Electronic Supplementary Material (ESI) for Environmental Science: Nano.

Supplementary Material

Graphene oxide degradation by a white rot fungus occurs in spite of lignin peroxidase inhibition

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Supplementary Tables

Table S1 Particle size and elemental composition of the three GRMs tested in the present study: FLG, rGO and GO.

GRM	Particle size (µm)	Elemental composition (%)				
		C	H	N	S	O
FLG	0.1-1	95.2	0.45	0	0.59	0.24
rGO	1-15	80-87	0-1	0-1	0-1	13-17
GO	<10	49-56	1-2	0-1	2-3	41-50

Table S2 Atomic ratio of carbon, nitrogen, oxygen and sulphur obtained by the XPS analysis of pristine GO and GO treated with fungal cultures for one month.

Sample	C (at%)	O (at%)	N (at%)	S (at%)
Pristine GO	63.1	33.4	-	3.4
Treated GO	68.0	29.0	3.0	-

Supplementary Figures

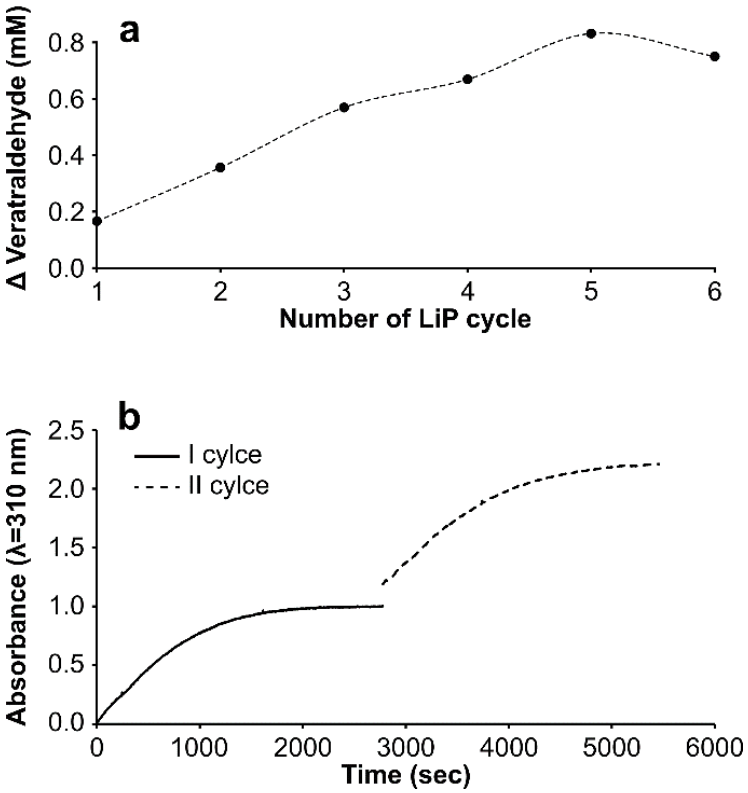

Fig. S1 Variation of veratraldehyde after the consecutive activation of 6 LiP catalytic cycles in the same blank sample (a). Veratraldehyde production in two consecutive LiP catalytic cycle (b). Blank samples are made of 30 µL of 150 µg mL^{-1} LiP suspension, 5.6 µL of 1.5 M veratryl alcohol, 0.4 µL of 0.21 M H_2O_2 and 964 µL of tartaric acid/sodium tartrate buffer solution.

