Electronic Supplementary Material (ESI) for Journal of Materials Chemistry

Supplementary information

Incorporation of Fe^{3+} into Mg/Al Layered double hydroxide Framework; effects on textural properties and photocatalytic activity for H_2 generation

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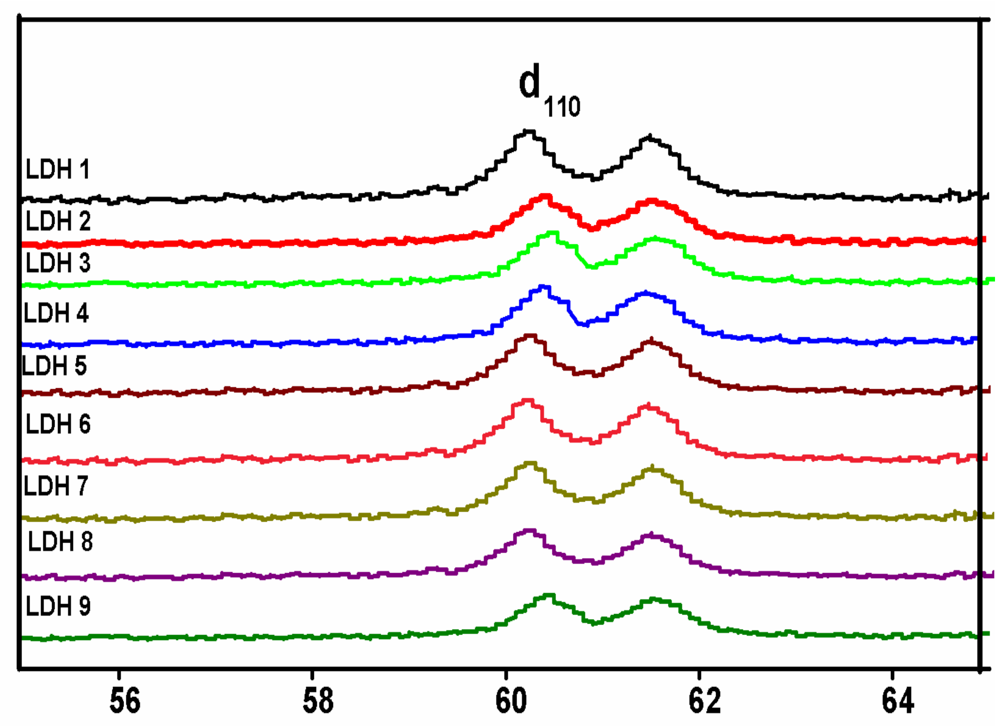


Fig. S1. High angle X-ray diffraction patterns of Mg/Al/Fe-CO_3 LDHs with different molar ratios.

