Electronic Supplementary Material (ESI) for RSC Advances.

Supporting Information

An artful and simple synthetic strategy for fabricating low carbon residual porous g-C_3N_4 with enhanced visible-light photocatalytic properties

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Table S1. Effects of acetic acid content on the textural properties of the acetic acid mediated g-C_3N_4.

sample	S_{BET} (m^2 g^{-1})	Pore volume (cm^3 g^{-1})	Pore size (nm)
g-CN-0	9	0.073	20.382
g-CNA-0	51	0.207	20.390
g-CNA-1	99	0.430	20.377
g-CNA-2	112	0.490	18.631
g-CN-3	12	0.193	18.625
g-CNA-3	126	0.546	20.374
g-CNA-4	74	0.292	20.450

Table S2. C/N atomic ratio of samples.

	g-CN-1	g-CNA-1	g-CN-2	g-CNA-2	g-CN-4	g-CNA-4
C/N	0.67	0.67	0.68	0.67	0.69	0.68

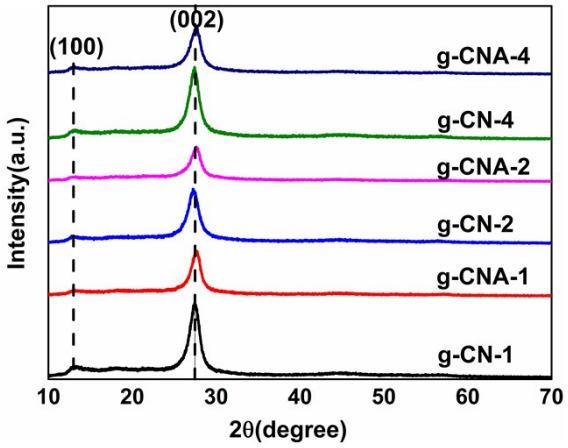

Figure S1. XRD patterns of g-CN-1, g-CNA-1, g-CN-2, g-CNA-2, g-CN-4 and g-CNA-4.

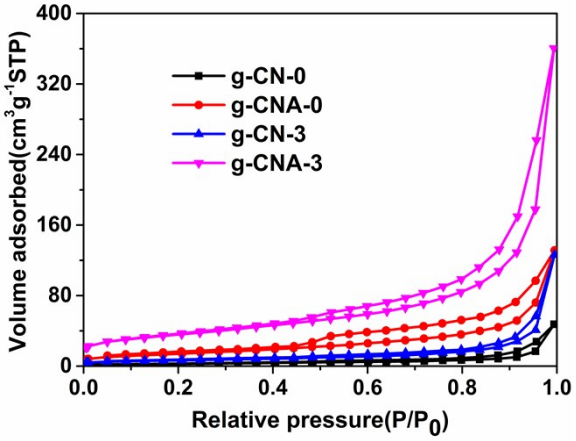

Figure S2. Nitrogen adsorption desorption isotherm of g-CN-0, g-CNA-0, g-CN-3 and g-CNA-3.

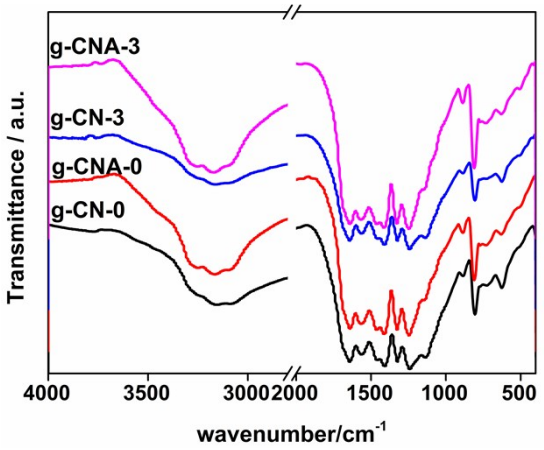

Figure S3. FT-IR spectra of g-CN-0, g-CNA-0, g-CN-3 and g-CNA-3.

FT-IR spectra were utilized to confirm the molecular structure of all the samples. The characteristic IR spectrum of the g-CNA is similar to that of the bulk material. the strong absorption peak around 700–800 cm^{-1} can be observed and assigned to the bending vibration mode of CN heterocycles, while the peak centered at 810 cm^{-1} is the characteristic plane bending vibration mode of the triazine units[2]. The peaks in the region from 900 to 1800 cm^{-1} can be attributed to either trigonal C−N(−C)−C (full condensation) or bridging C−NH−C units.[3] The broad peak located at 3000-3500cm^{-1} is attributed to the residual N-H and the O-H bands, associated with the uncondensed amino groups and absorbed H_2O molecules, respectively.

