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SUPPORTING INFORMATION

Prussian blue as a co-catalyst for enhanced Cr(VI) photocatalytic reduction promoted by titania-based nanoparticles and aerogels

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Table S1. Summary of reagent and material samples abbreviations/labels

Reagent, Method or Sample	Abbreviation/Label
Titanium (IV) dioxide anatase nanoparticles	TiO_2-A
Titanium (IV) isopropoxide	TiP
Tetraethylortosilicate	TEOS
1,5-diphenyl carbazide	DPC
Propylene oxide	PO
N,N-dimethylformamide	DMF
Thermo-Induced Deposition	TID
Epoxide-Assisted Gelation	EAG
SiO_2@TiO_2 core-shell particles	ST
SiO_2@TiO_2 core@shell aerogel prepared by thermo-induced deposition	ST-TID
SiO_2/TiO_2 composite aerogel prepared by Epoxide-Assited Gelation	ST-EAG
TiO_2 aerogel prepared by Epoxide-Assisted Gelation	TiO_2-EAG
Prussian Blue $Fe_4[Fe(CN)_6]_3$	PB

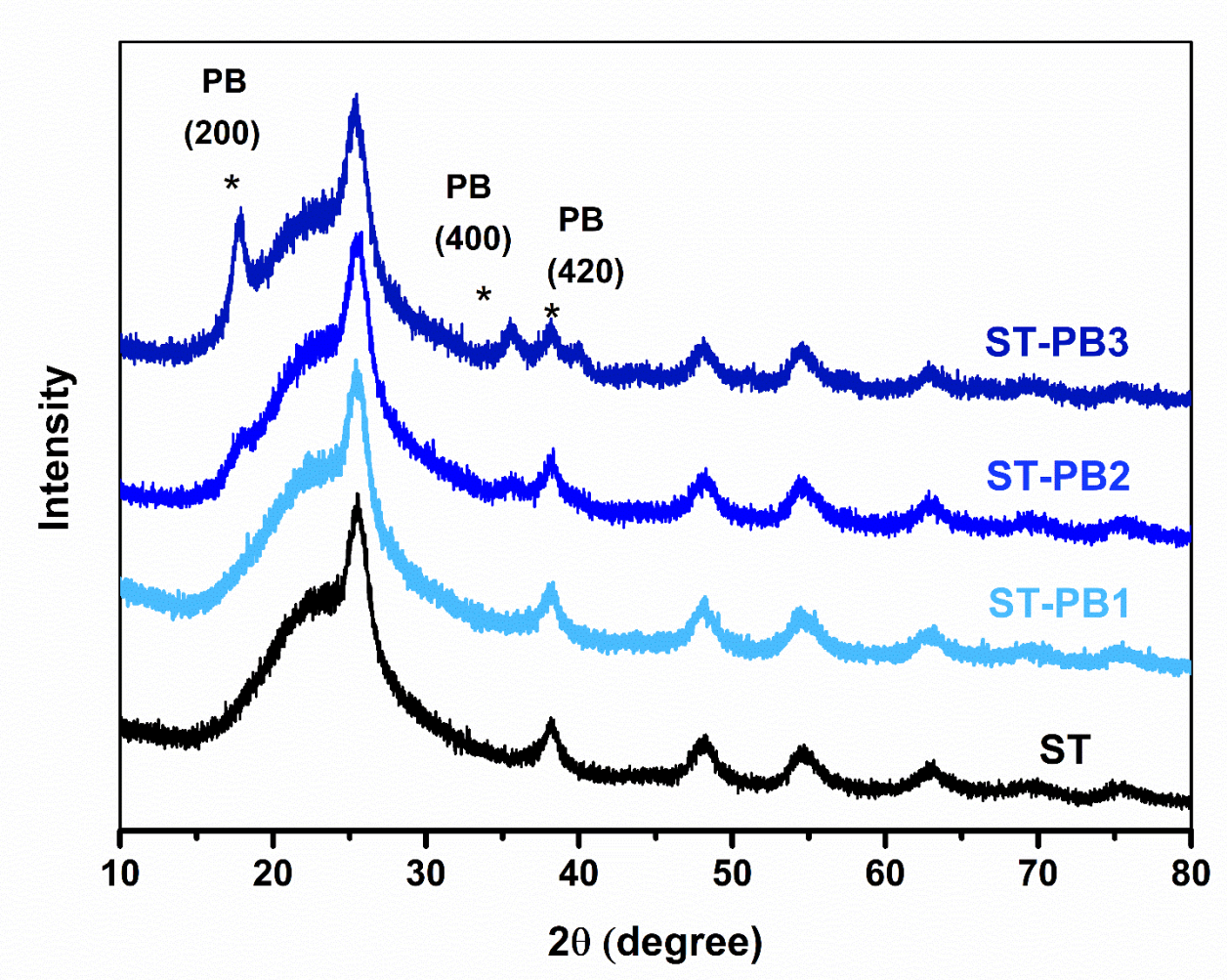

Figure S1. X-ray diffractograms of SiO_2@TiO_2 particles photocatalysts containing different PB loading

