Electronic Supplementary Material (ESI) for ChemComm.

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Table S1. Simultaneous determination result of POD and AsA in plant samples

Samples (Juice yield / ml g^{-1}) [a]	Dilution	Signals for POD and AsA		Reaction solution conc. [b]		Sample solution conc [c]	
		k_{POD}±SD	ΔA_{AsA}±SD	E_{POD} / U L^{-1}	c_{AsA} / mg L^{-1}	E_{POD}/U L^{-1}	c_{AsA} / mg L^{-1}
white radishes (0.49)	5	0.871±0.006	0.057±0.001	33.94	2.24	8486.2	59.3
Chinese cabbage (0.62)	2	0.723±0.024	0.079±0.000	28.21	3.20	2821.3	119.9
green jujube (0.38)	1	0.209±0.007	0.179±0.002	8.30	7.44	415.1	372.2

Note: *a*. Juice yield = sample (mL) / sample quality (g);
b. Standard curve: $k_{POD} = 0.0258E_{POD} - 0.0047$, $\Delta A_{AsA} = 0.0236c_{AsA} + 0.0034$;
c. Sample content = reaction solution conc. × reaction volume (3mL) / sample volume (0.06mL) × diliution ratio.

Table S2. Recovery tests for AsA and comparison standard curve method (SCM) and standard addition method (SAM)

samples	added AsA / mg L^{-1}	□A_{AsA} (± SD)	c_{AsA} [a] / mg L^{-1}	recovery / %	c_{AsA} (SAM) / mg L^{-1}	RD [b] / %	*t*-test
white radishes (20%)	0	0.012 (0.001)	18.14	-	17.54	3.35	0.31
	25	0.024 (0.000)	43.54	101.59			
	50	0.036 (0.001)	68.43	100.58			
	75	0.047 (0.001)	91.63	97.99			
	100	0.058 (0.000)	115.36	97.22			
Chinese cabbage (50%)	0	0.034 (0.001)	65.51	-	63.56	2.98	0.08
	50	0.058 (0.001)	114.88	98.74			
	100	0.082 (0.002)	166.31	100.80			
	150	0.106 (0.001)	217.90	101.60			
	200	0.128 0.001)	263.98	99.24			
green jujube (50%)	0	0.093 (0.001)	190.08	-	6.08	3.93	0.08
	50	0.116 (0.001)	239.41	98.65			
	100	0.141 (0.001)	291.10	101.02			
	200	0.187 (0.001)	389.09	99.50			
	400	0.278 (0.004)	582.63	98.14			

a. $c_{AsA} = [(k_{POD} - 0.0034) / 0.0236]$ × reaction volume (3mL) / sample volume (0.06mL);
b. RD = | SAM – SCM | / SCM × 100%.

Table S3. Recovery tests for POD and comparison standard curve method (SCM) and standard addition method (SAM)

samples	Added POD / U L^{-1}	k_{POD} (± SD)	E_{POD} [a] /U L^{-1}	recovery / %	E_{POD} (SAM) / U L^{-1}	RD [b] / %	t-test
white radishes (5%)	0	0.214 (0.002)	424.76	-	416.48	1.95	0.37
	250	0.347 (0.002)	681.78	102.81			
	500	0.469 (0.009)	918.02	98.65			
	750	0.606 (0.002)	1183.62	101.18			
	1000	0.740 (0.002)	1442.25	101.75			
Chinese cabbage(20%)	0	0.279 (0.002)	549.39	-	553.15	0.69	0.42
	250	0.406 (0.001)	796.09	98.68			
	500	0.529 (0.002)	1034.46	97.01			
	750	0.666 (0.008)	1298.99	99.95			
	1000	0.788 (0.003)	1535.37	98.60			
green jujube (50%)	0	0.102 (0.002)	206.78	-	211.12	2.10	0.46
	100	0.154 (0.002)	307.95	101.17			
	200	0.202 (0.003)	401.36	97.29			
	300	0.258 (0.003)	509.30	100.84			
	400	0.304 (0.004)	597.87	97.77			

a. $E_{POD} = [(k_{POD} + 0.0047) / 0.0258] \times$ reaction volume (3mL) / sample volume (0.06mL);

b. RD = | SAM – SCM | / SCM × 100%.

