Supporting Information

Immunosensing of Atrazine with Antibody-functionalized Cu-MOF Conducting Thin Films

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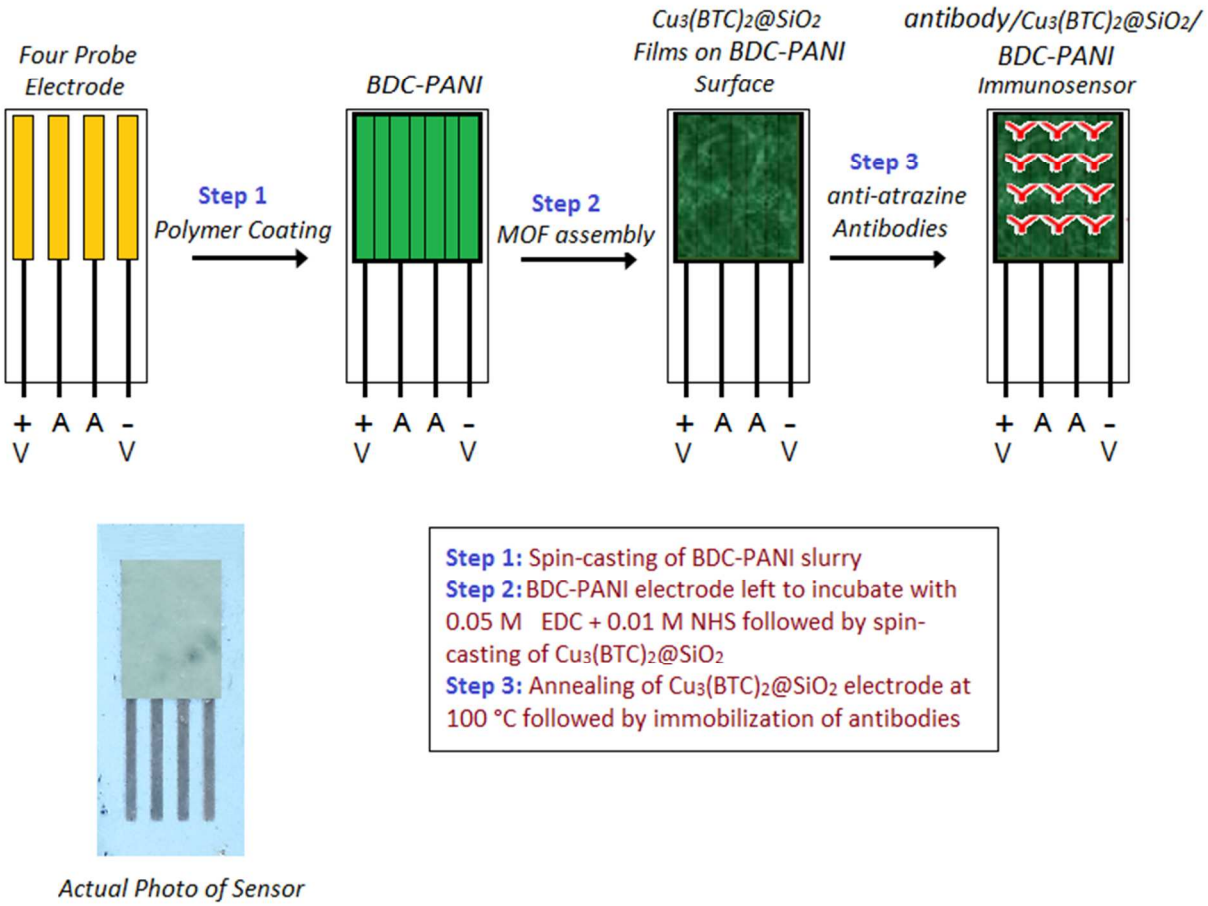

Figure S1. Schematic of the formation of BDC-PANI films on a four-probe electrode device, assembly of MOF@SiO_2 thin films, and immobilization of anti-atrazine antibodies to construct the immunosensor for atrazine detection

