# Enhanced removal of emerging contaminants from tap water by developing graphene oxide and nanoplatelet hybrid aerogels

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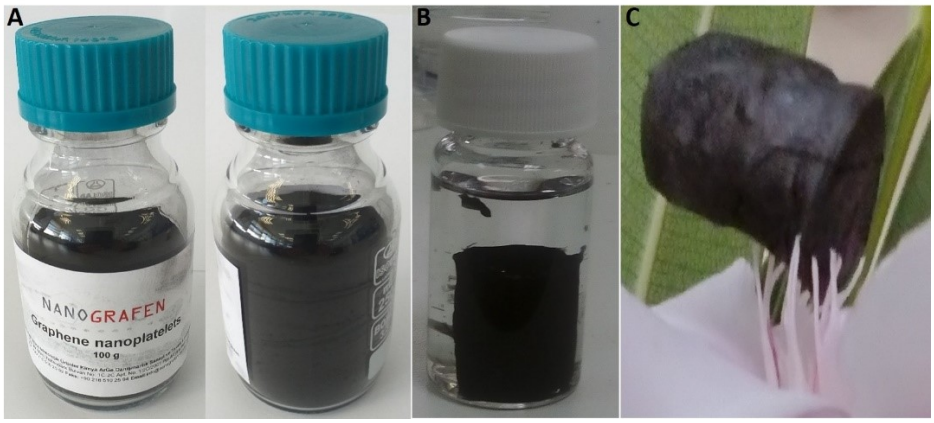


**Figure S1**: Graphene nanoplatelets derived from waste tires (GNP) and Graphene aerogels synthesis. (A) Digital image of the used GNPs powder from waste tires, (B) Graphene (rGO) hydrogel, and, (C) the as-obtained graphene aerogel after the freeze-drying.

**Table S1**: XPS data of the starting GNPs powder: % C1s and O1s component concentration derived from the C1s and O1s peak deconvolution respectively and relative atomic ratio C:O:Fe:Si

| % component of O bonds | | % Relative atomic ratio | | | | |
|---|---|---|---|---|---|---|
| C=O | C-O | C-C $sp^2$ | C-C $sp^3$ | C-O(H) | C=O | C:O:Fe:Si |
| 43.0 | 56.0 | 81.1 | 12.0 | 5.1 | 1.8 | 93.5%, 5.5%, 0.20%, 0.80% |

