

## Supporting Information

### **Enhanced Activity of Selenocyanate-containing Transition Metal Chalcogenides Supported by Nitrogen-doped Carbon Materials for Oxygen Reduction Reaction**

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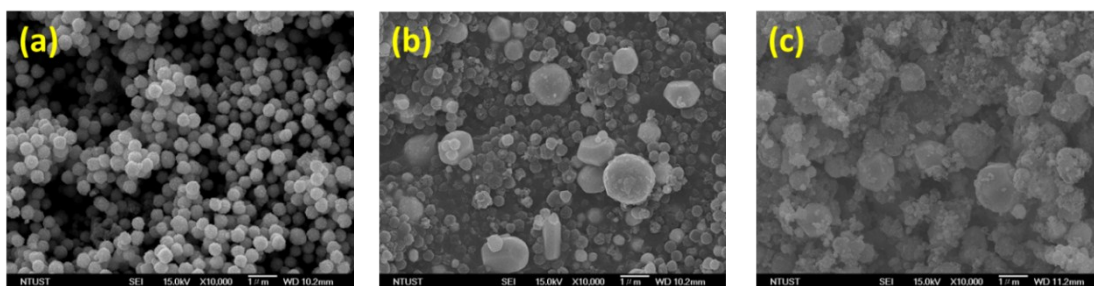
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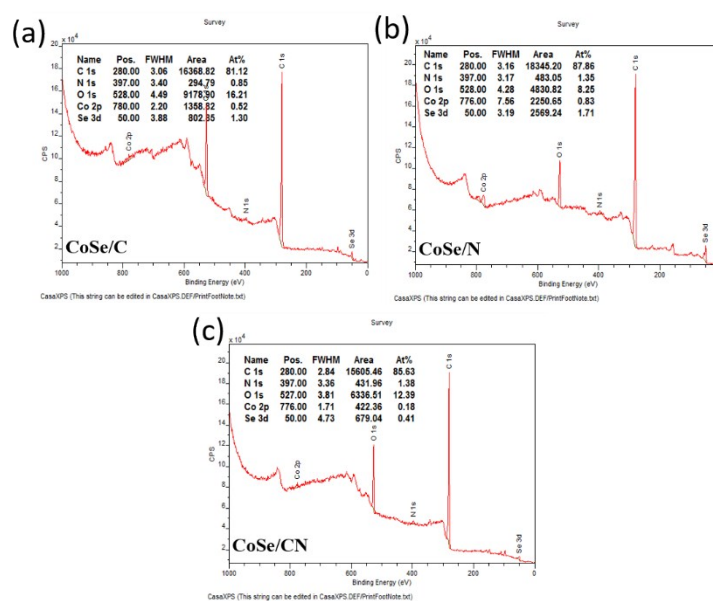
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**Figure S1-S2**

**Table S1-S3**



**Figure S1.** SEM images of (a) the as-synthesized  $\text{CoSe}_2$ , (b) the as-synthesized  $\text{CoSe}_2$  after pyrolysis, and (c)  $\text{CoSe/CN}$ .



**Figure S2.** XPS surveys of (a)  $\text{CoSe/C}$ , (b)  $\text{CoSe/N}$ , (c) and  $\text{CoSe/CN}$ .

**Table S1.** XRD grain size calculation of  $\text{CoSe/C}$ ,  $\text{CoSe/N}$ , and  $\text{CoSe/CN}$ .

Sample	Grain size (nm)
$\text{CoSe/C}$	33.88
$\text{CoSe/N}$	46.93
$\text{CoSe/CN}$	33.74

**Table S2.** SEM-EDX analysis of CoSe/C, CoSe/N, and CoSe/CN.

Element (At %)/ Sample	C	O	Co	Se
CoSe/C	81.03	2.48	9.09	7.39
CoSe/N	78.7	4.23	10.21	6.86
CoSe/CN	75.74	4.06	12.57	7.63

**Table S3.** XPS survey ratio calculation of CoSe/C, CoSe/N, and CoSe/CN.

Element (At %)/ Sample	C 1s	N 1s	O 1s	Co 2p	Se 3d
CoSe/C	81.12	0.85	16.21	0.52	1.3
CoSe/N	87.86	1.35	8.25	0.83	1.71
CoSe/CN	85.63	1.38	12.39	0.18	0.41