Electronic Supplementary Material (ESI) for RSC Advances

Supplementary Information

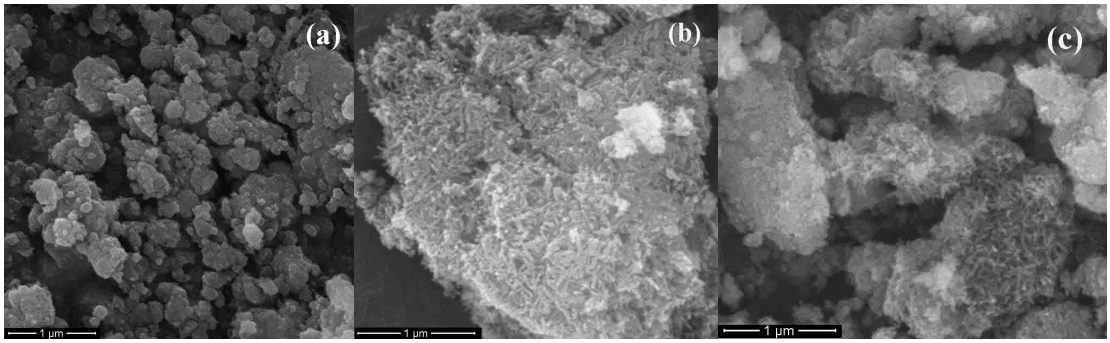


Fig. S1 SEM images of as-synthesized CeO_2 nanostructures: (a) nanoparticles, (b) nanorods, and (c) mixture of nanoparticles and nanorods.

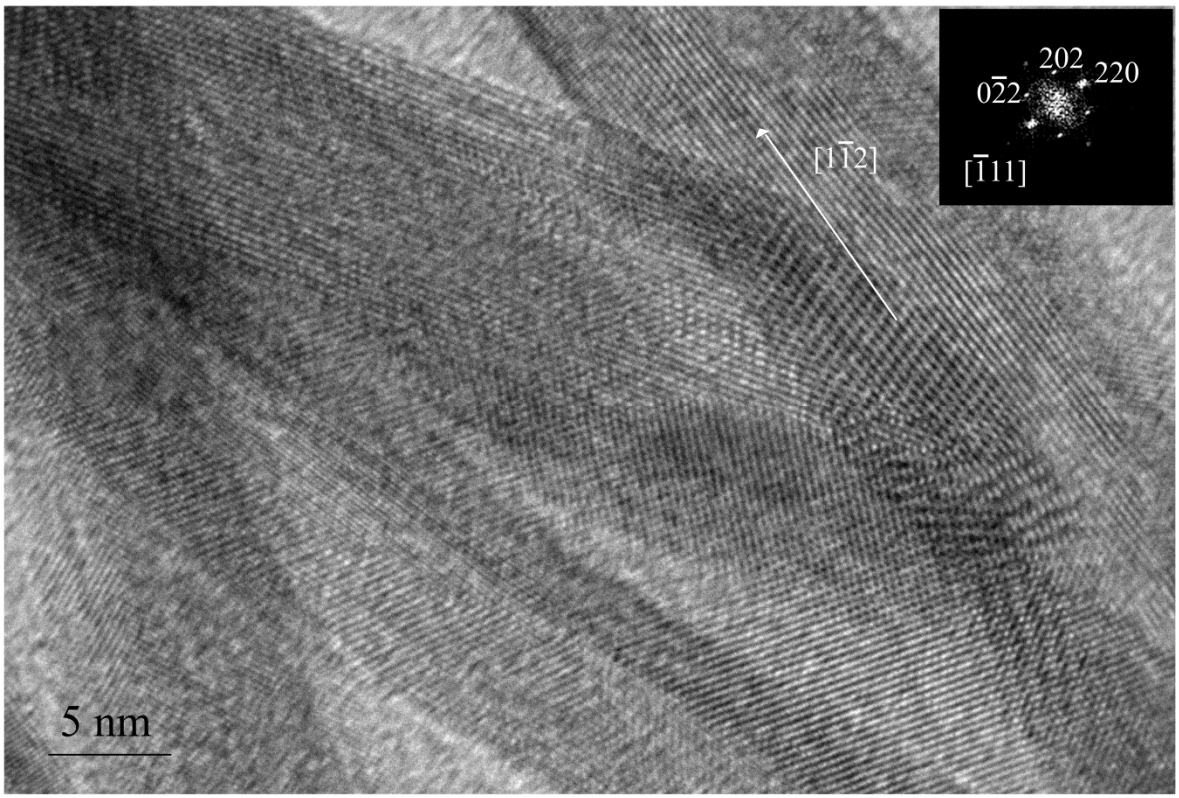


Fig. S2 HRTEM image of CeO_2 nanorods. The upper right nanorod was analyzed in more detail and its FFT pattern is shown in the inset.

