Composition-dependent structure evolution of $FeVO_4$ nano-oxide and its visible-light photocatalytic activity for degradation of methylene blue

Supplementary material

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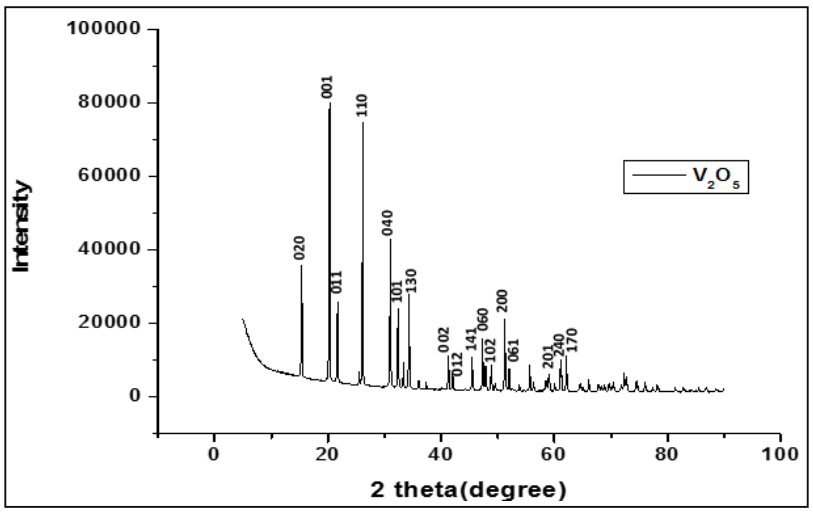

Figure S1. XRD patterns of the V_2O_5 powder catalyst.