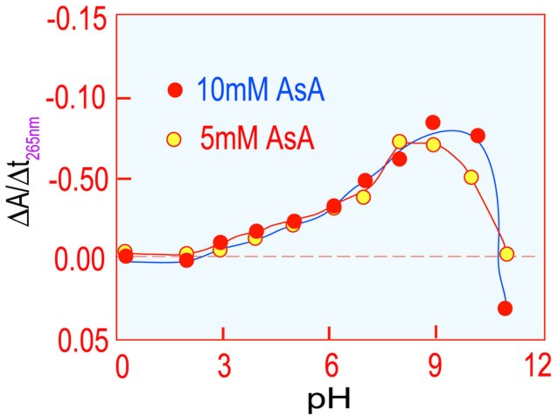

Fig. S1. The effect of pH on AsA reduction ability was investigated with the AsA/H_2O_2 reaction (265 nm). Specific experimental process: Use of 1 M of HCl or NaOH prepared a buffer solution having appropriate pH (0.3~13), and then in 2.975 mL of the buffer solution, 0.025 mL of 5 mmol/L or 10 mmol/L AsA was added to form a reaction solution which was continuously detected for 5 min at the characteristic wavelength (265 nm) of AsA to obtain its absorbance (ΔA/Δt).

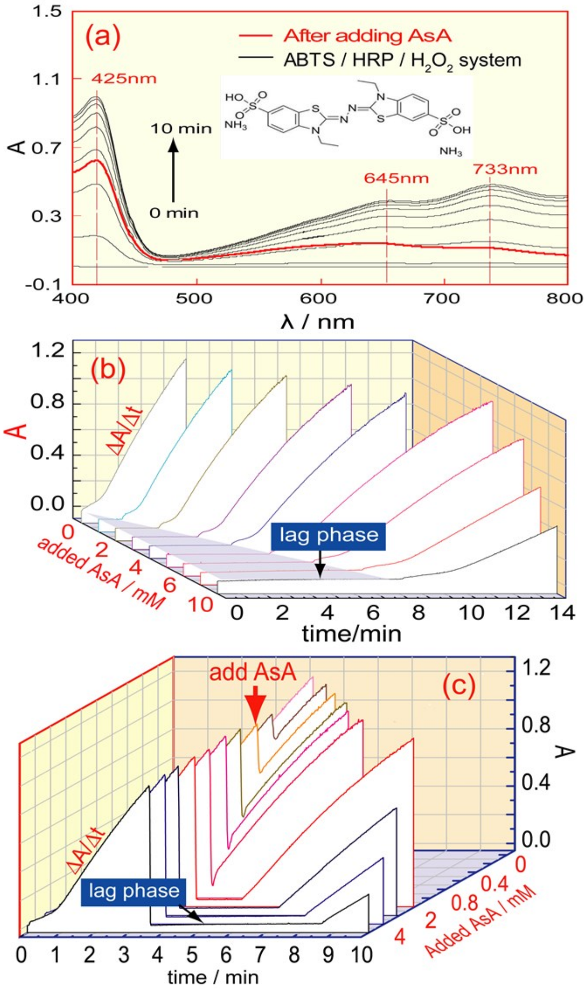

Fig. S2. Effects of AsA on the ABTS/POD/H_2O_2 reaction (425 nm). (a). Spectrum scanning curves; (b). Lag phases of kinetic curves containing different-concentration AsA; (c). The different-concentration AsA was added into the ABTS/POD/H_2O_2 solution after reacting for 3.5 min.

