Supporting Information

MIL-101(Cr)-cobalt ferrite magnetic nanocomposite: synthesis, characterization and applications for sonocatalytic degradation of organic dye pollutants

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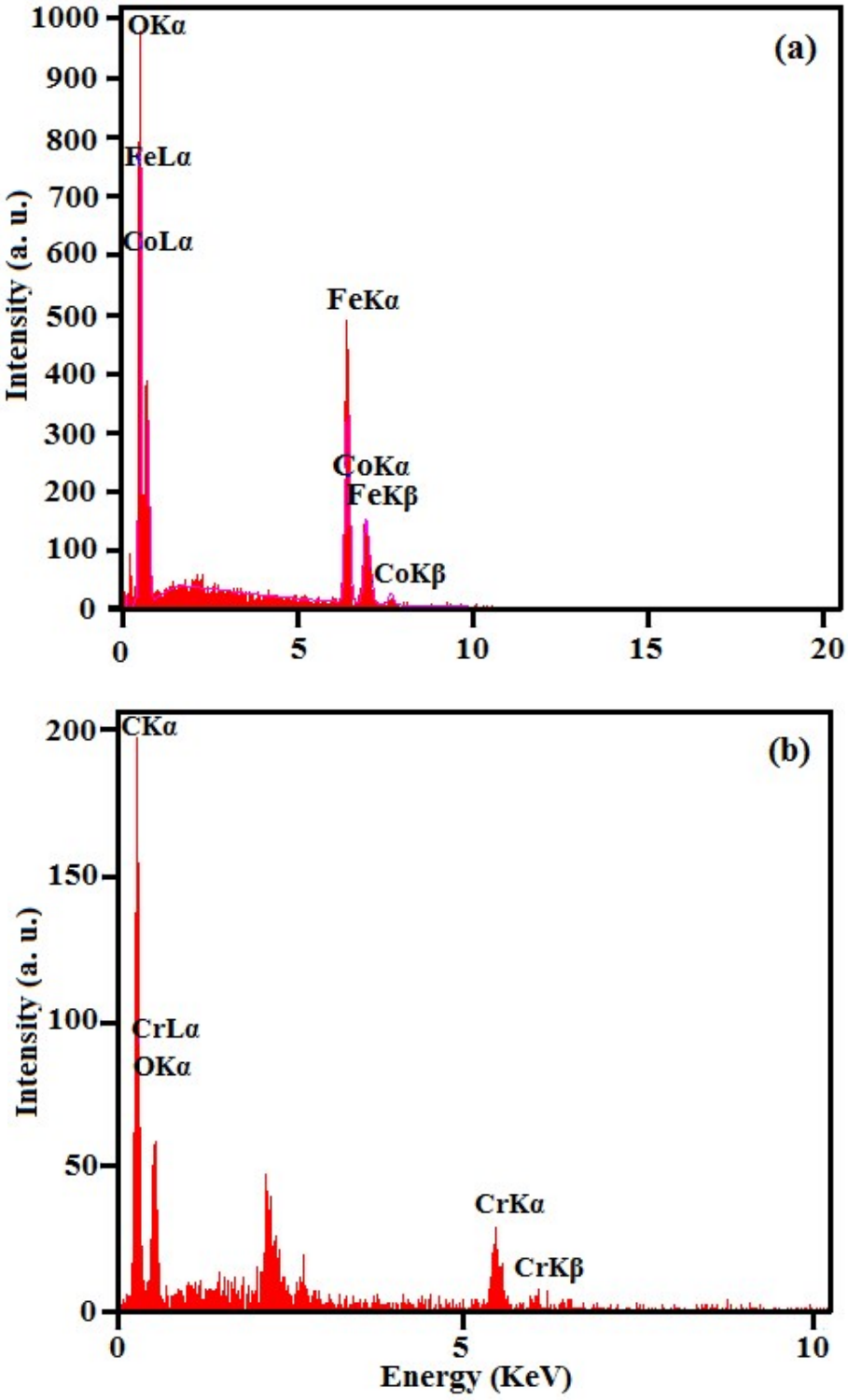
Supplementary Index


