

†Electronic Supporting Information

Facile synthesis of twisted graphene solution from graphite-KCl

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Results:

Energy-dispersive X-ray spectroscopy (EDS):

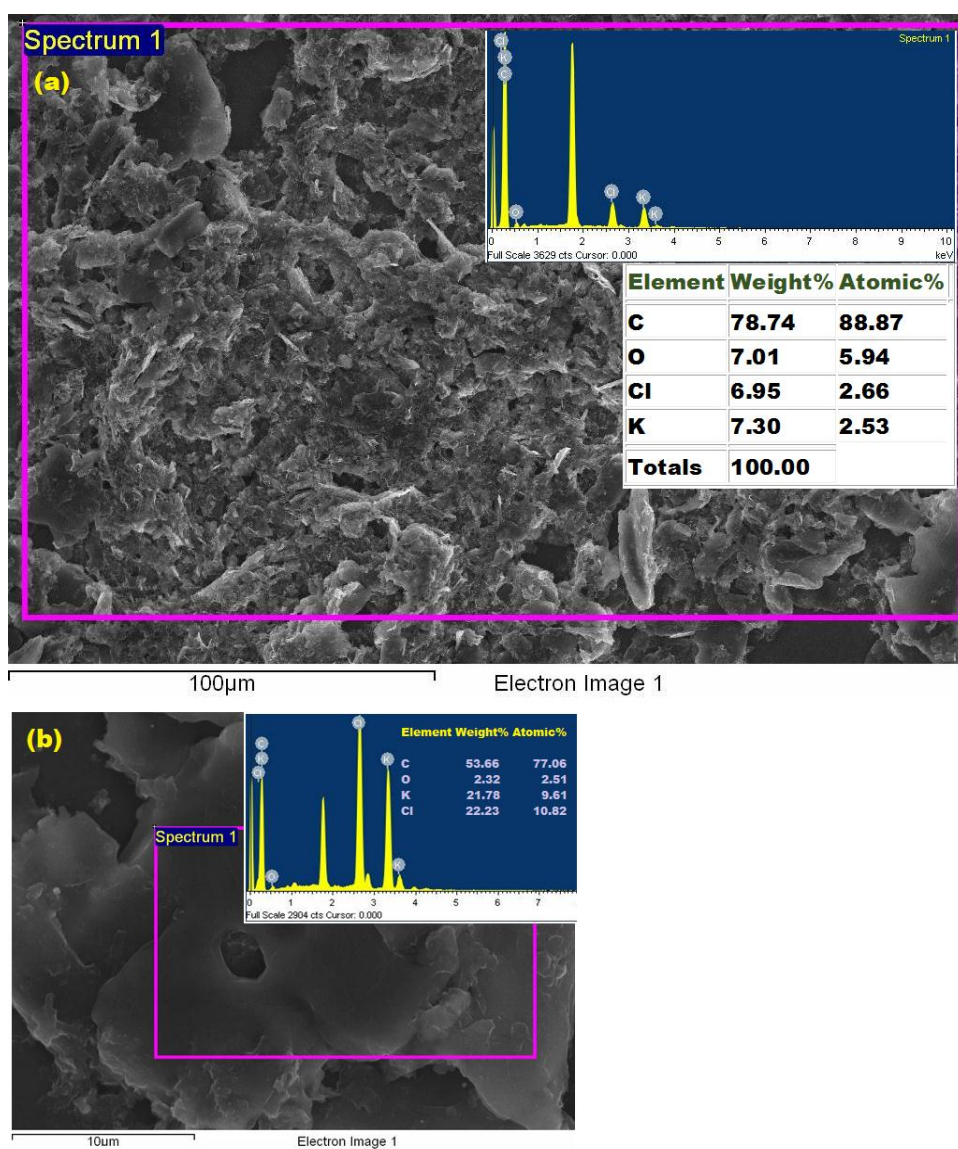


Figure S1. EDS of graphite-KCl compound in (a) and (b).

