Supplementary Information

PdO@$CoSe_2$ Composites: An Efficient Electrocatalysts for Water Oxidation in Alkaline Media

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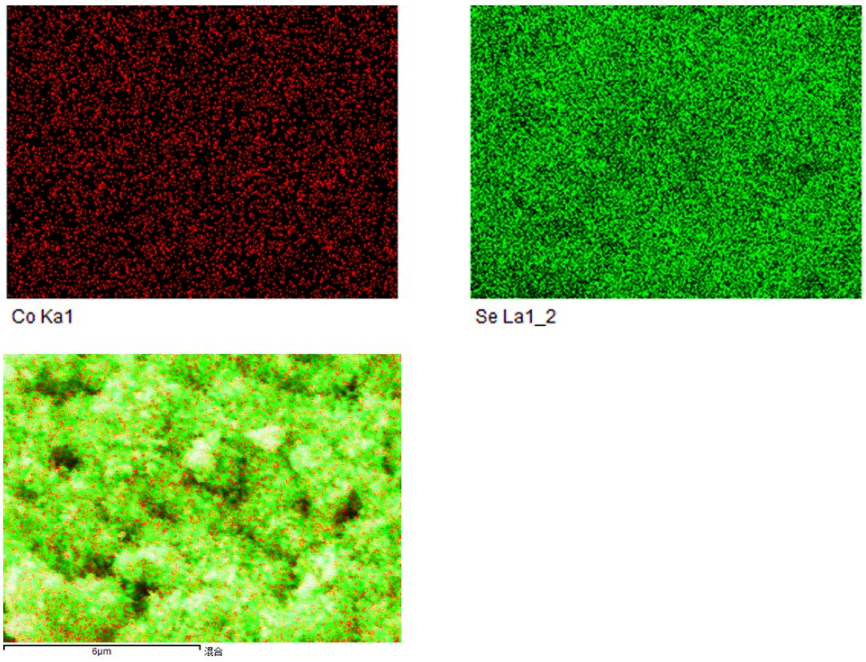


