Supplementary materials:

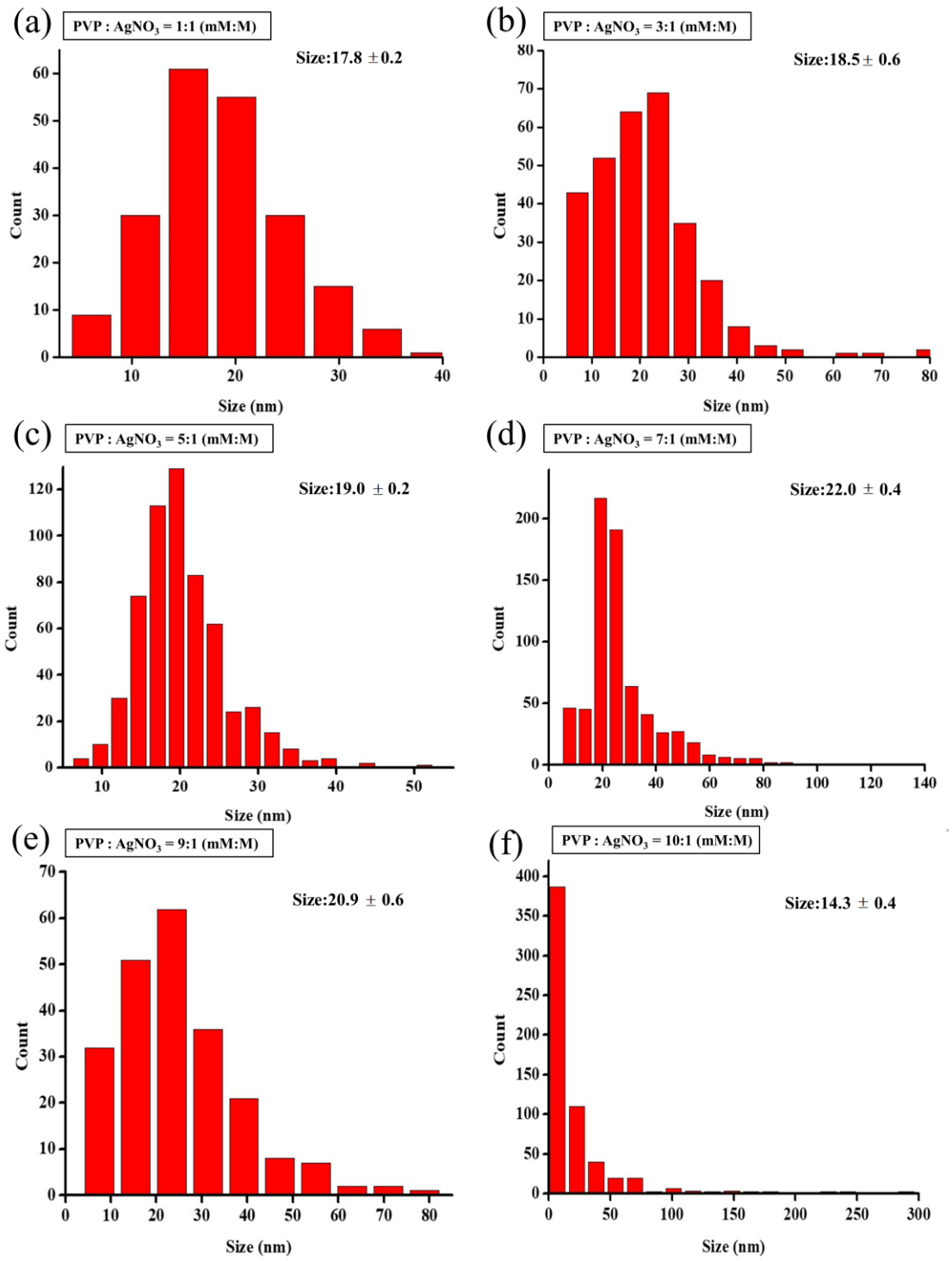
