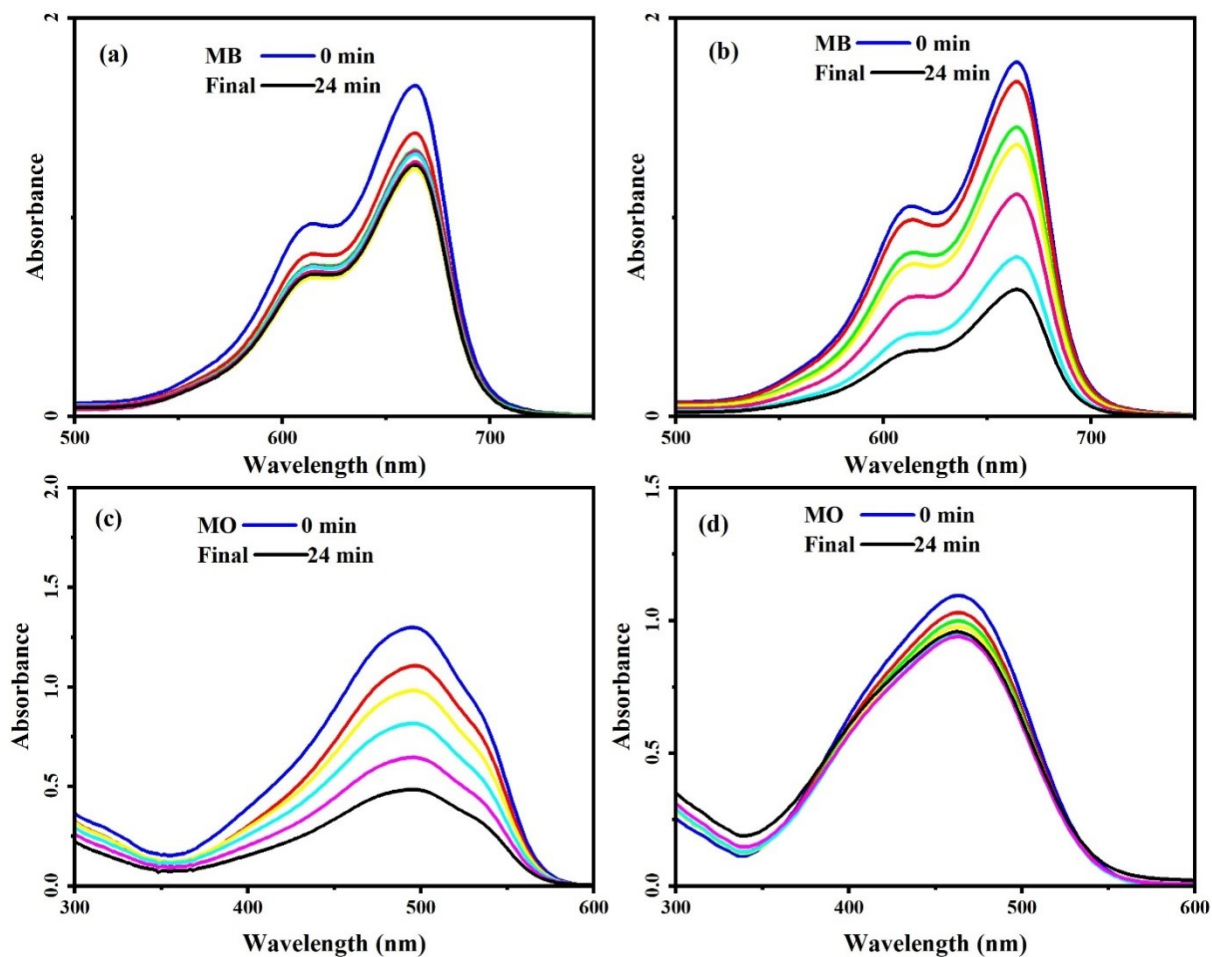


Fig. 1S. The UV-Vis spectra during adsorption of MB and MO dyes over with different adsorbents: (a) MB - MIL-101(Fe), (b) MB - MoS₂, (c) MO - MIL-101(Fe), and (d) MO - MoS₂. Conditions: $C_{0(\text{dye})} = 25 \text{ mg L}^{-1}$, $V_{(\text{dye})} = 30 \text{ mL}$, adsorbent dosage = 25 mg at 25 °C.