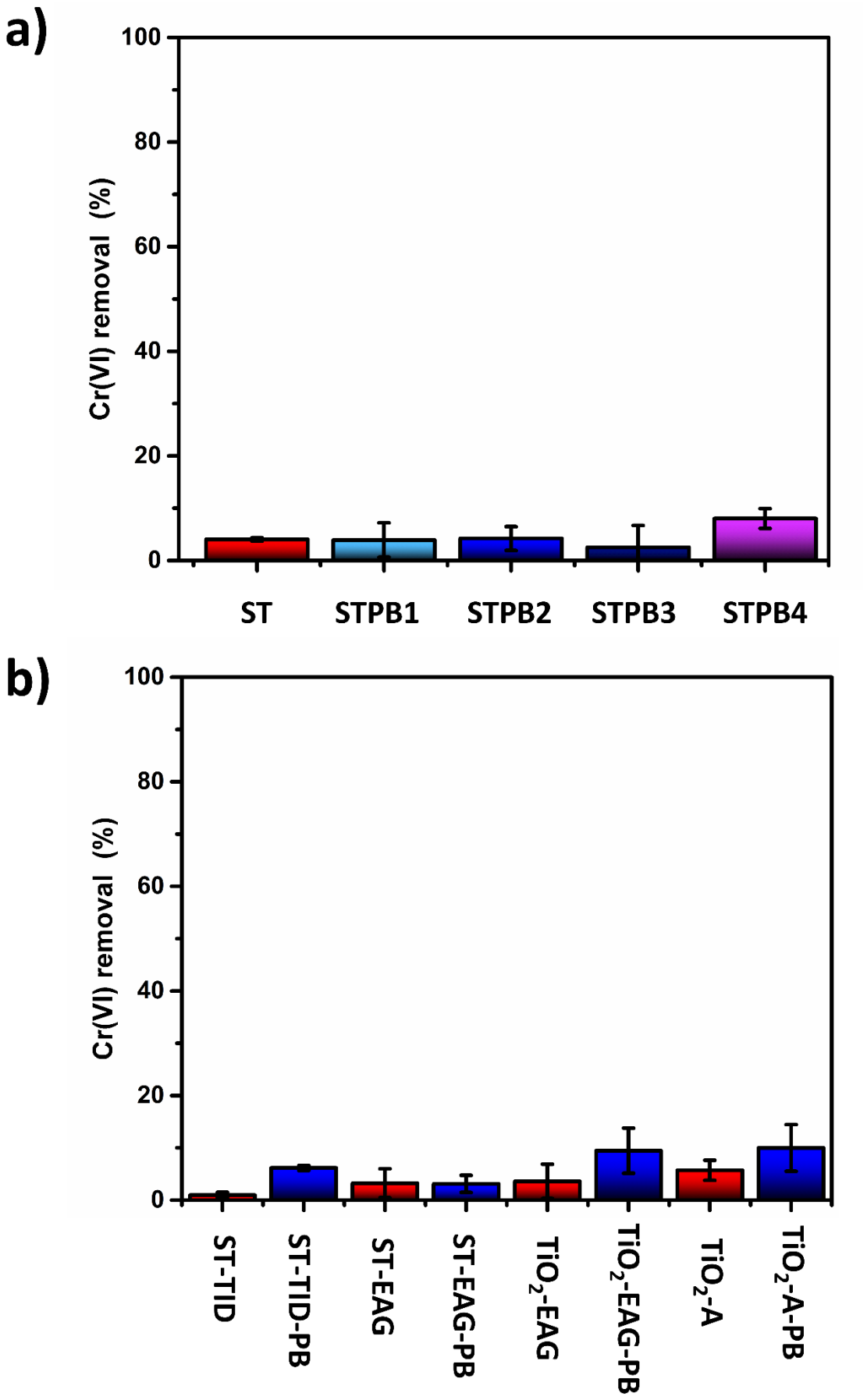

Figure S2. Comparison of Cr(VI) removal during initial adsorption step in the 30min kept under magnetic stirring in the dark for: a) unmodified SiO_2@TiO_2 and SiO_2@TiO_2 material modified with increasing PB loadings; b) Different unmodified and respective PB-modified TiO_2 and SiO_2/TiO_2 photocatalyst materials

