Chemically modified graphitic carbon nitride nanosheets for selective turn-off fluorescent detection of Al(III) ions in crabs (Brachyura)

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Supporting Information

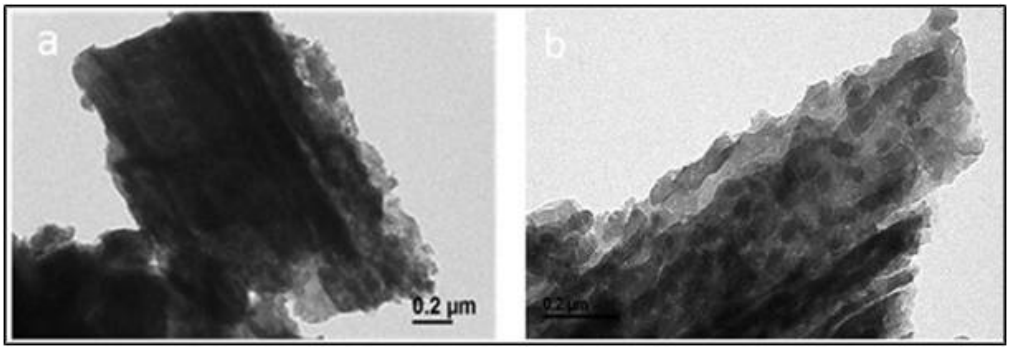

Figure S1: TEM of g-CN (a), and OH/g-CN (b).

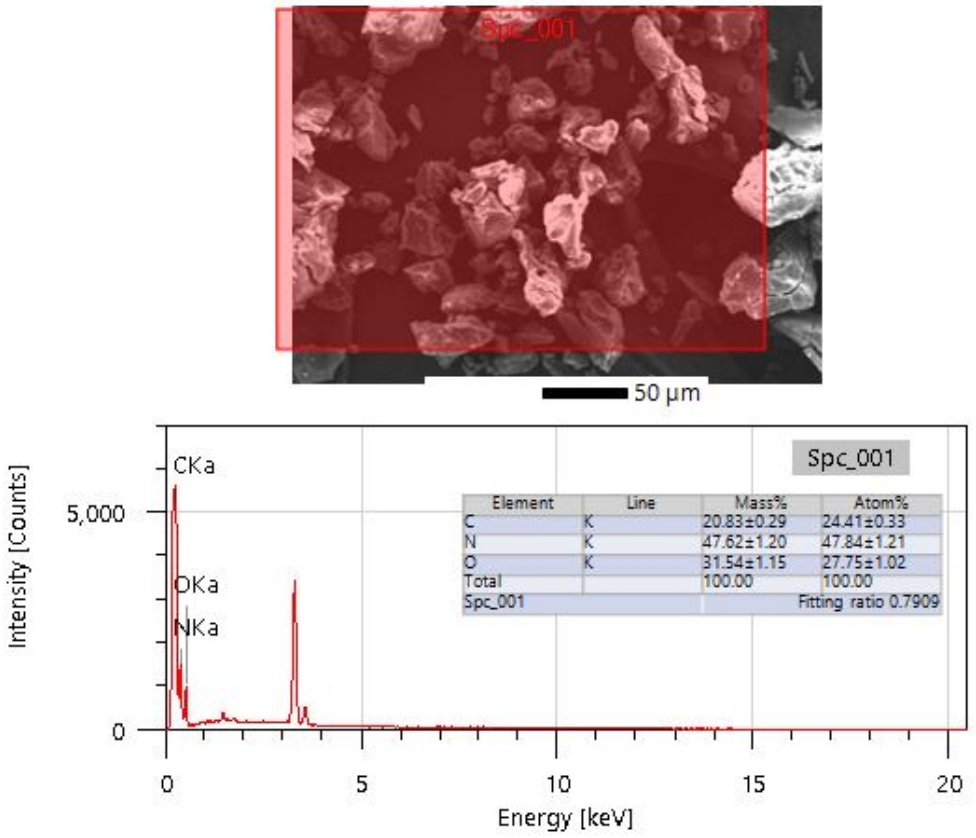

Figure S2. EDX analysis of OH/g-CN.

Table S1. The elemental composition of g-CN and HO/g-CN from XPS analysis.