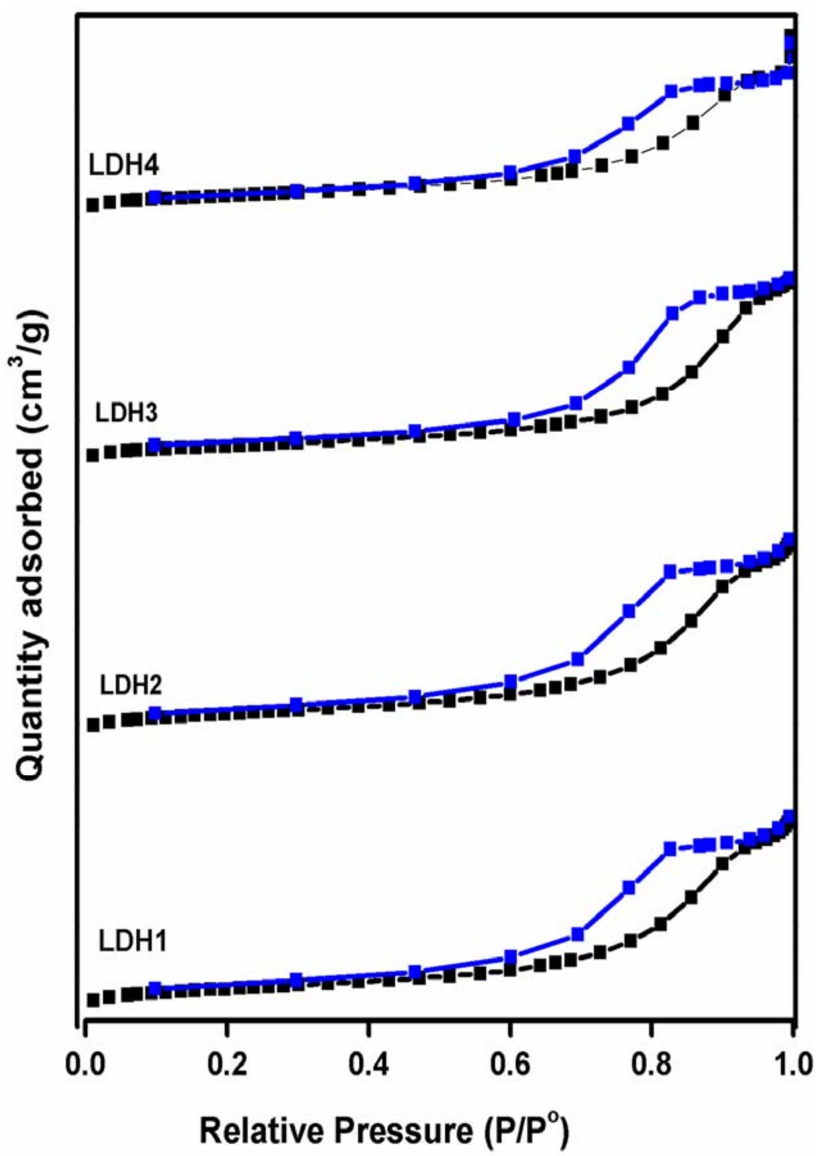
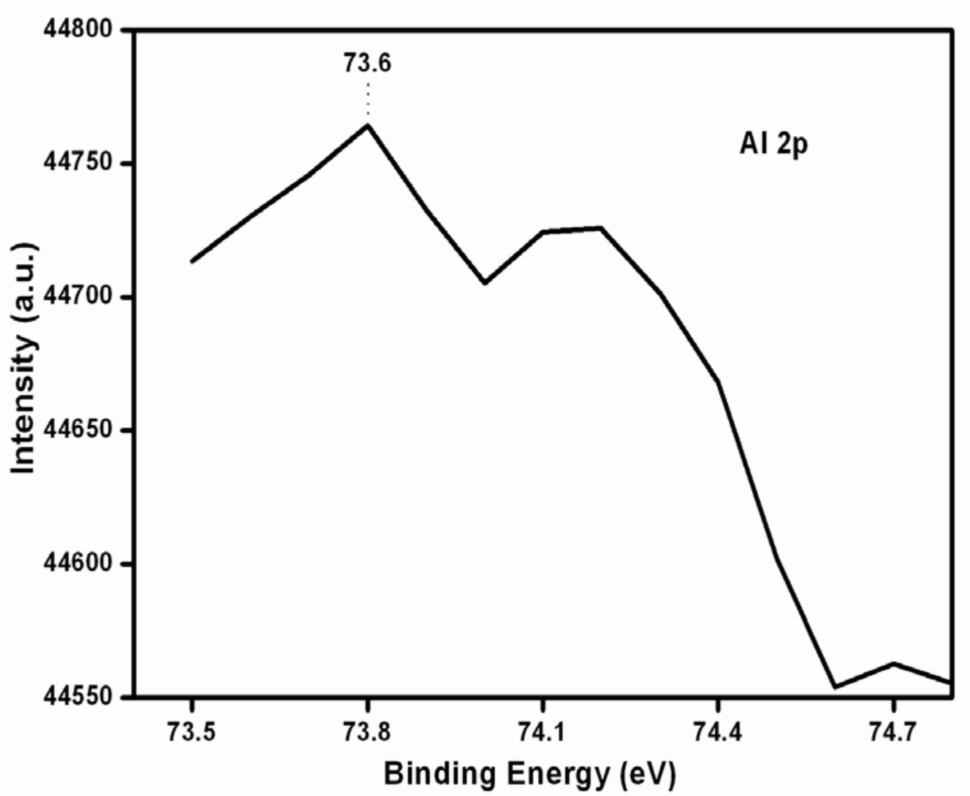
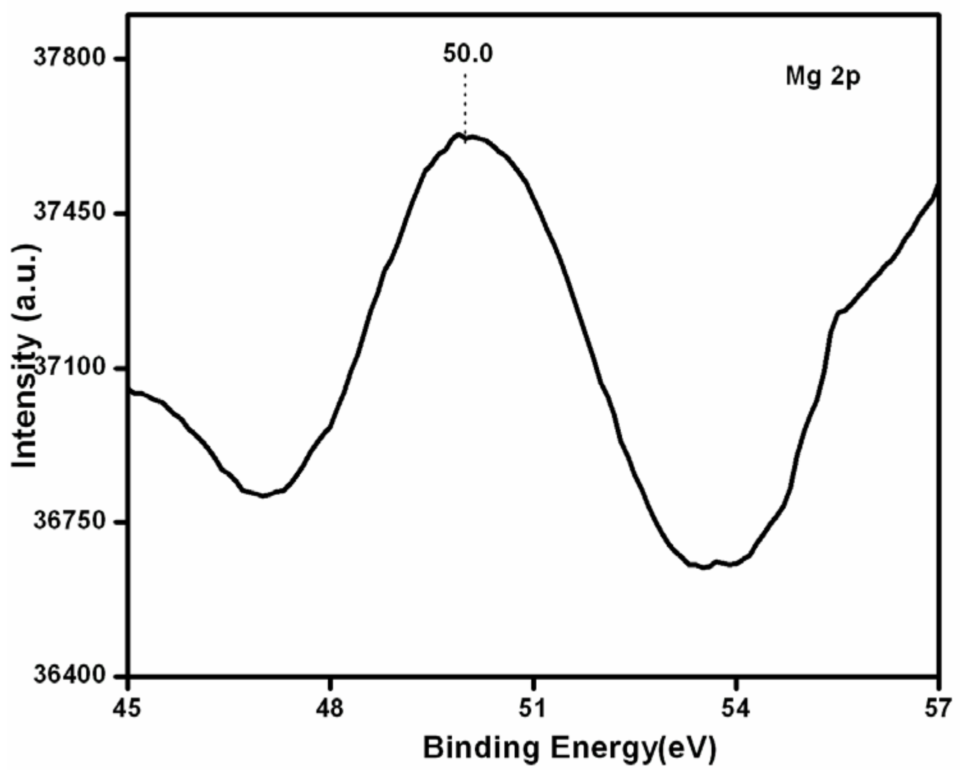