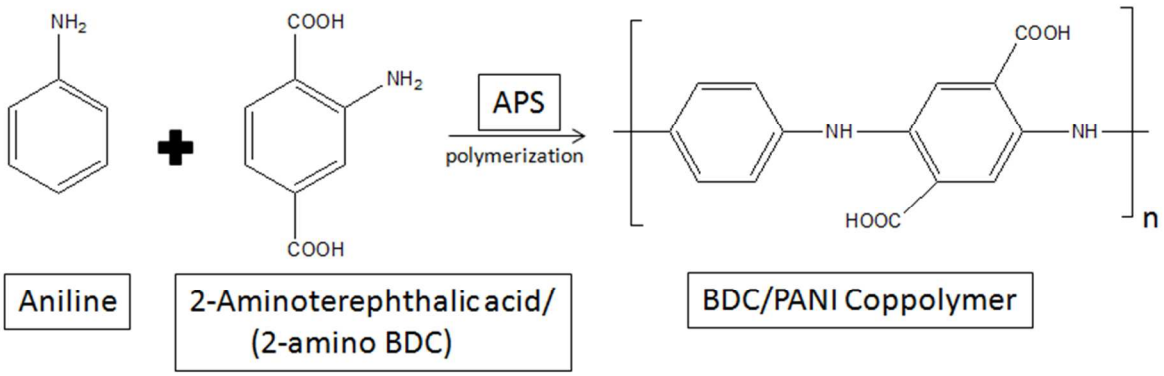

Figure S2. Schematic of the formation of BDC-PANI by the co-polymerization of aniline and NH_2-BDC

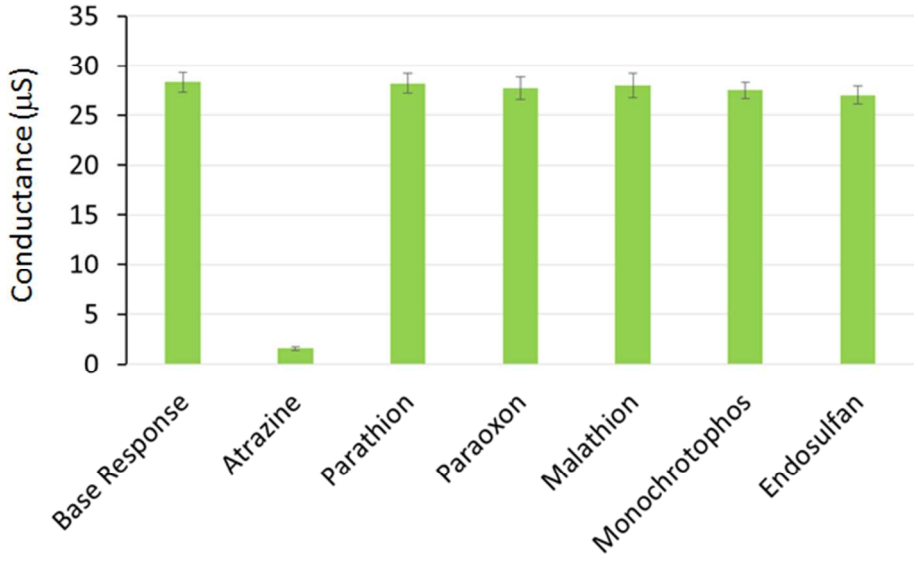

Figure S3. Evaluation of the response of the antibody/$Cu_3(BTC)_2$@SiO_2/BDC-PANI immunosensor to non-specific pesticides (atrazine and other pesticides = 1 μM)

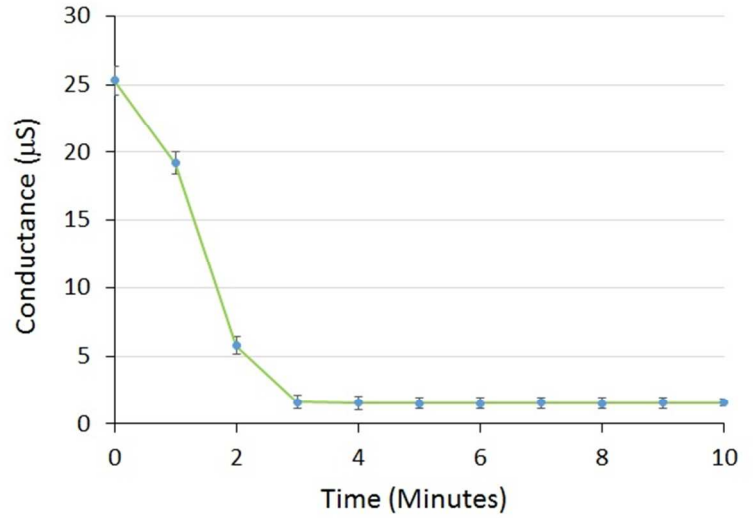

Figure S4. Evaluation of the response time of the antibody/$Cu_3(BTC)_2$@SiO_2/BDC-PANI immunosensor (atrazine = 1 µM)

