Electronic Supplementary Information

Mesoporous graphitic carbon nitride (g-C_3N_4) nanosheets synthesized from carbon-beverage-reformed commercial melamine for enhanced photocatalytic hydrogen evolution

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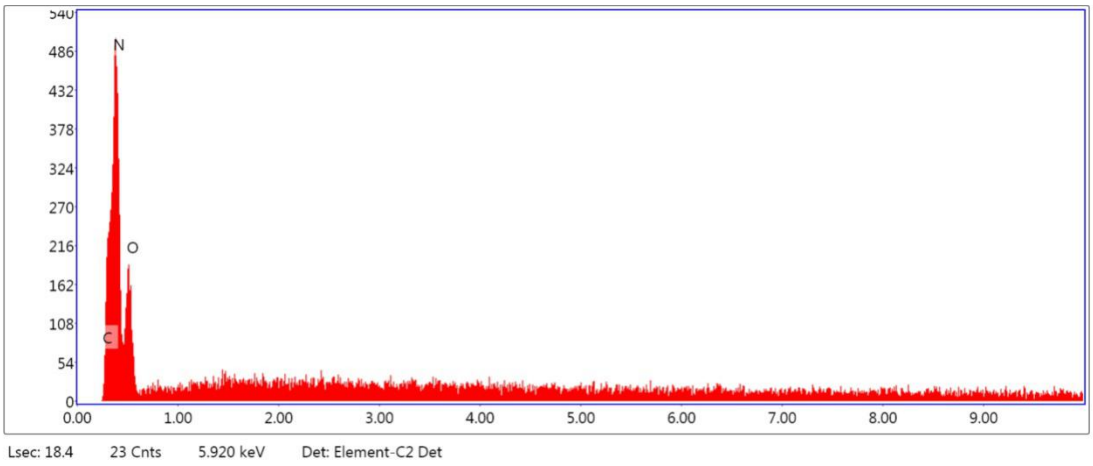

Fig. S1. EDS result of the *Coca-Cola*-assisted hydrothermal-reformed MA precursor.

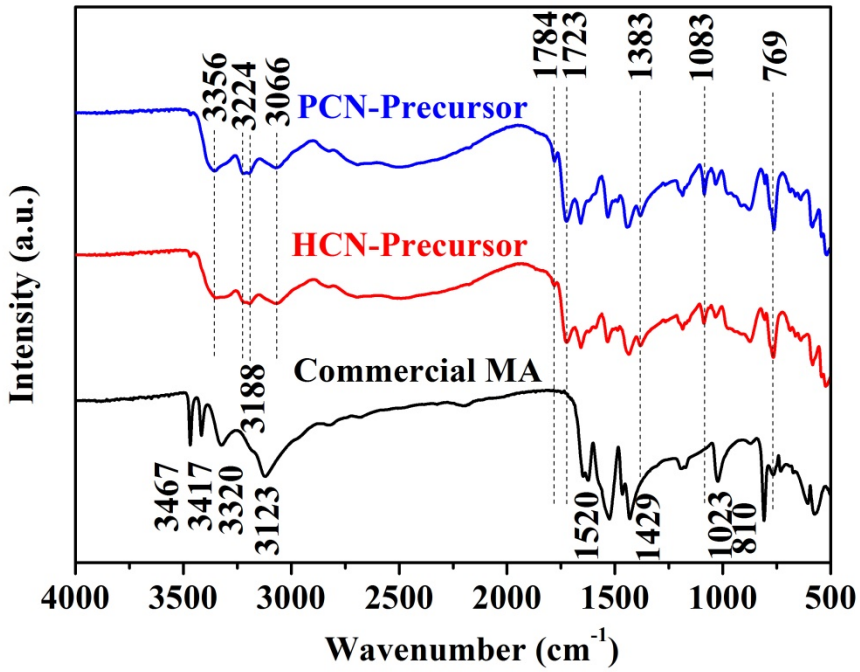

Fig. S2. FTIR spectra of the commercial MA, HCN-precursor and PCN-precursor.