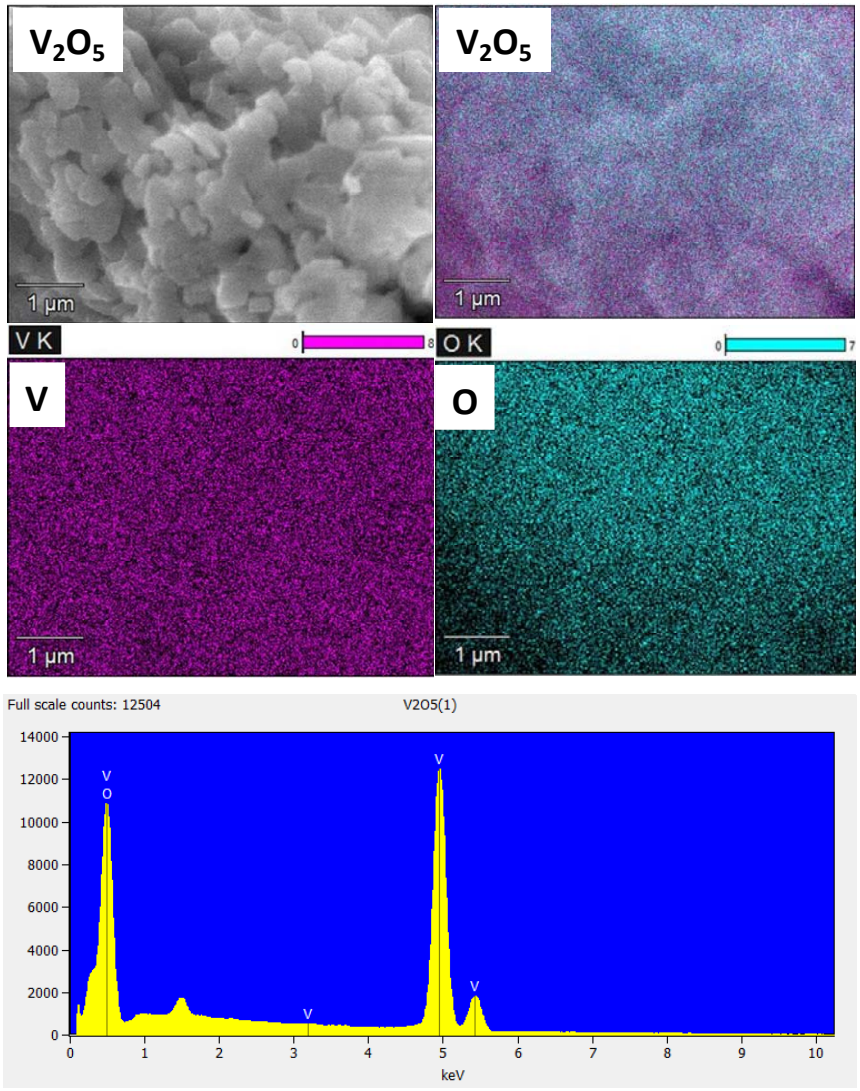

Figure S2. Elemental mapping and EDX spectra of V_2O_5.

Table S1. Elemental compositions of V_2O_5 catalyst.

Element Line	Weight (%)	Weight (%) Error	Atom (%)	Atom (%) Error
O K	31.73	± 2.64	59.67	± 4.97
V K	68.27	± 0.37	40.33	± 0.22
V L	---	---	---	---
Total	100.00		100.00	

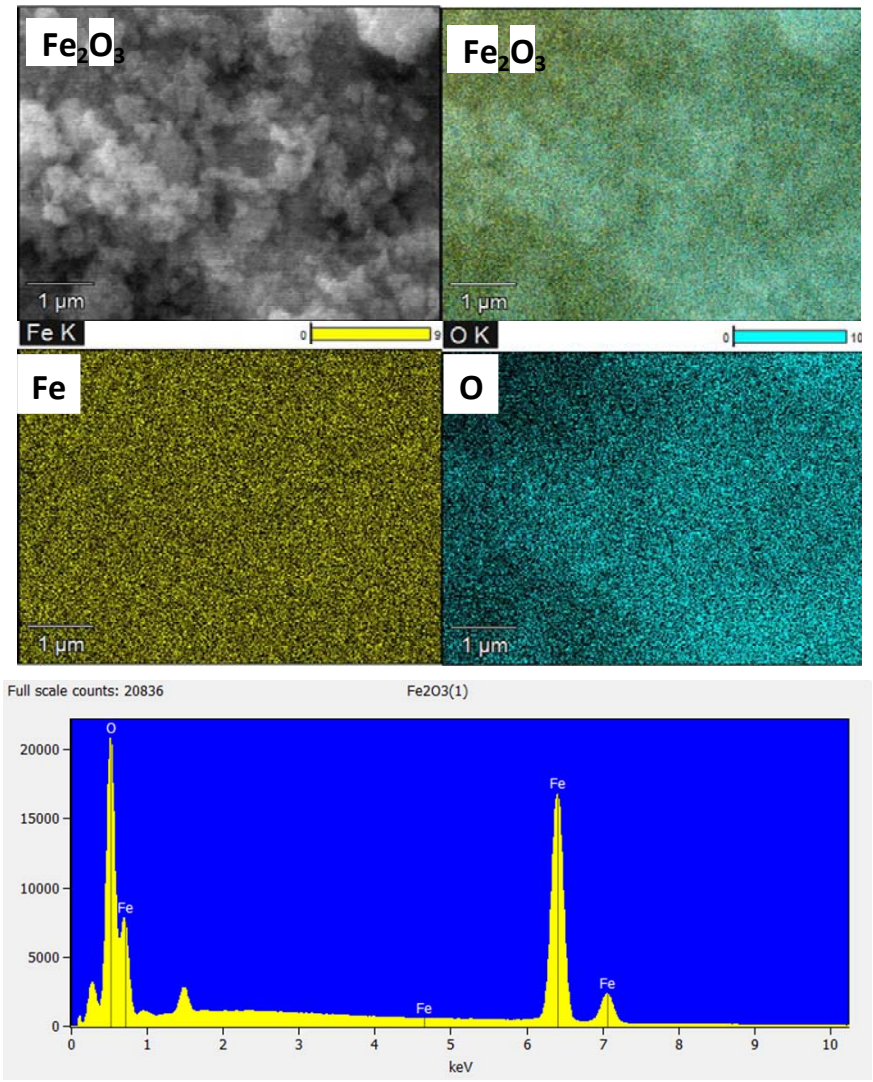

Figure S3. Elemental mapping and EDX spectra of Fe_2O_3.

