Supporting Information

Understanding the Endocrine Disruptor and Determination of Bisphenol A by Functional Cu-BTABB-MOF/rGO Composite as Facile Rapid Electrochemical Sensor: An Experimental and DFT Investigation

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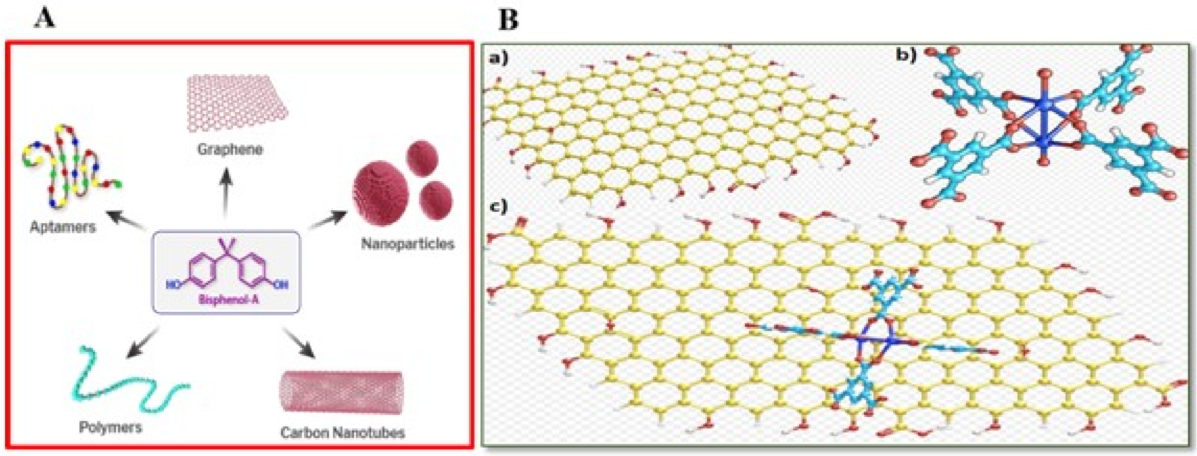

Figure S1. (A). Bisphenol-A analysis sensors. (**B).** Representation of the electrochemical interaction of MOF and Cu-BTABB-MOF on GO and rGO. **(a)** r-GO, **(b)**Cu-BTABB-MOF,**(c)** Cu-BTABB-MOF@ r-GO. Red, Yellow, Gray and Blue colors are Oxygen, Hydrogen, Carbon and Nitrogen, respectively.

