

SUPPLEMENTARY INFORMATION

Enhanced Photoredox Activity of BiVO₄/Prussian Blue Nanocomposites for Efficient Pollutant Removal from Aqueous Media under Low-Cost LEDs Illumination

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LED emission Spectrum

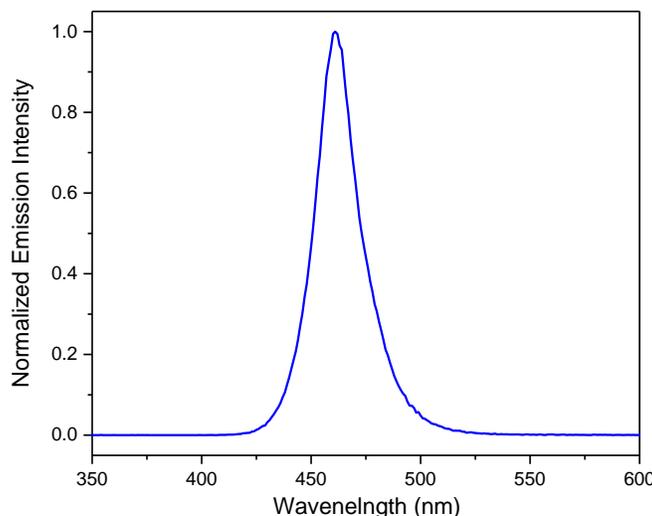


Figure S1: The emission spectrum of the LED source used in the work. The emission peak width at half-maximum (FWHM) is around 20 nm