Fig. S1 The elemental mapping of $CoSe_2$ pristine

28

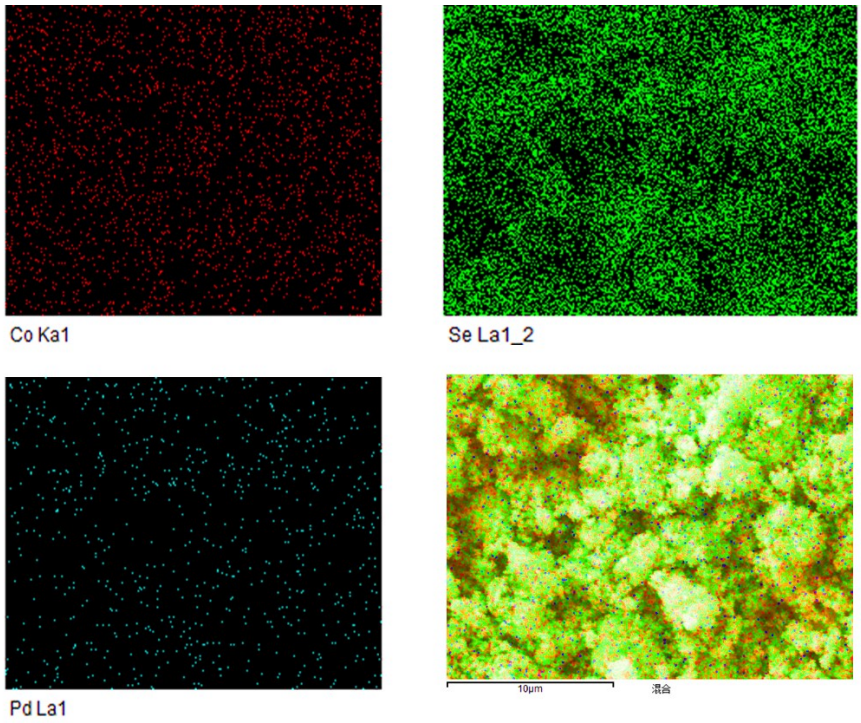


Fig. S2 The elemental mapping of CSPd-2 nanostructure$_2$

29

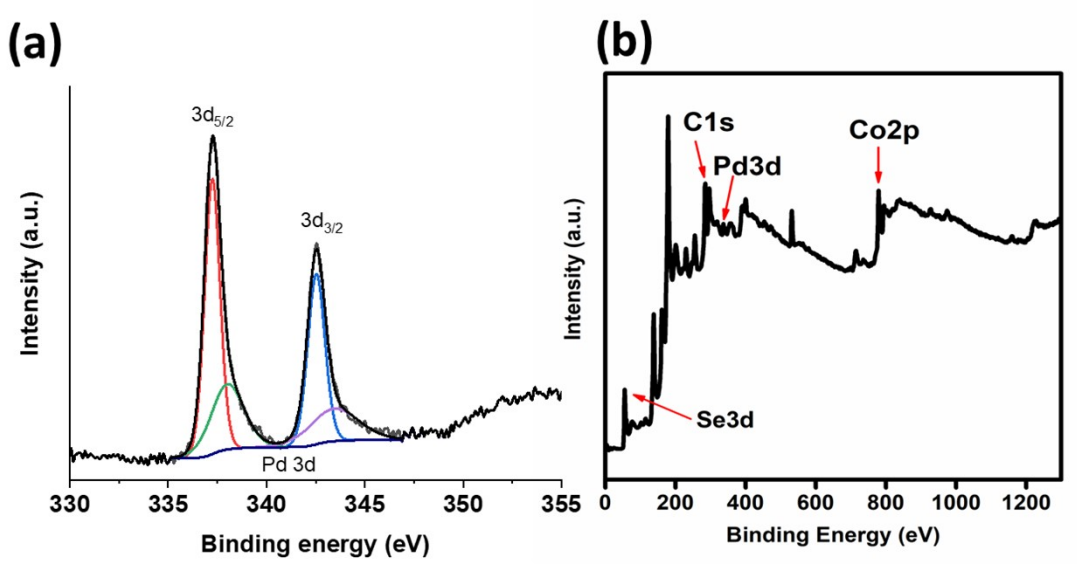


Fig. S3 (a) Pd3*d* XPS spectra of CSPD-2 and (b) Main survey XPS analysis of CSPd-2 composite materials

