Supporting Information

Influence of the pH on the Synthesis of reduced Graphene Oxide under Hydrothermal Conditions

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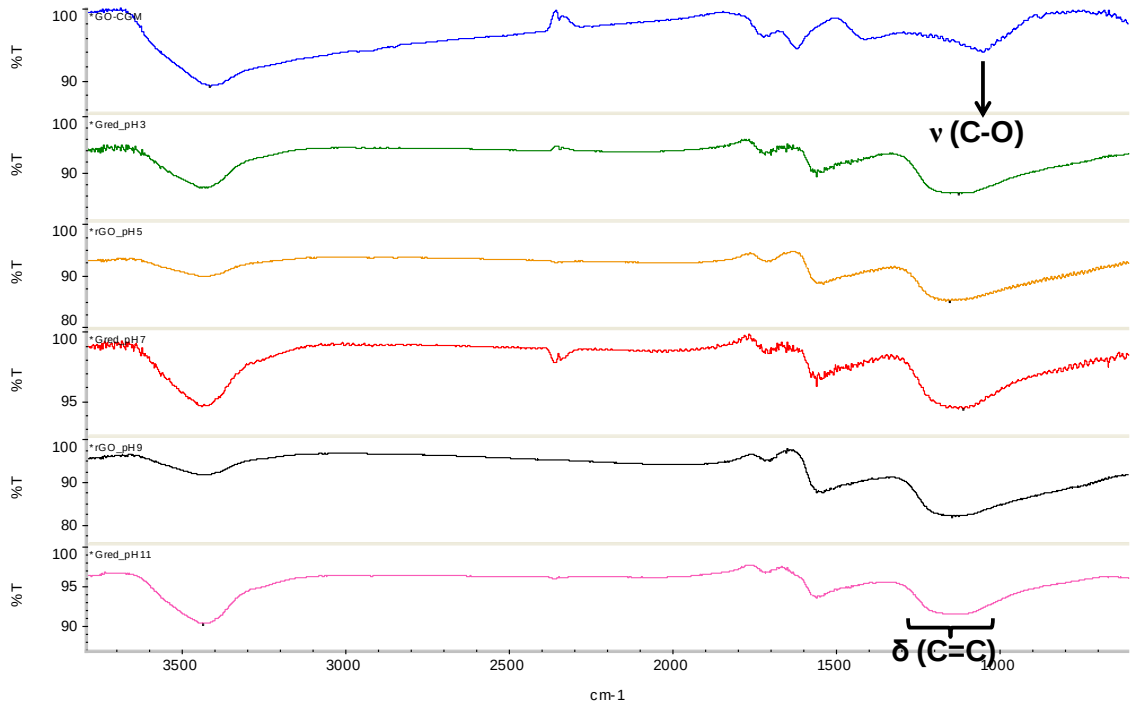
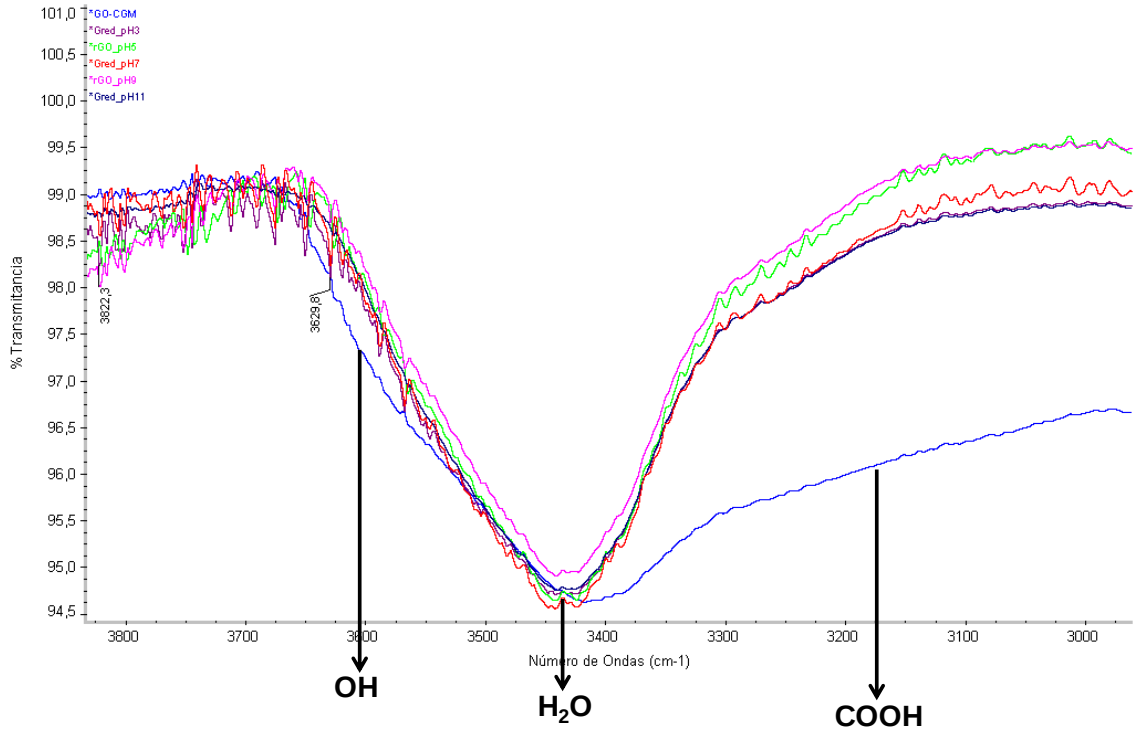