SEM Analysis

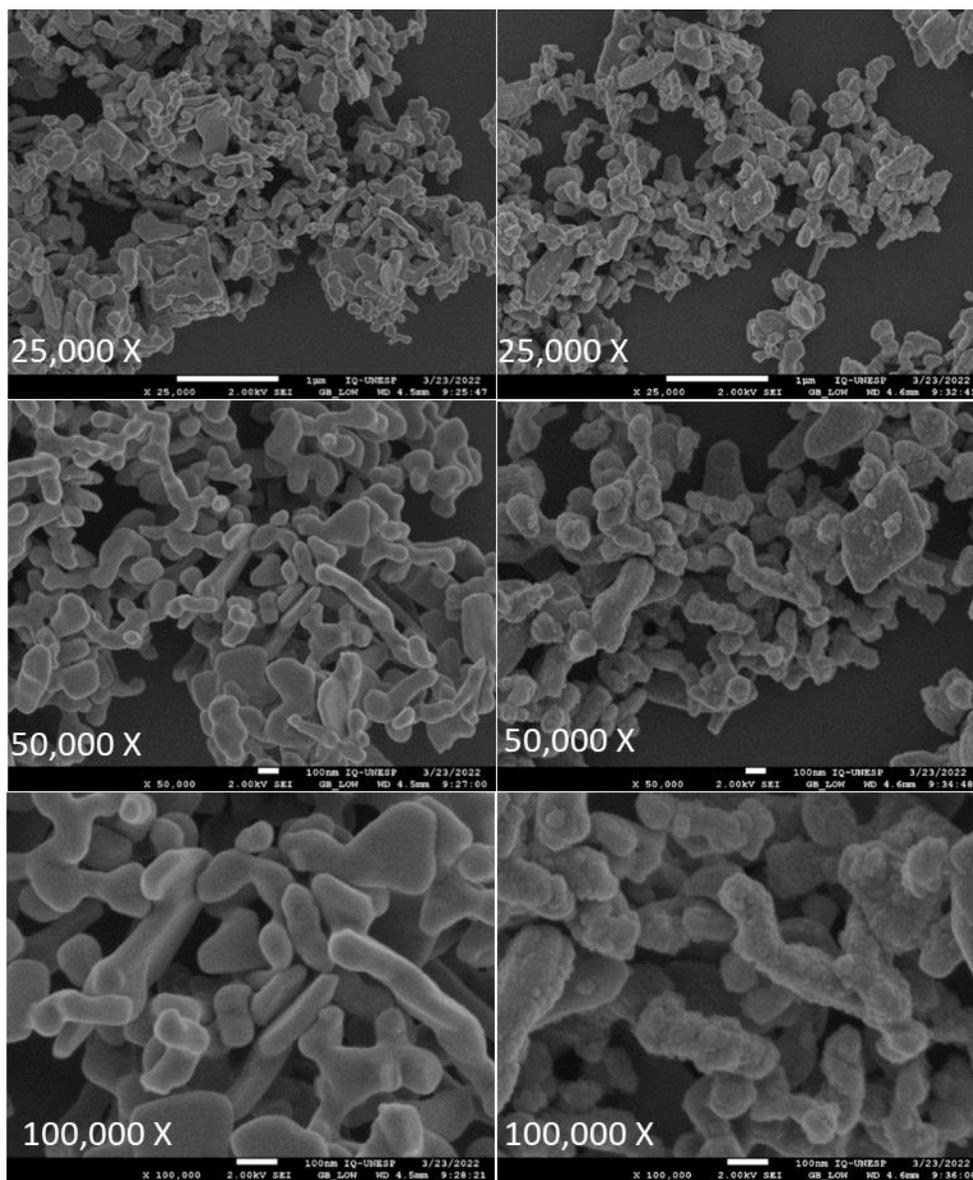


Figure S2. SEM images of Pure BV (left Column) and BV-PB3 (right Column) at three different magnifications of 25,000, 50,000, and 100,000.

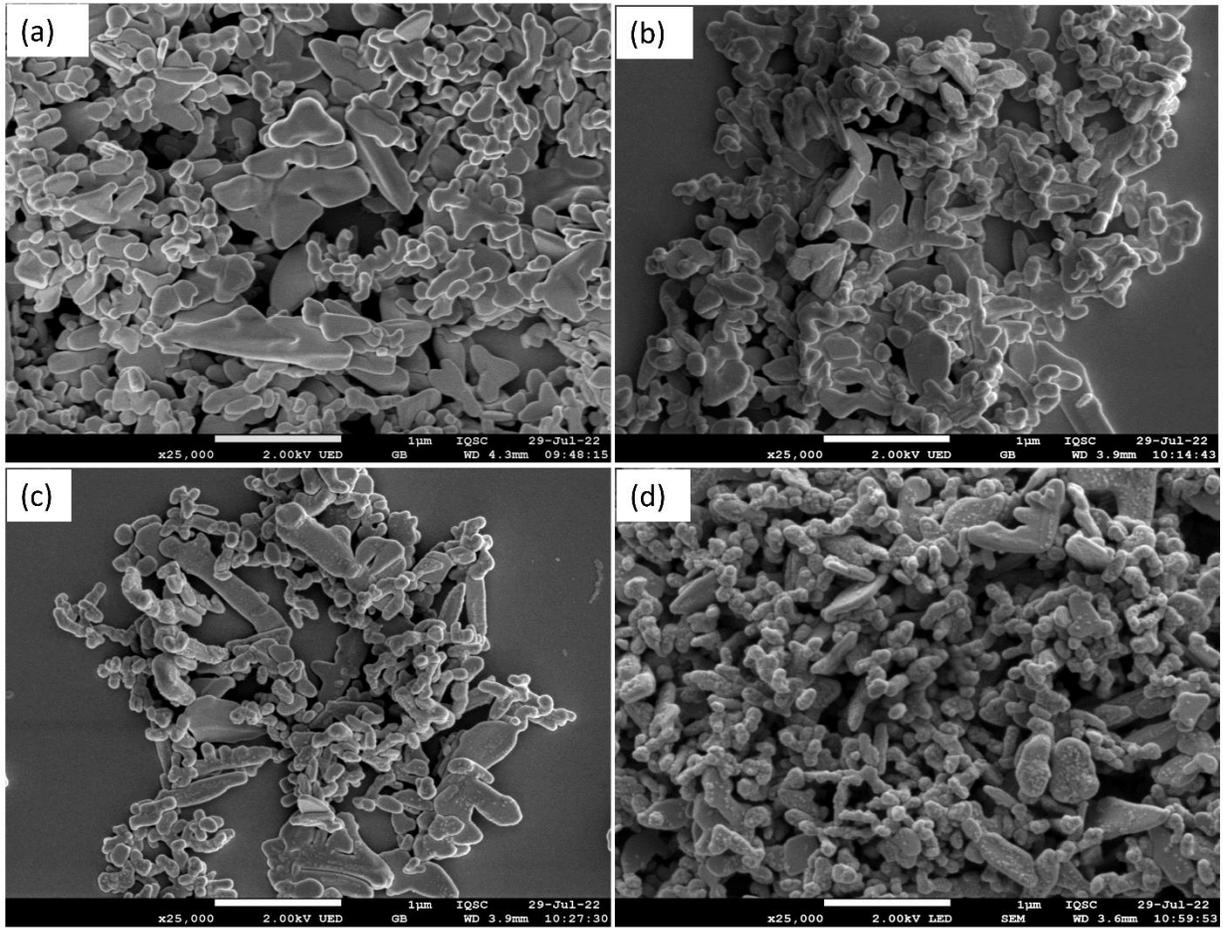


Figure S3: FEG-SEM images of BV (a), BV-PB1(b), BV-PB2 (c), and BV-PB4 (d) samples at the same magnification (25,000) showing a gradual change in morphology of the samples as a function of increasing PB loading.

