

Supporting Information for  
Promotion of the Hydrogenation of Acetone C-C coupling into Pinacol with Dehydrogenation of  
Formic Acid Over NaOH-treated g-C<sub>3</sub>N<sub>4</sub> Photocatalyst

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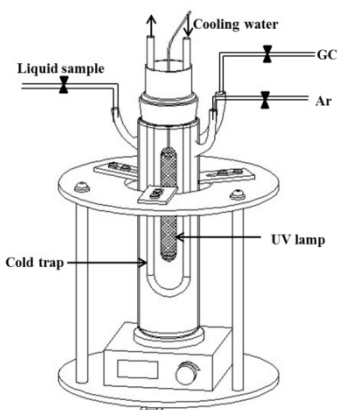
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**This supporting information contains:**

Experimental details

Figures S1-S2

**Figures S1-S2**



**Figure S1.** A schematic of the employed photocatalysis reactor.

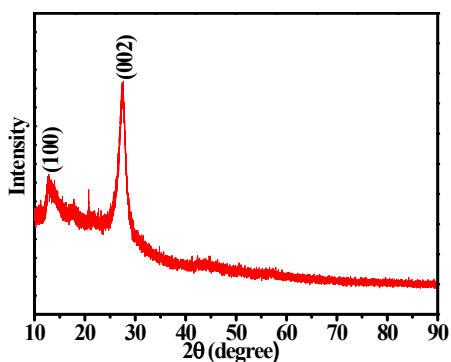


Figure S2 XRD pattern of g-C<sub>3</sub>N<sub>4</sub> photocatalyst

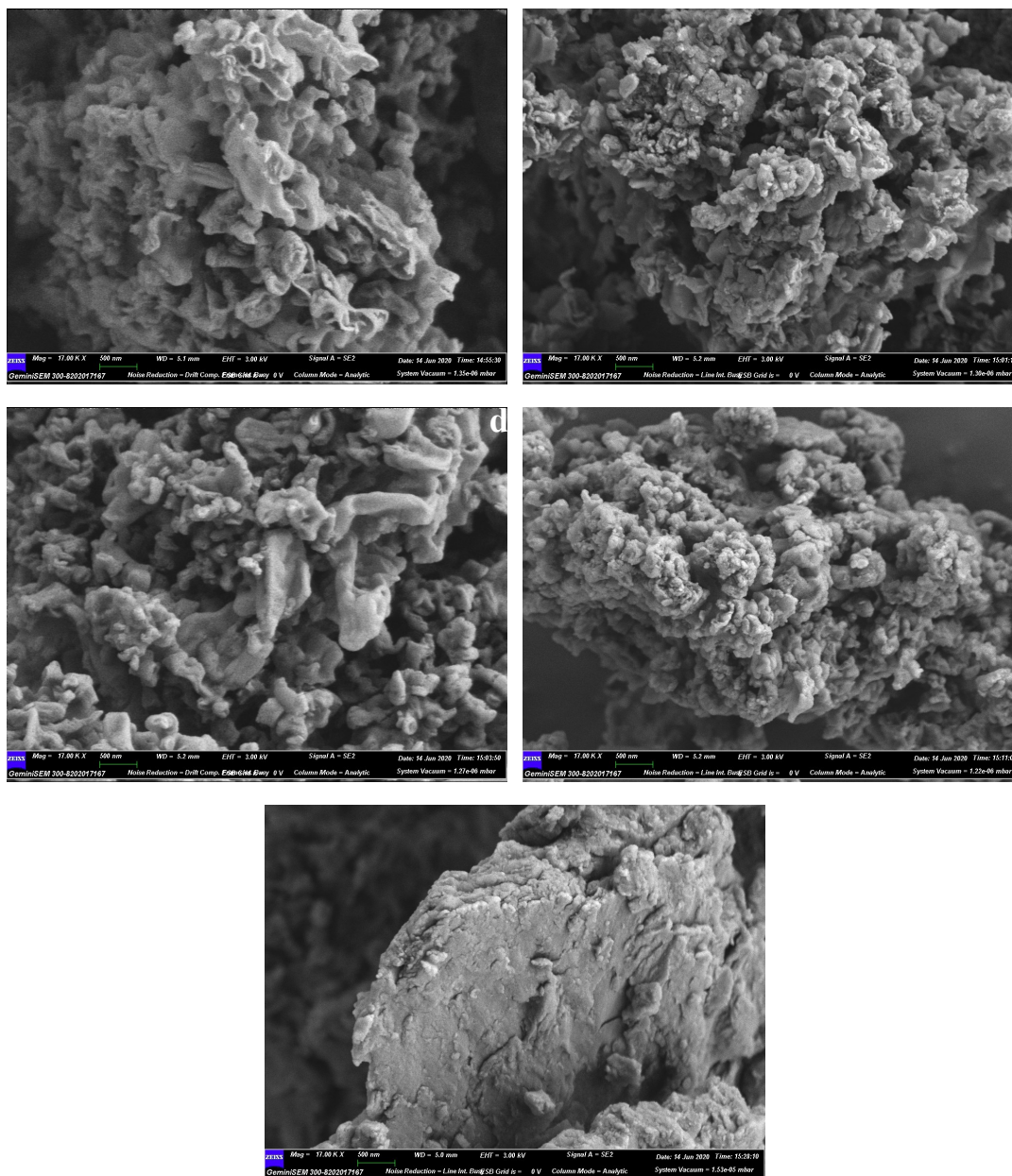


Figure S3 SEM images of (a) g-C<sub>3</sub>N<sub>4</sub> photocatalyst, (b) 0.5M NaOH treated g-C<sub>3</sub>N<sub>4</sub> photocatalyst, (c) 1 M NaOH treated g-C<sub>3</sub>N<sub>4</sub> photocatalyst, (d) 5 M NaOH treated g-C<sub>3</sub>N<sub>4</sub> photocatalyst, (e) 10 M NaOH treated g-C<sub>3</sub>N<sub>4</sub> photocatalyst.