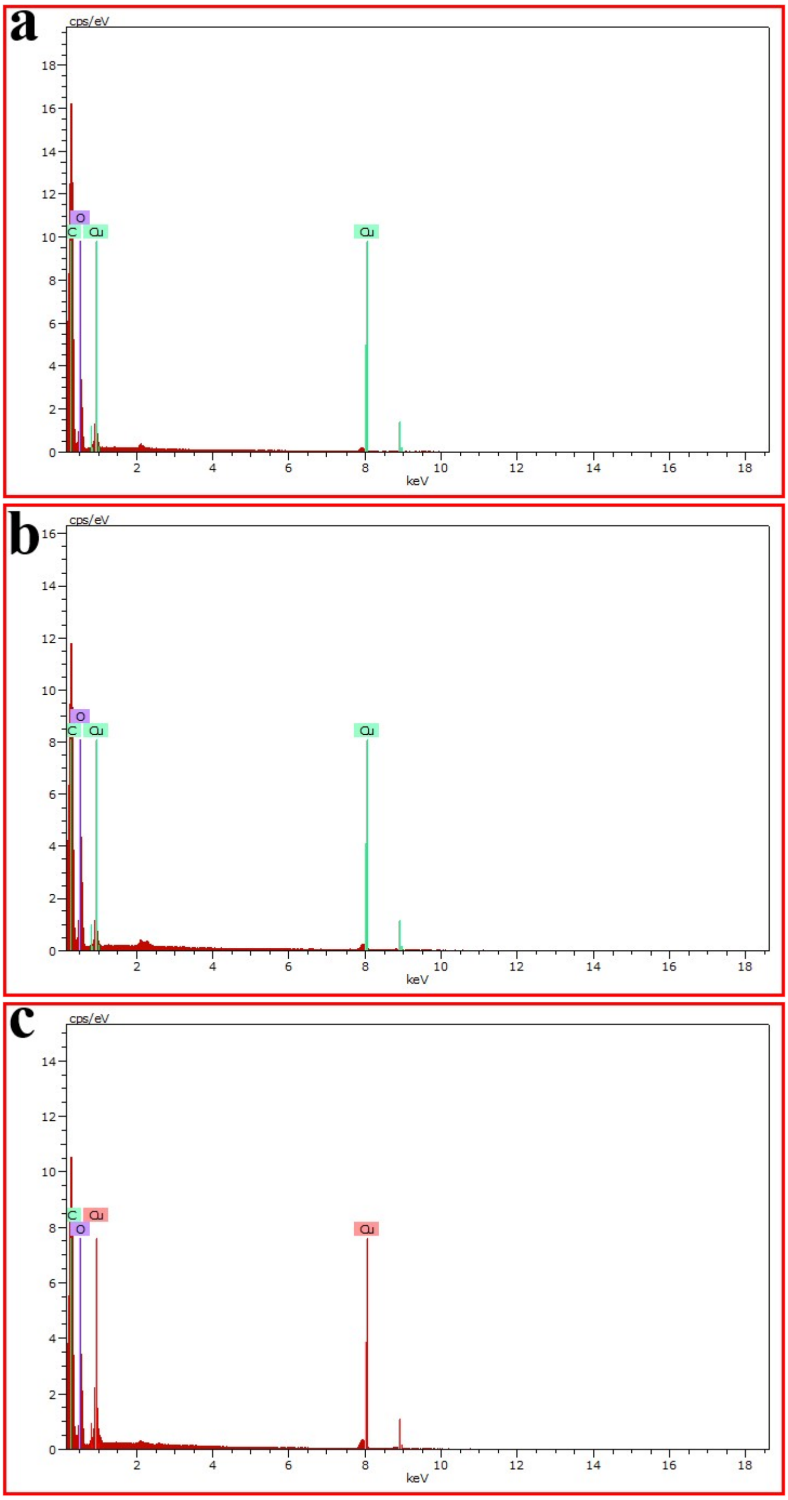

Figure S2.EDX spectra of (a) Cu BTABB-MOF, (B) Cu BTABB-MOF/GO, and (c) Cu BTABB-MOF/rGO.

