Supporting Information

Coupling Plant Polyphenol Coordination Assembly with $Co(OH)_2$ to Enhance Electrocatalytic Performance towards Oxygen Evolution Reaction

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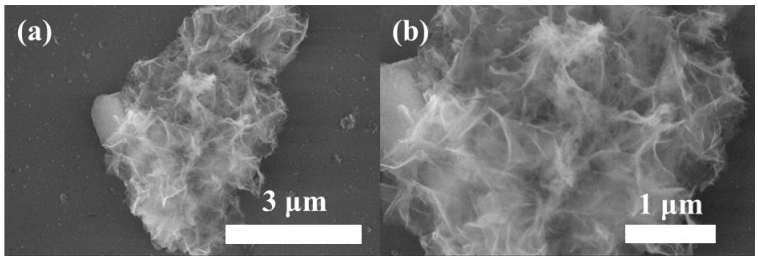

Figure S1. SEM images of $Co(OH)_2$.

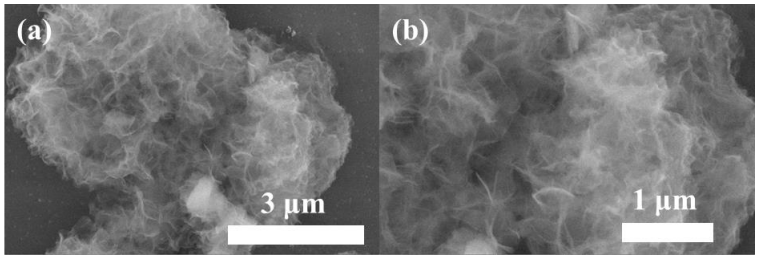

Figure S2. SEM images of $Co(OH)_2$@TA.

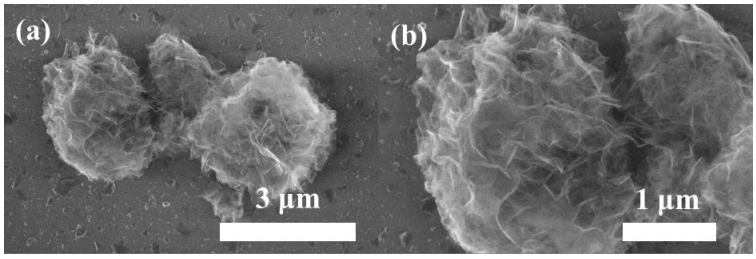

Figure S3. SEM images of $Co(OH)_2$@Fe.

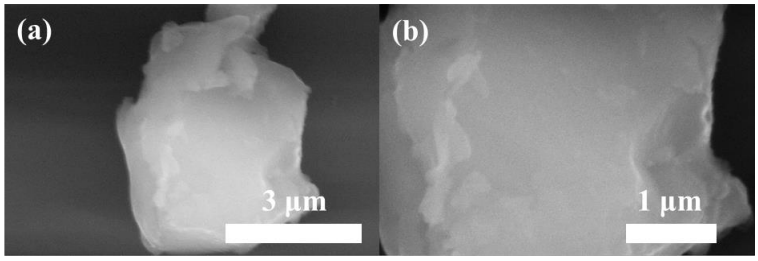

Figure S4. SEM images of TA-Fe.

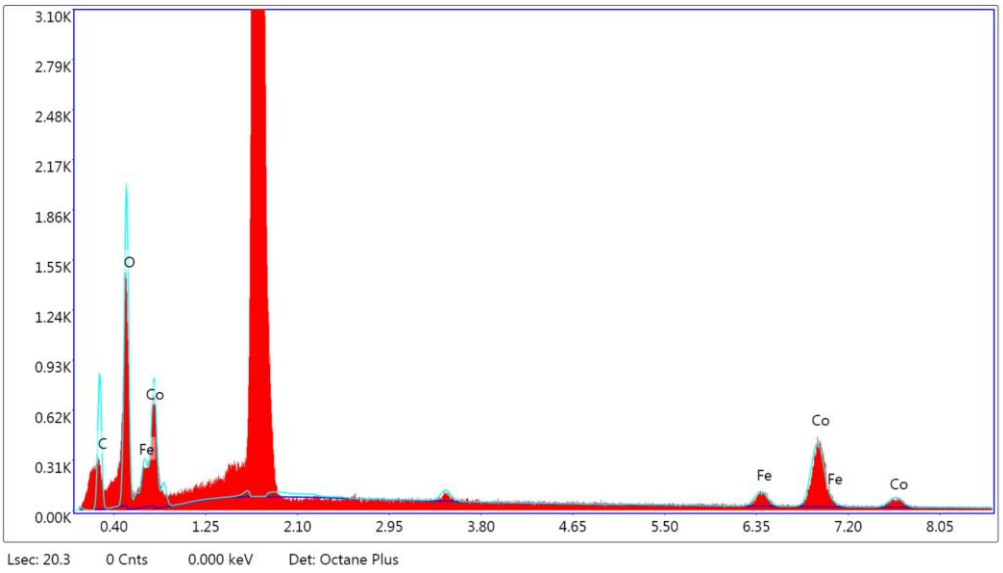

Figure S5. EDS analysis graph of $Co(OH)_2$@TA-Fe.

