

Supporting Information

Effect of Mn^{2+} incorporation on the photoelectrochemical properties of BiVO_4

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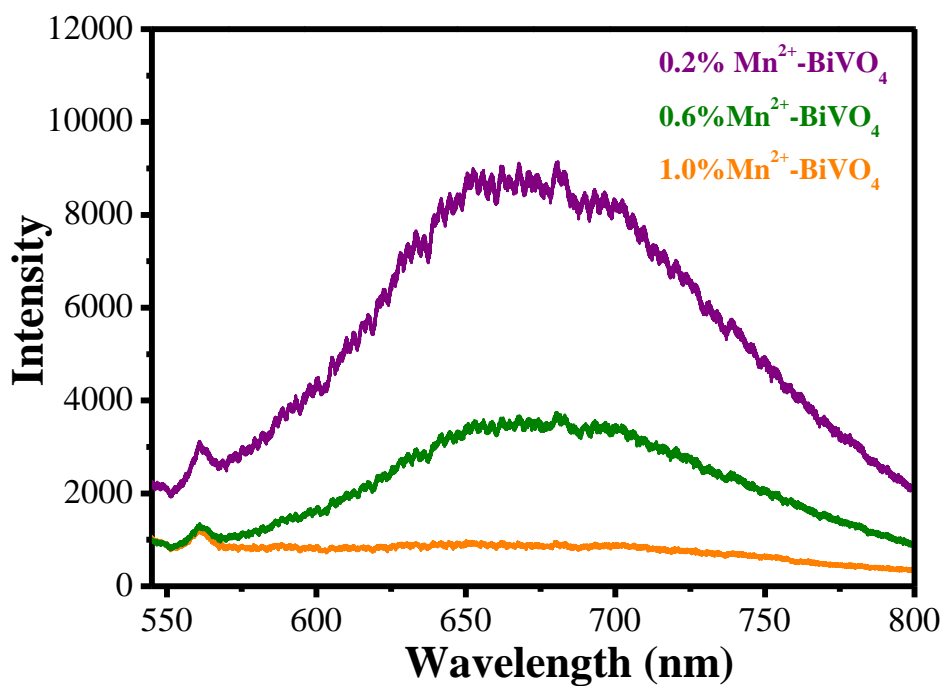


Figure S1. Photoluminescence spectra of 0.2%, 0.6% and 1.0% Mn^{2+} - BiVO_4 .

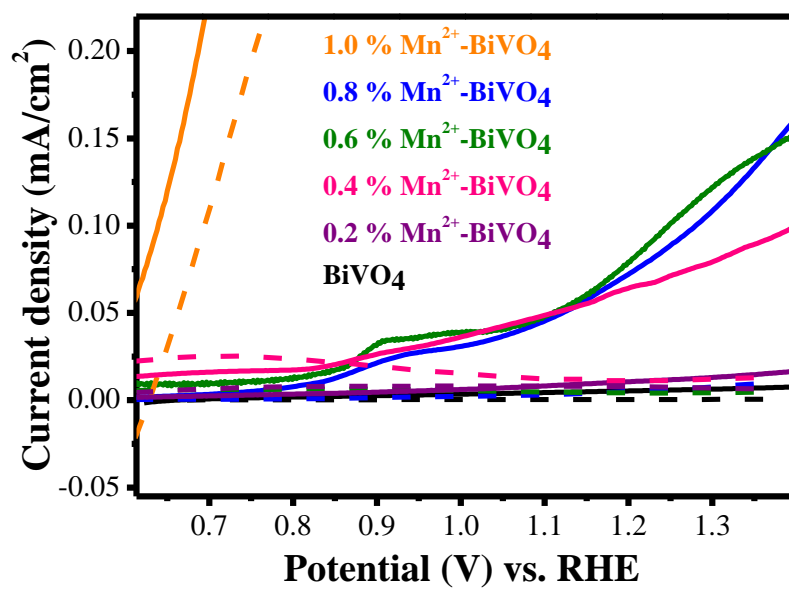


Figure S2. Magnified image of linear sweep voltammetry curves given in Figure 7A.