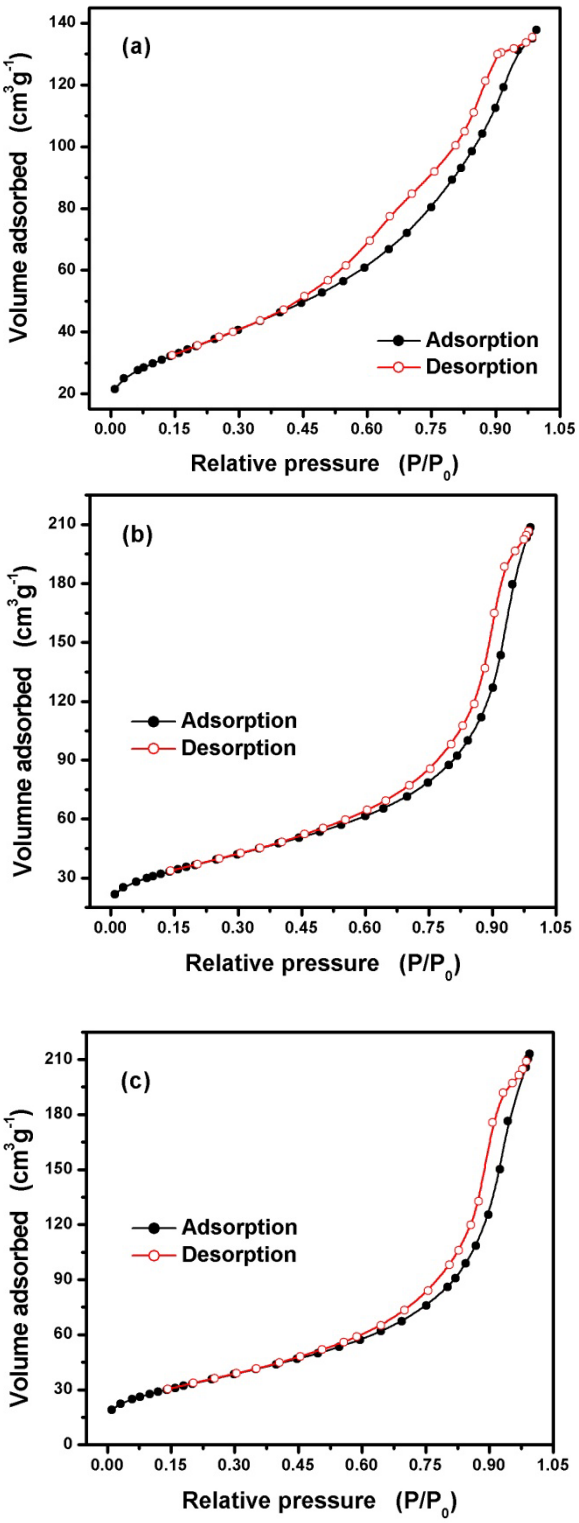


Fig. S3 Nitrogen adsorption–desorption isotherms of CeO_2 nanostructures: (a) nanoparticles, (b) nanorods, and (c) mixture of nanoparticles and nanorods.

