Electronic Supplementary Information

Amino acid mediated functionalization and reduction of graphene oxide - synthesis and the formation mechanism of nitrogen-doped graphene

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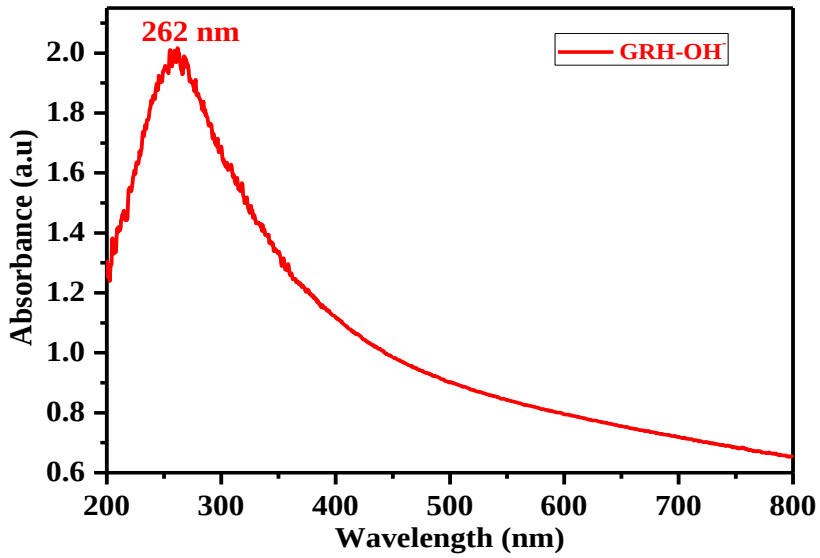


Fig. S1 Optical absorption spectrum of GRH-OH$^-$ after 13 h of reaction.

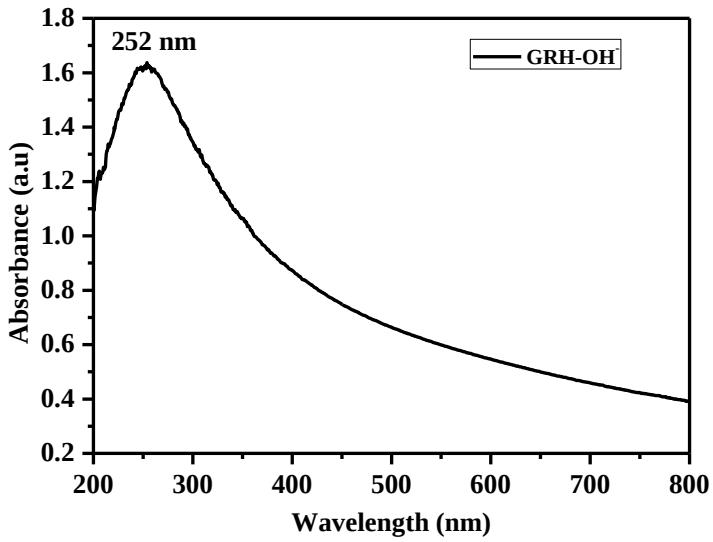


Fig. S2 Optical absorption spectrum of GRH-OH$^-$ after 3 h of reaction.

