Supporting Information

Synergistic Enhancement by MoS_x and Sulphate on Amorphous Polymetallic Oxides Nanosheets for Oxygen Evolution Reaction

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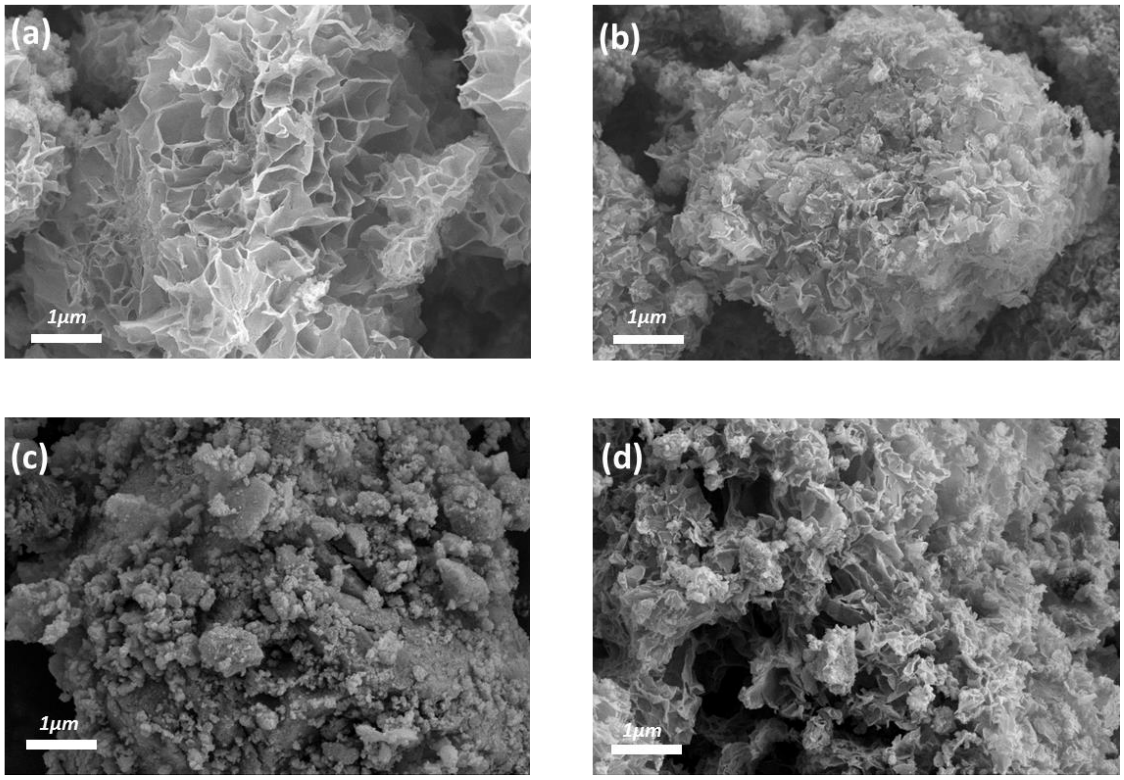


