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Removal of Anthracene in Water by MIL-88(Fe), NH_2-MIL-88(Fe), and Mixed-MIL-88(Fe) Metal-Organic Frameworks

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Supplementary Materials

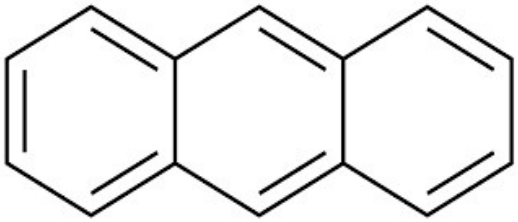

Fig. S1 Chemical structure of Anthracene

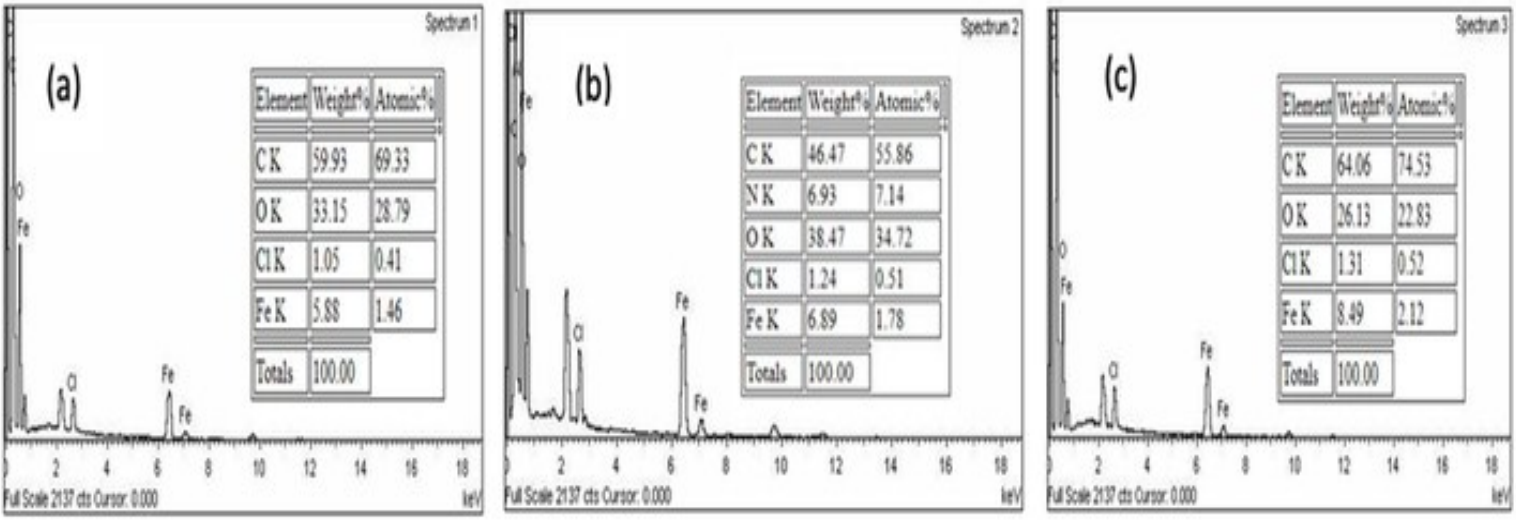

Fig. S2 EDX surface elemental analysis of (a) MIL-88(Fe), (b) NH_2-MIL-88(Fe) and (c) Mixed-MIL-88(Fe) MOFs

