Electronic Supplementary Material (ESI) for New Journal of Chemistry.

(Electronic Supporting Information)

Fuel-assisted polyol reduction for highly transparent and efficient Pt counter electrodes in bifacial dye-sensitized solar cells

Kantapa Yolthida[1+], Dang Xuan Long[1+], Ghifari M. Alvien[3], Jongin Hong[1,2*]

[1]Department of Smart Cities, Chung-Ang University, 84 Heukseok-ro, Dongjak-gu, Seoul 06974, Republic of Korea

[2]Department of Chemistry, Chung-Ang University, 84 Heukseok-ro, Dongjak-gu, Seoul 06974, Republic of Korea

[3]Department of Science, Institut Teknologi Sumtera, Jalan Terusan Ryacudu, Lampung Selatan, Lampung, 35365, Indonesia

[+] Equal contribution to this work

[*] Corresponding author: JH (hongj@cau.ac.kr)

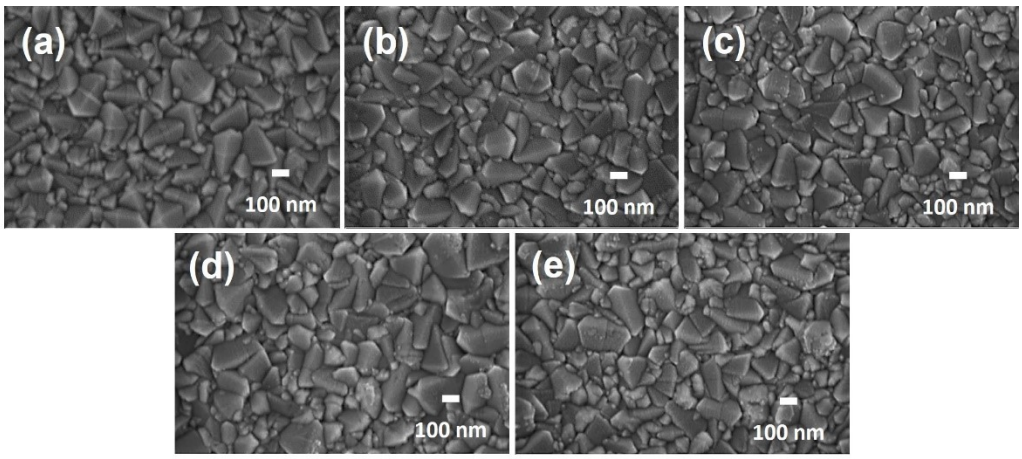

Figure S1. SEM images of Pt nanoparticles on FTO glass substrates: Pt:G = (a) 1:0, (b) 1:0.5, (c) 1:1, (d) 1:2, and (e) 1:4.

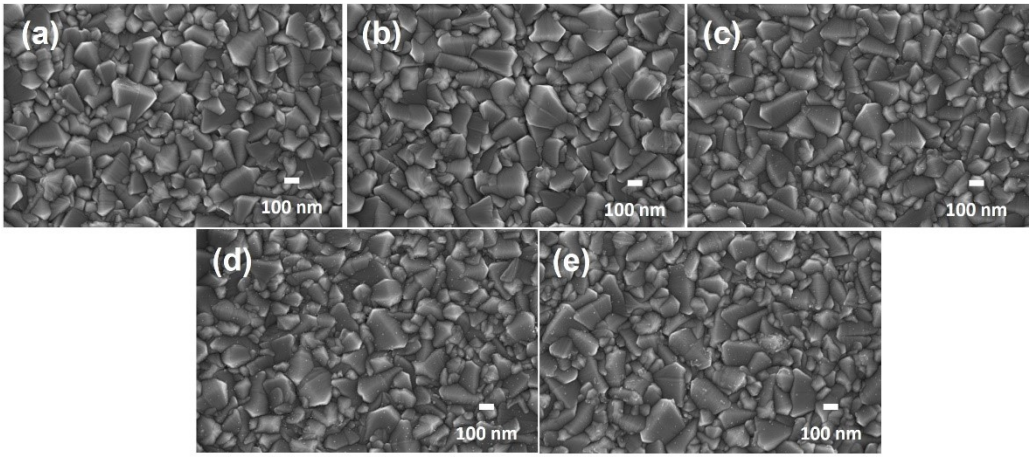

Figure S2. SEM images of Pt nanoparticles on FTO glass substrates: Pt:CA = (a) 1:0, (b) 1:2, (c) 1:4, (d) 1:6, and (e) 1:8.

