

Supporting Information

Plant-mediated Biosynthesized Au/CuO Catalysts for Efficient Glycerol Oxidation to 1,3-Dihydroxyacetone: Effect of Biomass Component on Catalytic Activity

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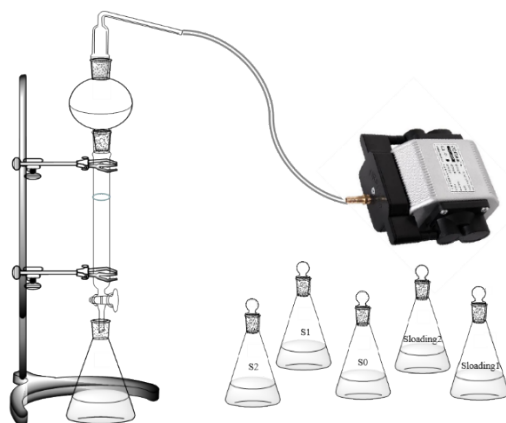


Figure S1. Device diagram for separating lilac extract by chromatographic column.

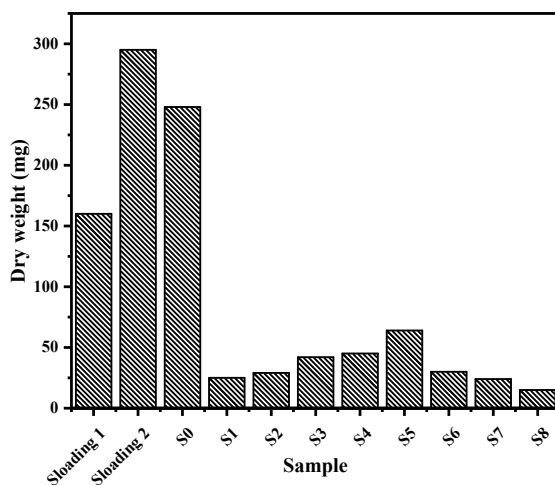


Figure S2. The mass of the separated products obtained by column chromatography.

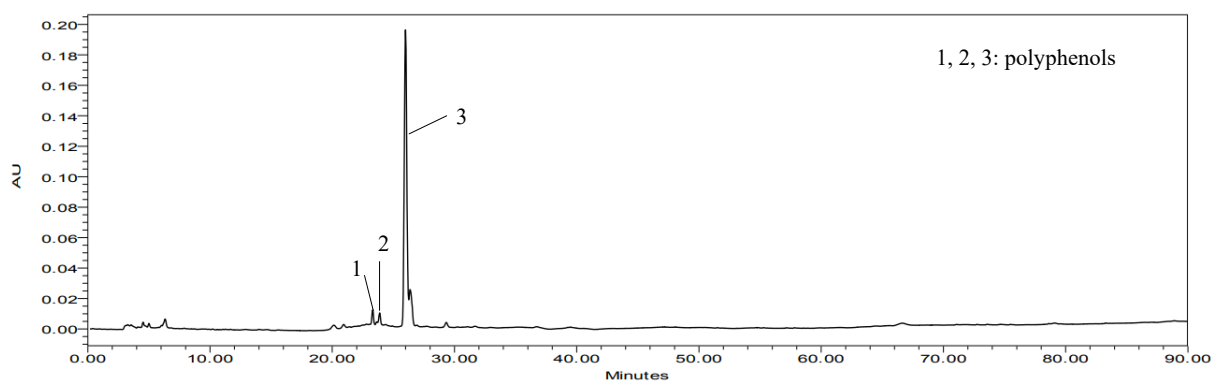


Figure S3. HPLC chromatograms of Slouding 2.

