CHEMISTRY JOURNAL OF MOLDOVA. General, Industrial and Ecological Chemistry
ISSN 1857-1727 E-ISSN 2345-1688
http://cjm.ichem.md
https://doi.org/10.19261/cjm.2026.1380

INDOLE-BASED SUPPORTED CATALYSTS FOR THE SELECTIVE PHENOL OXIDATION

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Received: 22 September 2025/ Revised final: 05 June 2026/ Accepted: 08 June 2026

(a) (b) (c) (d) (e) (f)

Figure S1. Sample pictures of [PS-HIMAP] *(a)*, [PS-HIMAP-Cu] *(b)*, [PS-HIMAP-Mn] *(c)*; [PS-HIMAP-V] *(d)*, [PS-HIMAP-Ni] *(e)*, [PS-HIMAP-Fe] (f).

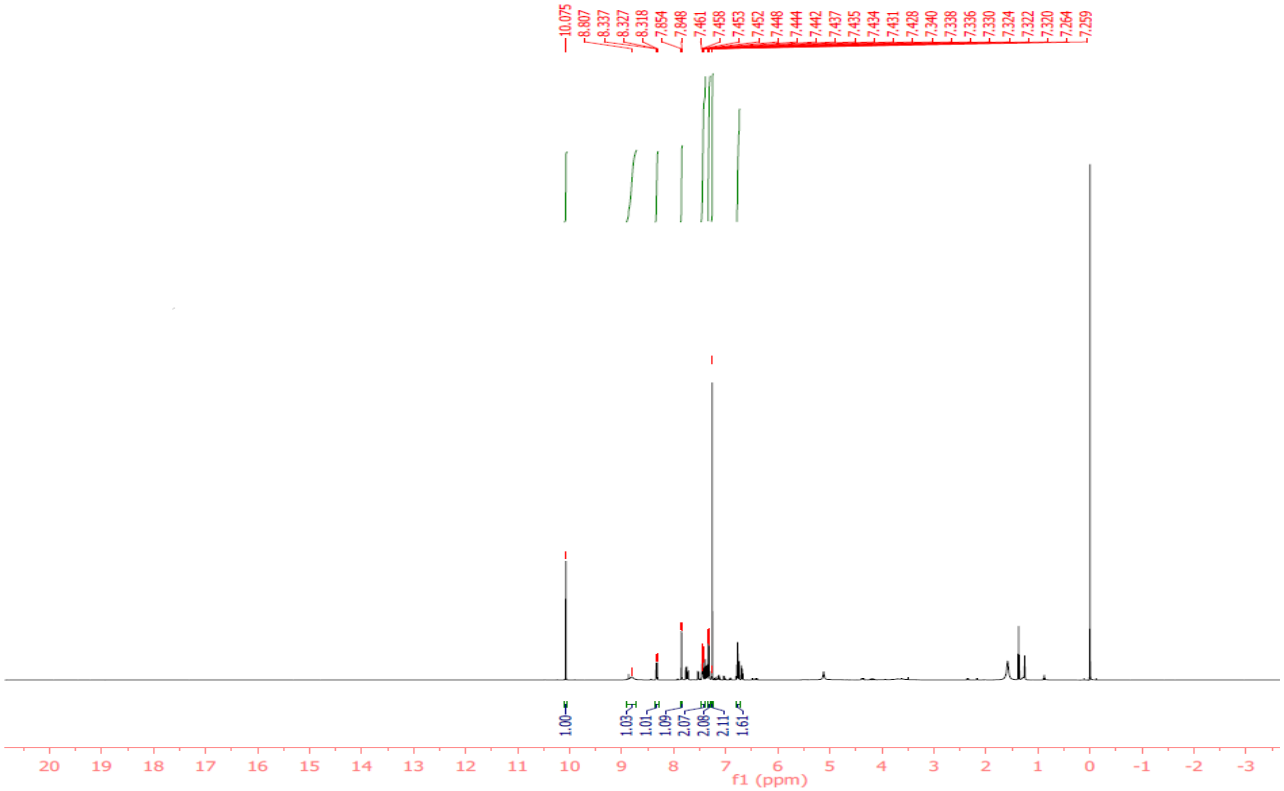

Figure S2. ^{1}H NMR spectrum of 2-((1H-indole-3-yl)methyleneamino)phenol.