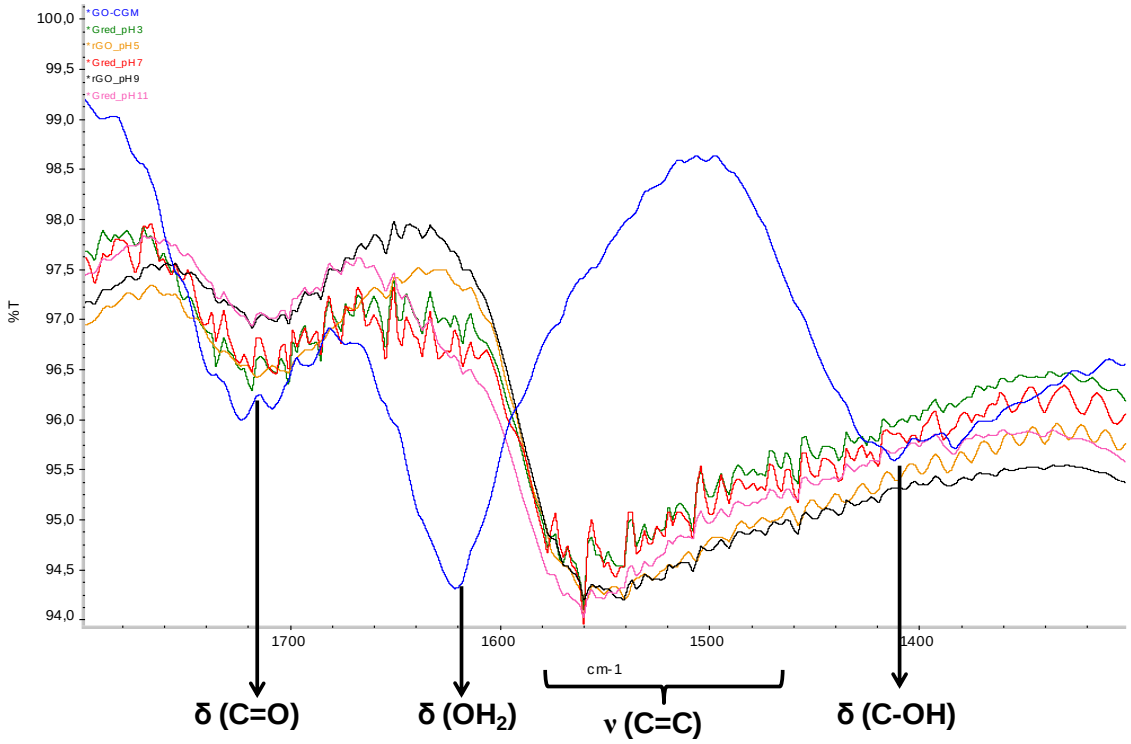
SI 1: (a) FT-IR spectra of GO (blue) and rGO at pH3 (green), pH5 (orange), pH7 (red), pH9 (black) and pH11 (pink); (b and c) zoom-in of the 3800-3000cm^{-1} and 1800-1300cm^{-1} regions, respectively.