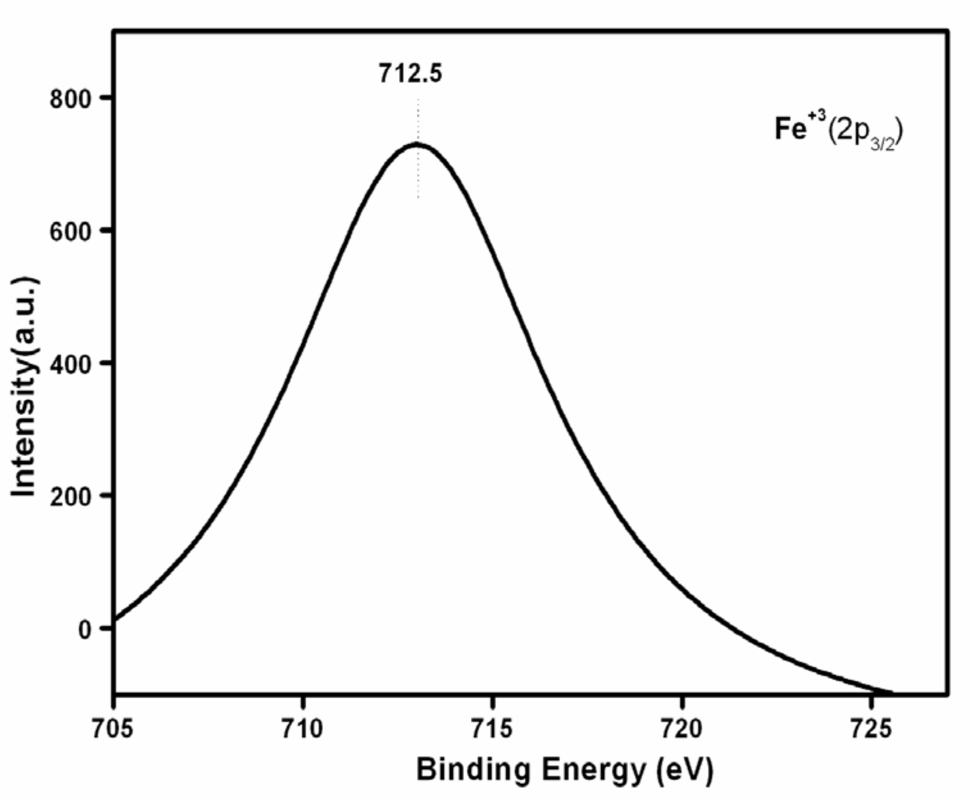
Fig. S2. N_2 adsorption desorption curves of Mg/Al/Fe-CO_3 LDHs with different molar ratios.

