

Electronic supporting information

1 Studies on the affect of bio-ionic liquid structures on the 2 spontaneous reduction and dispersion stability of graphene oxide 3 in aqueous media

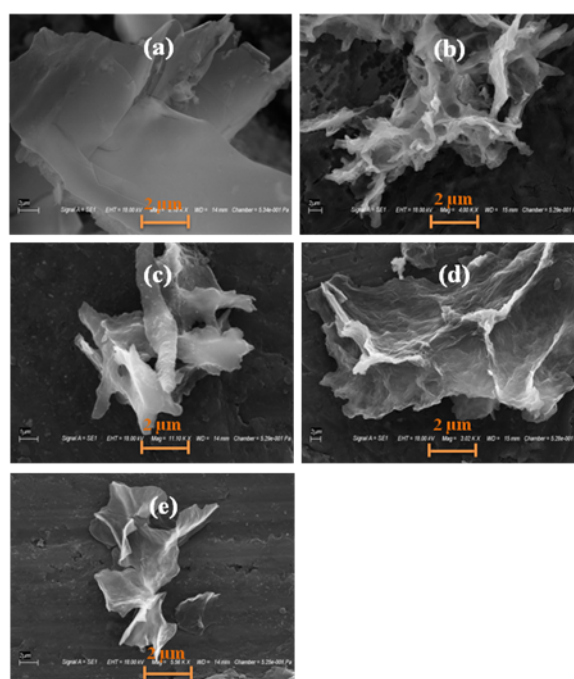
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10 +91-278-2567562 Email: kamlesh@csmcri.org / drkamaleshp@gmail.com]

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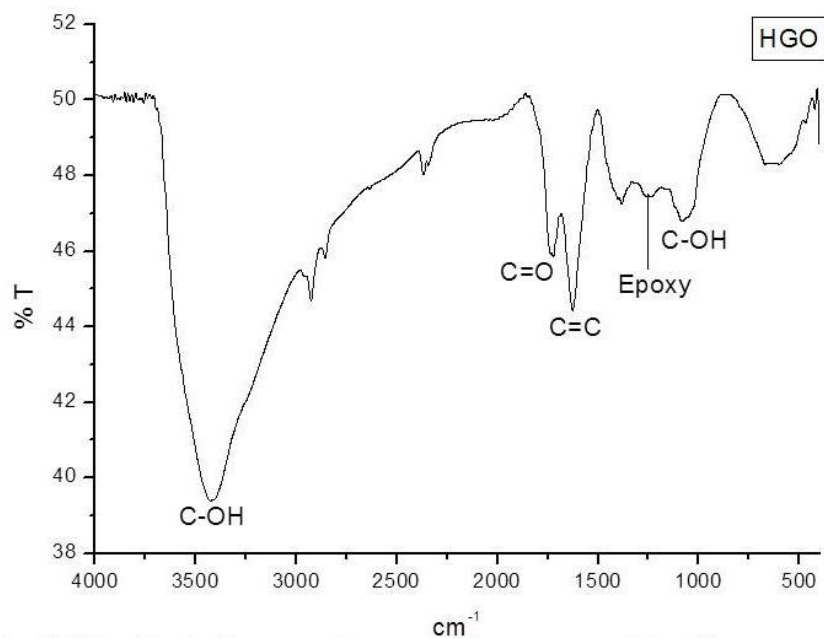
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14 **Fig. S1:** SEM images of (a) pristine HGO and GO modified with (b) choline bicarbonate, (c)
15 choline hydroxide, (d) choline formate and (e) choline caproate.