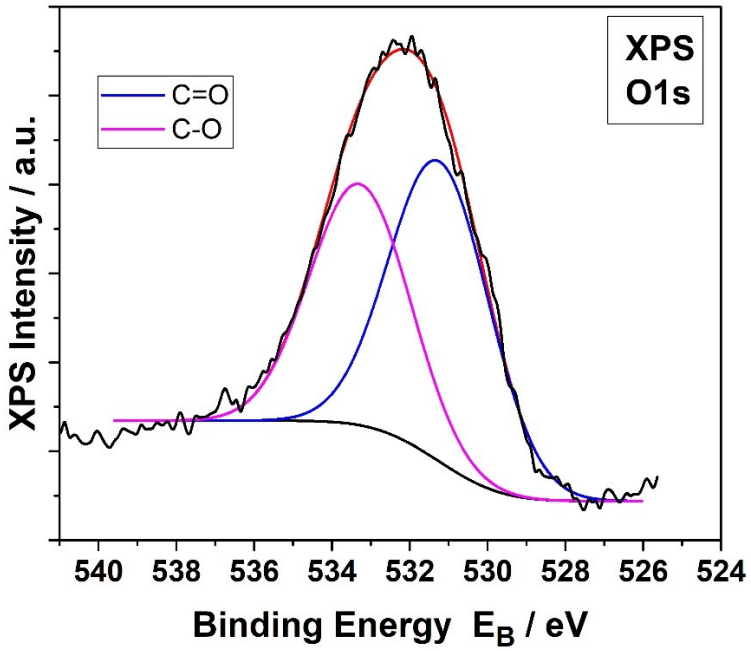


**Figure S2**: Deconvoluted O1s XPS spectrum of the GNPs powder.

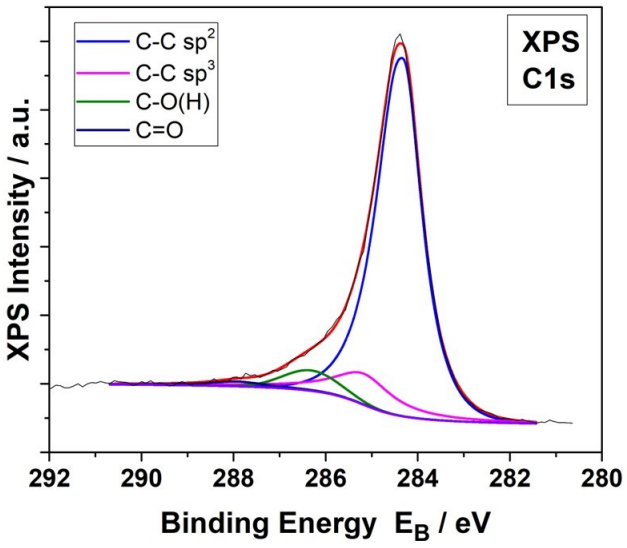


**Figure S3**: Deconvoluted C1s XPS spectrum of the GNPs powder.

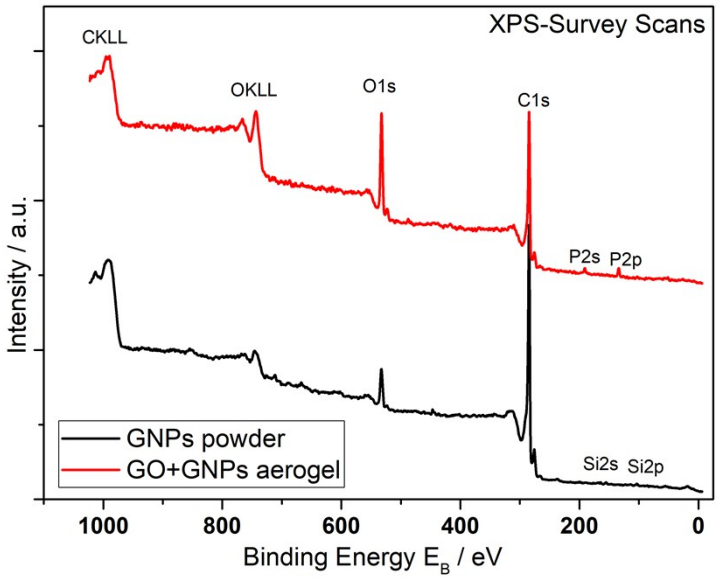