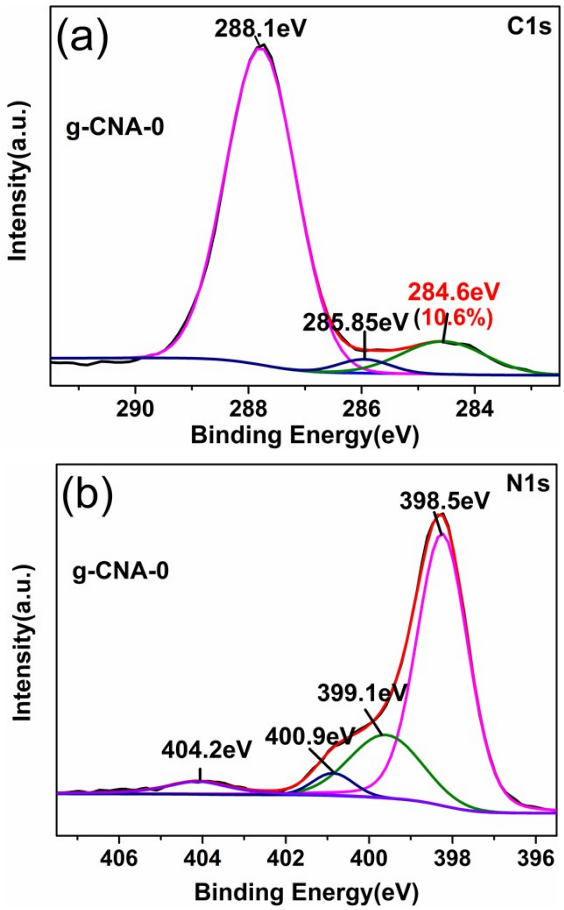

Figure S4. XPS spectra of (a) C 1s spectra of g-CNA-0 and (b) N 1s spectra of g-CNA-0.

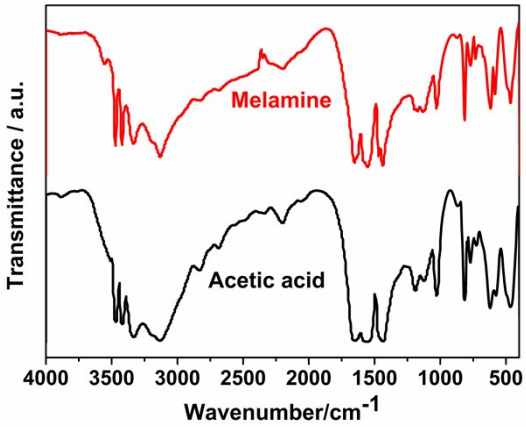

Figure S5. FT-IR of acetic acid mediated melamine.

Compared to FTIR of acetic acid from the previous literature [1], no characteristic peak of acetic acid or appears. But some characteristic peak of acetic acid mediated melamine weakened. These phenomenon indicate that a small quantity of acetic acid combined with melamine.

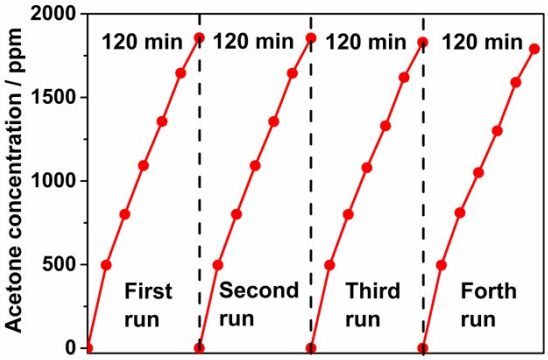

Figure S6. Four-run recycling test of g-CNA-3.

REFERENCE

1. W. A. Larish, *Dissertations & Theses - Gradworks*, 2014.

2. Z. Zhao, Y. Sun, F. Dong, Y. Zhang and H. Zhao, *RSC Adv.*, 2015, 5, 39549-39556.

3. P. Niu, G. Liu and H.-M. Cheng, *The Journal of Physical Chemistry C*, 2012, 116, 11013-11018.