Figure S1. SEM images of (a) FCMOS, (b) CMOS, (c) FMOS and (d) FCMO

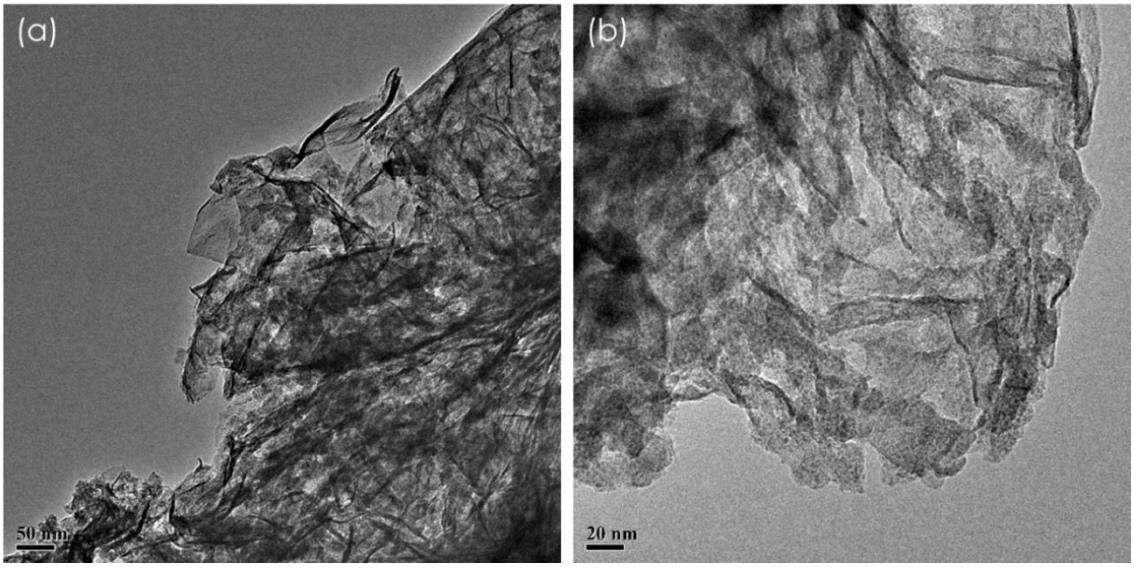


Figure S2 HRTEM images of FCMOS

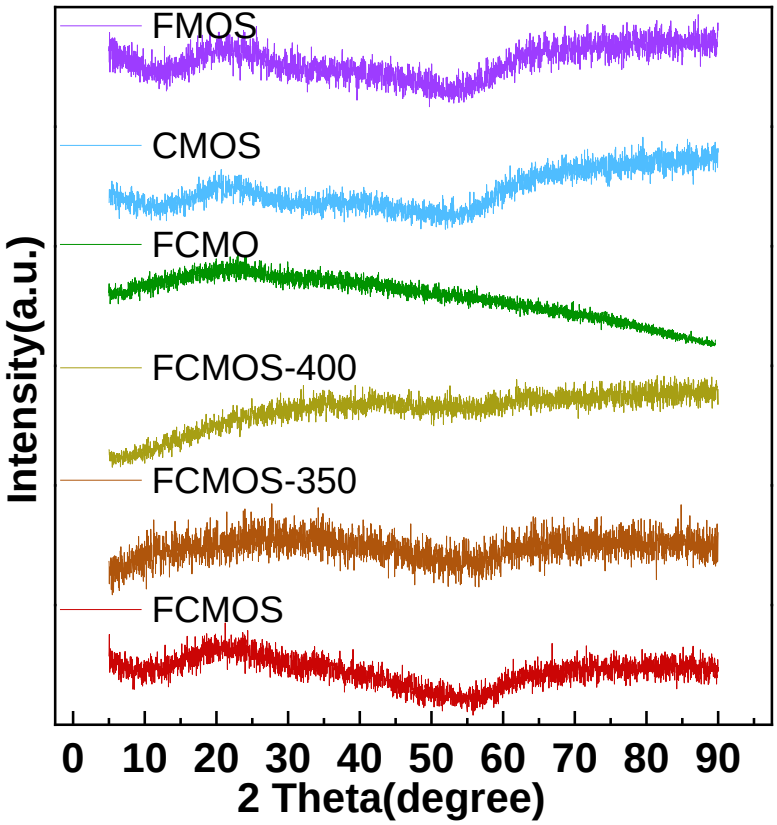


Figure S3. XRD spectrums of FCMOS, FCMOS-350, FCMOS-400, FCMO, CMOS and FMOS.