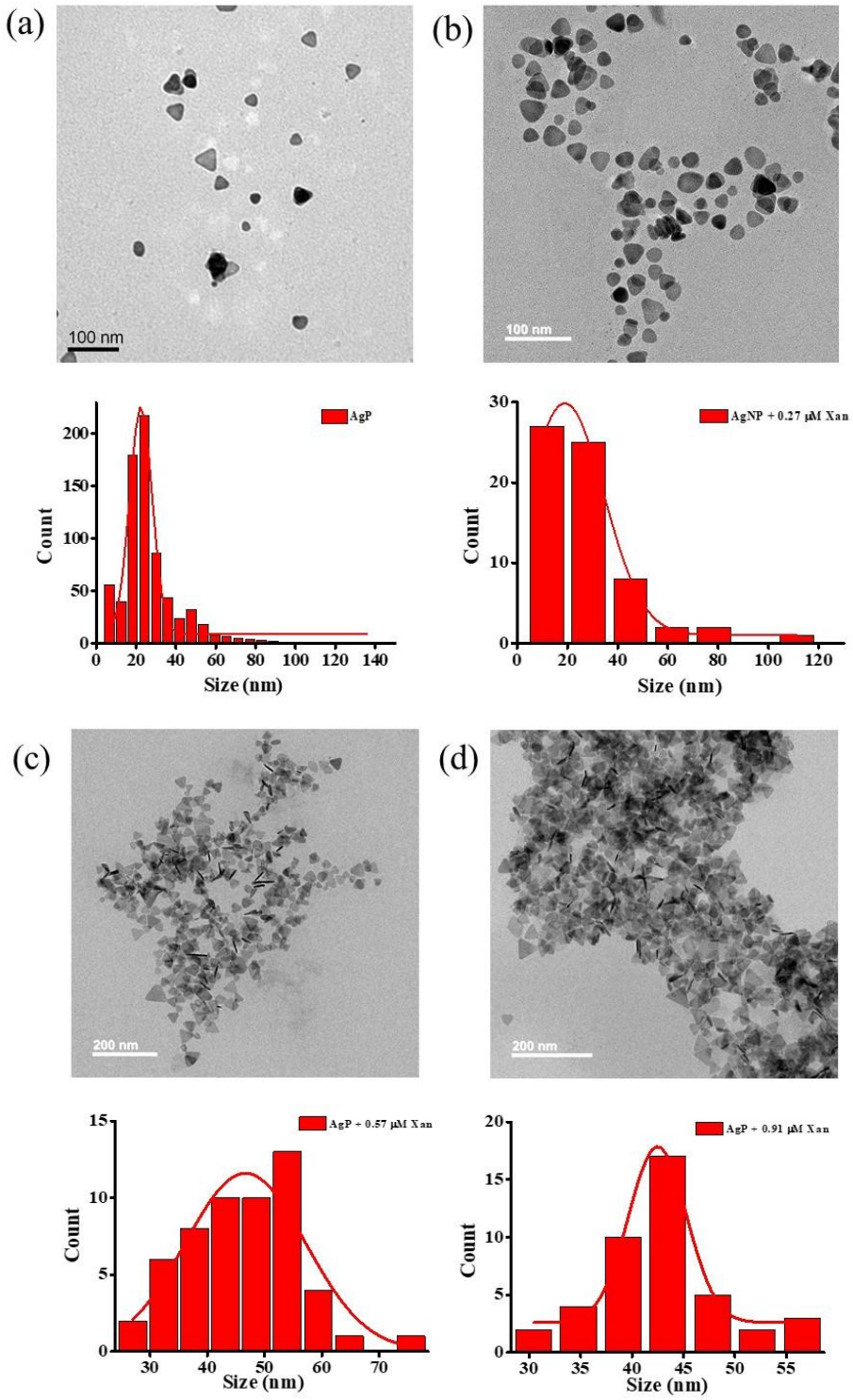


