

Supplementary Materials

Glycerol-Mediated Facile Synthesis of Colored Titania Nanoparticles for Visible Light Photodegradation of Phenolic Compounds

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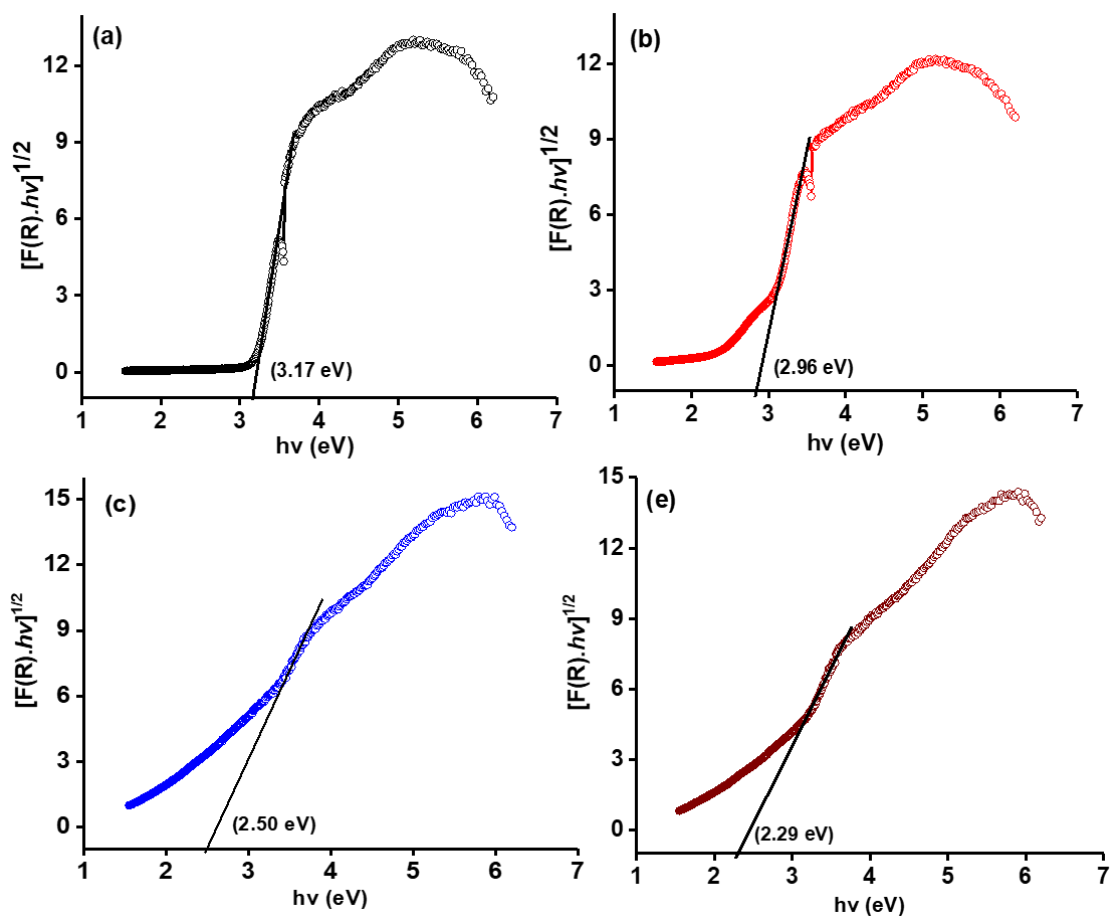


Figure S1. Tauc's plot of the band gaps of the colored TiO₂ NPs prepared at various glycerol concentration and calcination at 300°C: (a) T1, (b) T2, (c) T3, and (d) T4.

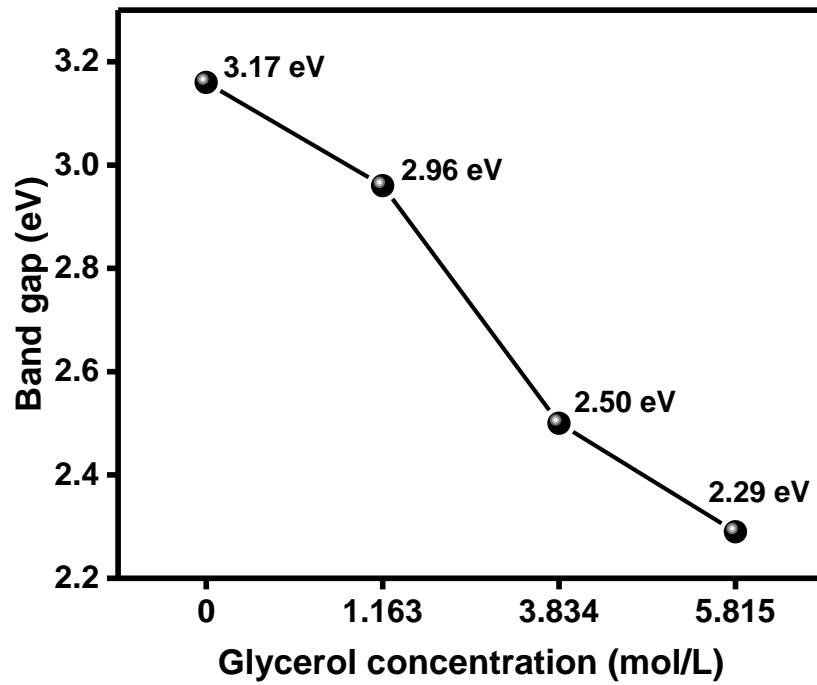


Figure S2. Band gap energy of colored TiO₂ NPs as a function of glycerol concentration.