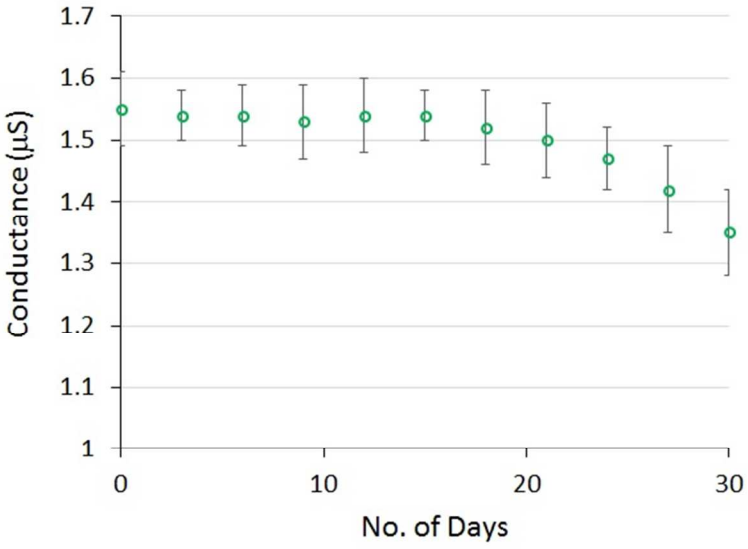

Figure S5. Evaluation of the response time stability of the antibody/$Cu_3(BTC)_2$@SiO_2/BDC-PANI immunosensor after prolonged storage (atrazine = 1 µM)

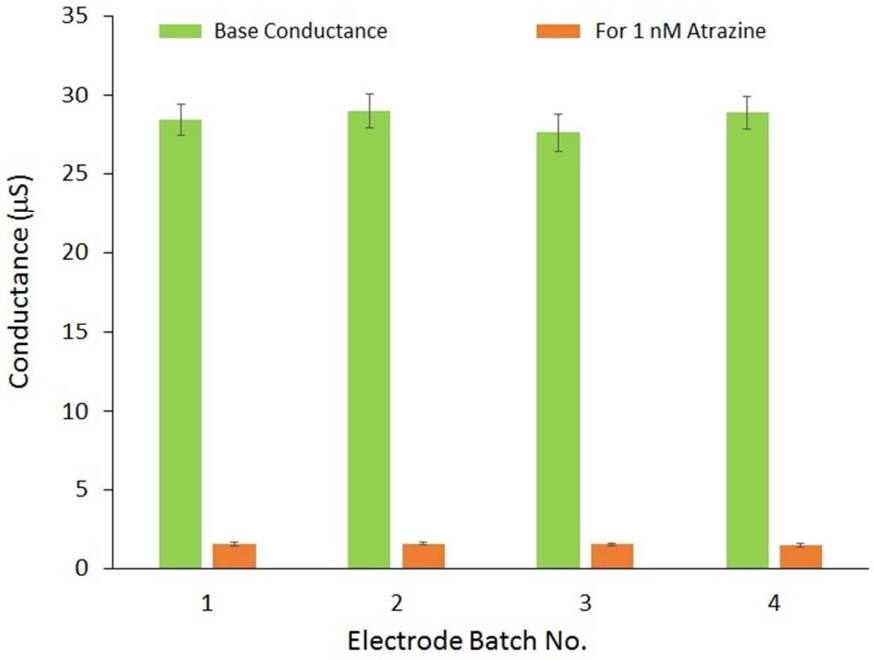

Figure S6. Performance evaluation of different prepared batches of the antibody/$Cu_3(BTC)_2$@SiO_2/BDC-PANI immunosensors (atrazine = 1 µM)

Table S1. Analysis of atrazine in spiked water samples and HPLC-based validation results

Sample	**Atrazine concentration**	**Analysis by the developed immunosensor**	**HPLC Analysis**
1 – Purified water	0	Not detected	Not detected
2 – Spiked	0.01 nM (2.15 pg/mL)	2.06 ± 0.03 pg/mL	2.15 ± 0.02 pg/mL
3 – Spiked	0.1 nM (21.5 pg/mL)	20.9 ± 0.4 pg/mL	21.6 ± 0.02 pg/mL
4 – Spiked	0.5 nM (107.5 pg/mL)	110 ± 3.1 pg/mL	106 ± 2.3 pg/mL
5 – Spiked	1.0 nM (215 pg/mL)	225 ± 5.2 pg/mL	215 ± 4.5 pg/mL
6 – Spiked	10 nM (2.15 ng/mL)	2.18 ± 0.04 ng/mL	2.15 ± 0.02 ng/mL