Figure 1. (**a**)-(**f**) histogram analysis for the edge length of the silver nanoplates in PVP–$AgNO_3$ in molar ratios of 1:1, 3:1, 5:1, 7:1, 9:1 and 10:1 (mM:M).



Sample number	Additive	Size (nm)
a		22.47 ± 0.42
b	0.27 μM Xan	19.01 ± 0.77
c	0.57 μM Xan	46.65 ± 1.60
d	0.91 μM Xan	42.48 ± 0.23

Figure 2. The TEM spectra, the particle size distribution of silver nanoplates under exposure of different concentrations of xanthine: (**a**) 0.0, (**b**) 0.27, (**c**) 0.57 and (**d**) 0.91 μM. Note the stacking particles were excluded.

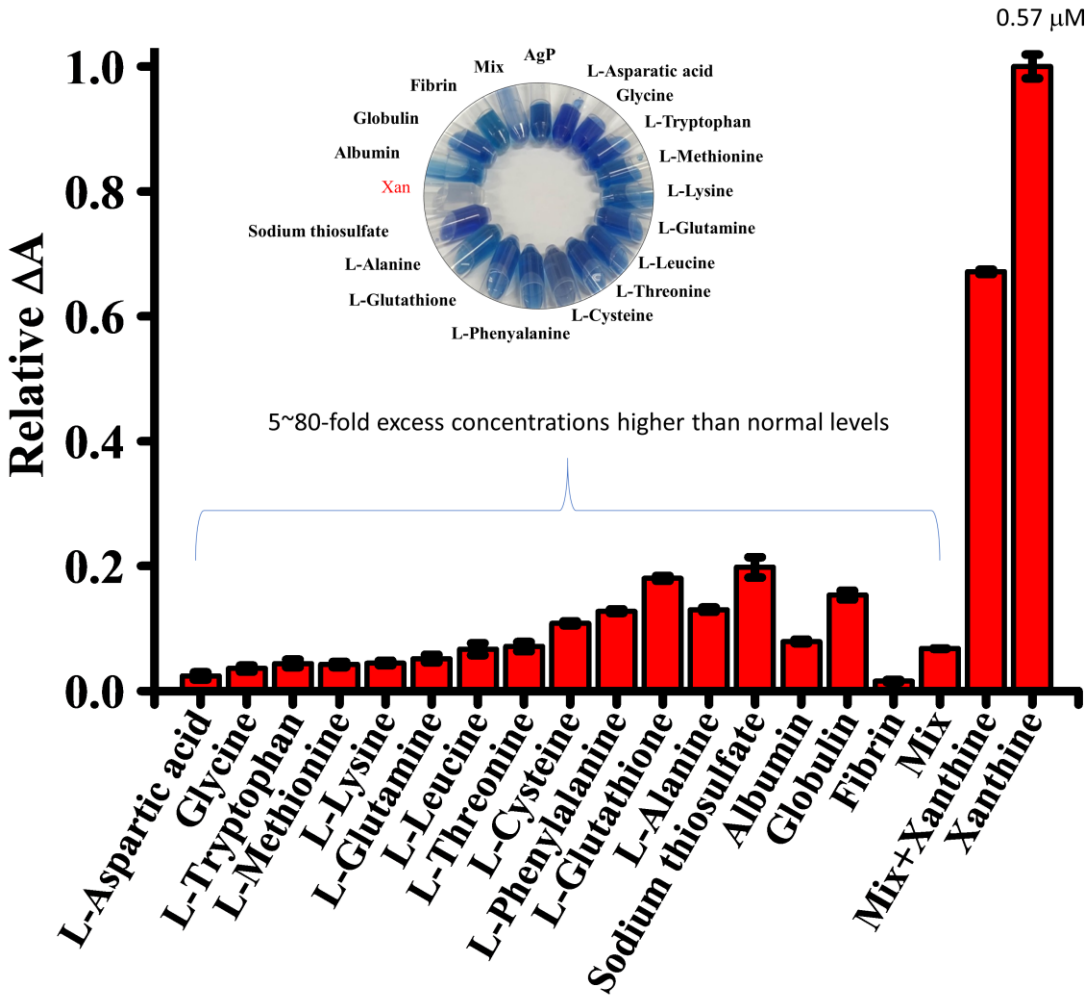


Figure 3. Relative absorbance value (*Δ*A) and a photographic image (inset) of the AgP in the absence and presence of different species. Mix denotes the mixture of all interferents. .

