Supporting Information

Construction of Multiple Modes Using Gold Nanoparticles as Probes for Rapidly Detection of fenpyroximate

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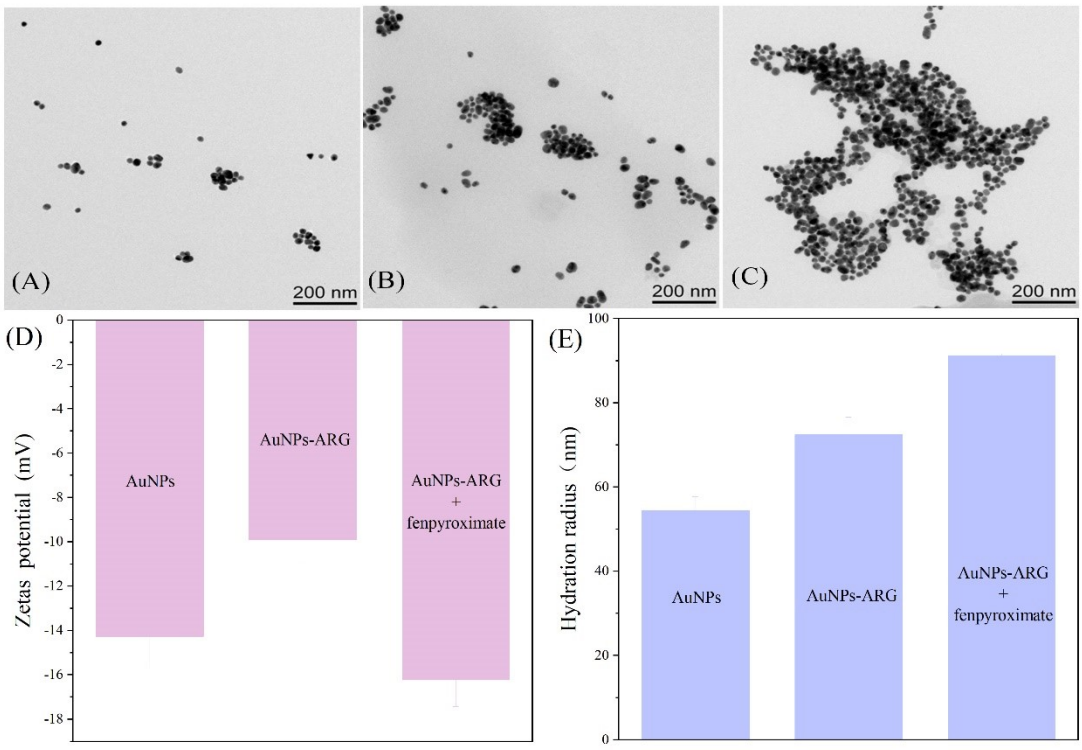


Fig S1 Transmission electron micrographs of AuNPs (A), ARG-AuNPs (B) and ARG-AuNPs added with fenpyroximate (C), DLS results (D) and zeta potential diagrams (E) of nanomaterials before and after arginine modification and after adding fenpyroximate

