Electronic Supplementary Material (ESI) for Dalton Transactions.

In situ growth of the CoO nanoneedles array on a 3D nickel foam toward a high-performance glucose sensor

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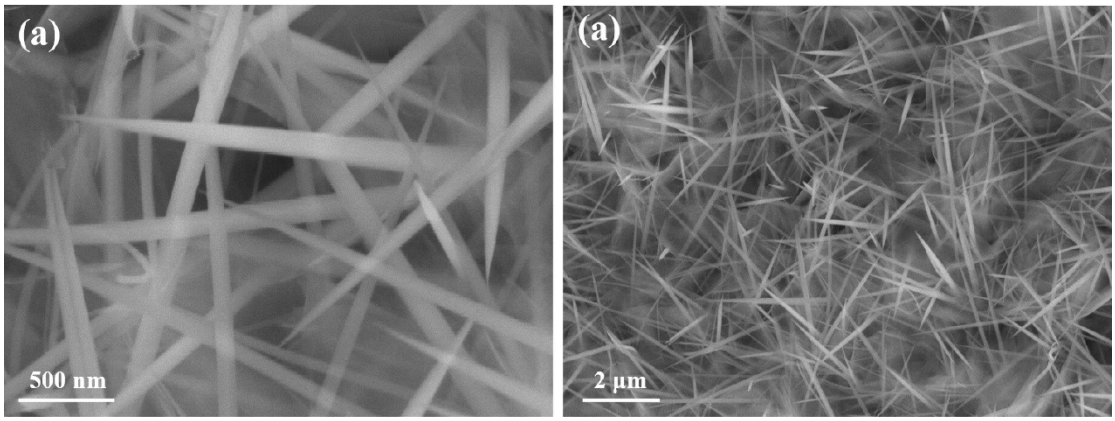

Figure S1. SEM images with different magnification for precursor materials.

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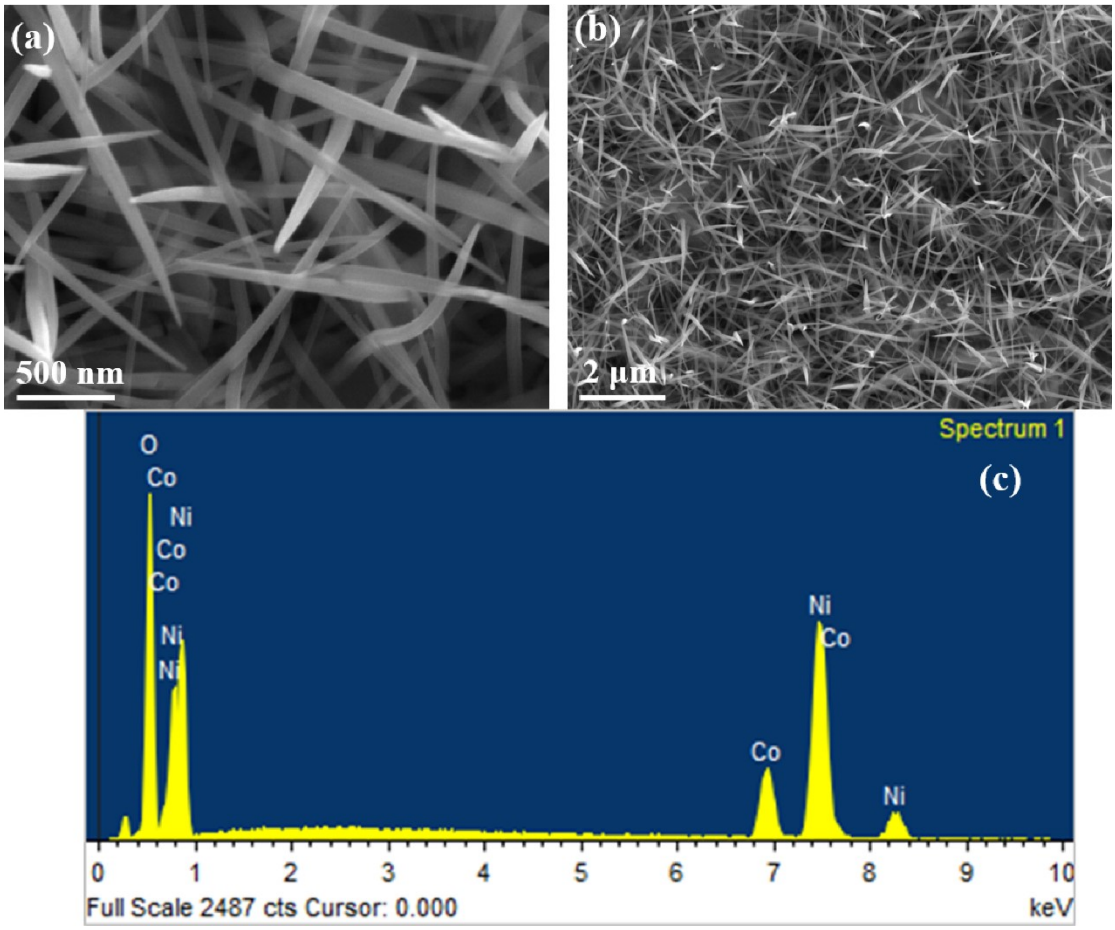