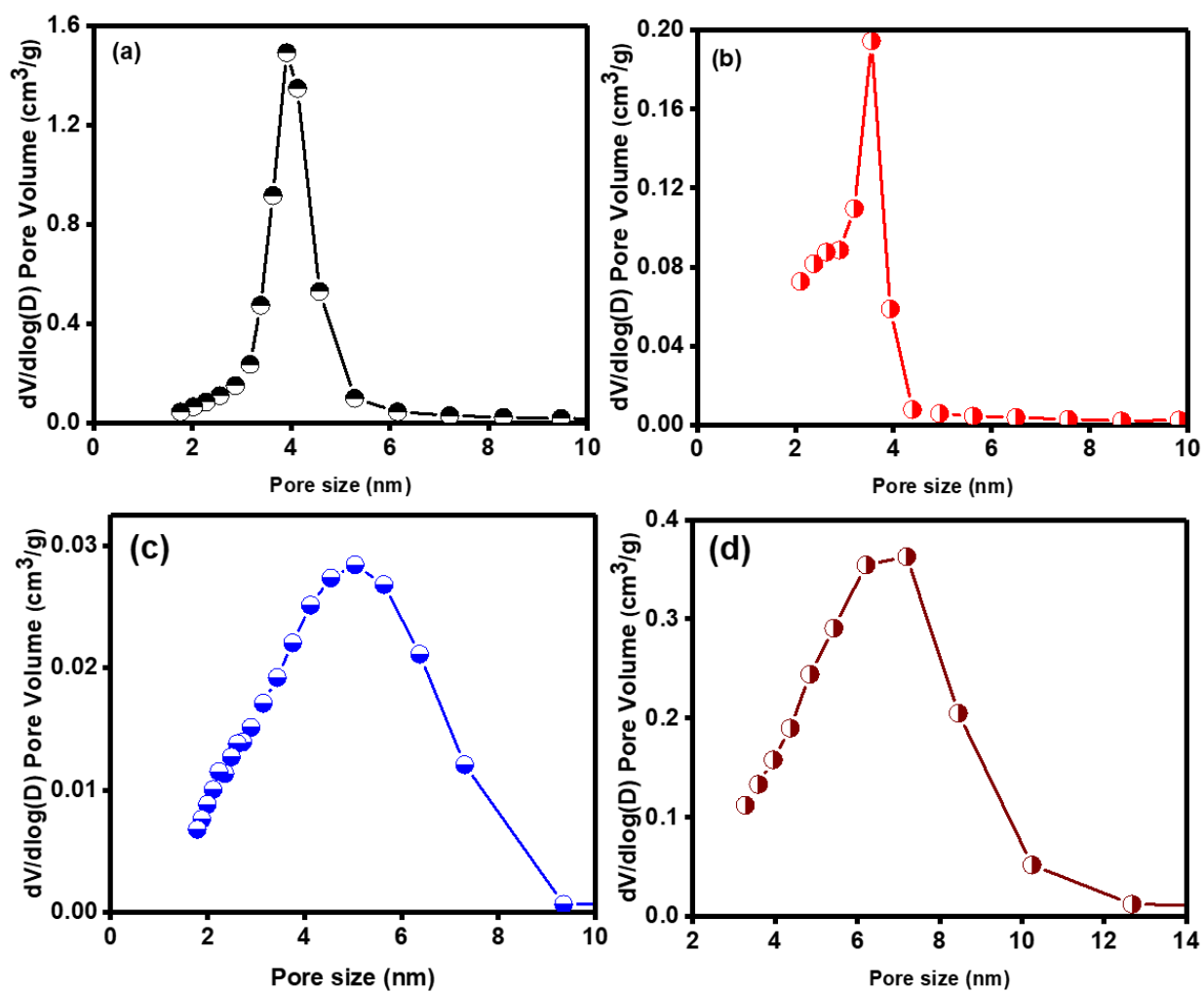


Figure S3. Pore size distribution of colored TiO₂ NPs prepared at various glycerol concentration and calcination at 300°C: (a) T1, (b) T2, (c) T3, and (d) T4.