Table S2. Elemental compositions of Fe_2O_3 catalyst.

Element Line	Weight (%)	Weight (%) Error	Atom (%)	Atom (%) Error
O K	27.15	± 0.17	56.54	± 0.34
Fe K	72.85	± 0.35	43.46	± 0.21
Fe L	---	---	---	---
Total	100.00		100.00	

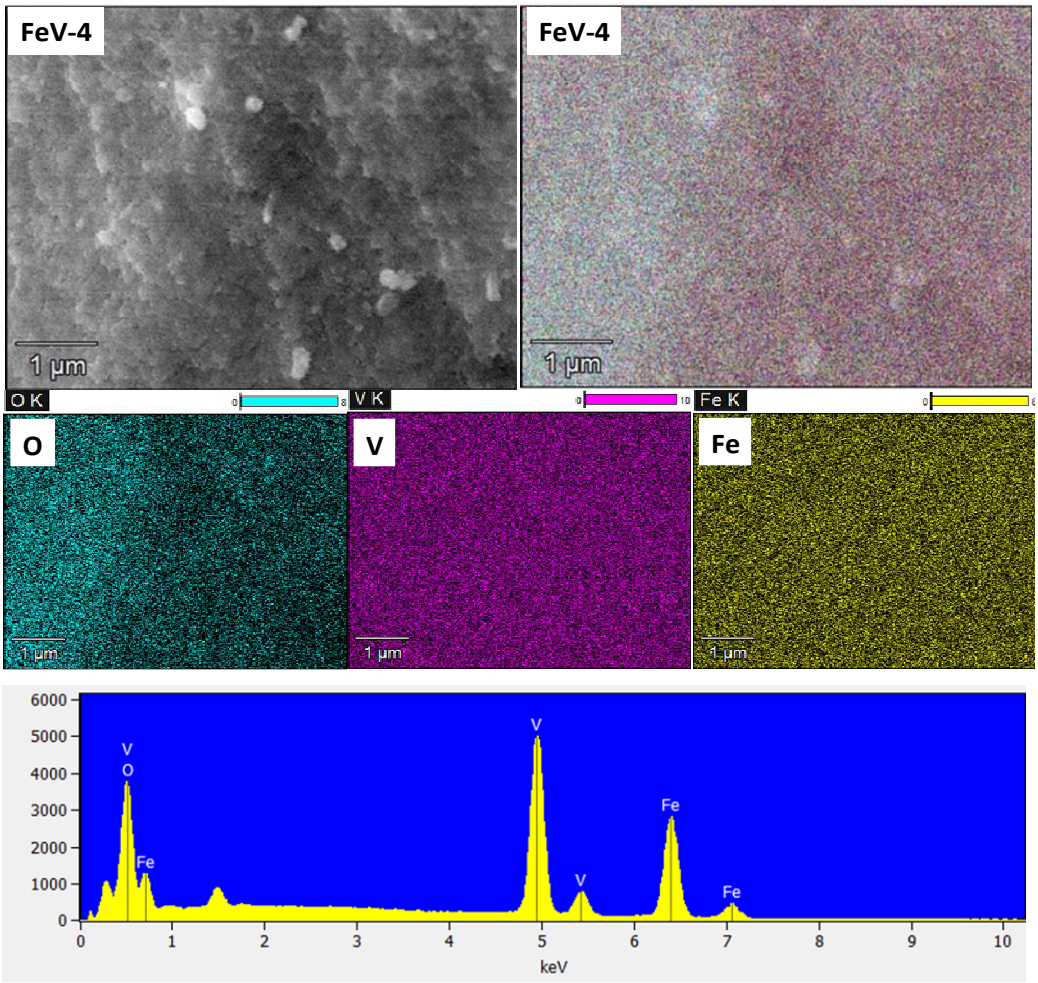

Figure S4. Elemental mapping and EDX spectra of FeV-4.

Table S3. Elemental compositions of FeV-4 catalyst.