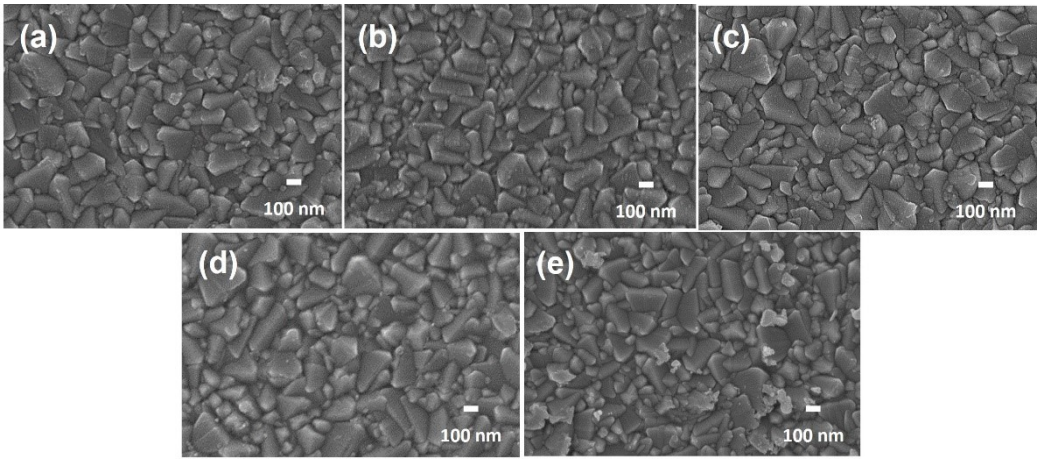

Figure S3. SEM images of Pt nanoparticles on FTO glass substrates: Pt:AA = (a) 1:0, (b) 1:4, (c) 1:8, (d) 1:16, and (e) 1:32.