Figure S2. (a),(b) SEM images with different magnification and (c) corresponding EDS pattern for CoO-300 nanoneedles.

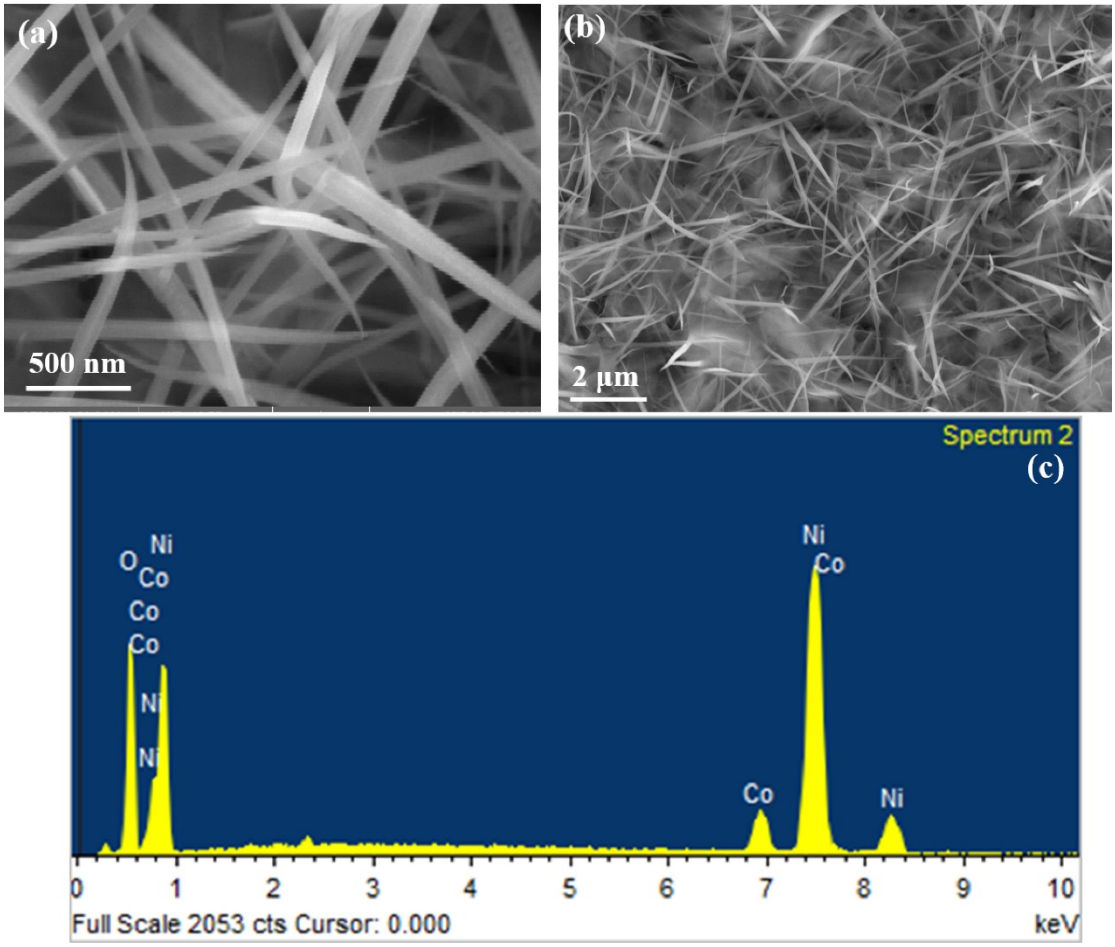

Figure S3. (a),(b) SEM images with different magnification and (c) corresponding EDS pattern for CoO-500 nanoneedles.