Element Line	Weight (%)	Weight (%) Error	Atom (%)	Atom (%) Error
O K	28.94	± 0.32	57.59	± 0.64
V K	34.72	± 0.22	21.70	± 0.14
V L	---	---	---	---
Fe K	36.33	± 0.34	20.71	± 0.20
Fe L	---	---	---	---
Total	100.00		100.00	

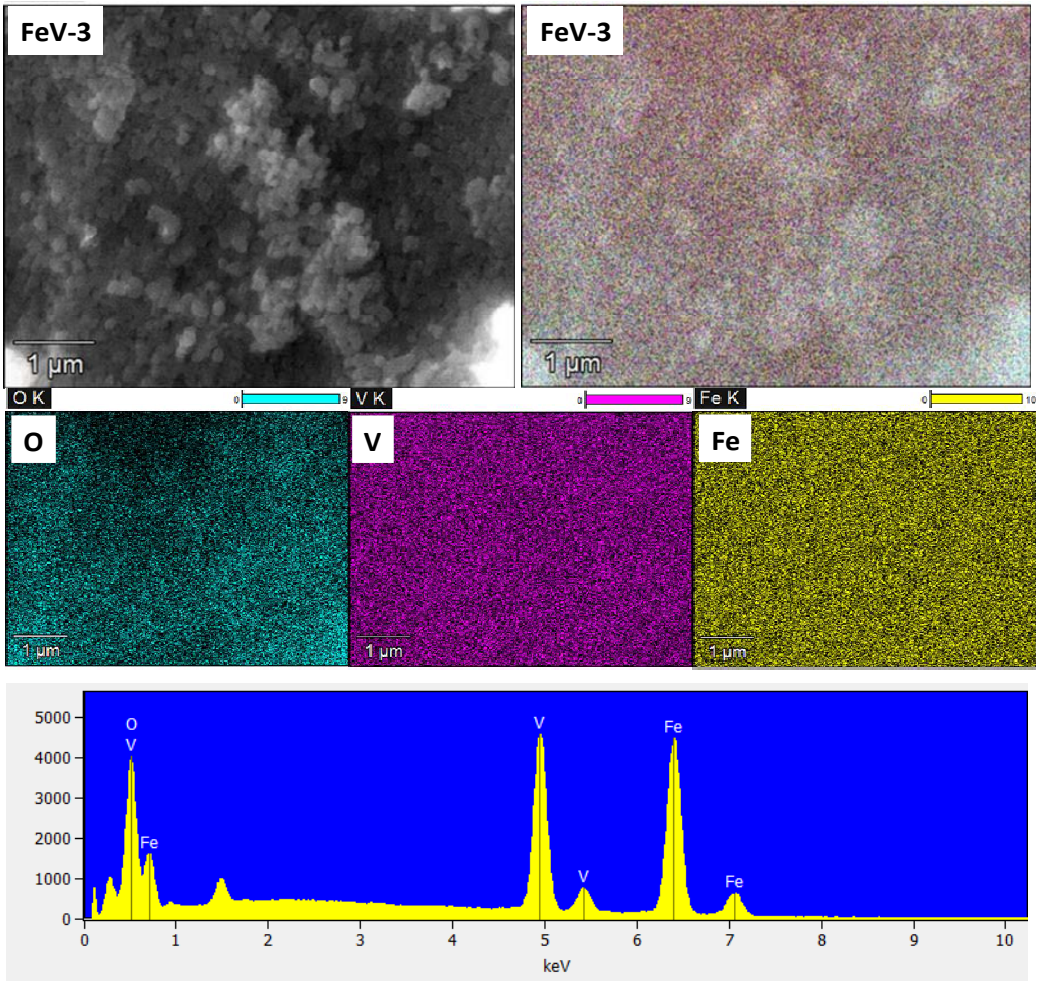

Figure S4. Elemental mapping and EDX spectra of FeV-3.

Table S4. Elemental compositions of FeV-3 catalyst.

