

1 **Colorimetric detection of Melamine based on the size effect of AuNPs**

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10 Supplementary information

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21 **RESULTS**

22 **Table S1.** The effect of AuNPs pH for a wide range of melamine concentration ( $10^{-4}$  M-  $10^{-6}$   
 23 M) for colorimetric sensing.

AuNP	pH	Melamine Concentration		
		$10^{-4}$ M	$10^{-5}$ M	$10^{-6}$ M
AuNP-I	3	*	*	*
	4	0.894	0.925	0.922
	5	0.548	0.795	*
	7	*	*	*
AuNP-II	3	*	*	*
	5	1.277	1.159	0.840
	7	1.00	0.340	*
AuNP-III	3	*	*	*
	4	0.690	0.593	0.334
	5	*	*	*
	7	*	*	*

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25 \*No Interaction

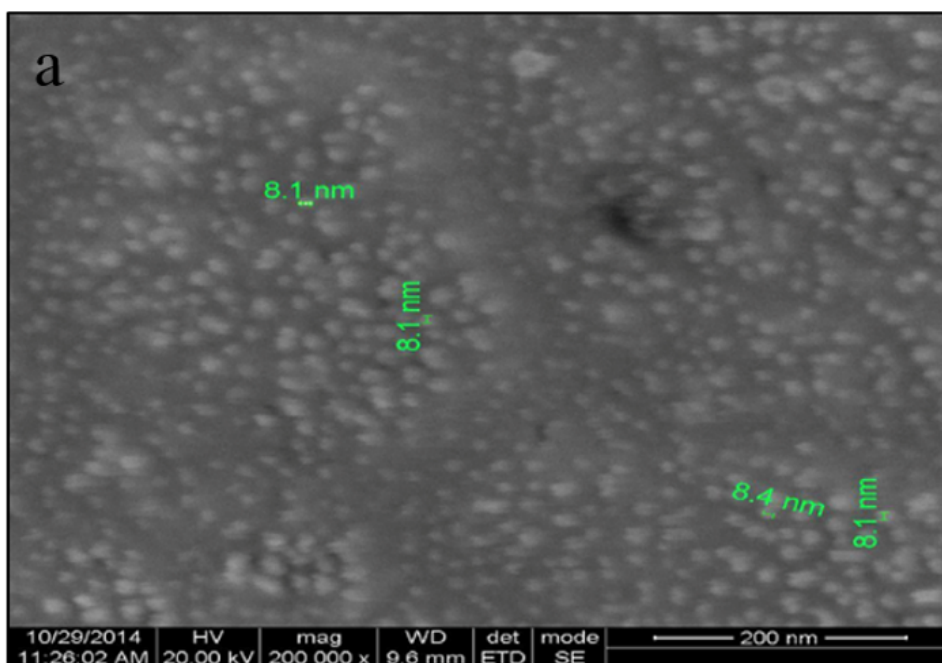
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27 **Table S2.** The effect of AuNPs/Melamine volumetric ratio for a wide range of melamine  
 28 concentration ( $10^{-4}$  M-  $10^{-6}$  M) for colorimetric sensing.