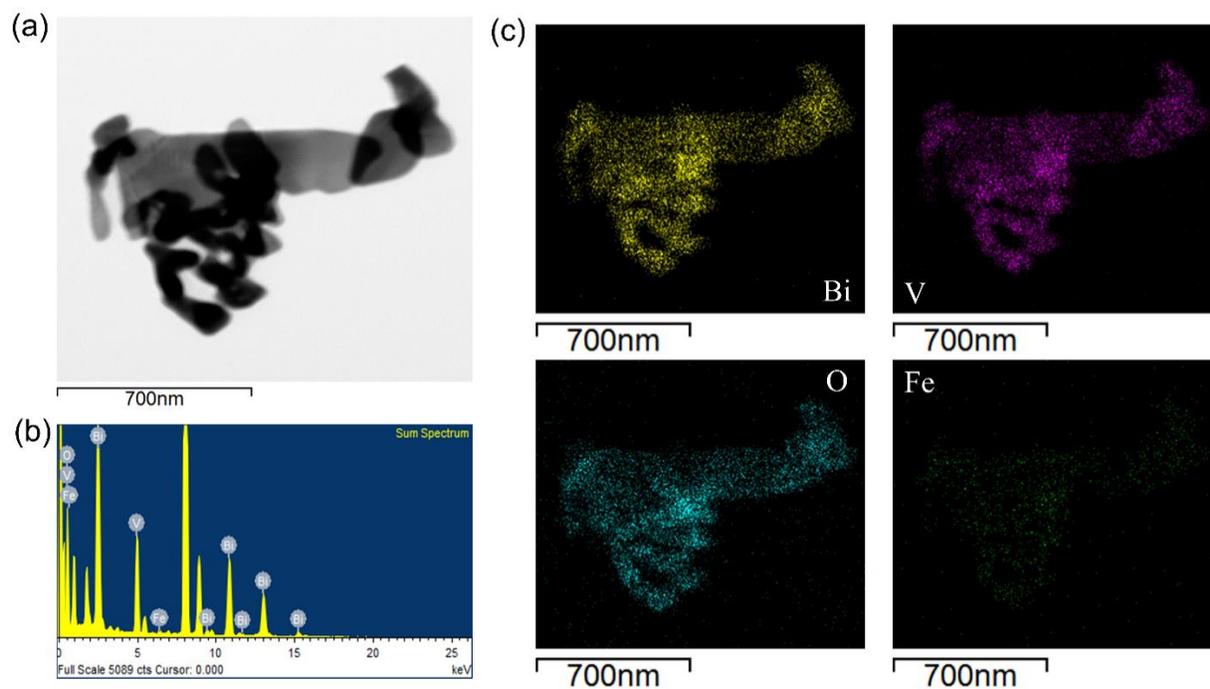


Figure S4: TEM image (a), EDX spectrum (b), and elemental mapping (c) of BV-PB2 sample.

XRD Analysis

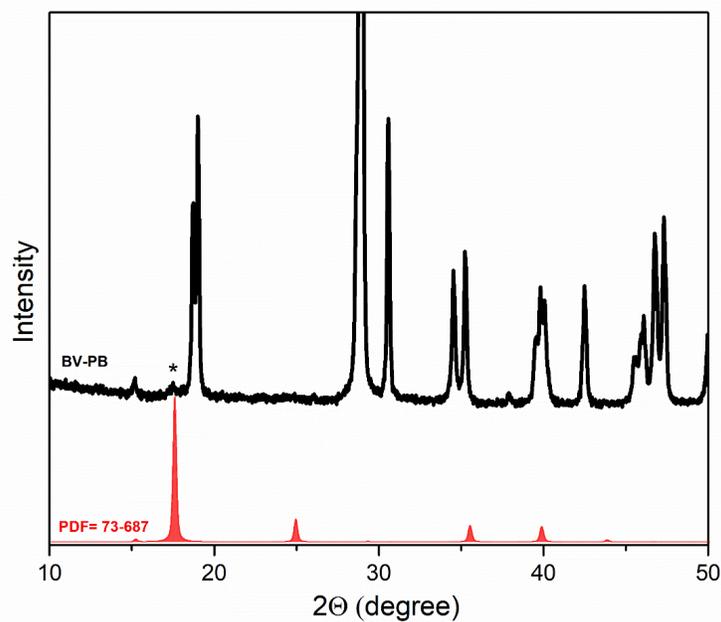


Figure S5. XRD pattern of Pure BV-BP (top) as compared to the standard diffraction pattern of PB (bottom) (PDF 73-687). The small diffraction features around 2θ value of 17.5° (indicated by *) corresponds to the most intense diffraction from the (200) planes of the cubic structure of PB (PDF no 73-687).