Sample	C (%)	O (%)	N (%)
g-CN	45.98	2.62	51.4
HO/g-CN	38.23	18.55	43.22

Table S2: Different techniques for AL (III) detections

Techniques	LOD	Response time	Linear calibration graph	RSD (%)	Applications	Ref.
ICP-AES	0.07×10^{-3} µM	–	–	3.7	Rice flour and Lake water	1
ICP-AES	2.22×10^{-3} µM	--	–	1.6	Biological and vegetable samples, human urine and spiked water samples	2
ICP-MS	1.85×10^{-3} µM	–	–	11	Real water samples	3
GF-AAS	2.2×10^{-3} µM	–	$(1 \times 10^{-5}$ to $250 \times 10^{-5}) \times 10^{-5}$ (mg/L)	3.1–5.2	Biological and environmental	4
FAAS	6.6×10^{-3} µM	–	(0.1 to 20.0) (mg/L)	2.4	Real water samples	5
FAAS	2.86×10^{-4} µM		$(1 \times 10^{-3}$ to $20 \times 10^{-3})$ (mg/L)	5	Dam waters	6
Fluorescence spectrophotometer	4.7×10^{-4} µM	3 min	$(6.19 \times 10^{-7}$ to $6 \times 10^{-5})$ (mol/L)	< 5.0	Spiked lake and river water samples	7
Fluorescence spectrophotometer	3.62µM	40 s	$(3.62 \times 10^{-6}$ to $1 \times 10^{-4})$ (mol/L)	2.82	Synthetic water	8
UV-Vis spectrophotometric	3.71 µM	35 s	(0.1–1.0) (mg/L)	2.4–3.1	Synthetic water	9
Fluorescence spectrophotometer	4.8×10^{-6}µM	15 min	$(1.0 \times 10^{-10}$ to $1.0 \times 10^{-5})$ (M/L)	< 5.0	Synthetic water	10
Reflectance spectrophotometry	12.6 µM	3 min	$(0.34 \times 10^{-3}$ to $10.75 \times 10^{-3})$ (mg/L)	1.73	–	11
Diffuse reflectance measurements using a miniature fiber optic	6.67µM	--	0.18-2 ppm	8.8	Leachates from cookware, antacids and hygienic care products	12

spectrometer						
Spectrofluorimeter	0.05 μM	–	–	5	Dialysis solutions and water	[13]
HO/g-CN fluorescence sensor	0.272 μM	2 min	1.85 – 14.82 μM	2.6	Real water samples and crabs (Brachyura) samples	**This work**

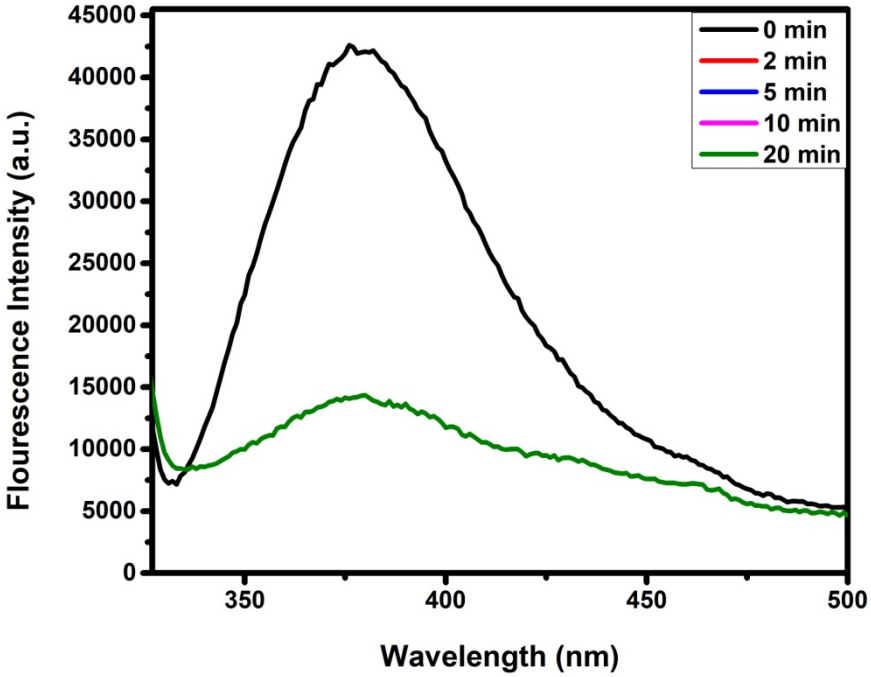

Figure S3.Time-dependent fluorescence quenching of HO/g-CN by 3.0 ppm Al^{3+} in phosphate buffer (pH 8).(Excitation at 290 nm).

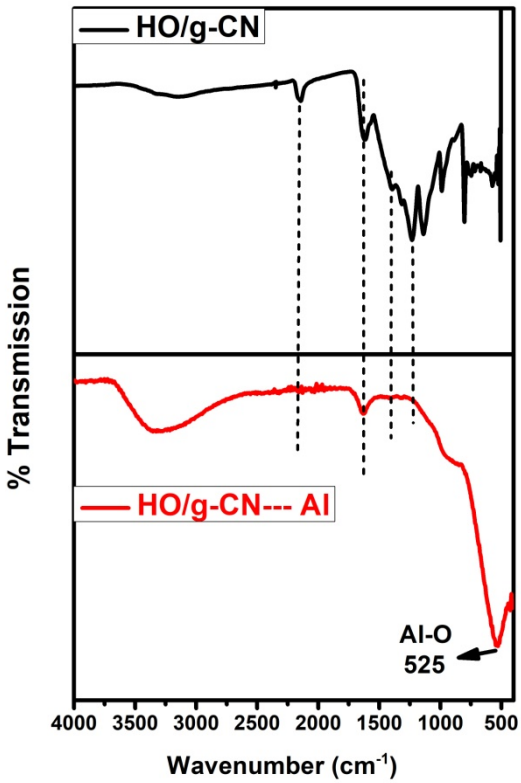

Figure S4: FTIR spectra of HO/g-CN and HO/g-CN-Al(III).

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