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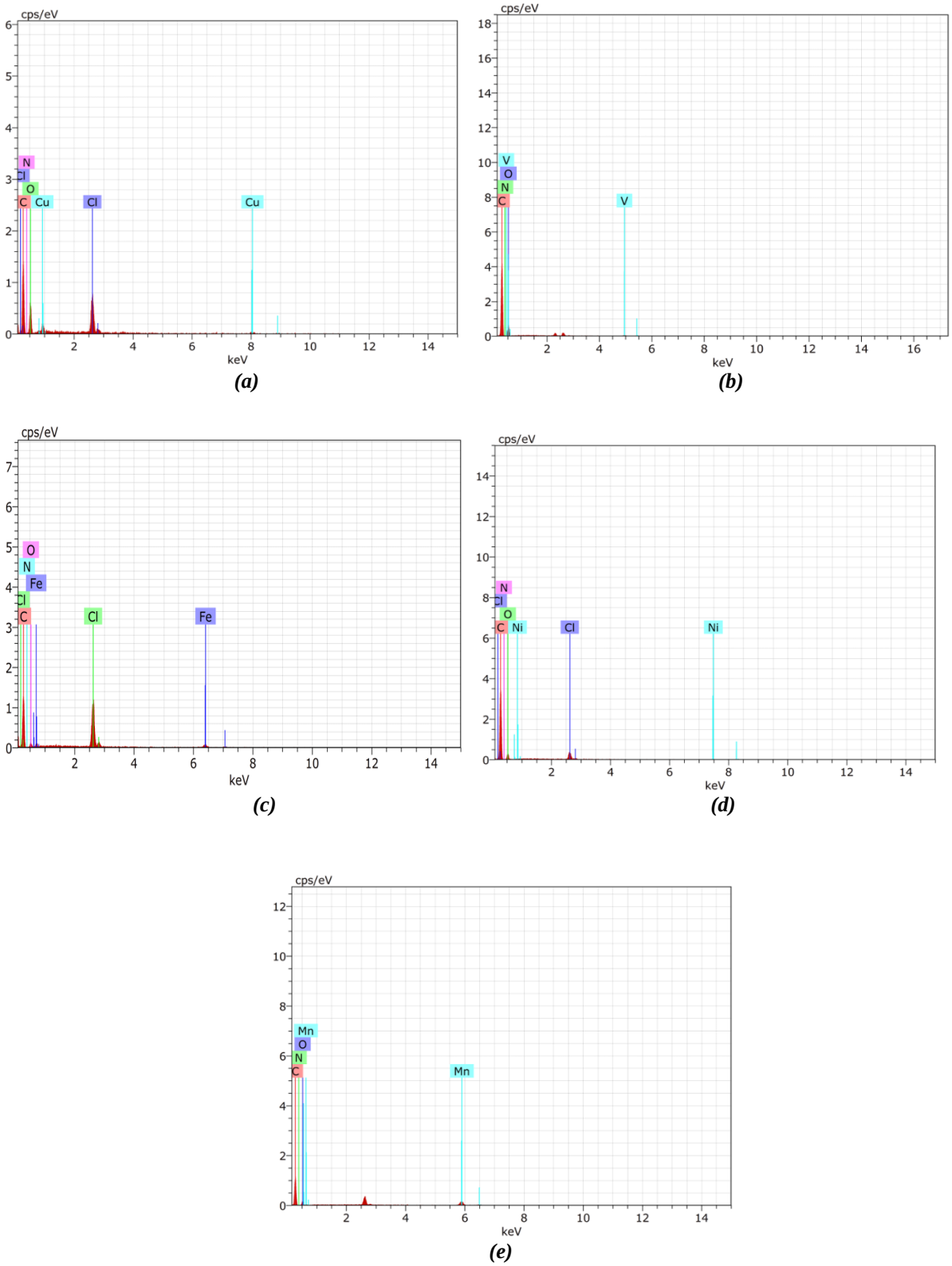

Figure S3. EDX plot of [PS-HIMAP-Cu] *(a)*, [PS-HIMAP-V] *(b)*, [PS-HIMAP-Fe] *(c)*, [PS-HIMAP-Ni] *(d)* and [PS-HIMAP-Mn] *(e)*.

