Supplementary Material

SIMULTANEOUS DETERMINATION OF PROTOCATECHUIC ALDEHYDE AND PROTOCATECHUIC ACID USING THE LOCALIZED SURFACE PLASMON RESONANCE PEAK OF SILVER NANOPARTICLES AND CHEMOMETRIC METHODS

Javad Khodaveisi[a], Ali Mohammad Haji Shabani[a], Shayessteh Dadfarnia[a,*], Masoud Rohani Moghadam[b] and Mohammad Reza Hormozi-Nezhad[c]

[a]Department of Chemistry, Faculty of Science, Yazd University, 89195-741 Yazd, Iran
[b]Department of Chemistry, Faculty of Science, Vali-e-Asr University, Rafsanjan, Iran
[c]Department of Chemistry, Sharif University of Technology, Tehran 11155-9516, Iran

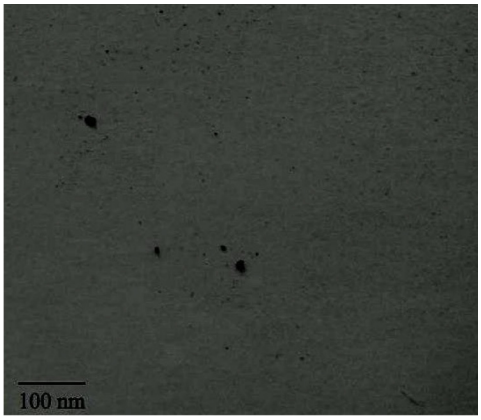

Figure 1S. *TEM image of Ag-NPs resulting from the reaction PAC*

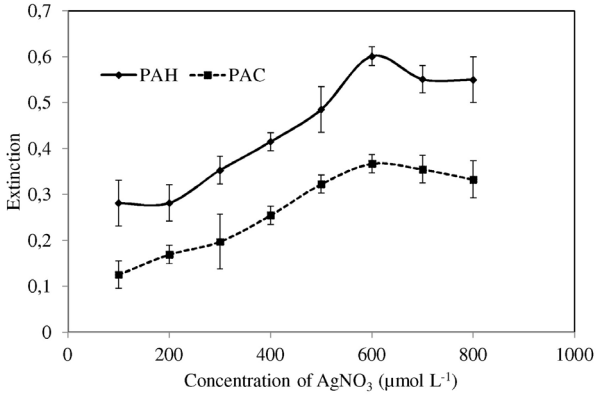

Figure 3S. *Effect of the concentration of $AgNO_3$ on the LSPR peak of Ag-NPs. Conditions: NaOH 2.0 mmol L^{-1}; NH_3 5.0 mmol L^{-1}, PVP 0.06 g L^{-1}, PAC 26.21 µg mL^{-1}, PAH 27.62 µg mL^{-1}, λ = 450 nm*

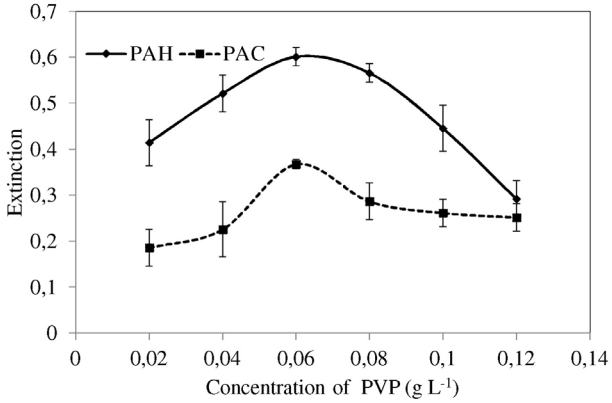

Figure 2S. *Effect of PVP concentration on the LSPR peak of Ag-NPs. Conditions: $AgNO_3$ 600 µmol L^{-1}, NaOH 2.0 mmol L^{-1}, NH_3 5.0 mmol L^{-1}, PAC 26.21 µg mL^{-1}, PAH 27.62 µg mL^{-1}, λ = 450 nm*

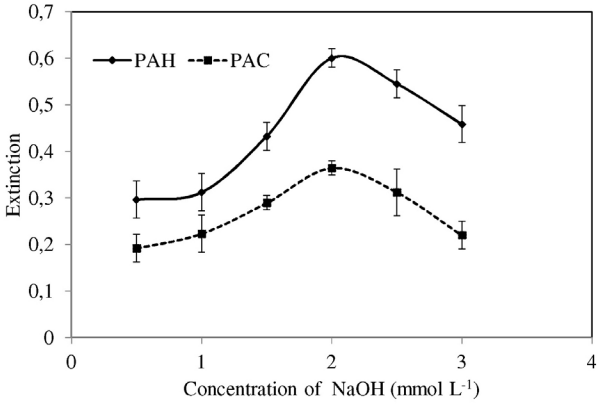

Figure 4S. *Dependence of the LSPR peak of Ag-NPs intensity on the concentrations of NaOH. Conditions: $AgNO_3$ 600 µmol L^{-1}, NH_3 5.0 mmol L^{-1}, PVP 0.06 g L^{-1}, PAC 26.21 µg mL^{-1}, PAH 27.62 µg mL^{-1}, λ = 450 nm*

