Support Information

Rapid and Sensitive Colorimetric Sensing of the Insecticide Pymetrozine Using Melamine-Modified Gold Nanoparticles

Jing-yan Kang, ab Yu-jie Zhang, b Xing Li, *ab Chen Dong, b Hong-ju Liu, b Li-jing Miao, b Paul J. Low, c Zhi-xian Gao, d Narayan S. Hosmane a and Ai-guo Wu a

a Key Laboratory of Magnetic Materials and Devices, and Division of Functional Materials and Nanodevices, Ningbo Institute of Materials Technology and Engineering, Ningbo 315201, China
b School of Science, Faculty of Materials Science and Chemical Engineering, Ningbo University, Ningbo 315211, China
c School of Chemistry and Biochemistry, University of Western Australia, 35 Stirling Highway, Crawley 6009, Australia
d Tianjin Key Laboratory of Risk Assessment and Control Technology for Environment and Food Safety, Institute of Health and Environmental Medicine, Tianjin 300050, China

*Corresponding Author

*E-mail: aiguo@nimte.ac.cn. Phone: +86 574 86685039.
Fax: +86 574 86685163
*E-mail: lixing@nbu.edu.cn. Phone: +86 574-87600869
Fax: +86 574 87609987.

Table of content

Characterization of materials
Figure S1. (a) The structure of pymetrozine; (b) The structure of melamine……………………………...S-2
Figure S2. The EDS of Au NPs and M-Au NPs……………………………………………………………..S-2

Optimized of experiment conditions
Figure S3 Effect of different concentration of melamine for the detection of 0.1μM PYM with M-Au NPs……………………………………………………………………………………………………..S-3
Figure S4. Effect of pH on the detection of 0.2 μM PYM with M-Au NPs…………………………..S-3
Figure S5. Effect of reaction time on the detection of 0.2 μM PYM with M-Au NPs……………….S-4
Figure S6. UV-Vis absorption spectra of (a) M-Au NPs and (b) M-Au NPs with 0.08μM PYM,S-4
Table S1. Comparison of various typical techniques for PYM analysis in solution…………..S-5
Characterization of materials

Figure S1. (a) The structure of pymetrozine; (b) the structure of melamine

Figure S2. The EDS of Au NPs and M-Au NPs
**Optimized of experiment conditions**

**Figure S3.** Effect of different concentration of melamine for the detection of 0.1µM PYM with M-Au NPs (A$_{670\text{nm}}$: the absorbance of the new appeared peak of M-Au NPs dispersion with PYM and A$_{521\text{nm}}$: the absorbance of primary peak of M-Au NPs)

**Figure S4.** Effect of pH on the detection of 0.2 µM PYM with M-Au NPs (A$_{681\text{nm}}$ is the absorbance of the new appeared peak of M- Au NPs dispersion with PYM and A$_{525\text{nm}}$ is the absorbance of primary peak of M-Au NPs)
Figure S5. Effect of reaction time on the detection of 0.2 μM PYM with M-Au NPs at pH=5 ($A_{681nm}$ absorbance: the new peak of M-Au NPs dispersion with PYM)

Figure S6. UV-Vis absorption spectra of (a) M-Au NPs and (b) M-Au NPs with 0.08μM PYM
Table S1. Comparison of various typical techniques for PYM analysis in solution

<table>
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<tr>
<th>Method</th>
<th>LOD (Naked eyes / UV-Vis)</th>
<th>Selectivity</th>
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