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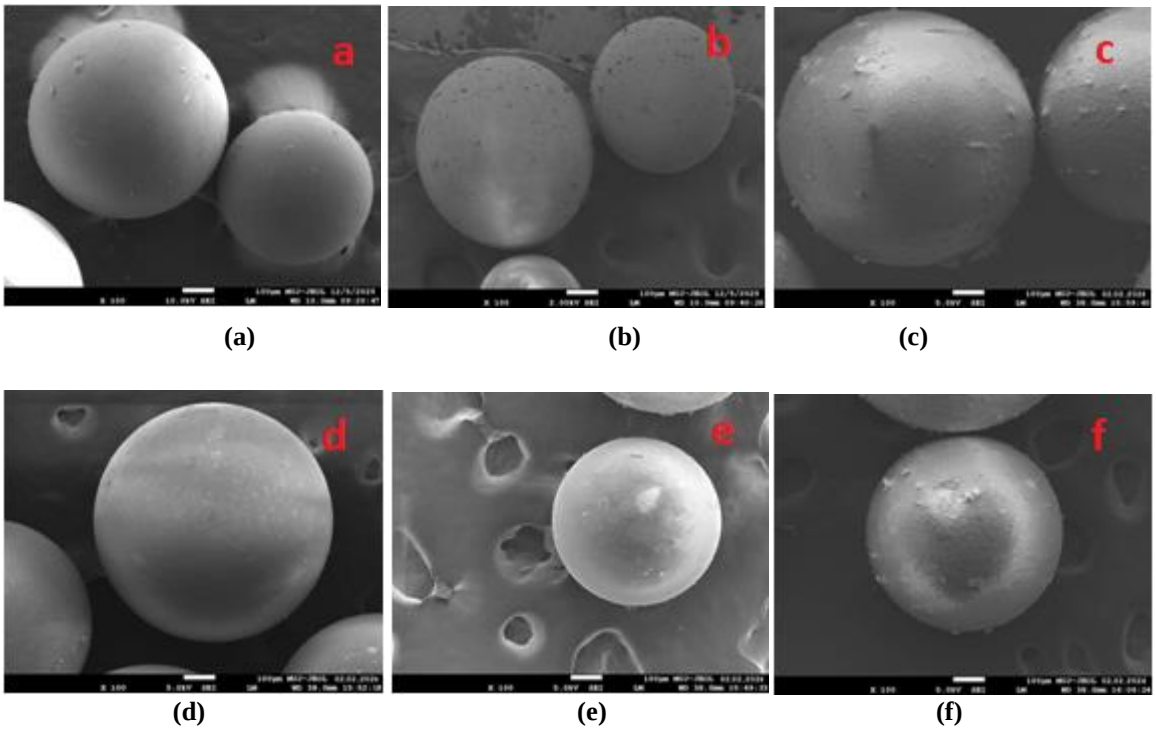
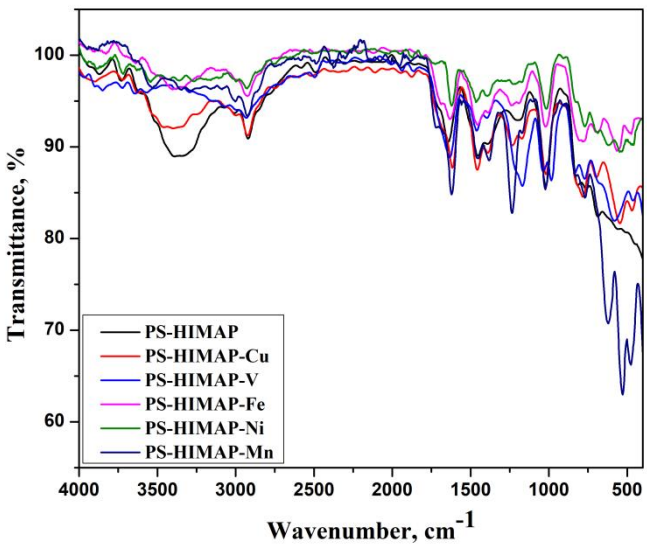


(a) **(b)** **(c)**

(d) **(e)** **(f)**

Figure S4.SEM images of [PS-HIMAP]*(a)* [PS-HIMAP-Cu] *(b)*, [PS-HIMAP-V] *(c)*, [PS-HIMAP-Fe] *(d)*, [PS-HIMAP-Ni] *(e)* and [PS-HIMAP-Mn] *(f)*



(a)