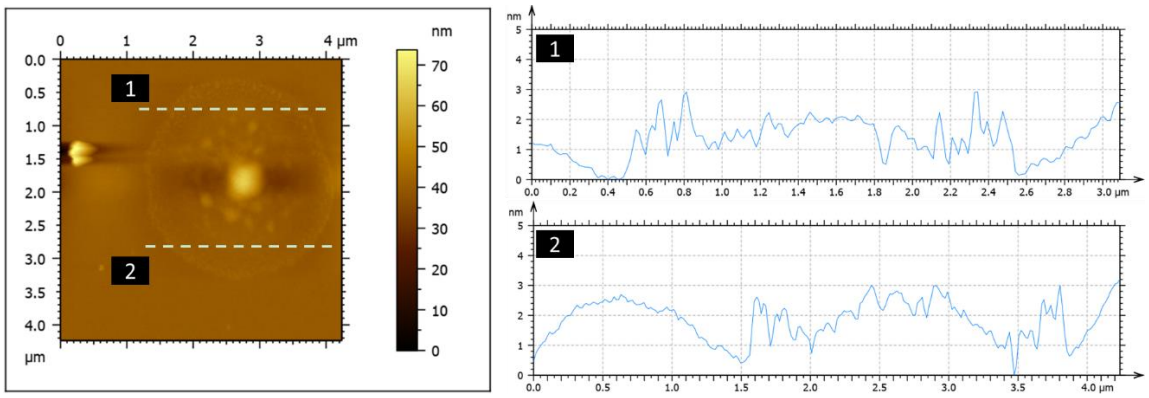
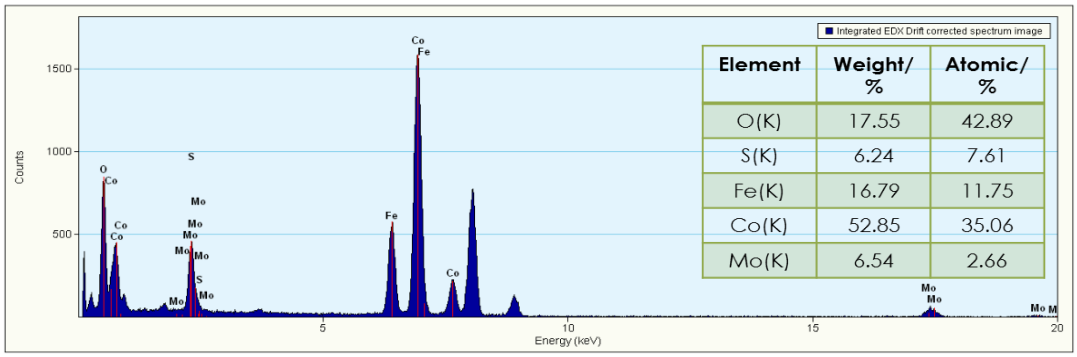


Figure S4. AFM of the FCMOS



Element	Weight/ %	Atomic/ %
O(K)	17.55	42.89
S(K)	6.24	7.61
Fe(K)	16.79	11.75
Co(K)	52.85	35.06
Mo(K)	6.54	2.66

Figure S5. EDS spectrum of as-synthesized FCMOS

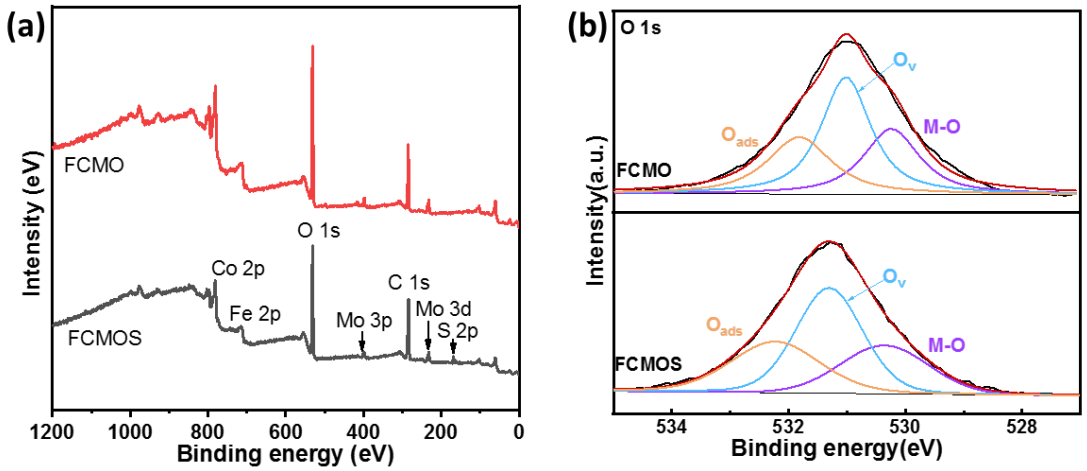


Figure S6. (a)The survey spectra of FCMOS and FCMO; (b) XPS spectra of O 1s of FCMOS and FCMO

