

Electronic Supplementary Material

Nanosilver anchored alginate/poly(acrylic acid/acrylamide) double-network hydrogel composites for efficient catalytic degradation of organic dyes

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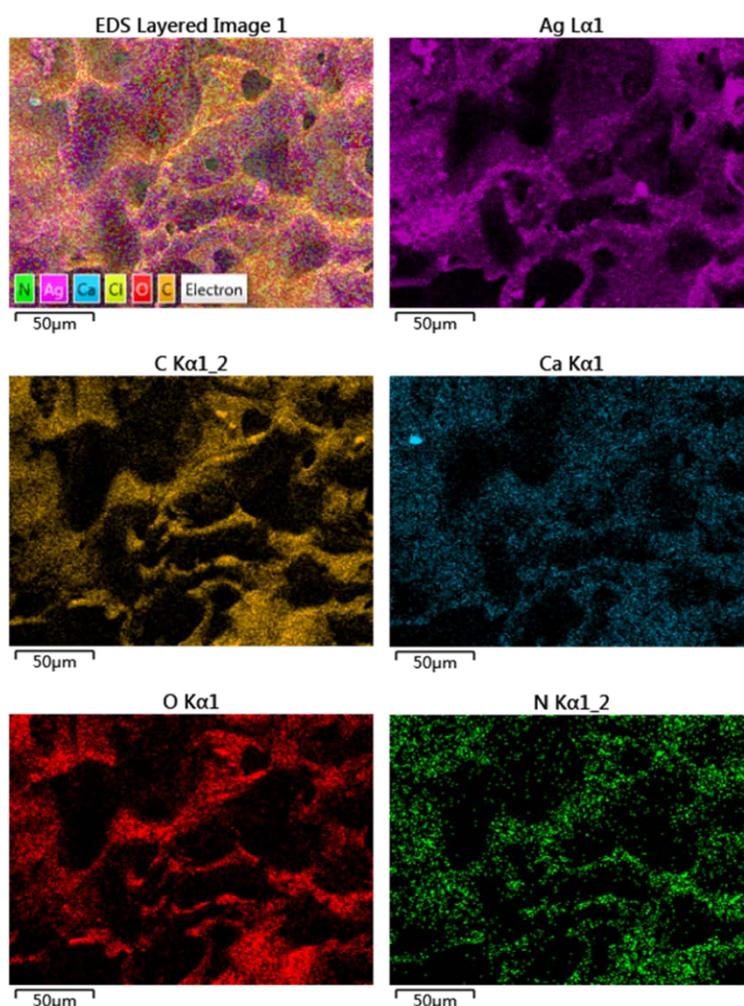


Fig. S1. The results of SEM-EDS mapping of SPDH@Ag-20

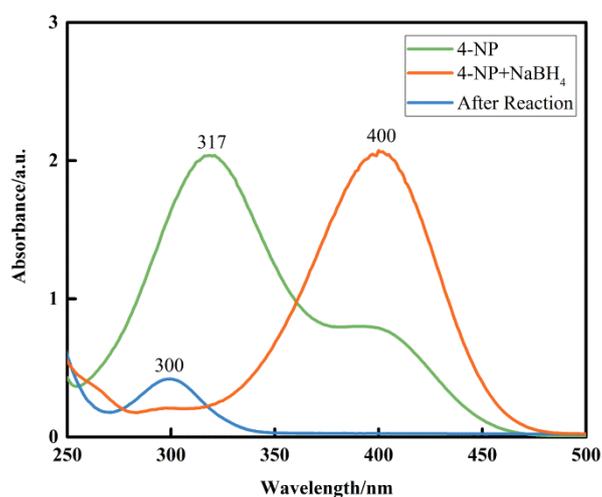


Fig. S2. Variation of UV-vis spectra throughout the catalytic process.