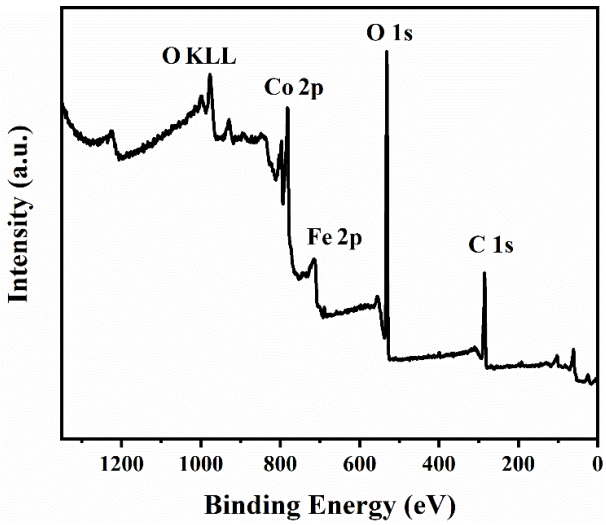

Figure S6. Full XPS spectrum of $Co(OH)_2$@TA-Fe.

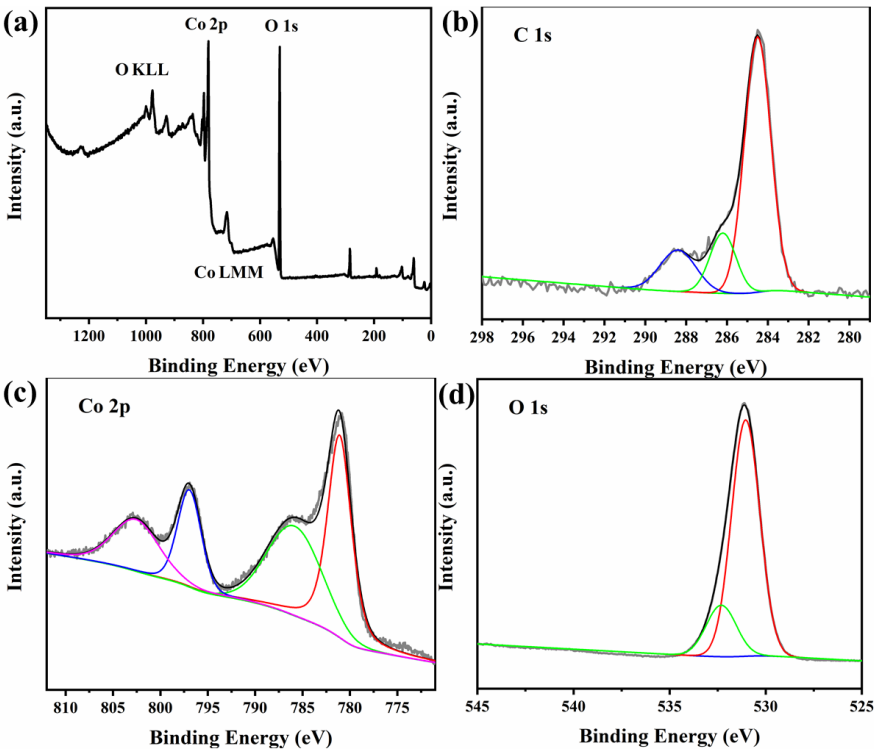

Figure S7. XPS spectra of $Co(OH)_2$.

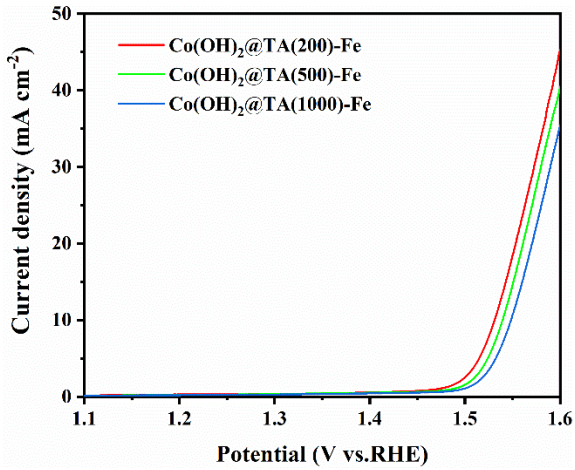

Figure S8. LSV curves for $Co(OH)_2$@TA-Fe with different amount of tannic acid added.

