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A novel Fe_3O_4-graphene-Au multifunctional nanocomposite: Green synthesis and catalytic application

Supplementary Information

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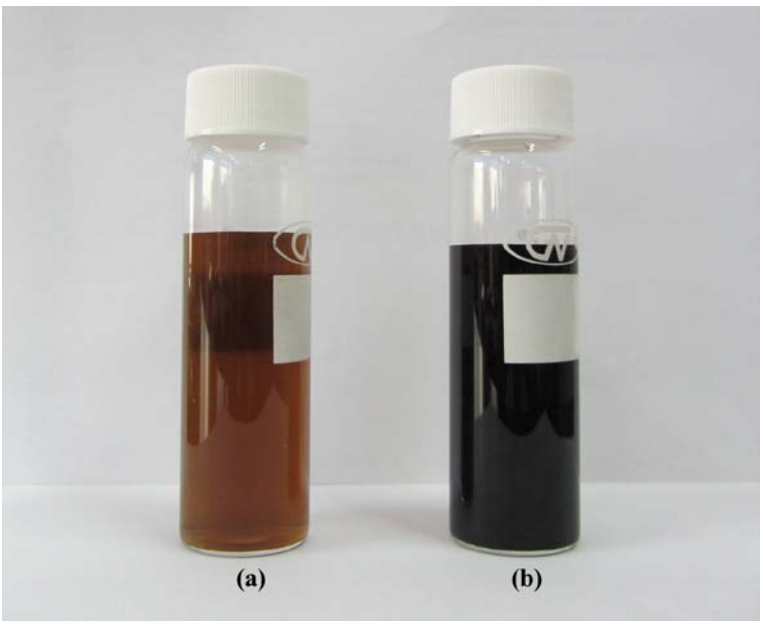


Fig. S1 GO aqueous solution before (a) and after reducing by Fe_3O_4@PDA (b).

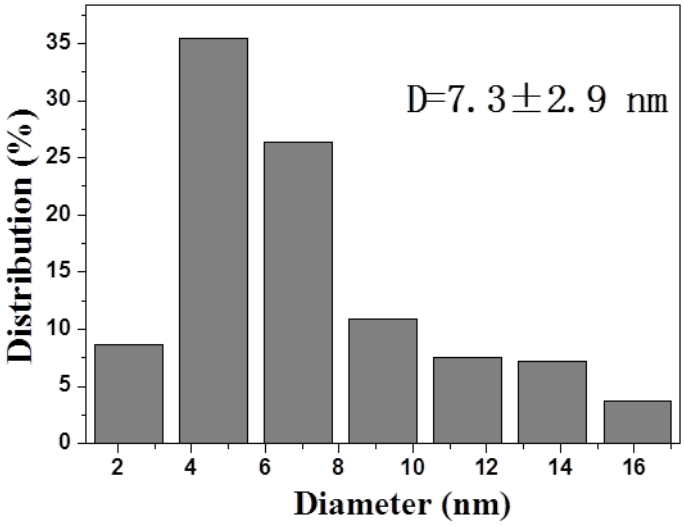
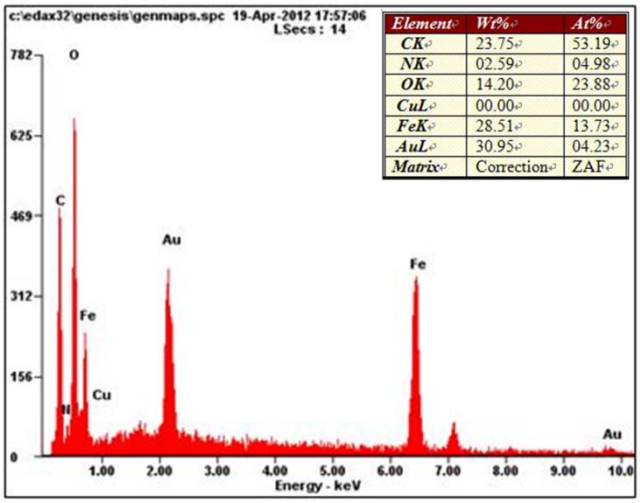


Fig. S2 Particle size distribution of Au NPs.



