Supporting Information

**Fig. S1** $N_2$ adsorption-desorption isotherm for ZIF-8 at 77 K.

**Fig. S2** (A) XRD patterns and (B) FTIR spectra of the ZIF-8, PANI, and ZIF-8/PANI.
Fig. S3 (A) CV curves for bare GCE, ZIF-8/GCE, PANI/GCE, ZIF-8/PANI/GCE in 0.1 M (pH = 7) PBS containing IMZ (5.0 μM), scan rate: 50 mV/s; (B) peak current of SWV curves (baseline-corrected) versus different electrodes.

Fig. S4 Optimization of the SWV technique parameters in 0.1M PBS (pH =7) containing IMZ (5.0 μM), corresponding reduction peak current after baseline correction: (A) frequency (10-60 Hz), (B) amplitude (20-70 mV), (C) step potential (5-25 mV).
**Table S1** Comparison of the proposed method with other methods for the determination of imidaclothiz and other neonicotinoids.

| Determination methods | Analyte       | LOD          | Liner range          | Ref.   |
|-----------------------|---------------|--------------|----------------------|--------|
| MSFIA<sup>a</sup>     | Imidaclothiz  | 1.87 ng mL<sup>-1</sup> | 1.87 - 66.0 ng/mL | 1      |
|                       |               | (7.22 nM)    | (7.22 - 252 nM)     |        |
| UPLC-MS/MS<sup>b</sup>| Imidaclothiz  | 0.04 μg L<sup>-1</sup> | 0.1 - 200 μg/L | 2      |
|                       |               | (0.15 nM)    | (0.38 – 764 nM)     |        |
| Electrochemical sensor| Imidacloprid  | 8.92 μM      | 5 - 165 μM          | 3      |
|                       | Clothianidin  | 4.72 μM      | 10 - 80 μM          |        |
|                       | Thiamethoxam  | 7.45 μM      | 10 - 70 μM          |        |
| Electrochemical sensor| Imidacloprid  | 7.9 μM       | 10 - 200 μM         | 4      |
|                       | Thiamethoxam  | 8.3 μM       | 10 - 200 μM         |        |
| Electrochemical sensor| Imidacloprid  | 0.026 μM     | 0.5 - 60 μM         | 5      |
|                       | Thiamethoxam  | 0.062 μM     | 1 - 60 μM           |        |
|                       | Dinotefuran   | 0.01 μM      | 0.5 - 60 μM         |        |
| Electrochemical sensor| Thiamethoxam  | 4.9 nM       | 0.01 - 420 μM       | 6      |
| Electrochemical sensor| Imidaclothiz  | 0.025 μM     | 0.1 - 10 μM         | This work |

<sup>a</sup> Magnetic-separation fluorescence immunoassay

<sup>b</sup> Ultra-high performance liquid chromatography coupled with tandem mass spectrometry

**Fig. S5** The bar diagram of ZIF-8/PANI/GCE at presence of interfering compounds such as K<sup>+</sup>, Na<sup>+</sup>, Fe<sup>3+</sup>, Mg<sup>2+</sup>, NH<sub>4</sub><sup>+</sup>, methyl parathion(MP), chloramphenicol (CAP) and fenitrothion (FNT).
Fig. S6 (A) The reproducibility of the sensor over the 5 different ZIF-8/PANI/GCE. (B) the histogram of ZIF-8/PANI/GCE stability at IMZ detection for 15 days.

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