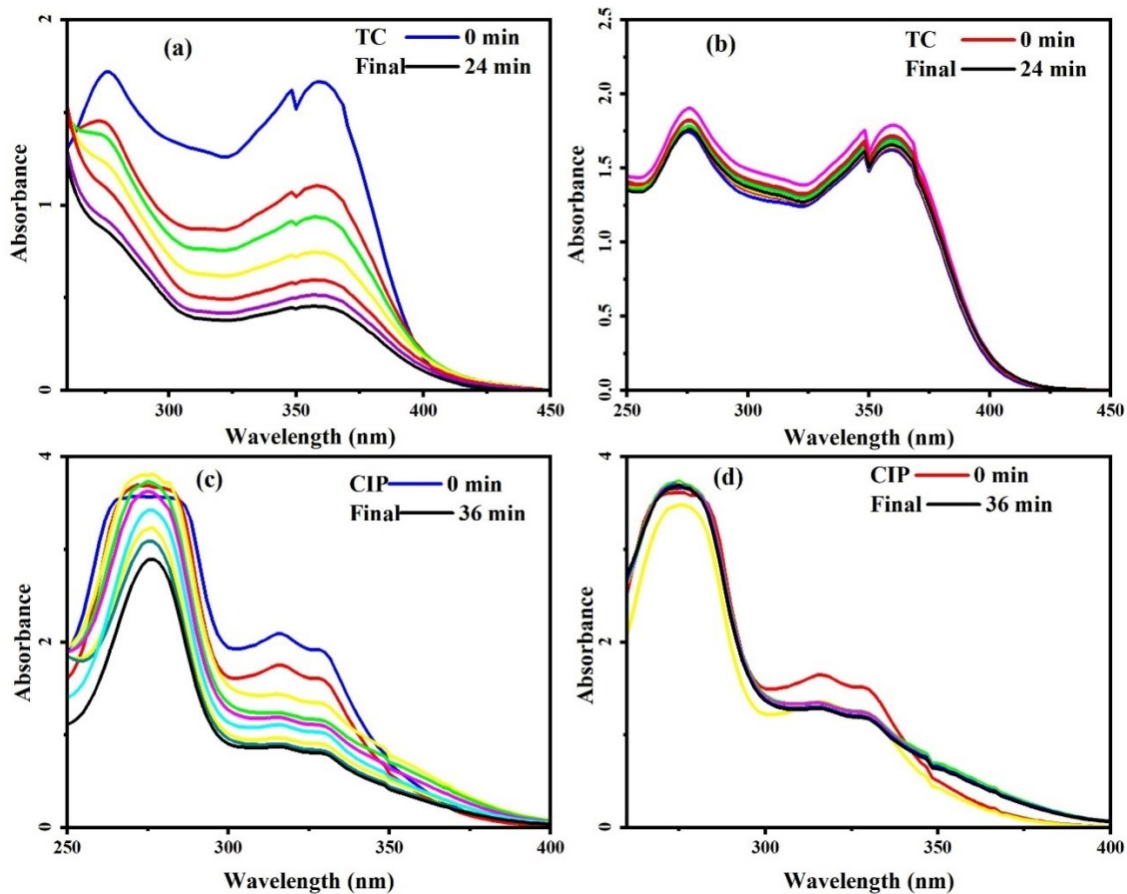


Fig. 2S. UV-vis spectral changes of TC and CIP drugs aqueous solutions with different adsorbents. (a) TC- MIL-101(Fe), (b) TC - MoS₂, (c) CIP - MIL-101(Fe), (d) CIP - MoS₂. Conditions: $C_{0(\text{drug})} = 75 \text{ mg L}^{-1}$ for TC and 50 mg L^{-1} for CIP, $V_{(\text{drug})} = 50 \text{ mL}$, adsorbent dose: 25 mg at 25 °C.