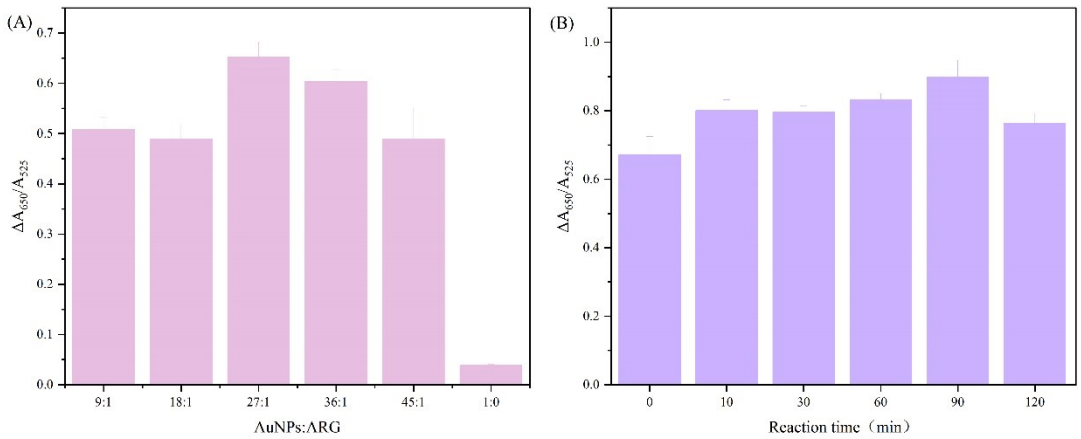
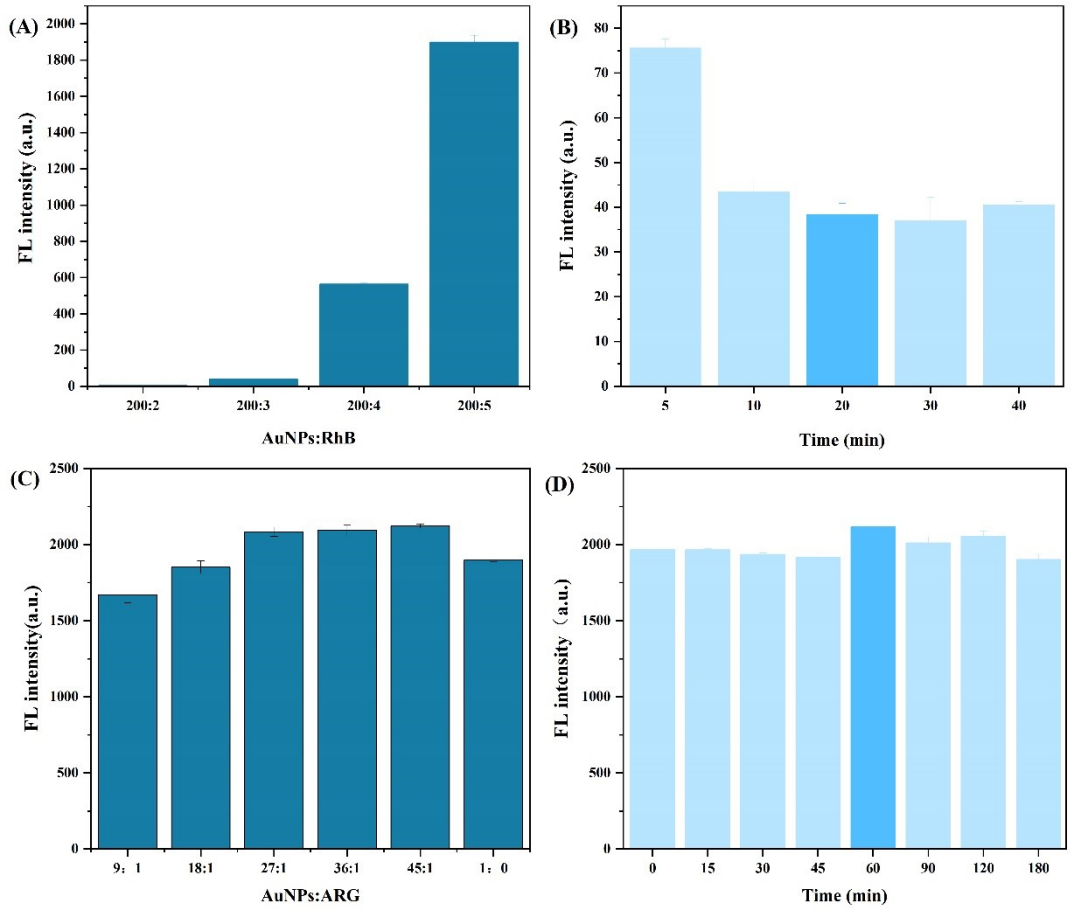


Fig S2 Optimization of (A) volume ratio (AuNPs: ARG) and (B) reaction time in material synthesis of colorimetric sensor



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19 **Fig S3** Optimization of synthesis ratio (A&C) and synthesis reaction time (B&D) of

20 fluorescent probes

Table S1 Three modes to detect the additive recovery results of actual samples

Sample	Spiked (mg·L-1)	UV spectroscopy			Image RGB value colorimetry			Fluorescence Spectroscopy		
		Found ($mg·L^{-1}$)	Recoveries (%)	RSD (%)	Found ($mg·L^{-1}$)	Recoveries (%)	RSD (%)	Found ($mg·L^{-1}$)	Recoveries (%)	RSD (%)
river water	0.25	0.25	100.88	1.37	0.27	109.34	5.75	0.25	98.55	1.14
	0.30	0.30	100.66	1.83	0.32	105.62	4.40	0.28	94.15	3.26
	0.35	0.37	106.90	3.94	0.38	108.69	7.74	0.35	99.05	3.69
apple juice	0.25	0.27	109.01	2.37	0.27	109.10	3.66	0.26	103.83	2.59
	0.30	0.33	110.65	2.61	0.33	108.48	4.73	0.31	103.45	4.41
	0.35	0.38	108.15	0.99	0.37	105.98	5.88	0.36	103.33	4.42
pear juice	0.25	0.25	98.52	2.35	0.27	108.45	3.74	0.25	100.05	1.26
	0.30	0.32	108.29	2.13	0.32	106.74	2.81	0.29	96.54	3.52
	0.35	0.38	107.59	2.84	0.36	102.87	2.00	0.34	96.17	2.76