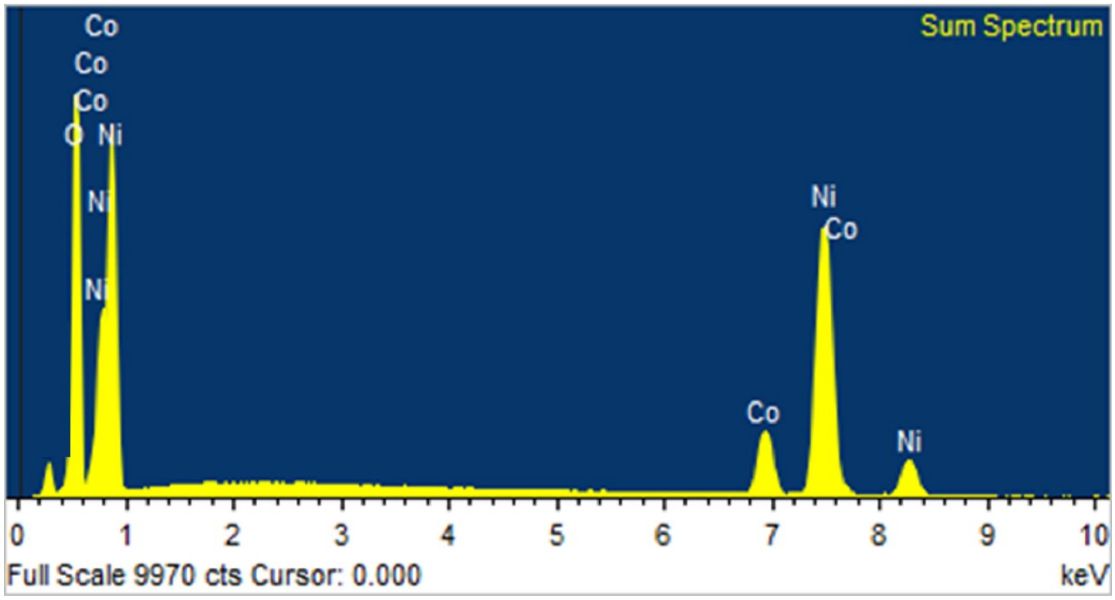

Figure S4. EDS pattern for CoO-400 nanoneedles.