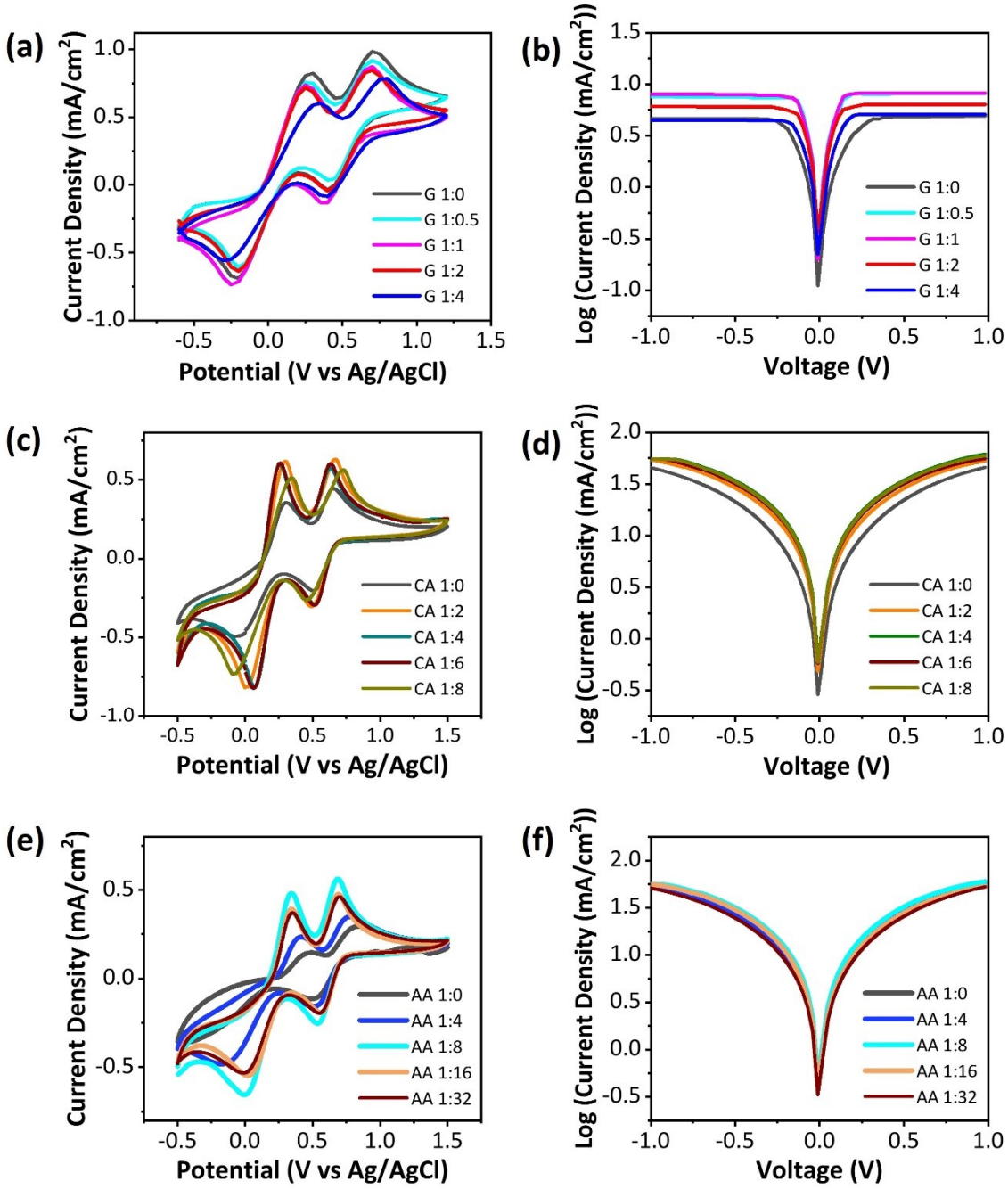

Figure S4. Cyclic voltammograms of the iodide/triiodide redox couple electrolyte for Pt electrodes: (a) glycine, (c) citric acid, and (e) acetylacetone, and Tafel plots for the symmetrical cells fabricated with two identical Pt electrodes: (b) glycine, (d) citric acid, and (f) acetylacetone.

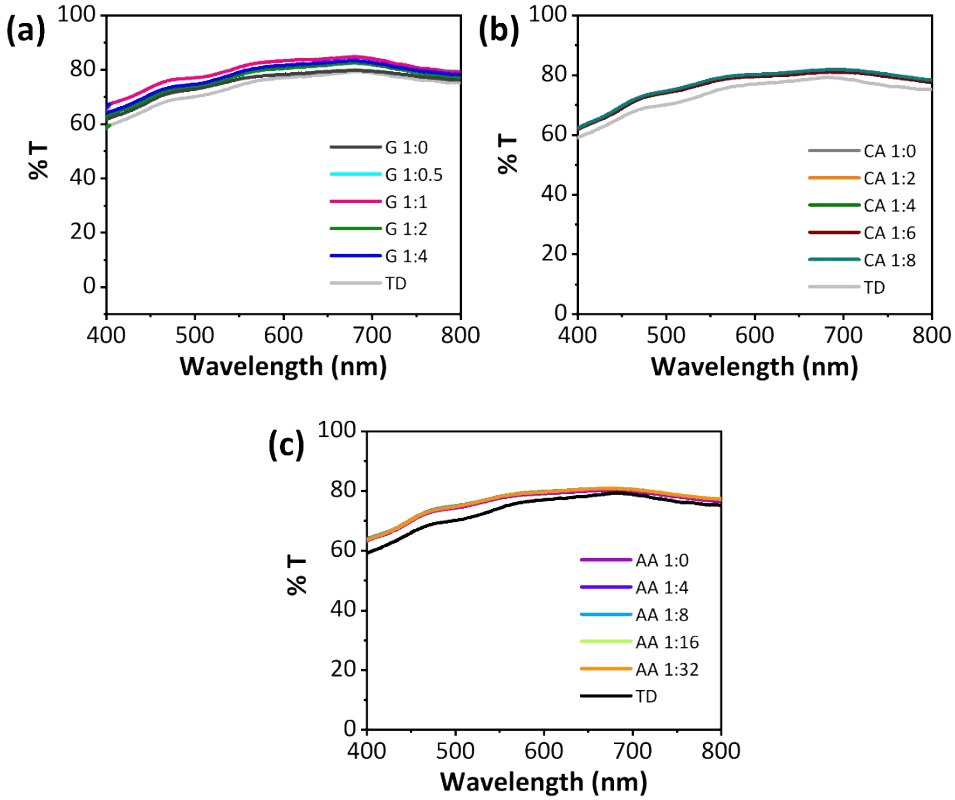

Figure S5. Transmittance spectra of Pt electrodes: (a) glycine, (b) citric acid, and (c) acetylacetone.