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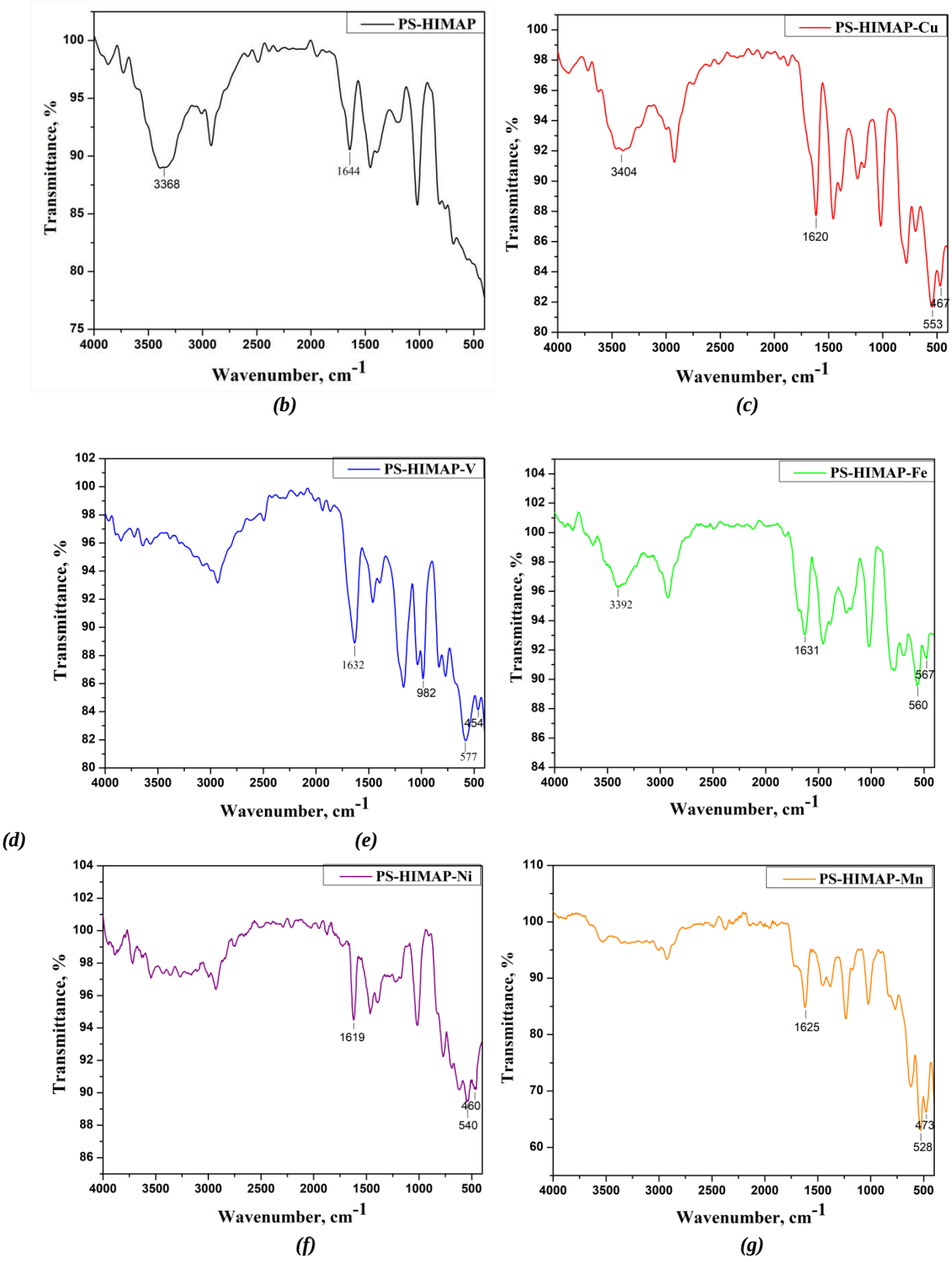
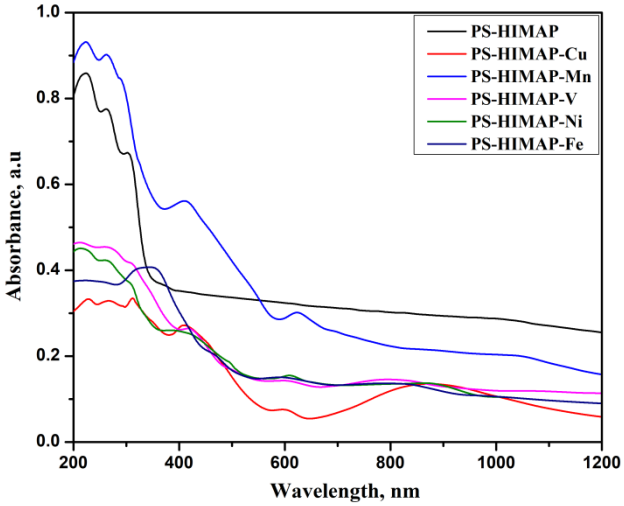
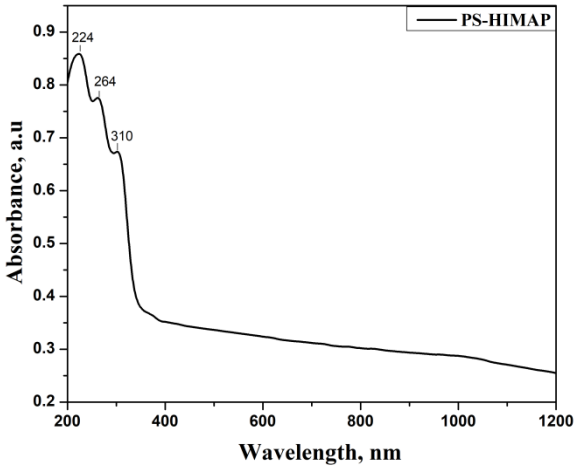
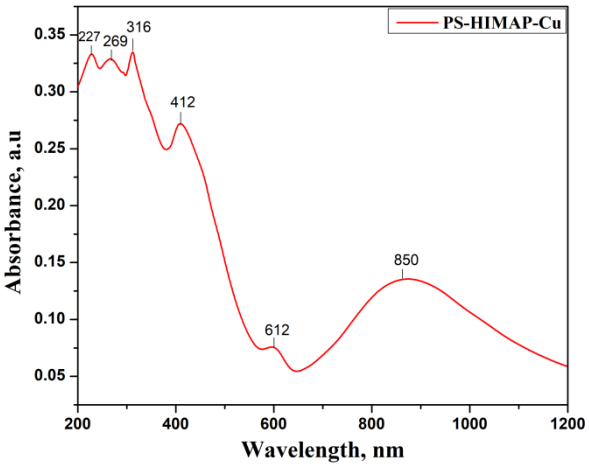