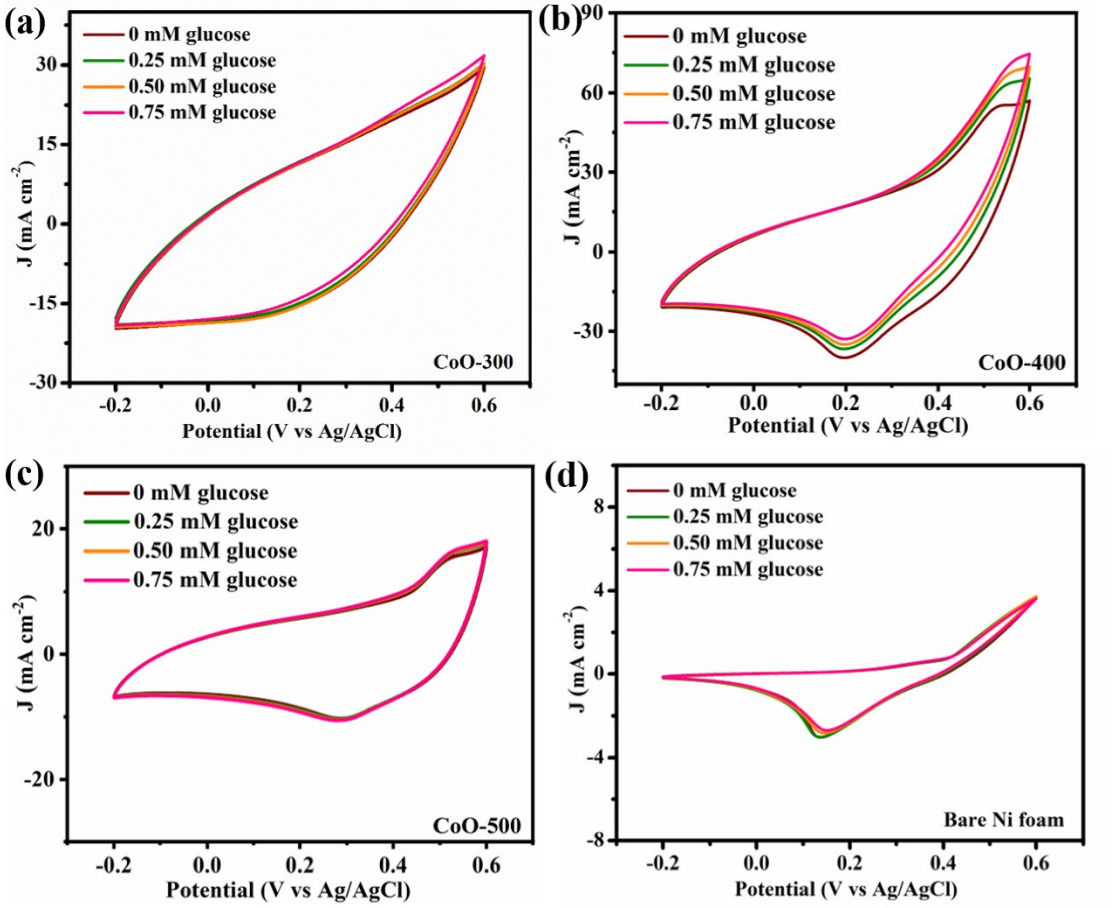

Figure S5. The CV curves at different concentrations of glucose (0 mM, 0.25 mM, 0.50 mM and 0.75 mM) for (a) CoO-300, (b) CoO-400, (c) CoO-500 and (d) bare Ni foam.

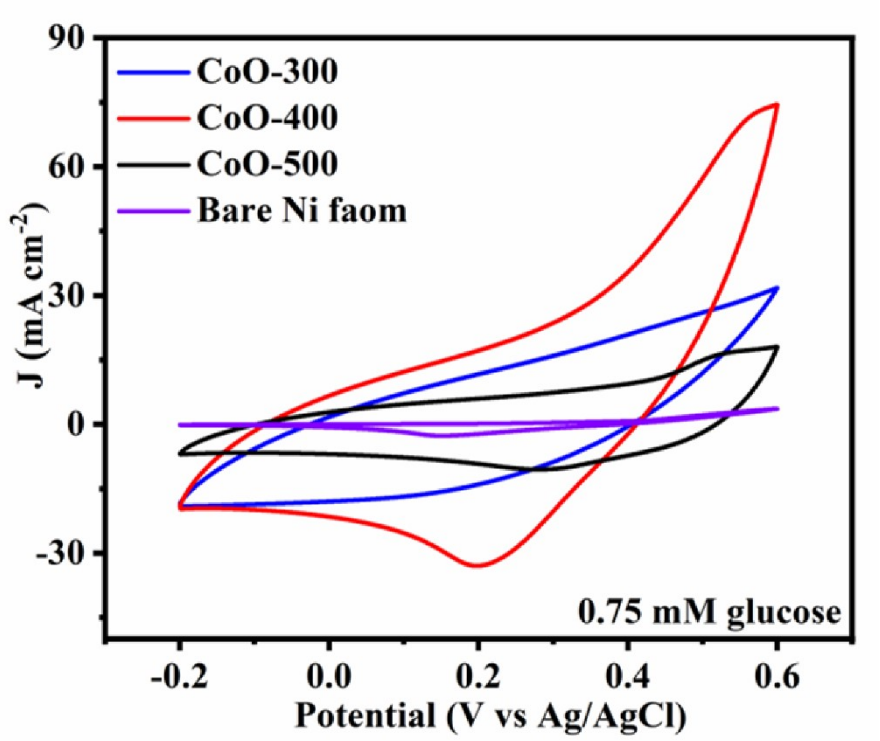

Figure S6. CV comparison curves of three samples and bare Ni foam in the 0.1 M KOH with 0.75 mM glucose.

