Electronic Supplementary Material (ESI) for New Journal of Chemistry.

A convenient method for isolating carbon quantum dots in high yield as alternative to dialysis process and fabrication of full-band UV blocking polymer film

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Figure S1

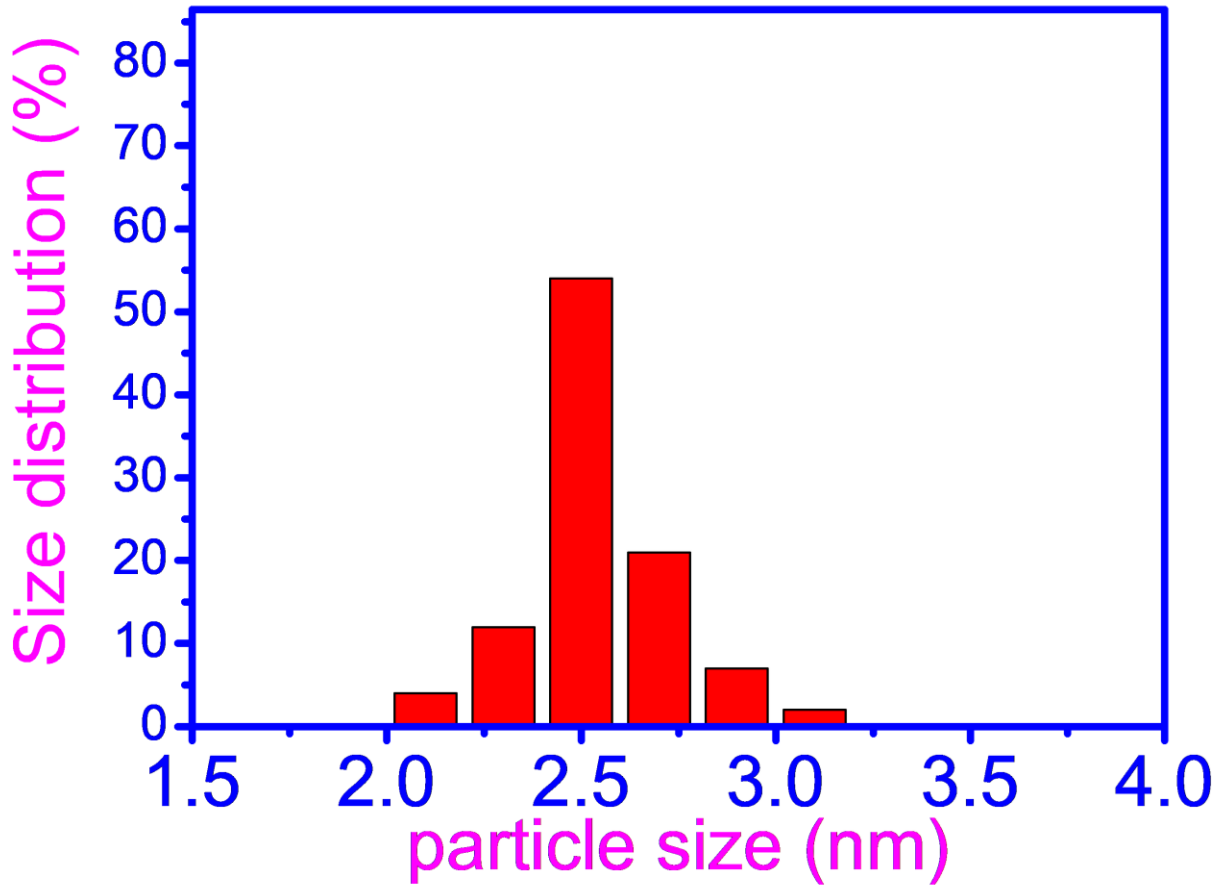

Fig. S1. The particle size histogram from TEM image

Figure S2

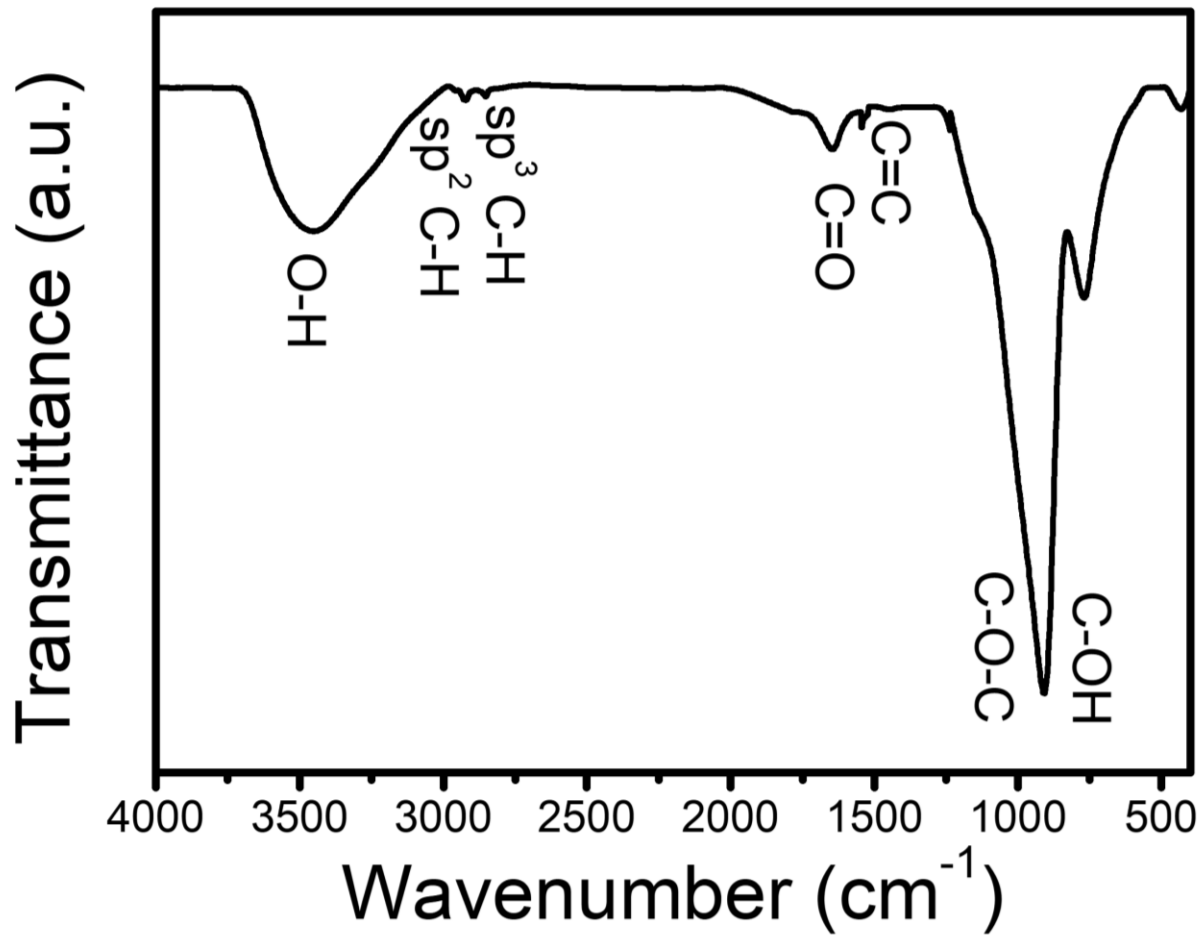

Fig. S2. FT-IR spectrum of CQD isolated via a solvent extraction method

A broad absorption band observed in the range 3000–3600 cm^{-1}, associated to the stretching modes of the hydroxyl (–OH) group. Other absorption bands at 3072 cm^{-1} and 2985 $cm^{-1}$are due to sp^2 and sp^3 C–H stretching modes, respectively. Also, an alkene (C=C) and carboxylic acid (C=O) stretching mode are observed at 1540 cm^{-1} and 1651 cm^{-1}, respectively. An intense and sharp bands at range 905 cm−1, which corresponded to asymmetric and symmetric C–O–C stretching vibrations and secondary C–OH stretching modes.

