Electronic Supplementary Information

Fabrication of cefotaxime sodium functionalized gold nanoclusters for
detection of copper ions in Chinese herbal medicine

Cunling Ye\textsuperscript{a,\,*}, Yuanfei Wang\textsuperscript{a}, Shen Wang\textsuperscript{a} and Zhike Wang\textsuperscript{b,\,*}

\textsuperscript{a} School of Chemistry and Chemical Engineering, Henan Normal University, Xinxiang, Henan 453007, China

\textsuperscript{b} School of Environment, Henan Key Laboratory for Environmental Pollution Control, Key Laboratory for Yellow River and Huai River Water Environment and Pollution Control, Ministry of Education, Henan Normal University, Xinxiang, Henan 453007, China

\*Corresponding Author

Cunling Ye
Tel: 86-373-3326335
E-mail: ycl@htu.cn

Zhike Wang
Tel: 86-373-3325971
E-mail: wzk@htu.cn
Table S1 Analytical results of Cu$^{2+}$ in CHMs by the proposed method and by FAAS method$^a$.

<table>
<thead>
<tr>
<th>Samples</th>
<th>Cu$^{2+}$ found by the proposed method (μg g$^{-1}$)</th>
<th>RSD (%)</th>
<th>Cu$^{2+}$ found by FAAS method (μg g$^{-1}$)</th>
<th>Relative error (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Licorice</td>
<td>11.89</td>
<td>1.8</td>
<td>10.95</td>
<td>8.6</td>
</tr>
<tr>
<td>Alisma</td>
<td>22.32</td>
<td>2.0</td>
<td>23.90</td>
<td>-6.6</td>
</tr>
<tr>
<td>Salvia</td>
<td>29.05</td>
<td>1.9</td>
<td>30.25</td>
<td>-4.0</td>
</tr>
<tr>
<td>Poria</td>
<td>19.03</td>
<td>2.7</td>
<td>20.55</td>
<td>-7.4</td>
</tr>
</tbody>
</table>

$^a$Average of five determinations.
Fig. S1. Effects of the molar ratio of HAuCl₄ to DCTX (A), reaction time (B) and reaction time (C) on the fluorescence intensity of the AuNCs@DCTX, respectively; The emission spectra of the prepared AuNCs@DCTX and DCTX (D).
Fig. S2. Histogram of size distribution of AuNCs@DCTX.
Fig. S3. Effects of storage time (A), solution pH (B), ionic strength (C) and light exposure time on the fluorescence intensity of AuNCs@DCTX.
**Fig. S4.** Relationship between the integrated fluorescence intensities of the AuNCs@DCTX under 321 nm excitation and its corresponding absorbance.

**Fig. S5.** The fluorescence spectra of the AuNCs@DCTX before and after adding 1 mM NaBH₄.
Fig. S6. Infrared spectra of DCTX and AuNCs@DCTX.

Fig. S7. Histogram of size distribution for AuNCs@DCTX after adding Cu$^{2+}$. 