Supplementary Data

For

A novel molecular imprinted quartz crystal microbalance sensor for fenamiphos determination based on boron-sulphur co-doping ultra-thin graphitic carbon nitride incorporated Cu-MOF

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2.2. Instrumentation

Scanning electron microscopy (SEM, ZEISS EVO 50 SEM, Tokyo, Japan), BELSORP-mini II instrument at liquid nitrogen temperature for N_2 adsorption isotherms (China), Fourier Transform Infrared Spectroscopy (FTIR, Bruker Optics Inc., Ettlingen, Germany) and Rigaku X-ray diffractometer (XRD, Germany) were used for the structural characterizations. Nano magnetics instrument mode atomic force microscopy (AFM, Tokyo, Japan) was used for the observation of surface thicknesses and INFICON Acquires Maxtek QCM system was utilized for analytical applications. QCM chips had a fundamental frequency of 20 MHz with a small size below 5×5 mm^2. For GC-MS method, QP 5000 Shimadzu equipped with capillary column, 15m×0.25 mm×0.5 µm, containing 50% cyanopropylphenyl-methylpolysiloxane was used at 200 °C and Helium was used as the carrier gas at 96.5 KPa. The splitless mode was used for injection of 1 µL volume, with the valve opened for 30 s.

3.4. Sensitivity of MIP/BS-g-C_3N_4-CuMOF/QCM

$$LOQ = 10.0\ S / m$$

$$LOD = 3.3\ S / m$$

S: Standard deviation of the intercept and m: Slope of the regression line

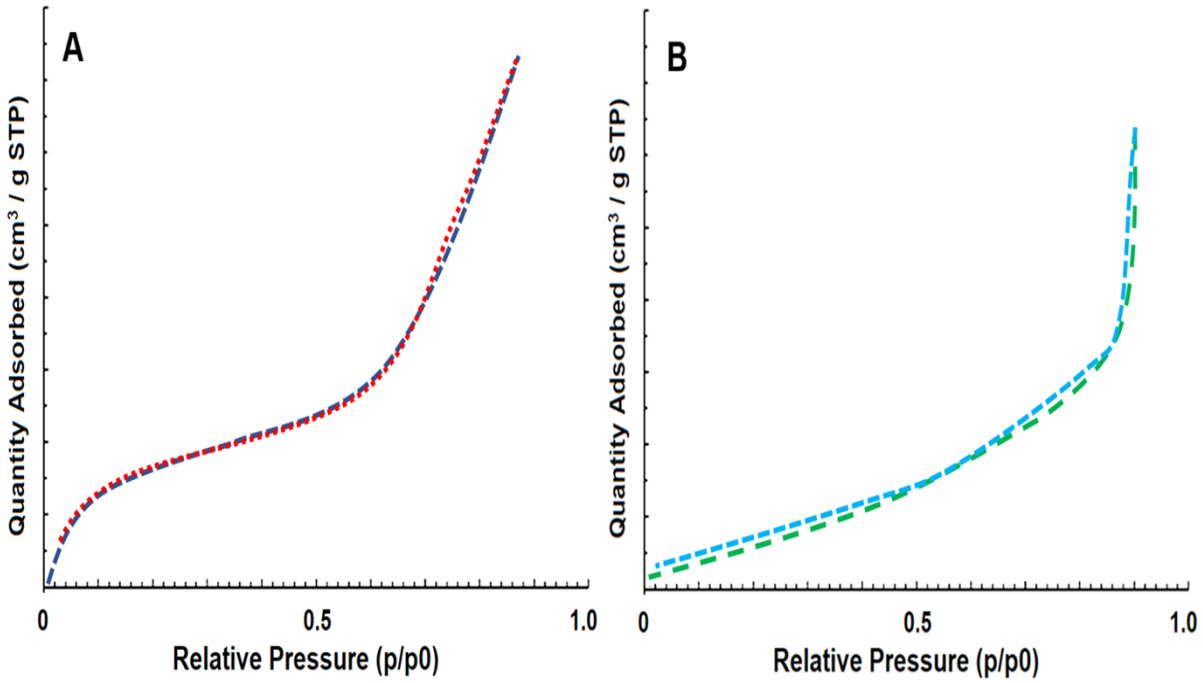

Fig. S1. BET curves of (A) BS-g-C_3N_4 and (B) BS-g-C_3N_4-CuMOF nanocomposite

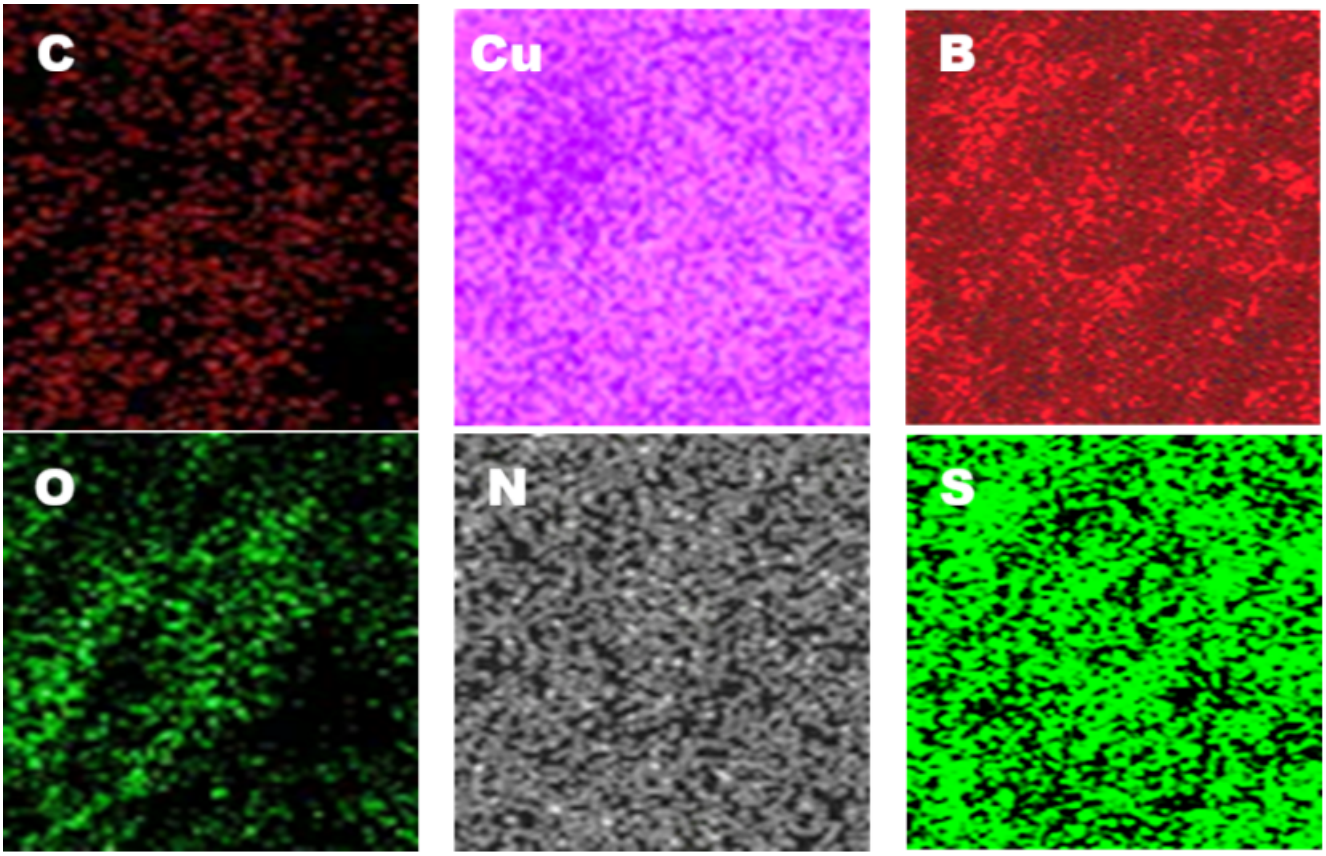

Fig. S2. EDX MAPs spectrum of BS-g-C_3N_4-CuMOF nanocomposite

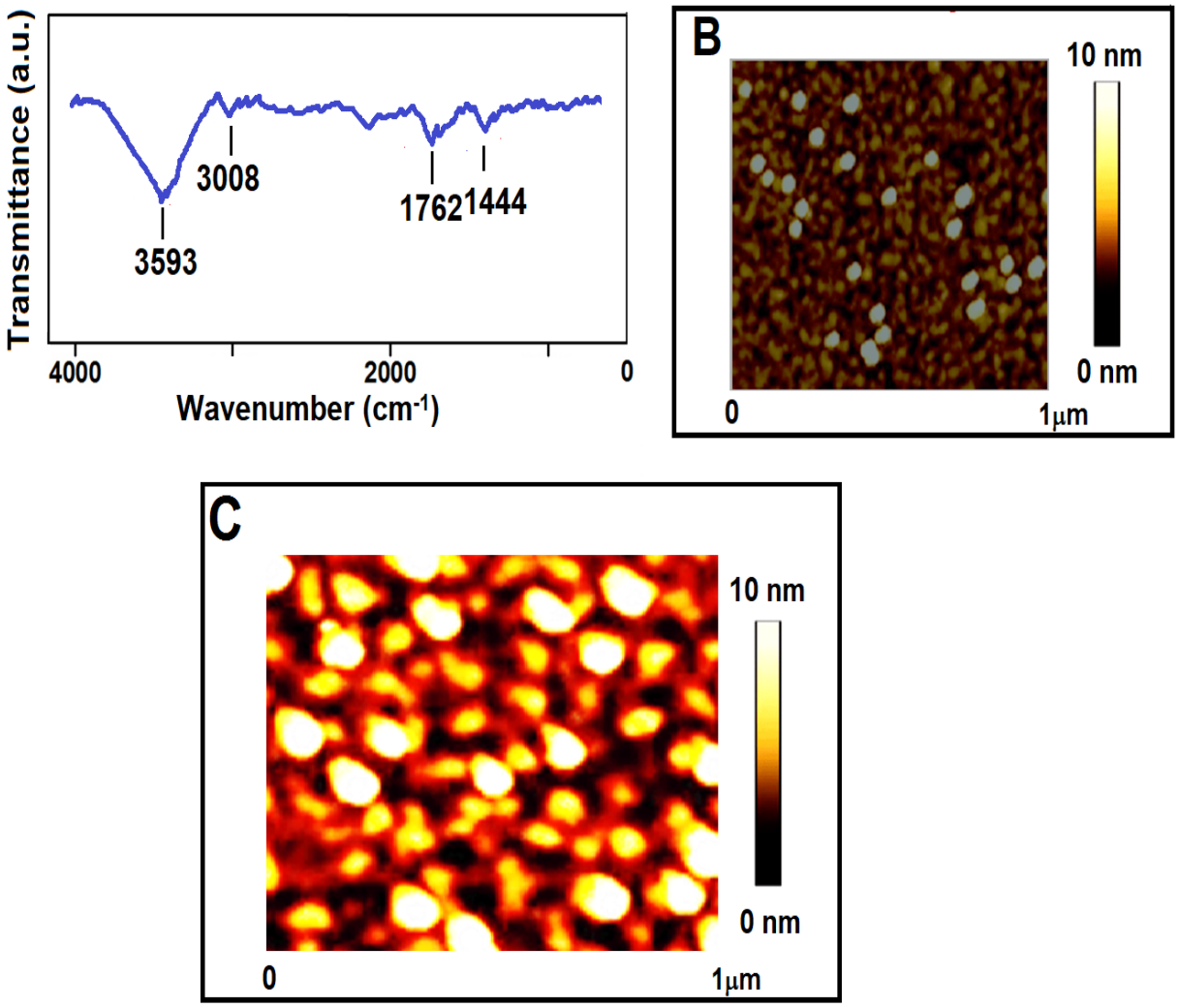

Fig. S3. (A) FTIR spectra of FEN-imprinted film on BS-g-C_3N_4-CuMOF/QCM with FEN removal; AFM images of (B) bare QCM chip and (C) FEN-imprinted film on BS-g-C_3N_4-CuMOF/QCM with FEN removal

