Supporting Information

Biomass-mediated Synthesis of Cu-Doped TiO_2 Nanoparticles for Improved Performance Lithium-Ion Batteries

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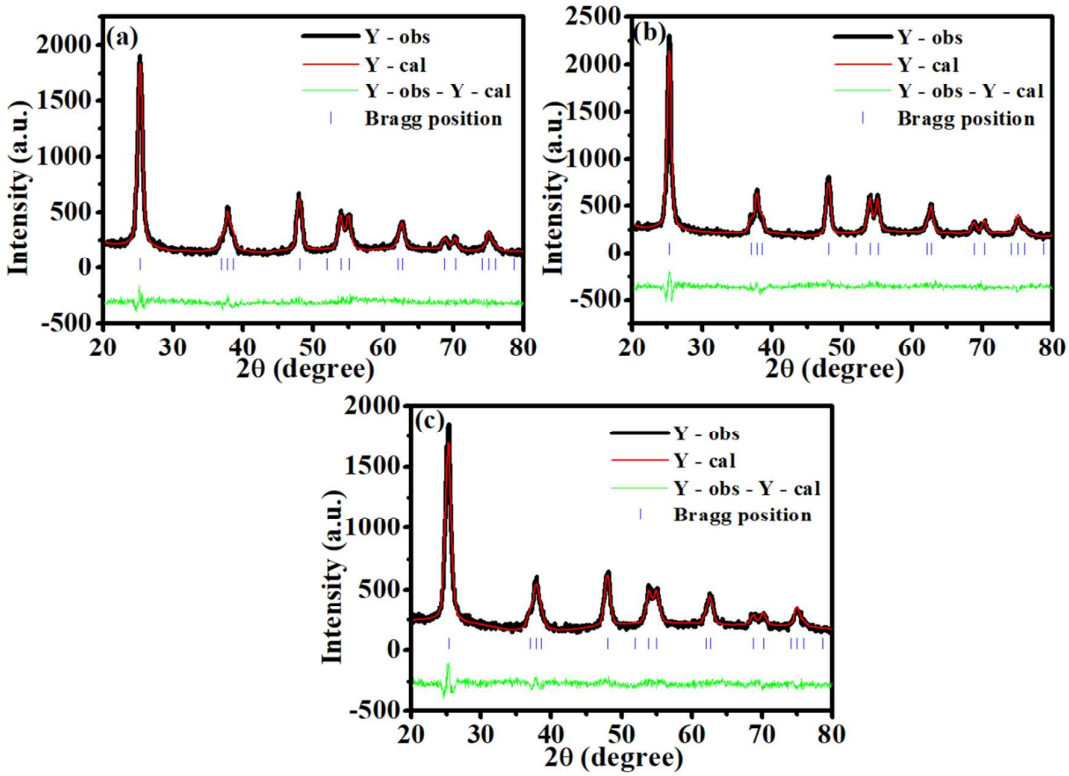

Figure S1 Representative Rietveld refinement plot of biosynthesized (a) pure TiO_2 (b) 3% Cu -TiO_2 and (c) 7% Cu -TiO_2.

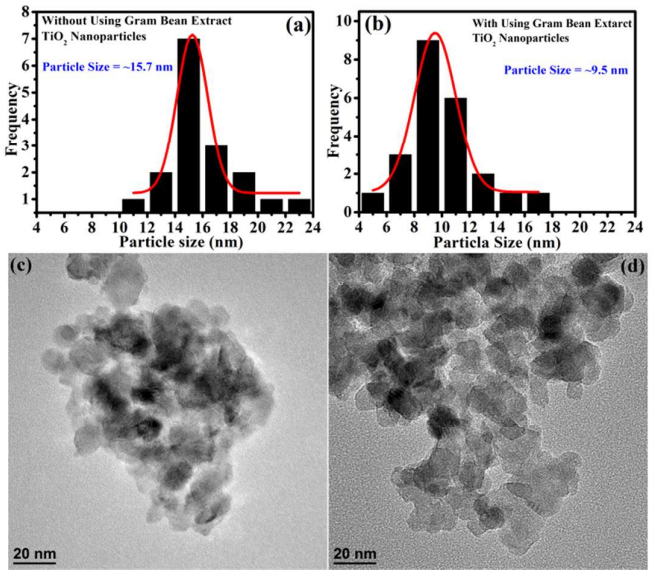

Figure S2. Particle size distribution histograms and representative TEM images of TiO_2 nanoparticles prepared without the use of Bengal gram bean extract and with using Bengal gram bean extract.

Table S1. Results of crystal analyses by Rietveld refinements of pure TiO_2, 3% Cu-doped TiO_2 and 7% Cu-doped TiO_2.

Sample	*a,b* (Å)	*c* (Å)	*α, β, γ* (°)	*V* (Å^3)	χ^{2c}
Pure TiO_2	3.7847	9.5067	90	136.174	1.661
3% Cu-doped TiO_2,	3.7856	9.5049	90	136.213	1.602
7% Cu-doped TiO_2	3.7879	9.5010	90	136.322	1.629

Table S2. Comparative specific capacitance of first six charge-discharge cycles of pure TiO_2, 3% Cu-doped TiO_2 and 7% Cu-doped TiO_2.

Anode Material	Cycle Number	Discharge Capacity mA h g^{-1}	Charge Capacity mA h g^{-1}	Irreversible Capacity mA h g^{-1}
Pure TiO_2	1st	514	291	223
	2nd	292	269	23
	3rd	280	262	18
	4th	269	257	12
	5th	263	254	9
	6th	260	252	8
3 % Cu-doped TiO_2	1st	517	292	225
	2nd	314	271	43
	3rd	284	264	20
	4th	276	260	16
	5th	264	257	7
	6th	264	257	7
7 % Cu-doped TiO_2	1st	748	398	350
	2nd	378	353	25
	3rd	356	340	16
	4th	342	334	8
	5th	333	326	7
	6th	329	323	6

Table S3. Comparative rate capability of pure TiO_2, 3% Cu-doped TiO_2 and 7% Cu-doped TiO_2.

Current Rate (A g^{-1})	Specific Capacitance of Pure TiO_2 (mAh g^{-1})	Specific Capacitance of 3 % Cu-doped TiO_2 (mAh g^{-1})	Specific Capacitance of 7 % Cu-doped TiO_2 (mAh g^{-1})
0.05	276	296	378
0.1	249	254	330
0.25	216	217	279
0.5	181	185	230
1	143	156	189
2	119	134	157
0.1	239	253	299