

Supporting Information

Highly efficient hydrogen production and selective CO₂ reduction by C₃N₅ photocatalyst using only visible light

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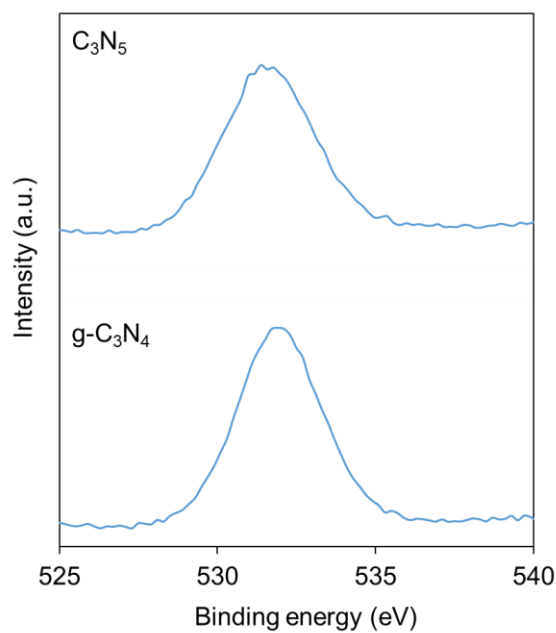


Fig. S1. XPS spectra of O1s electrons measured for C_3N_5 and $g-C_3N_4$.

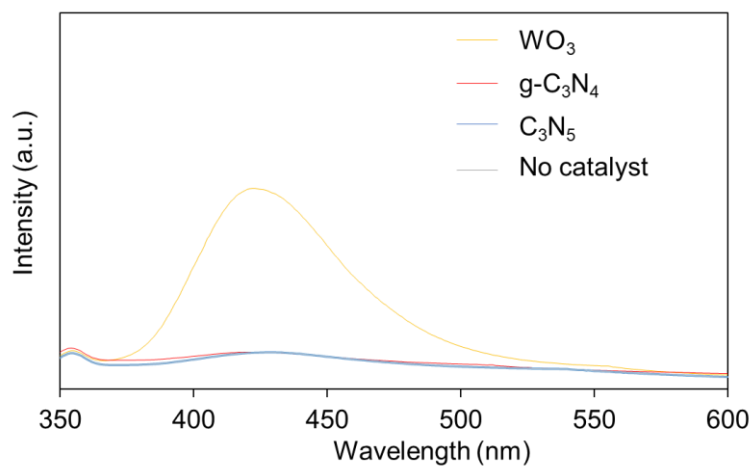


Fig. S2. PL spectra of 2-hydroxyterephthalic acid (at 426 nm) measured after VIS irradiation on terephthalic acid (TA) aqueous solutions containing C_3N_5 , $g-C_3N_4$, no catalyst, and WO_3 as a reference material (purchased from Kojundo Chemical Laboratory), respectively. Here, TA was employed as a trapping reagent of hydroxyl radicals.

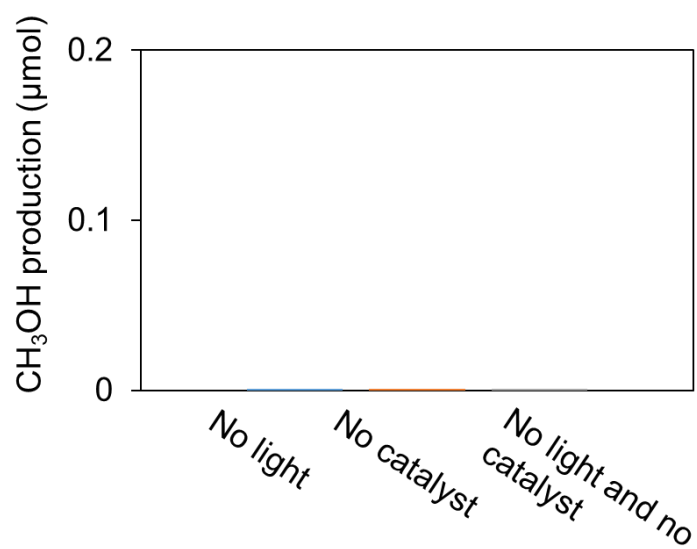


Fig. S3. Control experiments of CH₃OH production over C₃N₅ using oversaturated CO₂ solution after 1 hour visible light irradiation.