Element Line	Weight (%)	Weight (%) Error	Atom (%)	Atom (%) Error
O K	23.24	± 0.18	50.55	± 0.39
V K	27.07	± 0.19	18.49	± 0.13
V L	---	---	---	---
Fe K	49.69	± 0.37	30.96	± 0.23
Fe L	---	---	---	---
Total	100.00		100.00	

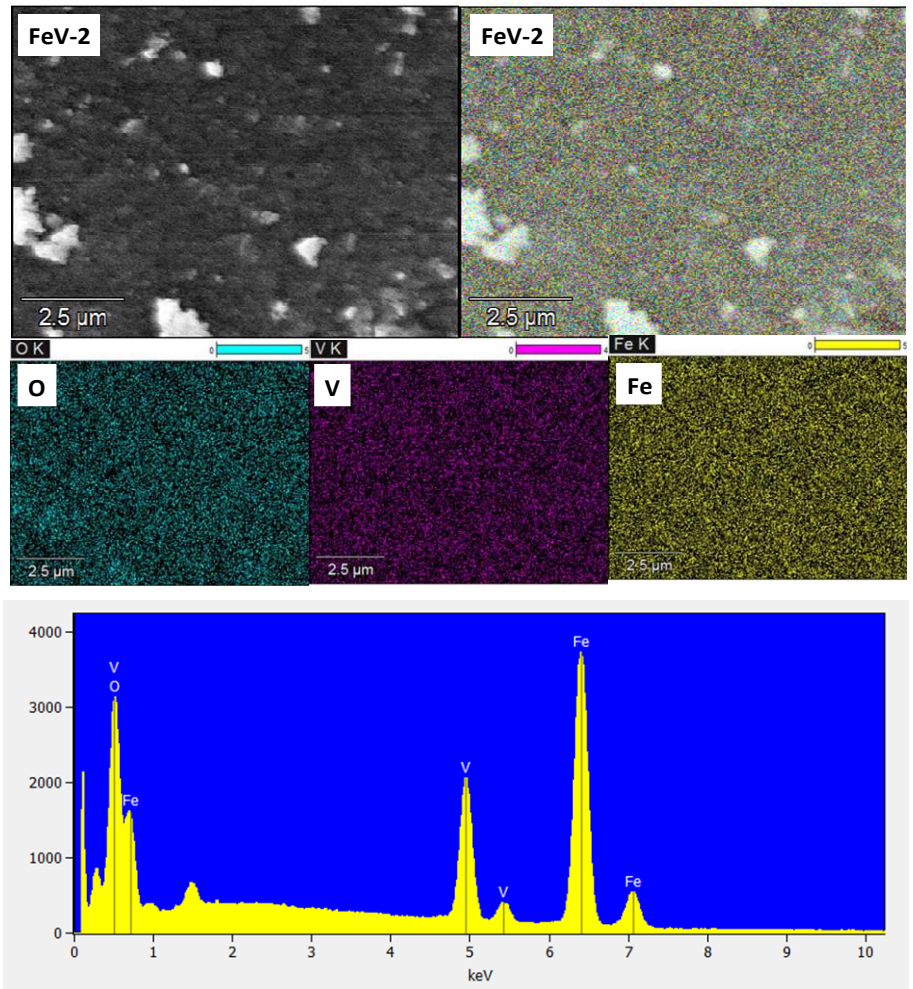

Figure S5. Elemental mapping and EDX spectra of FeV-2.

Table S5. Elemental compositions of FeV-2 catalyst.

Element Line	Weight (%)	Weight (%) Error	Atom (%)	Atom (%) Error
O K	33.21	± 0.19	62.96	± 0.37
V K	14.70	± 0.16	8.75	± 0.09
V L	---	---	---	---
Fe K	52.08	± 0.28	28.29	± 0.15
Fe L	---	---	---	---
Total	100.00		100.00	