Figure S5.Overlap*(a)* and individual FT-IR{[PS-HIMAP] *(b)*, [PS-HIMAP-Cu] *(c)*, [PS-HIMAP-V] *(d)*, [PS-HIMAP-Fe] *(e)*, [PS-HIMAP-Ni] *(f)* and [PS-HIMAP-Mn] *(g)*} spectra of immobilized resin and its metal catalysts.

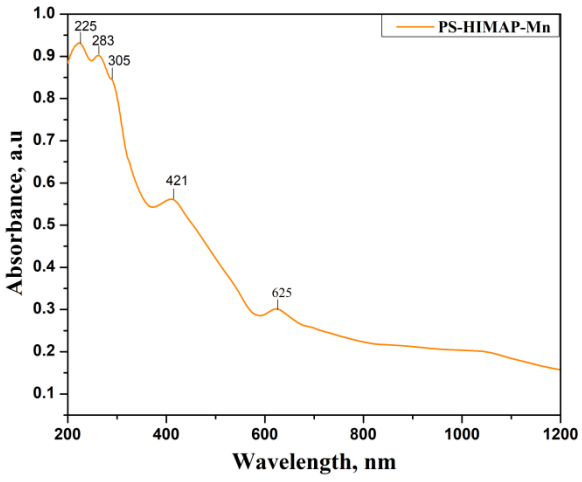

PS-HIMAP
PS-HIMAP-Cu
PS-HIMAP-Mn
PS-HIMAP-V
PS-HIMAP-Ni
PS-HIMAP-Fe
Absorbance, a.u
Wavelength, nm

(a)

