

Supplementary

Table S1: BET analysis of 0.5wt%Ag

Catalysts	Calcination temperature (°C)	BET Surface area (m ² /g)	Pore Volume (cm ³ /g)	Nanoparticle size (nm)
0.5%Ag ₂ O/TiO ₂	300	209	0.52	28.68
0.5%Ag ₂ O/TiO ₂	400	129	0.27	46.66
0.5%Ag ₂ O/TiO ₂	450	199	0.43	30.21
0.5%Ag ₂ O/TiO ₂	500	95	0.29	62.85
0.5%Ag ₂ O/TiO ₂	600	29	0.10	205.54

Fig S1 shows the XRD patterns for the 0.5wt%Ag₂O/TiO₂ samples with varying calcination temperatures. All samples clearly show the characteristic planes of anatase phase at a series of strong peaks at $2\theta = 25.3^\circ$ (101), 37.8° (004), 48.0° (200), 62.6° (204) (JCPSD, No.21-1272) [1-3]. At 600°C, a rutile phase is observed which suggest strong crystallinity with increasing calcination temperature. Furthermore, no visible metal phase was shown from the XRD patterns, which indicates that Ag is highly dispersed uniformly on TiO₂. This could be attributed to low amount of Ag dopants or high dispersion in the samples [4].

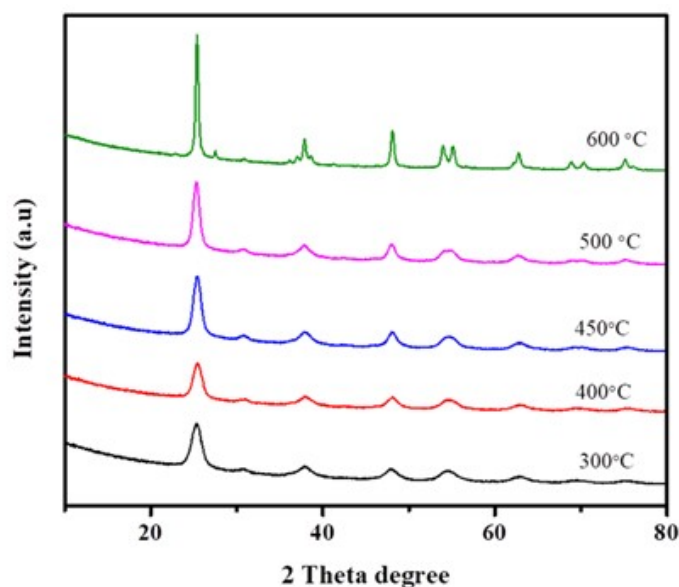


Figure S1. X-Ray Diffraction patterns of 0.5%Ag₂O/TiO₂ sample calcined under varying calcination temperatures.

References

1. Wang, C., et al., *Improved hydrogen production from glycerol photoreforming over sol-gel derived TiO₂ coupled with metal oxides*. Chemical Engineering Journal, 2017. **317**: p. 522-532.
2. Lalitha, K., et al., *Highly stabilized and finely dispersed Cu₂O/TiO₂: a promising visible sensitive photocatalyst for continuous production of hydrogen from glycerol: water mixtures*. The Journal of Physical Chemistry C, 2010. **114**(50): p. 22181-22189.
3. Sadanandam, G., et al., *Cobalt doped TiO₂: A stable and efficient photocatalyst for continuous hydrogen production from glycerol: Water mixtures under solar light irradiation*. international journal of hydrogen energy, 2013. **38**(23): p. 9655-9664.
4. Li, Y., et al., *Effect of doping TiO₂ with alkaline-earth metal ions on its photocatalytic*