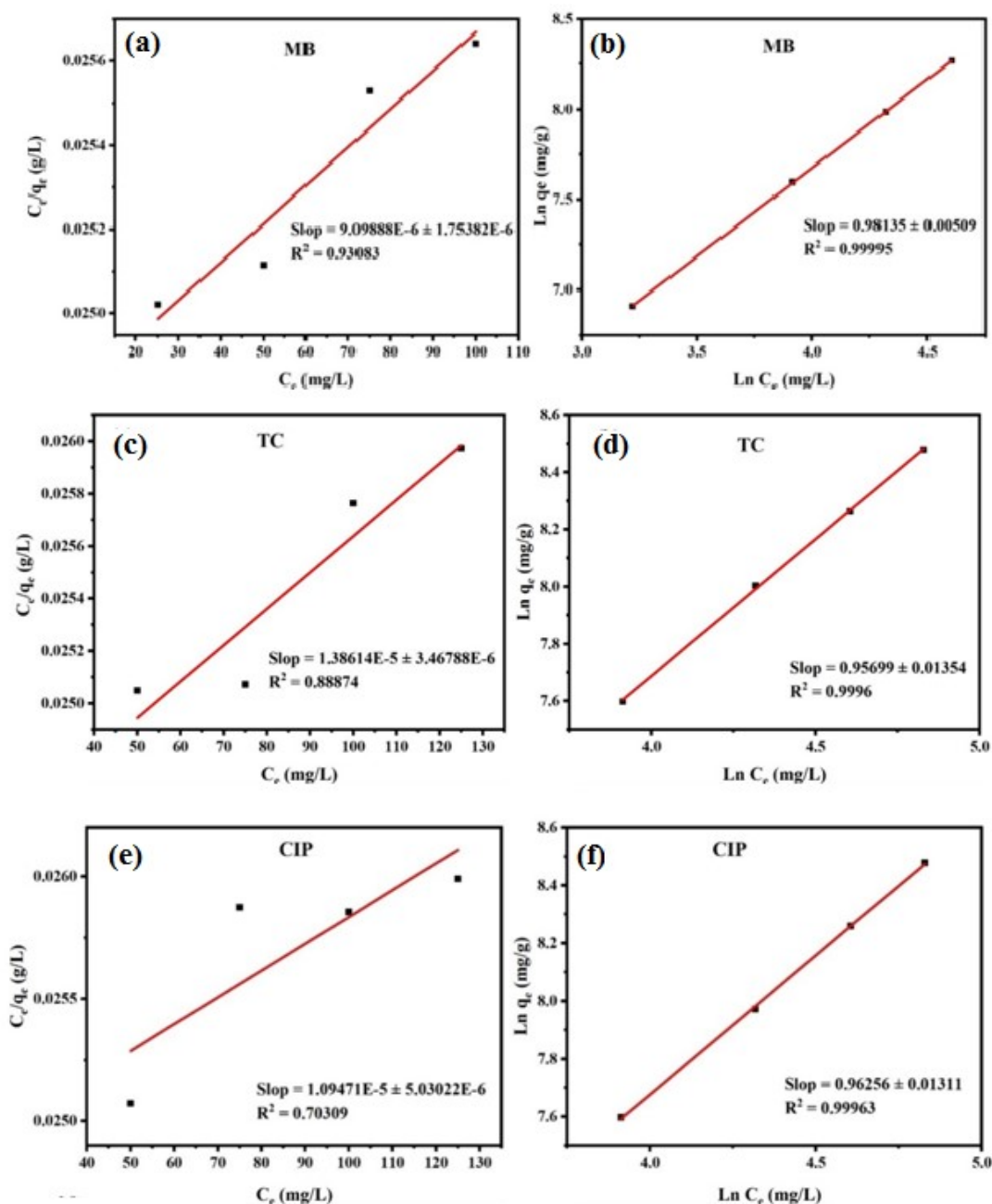


Fig. 3S. Langmuir isotherm and Freundlich isotherm, for the adsorption process of (a)-(b) MB, (c)-(d) TC, and (e)-(f) CIP onto the $\text{MoS}_2/\text{NiFe}_2\text{O}_4/\text{MIL-101}(\text{Fe})$ nanocomposite. Experimental conditions: solution volume \square 30 mL, adsorbent dosage \square 25 mg and temperature \square 25 $^\circ\text{C}$.