FTIR Analysis

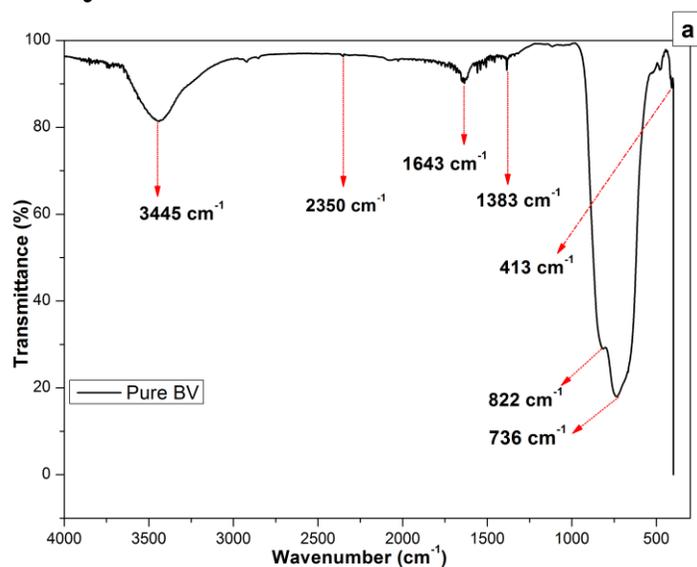


Figure S6. FTIR Spectrum of pure BV with the vibrational band positions marked.

Photocatalytic tests

Photoreduction of MB

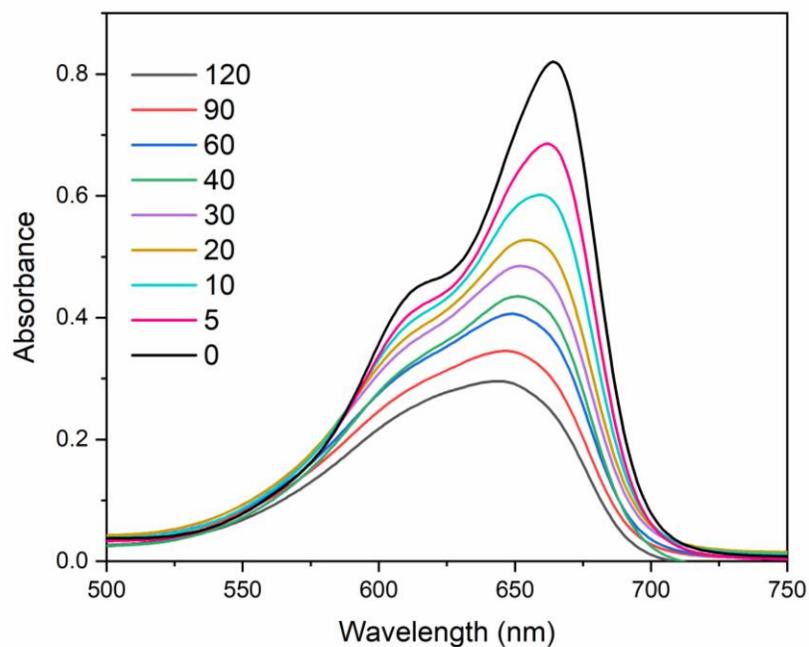


Figure S7. Electronic absorption spectra of MB dye as a function of LED illumination time (min) in the presence of pristine BV.

(Photoreduction of Cr(VI))