*e-mail: sdadfarnia@yazd.ac.ir

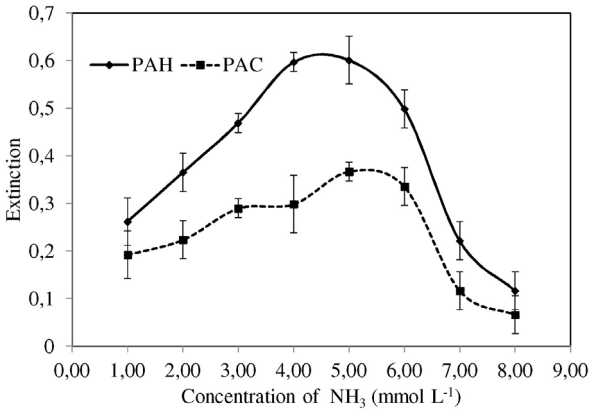

Figure 5S. *Effect of the concentration of NH_3 on the LSPR peak of Ag-NPs. Conditions: $AgNO_3$ 600 µmol L^{-1}, NaOH 2.0 mmol L^{-1}, PVP 0.06 gL^{-1}, PAC 26.21 µg mL^{-1}, PAH 27.62 µg mL^{-1}, λ = 450 nm*

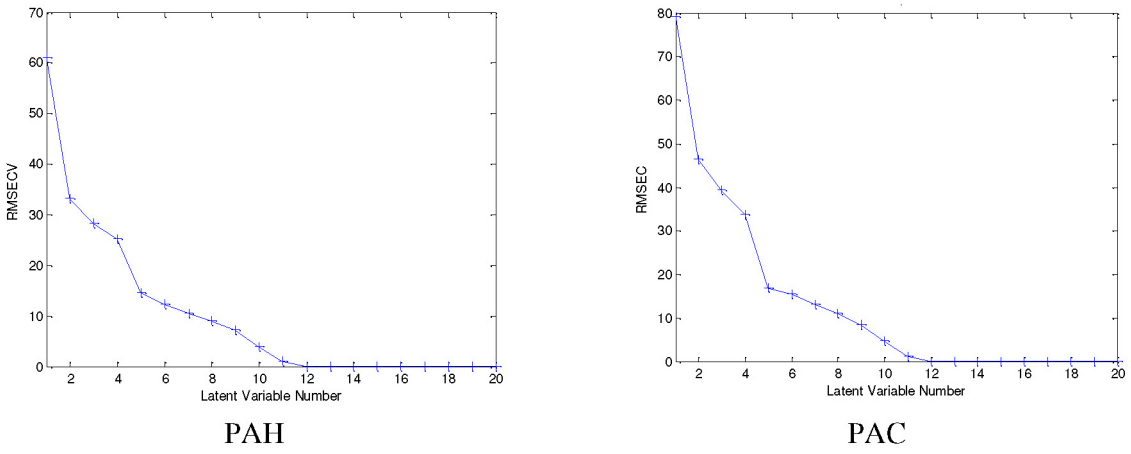

Figure 6S. RMSECV values as a function of number of *latent variables*

Table 1S. Concentrations of PAC and PAH in standard solutions of calibration set

Sample	PAC (μg mL^{-1})	PAH (μg mL^{-1})
1	1.24	0.08
2	1.24	0.72
3	1.24	8.28
4	1.24	13.82
5	1.24	20.72
6	1.24	30.38
7	6.16	0.08
8	6.16	0.72
9	6.16	2.76
10	6.16	13.82
11	6.16	20.72
12	15.42	0.08
13	15.42	0.72
14	15.42	2.76
15	15.42	13.82
16	15.42	30.38
17	26.20	0.08
18	26.20	2.76
19	26.20	8.28
20	26.20	13.82
21	26.20	30.38
22	35.45	0.08
23	35.45	8.28
24	35.45	13.82
25	35.45	30.38
26	46.24	0.08
27	46.24	2.76
28	46.24	8.28
29	46.24	13.82
30	46.24	20.72
31	46.24	30.38
32	58.56	0.72
33	58.56	2.76
34	58.56	8.28
32	58.56	13.82
35	58.56	30.38

Table 2S. Characteristics of calibration curve for the determination of PAC and PAH

Parameters	PAC	PAH
Linear range (μg mL^{-1})	1.23-58.56	0.08-30.39
Slope (μg $mL^{-1})^{-1}$	0.0105	0.0177
Intercept	0.1243	0.3128
R^2	0.9976	0.9972
LOD (μg mL^{-1})	0.039	0.025