Supplementary Information

Selective synthesis of visible light active γ-Bismuth Molybdate nanoparticles for efficient photocatalytic degradation of methylene blue, reduction of 4-nitrophenol and antimicrobial activity

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SI. 1: Agar media preparation

The Mueller Hinton agar medium was used for bacteria development due to its acceptable reproducibility and satisfactory growth of most pathogens[28]. Typically, the agar medium was prepared by dissolving synthetic Mueller-Hinton agar powder in distilled water. The medium was adjusted to pH=7 with 1N NaOH and made up to 1L. The medium and Petri plates (100 mm x 15 mm) were autoclaved at 121 ^{0}C, 15 lbs for 20 min. The autoclaved medium was allowed to cool to 45 ^{0}C and transferred into Petri plates (20 ml/plate) under disinfected conditions of laminar air-flow.

SI.2: Antimicrobial Activity for Agar-well diffusion method

The antimicrobial activity of synthesized g-Bi_2MoO_6 NP's was carried out by using the Agar-Well diffusion method. The medium was sterilized by autoclaving at 120 ^{0}C (15lb/in^2). About

20 mL of the nutrient agar medium/potato agar seeded with the respective strains bacteria/fungal were transferred aseptically into each sterilized Petri plate. The plates were left at room temperature for solidification. In each plate, a single well of 6 mm diameter was made using a sterile borer. The test compounds were freshly reconstituted with suitable solvents (DMSO) and tested at various concentrations (10 mg/ml, 5 mg/ml, 2.5 mg/ml). The samples and the control along with standard (Ciprofloxacin - Antibiotic drug, Clotrimazole – Antifungal drug) were placed in 6 mm diameter well. In antimicrobial assays, fungal plates were incubated at 28±2^{0}C while 37±2^{0}C for bacteria. Standard with 10 mg/ml was used as a positive control for antimicrobial activity. The diameter of the zone of inhibition was measured using the Himedia antibiotic zone scale.

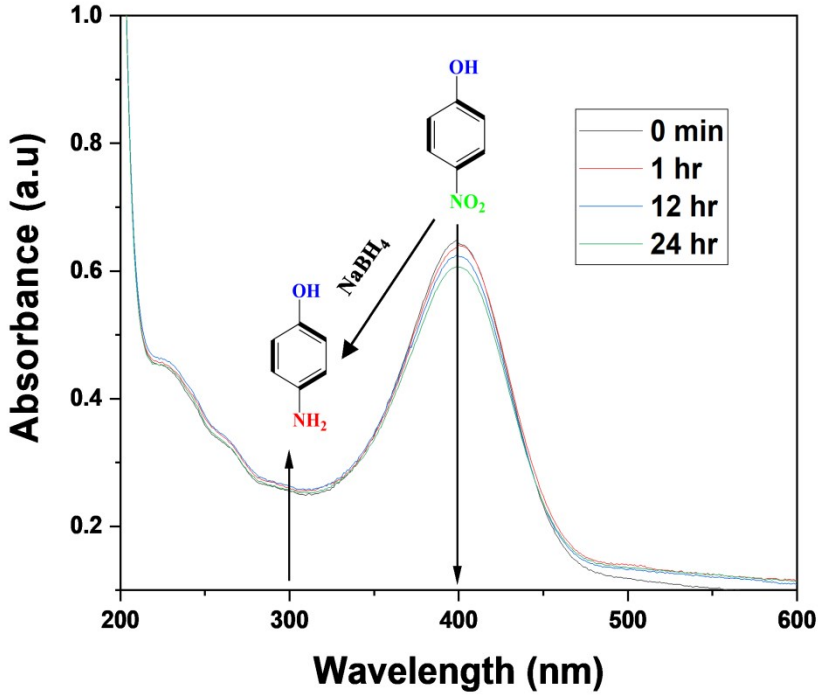

Fig S1: The reduction of 4-NP by $BaBH_4$.

Table S1: The anti-microbial activity with BM2 catalyst at different concentration

Micro-organism	Zone inhibition (mm)				
	Catalyst Concentration			Standard (reference) 10mg/ml	DMSO (solvent) 1ml
	10mg/ml	5mg/ml	2.5mg/ml		
Escherichia Coli – Gram negative	10	10	9	35	0
Staphylococcus aureus- Gram positive	10	12	10	40	0
Aspergillus niger	18	11	10	31	0