materials

MDPI

Supplementary Material

Porous Oxygen-Doped g-C_3N_4 with the Different Precursors for Excellent Photocatalytic Activities under Visible Light

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2. Experimental section

2.2. Preparation

Synthesis of g-C_3N_4: Two-dimensional (2D) g-C_3N_4 nanosheets were prepared using a thermal polymerization method. Specifically, 10 g of urea was first heated up to 550 °C and the heating rate of 5 °C/min and kept at this temperature 2 h. Subsequently, the ob-tained yellow bulk product was collected after being cooled down to room temperature and milled into powders.

Synthesis of CNUC and CNUG: Typically, 1, 2, 3, and 4 mmol of $(NH_4)_2C_2O_4$ were added into 15 mL of aqueous suspensions containing urea (0.17mol) and then ultrasonicated for 30 min, followed by vigorous stirring for 2 h before being dried at 80 °C to remove the solvent. After drying, the white solids were put into a 50-mL ceramic crucible with a lid, then placed in a muffle furnace and heated up to 550 °C at a heating rate of 5 °C/min, and subsequently kept at that temperature for 2 h. Finally, the resultant products were obtained and denoted as $CNUC_X$ (X = 1, 2, 3, 4) where X represents the mass of $(NH_4)_2C_2O_4$. The CNUG sample was prepared using $C_2H_5NO_2$ instead of $(NH_4)_2C_2O_4$ following the aforementioned procedures; the synthesized samples were denoted as $CNUG_X$ (X = 1, 2, 3, 4).

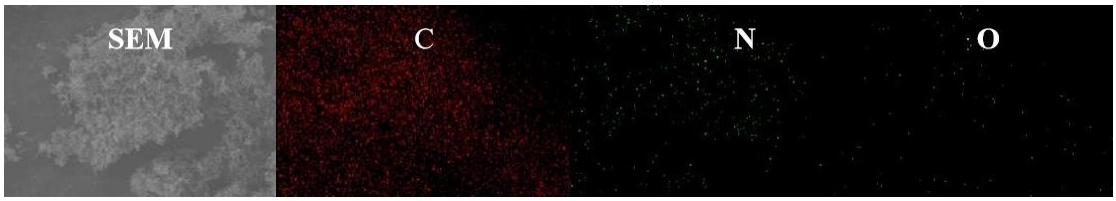


Figure S1. Mapping images of $CNUC_3$.

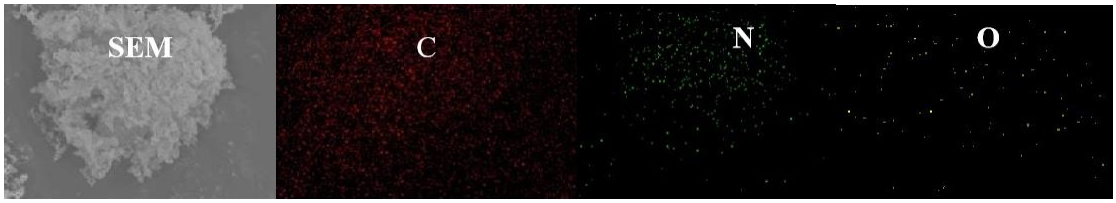


Figure S2. Mapping images of $CNUG_3$.

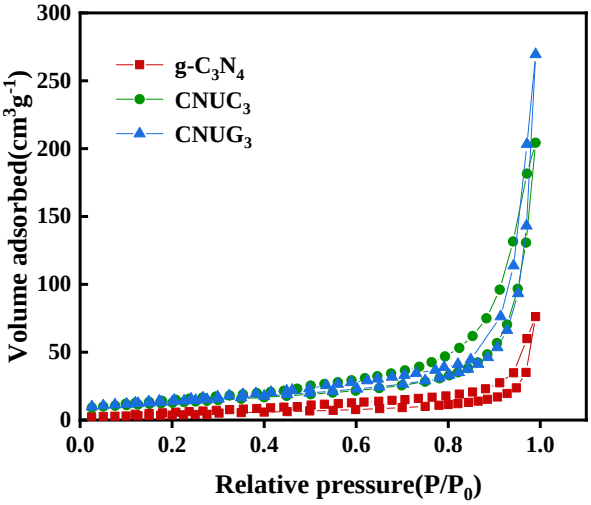


Figure S3. N_2 adsorption–desorption isotherms of g-C_3N_4 $CNUC_3$ and $CNUG_3$.

Table S1. Textural properties of the prepared samples.

Samples	S_{BET} (m^2g^{-1})	Pore size (nm)
g-C_3N_4	14.94	0.092
$CNUC_3$	48.28	0.313
$CNUG_3$	45.27	0.285

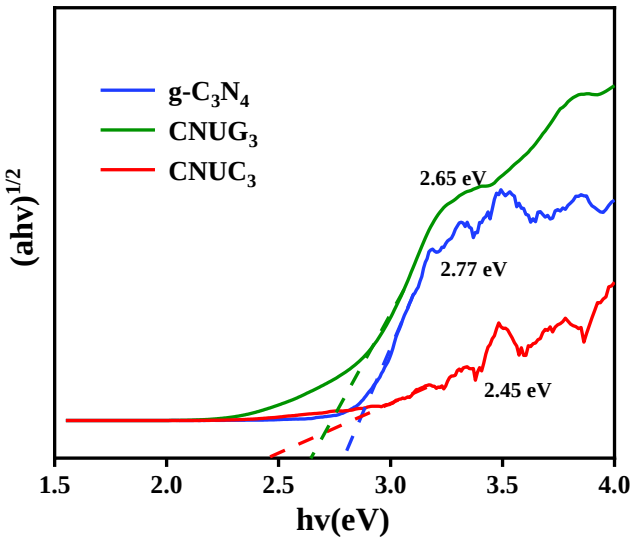


Figure S4. Bandgap value, estimated using a related curve of $(\alpha h\nu)^{1/2}$ versus photon energy.