**Figure S4**: XPS Survey Scans from GNPs powder and GO+GNPs powder.

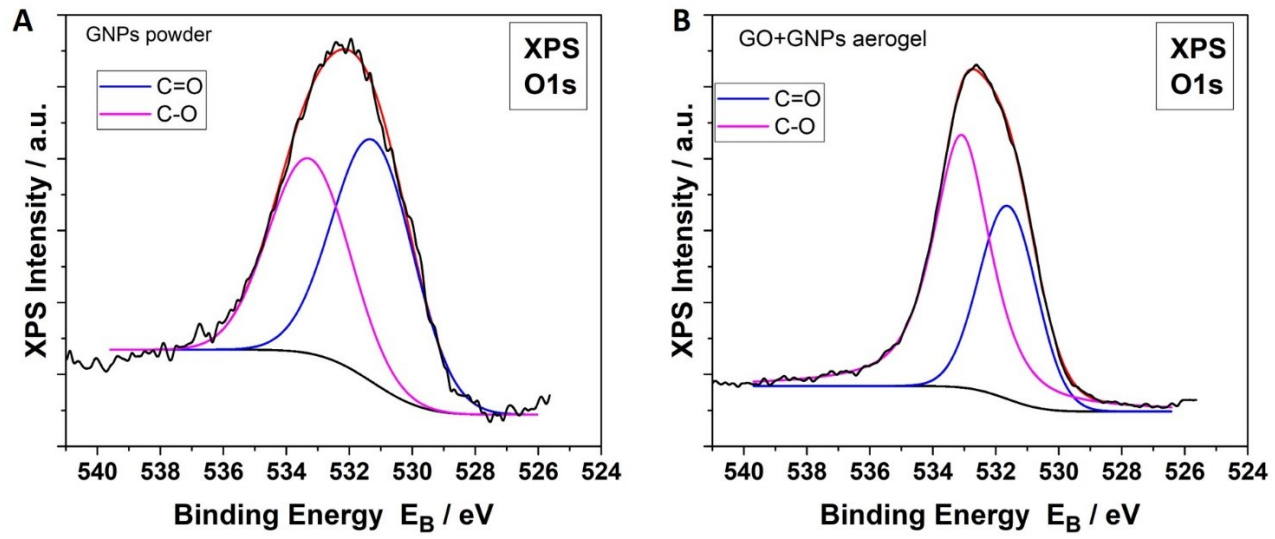


**Figure S5**: Deconvoluted O1s XPS spectra from (A) the GNPs powder, and, (B) the GO+GNPs aerogel.

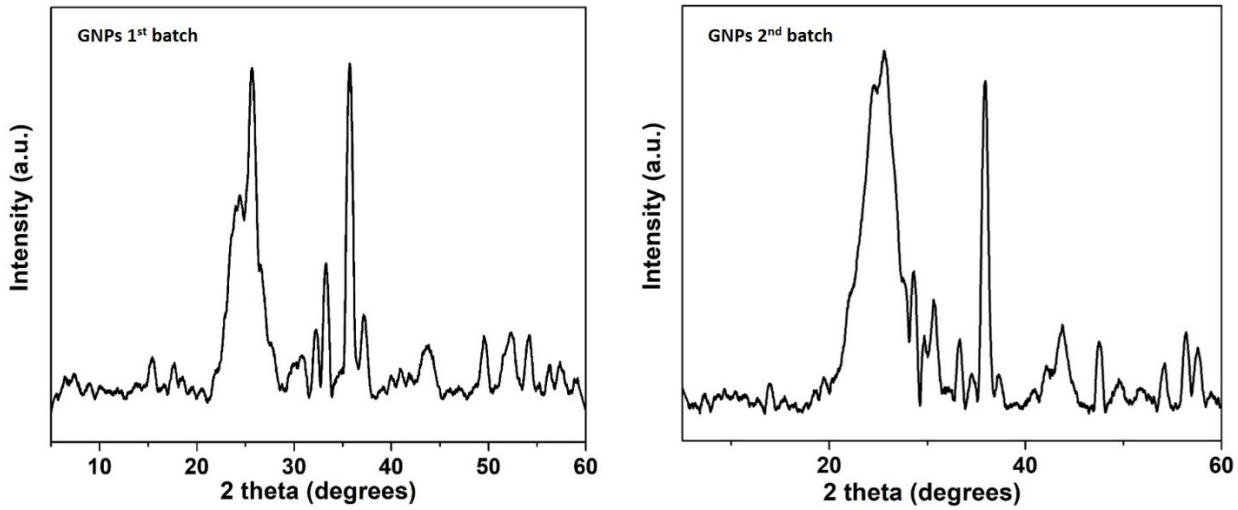


**Figure S6**: XRD patterns of the two examined products (1st batch and 2nd batch of GNPs derived from waste tires).

