

Fig. S1 SEM and TEM image of as-prepared silica spheres

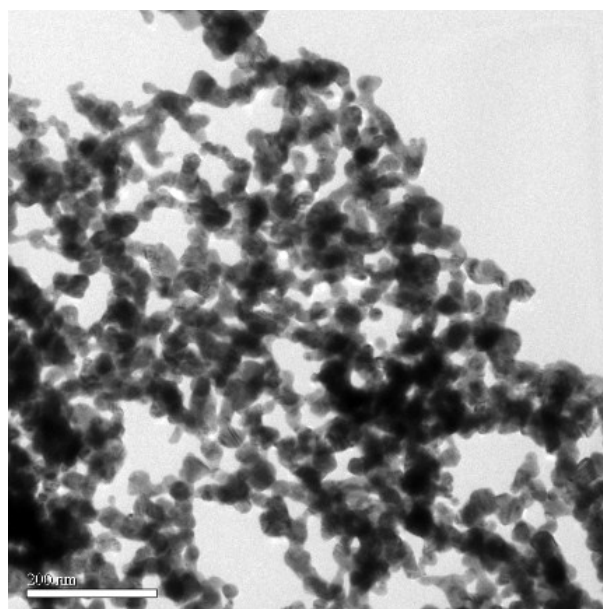


Fig. S2 TEM image of silver particles prepared with the same method as the composite

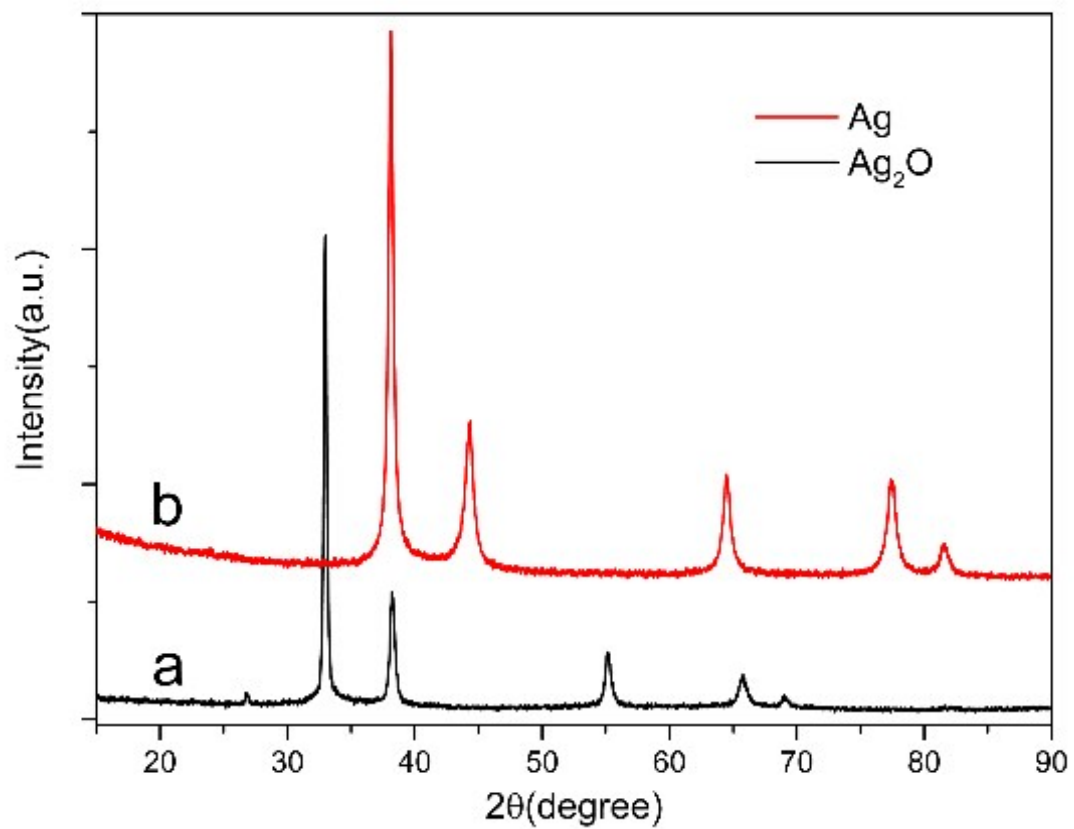


Fig. S3 XRD patterns of samples resulted from the  $\text{Ag}_2\text{O}$  powder in ethanol solution (a) in the absence of NaOH and (b) in the presence of NaOH.