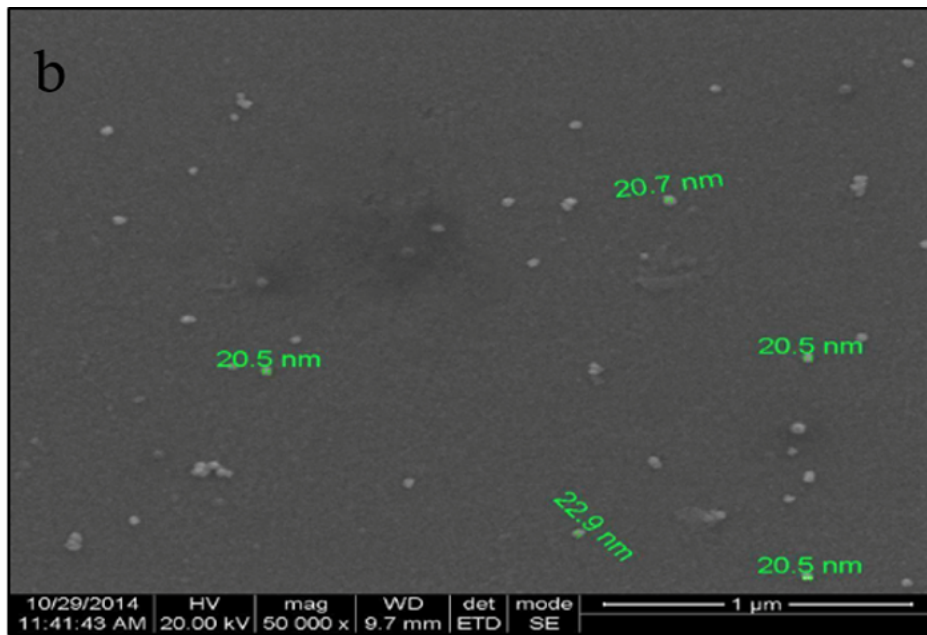
AuNP	Volume of AuNP $\mu$ l	Volume of melamine $\mu$ l	AuNP/melamine Volumetric ratio	Concentration of melamine			$R^2$
				$10^{-4}$ M	$10^{-5}$ M	$10^{-6}$ M	
AuNP-I	400	600	2:3	1	1.011	0.998	0.964
	500	500	1:1	0.894	0.925	0.922	0.567
	600	400	3:2	0.943	0.931	0.948	0.8173
AuNP-II	400	600	2:3	1.328	1.182	1.109	0.976
	500	500	1:1	1.259	1.232	1.163	0.817
	600	400	3:2	1.243	1.197	0.991	0.991
AuNP-III	400	600	2:3	0.483	0.322	0.212	0.988
	500	500	1:1	0.690	0.593	0.334	0.935
	600	400	3:2	0.770	0.681	0.198	0.864

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30 **Fig. S1.** The scanning electron microscopic images of bare (a) AuNP-I, (b) AuNP-II and (c)  
 31 AuNP-III