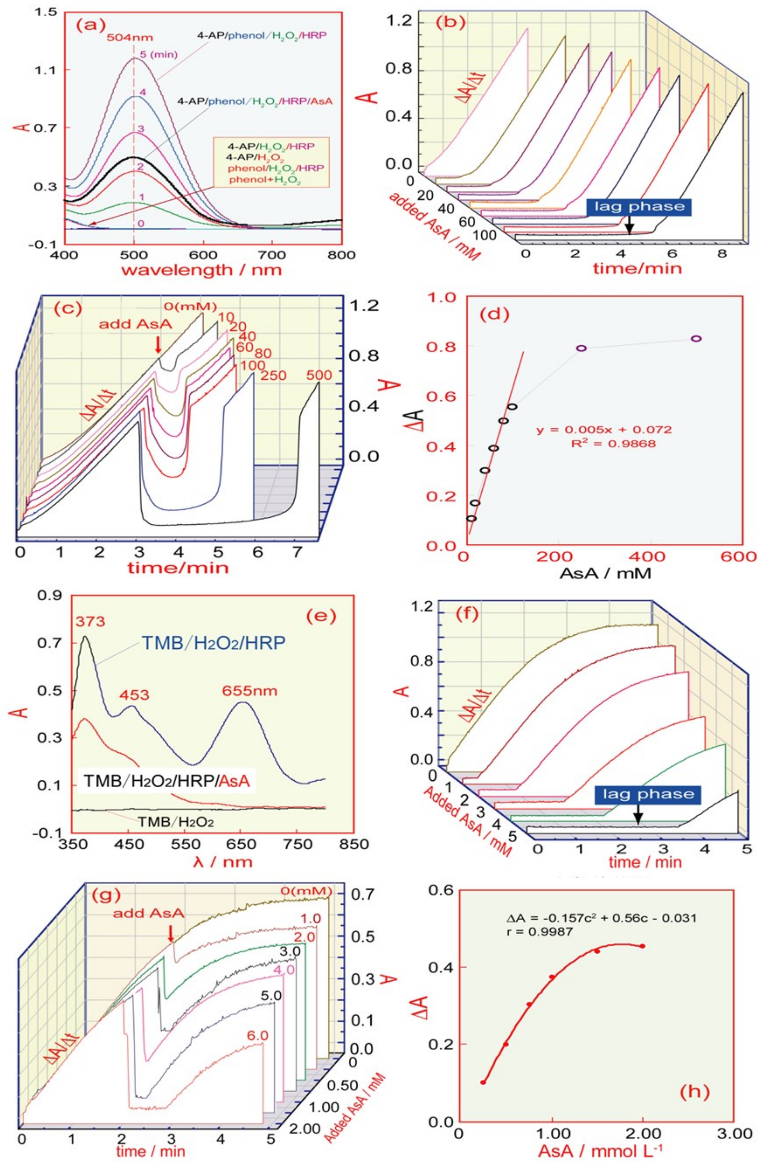

Fig. S3. Impacts of AsA on two chromogenic reactions. (a). Scanning curves of 4-AP/phenol/POD/H_2O_2 mixture; (b). Lag phases of kinetic curves with different-concentration AsA; (c). Different concentrations of AsA were added into 4-AP/phenol/POD/H_2O_2 reaction after reacting for 3 min; (d). Correlations of extinction degree of chromogenic product with the AsA concentration in 4-AP/phenol/POD/H_2O_2 reaction; (e). Spectrum scanning of TMB/POD/H_2O_2 reaction; (f). Lag phases of kinetic curves containing AsA; (g). Adding different concentrations of AsA in TMB/POD/H_2O_2 mixture after reacting for 2 min; (h). Correlation of the extinction degree of the chromogenic product formed in TMB/POD/H_2O_2 reaction with the AsA concentration.

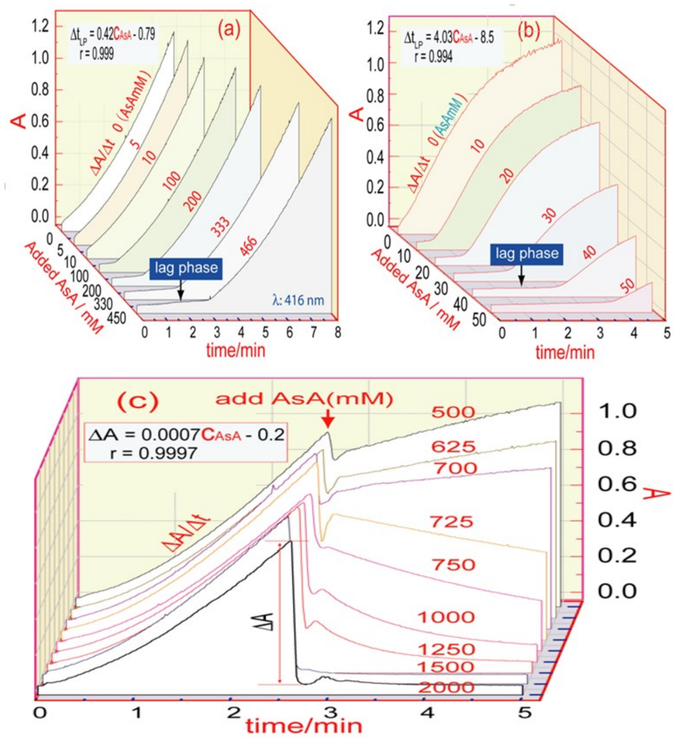

Fig. S4. Effects of AsA on other chromogenic reactions for determining POD activity. (a). Lag phases of kinetic curves in the *o*-phenylenediamine/POD/H_2O_2 reaction which has different concentrations of AsA; (b). Lag phases of kinetic curves in the pyrogallol/POD/H_2O_2 reaction containing AsA; (c). Lag phases of kinetic curves in the quinol/POD/H_2O_2 reaction with different-concentration AsA.