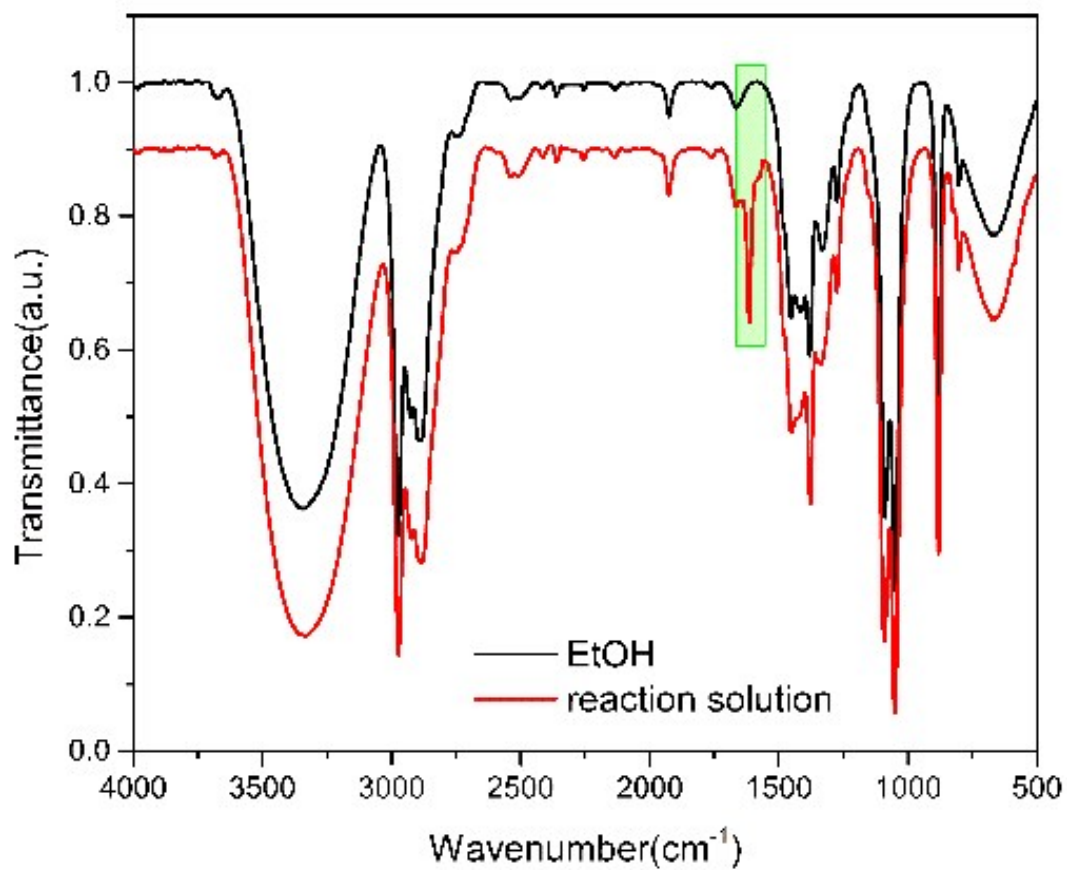


Fig.S4 FTIR spectra of ethanol and the reaction solution.

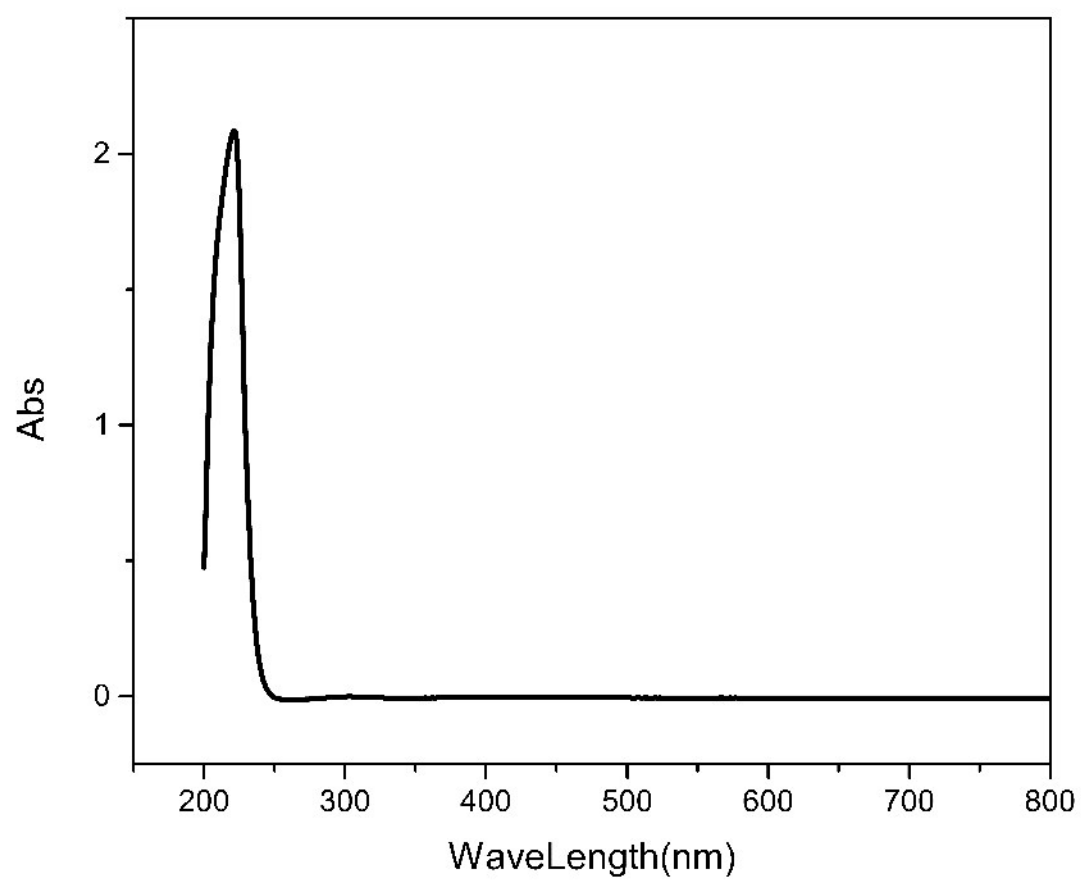


Fig.S5 UV-vis absorption spectrum of the reaction solution.