Electronic Supporting Information (ESI)

Facile controlled synthesis of core-shell/yolk-shell/hollow ZIF-67@Co-LDH/SiO_2 via a self-templated method

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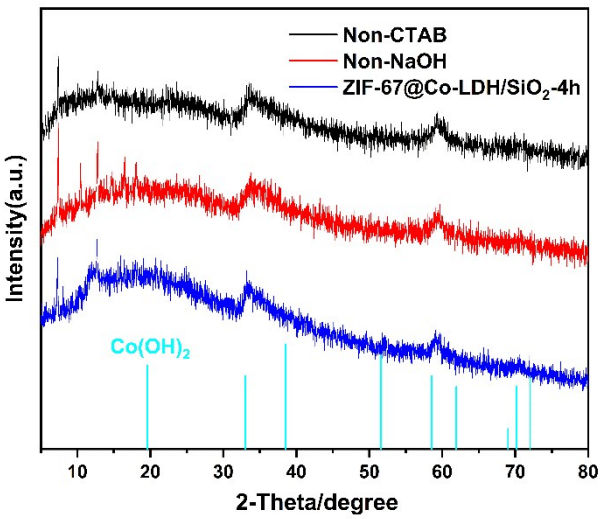

Fig. S1 XRD patterns of ZIF-67@Co-LDH/SiO_2-4h, Non-NaOH and Non-CTAB at a reaction time of 4h.

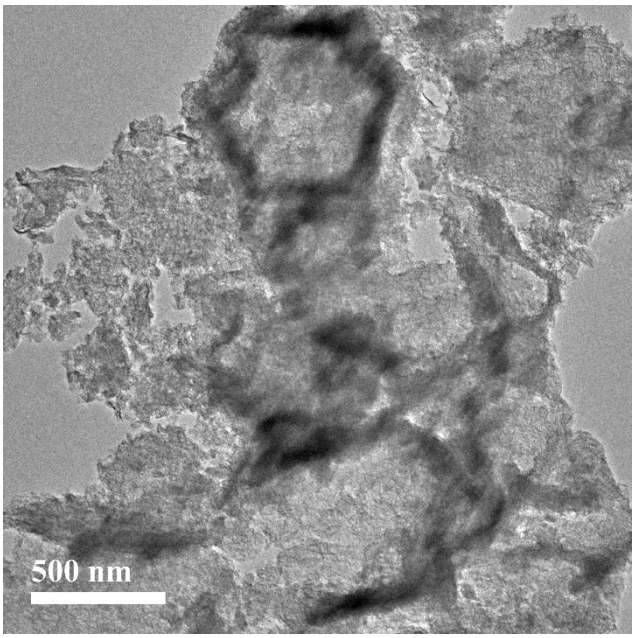

Fig. S2 TEM images of ZIF-67@Co-LDH/SiO_2-13h.

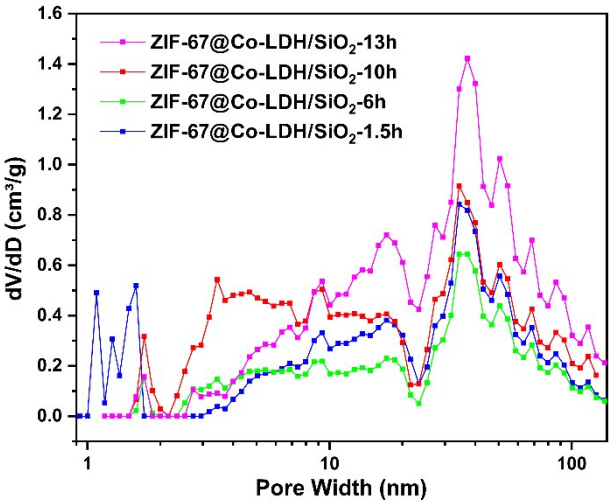

Fig. S3 Pore size distribution curves for ZIF-67@Co-LDH/SiO_2-1.5h, ZIF-67@Co-LDH/SiO_2-6h, ZIF-67@Co-LDH/SiO_2-10h, and ZIF-67@Co-LDH/SiO_2-13h, respectively.

Table. S1 Co^{2+} content of ZIF-67@Co-LDH/SiO_2-1.5h, ZIF-67@Co-LDH/SiO_2-4h, ZIF-67@Co-LDH/SiO_2-6h, ZIF-67@Co-LDH/SiO_2-10h and ZIF-67@Co-LDH/SiO_2-13h.

	Samples	Co^{2+} content (%)
1	ZIF-67@Co-LDH/SiO_2-1.5h	22.67
2	ZIF-67@Co-LDH/SiO_2-4h	24.69
3	ZIF-67@Co-LDH/SiO_2-6h	25.85
4	ZIF-67@Co-LDH/SiO_2-10h	30.14
5	ZIF-67@Co-LDH/SiO_2-13h	30.32

Table S2 Constants for pseudo-first- and pseudo-second-order model kinetics of ZIF-67@Co-LDH/SiO_2-1.5h, ZIF-67@Co-LDH/SiO_2-6h and ZIF-67@Co-LDH/SiO_2-10h.

	Pscudo-first-order model			Pscudo-second-order model		
Samples	R^2	q_e	K_1	R^2	q_e	K_2
ZIF-67@Co-LDH/SiO_2-1.5h	0.90635	1064.832	0.02446	0.99035	984.34155	4.42×10^{-5}
ZIF-67@Co-LDH/SiO_2-6h	0.91321	1104.192	0.02377	0.99055	1032.34124	4.16×10^{-5}
ZIF-67@Co-LDH/SiO_2-10h	0.92887	1112.832	0.05502	0.99003	1116.24956	9.25×10^{-5}

Table S3 Adsorption isotherm parameters of Langmuir and Freundlich models for Congo red on ZIF-67@Co-LDH/SiO_2-1.5h, ZIF-67@Co-LDH/SiO_2-6h and ZIF-67@Co-LDH/SiO_2-10h.

	Langmuir adsorption			Freundlich adsorption		
Samples	q_{max}	K_L	R^2	K_F	n	R^2
ZIF-67@Co-LDH/SiO_2-1.5h	1294.843	0.78062	0.99264	1289.73097	2.89759	0.90923
ZIF-67@Co-LDH/SiO_2-6h	1085.422	0.90409	0.99737	1080.74158	1.92002	0.91922
ZIF-67@Co-LDH/SiO_2-10h	1919.484	1.45736	0.99869	1139.04384	0.06291	0.90836