(a)

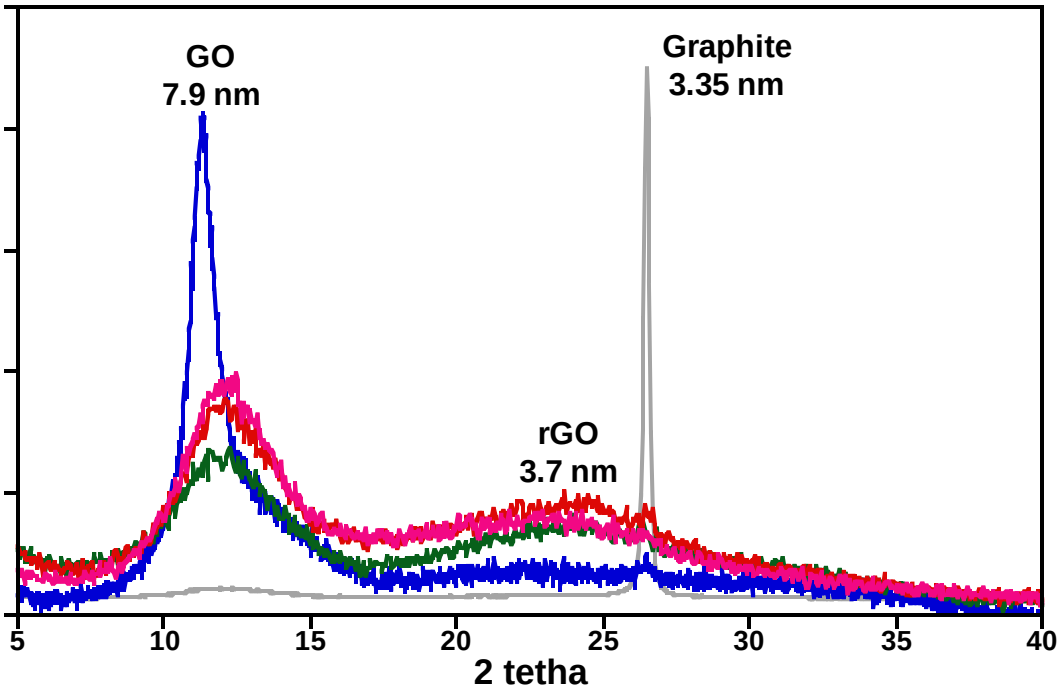


(b)

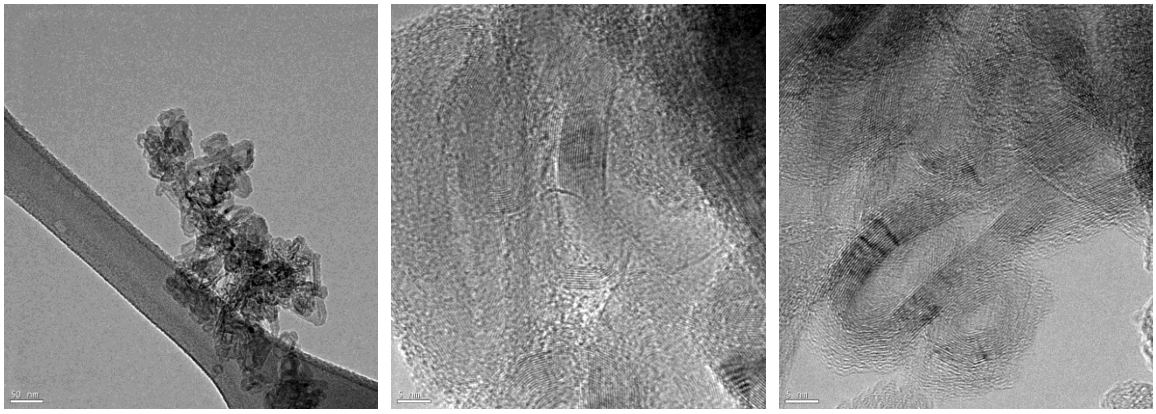


(c)

SI 2. XRD diffraction powder of graphite (grey), GO (blue), rGO pH3 (green), rGO pH7 (red) and rGO pH11 (pink). The materials obtained at pH = 5 and 9 exhibit equivalent PXRD patterns with no significant peak broadening.