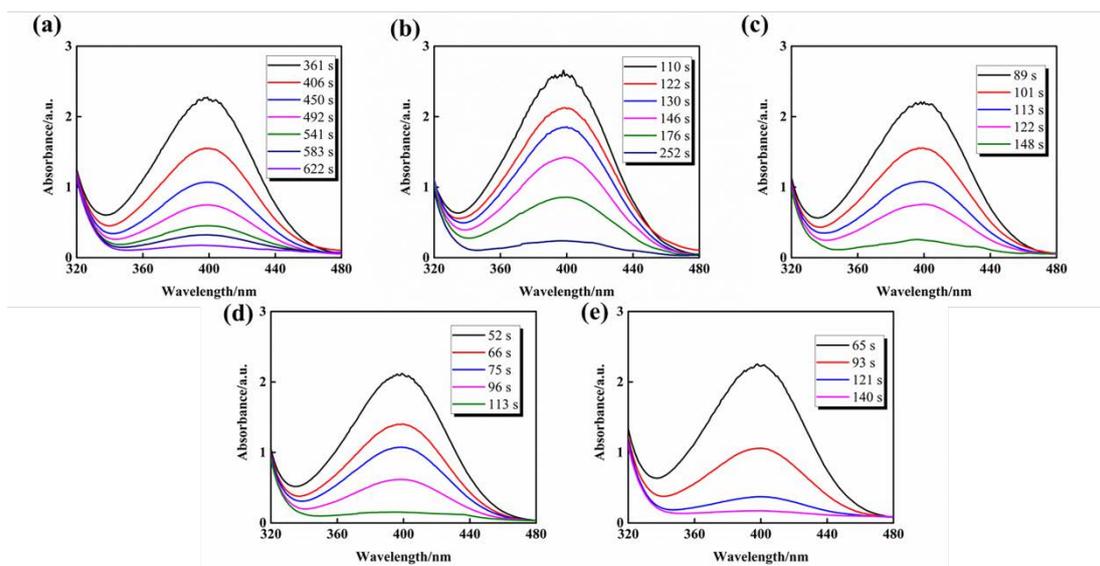


Fig. S3. The UV-vis spectrum of the catalytic process: (a) SPDH@Ag-5; (b) SPDH@Ag-10; (c)

SPDH@Ag-15; (d) SPDH@Ag-20; (e) SPDH@Ag-25.

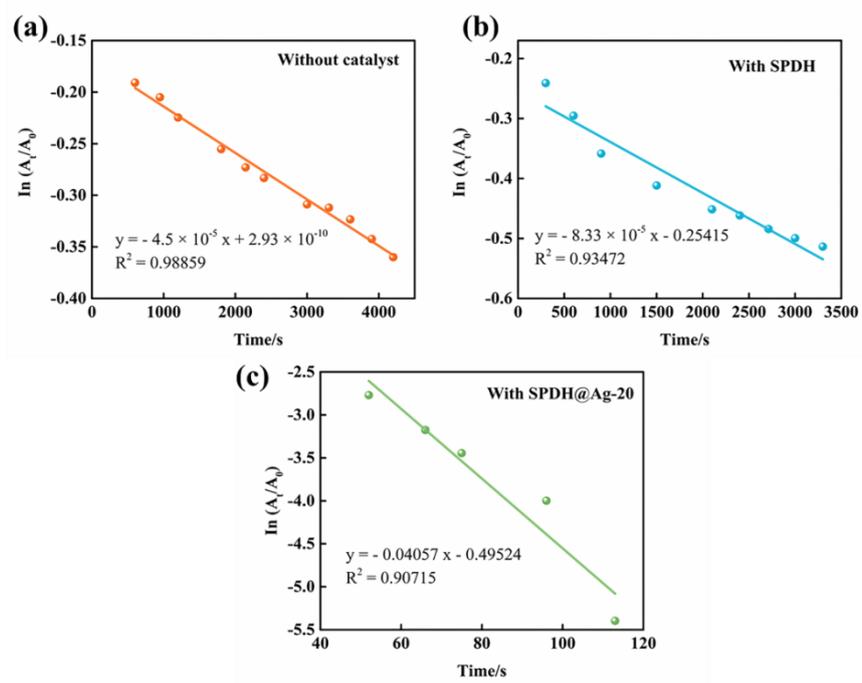


Fig. S4. The linear fitting: (a) without catalyst; (b) with SPDH; (c) with SPDH@Ag-20.