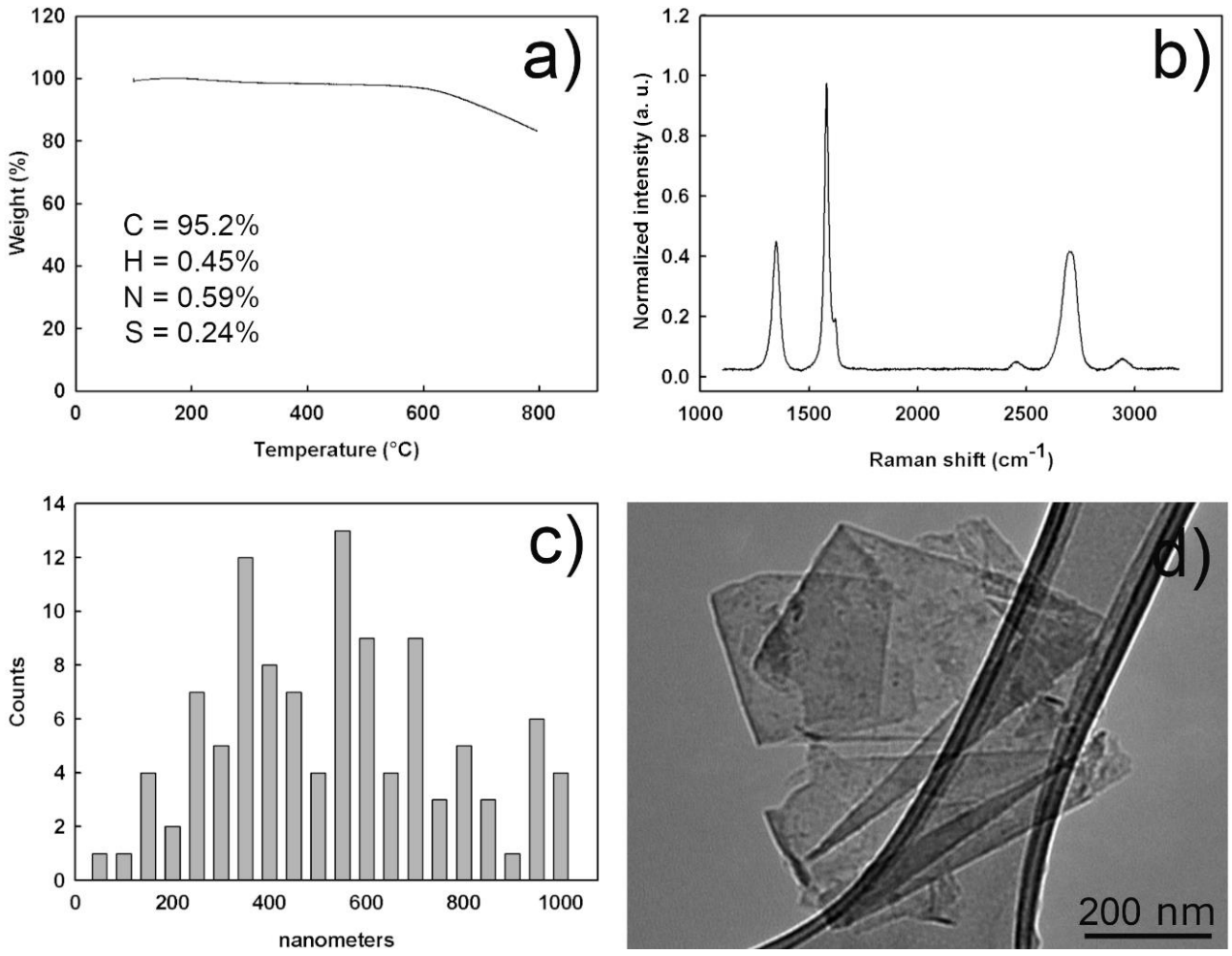

Fig. S2 Physicochemical characterization of FLG: thermogravimetric and elemental analysis (a); average Raman spectra (b); lateral size distribution of the sheets (n = 100) (c); and representative TEM image of FLG (d).

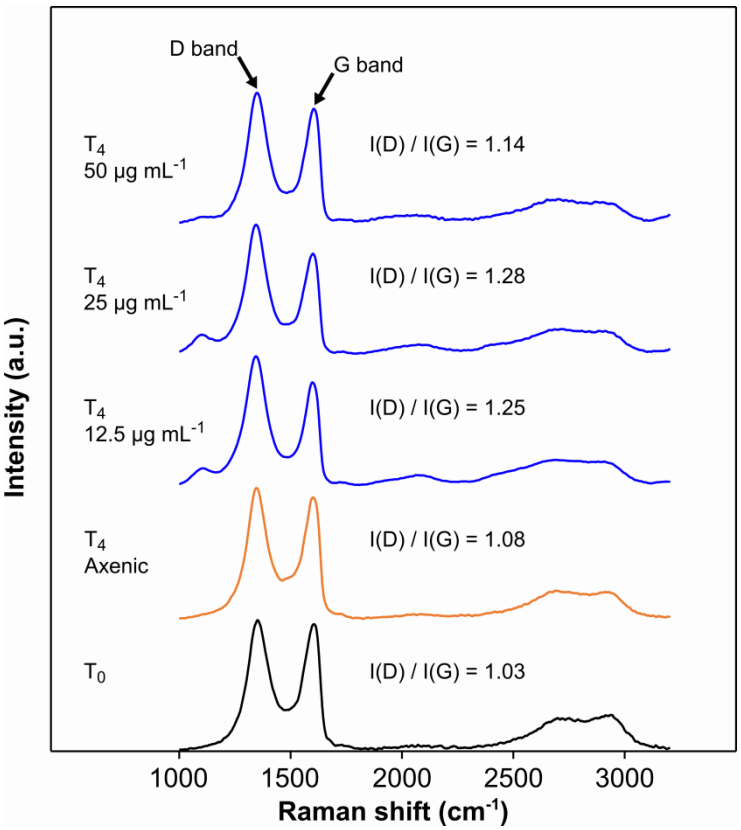

Fig. S3 Average Raman spectra of untreated GO flakes (T_0) and of GO flakes incubated for 4 months (T_4) in axenic culture media or in *P. chrysosporium* cultures at GO concentrations of 12.5, 25, and 50 µg mL^{-1}.