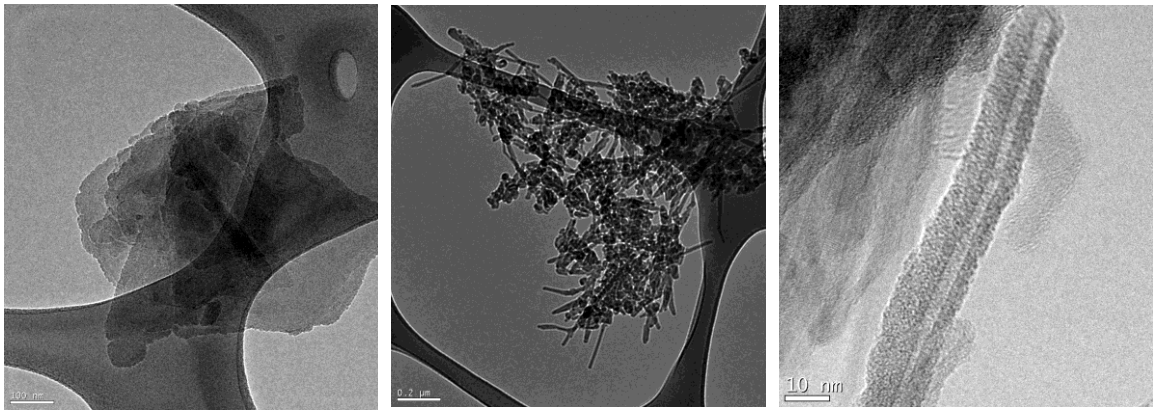


SI 3. Additional HR-TEM of rGO at (i) pH3, (ii) pH5, (iii) pH7, (iv) pH9, (v) pH11.