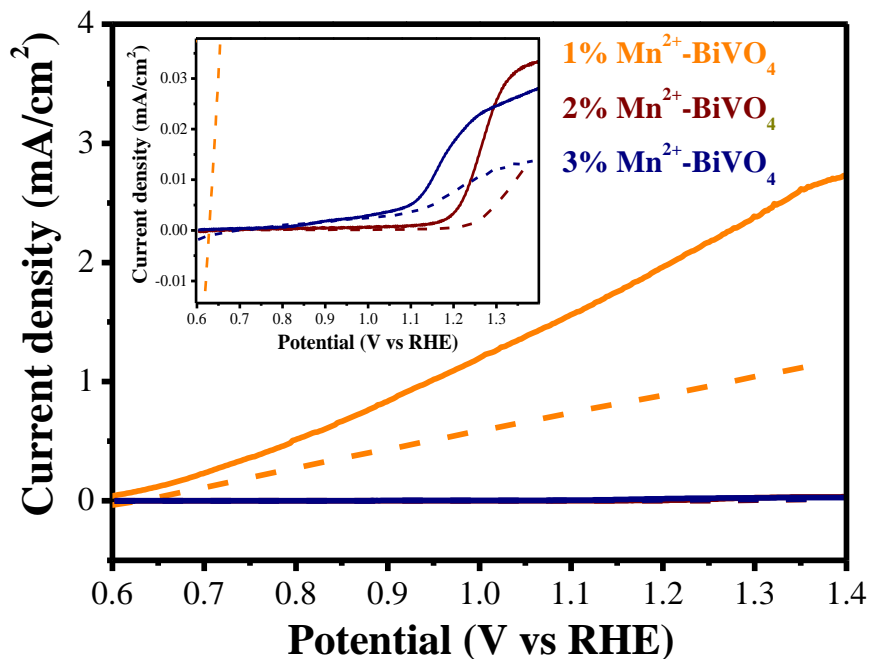


Figure S3. Linear sweep voltammetry curve for 1.0%, 2.0% and 3.0% Mn^{2+} - BiVO_4 under dark (dashed line) and light (solid line) and inset showing the magnified current density for 2% and 3.0% Mn^{2+} - BiVO_4 .

Table S1: Comparison of current density values obtained @ 1.23 V and 1.4 V vs RHE in both dark and illuminated conditions.

Sample	Current density (mA/cm^2) @1.23 V		Current density (mA/cm^2) @1.4 V	
	Dark	Light	Dark	Light
BiVO_4	0.0004	0.0056	0.0005	0.0076
0.2 % Mn^{2+} - BiVO_4	0.0076	0.0113	0.0063	0.0168
0.4 % Mn^{2+} - BiVO_4	0.0106	0.0672	0.0127	0.1003
0.6 % Mn^{2+} - BiVO_4	0.0049	0.0924	0.0049	0.1543
0.8 % Mn^{2+} - BiVO_4	0.0060	0.0818	0.0104	0.1609
1.0 % Mn^{2+} - BiVO_4	0.9303	2.0935	1.1629	2.7230

Table S2: Comparison of Photocurrent densities obtained by ($J_{light}-J_{dark}$) at 1.23 V and 1.4 V vs. RHE where J_{light} and J_{dark} are the current densities under light and dark conditions.

Sample	Photocurrent density (mA/cm²) @1.23 V	Photocurrent density (mA/cm²) @1.4V
BiVO ₄	0.0052	0.0071
0.2 % Mn ²⁺ -BiVO ₄	0.0063	0.0105
0.4 % Mn ²⁺ -BiVO ₄	0.0566	0.0875
0.6 % Mn ²⁺ -BiVO ₄	0.0875	0.1494
0.8 % Mn ²⁺ -BiVO ₄	0.0758	0.1506
1.0 % Mn ²⁺ -BiVO ₄	1.1632	1.5601

Table S3: ABPE values calculated at 1.0 V vs. RHE from the LSV curves.

Sample	ABPE (%)
BiVO ₄	0.0008
0.4 % Mn ²⁺ -BiVO ₄	0.0049
0.6 % Mn ²⁺ -BiVO ₄	0.0073
0.8 % Mn ²⁺ -BiVO ₄	0.0070
1.0 % Mn ²⁺ -BiVO ₄	0.1435