30

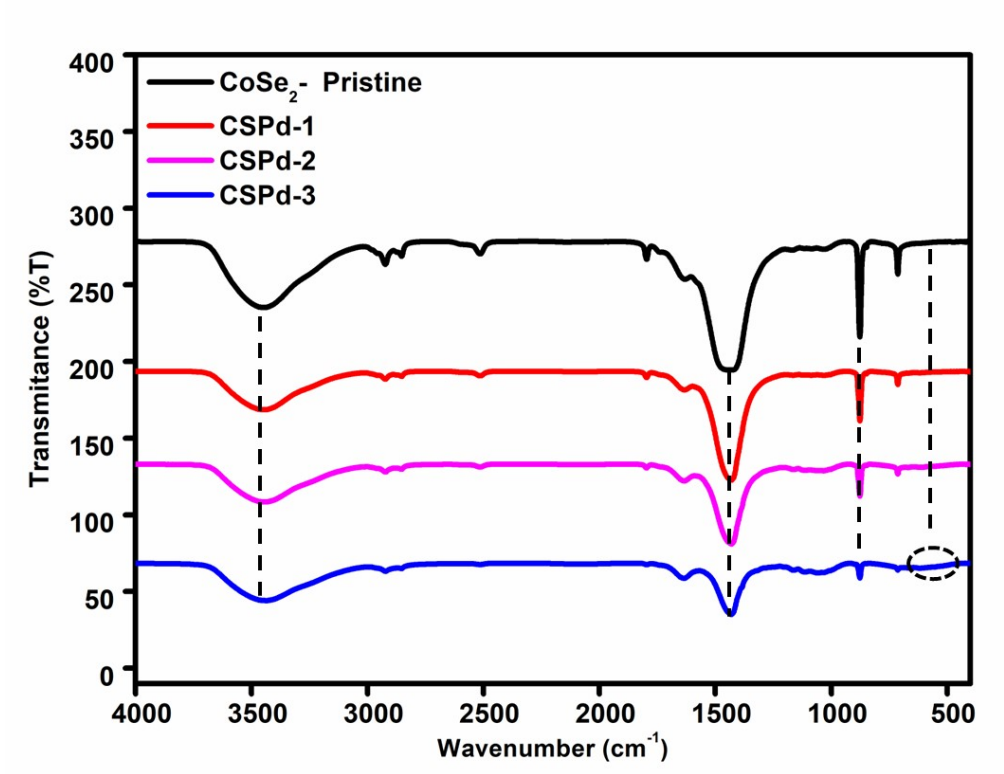


Fig. S4 FTIR spectra of various nanostructures $CoSe_2$, CSPd-1, CSPd-2 and CSPd-2

31

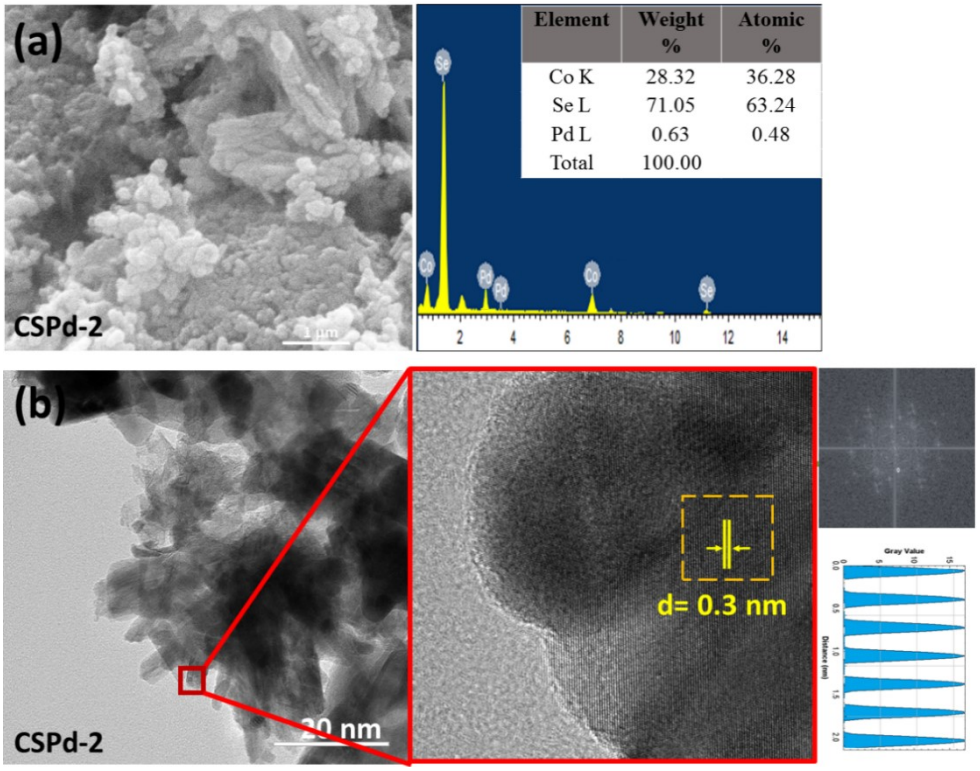
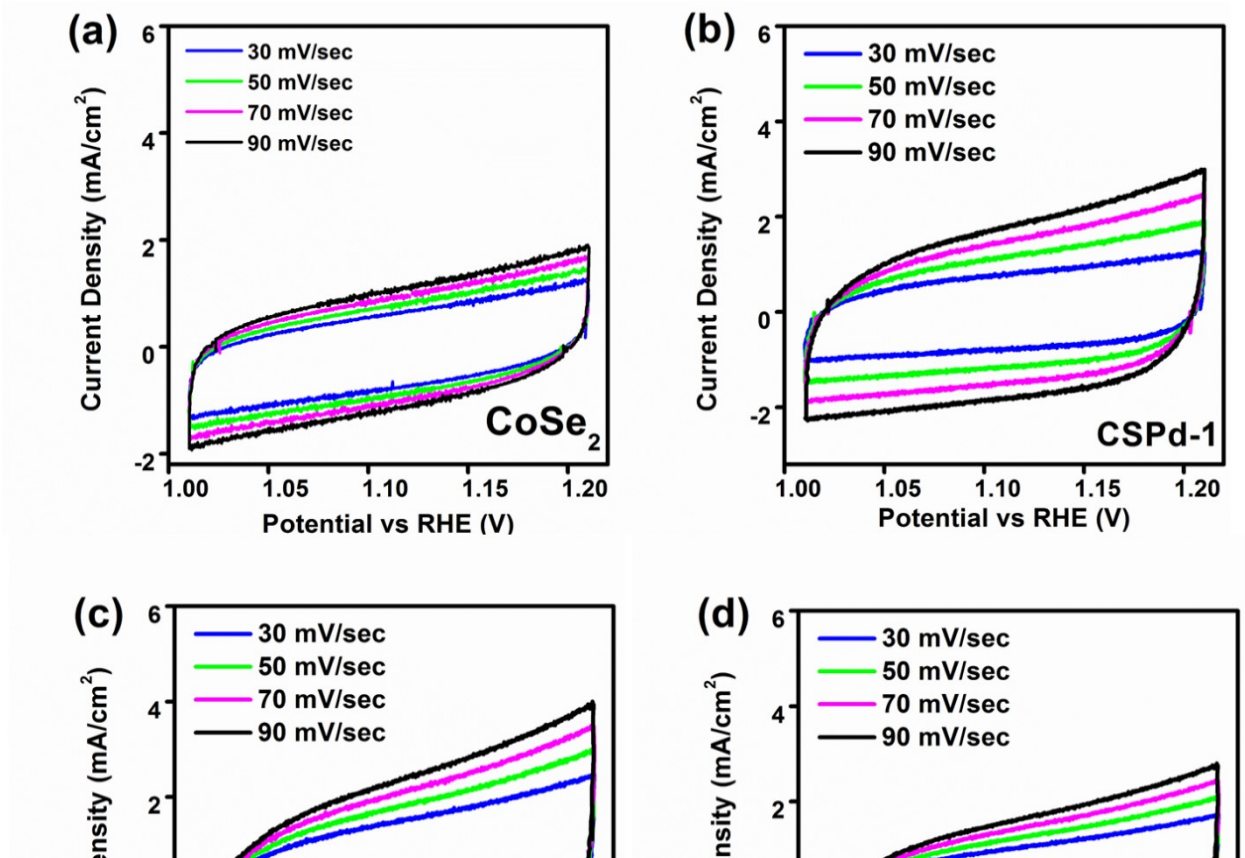


