Sunlight driven photocatalytic degradation of organic pollutants using MnV$_2$O$_6$/BiVO$_4$ heterojunction: Mechanistic perception and degradation pathways

Karina Bano$^a$, Susheel K. Mittal$^b$, Prit Pal Singh$^a$$^*$, Sandeep Kaushal$^a$$^*$

$^a$ Department of Chemistry, Sri Guru Granth Sahib World University, Fatehgarh Sahib, Punjab, India
$^b$ School of Chemistry & Biochemistry, Thapar Institute of Engineering and Technology, Patiala, India

Corresponding authors: kaushalsandeep33@gmail.com; dhillonps2003@gmail.com
Fig. S1: UV-visible diffuse reflectance spectra of a) S-I; b) S-II; c) S-III; d) S-IV; e) S-V and f) S-VI (inset) Tauc plot
Fig. S2: FESEM images of pure or BiVO$_4$ and MnV$_2$O$_6$ nanoparticles

Fig. S3: XPS Survey spectra of pure a) BiVO$_4$ and b) MnV$_2$O$_6$ nanomaterials
**Fig. S4:** PL spectra of as synthesized BiVO₄, MnV₂O₆ and BiVO₄/MnV₂O₆ heterojunction photocatalyst.

**Fig. S5:** UV-vis spectra of 4-NP before and after adding the solution of NaBH₄
**Fig. S6:** Effect of pH on the photodegradation of MB and RhB in the presence of MnV$_2$O$_6$/BiVO$_4$ heterojunction photocatalyst

**Fig. S7:** UV-vis spectral changes of aqueous solution of a) MB and b) RhB dyes on over MnV$_2$O$_6$/BiVO$_4$ heterojunction photocatalyst (S-V) under sunlight irradiation at different time intervals