

## Supplementary Materials

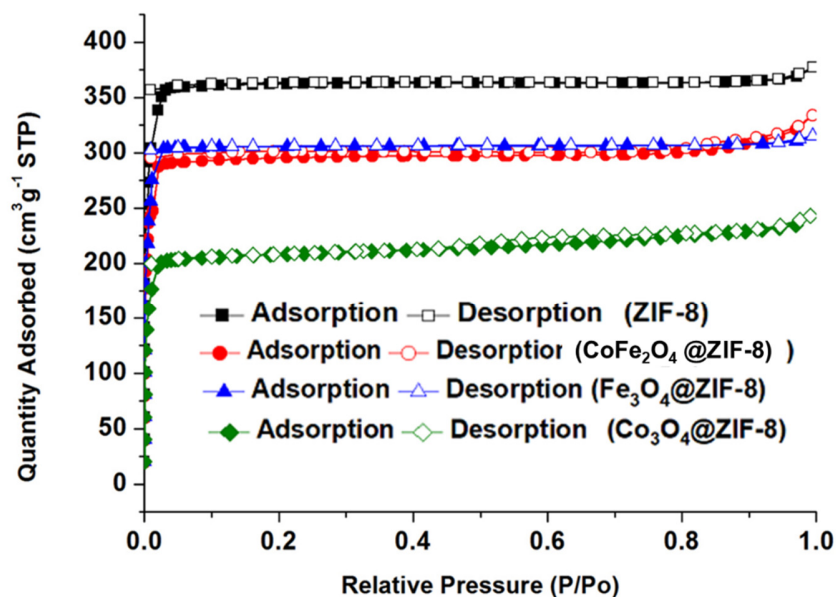
# A Green Synthesis of $\text{CoFe}_2\text{O}_4$ Decorated ZIF-8 Composite for Electrochemical Oxygen Evolution

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**Keywords:** spinel ferrite; ZIF-8; magnetic;  $\text{CoFe}_2\text{O}_4$ ; oxygen evolution reaction



**Figure S1.** BET surface area analysis in  $\text{N}_2$ .

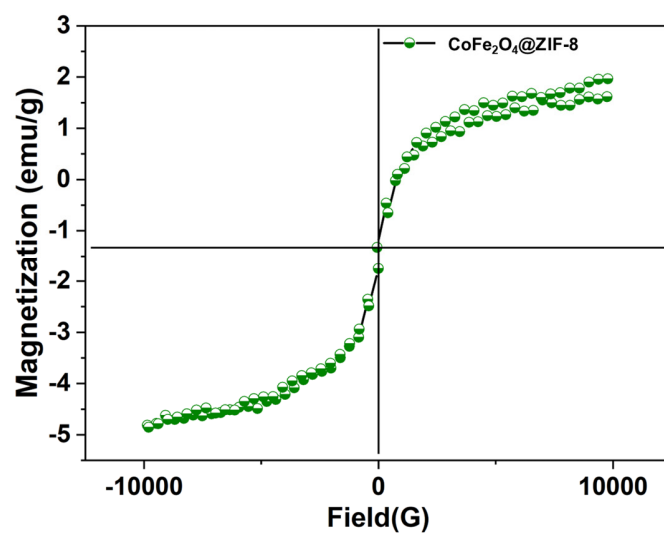


Figure S2. VSM of CoFe<sub>2</sub>O<sub>4</sub>@ZIF-8

| Elem  | Weight % | Atomic % |
|-------|----------|----------|
| C K   | 48.6     | 83.2     |
| FeK   | 8.9      | 3.3      |
| CoK   | 3        | 1        |
| ZnK   | 39.6     | 12.5     |
| Total | 100      | 100      |

Figure S3. EDS elemental composition of CoFe<sub>2</sub>O<sub>4</sub>@ZIF-8.