Table S1. Comparison of the OER performance of various catalysts in 1.0 M KOH solution

catalysts	Overpotential at current density (mV)		Tafel (mV dec^{-1})	Ref.
	10 mA cm^{-2}	100 mA cm^{-2}		
FCMOS	**260**	**320**	**47**	**This work**
FCMO	**290**	**420**	**93**	**This work**
Vo-$(Co,Fe)_3O_4$/CC	286	-	41	1
holey NiCoS-NS	280	-	85	2
S-$NiFe_2O_4$/NF	420	-	118.1	3
Co,Fe-MoS_2	260	370	117	4
FeCoMo	277	336	27.74	5
$CoMoS_3$	320	-	-	6
CoFeS	290	-	52.6	7
SnCoFe-Ar	300	-	42.3	8
A-$CoS_{4.6}O_{0.6}$ONCs	290	-	67	9
CMO	340	-	49	10
M-Co_3O_4/NPC	302	-	84	11

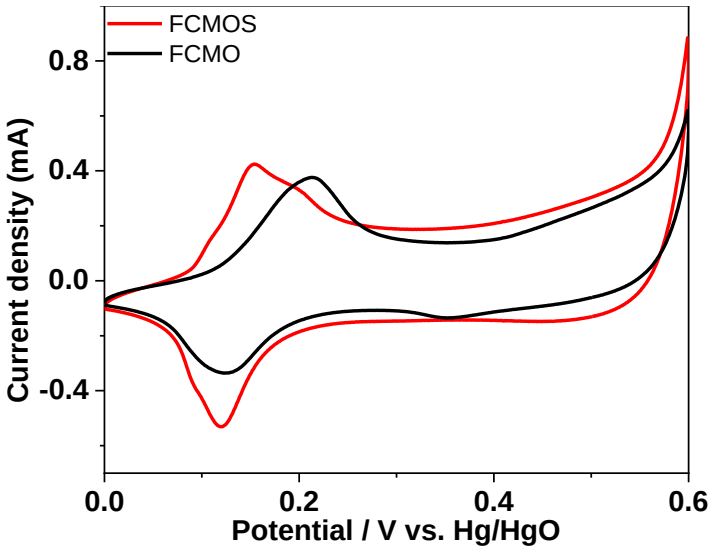


Figure S7. Cyclic voltammograms of FCMOS and FCMO

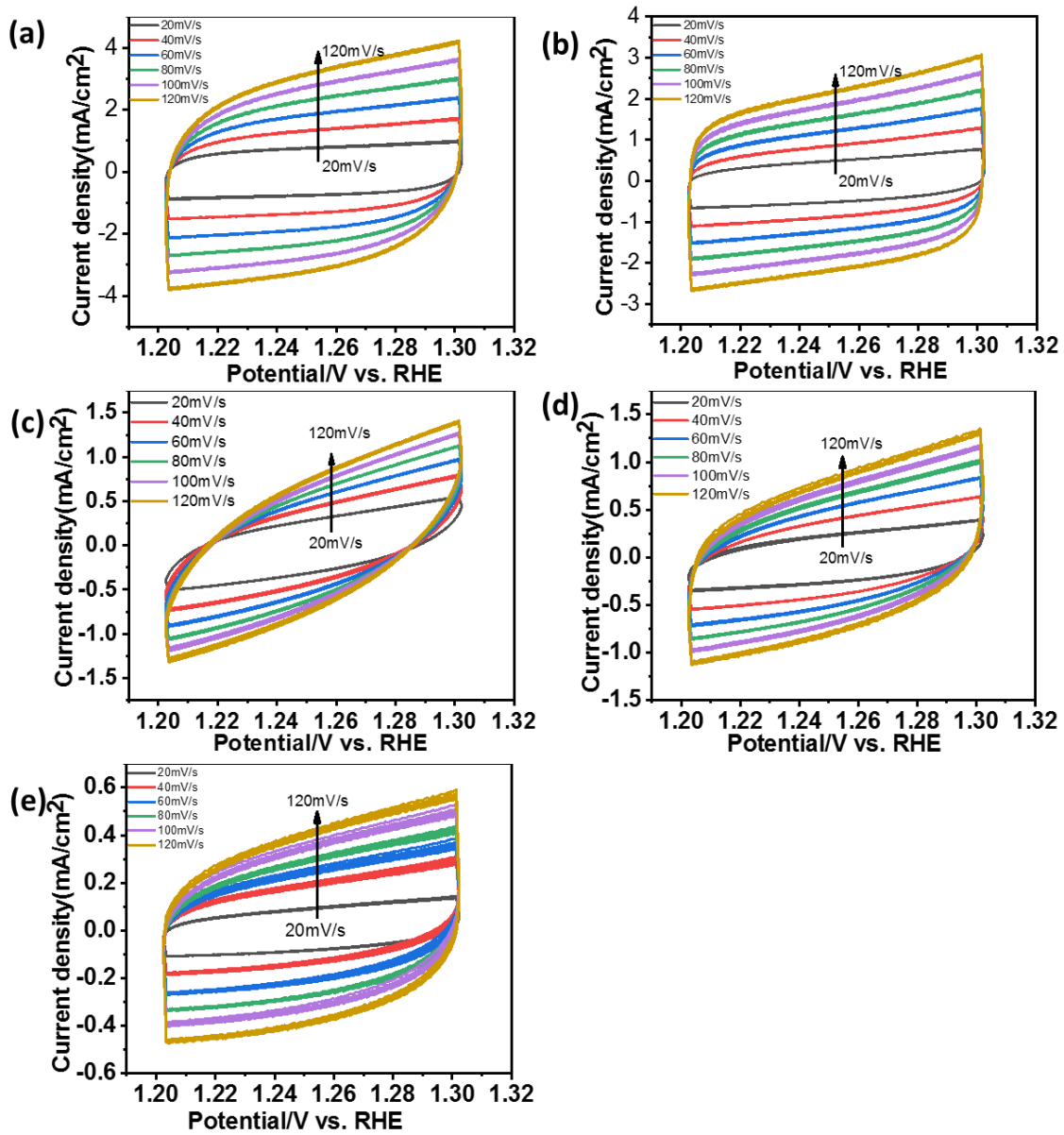


Figure S8. Cyclic voltammograms of (a) FCMOS, (b) CMOS, (c) FMOS, (d) FCMO, and (e) MS at scan rates from 20 to 120 mV/s.

