Supporting Information

Cobalt- iron Zeolitic Imidazolate Frameworks (ZIFs) as Microfibers for an effective Detection of Hydroquinone

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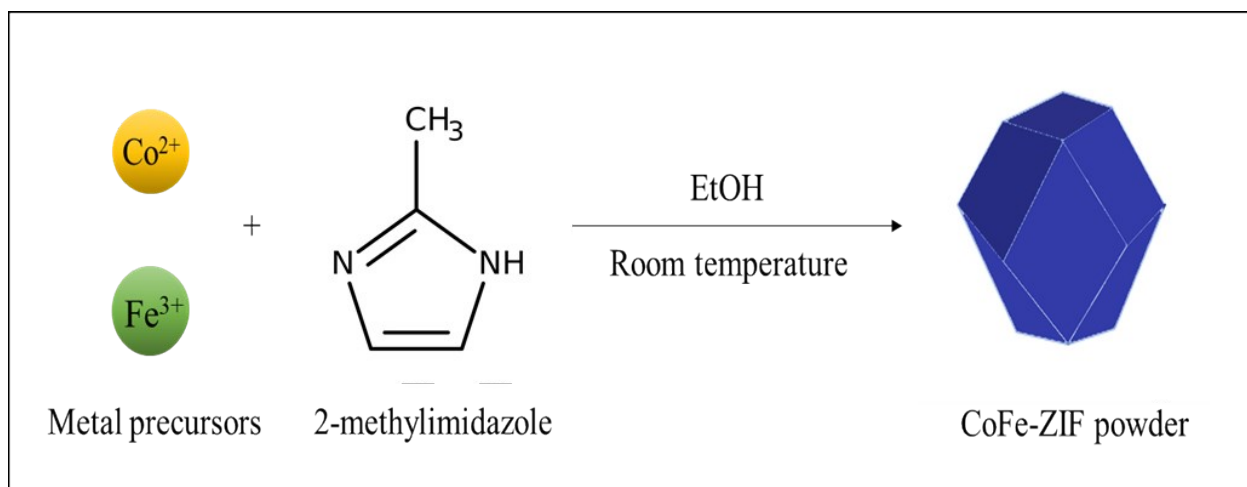Corresponding author E-mail ID: skundu@cecri.res.in (S. K) andwilson.j2008@yahoo.com(J. W)