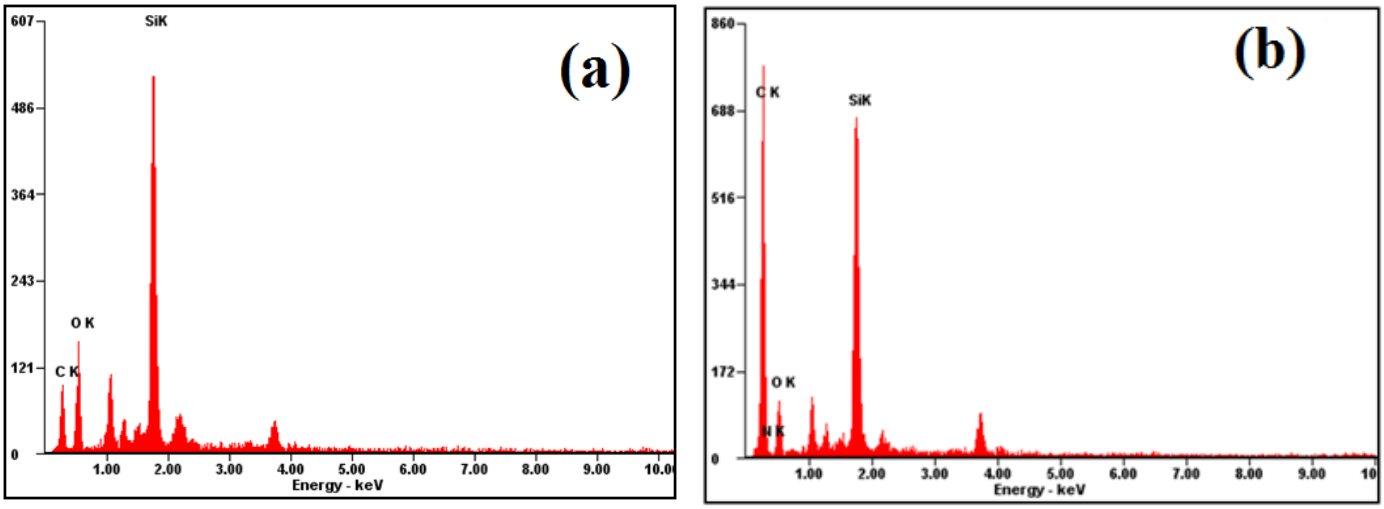


Fig. S3 EDAX spectra of: GO (a) and GRH-AIB (b).

