

Supplementary Information

Paper-based analytical device with colorimetric assay application to the determination of phenolic acids and recognition of Fe³⁺

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Fig. S1 Effects of Fe^{3+} concentration on the colorimetric response in the presence of SA: 1) blank; 2) 0.35; 3) 3.5; 4) 7; 5) 35; 6) 70; 7) 140; 8) 210; 9) 350 mM. The concentration of SA was 2 mM.

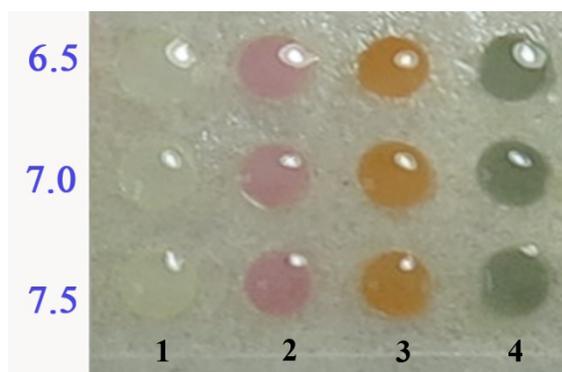


Fig. S2 Effects of pH value of buffer on the colorimetric response for PAs: 1) blank; 2) SA; 3) SP; 3) CA. The concentration of Fe^{3+} was 35 mM. The concentrations of PAs were 2 mM.

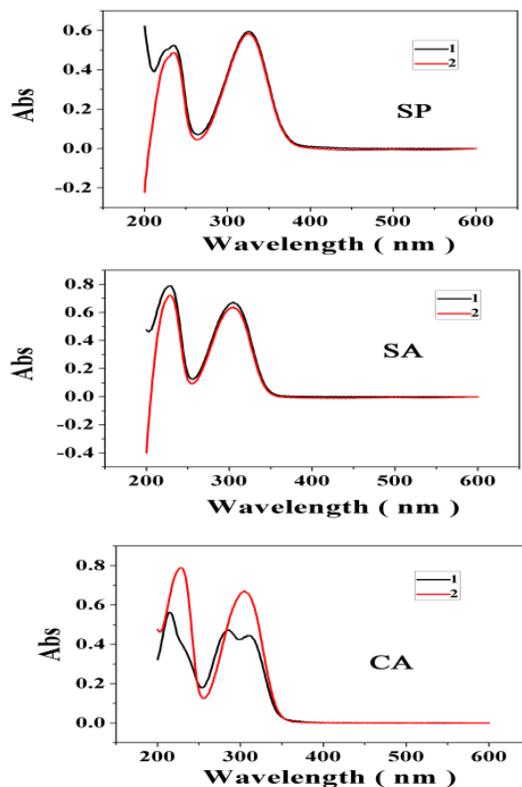


Fig. S3. UV-vis absorption spectrum of PAs in the absence (1) and presence of Fe^{2+} (2). The concentrations of PAs were 0.267 mM. The concentration of Fe^{2+} was 0.25 mM.

Table S1 Analytical results for the determination of SP and SA in plant extracts

Sample no	Add (mM)	Found (mM)			Average (mM)	Average recovery (%)	RSD (%)
SP-1	0.20	0.21	0.22	0.19	0.21	103.3	7.39
SP-2	0.30	0.27	0.26	0.30	0.28	92.2	7.51
SP-3	0.40	0.36	0.37	0.35	0.36	90.0	2.78
SA-1	0.40	0.37	0.38	0.36	0.37	92.5	2.70
SA-2	0.50	0.51	0.52	0.50	0.51	102.0	1.96
SA-3	0.60	0.58	0.61	0.63	0.61	101.2	4.15

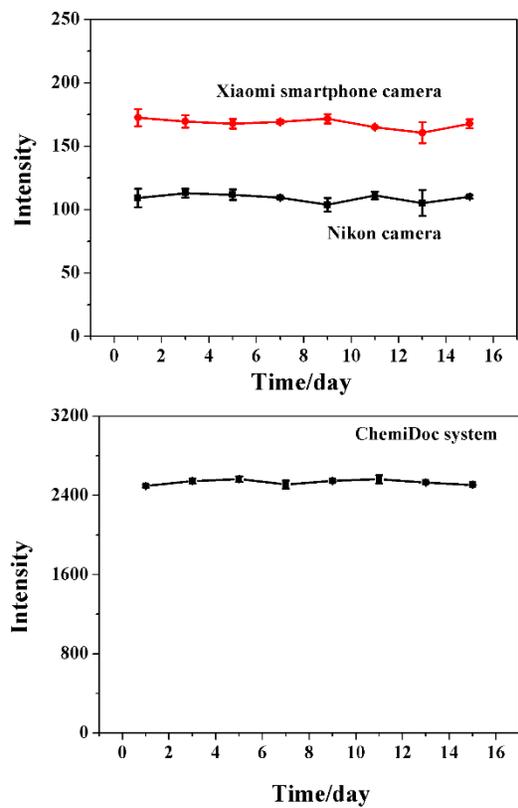


Fig. S4. The preservation curves of CA on the PADs based on three different imaging modes.