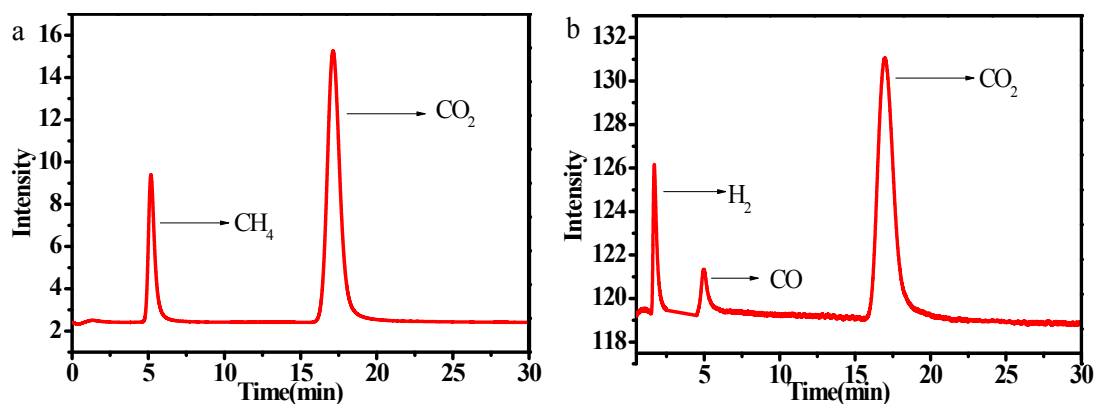


Figure S4 The Gas Chromatography-Mass Spectrometer(GCMS) data of photocatalytic products of FA

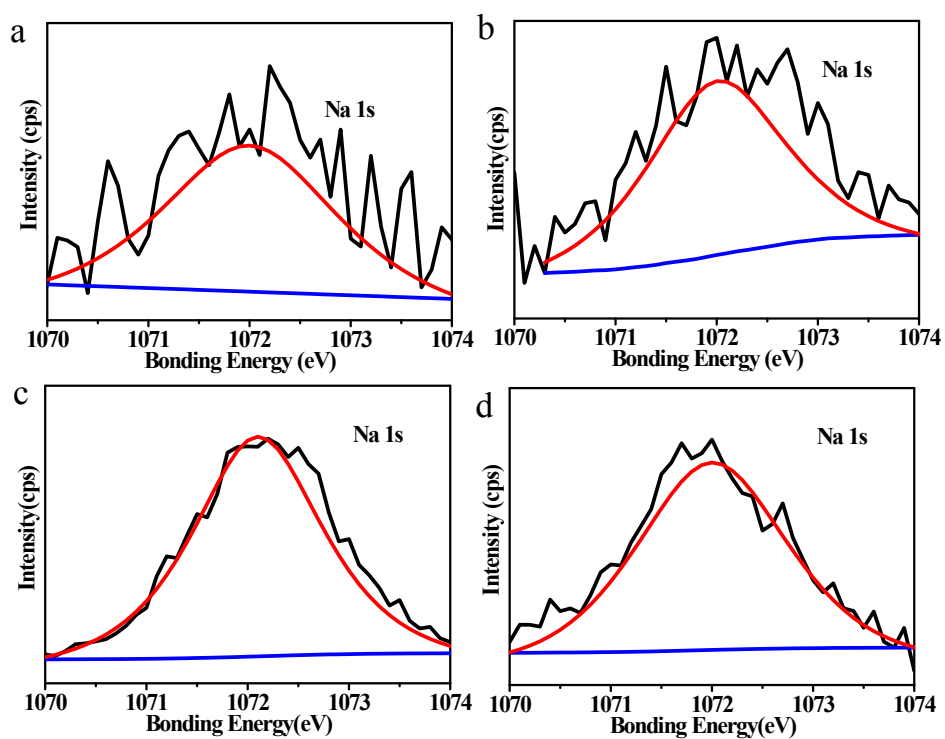


Figure S5 a, b, c and d were the Na 1s spectrum of the 0.5M、1M、5M、10M NaOH treated g- $\text{C}_3\text{N}_4$ , and the surface content of the  $\text{Na}^+$  was 0.24 %, 0.42 %, 1.43 %, 0.95 %, respectively.

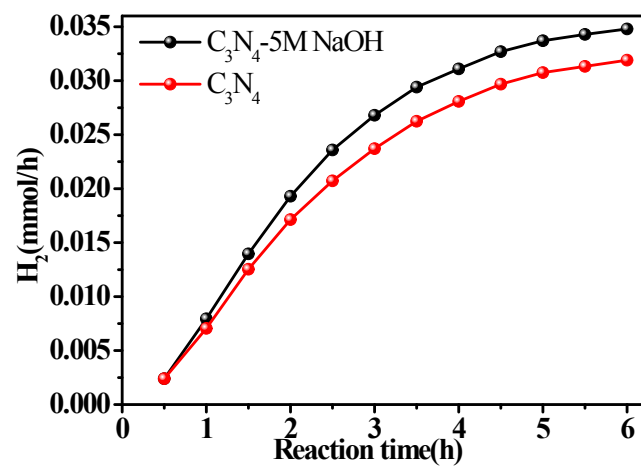


Figure S6. The H<sub>2</sub> generation amount from FA