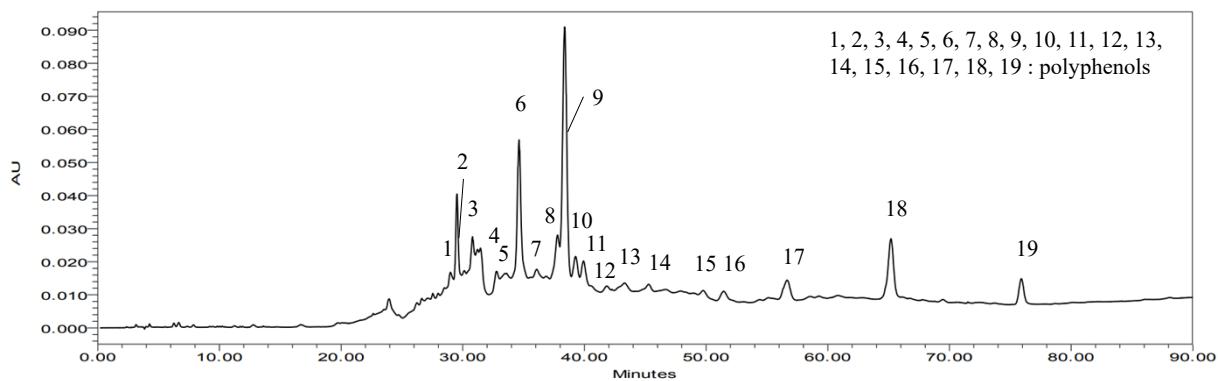


Figure S4. HPLC chromatograms of S3.

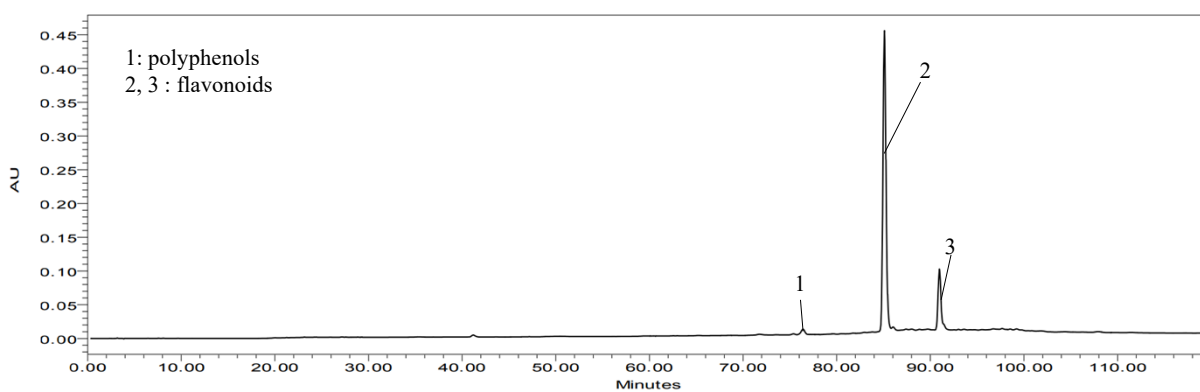


Figure S5. HPLC chromatograms of S6.

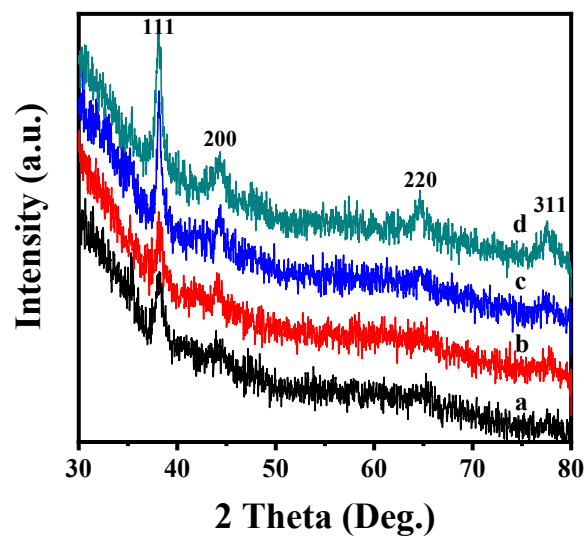


Figure S6. XRD patterns of Au NPs prepared by reaction of extracts of Lilac leaves with different isolated products for 4 h, (a) Lilac leaf extract–Au, (b)Sloading2-Au, (c)S3-Au, (d)S6-Au.