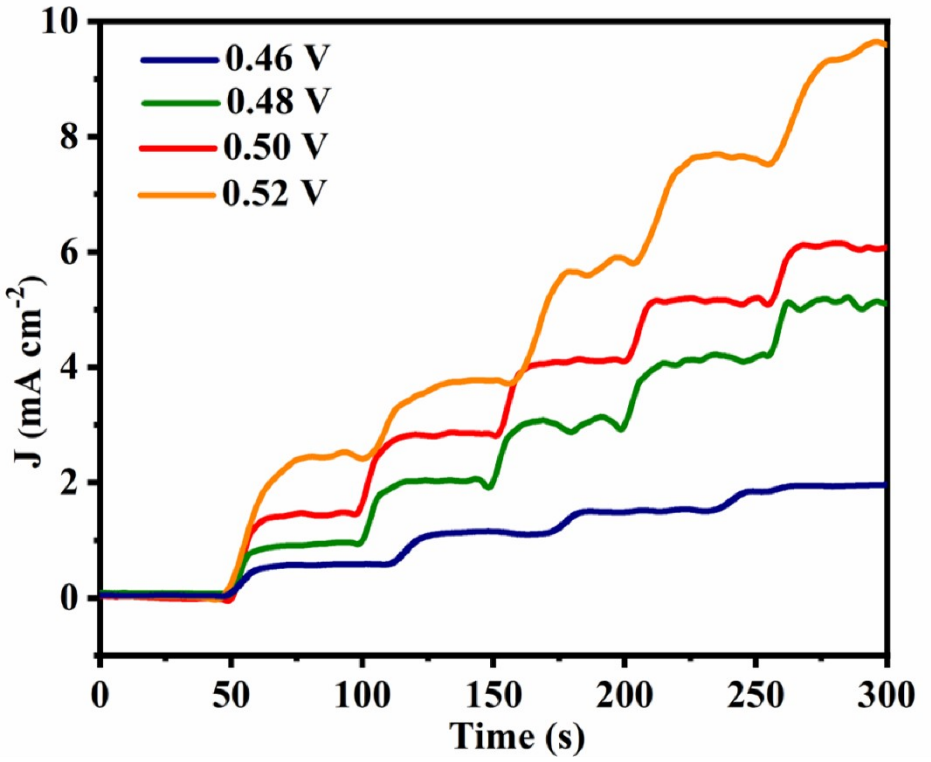

Figure S7. Amperometric response of CoO-400 electrode at various potentials ranging

from 0.46 V to 0.52 V in 0.1 M KOH with a consecutive addition of 0.01 mM glucose.

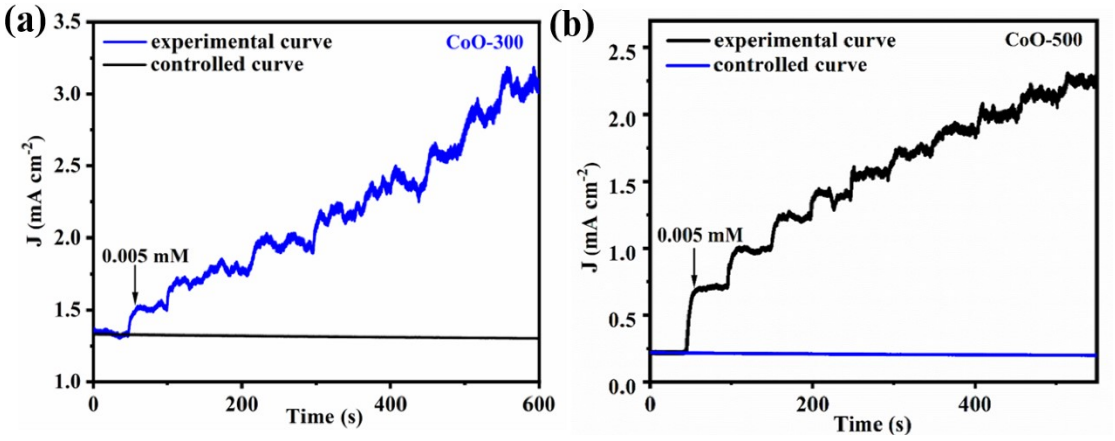

Figure S8. Current-time (i-t) curves with introduction of glucose for (a) CoO-300 nanoneedles (black curve: blank test without the addition of glucose for CoO-300) and (b) CoO-500 nanoneedles (blue curve: blank test without the addition of glucose for CoO-500)