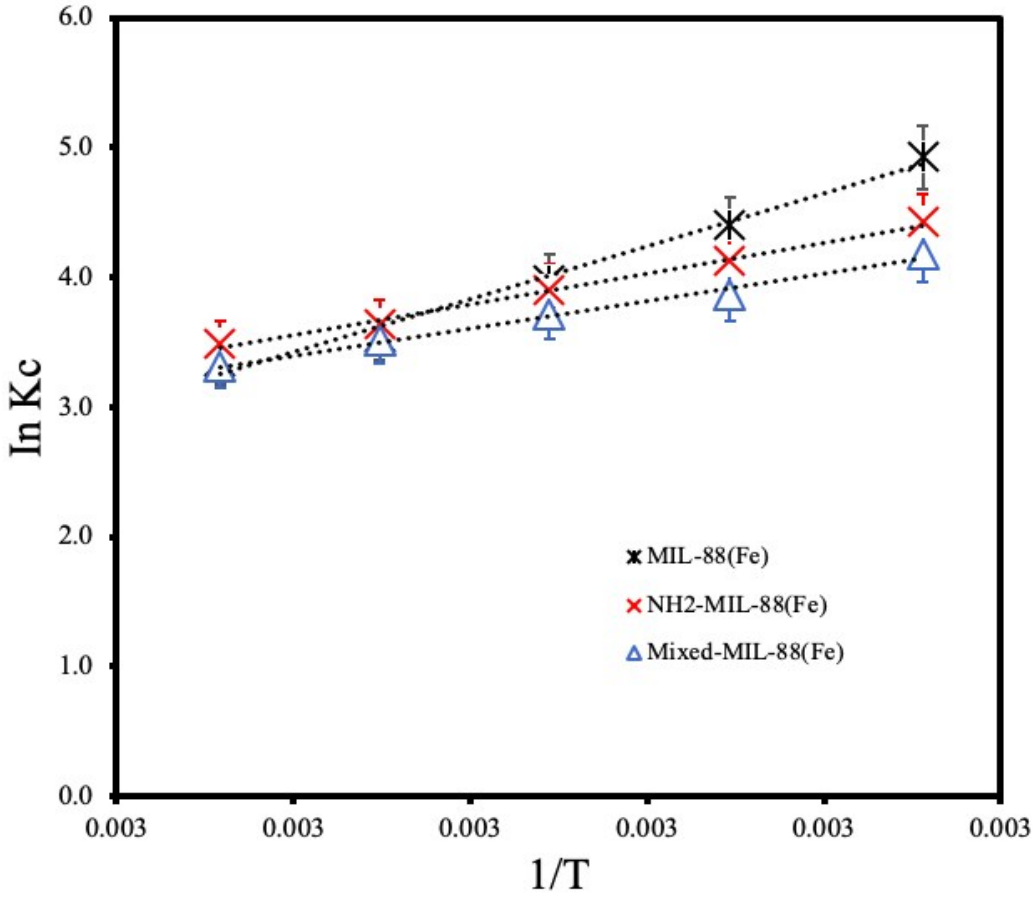

Fig. S3 Thermodynamics plot for ANT adsorption onto the MOFs

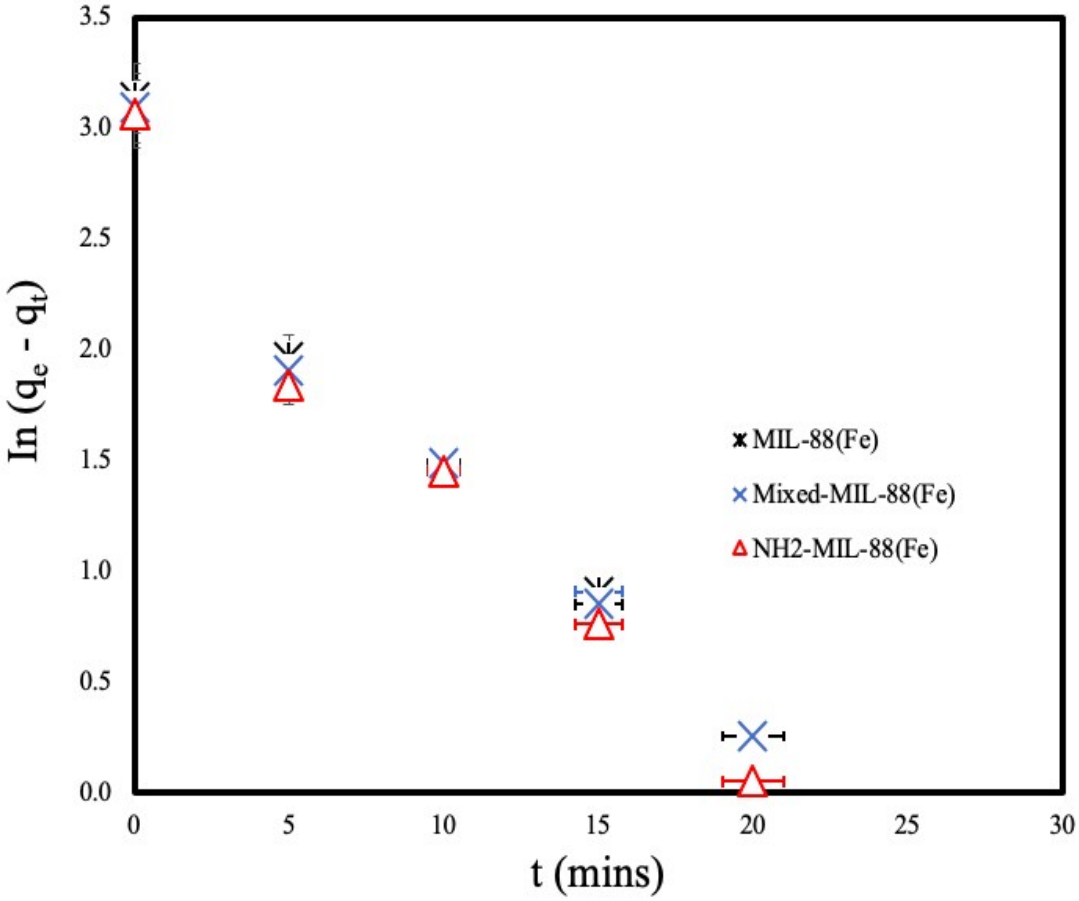

Fig. S4 Pseudo-first-order kinetic model for ANT adsorption onto the MOFs

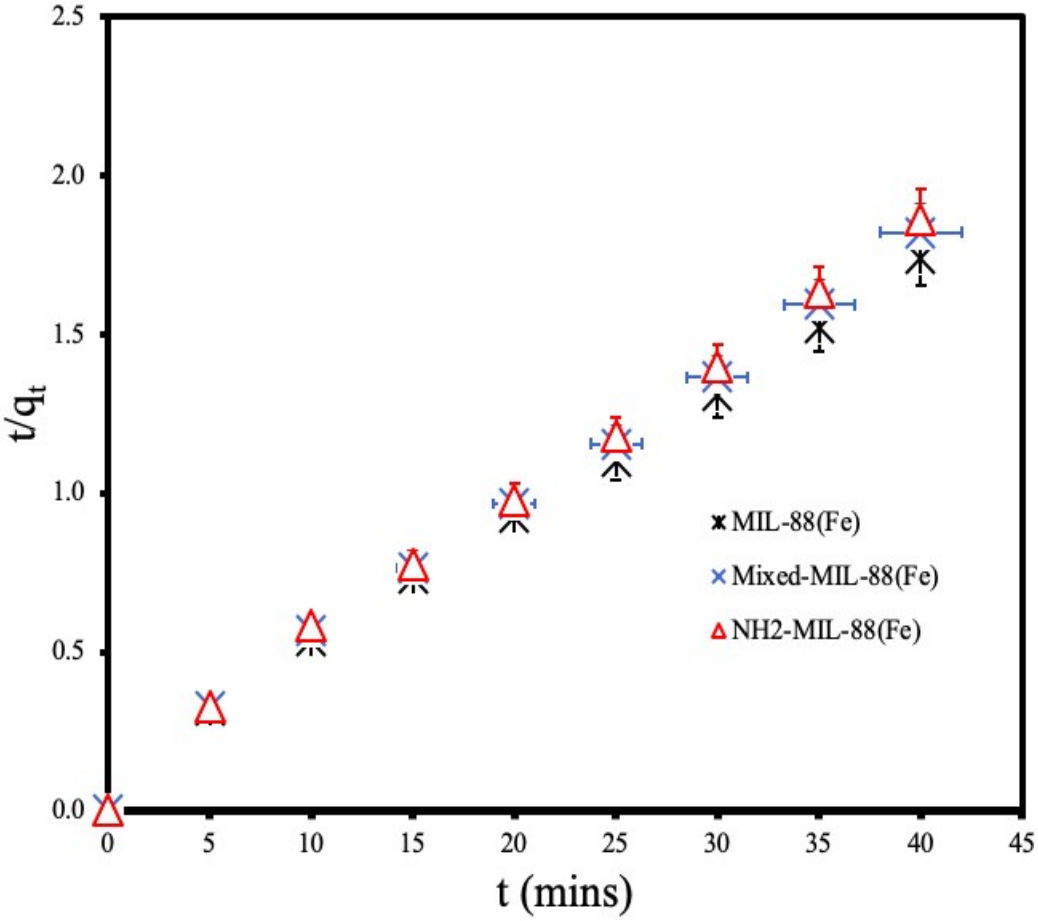

Fig. S5 Pseudo-second-order kinetic model for ANT adsorption onto the MOFs

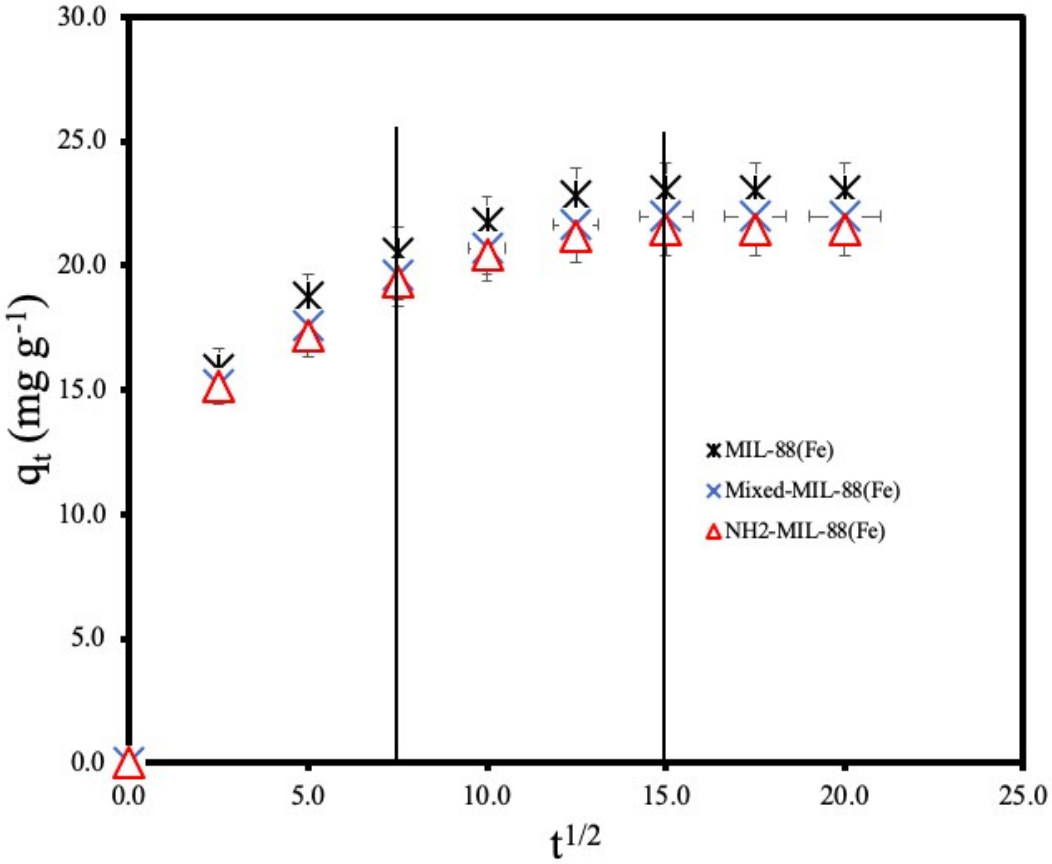

Fig. S6 Weber-Morris kinetic model for ANT adsorption onto the MOFs

Table S1: Equilibrium percentage removals (%R) and quantity adsorbed (q_e mg g^{-1}) of ANT and CRY adsorptions onto UiO-66(Zr) and NH_2-UiO-66(Zr) at various concentrations

ANT	**UiO-66(Zr)**		**NH_2-UiO-66(Zr)**	