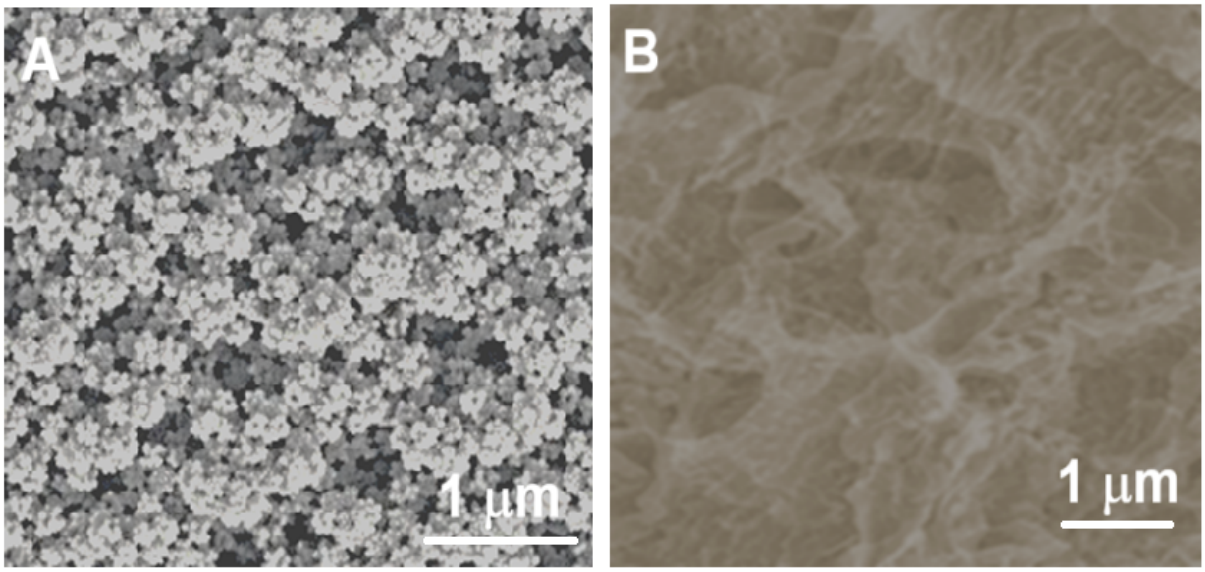

Fig. S4. SEM image of (A) MIP/BS-g-C_3N_4-CuMOF/QCM with FEN removal and (B) NIP/BS-g-C_3N_4-CuMOF/QCM