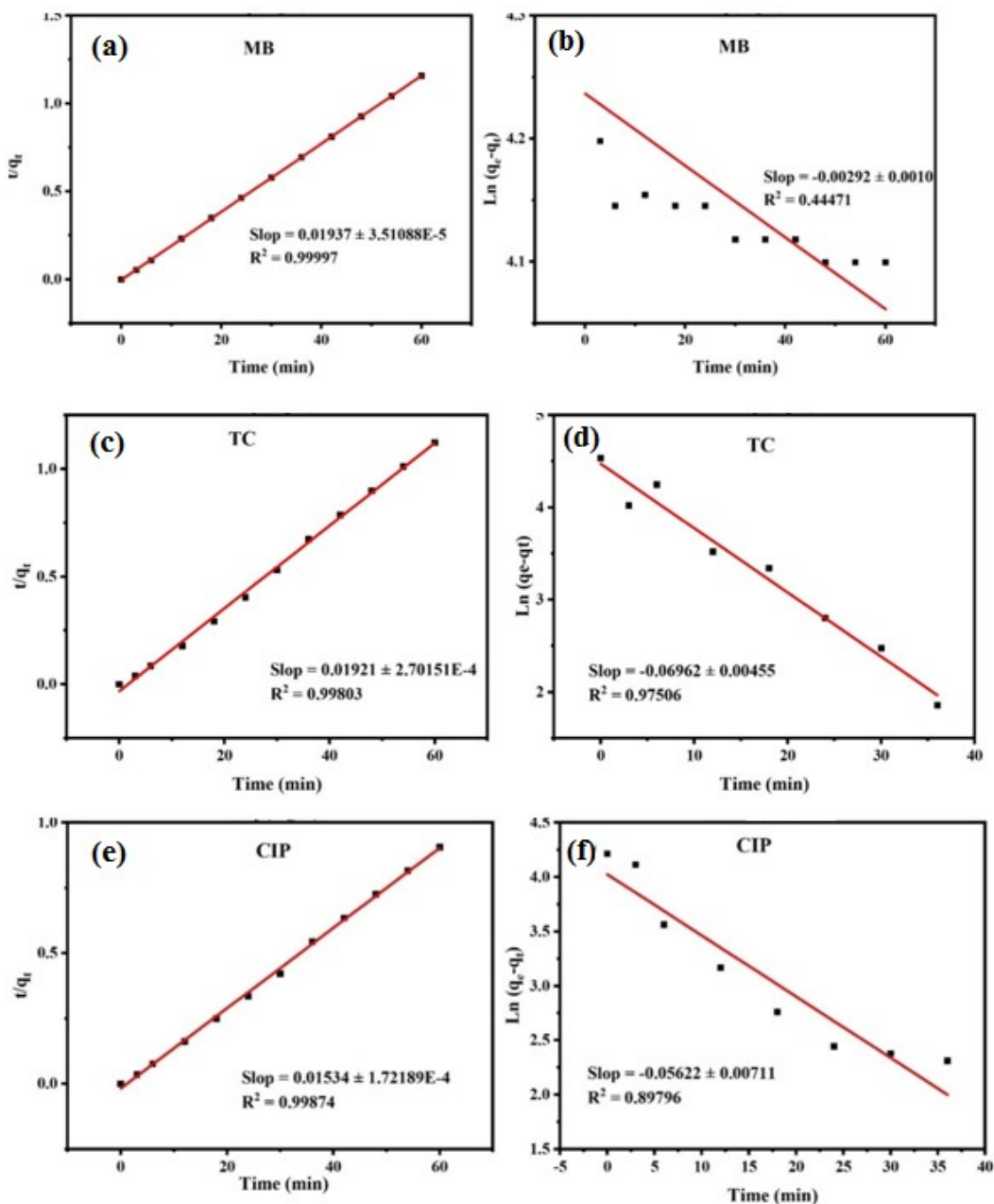


Fig.4S. Pseudo-second-order kinetics and Pseudo-first-order kinetics (d) for the adsorption process of (a)-(b) MB, (c)-(d) TC, and (e)-(f) CIP onto the MoS₂/NiFe₂O₄/MIL-101(Fe) nanocomposite.. Experimental conditions: solution volume \square 50 mL, adsorbent dosage \square 25 mg and temperature \square 25 °C.