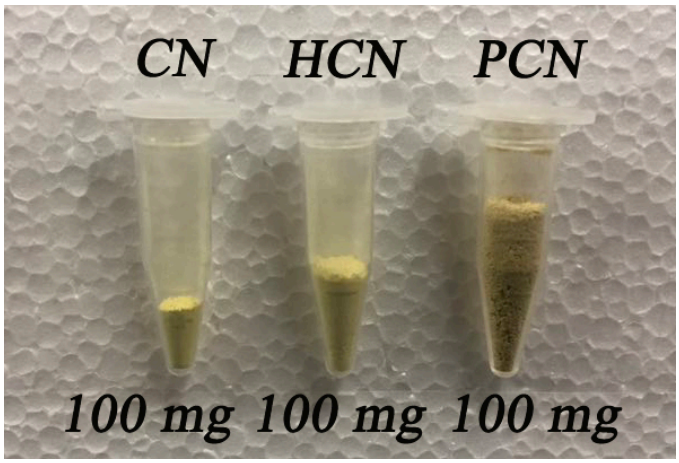

Fig. S3. Photograph of the CN, HCN and PCN sample with the same weight.

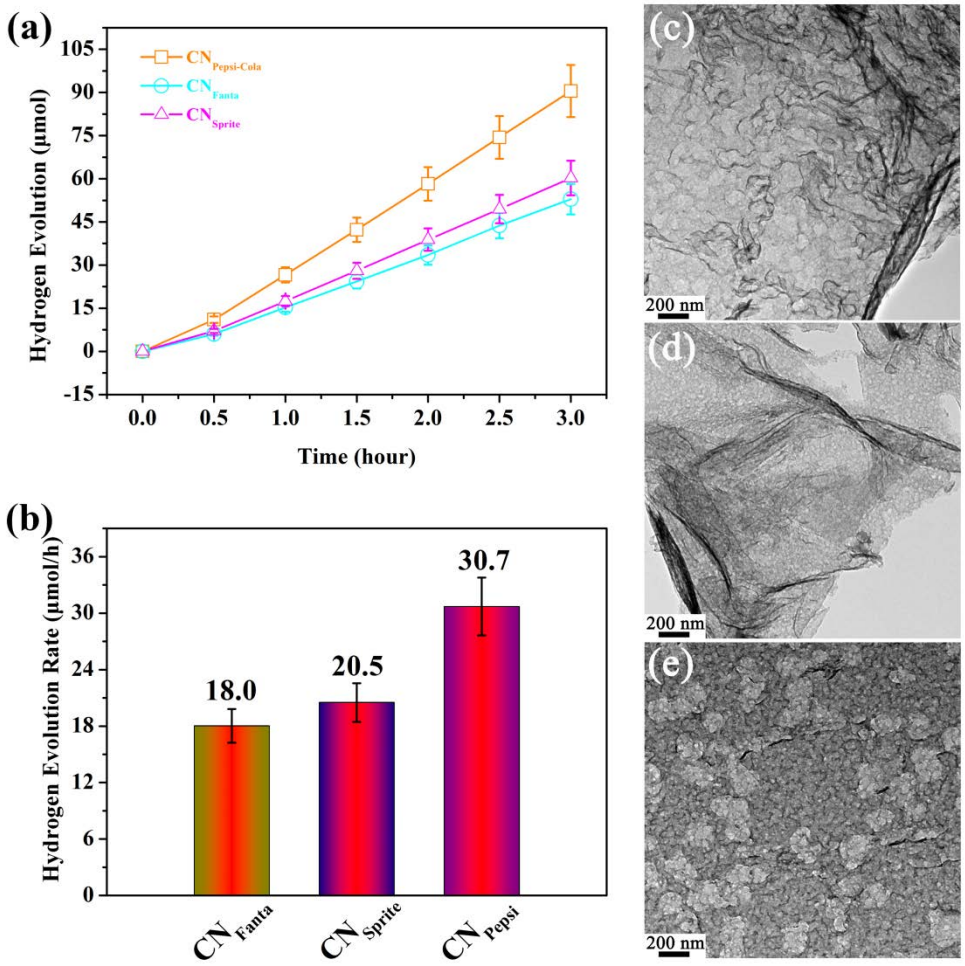

Fig. S4. (a) Photocatalytic H_2 evolution by the $CN_{Pepsi\text{-}Cola}$, CN_{Sprite} and CN_{Fanta} photocatalysts under visible light irradiation. (b) HER