Element	Wt%	At%
CK	23.75	53.19
NK	02.59	04.98
OK	14.20	23.88
CuL	00.00	00.00
FeK	28.51	13.73
AuL	30.95	04.23
Matrix	Correction	ZAF

Fig. S3 EDX spectrum of Fe_3O_4@PDA@RGO@Au.

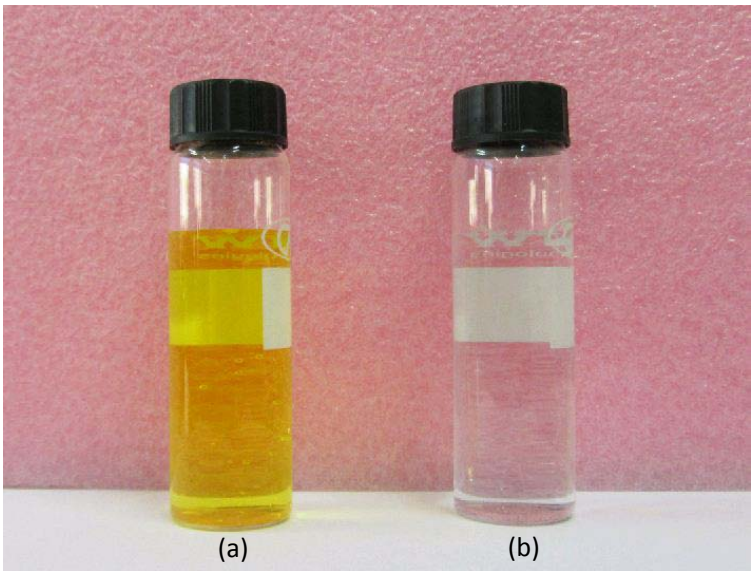


Fig. S4 Reaction mixture before (a) and after (b) catalytic reduction by the synthesized nanocatalyst.

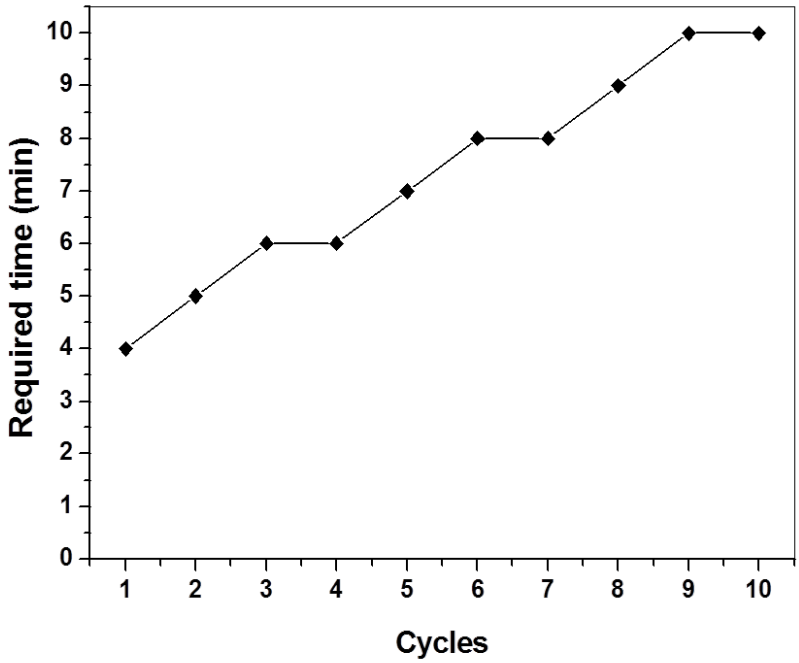


Fig. S5 The required time of each cycle to completely reduce *o*-nitroaniline in the presence of Fe_3O_4@PDA@RGO@Au catalyst.

Table S1 Au loss (mg/L) in each filtrate and Au content (wt %) on the catalyst after each cycle.

Cycle	Initial[a)]	1	2	3	4	5	6	7	8	9	10
Au loss	-	0.16	0.14	0.14	0.10	0.09	0.04	0.08	0.05	0.07	0.19
Au content[b)]	13.6	13.0	12.5	12.0	11.6	11.3	11.1	10.8	10.6	10.4	9.7

[a)] The catalyst was digested and analysed by ICP-MS to determine the initial Au content. [b)] Au content on the catalyst of each cycle was obtained from the Au concentration in each filtrate.