Figure S1 shows FEG-SEM image of graphite-KCl compound. The corresponding EDS spectrum and the data are given in the inset. EDS confirms the formation of KCl in GKC.

X-ray Diffraction:

To confirm that KCl is intercalated into graphite, X-ray Diffraction (XRD) was performed. The data obtained from the graphite intercalated compound (GIC) is matched with that of the standard JCPDS data (JCPDS file No: 01-073-0380) of KCl (Fig. S1) which is presented below. It is very difficult to match patterns having lesser intensity. We see a very close match between the two XRD data.

Comparison of standard X-ray diffraction of KCl with that of experimental data obtained

<u>Standard KCl (Ref: JCPDS:01-073-0380)</u>					<u>Experimental</u>	
No.	hkl	d [Å]	2θ [deg]	I [%]	2θ (Exp)	d [Å]_{Exp}
1	111	3.62507	24.537	0.6	24.14	3.68
2	200	3.13940	28.407	100.0	28.5	3.12
3	220	2.21989	40.608	59.5	40.7	2.21
4	311	1.89313	48.020	0.4	48.1	1.88
5	222	1.81253	50.300	17.5	50.3	1.81
6	400	1.56970	58.777	7.1	58.7	1.56
7	331	1.44046	64.655	0.1	----	----
8	420	1.40398	66.550	17.1	66.5	1.4
9	422	1.28165	73.886	11.3	73.8	1.28
10	511	1.20836	79.208	0.1	----	----
11	440	1.10995	87.894	3.1	----	----

Table 1. Comparison of standard XRD of KCl with that of experimental data obtained

FEG-SEM Characterization:

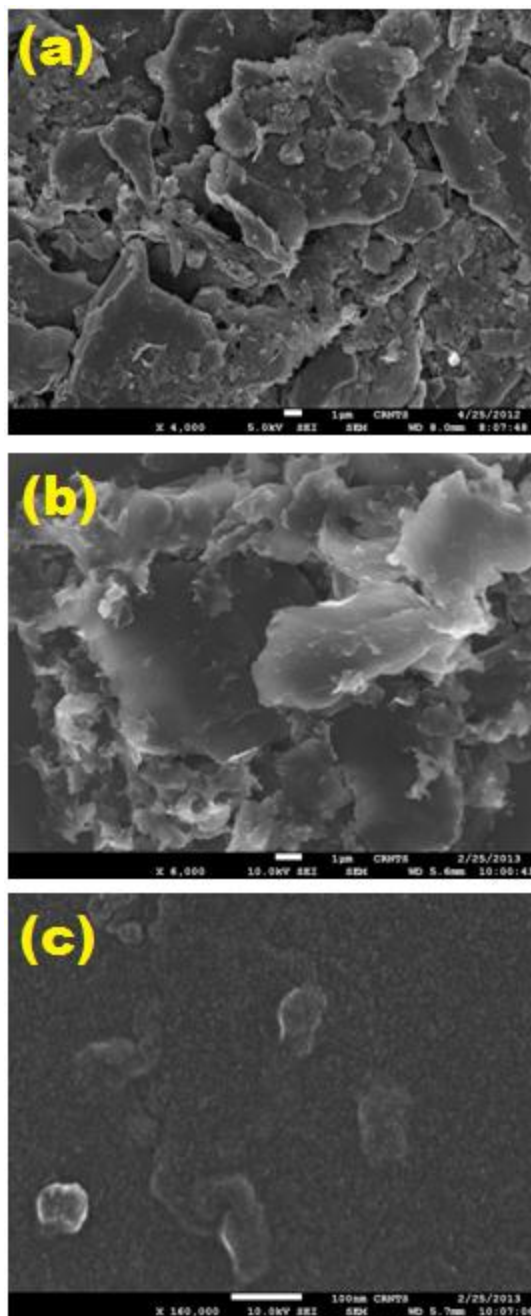


Figure S2. FEG-SEM images of (a) GKC, (b) EG and (c) few layer (< 3-4) graphene sheets

FEG-SEM images of GKC, EG and few layer (< 3-4) graphene sheets are presented in figure S3. It is difficult to determine the number of layers of graphene by SEM. The number of layers in figure S2-(c) is a consequence of other characterizations performed.

