## **Electronic Supplementary Information**

## Mussel-Inspired Facile Synthesis of Fe/Co-Polydopamine Complex Nanospheres: Complexation Mechanism and Application of the Carbonized Hybrid Nanospheres as an Efficient Bifunctional Electrocatalyst

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**Figure S1.** XANES spectra of Co(II)-Fe(III)-PDA, Co(II)-PDA and Fe(III)-PDA against commercially available chemicals.



**Figure S2.** a) TEM micrograph of CoFe/C-PDA nanospheres, STEM elemental mapping for b) C, c) Co and d) Fe.



Figure S3. TGA curve of CoFe<sub>2</sub>O<sub>4</sub>/CoFe/C-PDA nanospheres.



**Figure S4.** (a) Brunauer-Emmett-Teller (BET) N<sub>2</sub> isotherm curve and (b) Barrett-Joyner-Halenda (BJH) pore size distribution of Co(II)-Fe(III)-PDA and CoFe/C-PDA.



Figure S5. CV curves of commercial Pt/C and CoFe<sub>2</sub>O<sub>4</sub>/CoFe/C-PDA nanospheres in  $N_2$ -saturated 0.1 M KOH electrolyte.