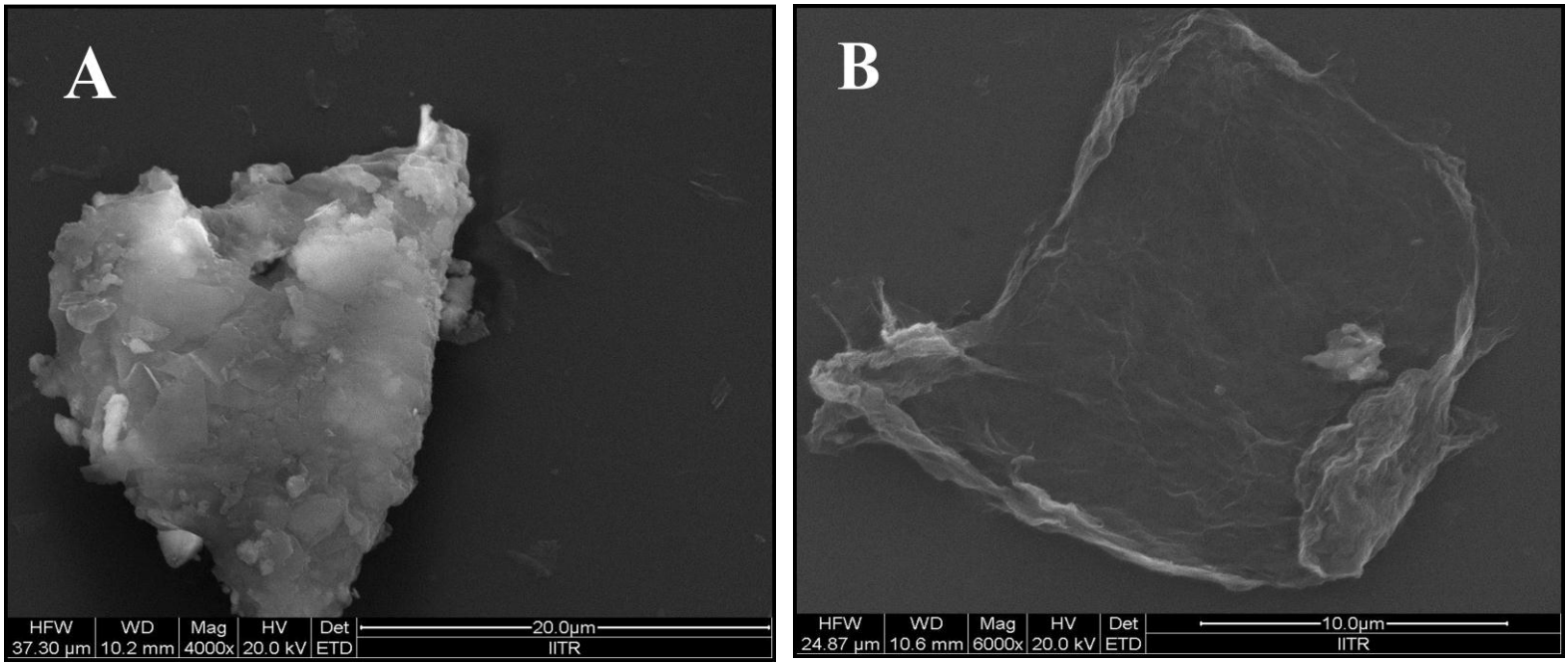


Fig. S4 FE-SEM images of GO (A) and GRH-AIB (B) recorded at lower magnifications.

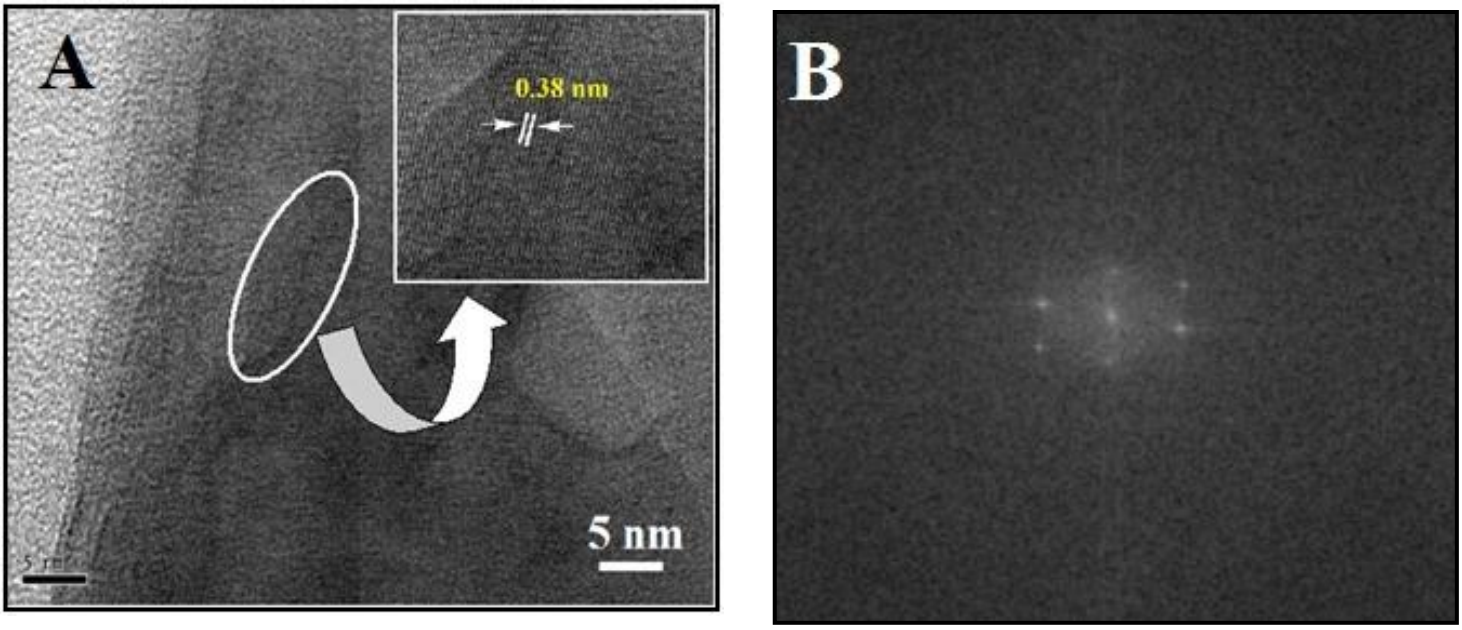


Fig. S5 (A) HRTEM image of GRH-AIB showing interplanar distance 0.38 nm. (B) 2D FFT image showing hexagonal pattern recorded from TEM micrograph given in (Fig. S5A)