FEG-TEM Characterization of GKC:

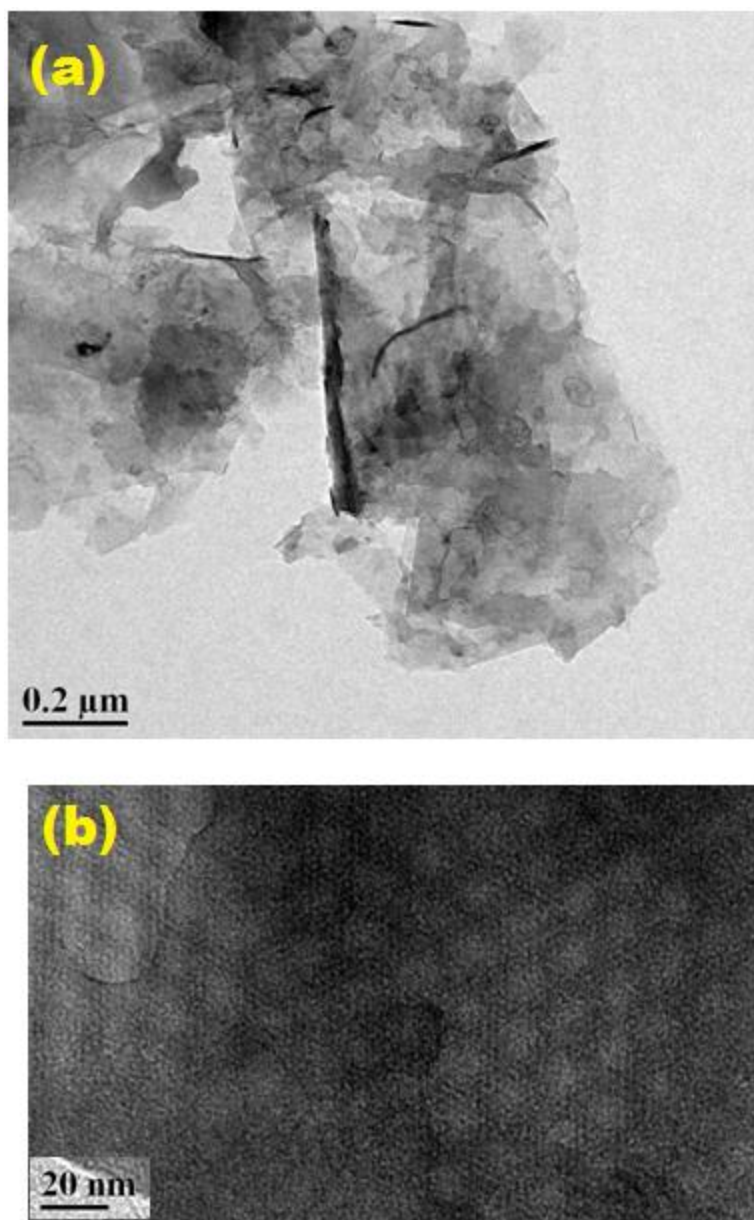


Figure S3. FEG-TEM image of GKC at a scale bar of (a) 0.2 μm and (b) 20 nm.

Figure S3 shows the FEG-TEM images of GKC at two different scales. A Zoomed portion of Figure S3-(a) is presented in figure S3-(b).