of the $CN_{Pepsi\text{-}Cola}$, CN_{Sprite} and CN_{Fanta}. (c) ~ (e) TEM images of $CN_{Pepsi\text{-}Cola}$, CN_{Sprite} and CN_{Fanta}, respectively.

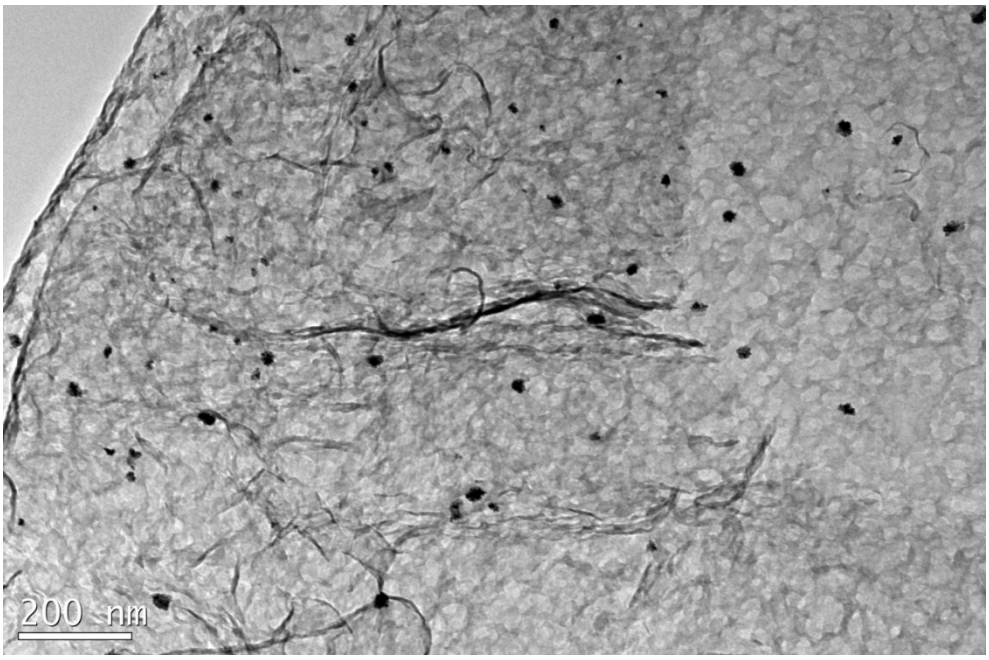

Fig. S5. TEM image of the PCN sample after the photocatalytic hydrogen evolution reaction after three successive cycles.