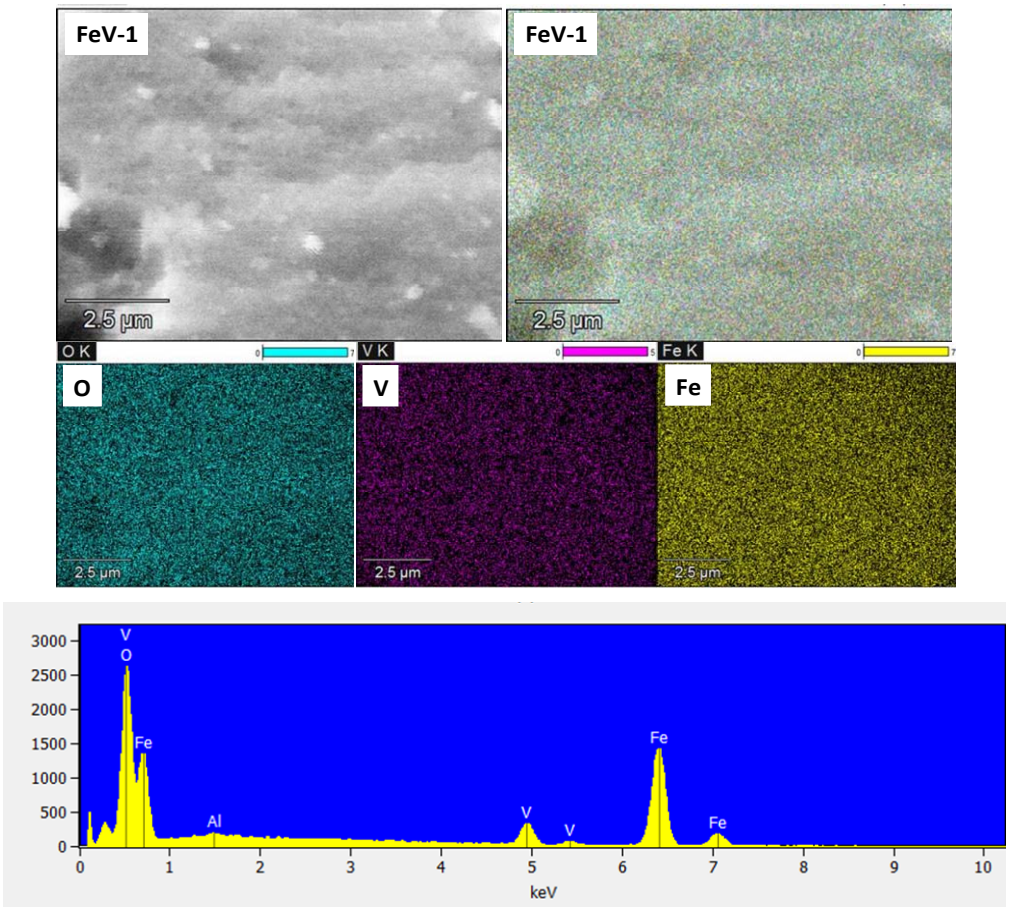

Figure S6. Elemental mapping and EDX spectra of FeV-1.

Table S6. Elemental compositions of FeV-1 catalyst.

Element Line	Weight (%)	Weight (%) Error	Atom (%)	Atom (%) Error
O K	29.90	± 0.33	59.44	± 0.65
Al K	0.42	± 0.05	0.50	± 0.06
V K	7.02	± 0.21	4.39	± 0.13
V L	---	---	---	---
Fe K	62.65	± 0.72	35.68	± 0.41
Fe L	---	---	---	---
Total	100.00		100.00	

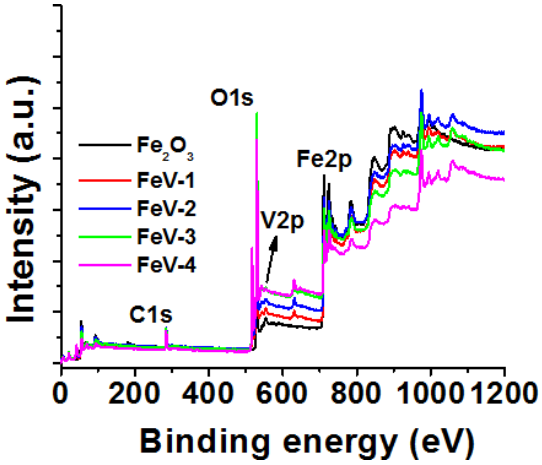

Fig. S8. XPS survey of the $FeVO_4$ heterostructure catalysts.