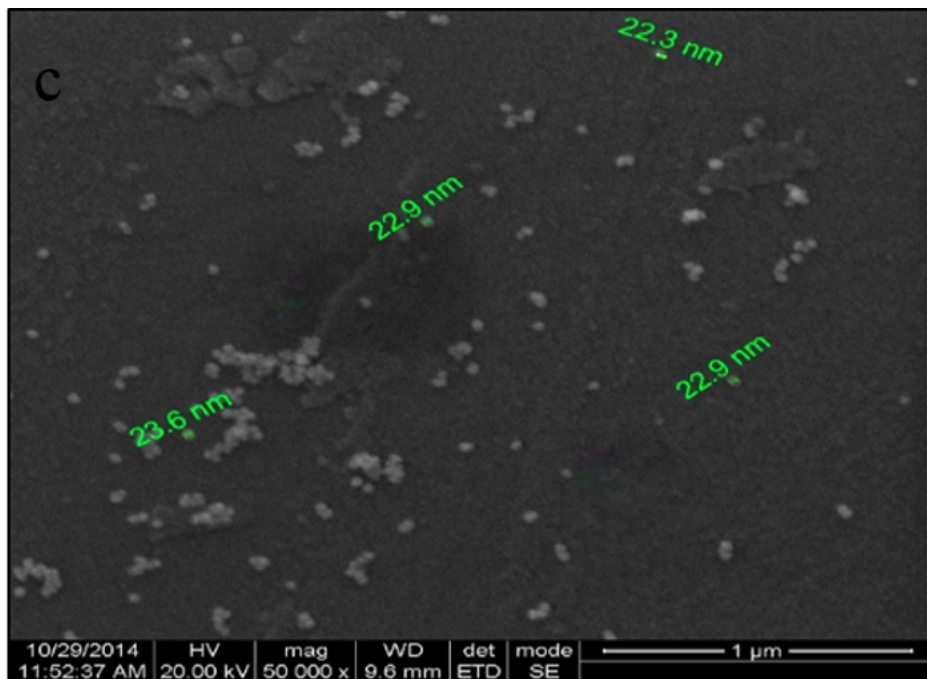


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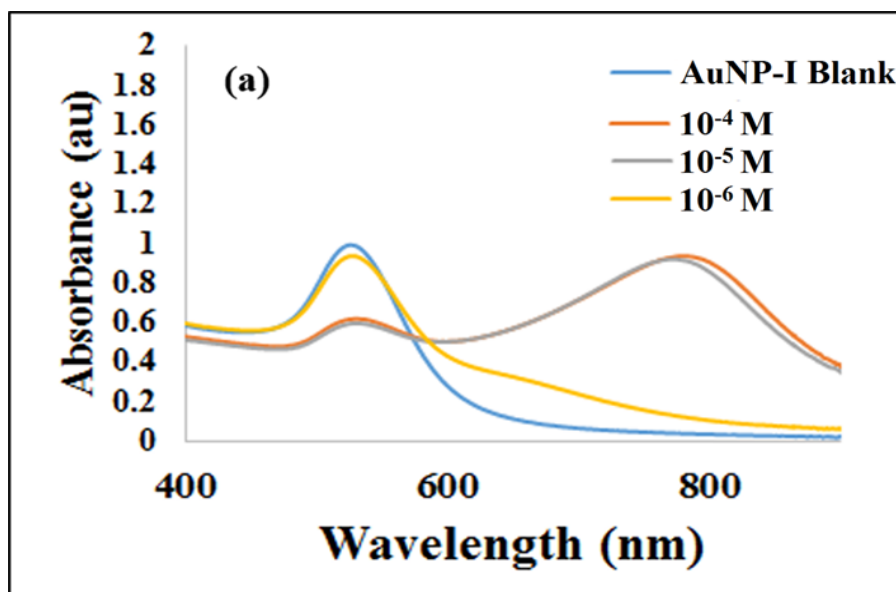
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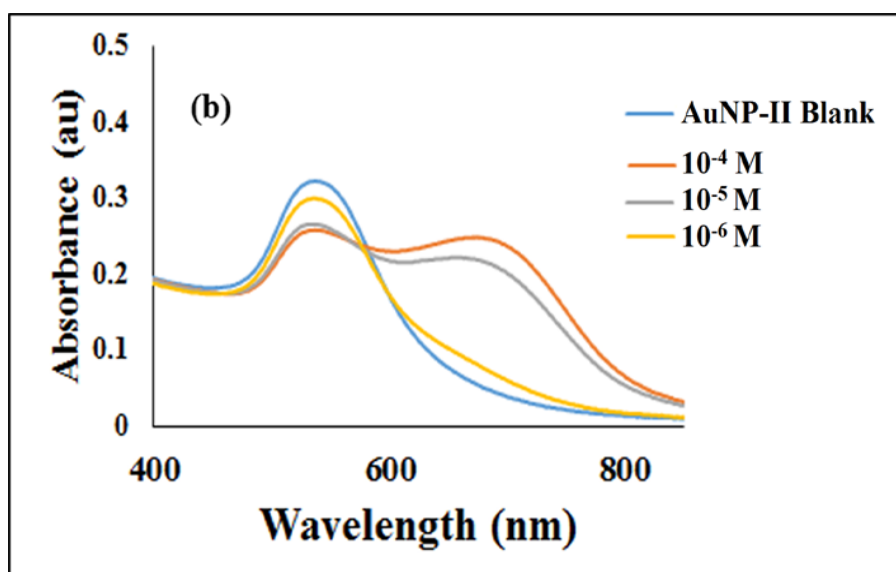
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40 **Fig. S2.** The UV-visible spectra of (a) AuNP-I, (b) AuNP-II and (c) AuNP-III with different  
41 melamine concentration ( $10^{-4}$  M- $10^{-6}$  M)