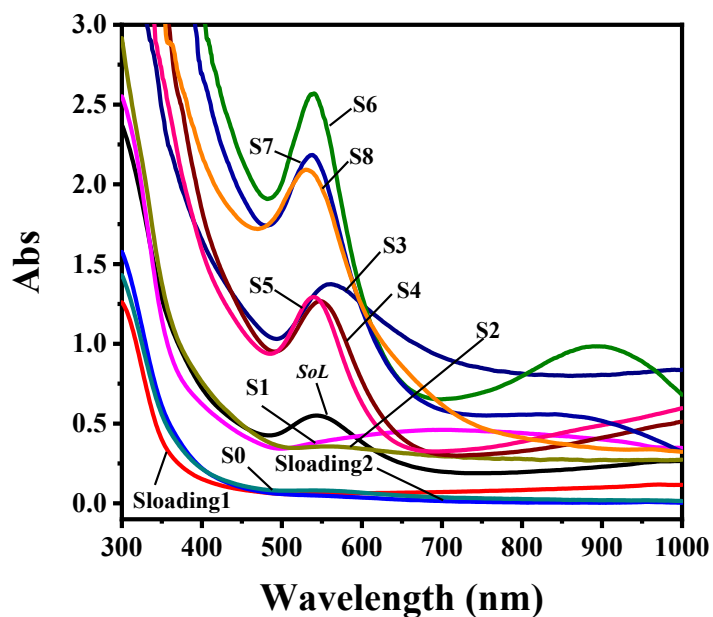


Figure S7. UV-Vis spectra of Au NPs prepared by reaction of extracts of *SoL* leaf syringae with different isolated products for 2 h.

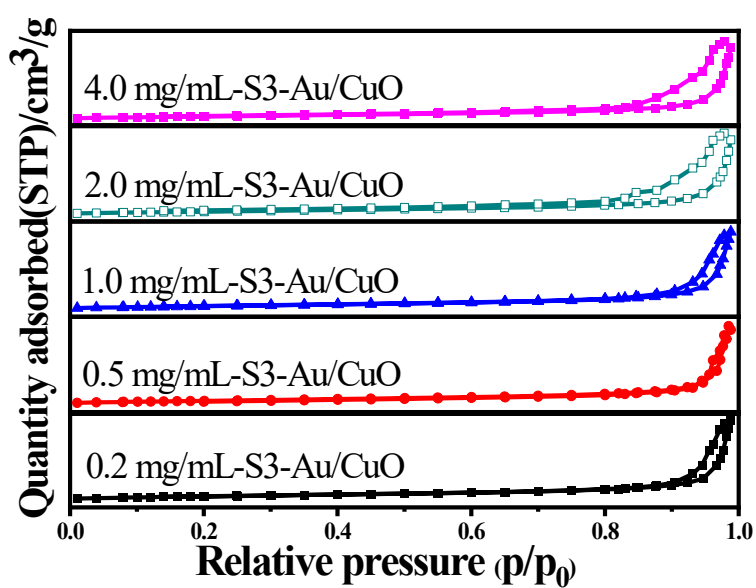


Figure S8. N₂ adsorption and desorption curves of Au/CuO prepared with different concentrations of S3.

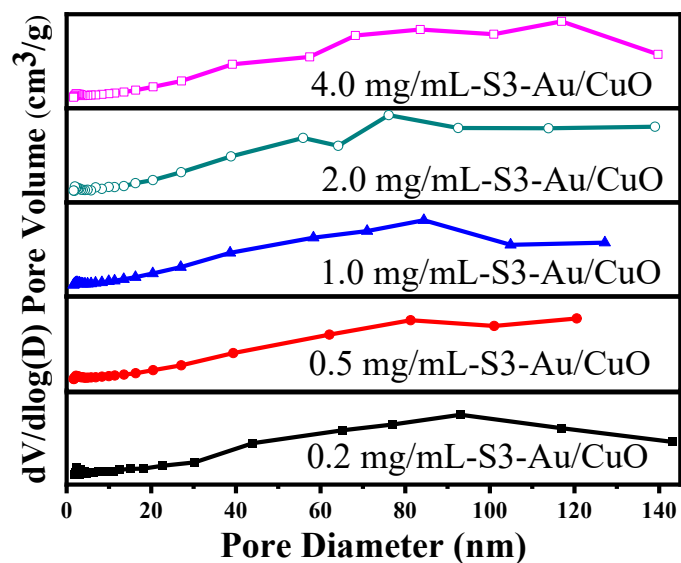


Figure S9. Pore size distribution of Au/CuO prepared with different concentrations of S3.