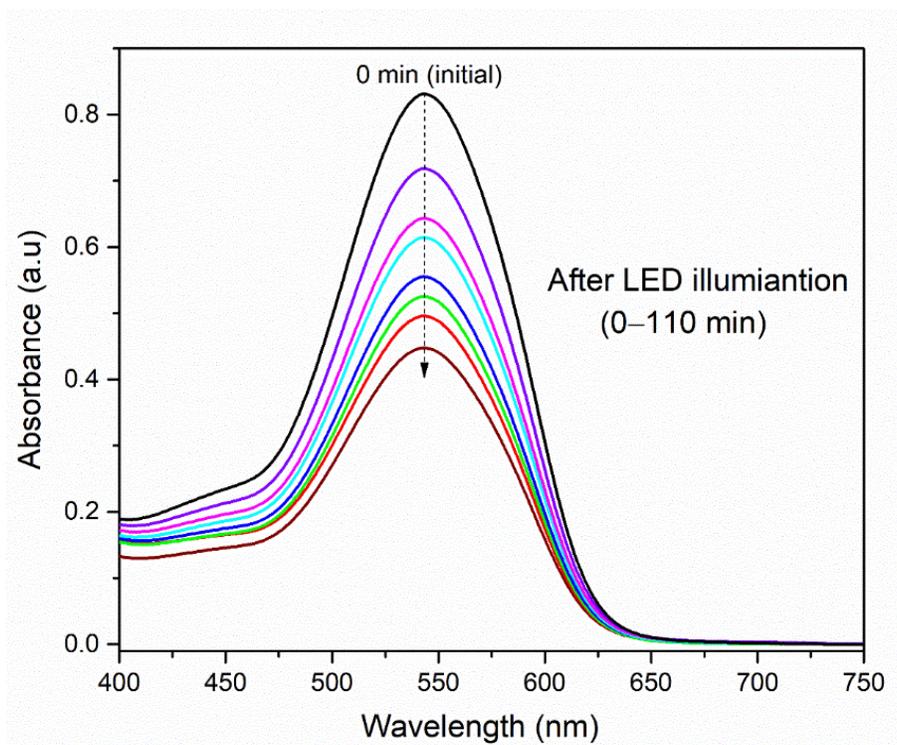


Figure S8. Absorption spectra of Cr(VI)-DPC complex before (0 min, black line) and after blue LEDs illumination (1–110 min, colored lines) showing the photoreduction of Cr(VI) to Cr(III) by the BV-PB3 sample.

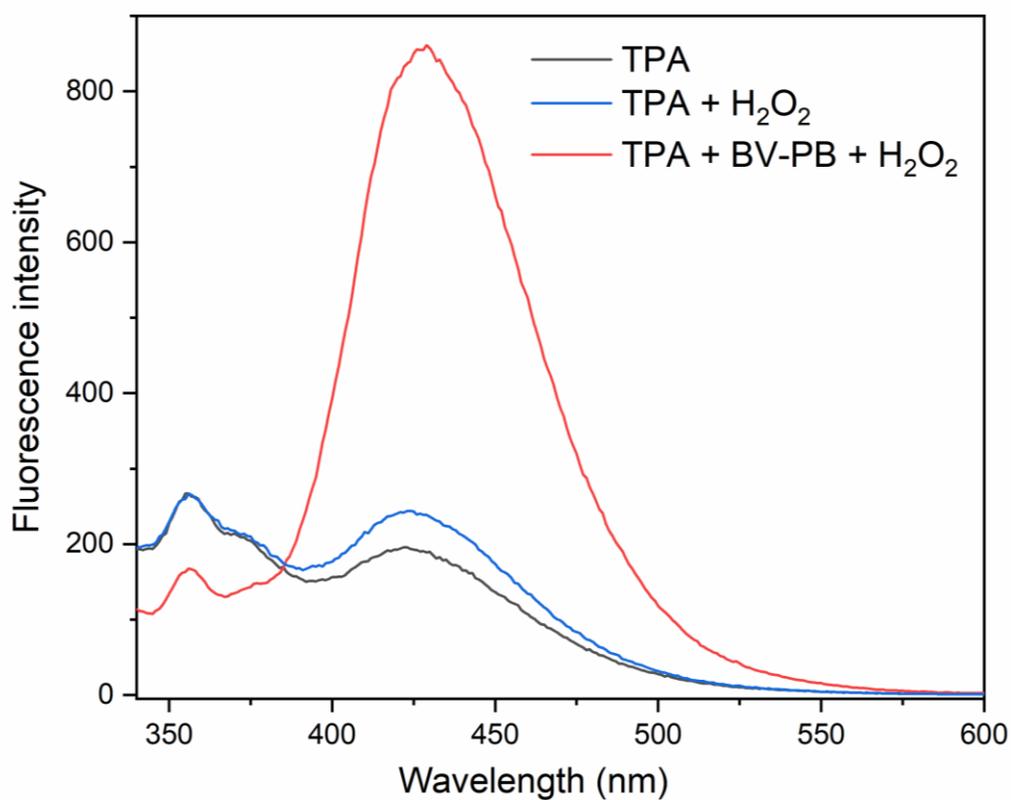


Figure S9. Fluorescence spectra of pure terephthalic acid, TPA, (black line), terephthalic acid in the presence of H₂O₂ (blue line), and terephthalic acid in the presence of both BV-PB2 and H₂O₂ after 5 min of LED illumination (red line).