(a)
OKα
FeLα
CoLα
FeKα
CoKα
FeKβ
CoKβ
Intensity (a. u.)
1000
900
800
700
600
500
400
300
200
100
0
0
5
10
15
20
(b)
CKα
CrLα
OKα
CrKα
CrKβ
Intensity (a. u.)
200
150
100
50
0
0
5
10
Energy (KeV)

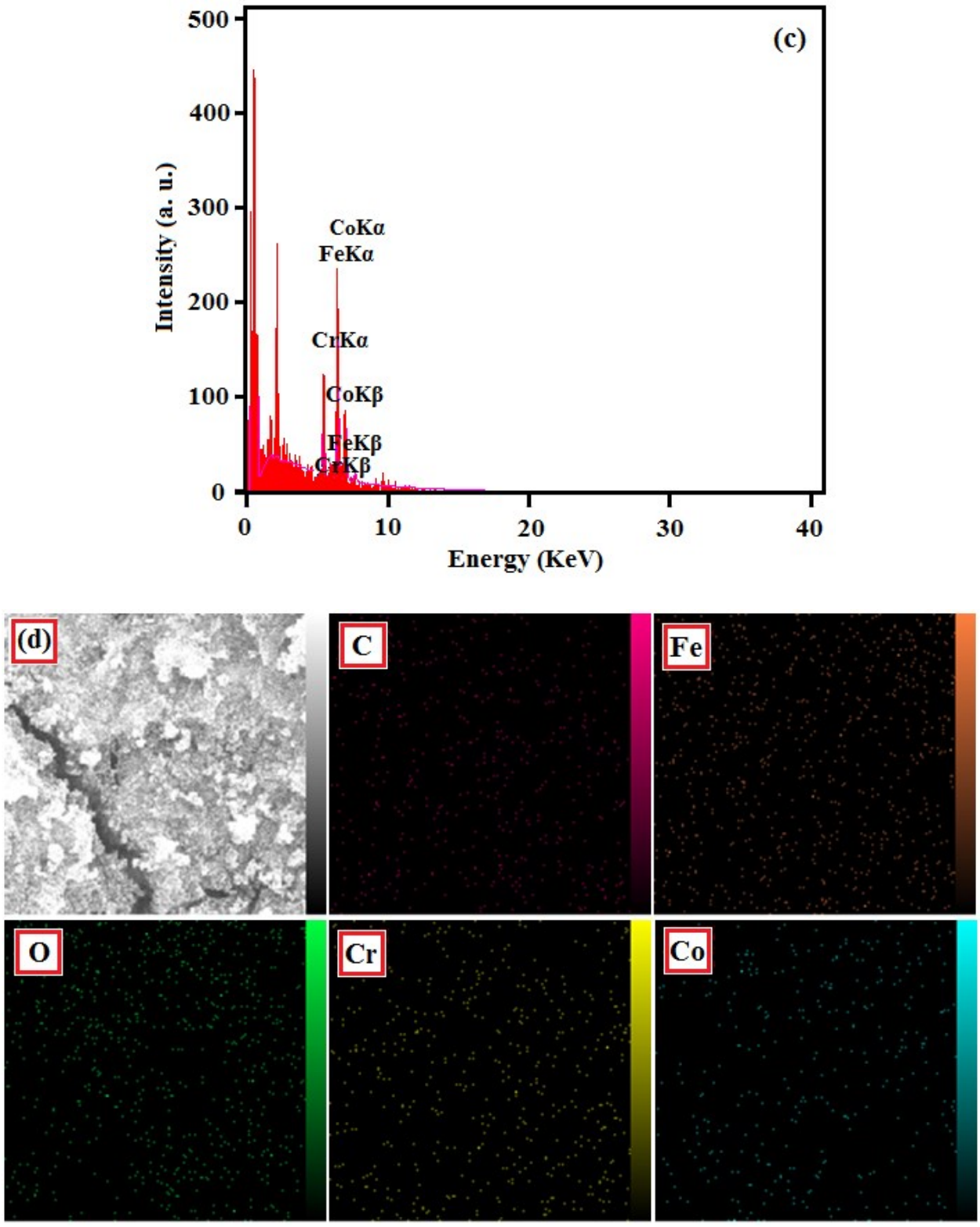

(c)
Intensity (a. u.)
Energy (KeV)
CoKα
FeKα
CrKα
CoKβ
FeKβ
CrKβ
(d)
C
Fe
O
Cr
Co