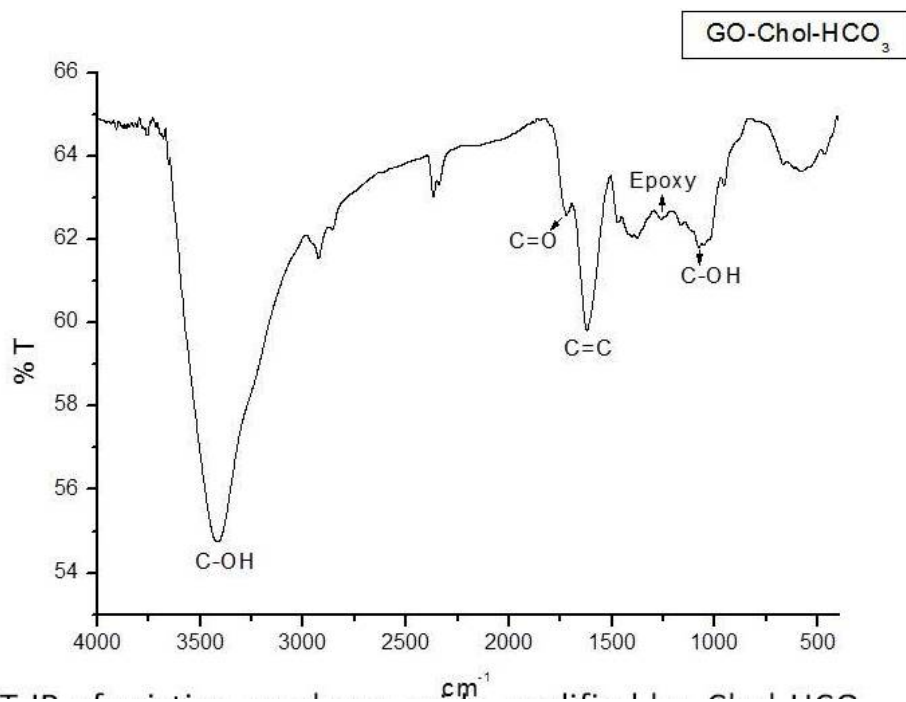
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Fig. S2 : FT-IR of pristine graphene oxide prepared by Hummers method (HGO)

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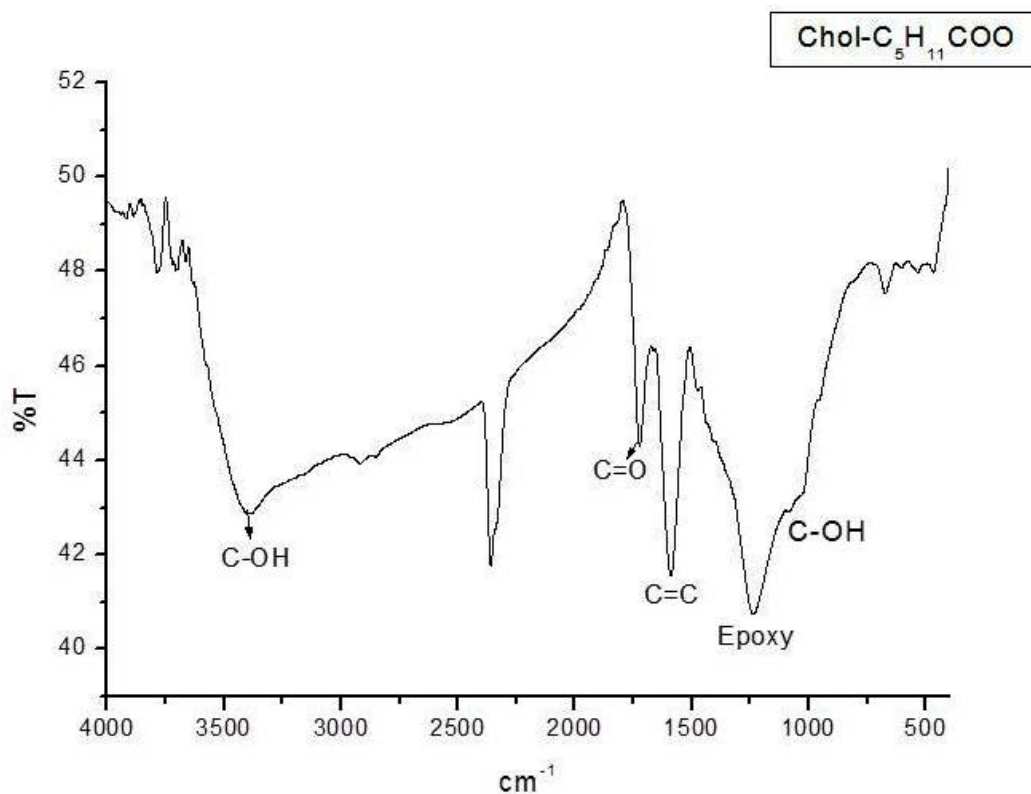
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Fig. S3 : FT-IR of pristine graphene oxide modified by Chol-HCO₃