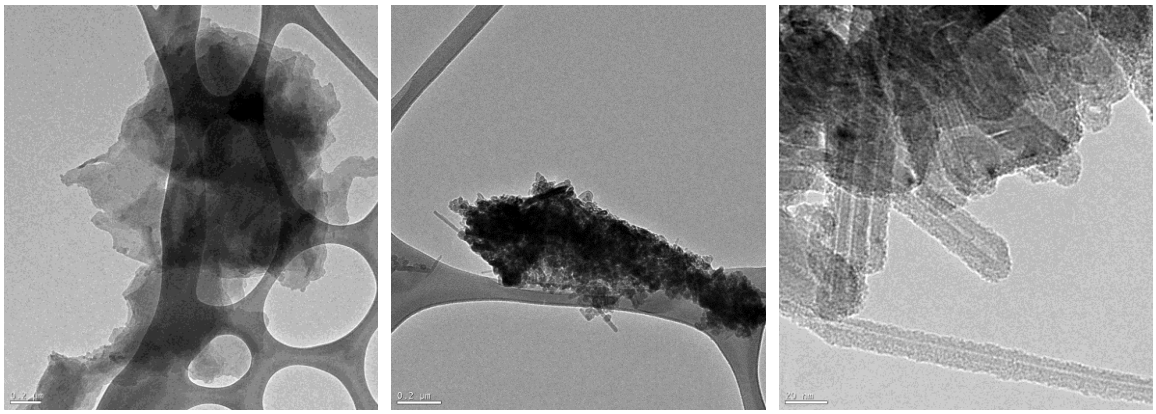
a b c

(i) pH3



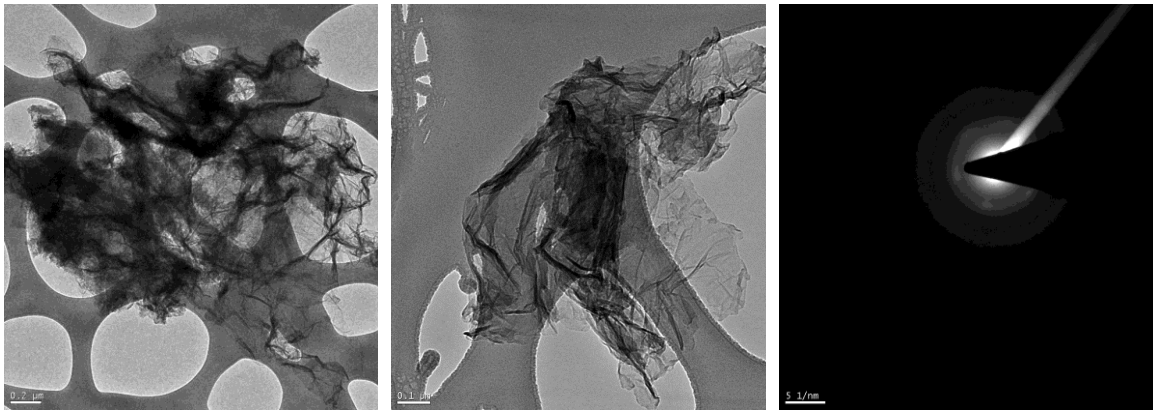
a b c

(ii) pH5



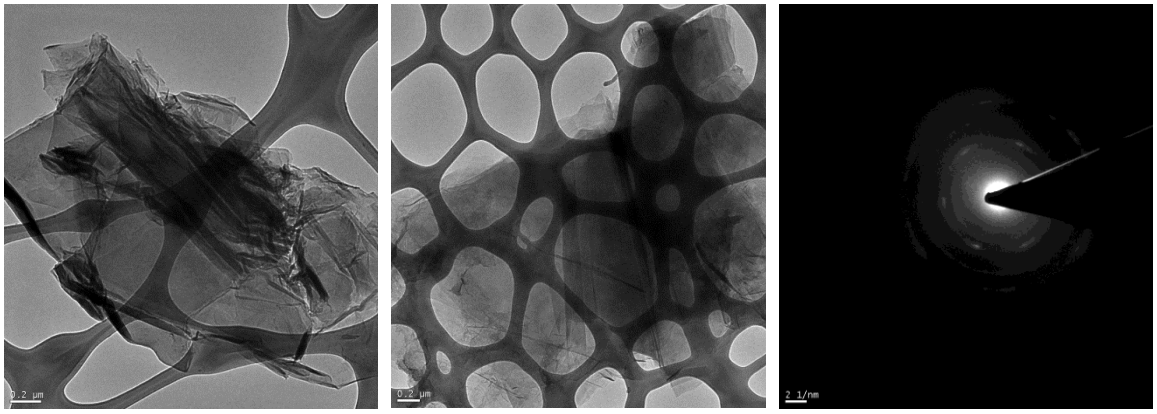
a b c

(iii) pH7



a b c

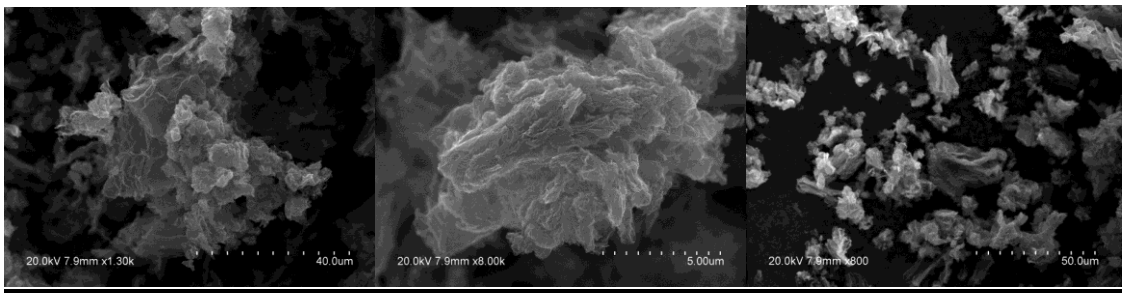
(iv)pH9



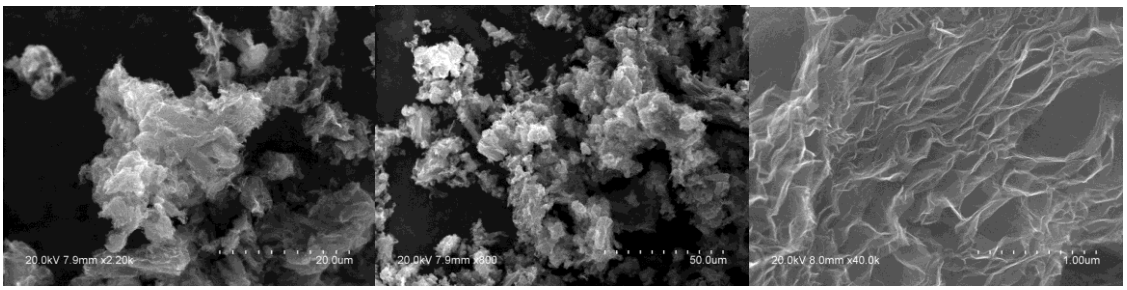