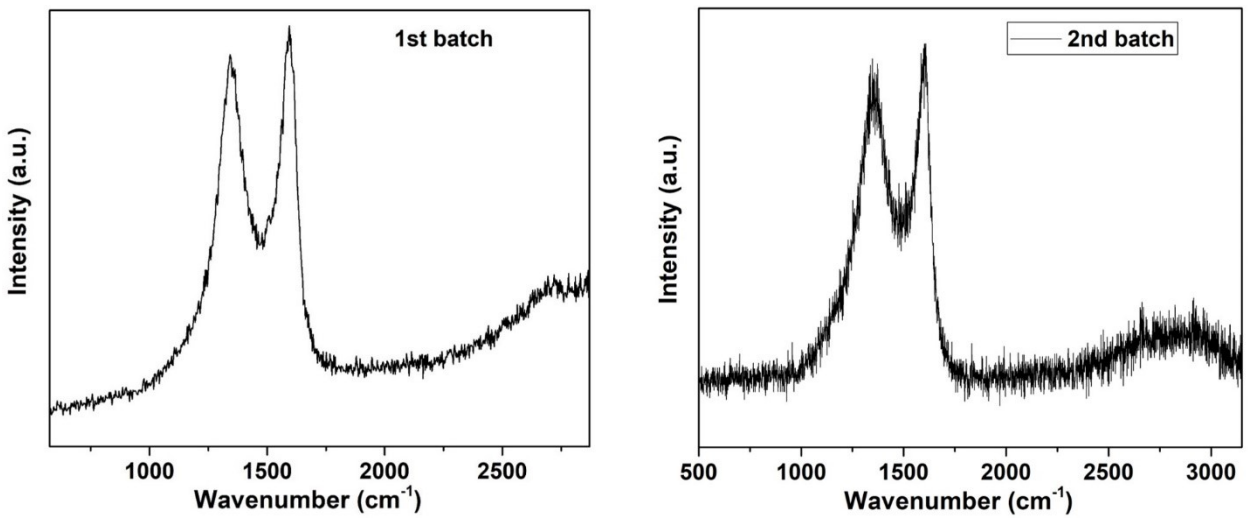


**Figure S7**: Raman spectra of the examined products (GNPs from the 1st and 2nd batches).

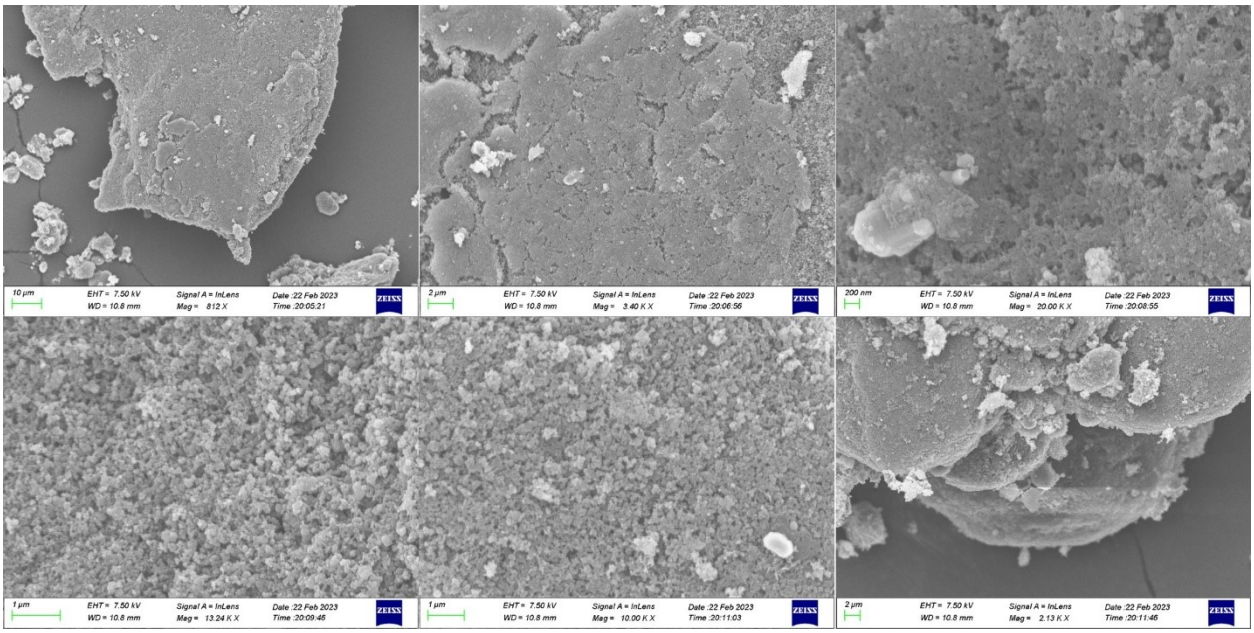

**Figure S8**: SEM images of the GNPs from 1st batch.

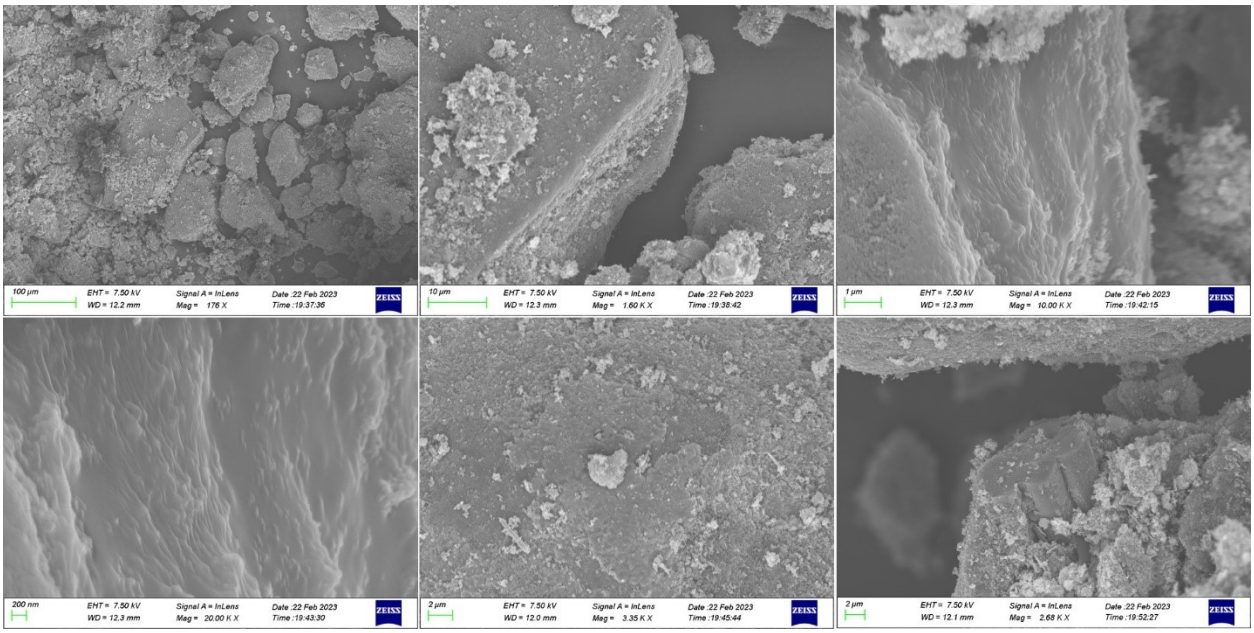