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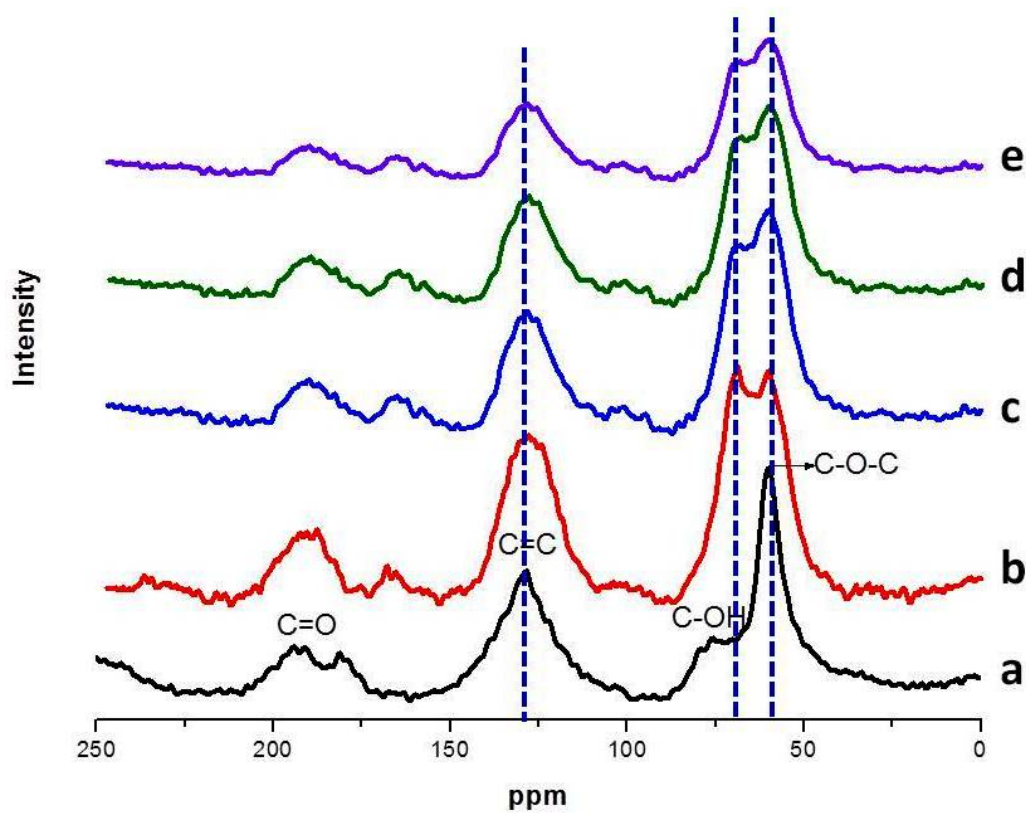
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Fig. S4 : FT-IR of pristine graphene oxide modified by Chol-C₅H₁₁COO

