## **Supporting Information**

High yield synthesis of nano-size  $g-C_3N_4$  derivatives by dissolve-regrowth method with enhanced photocatalytic ability

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Fig. S1 The photolysis of MO under visible light irradiation without photocatalyst.



Fig. S2 The photocatalytic of nano-size g-C<sub>3</sub>N<sub>4</sub>-HNO<sub>3</sub> under visible light irradiation.

The g- $C_3N_4$ -HNO<sub>3</sub> shows a good adsorptivity, it can adsorb about 78 % of the MO in 0.5 h, but it almost has no photoactivity even the irradiation time reach 4 h. The surface of the samples still shows the orange color, which come from the adsorbed MO dye.