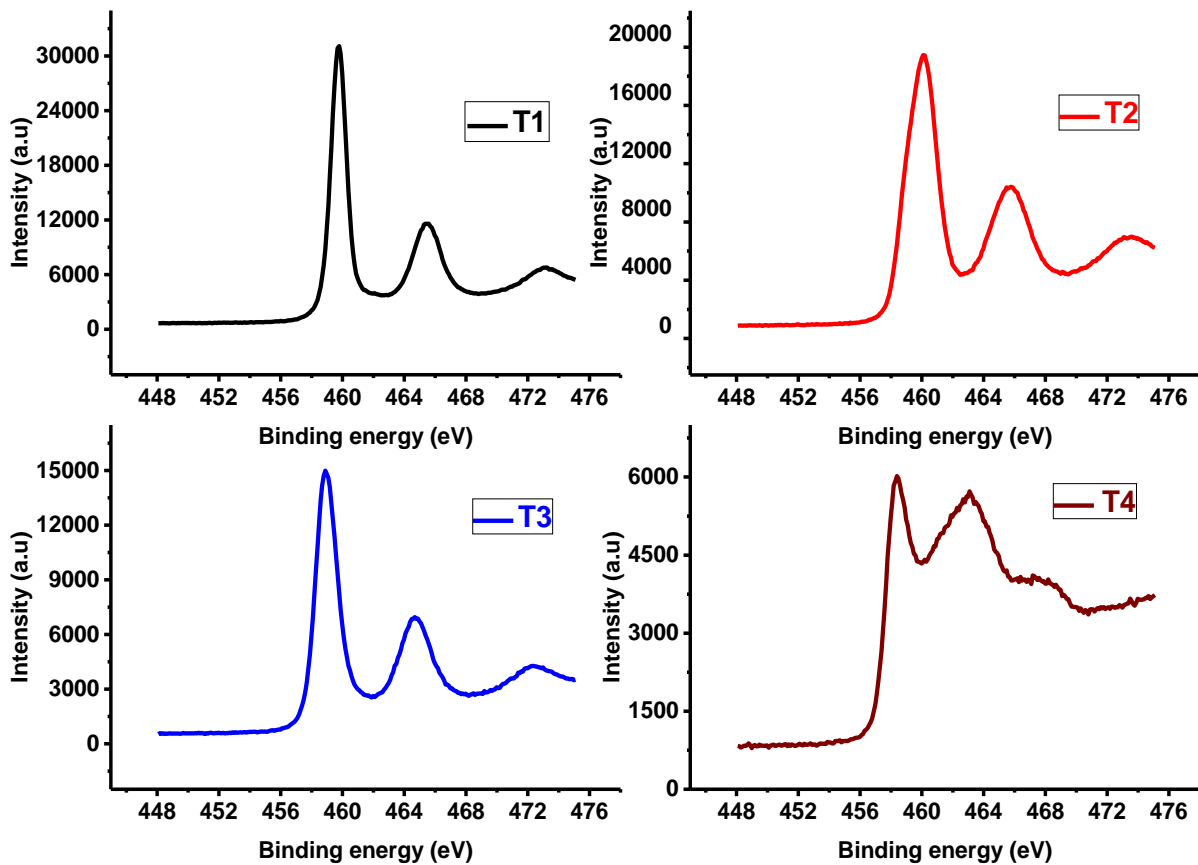


Figure S4. High resolution XPS spectra of Ti_{2p} of the colored TiO₂ NPs prepared at different glycerol concentration 0 mol/L (T1), 1.163 mol/L (T2), 3.834 mol/L (T3) and 5.815 mol/L (T4).

Table S1. XPS fitting parameters the Ti2p_{3/2} and Ti2p_{1/2} and O1s peaks for the colored TiO₂ (Exp.) and values reported in the literature, O_L represents lattice oxygen and O_s sub oxide oxygen.

Sample	Glycerol concentration (mol/L)	Ti ⁴⁺		Ti ³⁺		O1s		Ref.
		Ti2p _{3/2}	Ti2p _{1/2}	Ti2p _{3/2}	Ti2p _{1/2}	O _L	O _s	
T1	0	459.08	464.53	---	---	530.95	---	This work
T2	1.163	460.07	466.30	458.80	---	530.20	531.70	
T3	3.834	458.95	464.65	---	460.07	530.28	532.48	
T4	5.815	460.00	467.02	458.32	---	529.85	531.70	
Anatase	---	458.60	464.40	---	460.40	529.90	531.30	[1]
TiO ₂	---	459.65	---	---	---	530.87	---	[2]
	---	459.00	---	---	---	530.40	---	[3]

Table S2. Difference between binding energies and line separation of the colored TiO₂.

Sample	BE Ti2p _{1/2} – BE Ti2p _{3/2}	ΔBE/eV	BE O1s – BE Ti2p _{3/2}	ΔBE/eV	Ref.
T1	464.53 – 459.08	5.45	530.95 – 459.08	71.87	This work
T2	466.30 – 460.07	6.23	531.70 – 458.80	72.90	
T3	464.65 – 458.95	5.70	530.28 – 458.95	71.33	
T4	467.02 – 460.00	7.02	531.70 – 458.32	73.38	
Black TiO ₂	464.36 – 458.60	5.76	530.54 – 459.25	71.29	[4]

Reference

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4. S. Chen, Y. Xiao, Y. Wang, Z. Hu, H. Zhao, and W. Xie, A facile approach to prepare black TiO₂ with oxygen vacancy for enhancing photocatalytic activity, *Nanomaterials*, **2018**, *8*, 245.