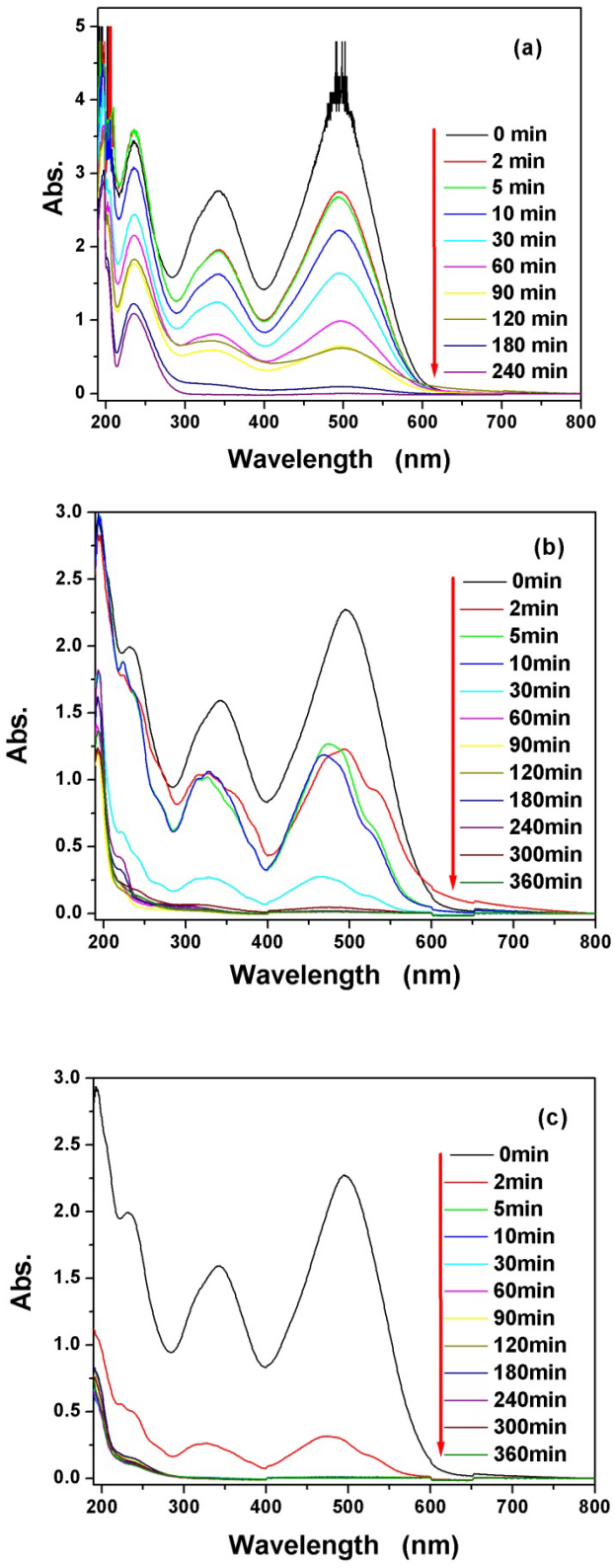


Fig. S4 UV-Vis absorption spectra of CRS before and after treatment with regenerated CeO_2 at different time intervals: (a) CeO_2 nanoparticles, (b) CeO_2 nanorods, and (c) CeO_2 mixture of nanoparticles and nanorods.

Fig. S5 Photographs of CRS before and after treatment with the regenerated CeO_2 at different time intervals: (a) CeO_2 nanoparticles, (b) CeO_2 nanorods, and (c) CeO_2 mixture of nanoparticles and nanorods.

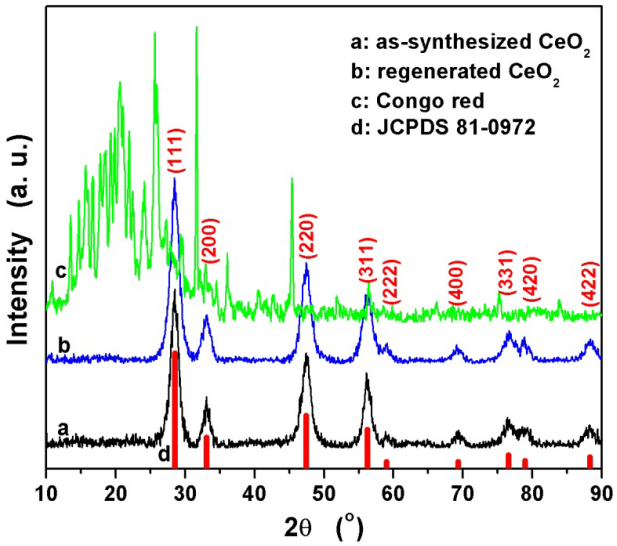


Fig. S6 XRD patterns of as-synthesized CeO_2 nanoparticles, CR, and regenerated CeO_2 nanoparticles.

