Supporting Information

Enhanced Photocatalytic Performance of N-rGO/g-C_3N_4 Nanocomposites for efficient Solar-Driven Water Remediation

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The Figure S1 displays the determined band gap values for pure g-C_3N_4 (CN), various concentration of rGO in rGO/g-C_3N_4 nanocomposite, named as RC1, RC2, RC3 as well as N-rGO/g-C_3N_4 nanocomposite (NRC). It was observed that the band gap of RC1 decreases as compared to bulk g-C_3N_4. It further decreases for RC2 and then again starts increasing (RC3). Moreover, the band gap of N-rGO/g-C_3N_4 nanocomposite further decreases to 1.4 eV that enables the efficient utilization of visible spectrum.

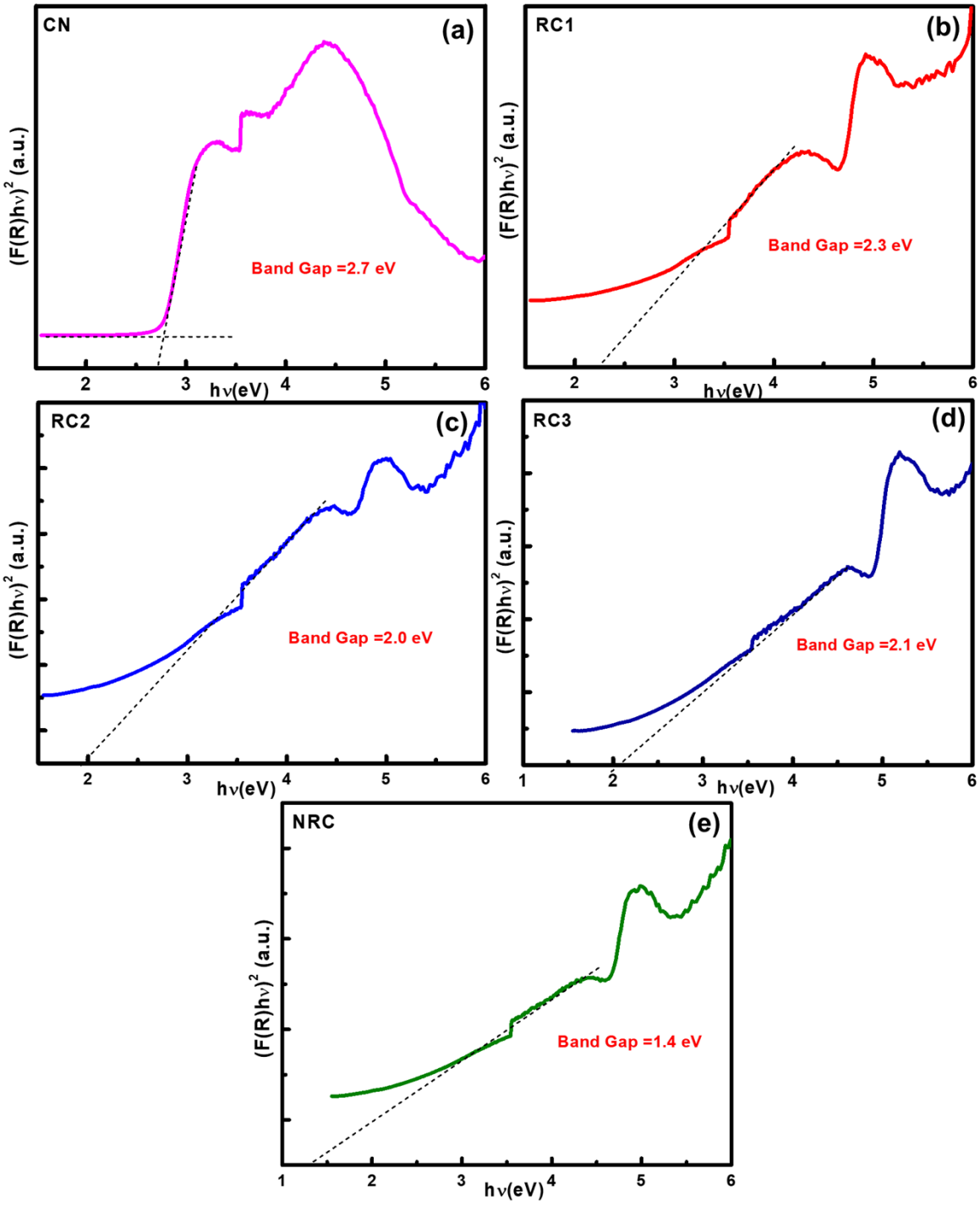

Figure S1: The band gap values obtained from the application of Kubelka-Munk theory on diffusive reflectance spectroscopy data for (a) pure g-C_3N_4; (b) RC1; (c) RC2; (d) RC3 and (e) NRC.