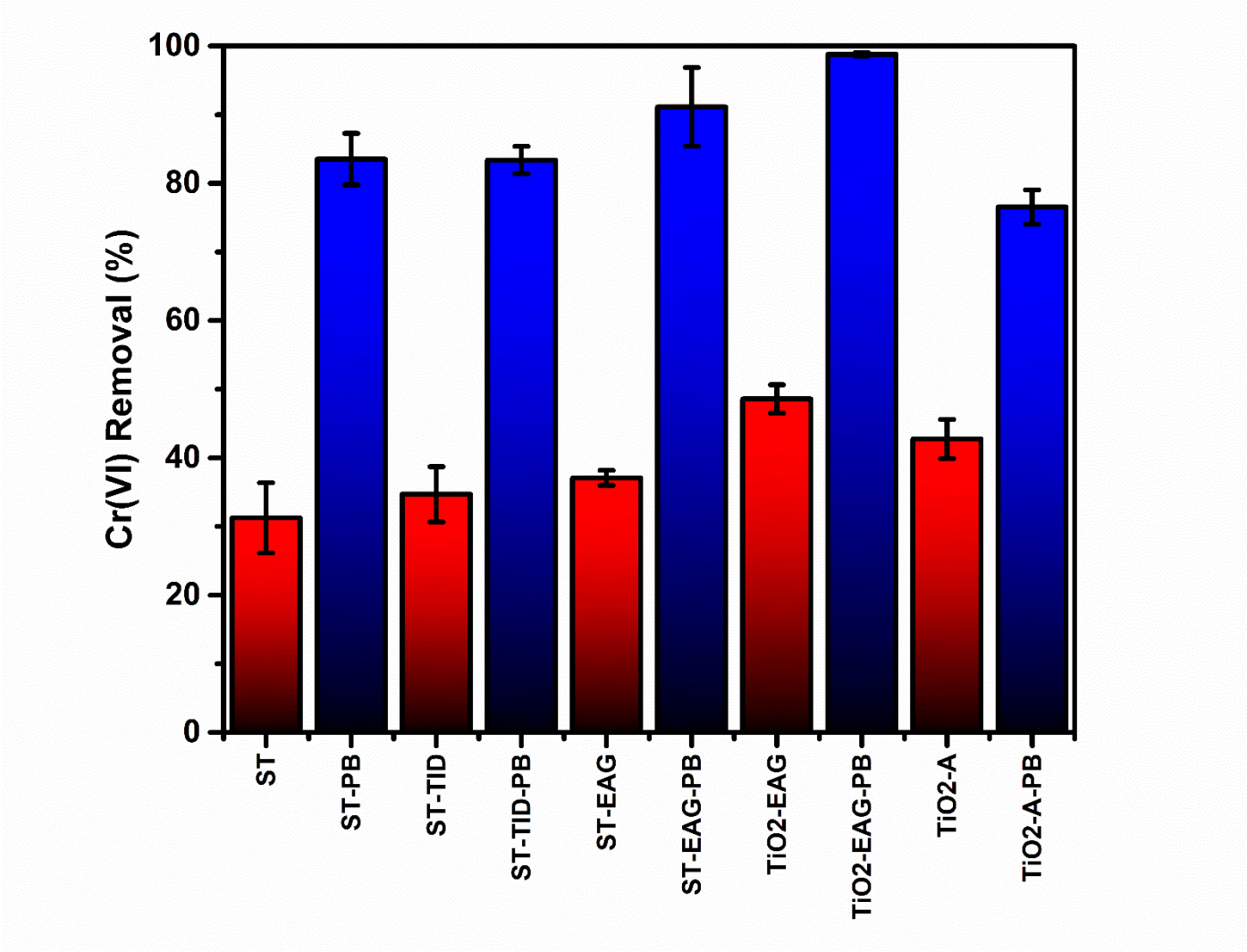

Figure S3. Comparison of the Cr(VI) photoreduction efficiency after 60 min irradiation for different titania and silica-titania based photocatalysts with and without PB.