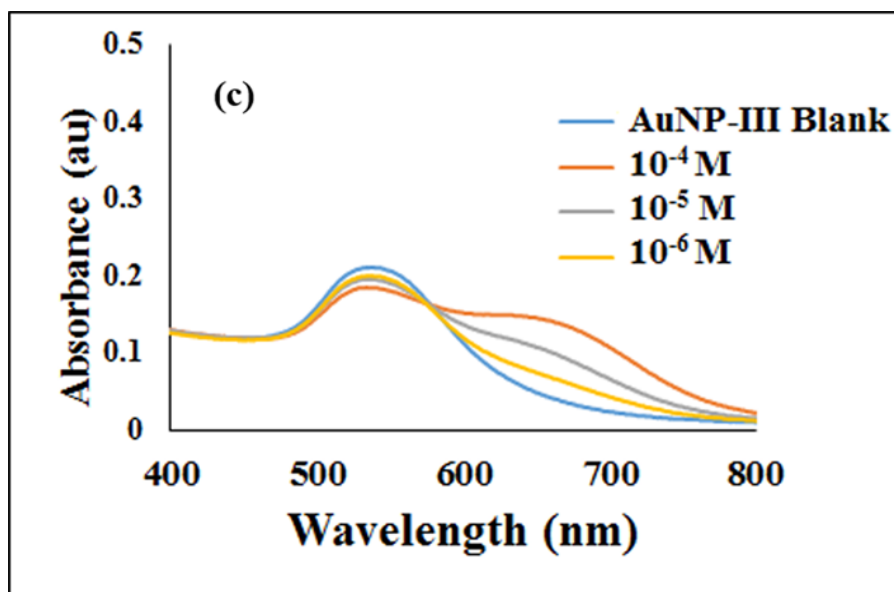


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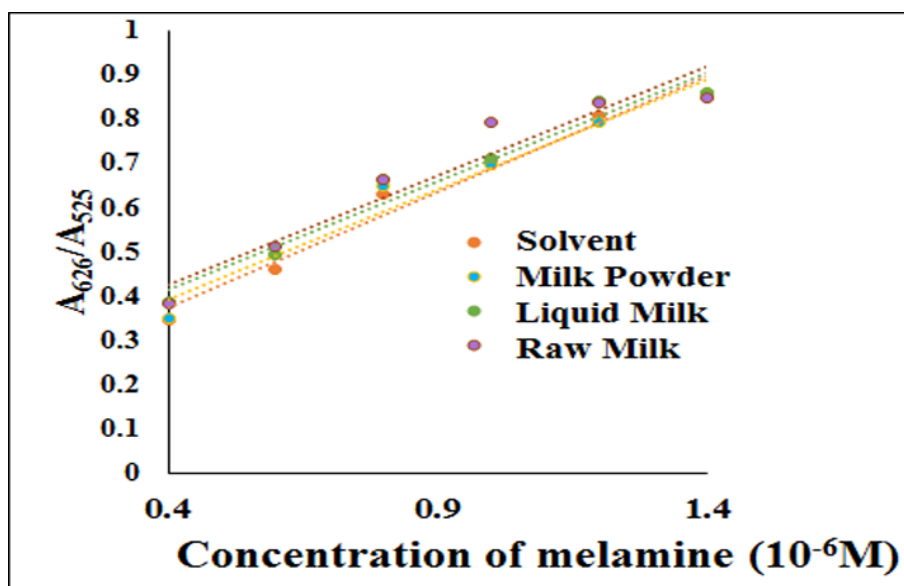
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47 **Fig. S3.** Calibration curve of aqueous solution (Orange line  $y = 0.526x + 0.1619$ ) comparison

48 with milk powder (Blue line  $y =$ ), liquid milk (Green line  $y = 0.4917x + 0.2171$ ) and Raw milk

49 (Purple line  $y = 0.4923x + 0.2297$ )



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