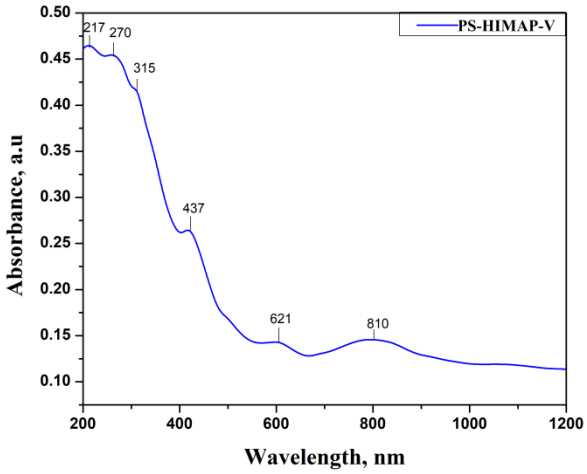

PS-HIMAP
224
264
310
Absorbance, a.u
Wavelength, nm


PS-HIMAP-Cu
227
269
316
412
612
850
Absorbance, a.u
Wavelength, nm

(b) (c)


PS-HIMAP-Mn
225
283
305
421
625
Absorbance, a.u
Wavelength, nm

(d)


PS-HIMAP-V
217
270
315
437
621
810
Absorbance, a.u
Wavelength, nm

(e)

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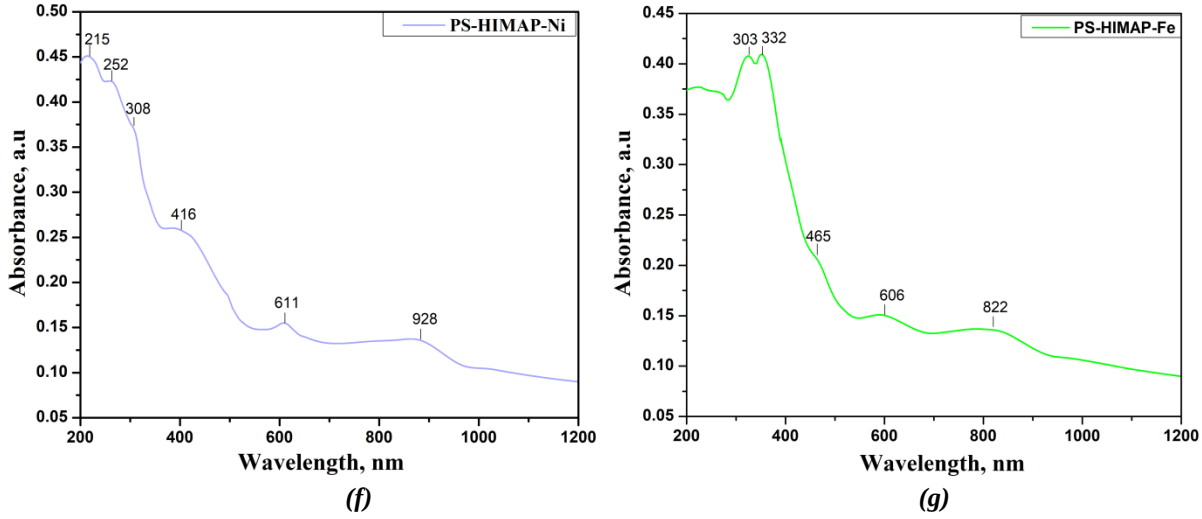

Figure S6.Overlap*(a)* and individual DRS spectra {[PS-HIMAP] *(b)*, [PS-HIMAP-Cu] *(c)*, [PS-HIMAP-Mn] *(d)*, [PS-HIMAP-V] *(e)*, [PS-HIMAP-Ni] *(f)* and [PS-HIMAP-Fe] *(g)*}of polystyrene-anchored metal catalysts.