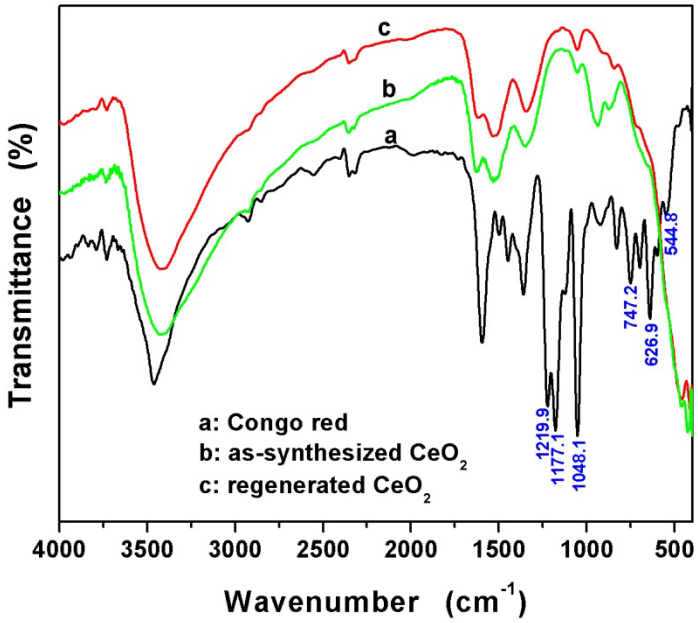
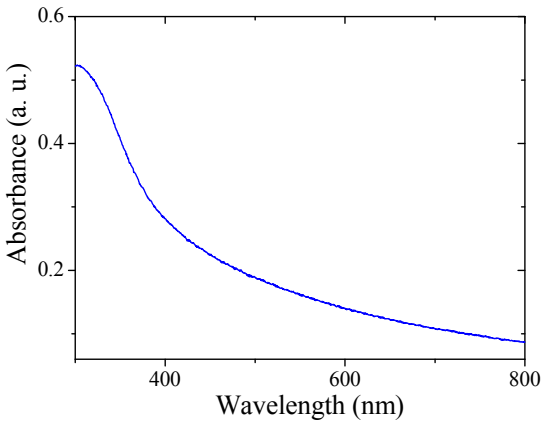
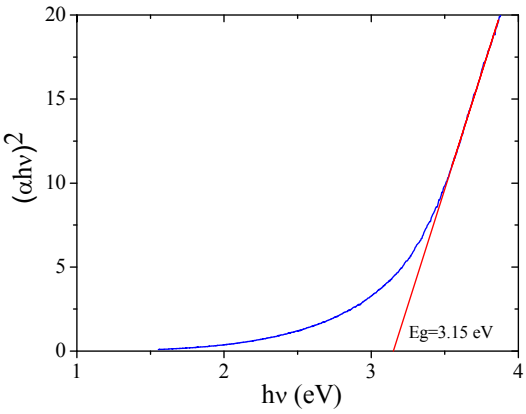


Fig. S7 FTIR spectra of CR, as-synthesized CeO_2 nanoparticles, and regenerated CeO_2 nanoparticles.



(a)



(b)

Fig. S8 (a) Typical Uv-Vis spectrum of CeO_2 nanoparticles. (b) Plot of $(\alpha h\nu)^2$ vs. $h\nu$ for the direct transition of CeO_2 nanoparticles.

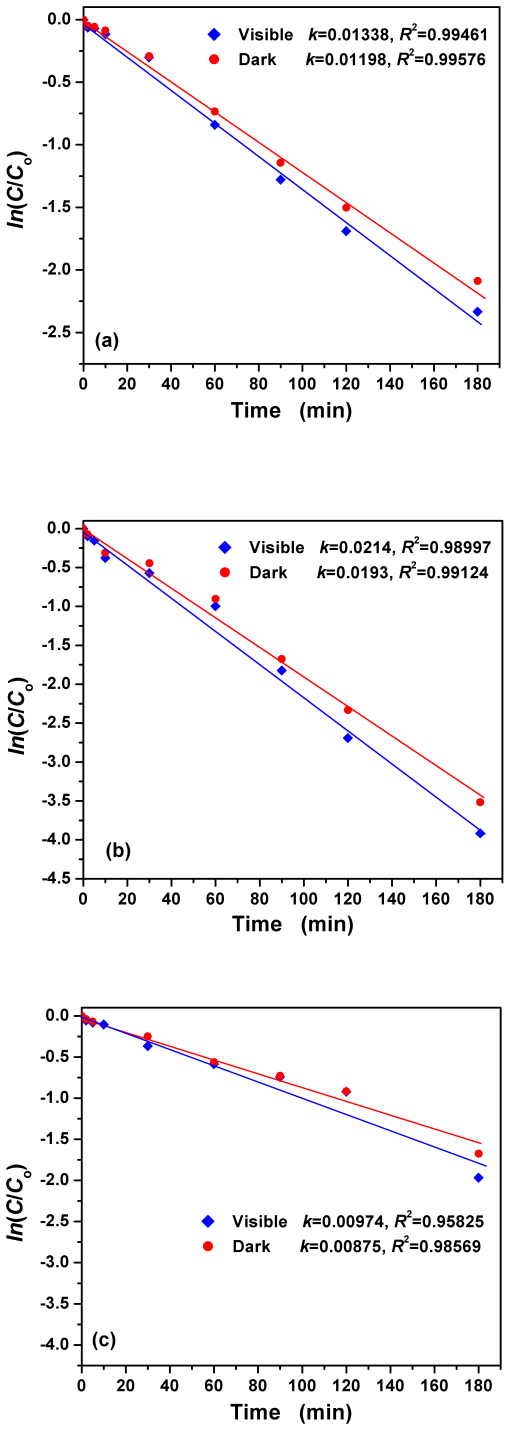


Fig. S9 The obtained degradation kinetics measured under the visible light and in the dark for 50 mL CR solution (100 mg L^{-1}) using various CeO_2 nanostructures: (a) 100 mg CeO_2 nanoparticles, (b) 20 mg CeO_2 nanorods, (c) 150 mg CeO_2 mixture of nanoparticles and nanorods.