a b c

(v) pH11

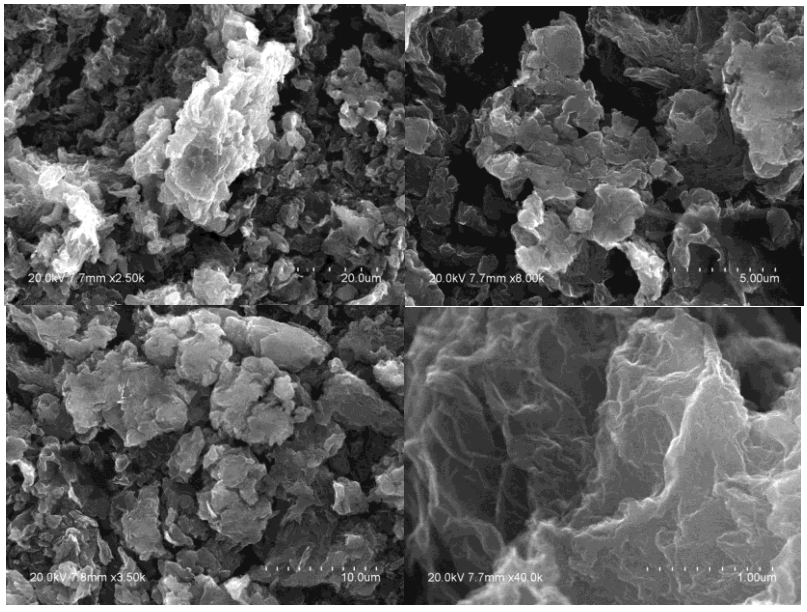
SI 4. SEM images extracted from rGO samples at the different pHs showing morphologies comparable to those reported in the literature for other rGO materials obtained from the reduction of GO.[i]