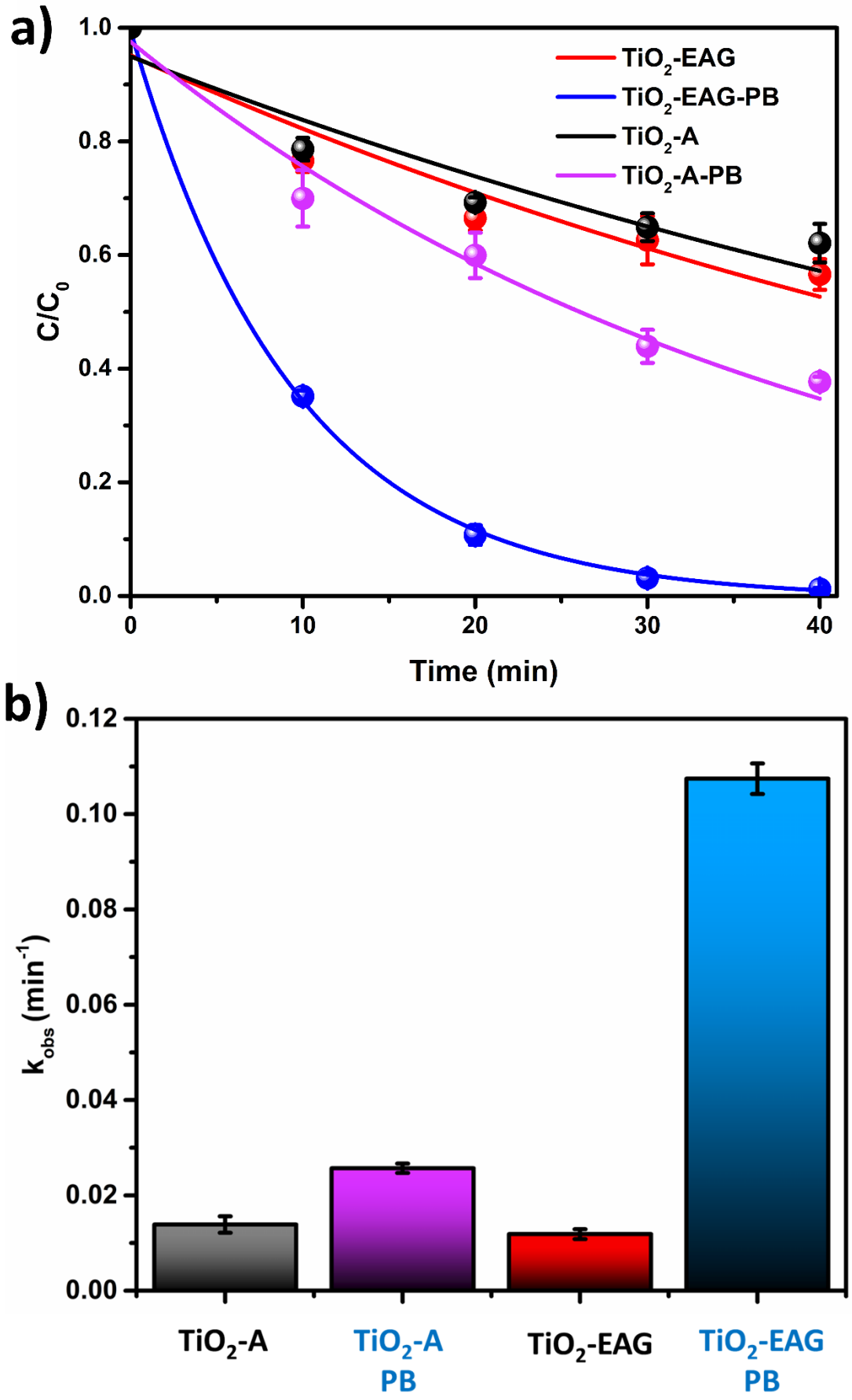

Figure S4. a) Fitted kinetic profiles and b) first order kinetic constants of Cr(VI) photocatalytic reduction assays for unmodified and PB modified anatase TiO_2 (TiO_2-A) or anatase/rutile TiO_2 samples (TiO_2-EAG-PB)