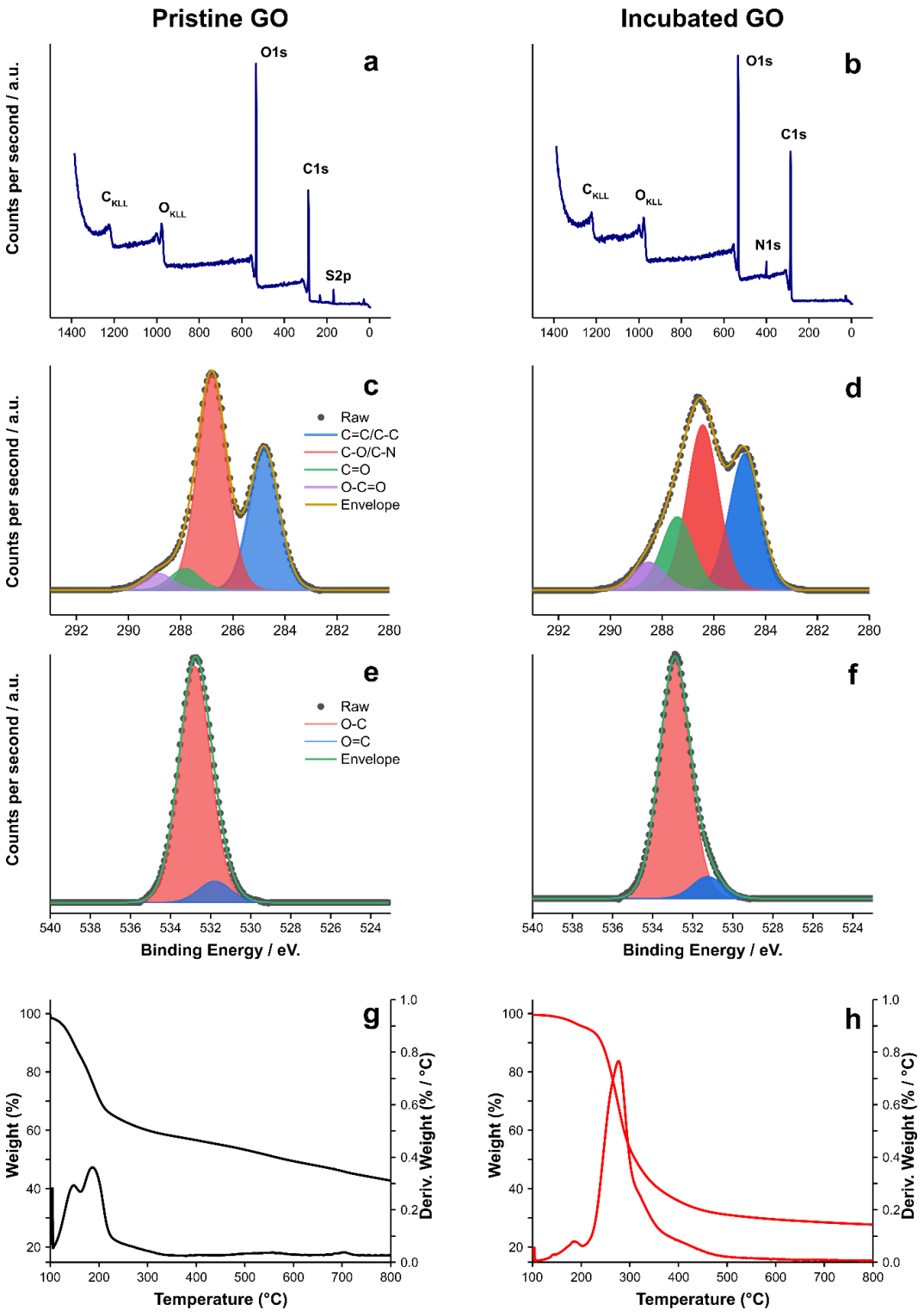

Fig. S4 Survey spectra for pristine (a) and incubated (b) GO. Deconvoluted high resolution spectra of C1s and O1s core levels for pristine (c, e) and incubated (d, f) GO. TGA weight loss and first derivative curves under inert conditions of pristine (g) and incubated (h) GO.