Supplementary Information for

Large-scale Aqueous Synthesis of $Cu(In,Ga)Se_2$ Nanoparticles for Photocatalytic Degradation of Ciprofloxacin

Bruna F. Gonçalves[*,a,b,c], *Pedro M. Martins*[d,e], *Alec P. LaGrow*[a], *Gabriela Botelho*[c], *Laura M. Salonen*[a], *Senentxu Lanceros-Méndez*[b,f,g], *and Yury V. Kolen'ko*[a]

[a] International Iberian Nanotechnology Laboratory, Braga 4715-330, Portugal

[b] Center of Physics, University of Minho, Braga 4710-057, Portugal

[c] Center of Chemistry, University of Minho, Braga 4710-057, Portugal

[d] Centre of Molecular and Environmental Biology, University of Minho, Campus de Gualtar, 4710-057 Braga, Portugal

[e] IB-S—Institute for Research and Innovation on Bio-Sustainability, University of Minho, 4710-057 Braga, Portugal

[f] BCMaterials, Basque Center for Materials, Applications and Nanostructures, UPV/EHU Science Park, 48940 Leioa, Spain

[g] Ikerbasque, Basque Foundation for Science, 48009 Bilbao, Spain

***Corresponding Author**

Bruna F. Gonçalves (bruna.8fg@gmail.com)

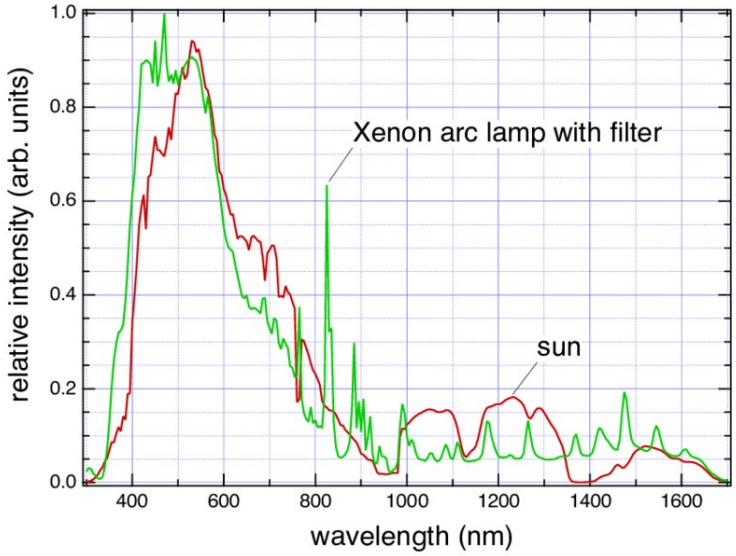
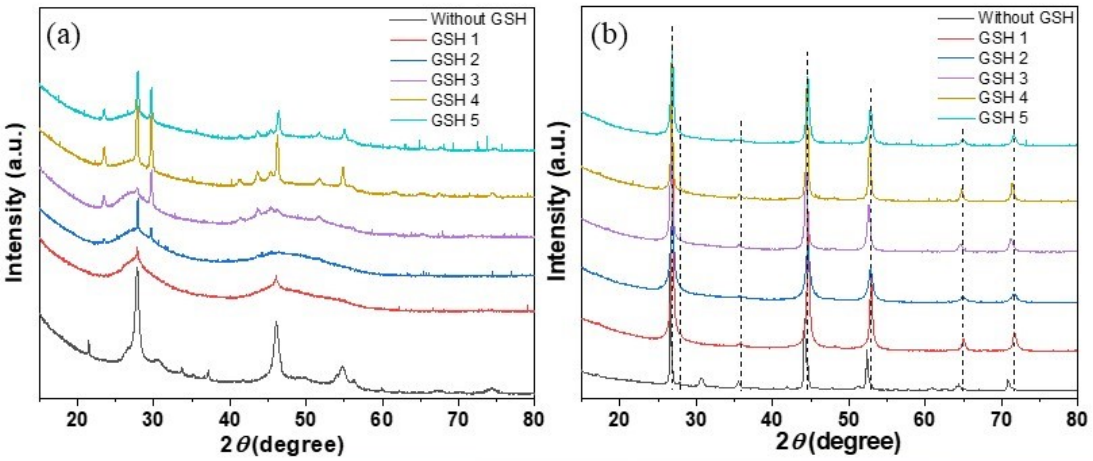


Figure S1. Xenon Lamp arc (with ultraviolet filter) and sunlight spectra.