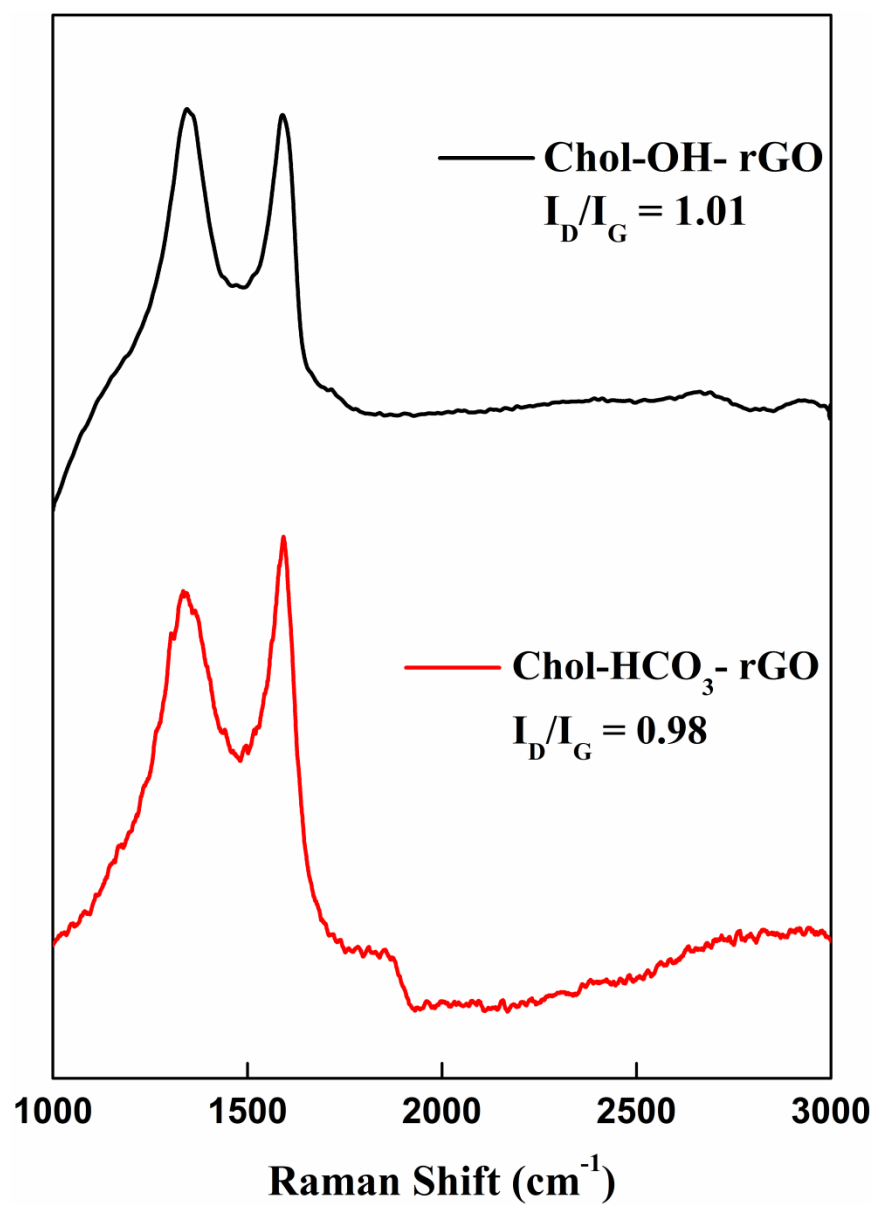


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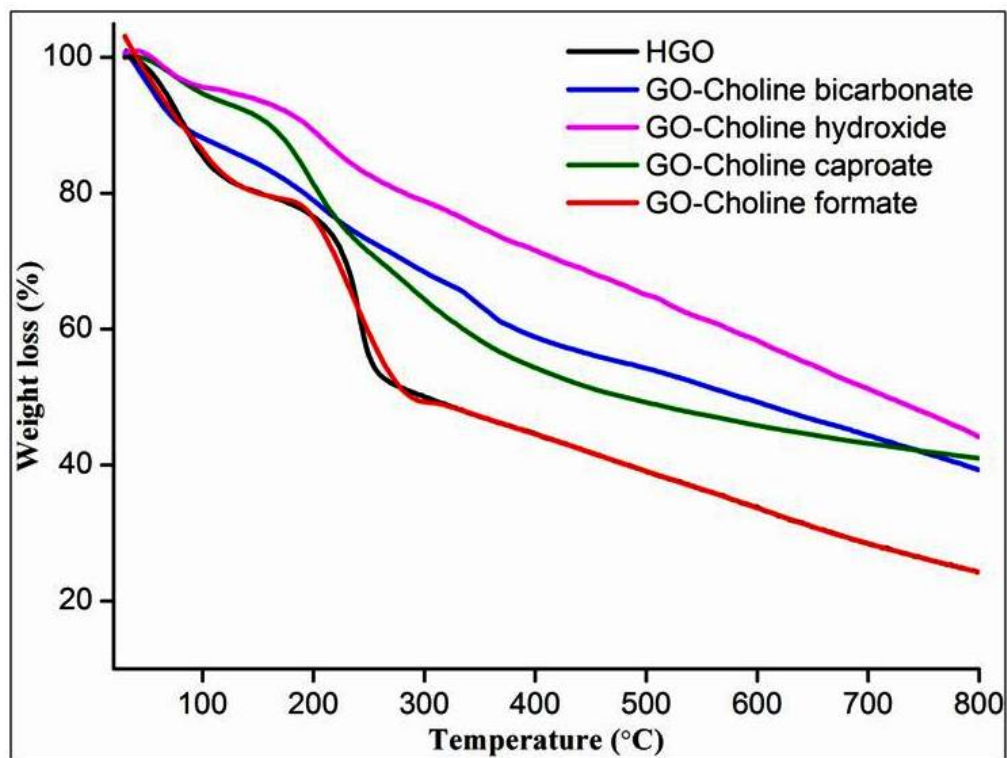
Fig. S5 : SSNMR of (a) pristine HGO and GO modified by (b) Chol-OH (c) Chol-HCO₃ (d) chol-HCOO and (e) chol-C₅H₁₁COO