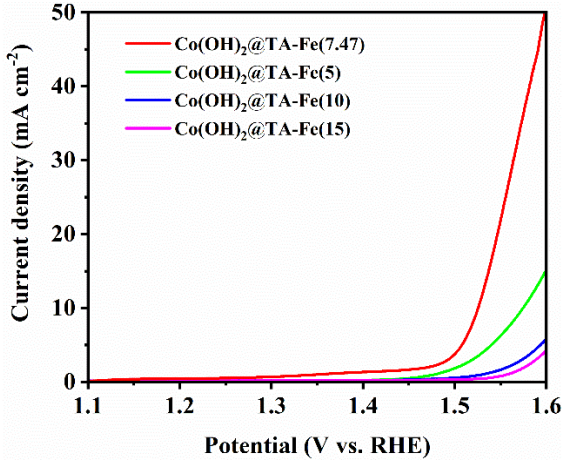

Figure S9. Comparison of LSV performance tests with different Fe additions.

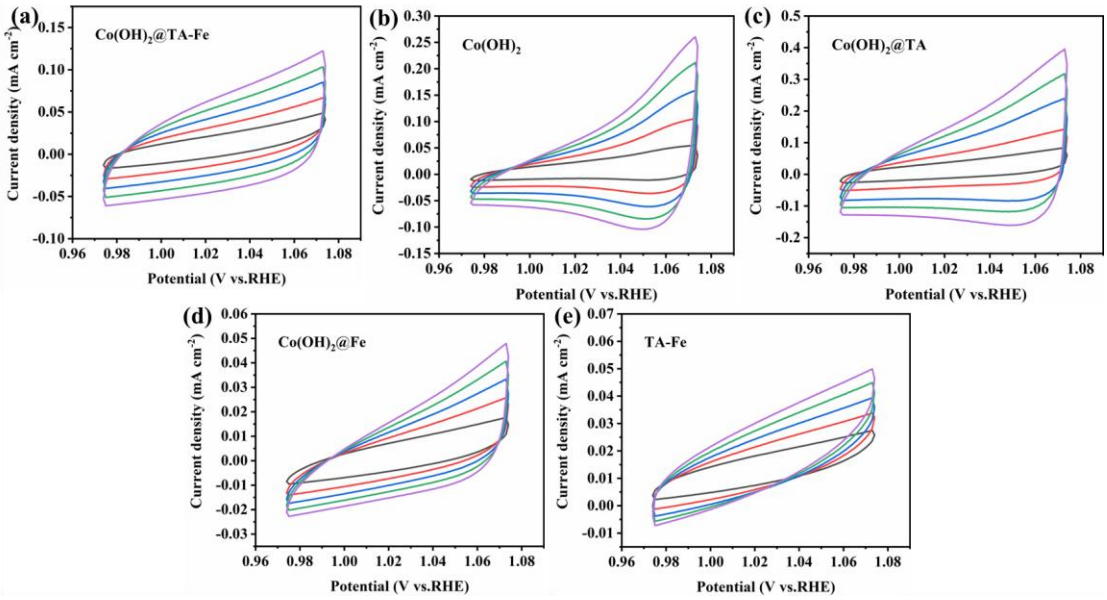

Figure S10. CV curves of different samples.

Table S1. ICP test results of $Co(OH)_2$@TA-Fe

Sample	Co(wt.%)	Fe(wt.%)	Molar ratio of Fe and Co
$Co(OH)_2$@TA-Fe	30.41	4.01	0.125

Table S2. Results of EDS elemental analysis of $Co(OH)_2$@TA-Fe.

Element	Weight (%)	Atomic (%)
C K	28.56	42.77
O K	43.16	48.53
Fe K	4.1	1.32
Co K	24.19	7.38

Table S3. Surface composition of the $Co(OH)_2$@TA-Fe obtained by XPS measurements.

C(wt.%)	O(wt.%)	Co(wt.%)	Fe(wt.%)
25.32	34.39	26.36	13.9

Table S4. Comparison of electrocatalytic performance with other catalysts

Catalyst	Electrolyte	Overpotential (10 mV cm^{-2})	Tafel (mV dec^{-1})	Reference
$Co(OH)_2$@TA-Fe	1.0 M KOH	297	64.8	This work
$CoSe/Co(OH)_2$	1.0 M KOH	299	91	[1]
MPN@Fe_3O_4	1.0 M KOH	260	33.6	[2]
$Co(OH)_2$@$Ni(OH)_2$/CC	1.0 M KOH	330	223	[3]
$CoFe(OH)_x$/GO	1.0 M KOH	294	63.4	[4]
TF@$Co(OH)_2$-500	1.0 M KOH	317	47	[5]
Fe_1Co_2-NC	1.0 M KOH	356	86.6	[6]
$CoC_x/(Co_{0.55}Fe_{1.945})_2P$@C	1.0 M KOH	390	65	[7]
CoFeV	1.0 M KOH	376	25.6	[8]
CoFe-NCNFs	1.0 M KOH	323	63.9	[9]
CoFe-Co@PNC	1.0 M KOH	320	81	[10]
$Co(OH)_2$@NC	1.0 M KOH	330	79	[11]
CeO_2@$Co(OH)_2$	1.0 M KOH	310	66	[12]

References

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