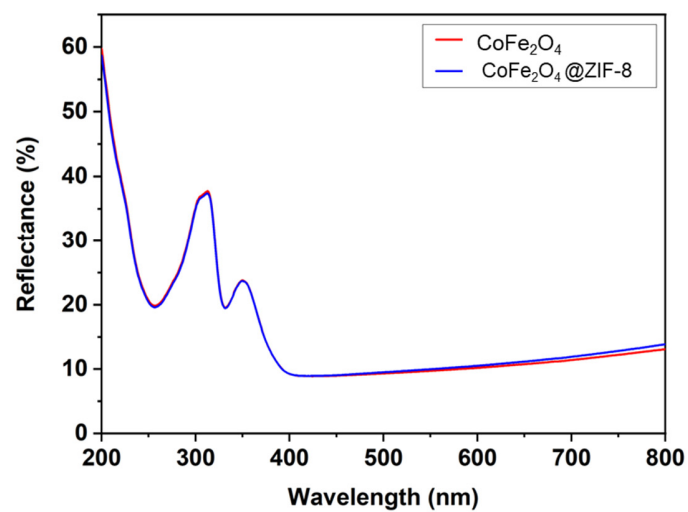


Figure S4. UV-vis-DRS analysis of CoFe<sub>2</sub>O<sub>4</sub> and CoFe<sub>2</sub>O<sub>4</sub>@ZIF-8

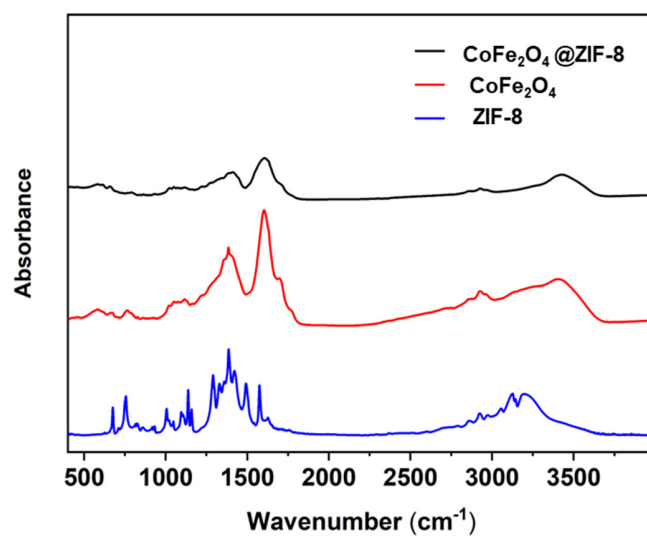


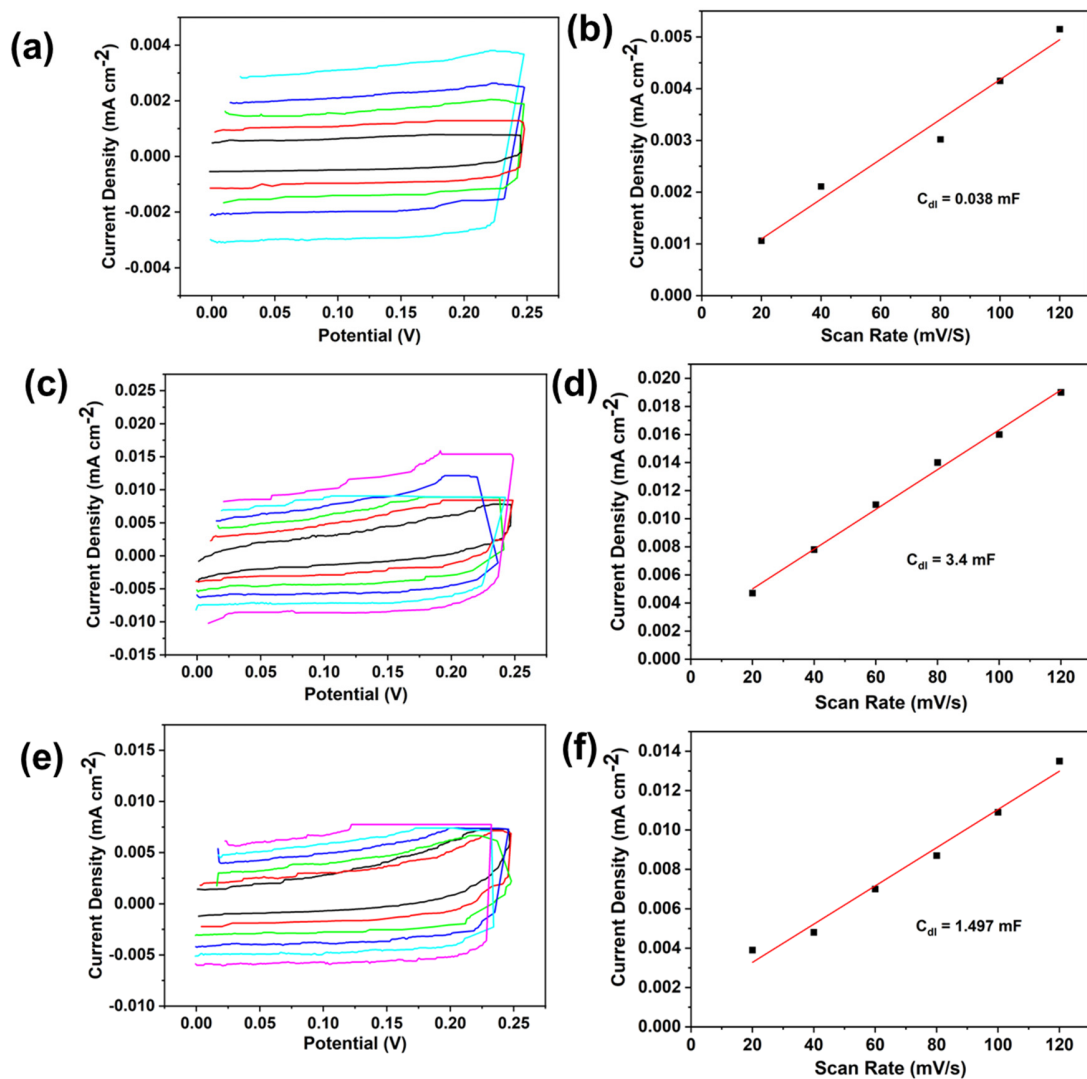
Figure S5. FT-IR analysis of ZIF-8, CoFe<sub>2</sub>O<sub>4</sub> and CoFe<sub>2</sub>O<sub>4</sub>@ZIF-8 samples