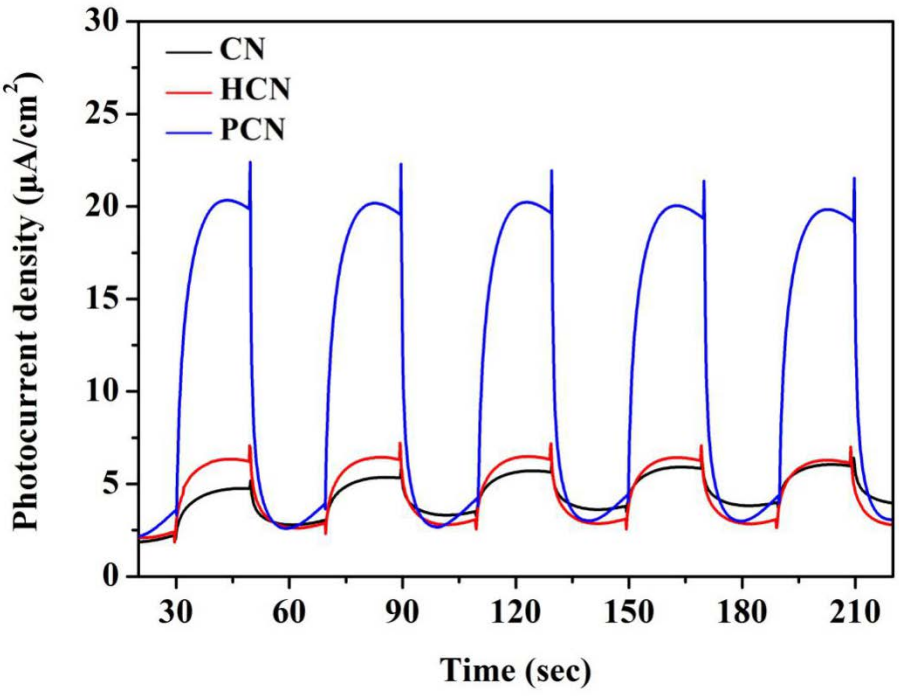

Fig. S6. Transient photocurrent responses of CN, HCN and PCN under visible-light irradiation.

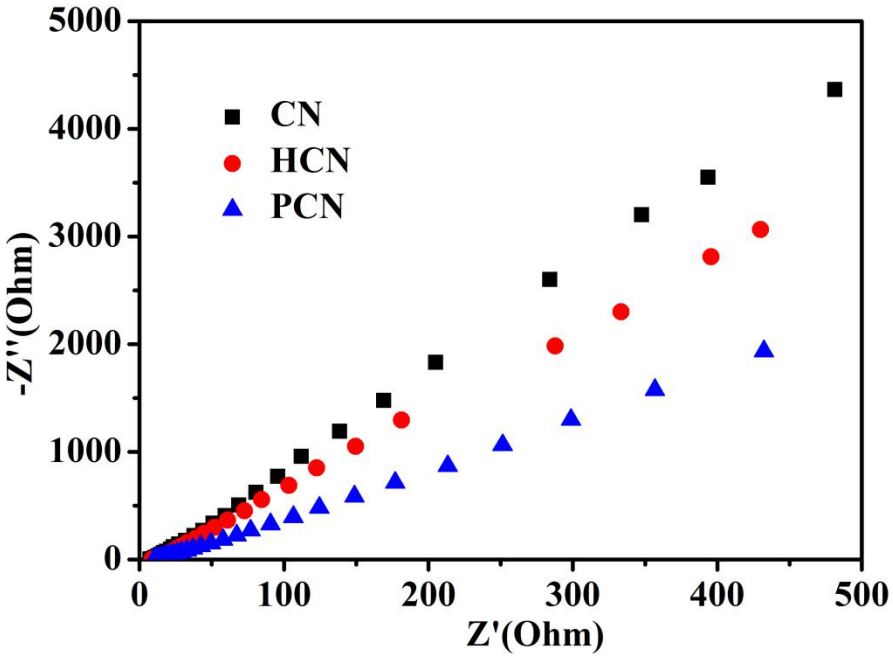

Fig. S7. EIS Nyquist plots of CN, HCN and PCN under visible-light irradiation.