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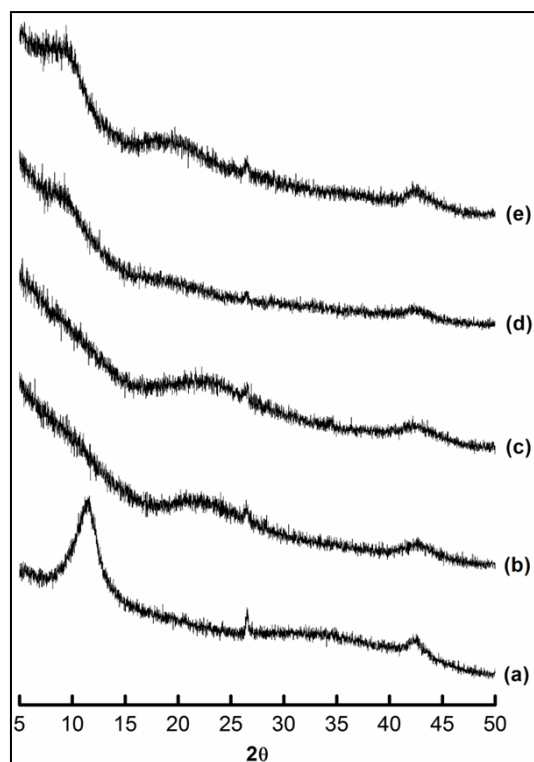
Fig. S6 : GO functionalized by chol-OH (black) and GO functionalized by chol-HCO₃ (Red).

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42 Fig. S7 : TGA of HGO and IL functionalized GO
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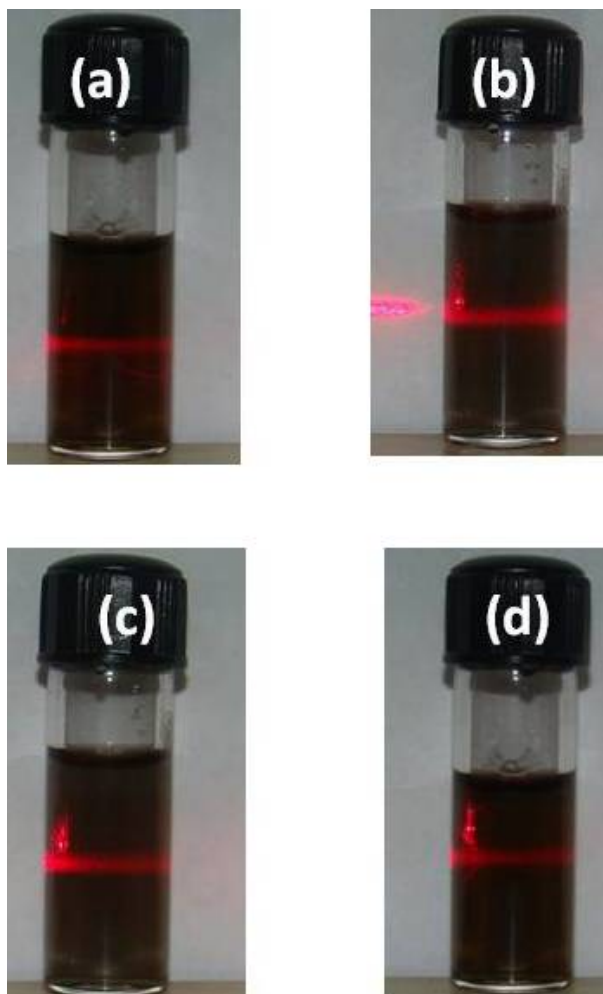
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56 **Fig. S8:** Powder x-ray diffraction pattern of (a) pristine HGO, modified GO with (b) choline
57 bicarbonate (c) choline hydroxide (d) choline caproate and (e) choline formate.

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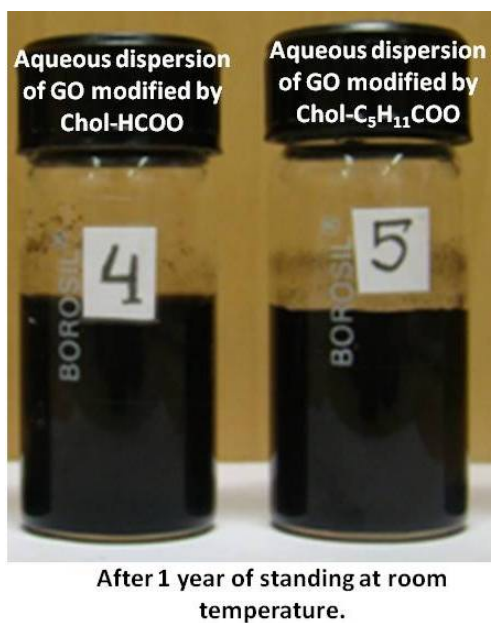
66 **Fig. S9** : Tyndall effect shown in GO functionalized with (a) choline formate and (b) choline
67 caproate at 0 days. Tyndall effect shown in GO functionalized with (c) choline formate and
68 (d) choline caproate after 365 days