Figure S3

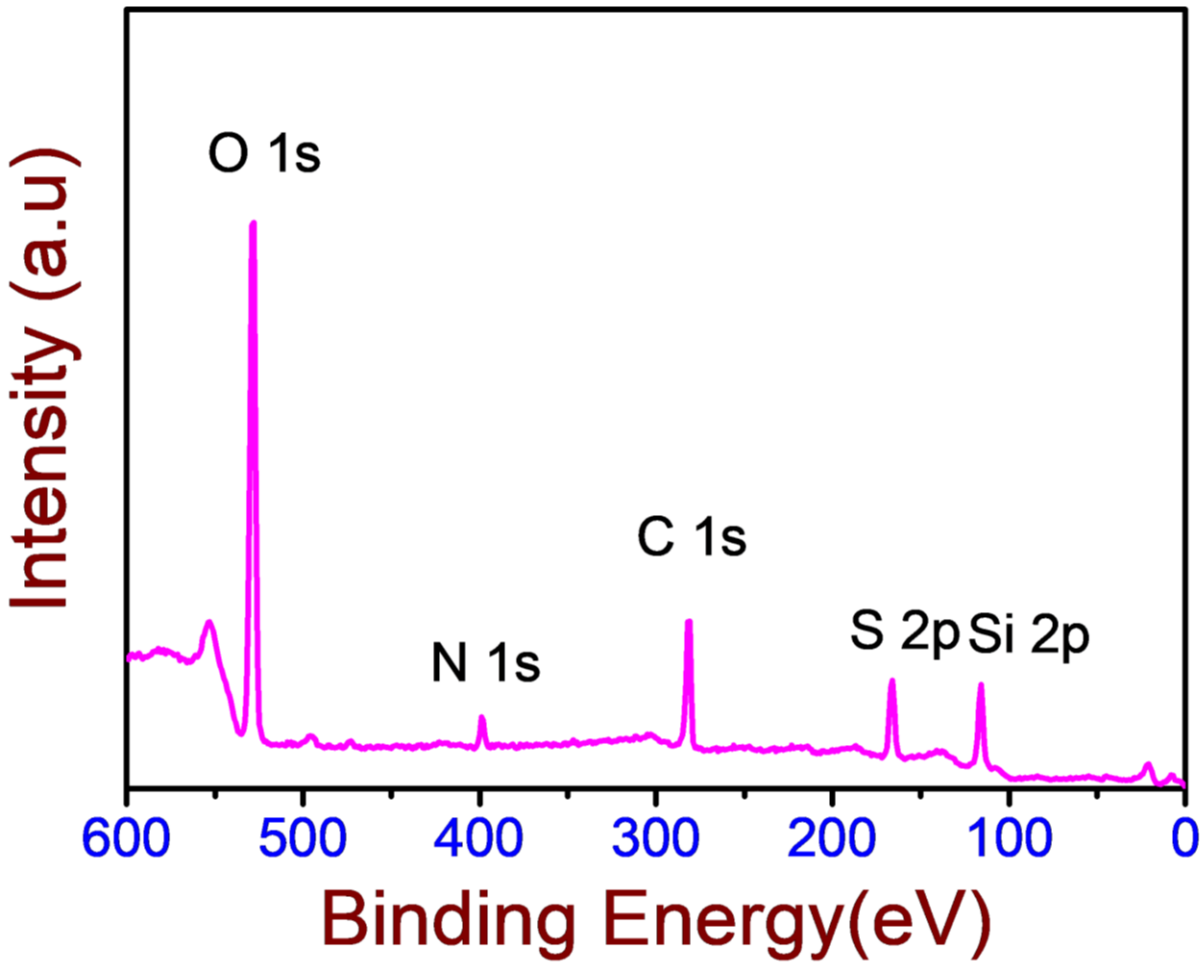

Fig. S3. The full survey XPS spectrum of CQD isolated via a solvent extraction method