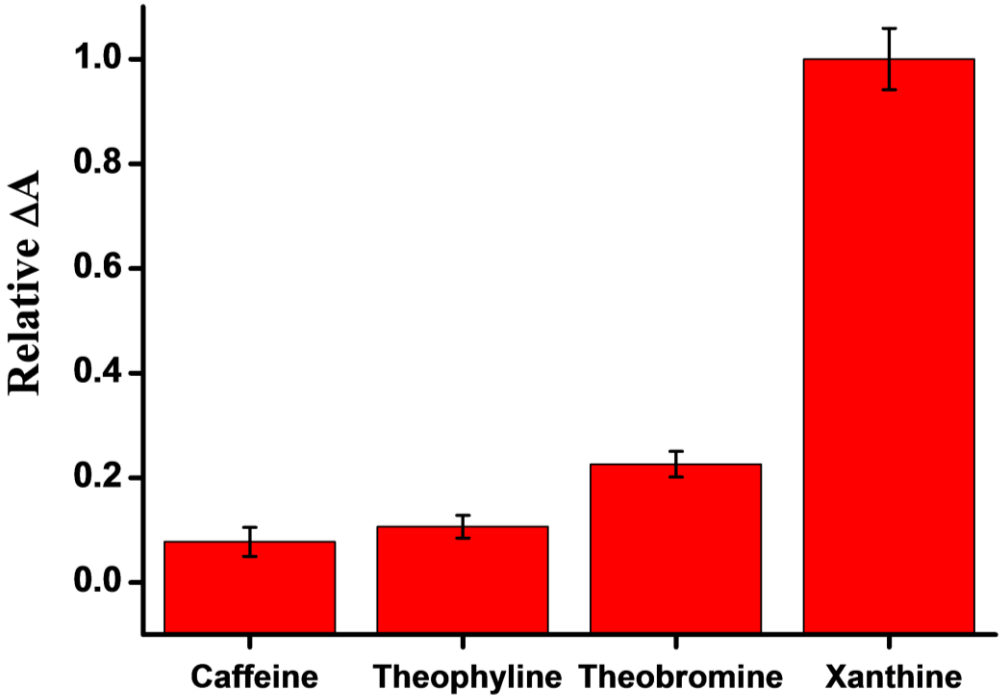


Figure 4. Relative absorbance value (ΔA) of the AgP in the presence of Xan and caffeine, theophylline, and theobromine. .

Table 1. The concentractions of interferents in healthy human plasma.

Compound	Healthy individual	The test in our method	Reference
L-Aspartic acid	0.021 mM	1.5 mM	3
Glycine	0.325 mM	1.5 mM	3
L-tryptophan	0.056 mM	1.5 mM	2
L-Methionine	0.029 mM	1.5 mM	2
L-Lysine	0.127 mM	1.5 mM	2
L-Glutamine	0.042 mM	1.5 mM	3
L-Leucine	0.099 mM	1.5 mM	3
L-Threonine	0.128 mM	1.5 mM	3
L-Cysteine	0.034 mM	1.5 mM	3
L-Phenylalanine	0.056 mM	1.5 mM	2
L-Glutathione	0.34±0.11 μM	1.5 mM	5
L-Alanine	0.5 mM	1.5 mM	3
Sodium thiosulfate	11.3±0.11 mM	0.14 mM	6
Albumin	3.5-5.0 g/dL	10 g/dL	4
Globulin		5 g/dL	
Fibrin		1 g/dL	
Xanthine	0.5-2.5 μM	0.57 μM	1

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