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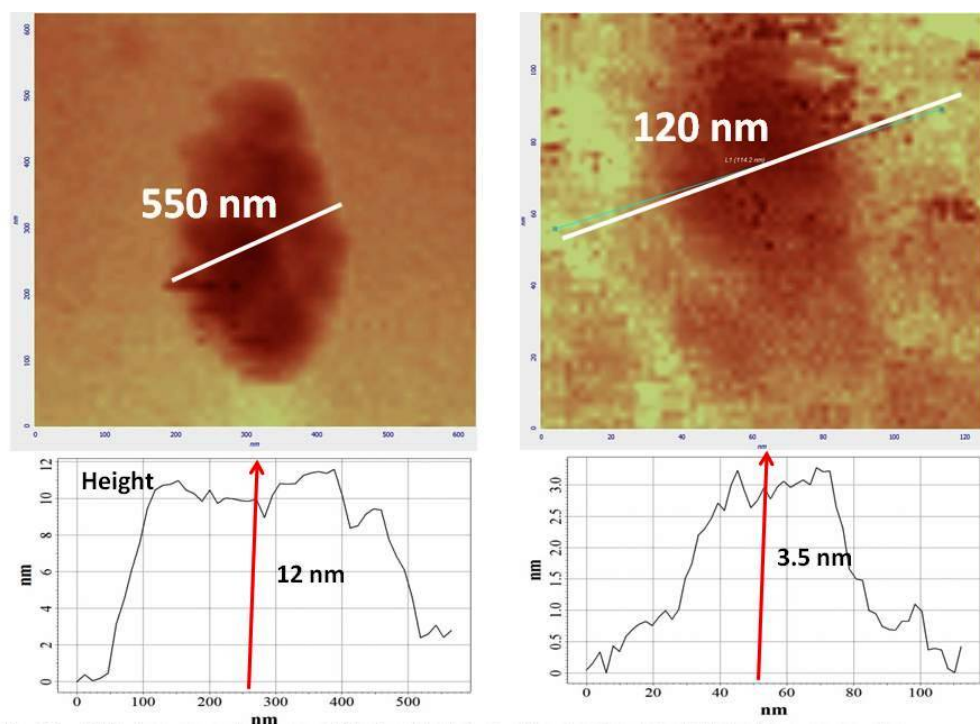
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73 Fig. S10: Long term dispersion stability of GO modified by ILs.



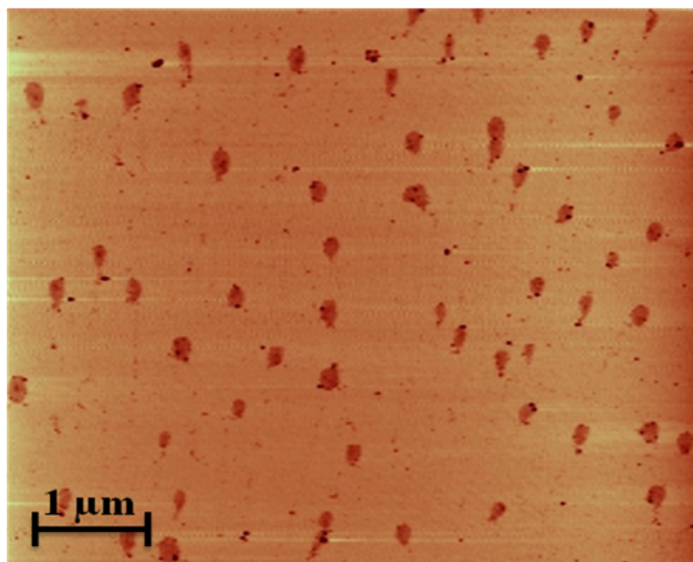
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75 Fig. S11: AFM images of GO functionalized with (a) choline hydroxide (b) choline caproate

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80 **Fig. S12:** AFM images of dispersed GO functionalized with choline bicarbonate.

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