Figure S4

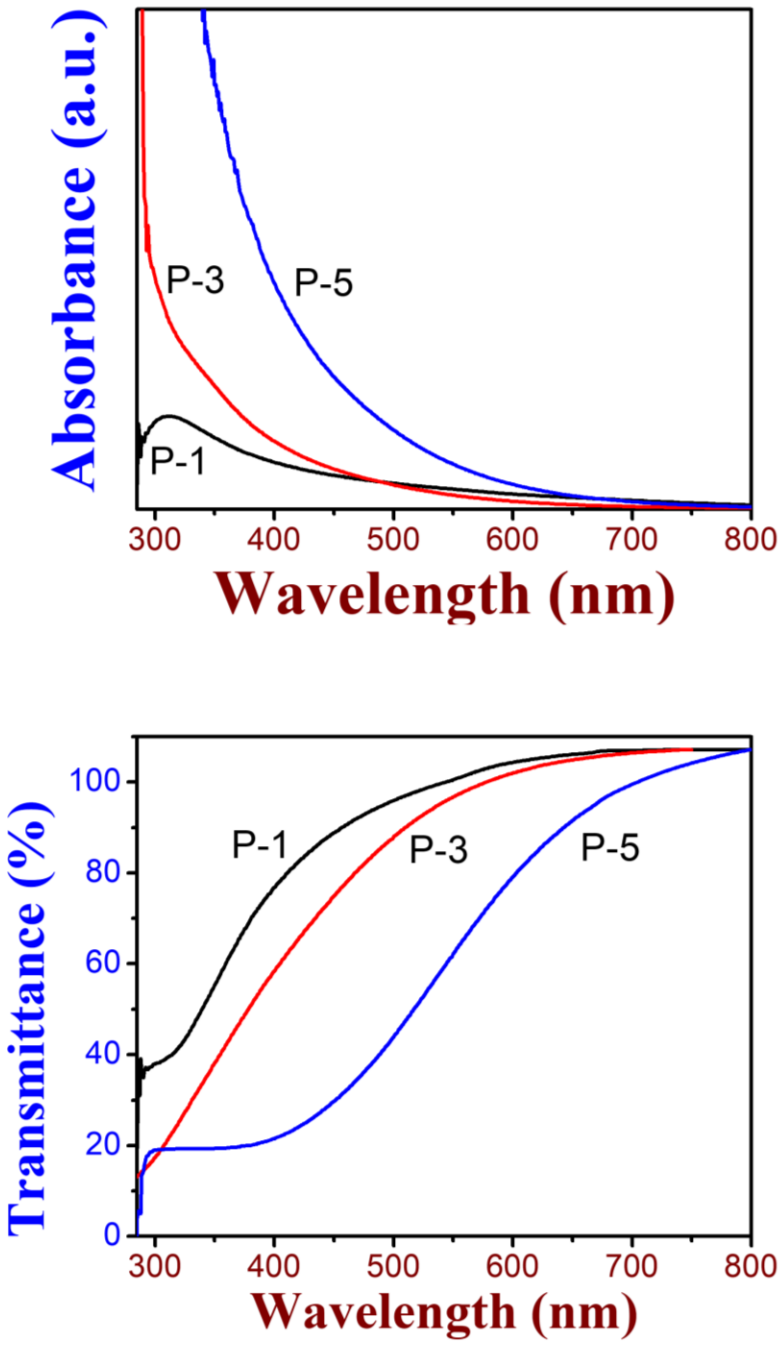

Fig. S4. UV absorbance (top) and transmittance (bottom) spectra of CQD dispersed polymer films

Figure S5

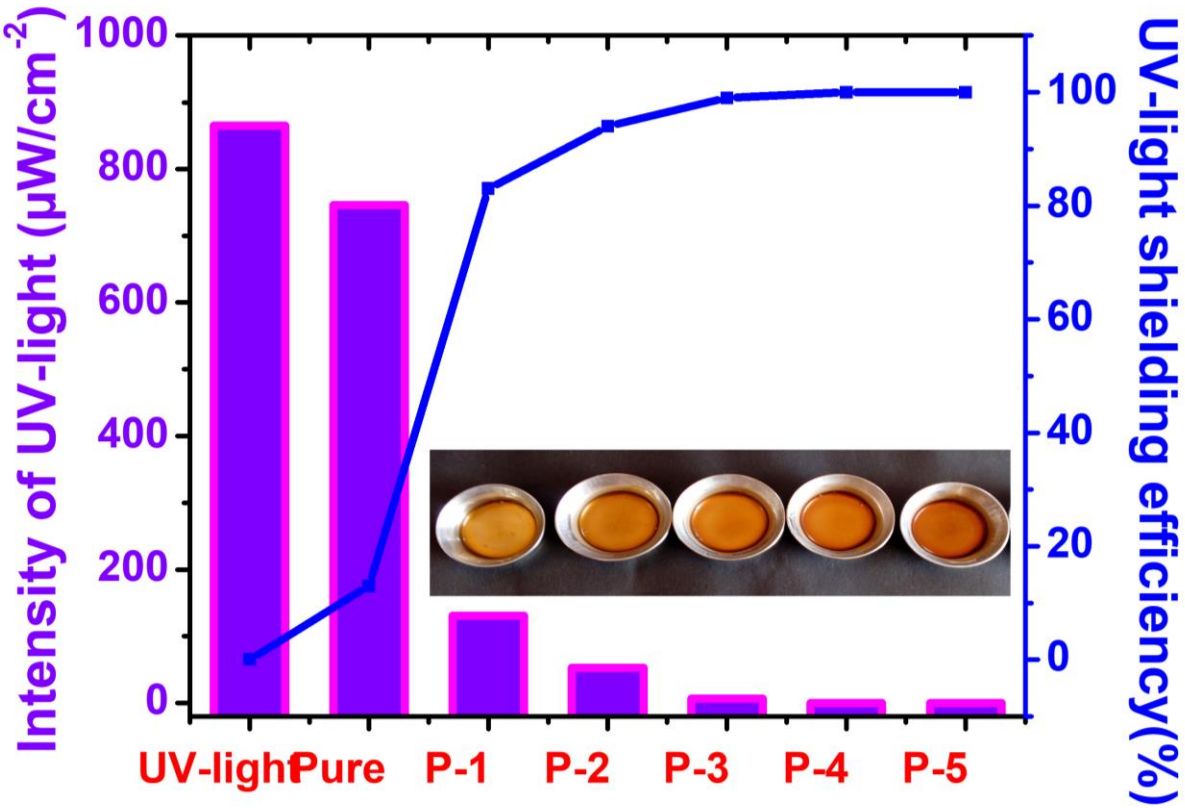

Fig. S5. UV shielding capability as the function of increasing CQD content under the illumination of a UV lamp. [Inset: photograph of polymer films after curing]