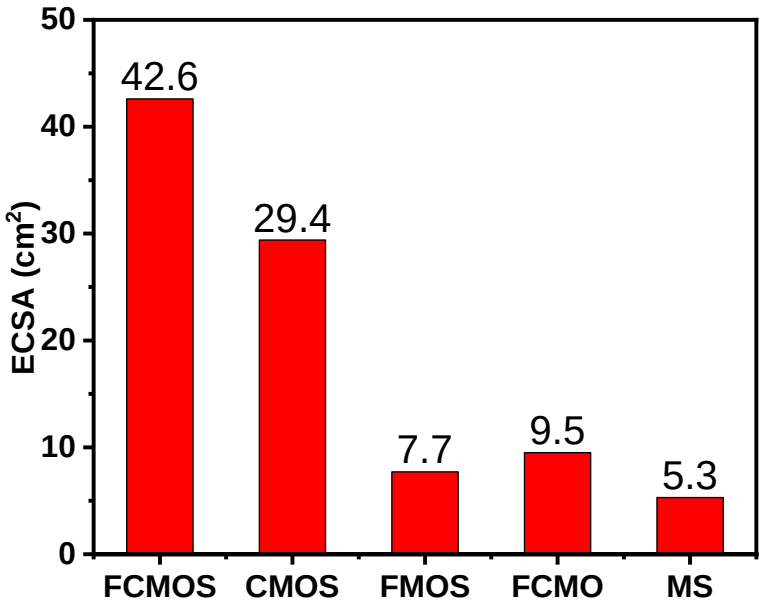


Figure S9. ECSA of FCMOS, CMOS, FMOS, FCMO and MS

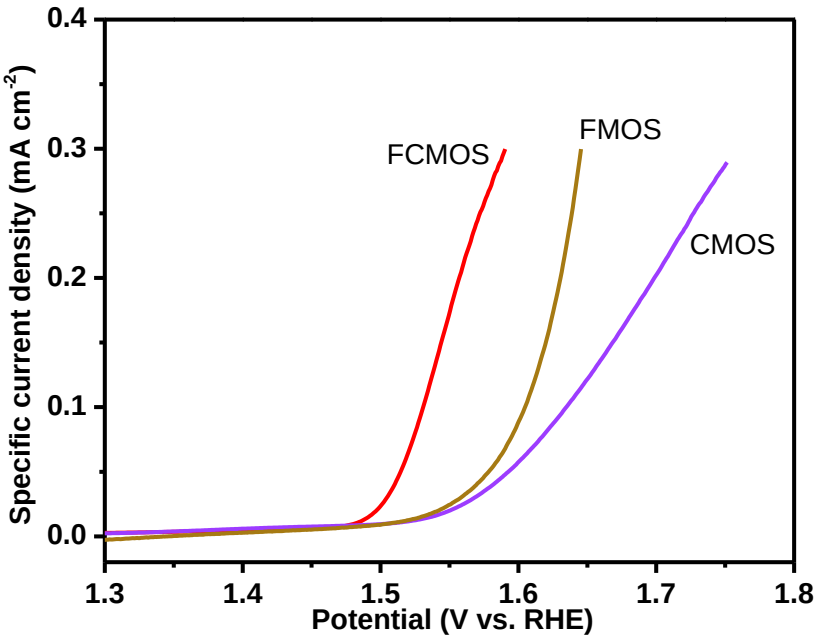


Figure S10. ECSA-normalized LSV curves

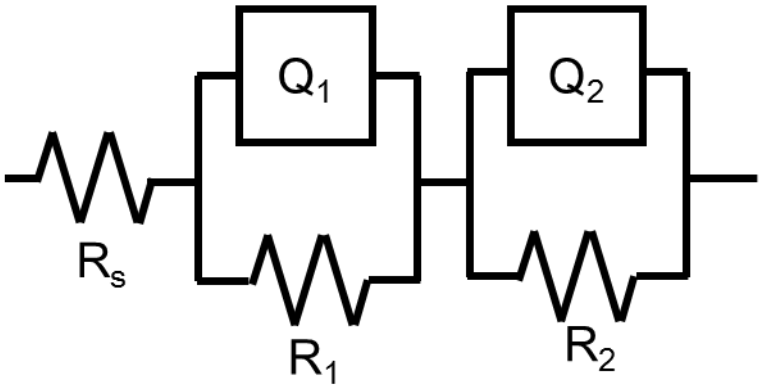


Figure S11. Electrical equivalent circuit model used for fitting of EIS

Table S2. Estimates of the equivalent circuit parameters for different samples

Samples	$R_s(\Omega \cdot cm^2)$	$10^2 Q_1(S \cdot cm^{-2} \cdot s^n)$	n_1	$R_1(\Omega \cdot cm^2)$	$10^2 Q_2(S \cdot cm^{-2} \cdot s^n)$	n_2	$R_2(\Omega \cdot cm^2)$