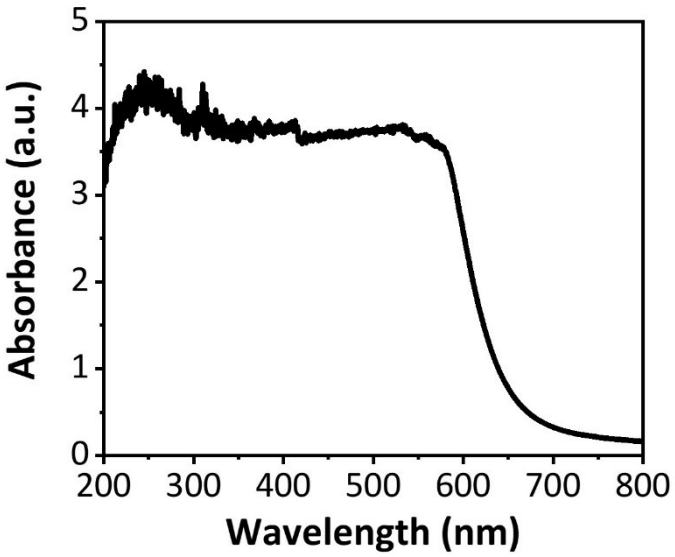

Figure S6. UV-Vis spectrum of iodide/triiodide redox couple electrolyte (Iodolyte AN-50, Solaronix, Switzerland).

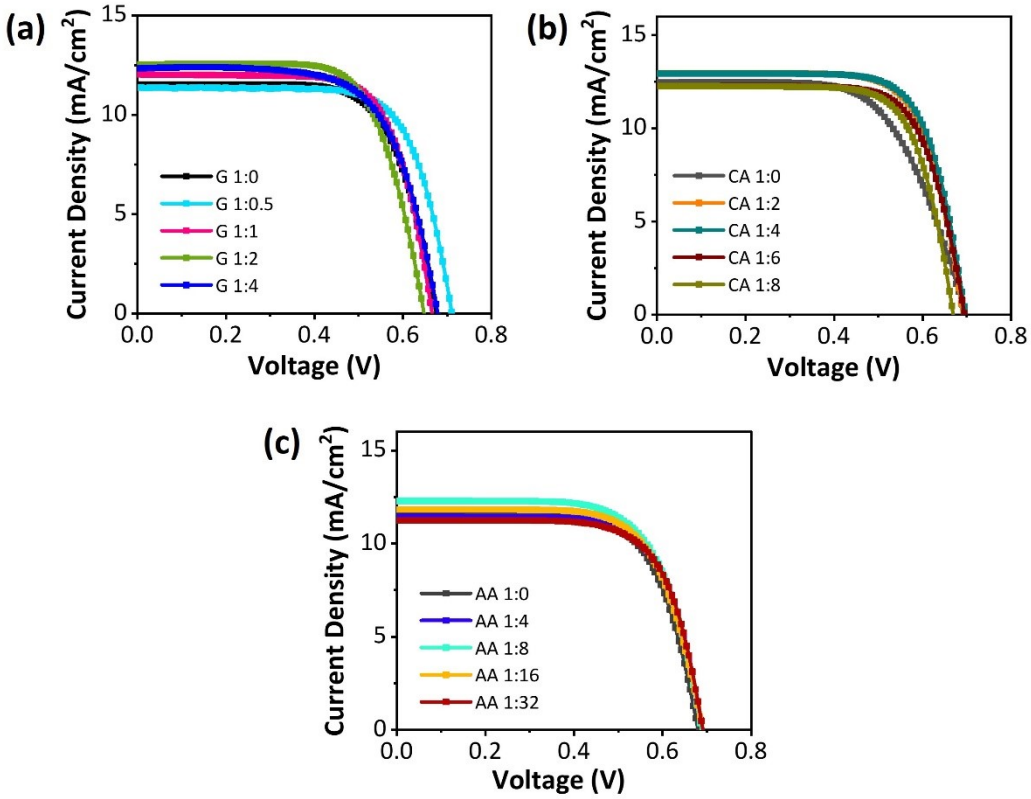

Figure S7. J-V characteristics of DSSCs under front illumination: (a) glycine, (b) citric acid, and (c) acetylacetone.