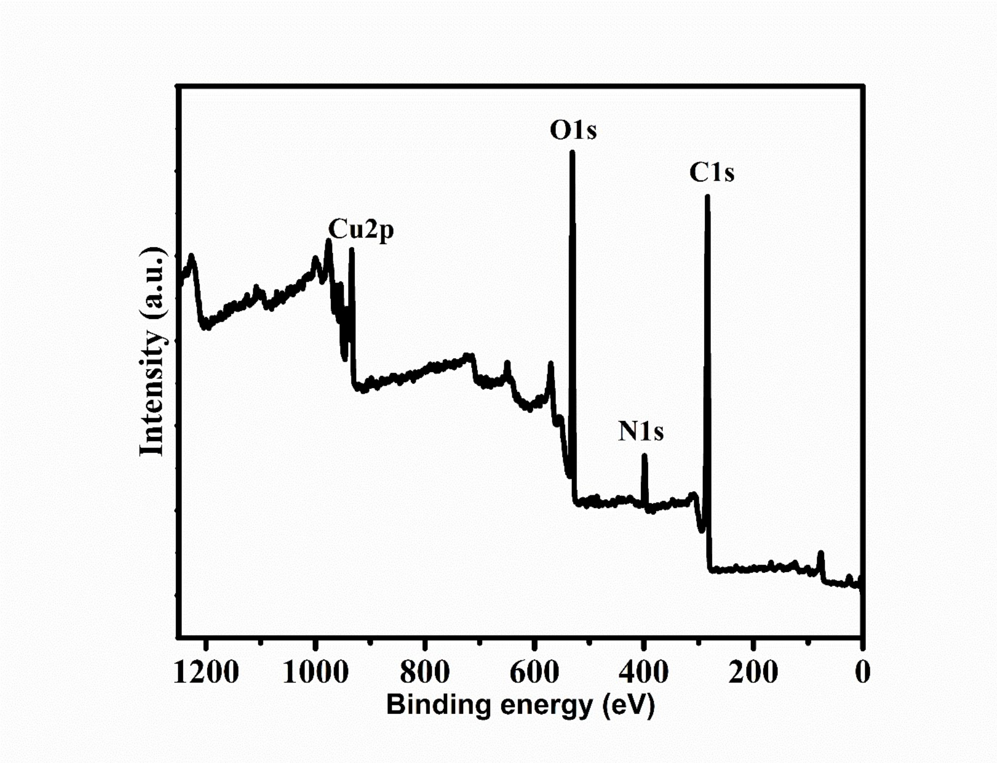

Figure S3.XPS survey spectra of Cu BTABB-MOF/rGO.

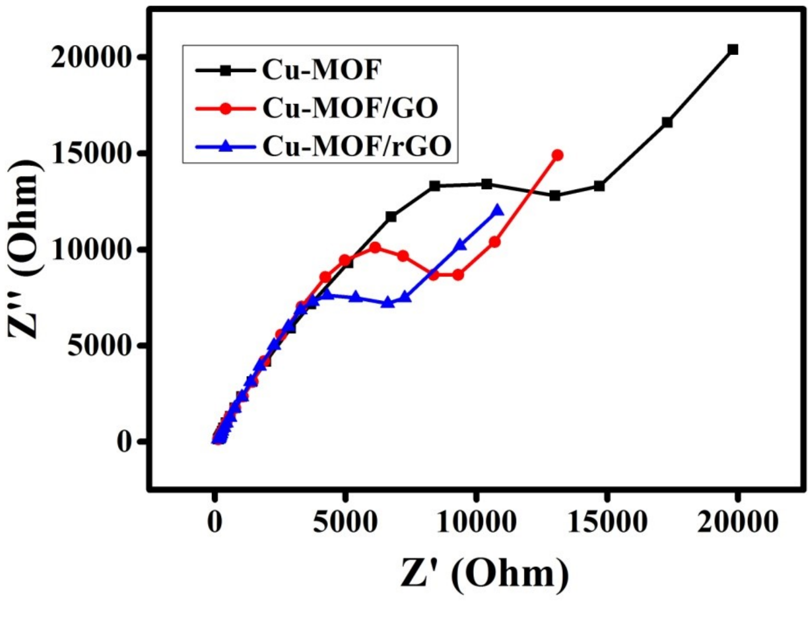

Figure S4. EIS of Cu-MOF, Cu-MOF/GO and Cu-MOF/rGO.

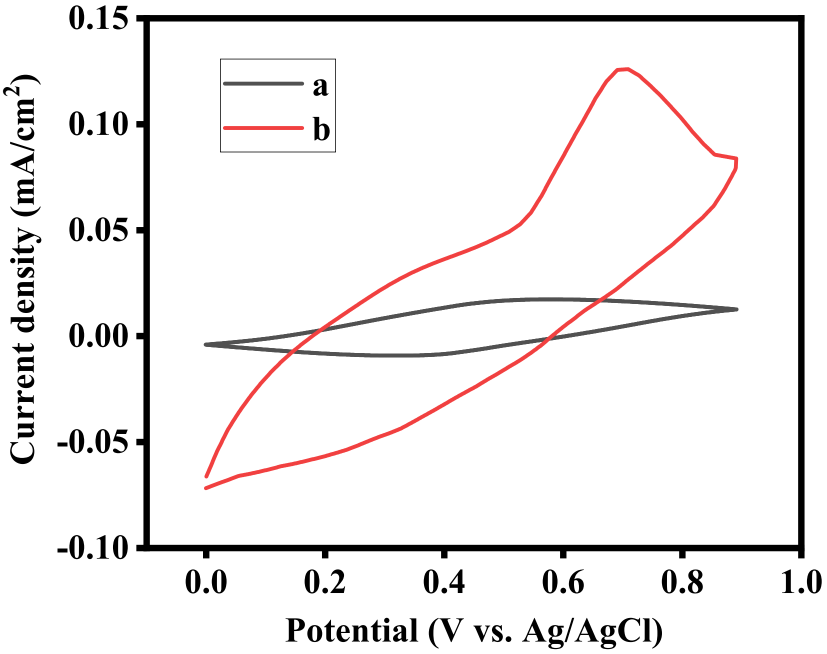

Figure S5. CV of Cu-MOF/rGO in the absence (a) and presence (b) of 100 µM BPA in 0.1 M PBS (pH 7.4) at 50 mV/s.