Concentrations(mg L^{-1})	**q_e (mg g^{-1})**	**% Removal**	**q_e (mg g^{-1})**	**% Removal**
1	5.918	98.635	5.832	97.198
2	11.763	98.024	11.487	95.276
3	17.616	97.869	17.228	95.714
4	23.487	97.863	22.970	95.708
5	28.584	95.744	28.237	94.124
CRY	**UiO-66(Zr)**		**NH_2-UiO-66(Zr)**	
Concentrations(mg L^{-1})	**q_e (mg g^{-1})**	**% Removal**	**q_e (mg g^{-1})**	**% Removal**
1	5.918	98.635	5.659	94.325
2	11.918	99.318	11.616	96.803
3	17.875	99.306	17.616	97.869
4	23.659	98.581	23.573	98.222
5	28.539	95.129	28.754	95.848

Table S2: Equilibrium percentage removals (%R) and quantity adsorbed (q_e mg g^{-1}) of ANT and CRY adsorptions onto UiO-66(Zr) and NH_2-UiO-66(Zr) at different pH

ANT	**UiO-66(Zr)**		**NH_2-UiO-66(Zr)**	
pH	**q_e (mg g^{-1})**	**% Removal**	**q_e (mg g^{-1})**	**% Removal**
2	23.472	97.811	22.458	93.573
4	23.441	97.669	22.390	93.291
6	23.475	97.811	22.390	93.291
8	23.508	97.952	22.559	93.299
10	23.093	97.669	22.424	93.432
12	23.407	97.268	22.458	93.573
CRY	**UiO-66(Zr)**		**NH_2-UiO-66(Zr)**	
pH	**q_e (mg g^{-1})**	**% Removal**	**q_e (mg g^{-1})**	**% Removal**
2	23.961	99.838	23.961	99.838
4	23.918	99.659	23.918	99.659
6	23.918	99.659	23.832	99.300
8	23.961	99.838	23.789	99.120
10	23.961	99.838	23.746	98.940
12	23.875	99.479	23.746	98.940