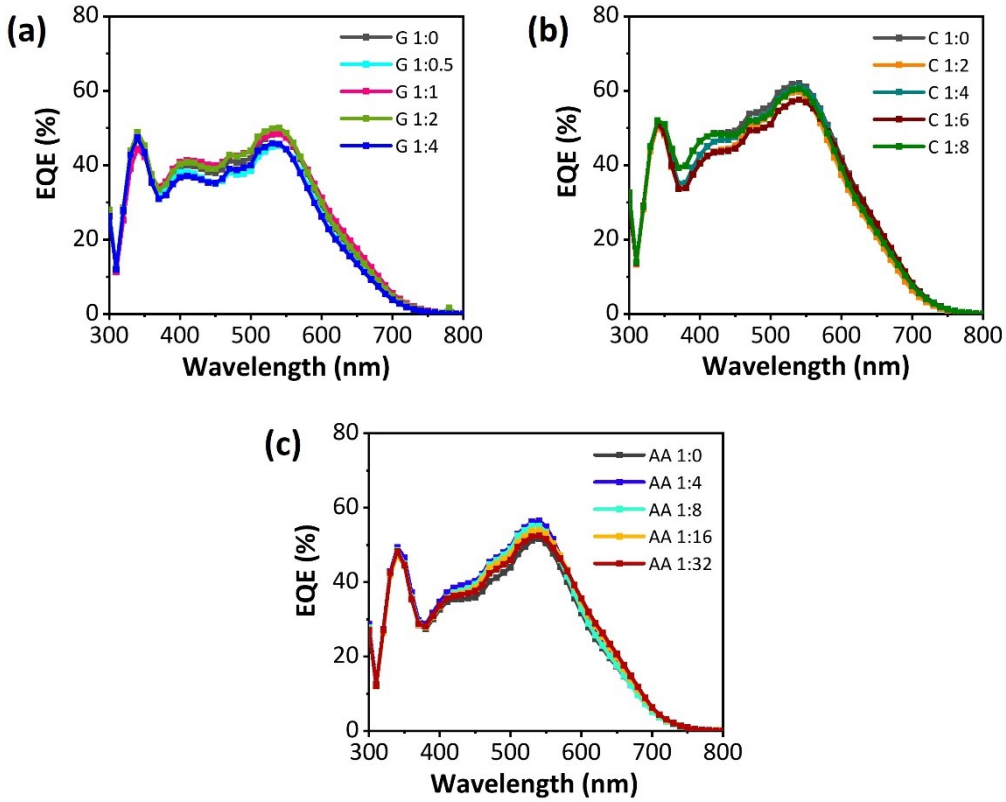

Figure S8. IPCE spectra of DSSCs under front illumination: (a) glycine, (b) citric acid, and (c) acetylacetone

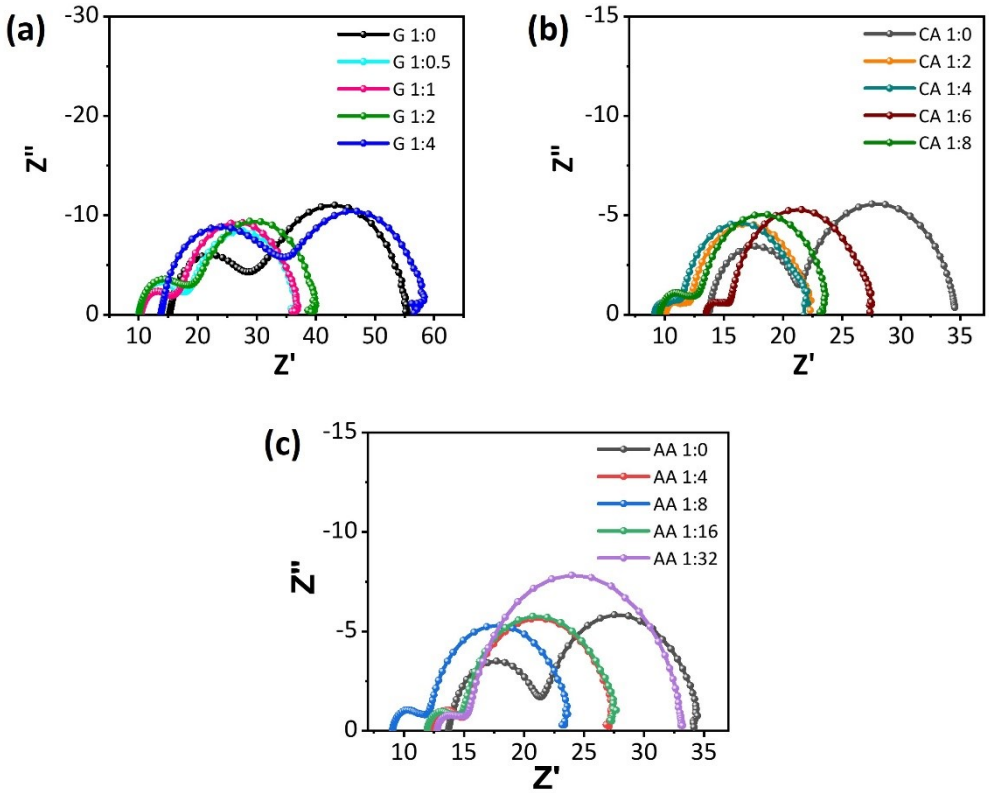

Figure S9. Nyquist plots of DSSCs under front illumination: (a) glycine, (b) citric acid, and (c) acetylacetone.