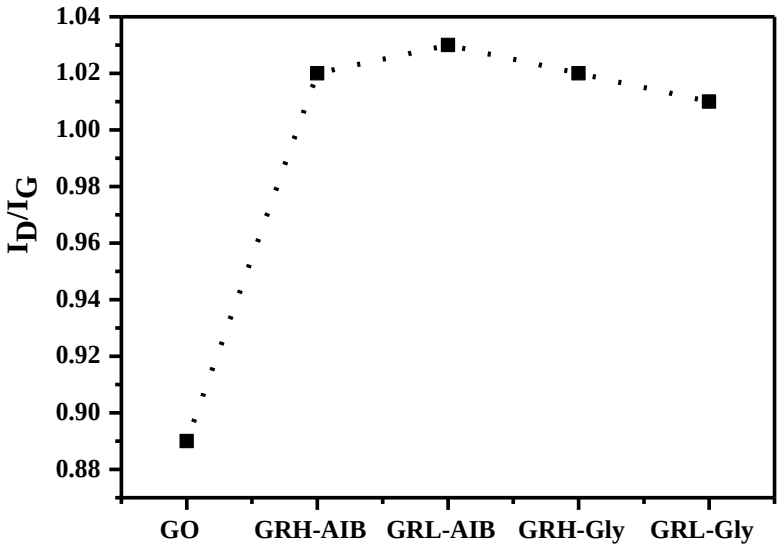
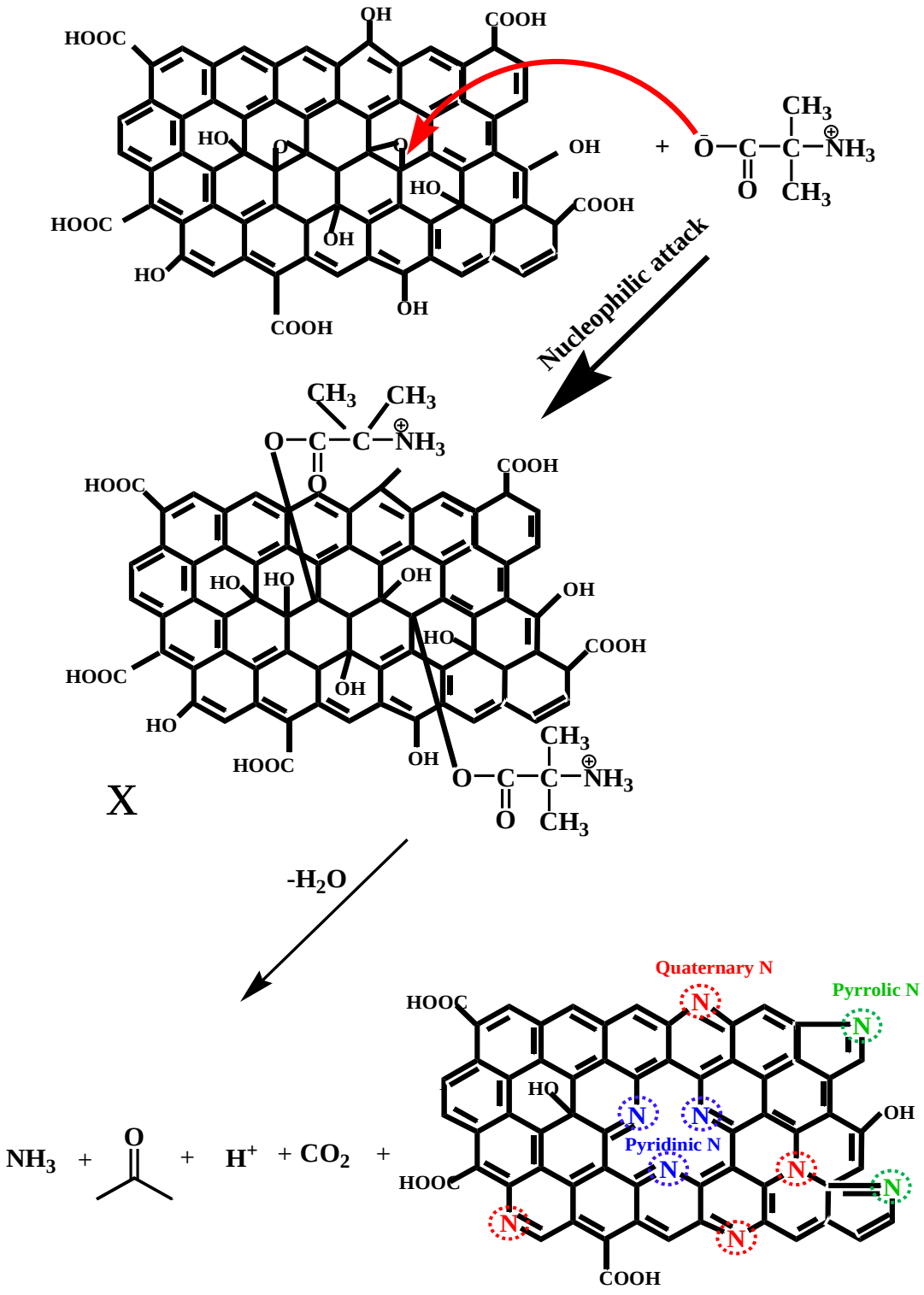
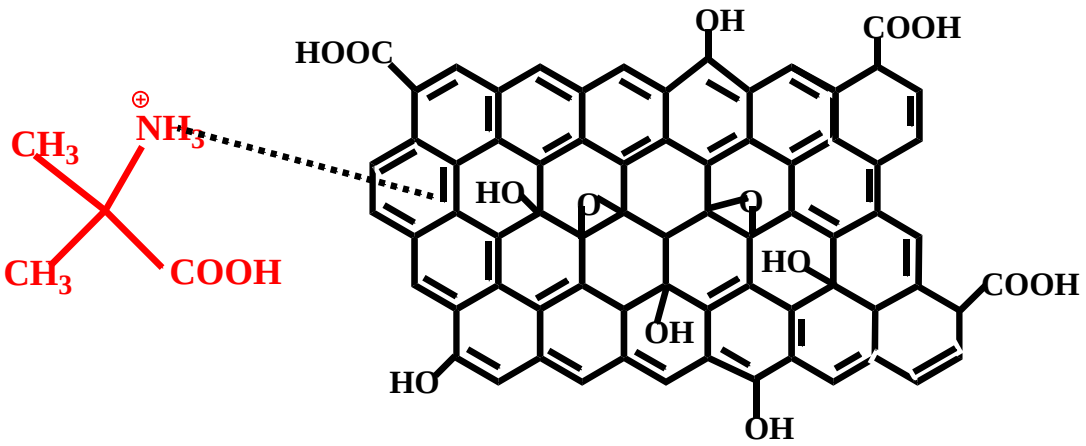