SAED pattern of TLG:

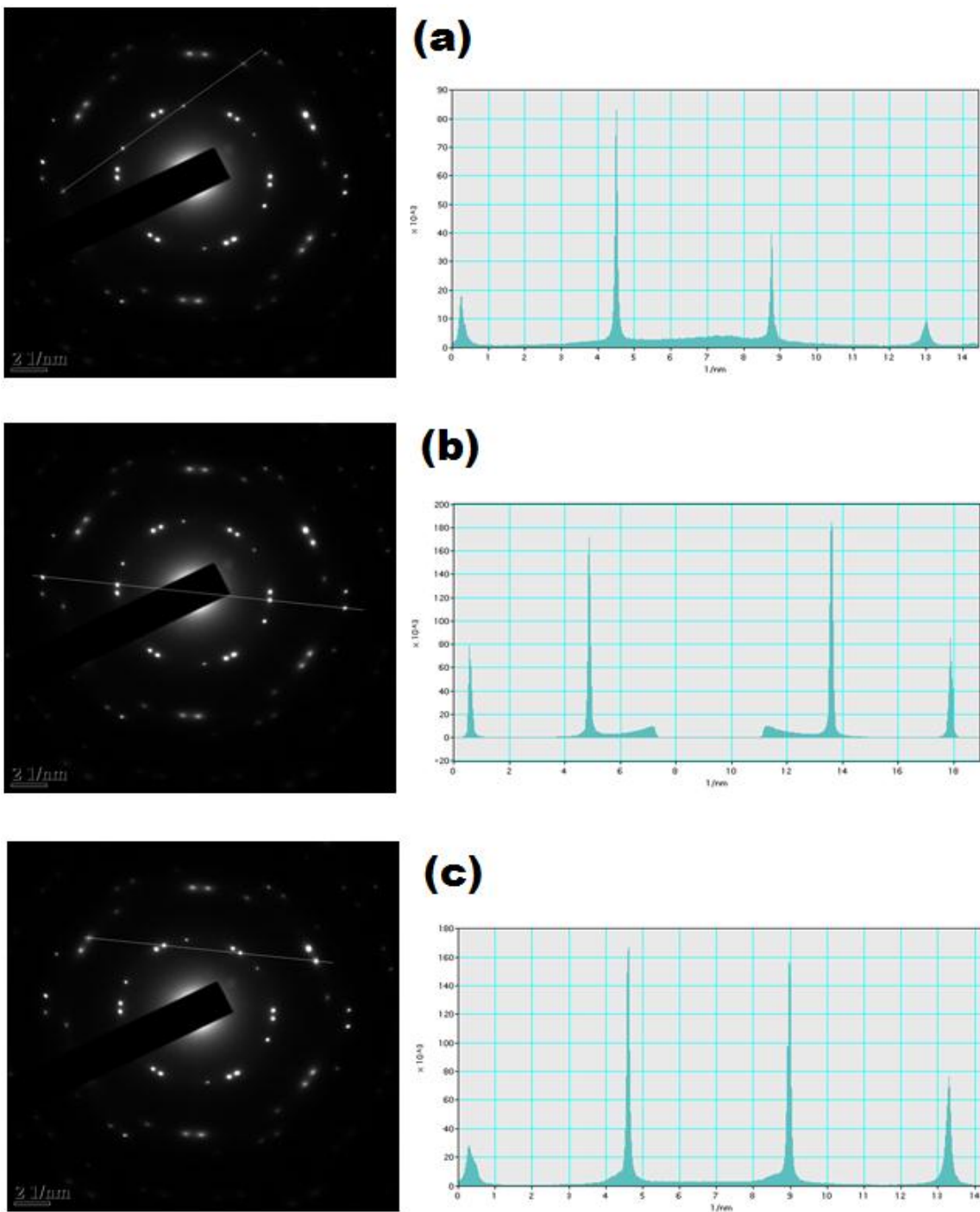


Figure S4. SAED pattern of TLG and the corresponding intensity ratio of spots is shown in (a), (b) and (c). The fact that spots of inner hexagons have higher intensity than that of outer hexagons confirms the presence of SLG. Thus TLG constitutes three misoriented SLG sheets.