

## Supporting Information

### Gold Nanoparticles as analytical tools for the quantification of small quantities of triazine derivatives anchored on graphene in water dispersions

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In order to evaluate the different response on aggregation of Au nanoparticles in free melamine samples and in melamine adsorbed on graphene samples, the calibration curve was also determined for free melamine samples.

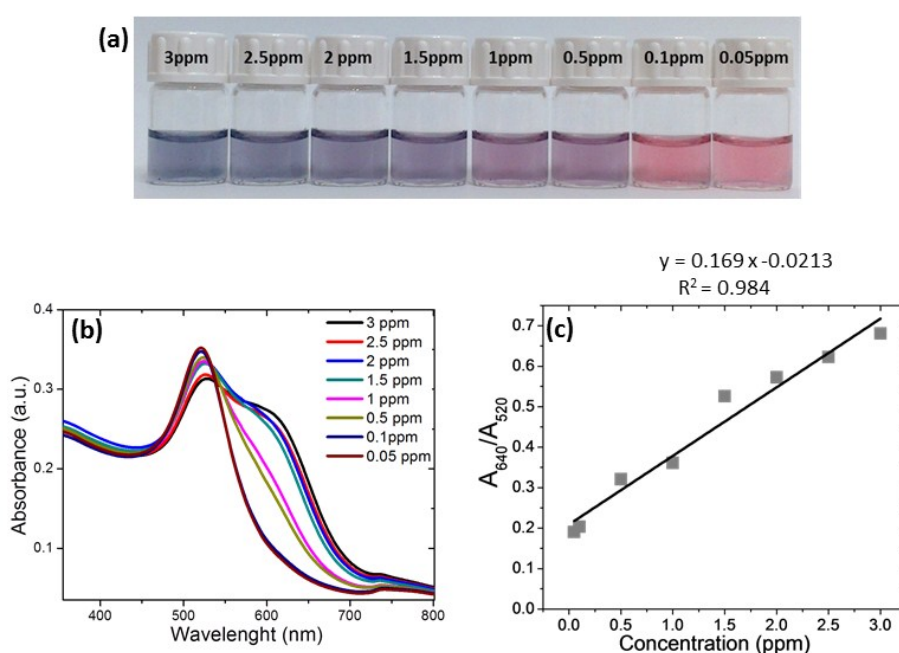


Figure 1S. (a) Visual colour change of AuNPs in melamine dispersions on different concentration. (b) The evolution of UV-Vis absorbance spectra of AuNPs with melamine dispersions at different concentrations. (c) Ratio  $A_{640}/A_{520}$  versus melamine concentration of melamine solutions.

$$A_{640}/A_{520} = -0.0213 + 0.169x \quad (\text{free melamine})$$

$$A_{640}/A_{520} = -0.003 + 1.85x \quad (\text{graphene/melamine solutions}) \quad (\text{see main text})$$

There is a significant difference between both linear regression equations due to the presence of graphene in the media. Graphene shows a matrix effect, for that reason a calibration curve of free melamine gives wrong results in the estimation of melamine in graphene dispersions. This fact is clearly shown in table S1 where a comparative calculation of the concentration of melamine using both linear regression analysis is shown.

Table S1

Sample	Concentration of melamine* (µg/mL)	Melamine Concentration found** (µg/mL)	Melamine Concentration found*** (µg/mL)
1	0.37	0.33	3.72
2	0.92	0.92	10.18
3	1.36	1.36	15.00
4	0.87	0.87	9.63
5	0.79	0.79	8.76

\* Calculated by Elemental Analysis \*\* Calculated using graphene/melamine calibration curve (main text)

\*\*\*Calculated using free melamine calibration curve.