FCMOS	0.948	5.093	0.906	1.192	29.660	0.562	0.473
FCMO	1.094	1.420	0.872	6.825	2.808	0.628	0.802
CMOS	0.085	4.269	0.882	40.400	1.262	0.302	1.491
FMOS	0.544	0.761	0.949	29.200	0.989	0.741	26.340
MS	0.552	0.271	0.937	30.340	27.760	0.832	0.177

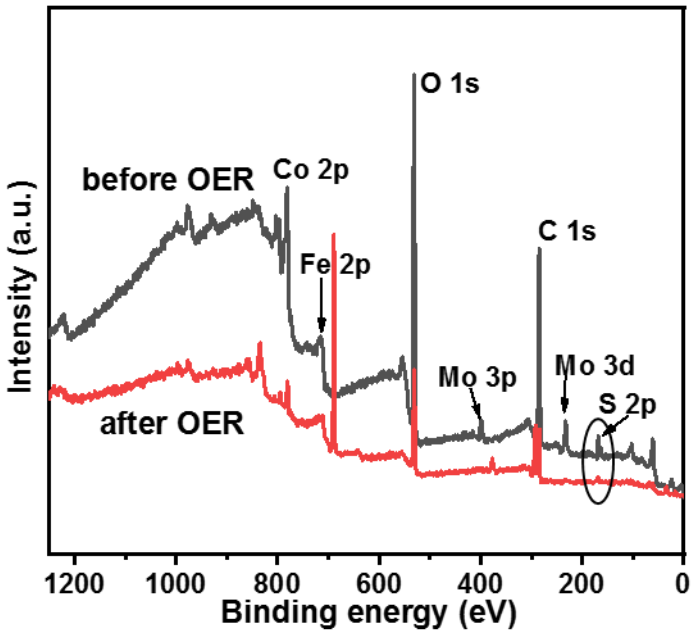


Figure S12. Comparison of survey XPS spectra between before and after OER stability testing of the FCMOS in 1 M KOH

Reference

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