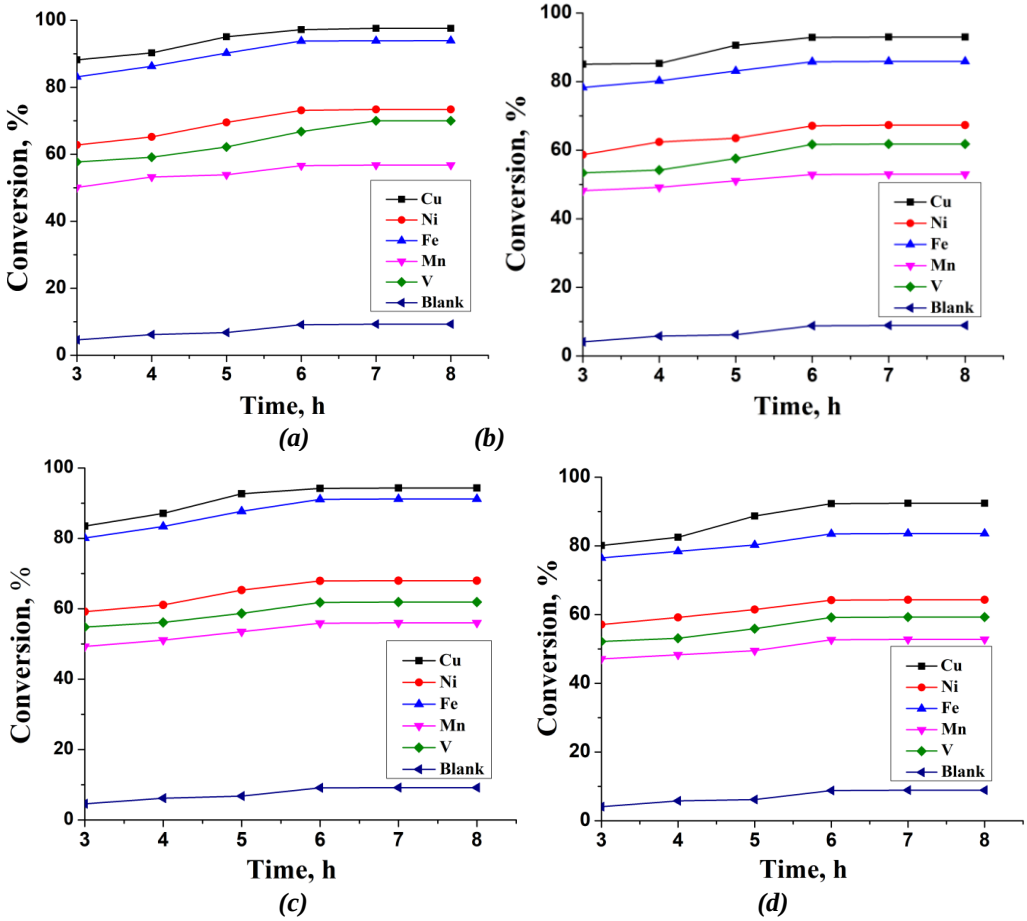

Figure S7. Effect of time on oxidation of phenol in presence of different catalysts: 0.15g catalyst TBHP*(a)*, 0.1g catalyst TBHP*(b)*, 0.15g catalyst H_2O_2*(c)*and 0.1g catalyst H_2O_2*(d)*.

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Table S1

Reusability study.

Catalyst	*Cycle*	*% Conversion*	*% Selectivity*		
			CTL	*HQ*	*Others*
PS-HIMAP-Cu	1	97.2	89.5	9.5	1.0
	2	97.2	89.5	9.7	0.8
	3	97.1	90,1	9.6	0.3
	4	96.9	91.1	8.7	0.2
	5	96.9	89.8	9.6	0.6
	6	96.7	90.2	9.4	0.4
PS-HIMAP-Ni	1	73.1	78.9	20.6	0.5
	2	73.1	78.9	20.6	0.5
	3	73.1	78.8	20.5	0.7
	4	73	78.7	20.5	0.8
	5	72.9	78.7	20,5	0.8
	6	72.8	78.7	20.4	0.9
PS-HIMAP-Fe	1	93.8	86.1	13.4	0.5
	2	93.7	86.1	13.4	0.5
	3	93.7	86.1	13.4	0.5
	4	93.6	85.9	13.3	0.8
	5	93.4	85.9	13.2	0.9
	6	93.4	85.8	13.2	1.0
PS-HIMAP-Mn	1	56.6	73.7	25.7	0.6
	2	56.6	73.7	25.7	0.6
	3	56.6	73.6	25.7	0.7
	4	56.5	73.6	25.6	0.8
	5	56.5	73.5	25.6	0.9
	6	56.3	73.4	25.5	1.1
PS-HIMAP-V	1	66.8	67.9	31.8	0.3
	2	66.8	67.9	31.8	0.3
	3	66.7	67.8	31.8	0.4
	4	66.6	67.8	31.7	0.5
	5	66.6	67.8	31.7	0.5
	6	66.4	67.7	31.6	0.7

* Reaction setup: 20 ml of CH_3CN, 10 mmol of phenol, 20 mmol of TBHP, temperature: 70°C.