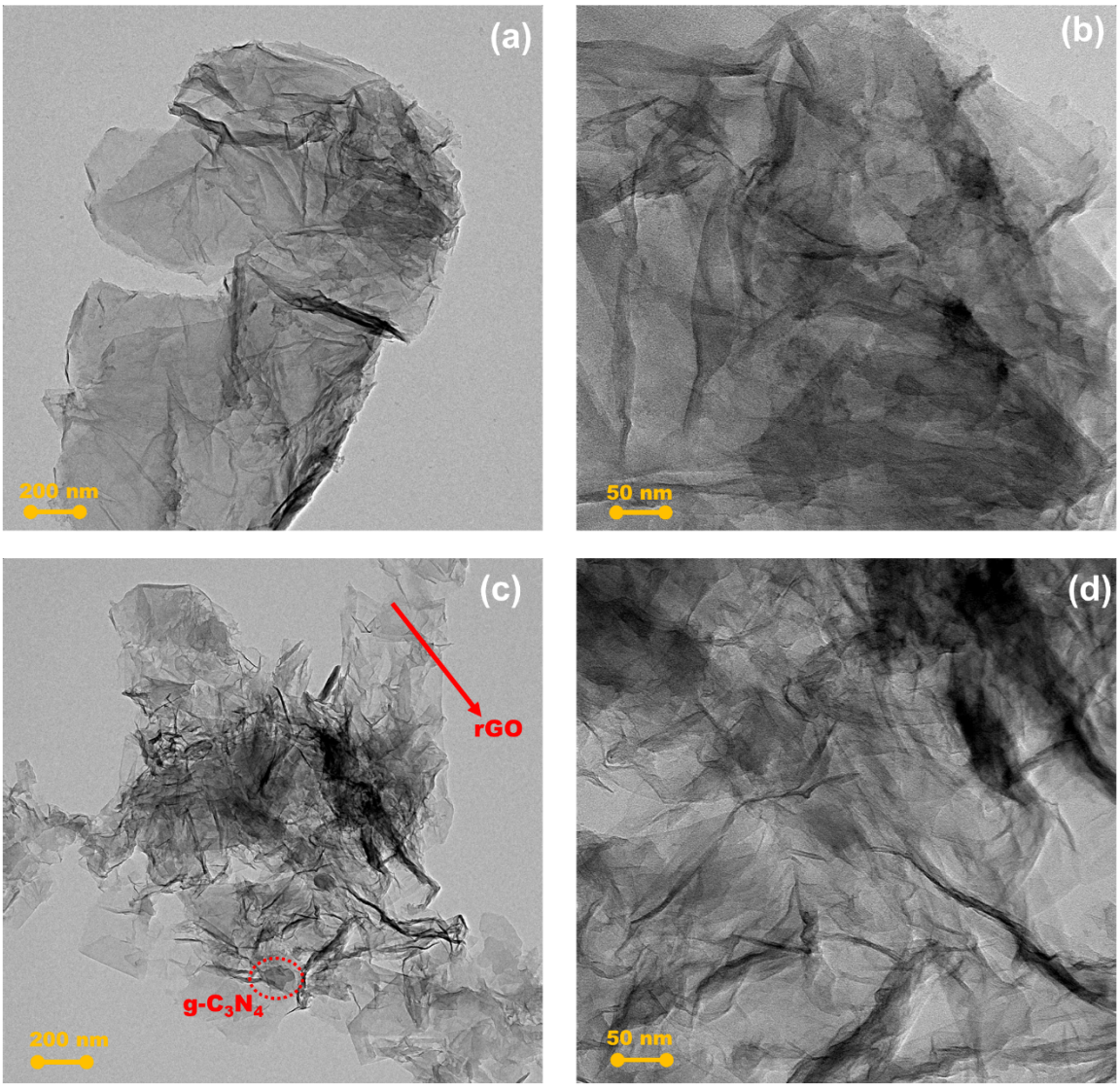

Figure S2: Morphological characteristics of different samples observed at varying magnifications. (a) Lower magnification image of rGO, (b) Higher magnification image of rGO, (c) Lower magnification image of N-rGO/g-C_3N_4, and (d) Higher magnification image of N-rGO/g-C_3N_4, captured using a Transmission Electron Microscope.