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Number of Scheme: 1

Number of Figures: 5

Number of Tables: 1

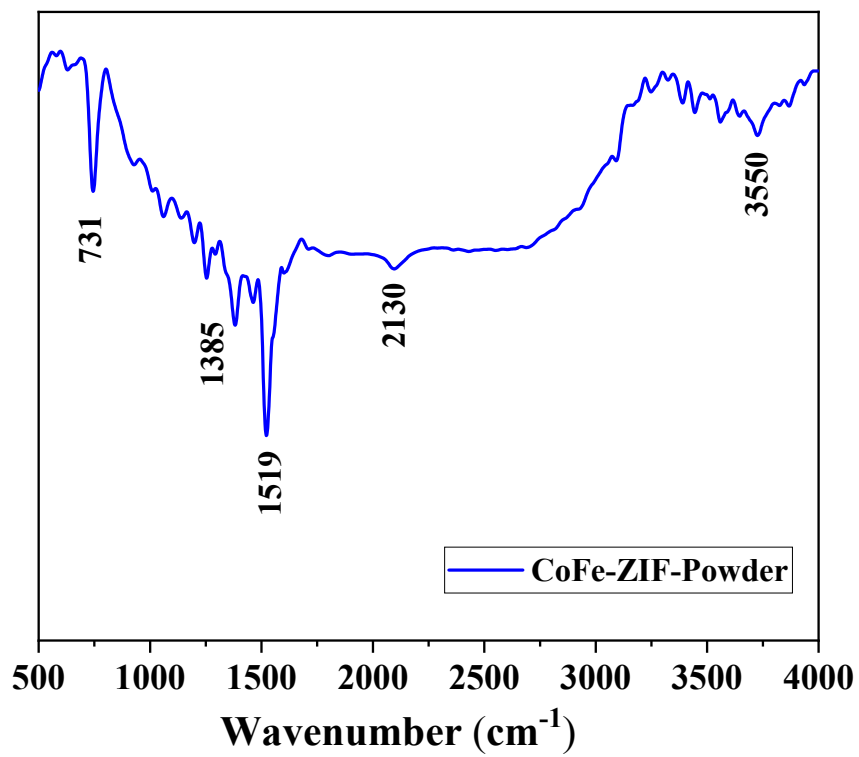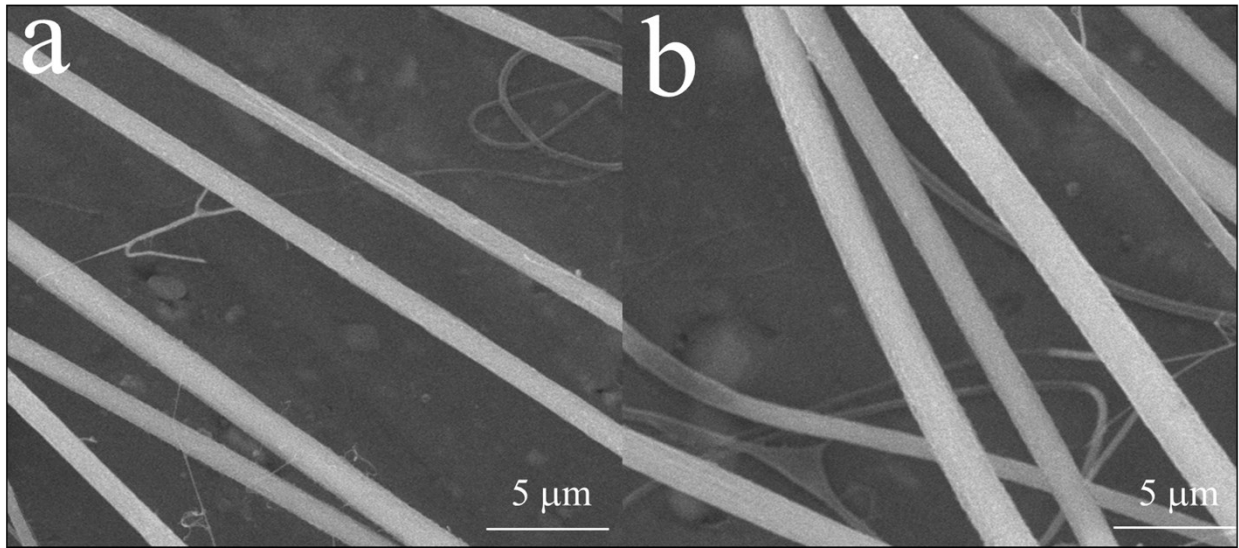**Scheme S1.** Possible structural formation of CoFe-ZIF powder.

Figure S1.FT-IR spectrum of CoFe-ZIF-Powder.