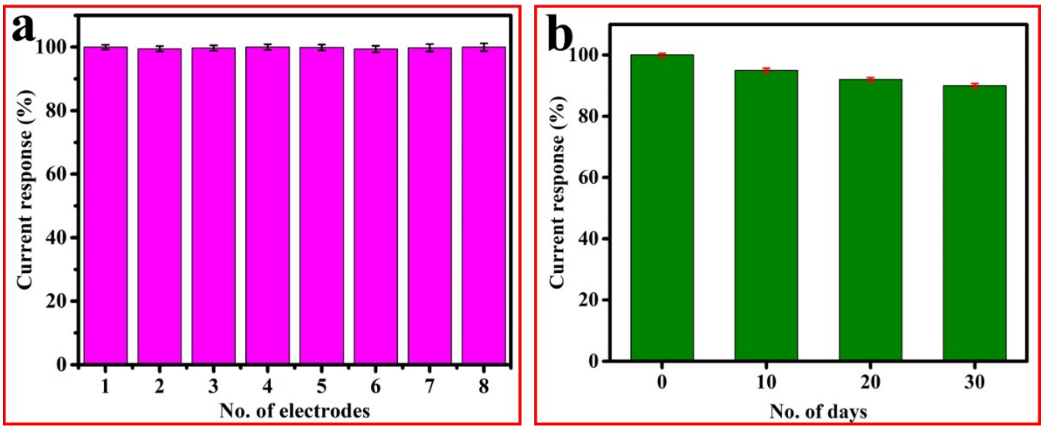

Figure S6. (a) Reproducibility study of Cu-BTABB-MOF@rGO on eight different electrodes and its current response, **(b)** Stability study of Cu-BTABB-MOF@rGO with 10 'days' time interval up to 30 days.

Table S1. Rate of recovery % and RSD % of real time analysis

Sample	BPA added (µM)	Found (µM)	Recovery (%)	RSD%
Water sample 1	1	1.057	105.7	2.7
Water sample 2	5	5.043	100.86	3.1
Water sample 3	10	10.082	100.82	2.8

TableS2. Comparison of the Present Cu BTABB-MOF/rGO Fabricated Sensor with the Reported Sensors Towards Electrochemical Sensing of Bisphenol A

Modified electrode	Analyte	Linear Range	LOD	References
MWCNTs / β-cyclodextrin (βCD)	BPA	0.125 - 2 and 2 - 30 µM	13.76 nM	**S1**
Polyglutamic acid/amino-functionalized carbon nanotubes nanocomposite	BPA	0.1-10 µM	0.02	**S2**
Magnetic molecularly imprinted polymer (USMagMIP)/ nanocomposite of carbon black nanoparticles (CBNPs/ Gold nanoparticles (AuNPs)	BPA	0.07-10 µM	8.8 nM and 31.5 nM	**S3**
Platinum nanoparticles (DPNs) / gold nanoparticles / polyethyleneimine-phosphatidylcholine (PEI-PC) layer	BPA	0.01-1.0 and1.0-300µM	6.63 ± 0.77 nM	**S4**
Cerium/centered metal-organic framework / reduced graphene oxide composite (Ce-MOF-ERGO)	BPA	3 nM-10 µM	1.9 nM	**S5**
Ni/MOF@CNTs	BPA	0.001-1.0µM	0.35 nM	**S6**
Ionic liquid functionalized graphene nanoplatelets	BPA	0.02-5.0µM	6.4 µM	**S7**

Copper-centered metal-organic framework (MOF)	BPA	0.05-3.0μM	0.013 μM	**S8**
Amine-functionalized MOF/reduced graphene oxide composites	BPA	2-200 μM	0.7966 μM	**S9**
Covalent organic framework CTpPa-2	BPA	0.1-50μM	0.02 μM	**S10**
Cu BTABB-MOF/rGO	**BPA**	**0-10**μM	**0.2**μM	**This work**

References

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