Fig. S6 I_D/I_G ratio of: GO, GRH-AIB, GRL-AIB, GRH-Gly and GRL-Gly.



Scheme S1 Mechanism depicting the nucleophilic attack of carboxylic group of AIB on the epoxy group of GO.



Scheme S2 Cationic-Pi interaction of protonated amino group of AIB with GO.

Table S1 Raman spectral data of graphite, GO, GRH-AIB, GRL-AIB, GRH-Gly and GRL-Gly.

Sample	D (cm^{-1})	G (cm^{-1})	2D (cm^{-1})	D+G (cm^{-1})	2D′ (cm^{-1})	I_D/I_G
Graphite	1357	1575	2687 ($2D_1$); 2727 ($2D_2$)	-	-	-
GO	1357	1601	2699	2934	-	0.89
GRH-AIB	1351	1598 (1623 D′)	2709	2932	3194	1.02
GRL-AIB	1351	1595 (1617 D′)	2711	2936	3198	1.03
GRH-Gly	1351	1597 (1617 D′)	2710	2931	3197	1.02
GRL-Gly	1355	1599 (1620 D′)	2719	2944	3198	1.01

Table S2 Elemental analysis of FESEM images recorded in: GO (Fig. 6a) and GRH-AIB (Fig. 6b) as determined by EDAX.

Sample	Carbon (at%)	Oxygen (at%)	Nitrogen (at%)	C/O ratio	C/N ratio
GO	56.65	28.20	-	2.00	-
GRH-AIB	81.09	9.64	3.2	8.4	25.1

Note - Remaining at% constitute silicon of glass substrate.