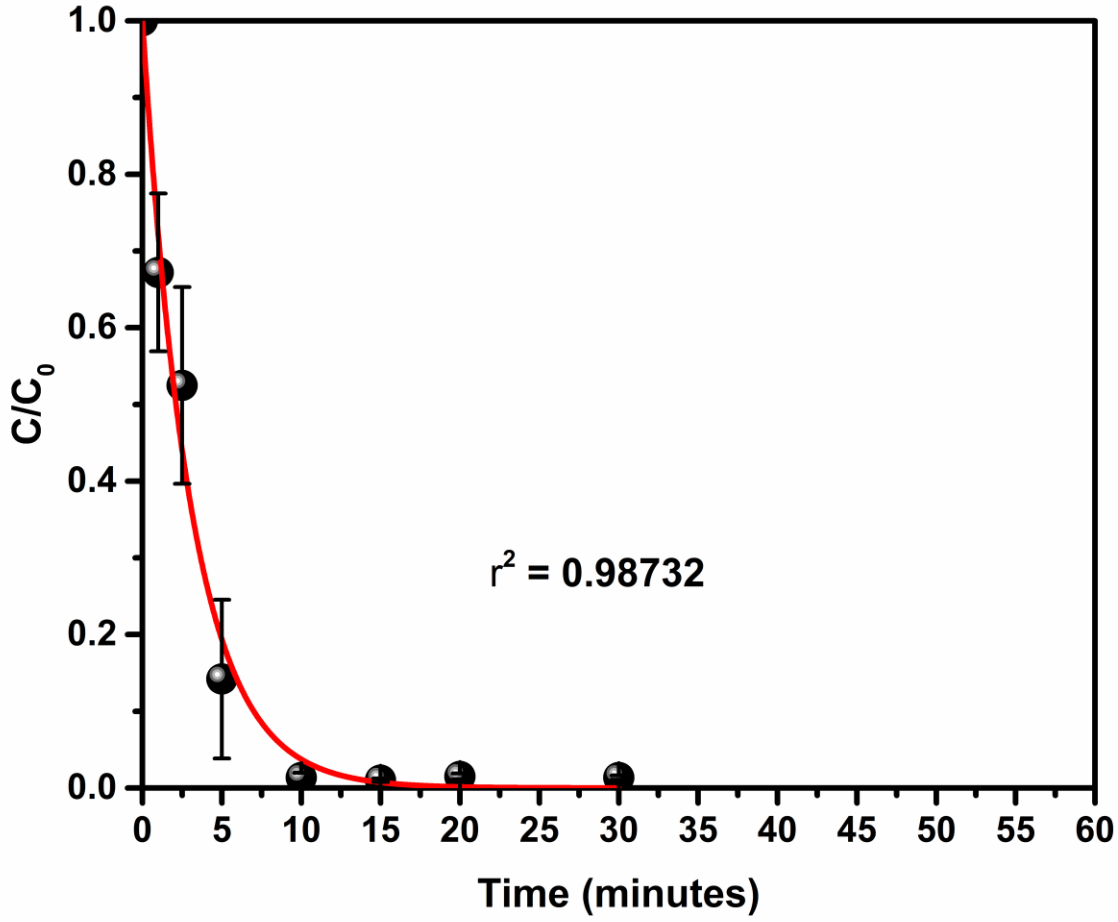

Figure S5. a) Fitted first-order kinetic profiles of Cr(VI) photocatalytic reduction experiment for TiO_2-EAG-PB sample in acidic media (pH=3) and with higher catalyst dosage ($1g.L^{-1}$)