Fig. S5 (a) SEM and EDS results after chronopotentiometry for sample CSPd-2 (b) HRTEM image with relevant FFT and lattice fringes calculation

32

33



36

Table S1. Comparison with previously reported work toward OER

Catalyst	Electrolyte	Overpotential	Tafel slope	Reference No.
	KOH	mV	mV/Dec	
CSPd-2	**1.0 M**	**260**	**57**	**This work**
$CoSe_2$ ultrathin nanosheets	1.0 M	320	44	[1]
Ag-$CoSe_2$	1.0 M	320	56	[2]
CoSe and Co_9Se_8	1.0 M	280	40	[3]
$NiSe_2$/g-C_3N_4	1.0 M	290	143	[4]
Ni_3Se_2	0.3 M	280	79.5	[5]
Two-tiered NiSe	1.0 M	290	77	[6]
Cu_2Se	1.0 M	270	48	[7]
Ni_3Se_2	1.0 M	290	80	[8]
Cu-14-Co_3Se_4	0.1 M	280	110	[9]
$NiCo_2Se_4$	1.0 M	295	53	[10]
Co–Ni–Se/carbon/Ni foam	1.0 M	275	63	[11]
$(Co_{0.21}Ni_{0.25}Cu_{0.54})3Se_2$	1.0 M	272	53.3	[12]
$ZnNi_{0.5}Co_{0.5}Se_2/Cu_{1.8}Se$@carbon cloth	1.0 M	370	72	[13]

37

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