**Figure S9**: SEM images of the GNPs from 2nd batch.

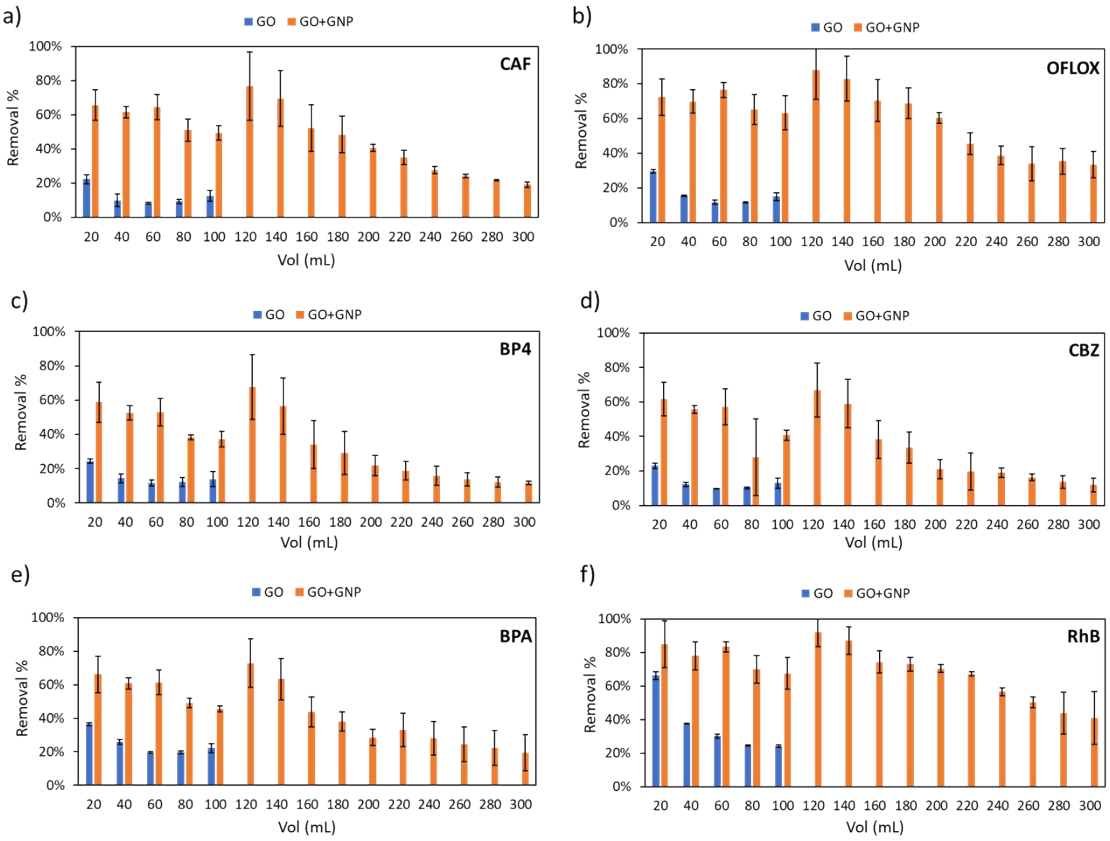


**Figure S10.** Removal of a) CAF, b) OFLOX, c) BP4, d) CBZ, e) BPA, f) RhB obtained by aerogels of GO (blue) and GO/GNP (orange) (0.5 mg/L each in tap water, $V_{tot}$ = 300 mL, flow rate = 2.5 mL/min).