Fig. S1

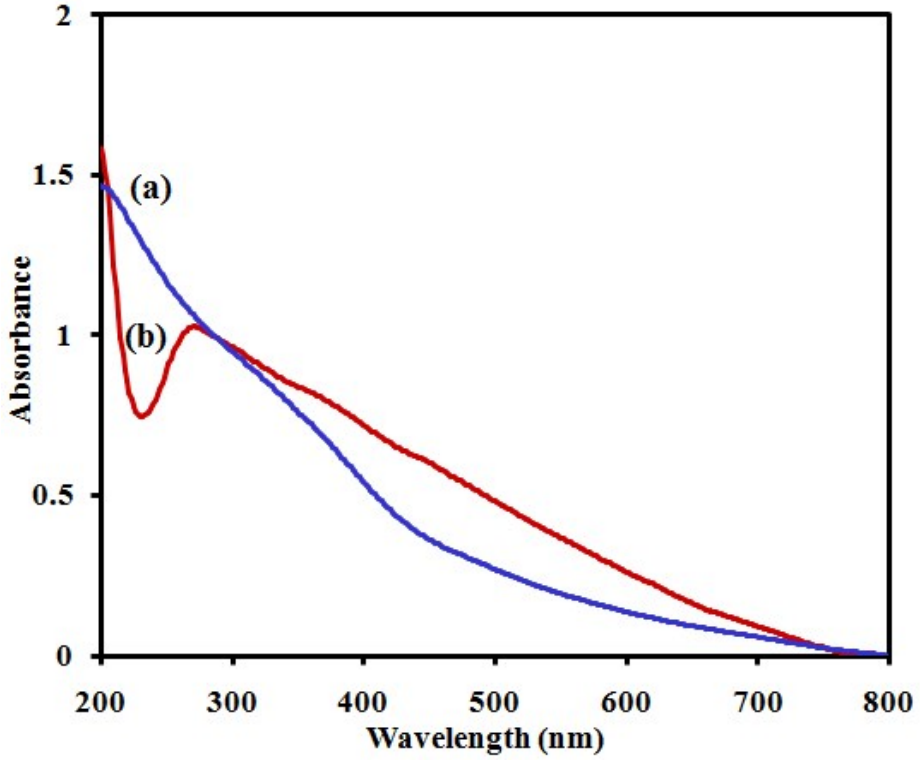

Absorbance
Wavelength (nm)
(a)
(b)
2
1.5
1
0.5
0
200
300
400