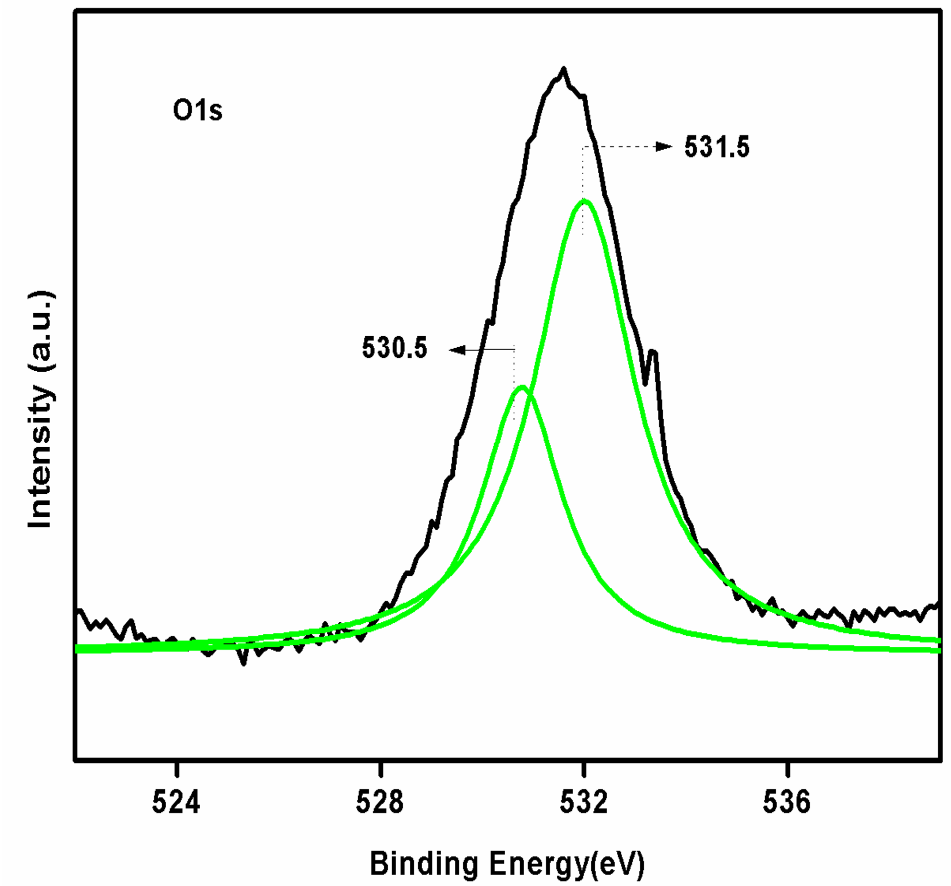


44800
44750
44700
44650
44600
44550
Intensity (a.u.)
73.6
Al 2p
73.5
73.8
74.1
74.4
74.7
Binding Energy (eV)



37800
37450
37100
36750
36400
Intensity (a.u.)
50.0
Mg 2p
45
48
51
54
57
Binding Energy(eV)


712.5
Fe+3(2p3/2)
Intensity(a.u.)
800
600
400
200
0
705
710
715
720
725
Binding Energy (eV)


O1s
531.5
530.5
Intensity (a.u.)
524
528
532
536
Binding Energy(eV)

