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Fig.S1: FTIR spectra of raw bamboo, treated pulp and cellulose



Fig.S2: SEM images of raw bamboo at (A) lower resolution and (B) higher resolution; treated pulp at (C) lower resolution and (D) higher resolution; and cellulose at (E) lower resolution and (F) higher resolution.



Fig.S3: HRTEM images with fringe spacing of $Ag-Ag_2S$ JNP (A-D).



Fig. S4: Elemental dot mapping of C, O, Ag and S on the recovered catalyst surface after the 4th run.



Fig.S5:HR-TEM image of recovered catalyst after 4th run.