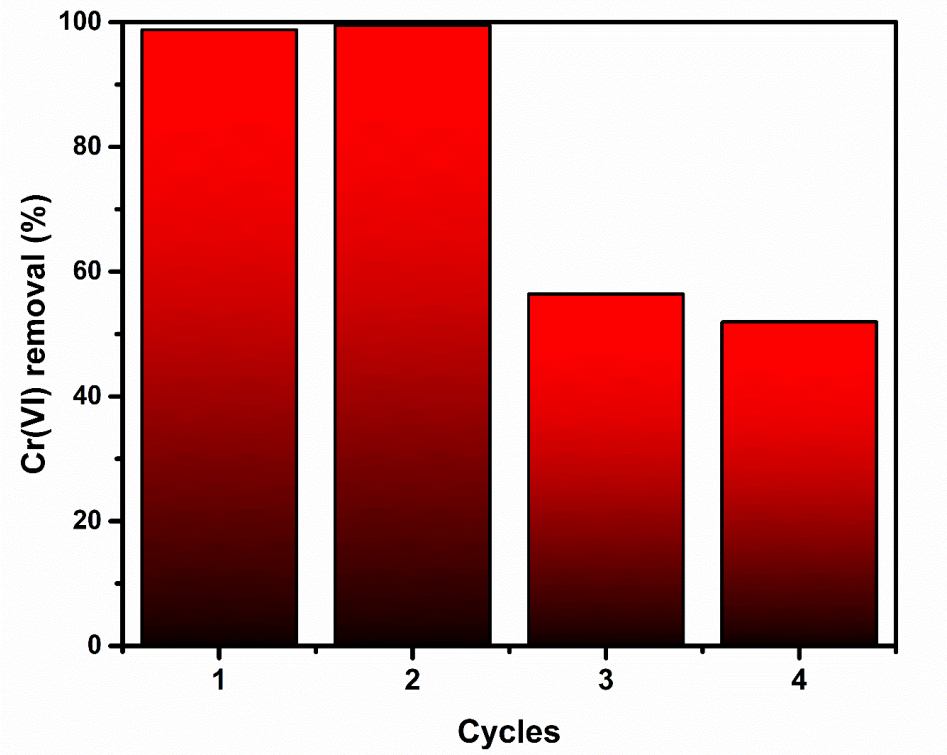

Figure S6. Figure S8. Cr(VI) removal under unadjusted pH conditions (pH = 5.6) after repeated photocatalytic cycles using the same recycled photocatalyst (TiO_2-EAG-PB2, catalyst dosage = 0.5 $g.L^{-1}$). The photocatalyst, after exposure to UV light for 40 min, was recovered by centrifugation at 3500 rpm for 30 min and washed with 0.5 $mol.L^{-1}$ H_2SO_4 solution before being used in the next photocatalysis cycle.

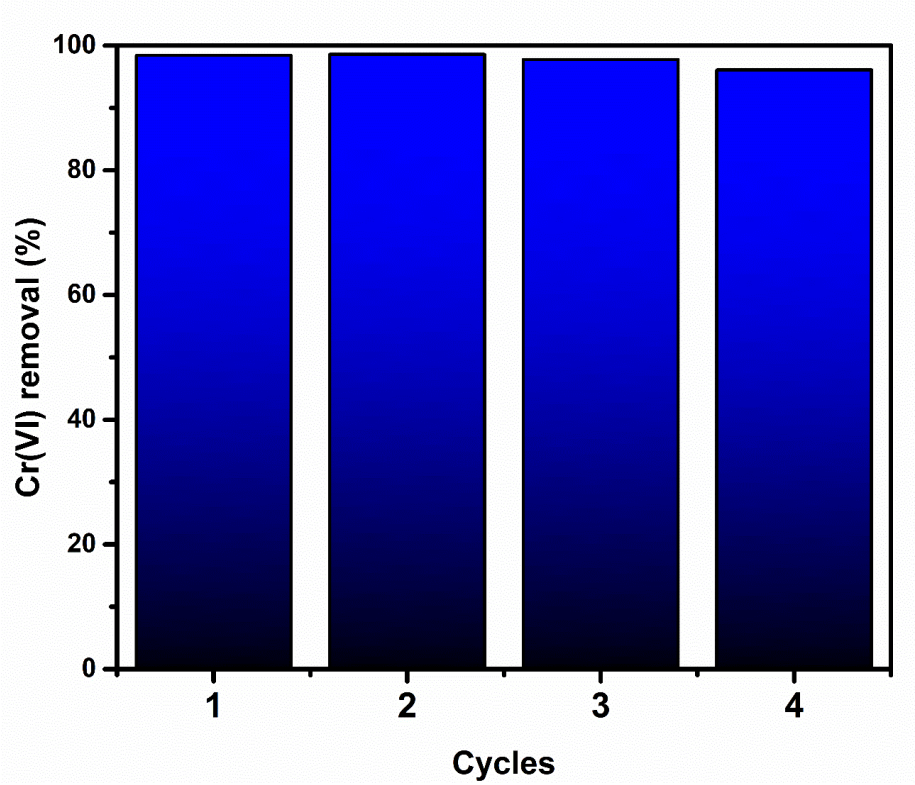

Figure S7. Cr(VI) removal under acidic conditions (pH = 3) after repeated photocatalytic cycles using the same recycled photocatalyst (TiO_2-EAG-PB2, catalyst dosage = 1 $g.L^{-1}$). The photocatalyst, after exposure to UV light for 30 min, was recovered by centrifugation at 3500 rpm for 30 min and washed with 0.1 $mol.L^{-1}$ HNO_3 solution before being used in the next photocatalysis cycle.