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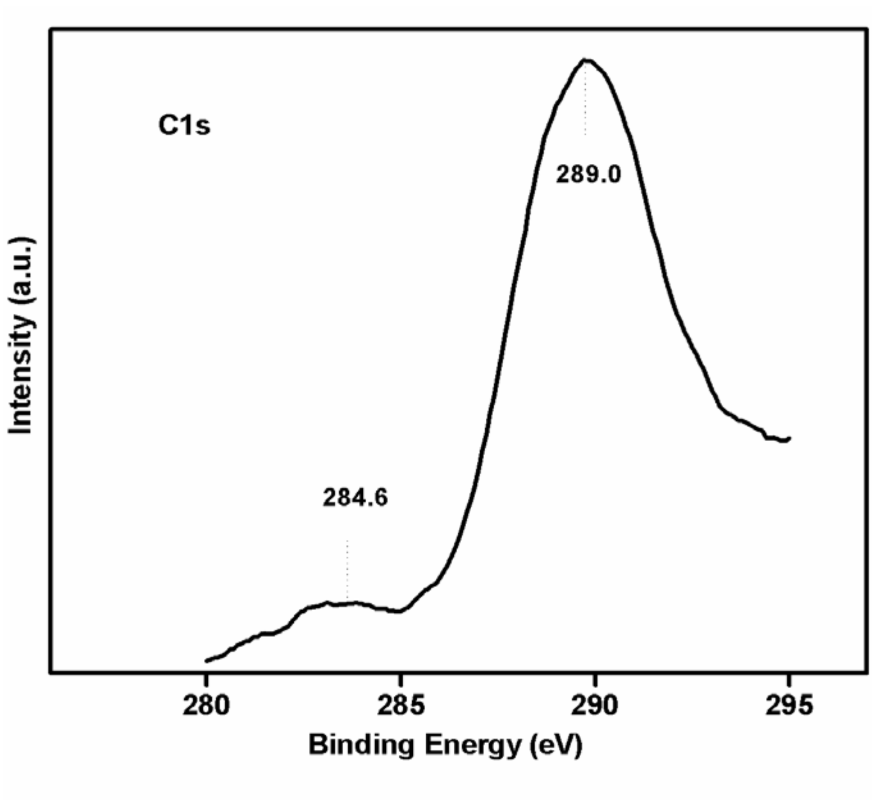

Fig. S3. XPS spectra of Mg/Al/Fe-CO_3 (2:1) LDH .

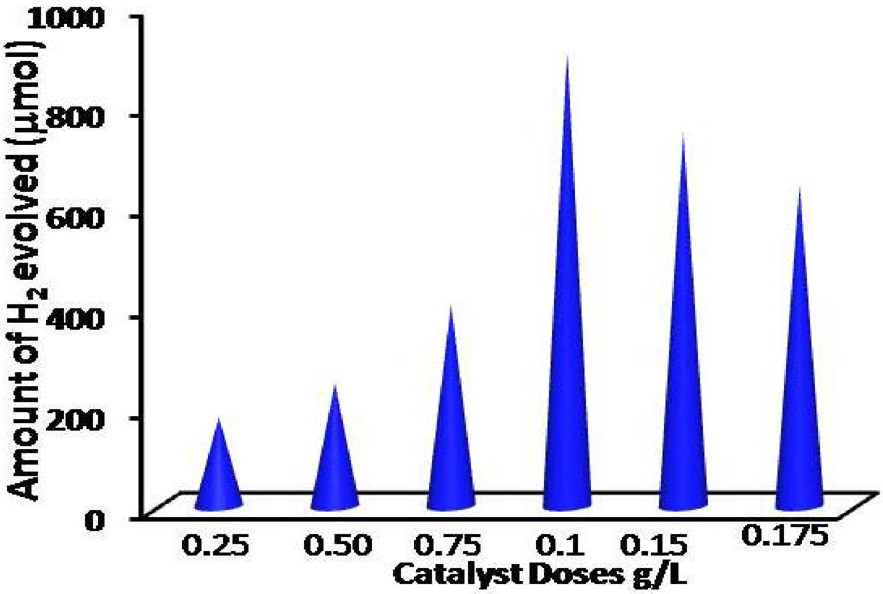

Fig.S4. Volume of hydrogen evolution obtained for Mg/Al/Fe-CO_3 (2:1) LDH with different catalyst doses.

LDH Materials	Mol $Mg^{2+}/Al^{3+} + Fe^{3+}$	Composition[e]	Average crystallite size (nm)[a]	Surface area (m^2/g)[d]
LDH1	10:4+1	$Mg_{0.66}\ Al_{0.272}\ Fe_{0.068}$	**19.98**	**62**
LDH2	10:3+2	$Mg_{0.66}\ Al_{0.204}\ Fe_{0.136}$	**21.9**	**81**
LDH3	10:2+3	$Mg_{0.656}\ Al_{0.135}\ Fe_{0.204}$	**22.5**	**83**
LDH4	10:1+4	$Mg_{0.65}\ Al_{0.068}\ Fe_{0.273}$	**22.7**	**105**

[a]Calculated from XRD pattern,s [d]measured from N_2 isotherms and [e]Atomic absorption spectroscopy

Table S1: Average crystallite size and BET surface area values of Mg/Al/Fe-CO_3 LDHs with different molar ratios.