To further confirm the morphology of rGO and its nanocomposites, transmission electron microscopy was employed. The Figure S2 (a) clearly reflects the sheet like morphology of rGO that is folded and crumpled while its magnified view can be visualised from Figure S2 (b). Likewise, the nanocomposite manifests the mixed layered structure with porous flakes like g-C_3N_4 well integrated on layered structure of rGO (shown in Figure S2 c). Since both the materials exhibited layered structure, resulting into mixed layer morphology of

the nanocomposite. Thus, the morphology of N-rGO/g-C_3N_4 nanocomposite exhibited clearly distinguishable portions, a thin transparent layer representing rGO and dark flakes as g-C_3N_4, marked as circle in Figure S2 (c). In the same manner, Figure S2 (d) showcases the magnified view of N-rGO/g-C_3N_4 nanocomposite.

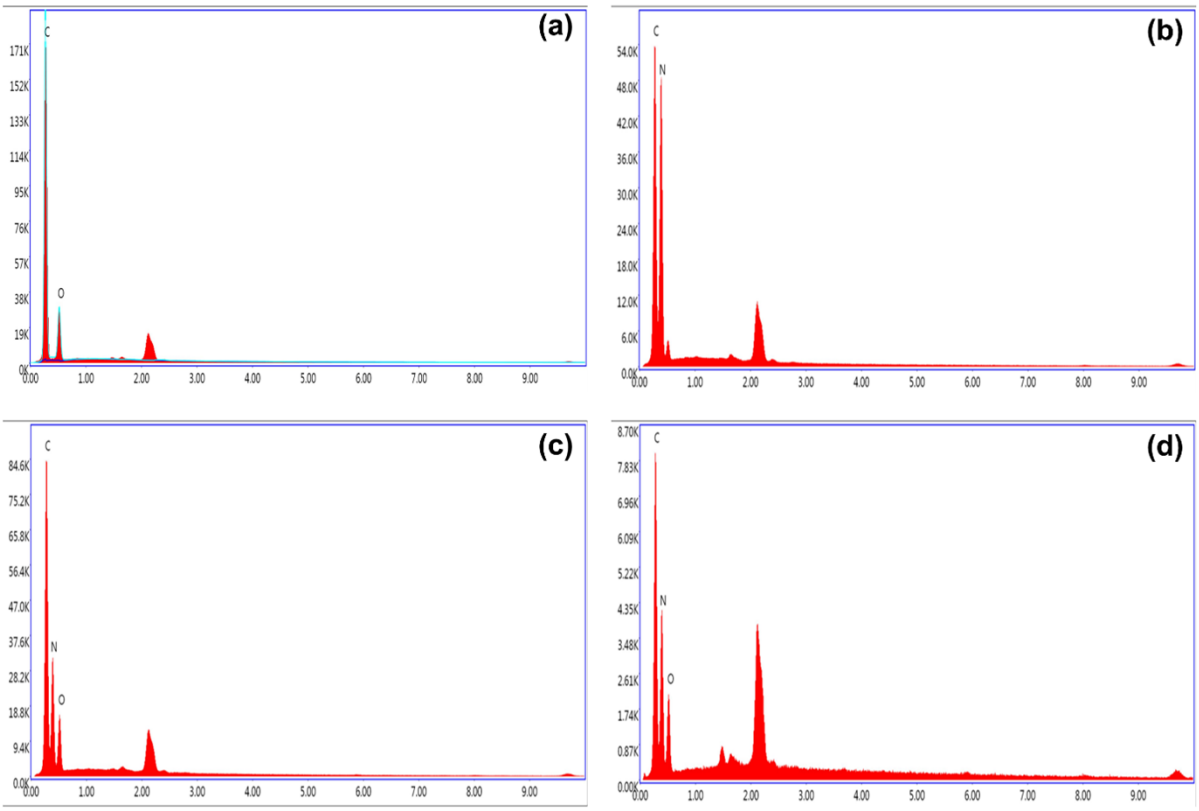

Figure S3: The band gap values obtained from the application of Kubelka-Munk theory on diffusive reflectance spectroscopy data for (a) rGO; (b) pure g-C_3N_4; (c) RC2; (d) NRC.

The Figure S3 displays the EDAX spectrum for bare rGO, g-C_3N_4, rGO/ g-C_3N_4 and N-rGO/ g-C_3N_4. An additional peak attributed to the gold is present in all the spectrum that is used for electroplating. Noticeably, no impurity peak was observed in any of these EDAX spectrum.