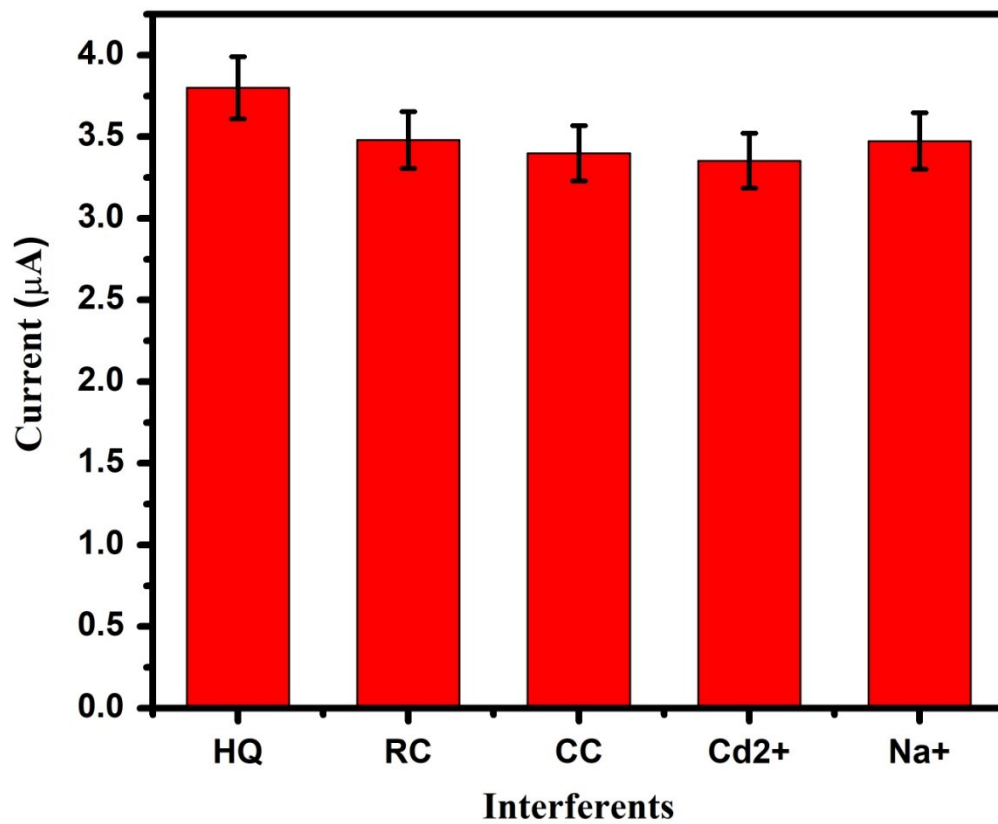**FigureS2. (a) and (b) SEM images of the Co-ZIF microfibers.**
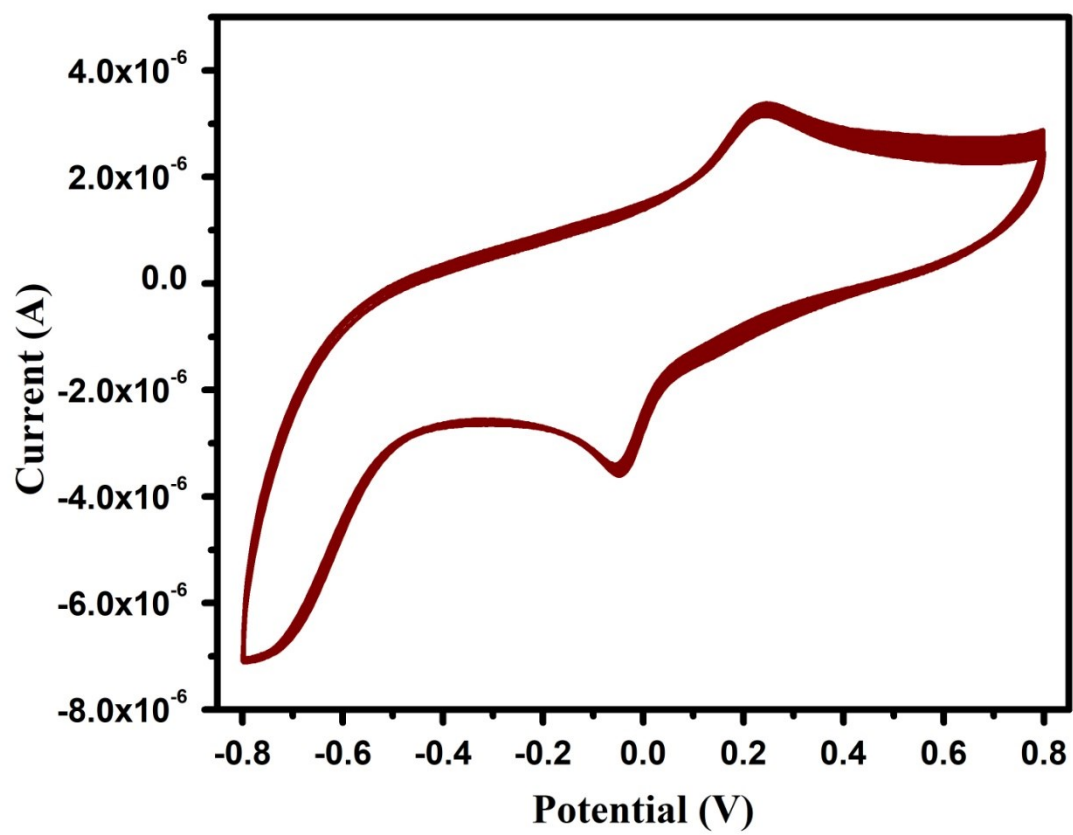
Figure S3.Interference nature of CoFe-ZIF-MFs.