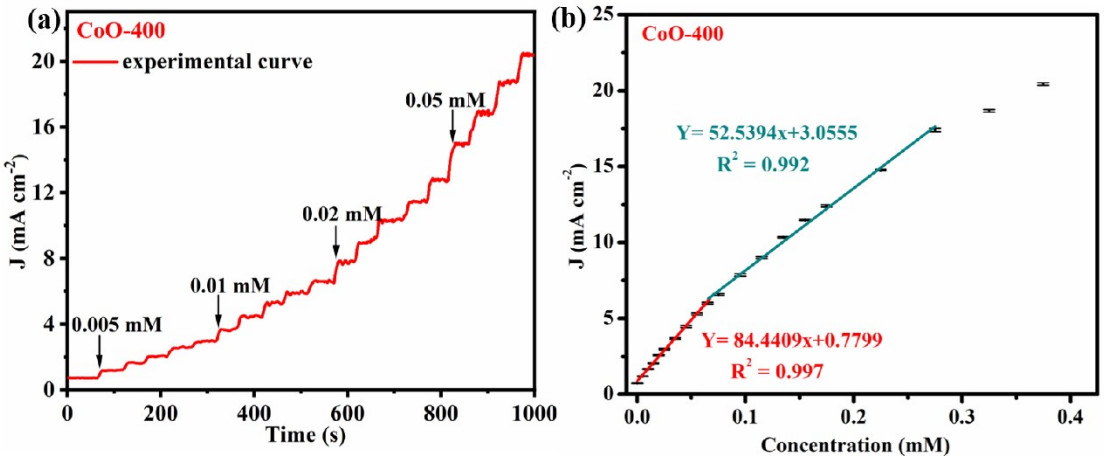

Figure S9. (a) Amperometric response of CoO-400 toward different concentration glucose at 0.5 V in 0.1 M KOH and (b) corresponding fitting curve.

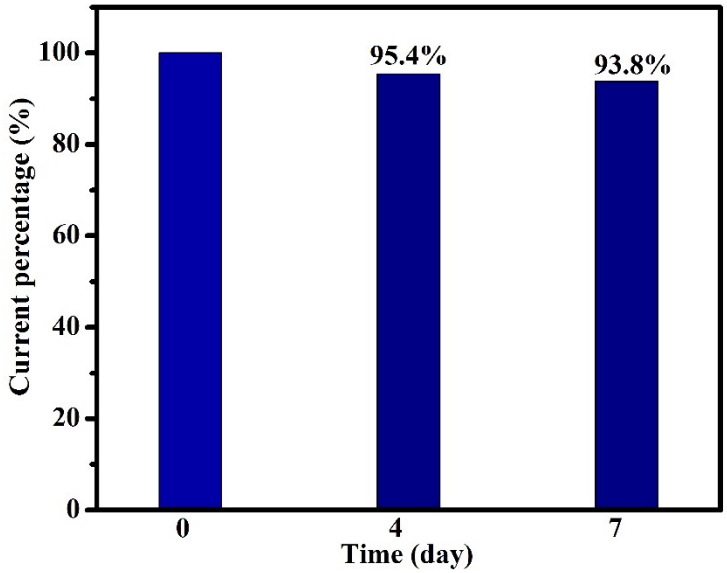

Figure S10. The long-term stability of the CoO-400 electrode after glucose sensing.

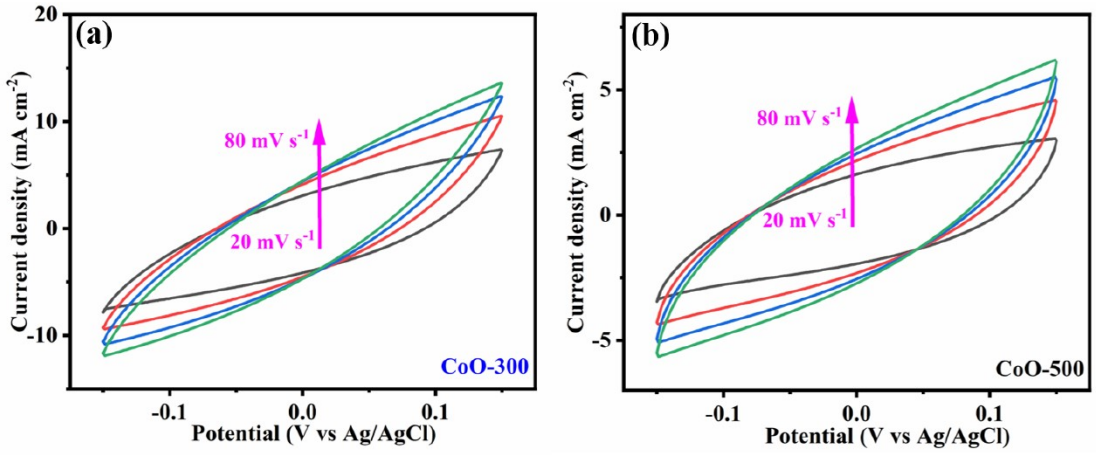

Figure S11. CV curves measured at different scan rate for (a) CoO-300 nanoneedles and (b) CoO-500 nanoneedles.