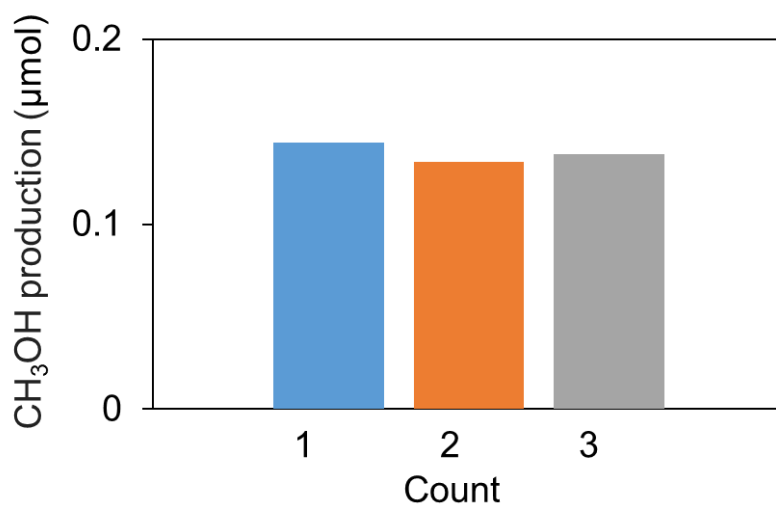


Fig. S4. Three cycle experiments of CH₃OH production over C₃N₅ using oversaturated CO₂ solution after 1 hour visible light irradiation.

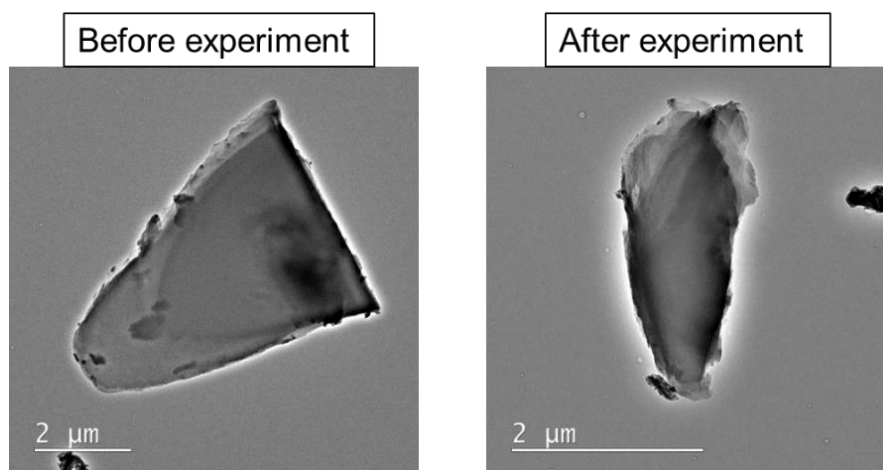


Fig. S5. TEM images of C_3N_5 observed before and after photocatalytic experiments.

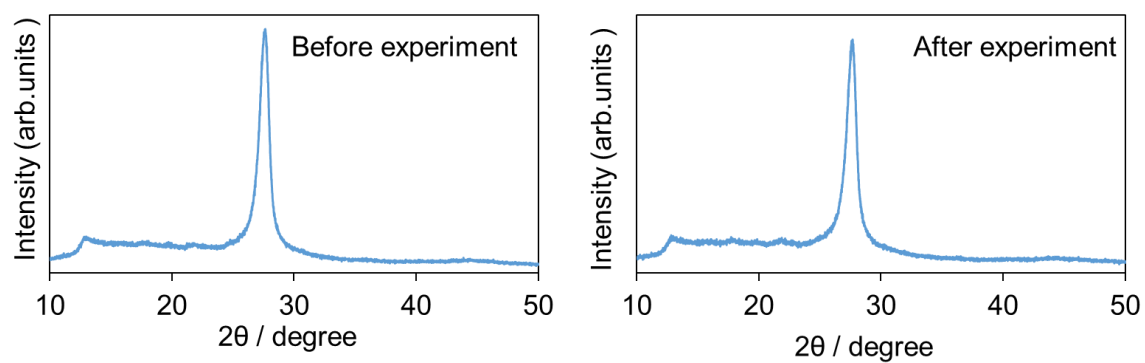


Fig. S6. Powder XRD profiles of C_3N_5 observed before and after photocatalytic experiments.