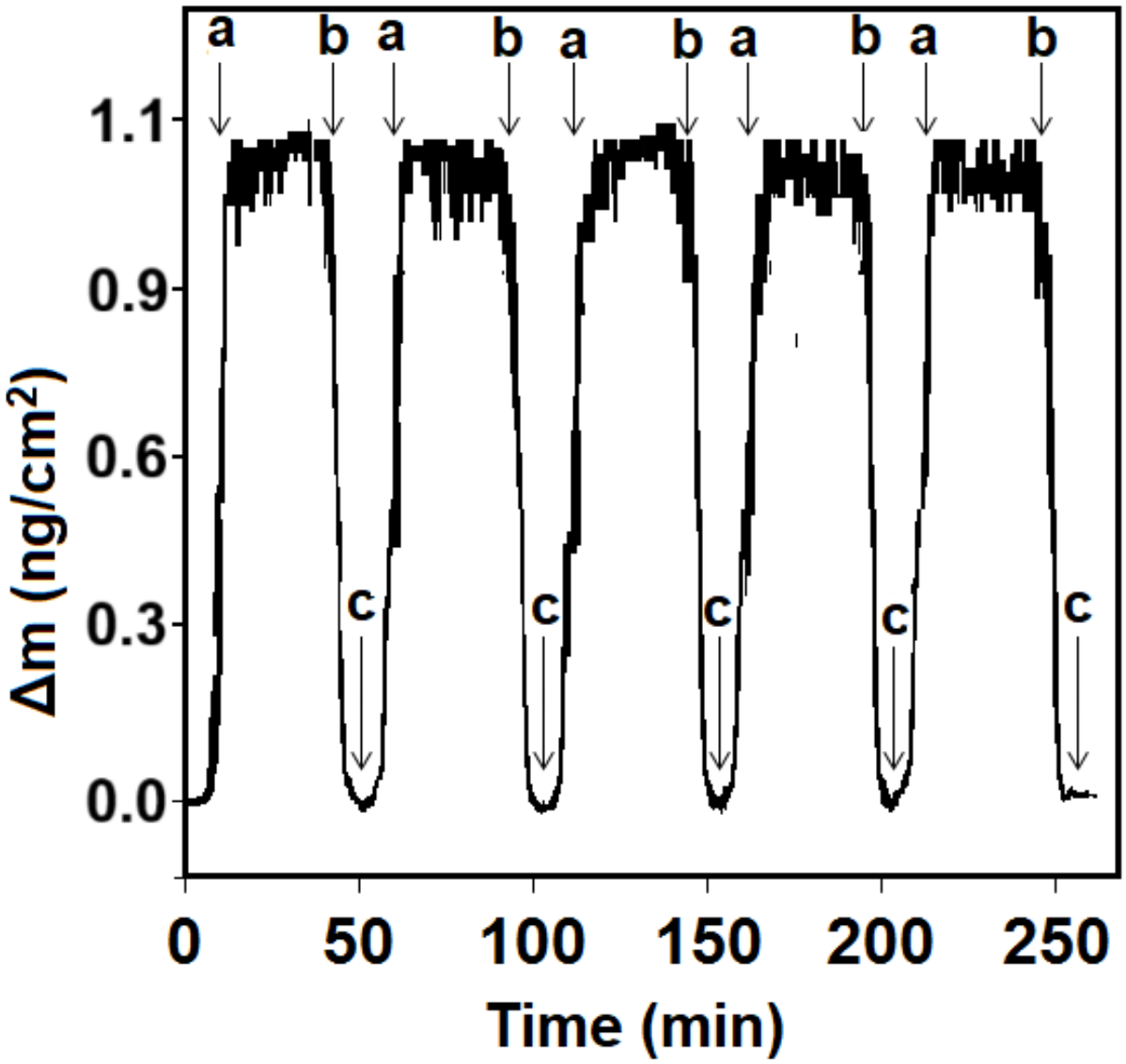

Fig. S5. Repeatability of a MIP/BS-g-C_3N_4-CuMOF/QCM chip: (a) adsorption; (b) desorption; (c) regeneration

Table S1. k and k′ values of MIP/BS-g-C_3N_4-CuMOF/QCM and NIP/BS-g-C_3N_4-CuMOF/QCM (*n*=6)

	MIP		**NIP**		
	Δm (ng/cm²)	**k**	**Δm (ng/cm²)**	**k**	**k′**
FEN	1.10 ± 0.01	-	0.015 ± 0.001	-	-
ISO	0.15 ± 0.02	7.33	0.010 ± 0.001	1.50	4.89
COU	0.10 ± 0.02	11.00	0.008 ± 0.003	1.88	5.85
DIA	0.04 ± 0.01	27.50	0.005 ± 0.002	3.00	9.17
CBZ	0.01 ± 0.03	110.00	0.002 ± 0.001	7.50	14.67

Analyte concentrations: 5.0 nmol/L FEN, 1000.0 nmol/L ISO, 1000.0 nmol/L COU, 1000.0 nmol/L DIA and 1000.0 nmol/L CBZ