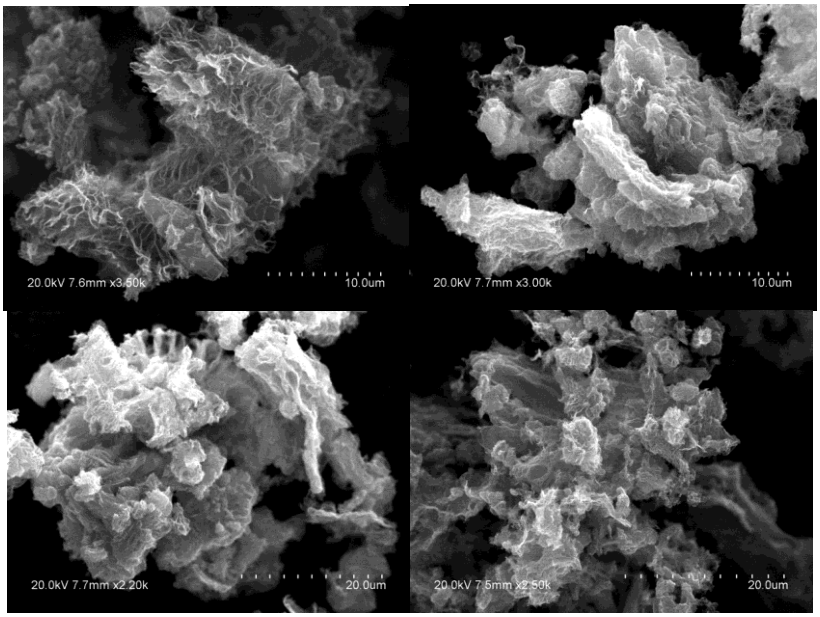
pH 3



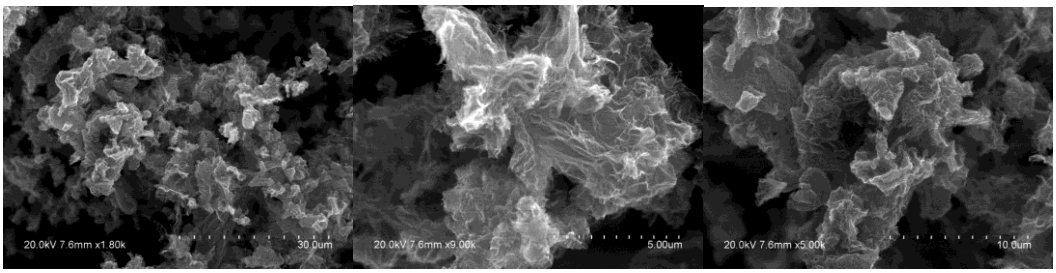
pH 5



pH 7



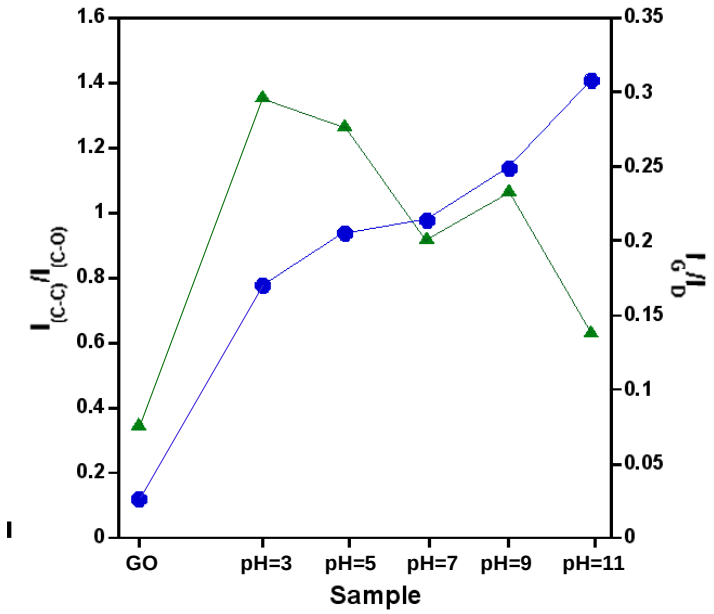
pH 9



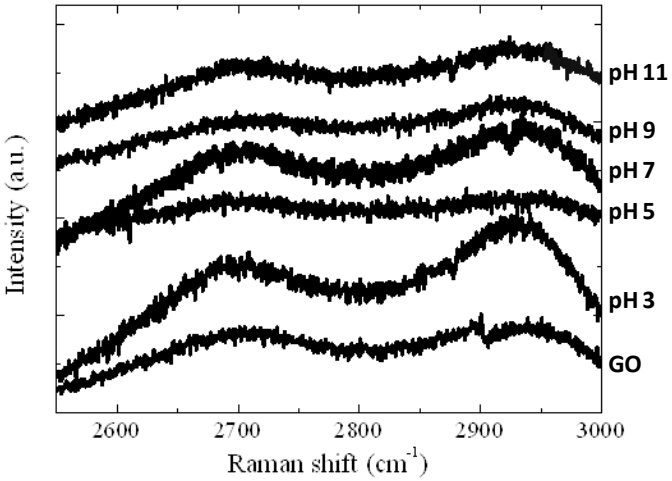
pH 11

[i] a) S. Park, J. An, J. R. Potts, A. Velamakanni, S.Murali, R. S. Ruoff, Carbon, 2011, **49**, 3019. b) C. Nethravathi, M. Rajamathi, *Carbon*, 2008, **46**, 1994.

SI 5. Representation of the I_{C-C}/I_{C-O} values as extracted from the XPS measurements (blue circles), versus I_G/I_D values extracted for the Raman spectra (green triangles) for GO and the different rGO samples. The solid line is just a guide to the eye.



SI 6. Second order Raman spectra of the starting GO and the rGO samples showing the 2D band



SI 7. Microanalysis performed over the rGO samples at pH 7, 9 and 11. On the basis of the Electron Probe Microanalysis (EPMA), the samples are composed at least in a 99.7 %wt of oxygen and carbon, and just a 0.3 %wt of the mass could be assigned to residual sodium that comes from the experimental procedure.