Table S1. EDS analysis of ZIF-8, CoFe<sub>2</sub>O<sub>4</sub> and CoFe<sub>2</sub>O<sub>4</sub>@ZIF-8 samples

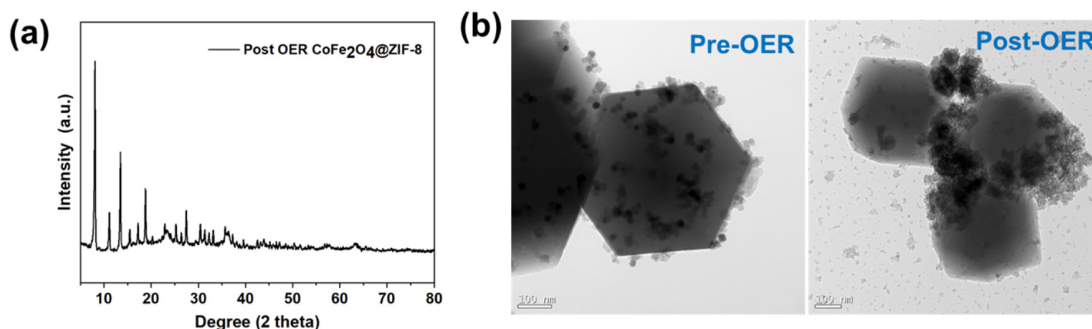
| Sample                           | Chemical | ms%   |
|----------------------------------|----------|-------|
| ZIF-8                            | C        | 68.67 |
|                                  | O        | 28.72 |
|                                  | Zn       | 2.62  |
| CoFe <sub>2</sub> O <sub>4</sub> | C        | 65.90 |
|                                  | O        | 28.88 |
|                                  | Fe       | 2.48  |
|                                  | Co       | 0.41  |

Table S2. A list of average pore diameter from BET measurements.

|   | Average pore diameter (Å) |
|---|---------------------------|
| ZIF-8                                   | 11.7                      |
| CoFe <sub>2</sub> O <sub>4</sub>        | 24                        |
| CoFe <sub>2</sub> O <sub>4</sub> @ZIF-8 | 32                        |



**Figure S6.** Double layer capacitance and respective CVs of (a,b) bare CPE electrode, (c,d) ZIF-8, (e,f)  $\text{CoFe}_2\text{O}_4$  at scan rate 20-120  $\text{mV s}^{-1}$ .



**Figure S7.** Pre and Post OER characterization of CoFe<sub>2</sub>O<sub>4</sub>@ZIF-8 composite; (a) PXRD, (b) TEM images.