(c)	Without GSH	GSH 1	GSH 2	GSH 3	GSH 4	GSH 5
Cu (mmol)	2.661	2.661	1.920	1.650	1.650	1.650
In (mmol)	2.244	2.244	2.152	2.152	1.890	1.890
Ga (mmol)	0.962	0.962	0.902	0.902	0.902	1.127
Se (mmol)	6.411	6.411	6.411	6.411	6.411	6.411
Experimental ratio	---	$Cu_{1.15}In_{0.73}Ga_{0.32}Se_2$	$Cu_{0.93}In_{0.64}Ga_{0.26}Se_2$	$Cu_{0.86}In_{0.83}Ga_{0.27}Se_2$	$Cu_{0.88}In_{0.73}Ga_{0.24}Se_2$	$Cu_{0.86}In_{0.73}Ga_{0.33}Se_2$

Figure S2. XRD patterns of optimization syntheses: as-synthesized powders (a) and powders after annealing (b). SEM-EDX compositional characterization of optimization syntheses after annealing, together with the used amounts of Cu, In, Ga and Se precursors (elements with not optimized ratio represented with red colour) (c). Synthesis GSH 5 represent the optimized ratio presented in detail in the manuscript in Figure 1.

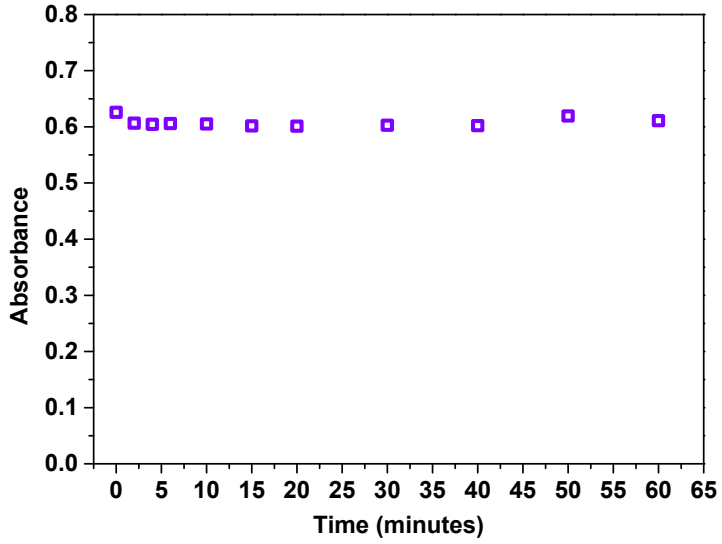


Figure S3. Exposure of ciprofloxacin solution (5 mg/L) to ultraviolet radiation over 60 minutes.

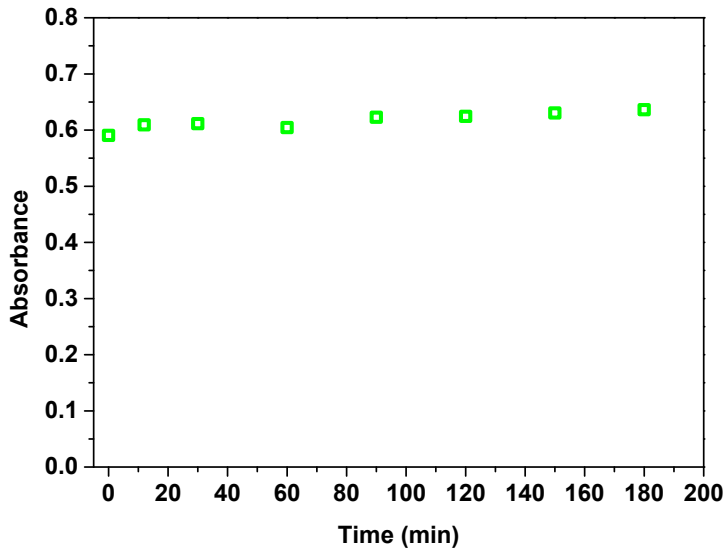


Figure S4. Exposure of ciprofloxacin solution (5 mg/L) to xenon lamp radiation over 180 minutes.