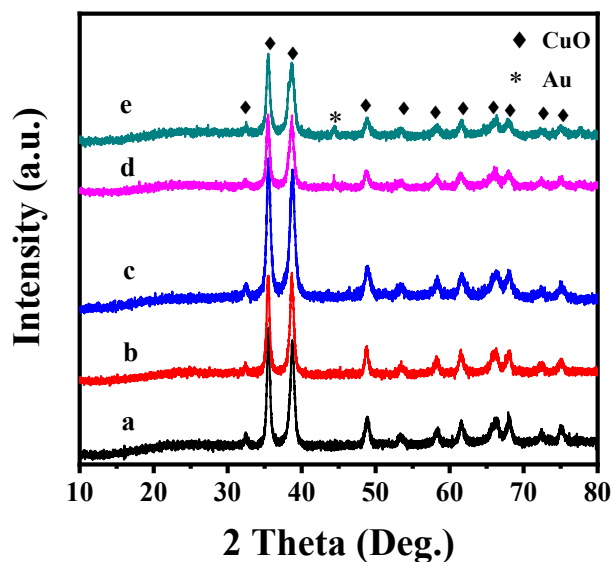


Figure S10. XRD patterns of Au/CuO catalysts with different loads prepared by the isolated product S3: a = CuO, b = 0.5%-Au/CuO, c = 1%-Au/CuO, d = 2%-Au/CuO, e = 3%-Au/CuO.

Table S1. BET characterization results of lilac leaf extract and different separation products -Au/CuO catalyst.

Catalysts	S_{BET} (m^2g^{-1})	V_{P} (cm^3g^{-1})	D_{p} (nm)
CuO	32.66	0.25	30.96
<i>SoL</i> -Au/CuO	26.73	0.17	25.75
Sloading2-Au/CuO	24.70	0.18	29.00
S3-Au/CuO	31.34	0.24	30.95
S6-Au/CuO	29.70	0.11	14.91

Table S2. BET characterization results of catalysts prepared with different concentrations of S3.

Catalysts	S_{BET} (m^2g^{-1})	V_{P} (cm^3g^{-1})	D_{p} (nm)
CuO	32.66	0.25	30.96
S3 (0.2 mg/mL)-Au/CuO	23.61	0.18	30.96
S3 (0.5 mg/mL)-Au/CuO	28.14	0.19	27.53
S3 (1.0 mg/mL)-Au/CuO	29.18	0.20	28.09
S3 (2.0 mg/mL)-Au/CuO	31.34	0.24	30.95
S3 (4.0 mg/mL)-Au/CuO	30.22	23.27	30.80

Table S3. BET characterization results of four different loads of S3-Au/CuO catalysts.

Catalysts	S_{BET} (m^2g^{-1})	V_{P} (cm^3g^{-1})	D_{p} (nm)
CuO	32.66	0.25	30.96
0.5% Au/CuO	31.88	0.13	15.86
1% Au/CuO	31.34	0.24	30.95
2% Au/CuO	23.32	0.17	29.57
3% Au/CuO	17.42	0.13	30.81

Table S4. BET characterization results of catalysts prepared at different calcination temperatures for the separated product S3.

Catalysts	S_{BET} (m^2g^{-1})	V_{P} (cm^3g^{-1})	D_{p} (nm)
Au/CuO (0°C)	30.14	0.22	29.34
Au/CuO (200°C)	31.06	0.25	31.63
Au/CuO (350°C)	31.34	0.24	30.95
Au/CuO (500°C)	18.12	0.13	29.77
Au/CuO (650°C)	10.70	0.09	34.99

Table S5. ICP analysis of Au/CuO catalysts prepared from different plant isolates.

Catalysts	Au/%	Cu/%
Sloding S2-Au/CuO	1.04	78.52
S3-Au/CuO	0.96	78.27
S6-Au/CuO	1.02	72.37