500
600
700
800

Fig. S2

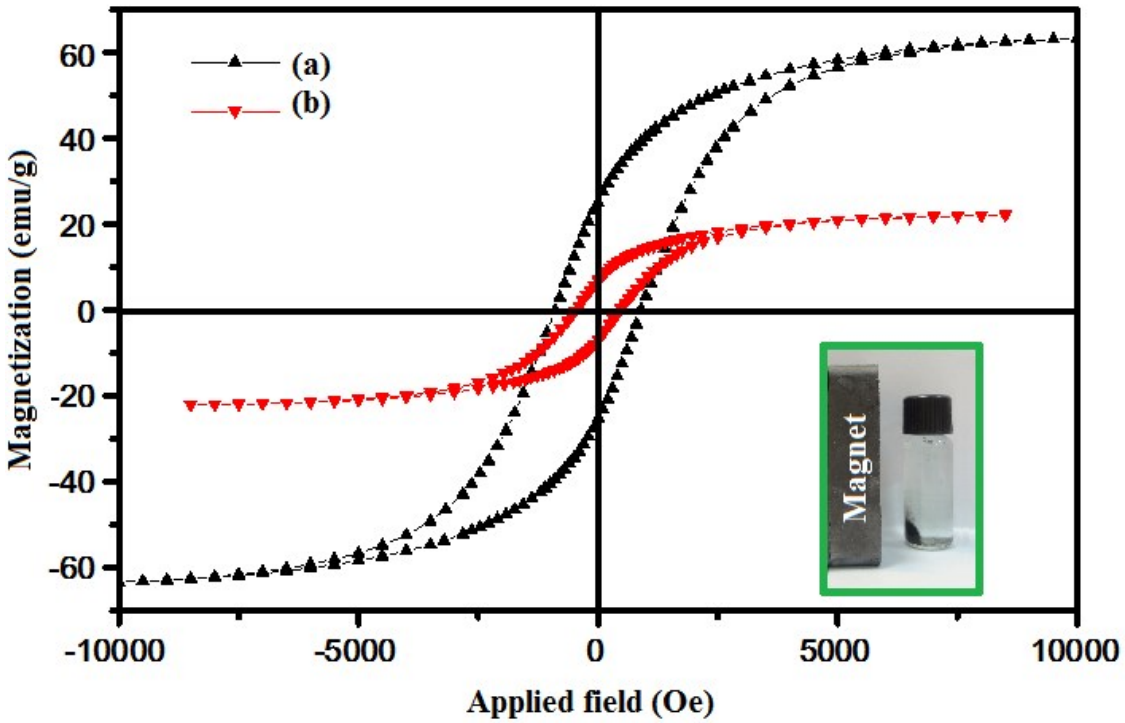
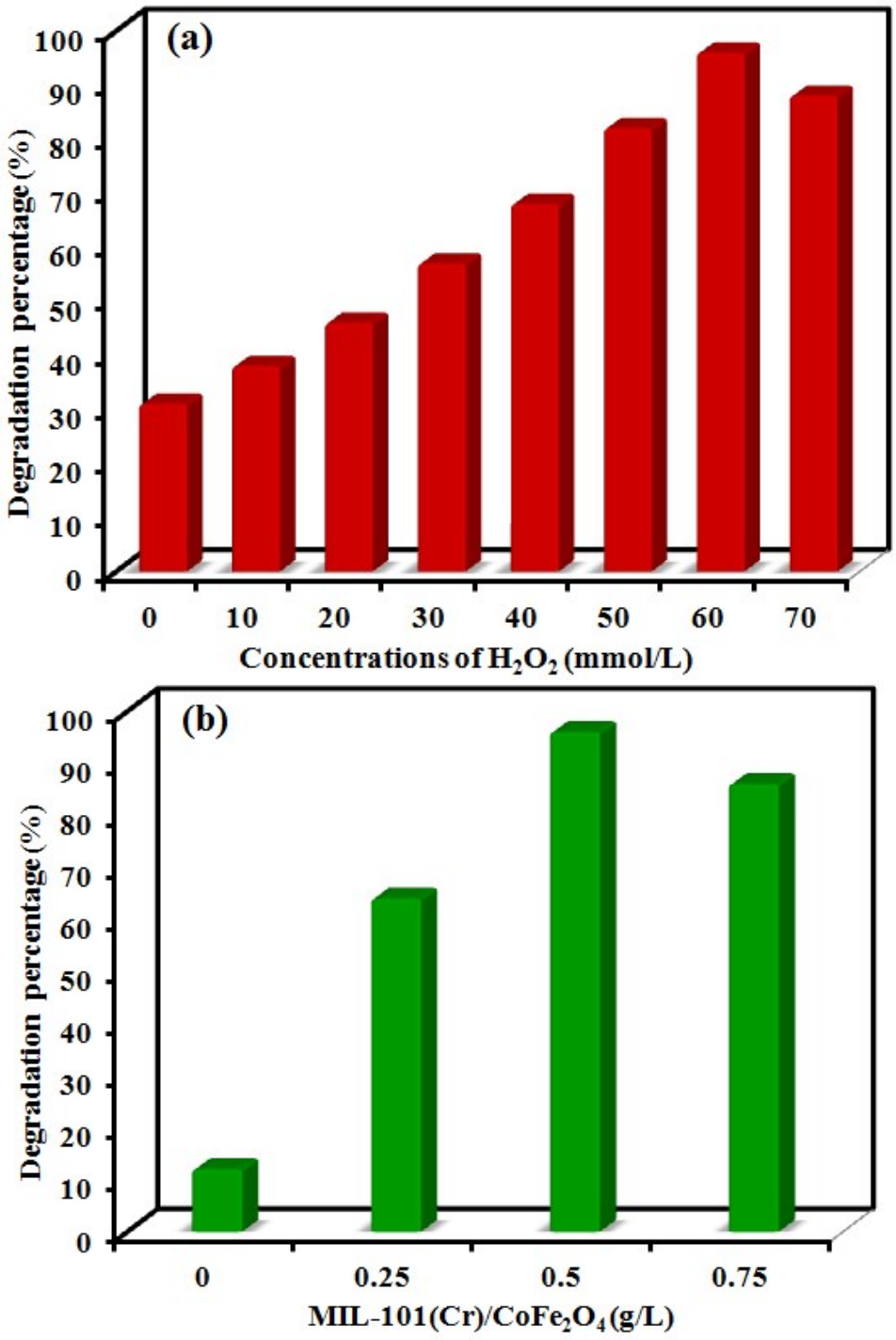