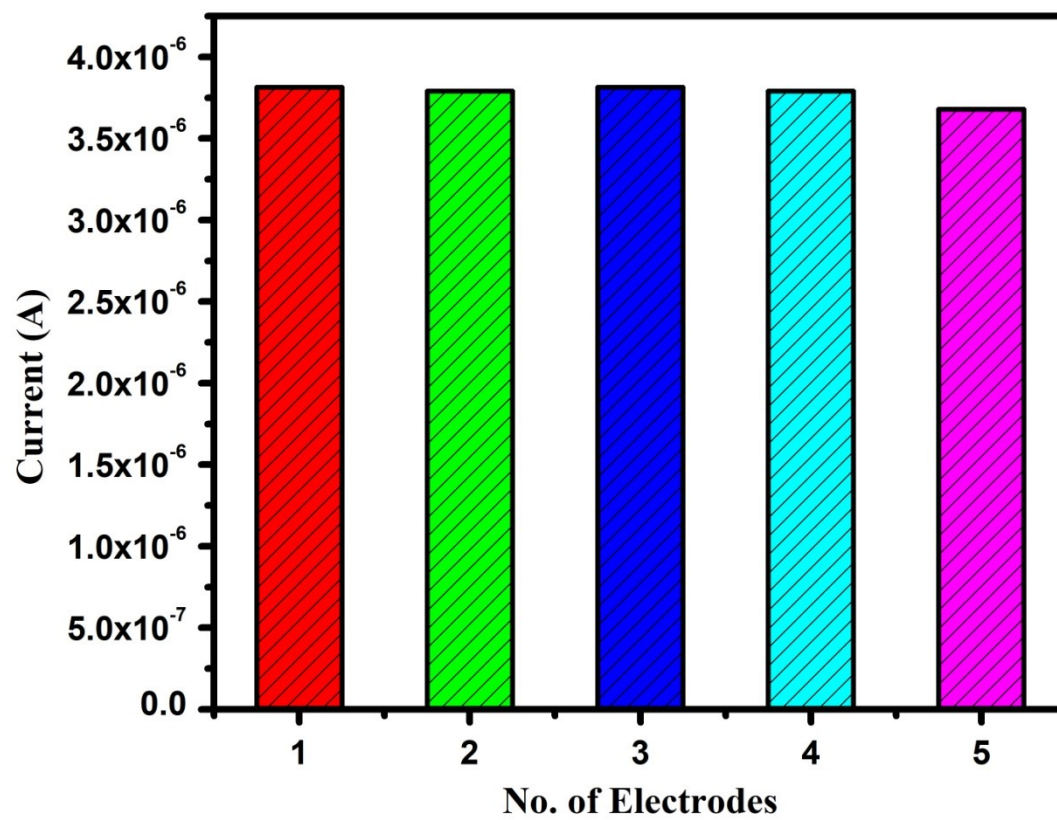**Figure S4.Stability nature of CoFe-ZIF-MFs.**

Figure S5.Reproducibility nature of CoFe-ZIF-MFs.

Sample	Spiked (µM)	Found (µM)	Recovery (%)	RSD (%)
River water	10	10.32 ± 0.5	103.2	4.2
	20	19.85 ± 0.47	99.2	
	30	30.75 ± 0.33	107.5	
Lake water	10	9.87 ± 0.15	98.7	1.5
	20	20.09 ± 0.25	100.4	
	30	30.5± 0.33	101.6	
Ground water	10	10.14 ± 0.1	101.4	1.7
	20	19.65 ± 0.5	98.25	
	30	30.25 ± 0.44	100.83	

Table S1.Real sample analysis of CoFe-ZIF-MFs on different water samples.

Electrochemical Surface Area (ECSA) calculation.

The Electrochemical Surface Area is used to determine the active surface area of the desired material in which the experiment is done. Here we have calculated the ECSA of the CoFe-ZIF-MFs from the CV in $[Fe(CN)_6]^{3-/4-}$ using the formula

$$ip = 2.69 \times 10^5 \times AD^{\frac{1}{2}} \times n^{\frac{3}{2}} \times C \times V^{\frac{1}{2}}$$

Where,

ip	=	maximum current value of oxidation or reduction
A	=	Electroactive area
D	=	Diffusion Co-Efficient, For $[Fe(CN)_6]^{3-/4-}$ [6.7×10^{10} m^2.s^{-1}]
n	=	number of electron transferred
C	=	Concentration of the redox probe, $[Fe(CN)_6]^{3-/4-}$ [1mM]
ν	=	Scan rate, [50 mV.s-1]

By substituting the relevant information, the ECSA is calculated to be **24.65 cm^2**. This was significantly ten times higher than the Co-ZIF based biosensor which is previously reported [1]. This confirms the CoFe-ZIF-MFshas high surface area which is also responsible for enabling the effective analyte interaction producing excellent results.