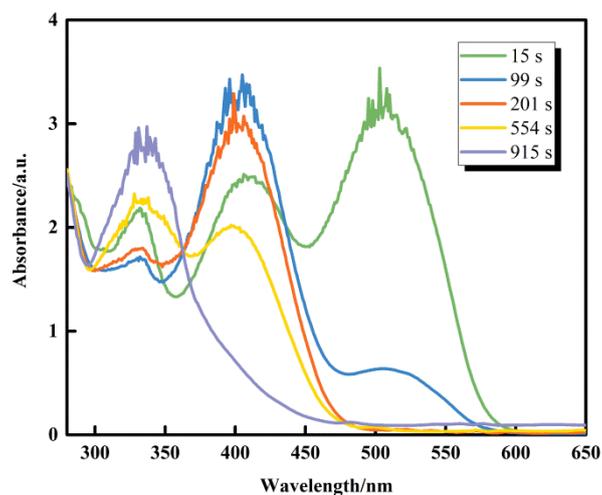


Fig. S5. The UV-vis spectra of the catalytic process of Ponceau S

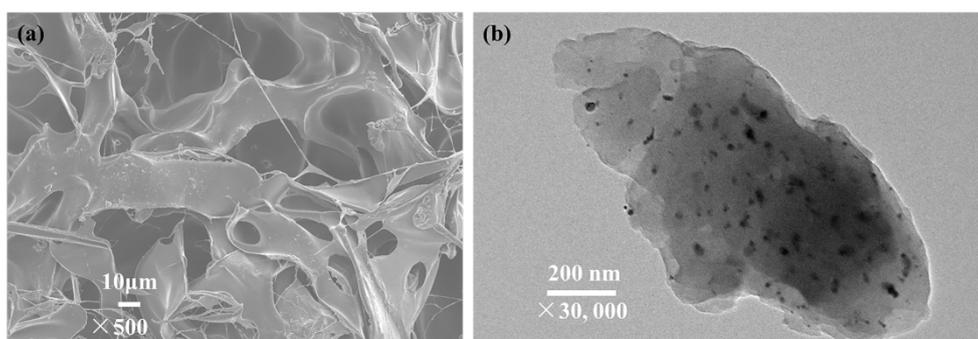


Fig. S6. (a) SEM image of recycled SPDH@Ag-20; (b) TEM image of recycled SPDH@Ag-20.

Table S1. Specification Sheet of Sodium alginate

Parameter	Limit Values
Molecular formula	$(C_6H_7O_6Na)_n$
Specifications & Purity	AR
Viscosity	1.05 – 1.15 Pa·s
PH	6.8 - 8.0
Molecular weight structure unit (theoretical value)	198.11
water insoluble substance	0.1%
M/G ratio	1:1
Infrared spectrum	Conforms to Structure

Table S2. Formulation of simulated seawater solution

Reagent	Quality (g/L)
NaCl	24.534
MgCl ₂	11.112
Na ₂ SO ₄	4.094
CaCl ₂	1.160
KCl	0.695

Table S3. The SEM-EDS data of SPDH@Ag-20

Element	Line Type	Apparent Concentration	k Ratio	Wt%	Wt% Sigma	Atomic %	Standard Label	Factory Standard
C	K series	87.22	0.87221	46.98	0.31	55.84	C Vit	Yes
N	K series	26.91	0.04792	14.59	0.50	14.87	BN	Yes
O	K series	36.82	0.12390	29.25	0.23	26.10	SiO ₂	Yes
Ca	K series	2.74	0.02451	0.82	0.02	2.27	Wollastonite	Yes
Na	K series	9.68	0.04085	3.65	0.04	0.29	Albite	Yes
Ag	L series	13.72	0.13719	4.70	0.60	0.62	Ag	Yes
Total:				100.00		100.00		

Table S4. The SEM-EDS data of recycled SPDH@Ag-20

Element	Line Type	Apparent Concentration	k Ratio	Wt%	Wt% Sigma	Atomic %	Standard Label	Factory Standard
C	K series	60.81	0.60813	43.09	0.34	51.41	C Vit	Yes
N	K series	19.07	0.03395	11.98	0.59	12.25	BN	Yes
O	K series	42.87	0.14425	37.45	0.31	33.55	SiO ₂	Yes
Ca	K series	3.71	0.03312	1.38	0.03	0.49	Wollastonite	Yes
Na	K series	6.15	0.02595	3.02	0.05	1.89	Albite	Yes
Ag	L series	7.17	0.07170	3.08	0.06	0.41	Ag	Yes
Total:				100.00		100.00		