Magnetization (emu/g)
Applied field (Oe)
(a)
(b)
Magnet
60
40
20
0
-20
-40
-60
-10000
-5000
0
5000
10000

Fig. S3


(a)
Degradation percentage (%)
0
10
20
30
40
50
60
70
80
90
100
0
10
20
30
40
50
60
70
Concentrations of H_2O_2 (mmol/L)
(b)
Degradation percentage (%)
0
10
20
30
40
50
60
70
80
90
100
0
0.25
0.5
0.75
MIL-101(Cr)/$CoFe_2O_4$ (g/L)

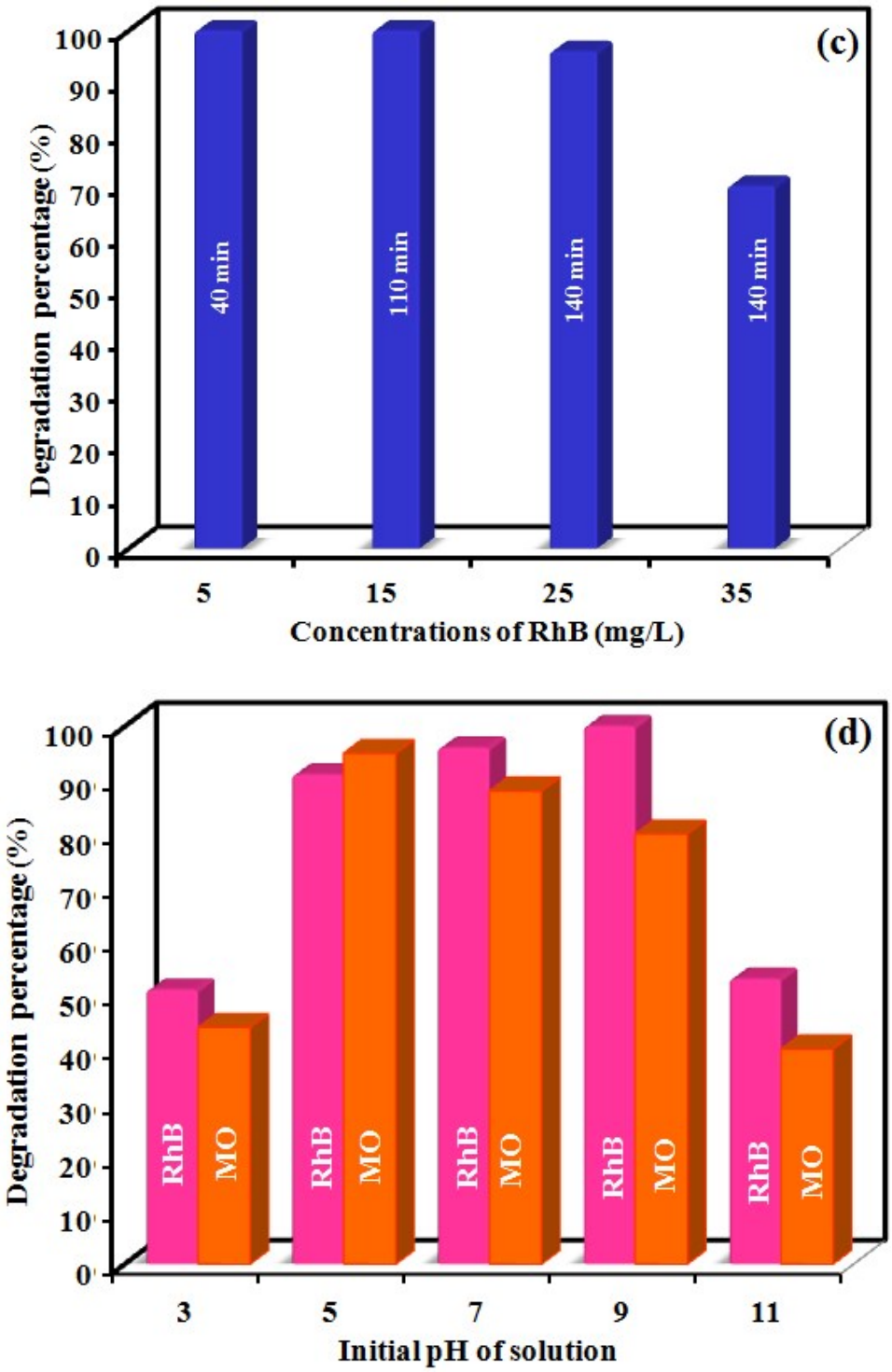

(c)
Degradation percentage (%)
100
90
80
70
60
50
40
30
20
10
0
40 min
110 min
140 min
140 min
5
15
25
35
Concentrations of RhB (mg/L)
(d)
Degradation percentage (%)
RhB
MO
3
5
7
9
11
Initial pH of solution

Fig. S4

Table S1. A comparison between the several reported catalysts and MIL-101(Cr)/$CoFe_2O_4$ nanocomposite in the degradation of RhB.