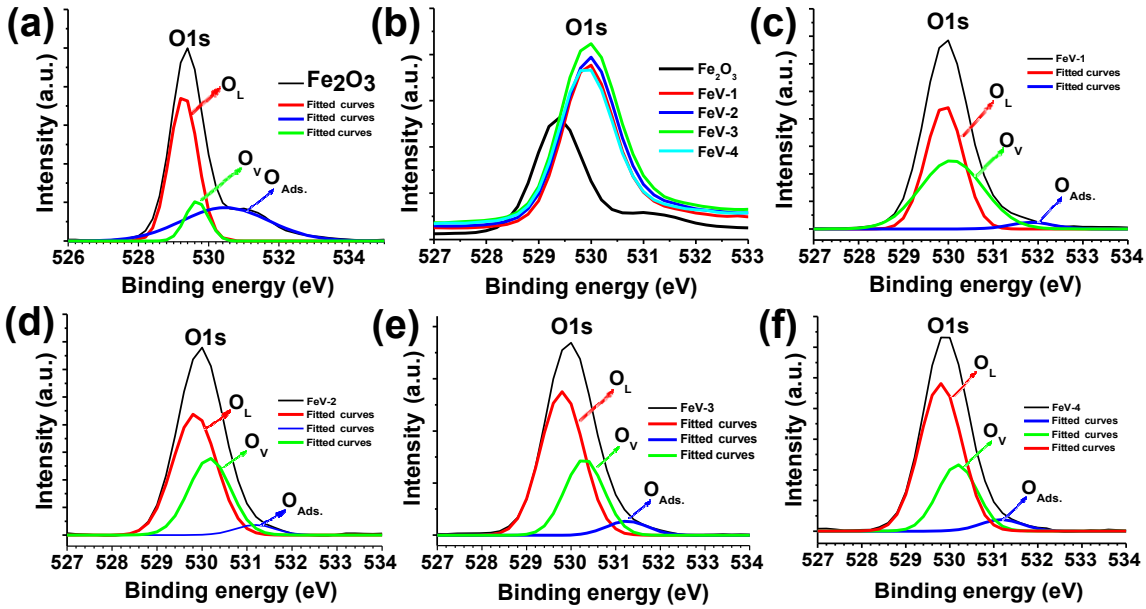

Figure S9. XPS O 1s profiles of Fe_2O_3 and $FeVO_4$ heterostructure catalysts.

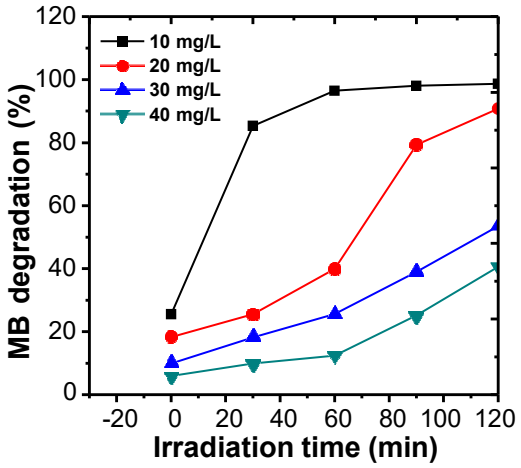

Figure S10. Effect of methylene blue (MB) concentration of photo-degradation activity of FeV-3 catalyst.

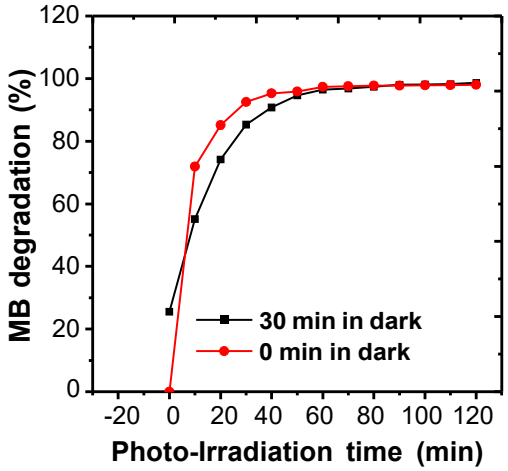

Figure S11. Effect adsorption-equilibration (induction time) on photo-degradation activity of FeV-3 catalyst.