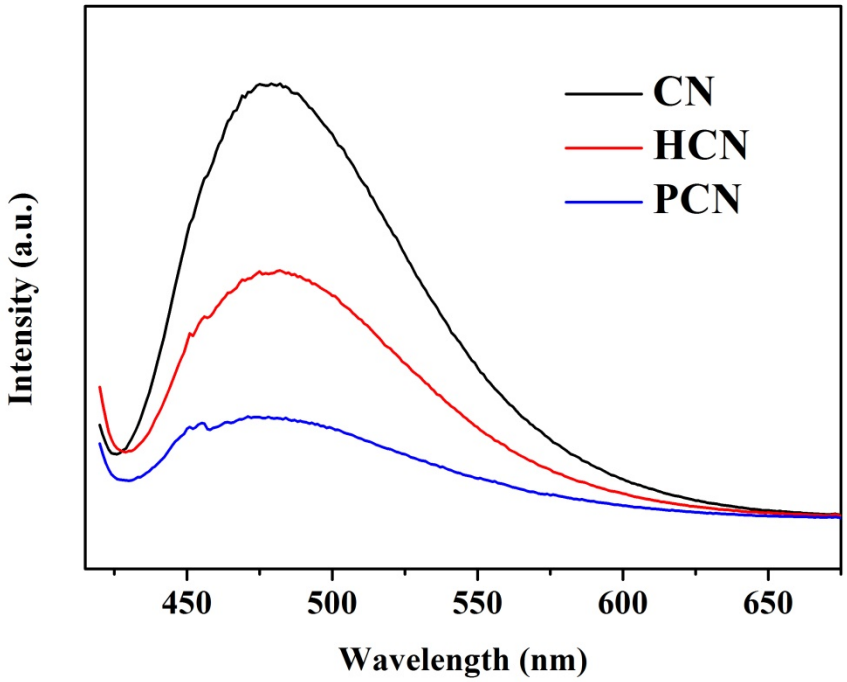

Fig. S8. PL spectra of CN, HCN and PCN.

Table S1. OEA results of the CN, HCN and PCN sample.

Sample	C%	N%	H%	O%
CN	**34.00**	**58.86**	**1.293**	**5.847**
HCN	**33.78**	**58.82**	**1.389**	**6.011**
PCN	**33.53**	**58.52**	**0.986**	**6.964**

Table S2. Comparison of the photocatalytic performance in hydrogen evolution of PCN with other recently reported carbon nitrides.

Catalyst	Lamp	HER ($\mu mol \cdot h^{-1} \cdot g^{-1}$)	BET surface area ($m^2 \cdot g^{-1}$)	Normalized HER ($\mu mol \cdot h^{-1} \cdot m^{-2}$)	AQE (%)	Reference
Porous g-C_3N_4 nanosheet	λ>400 nm	1078	186.3	5.8		1
Holey g-C_3N_4 nanosheet	λ>400 nm	2860	277.9	10.3	4.03	2
Porous g-C_3N_4 nanorod	λ>420 nm	1150	40.8	28.2	8.9	3
Holey Graphitic Carbon Nitride Nanosheets	λ>420 nm	8290	196	42.3	-	4
Porous, thin g-C_3N_4 nanosheets	λ>420 nm	991	44.2	22.4	-	5
Holey carbon nitride nanosheet	λ>420 nm	6659	265.2	25.1	-	6
Mesoporous S-doped g-C_3N_4	λ>420 nm	1360	128.4	10.6	5.8	7

Holey O-doped g-C_3N_4 thin sheet	λ>420 nm	6752	348.0	19.4		8
Porous g-C_3N_4	λ>420 nm	387	160	2.4	21.3	9
C-rich g-C_3N_4 nanosheet	λ>400 nm	3960	213.2	18.6	4.52	10
O-doped g-C_3N_4	λ>420 nm	375	47.0	7.98		11
Crystalline g-C_3N_4 nanosheet	λ>420 nm	1060	203.0	5.2	8.57	12
Porous g-C_3N_4	λ>420 nm	1161.5	37.4	31.2	7.7	This work

Reference

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