No	Catalyst	Activation way	Dye	Degradation (%)	Time (min)	Dye (mg/L)	Catalyst (g/L)	Ref
1	Fe_3O_4	Ultrasonic	RhB	90	60	0.02	0.5	[39]
2	$LuFeO_3$	Ultrasonic	RhB	59	90	4.79	0.1	[15]
3	β-Bi_2O_3	Ultrasonic	RhB	95.6	90	5	1	[40]
4	ZnSe-GR/TiO_2	Ultrasonic	RhB	82	150	9.5	2	[41]
5	Au/$NiGa_2O_4$-Au-Bi_2O_3	Ultrasonic	RhB	90	150	10	1	[42]
6	CdS	ultrasonic	RhB	93	140	25	0.5	[3]
7	CdS/CNT-TiO_2	ultrasonic	RhB	100	120	4.79	0.1	[43]
9	Cr-MIL-101@NiO/13X	Ultrasonic	RhB	94.3	80	25	0.5	[44]
10	SCN/$CoFe_2O_4$	Ultrasonic	RhB	20	20	25	1	[45]
11	Ag_3PO_4/$CoFe_2O_4$	Solar light	RhB	100	90	15	0.5	[46]
12	RGO/$CoFe_2O_4$	Visible light	RhB	85	180	10	0.25	[47]
13	$CoFe_2O_4$	Ultrasonic	RhB	52	140	25	0.5	This work
14	MIL-101(Cr)	Ultrasonic	RhB	25	140	25	0.5	This work
15	MIL-101(Cr)/$CoFe_2O_4$	Ultrasonic	RhB	96	140	25	0.5	This work