# Supporting Information

## Heterogenized chiral iminoindanol complex of manganese as an efficient catalyst for aerobic epoxidation of olefins

Vahideh Abbasi, Hassan Hosseini-Monfared* and Seyed Majid Hosseini

*Department of Chemistry, University of Zanjan, 45195-313 Zanjan, Iran.*
*E-mail: monfared@znu.ac.ir (H. Hosseini-Monfared); Tel.: +98 24 33052576; Fax: +98 24 33583203.*

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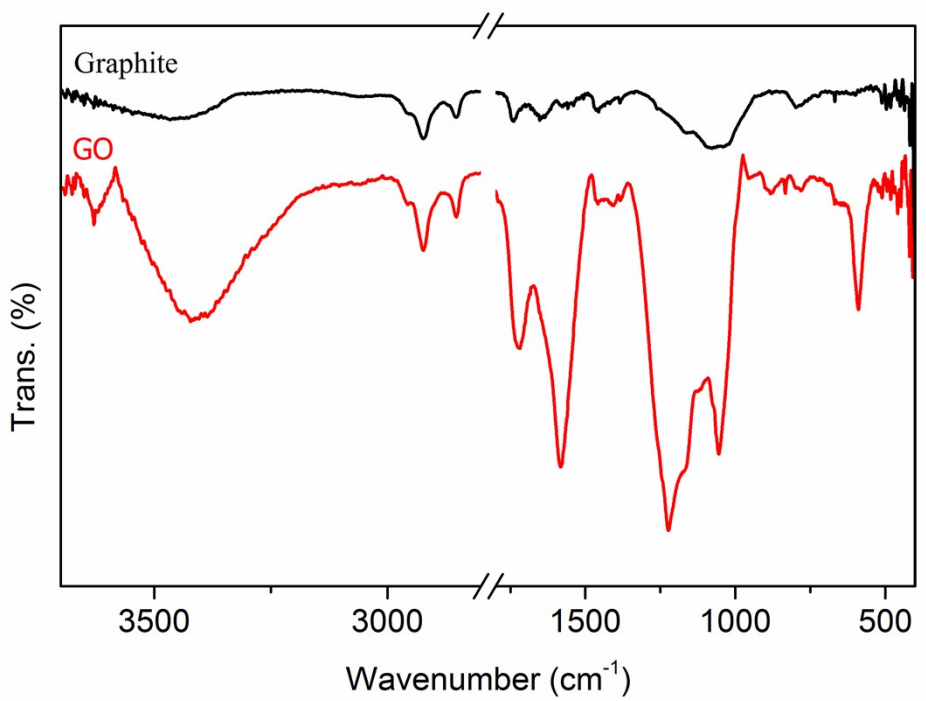



Fig. S1 FT-IR spectra of graphite and GO.

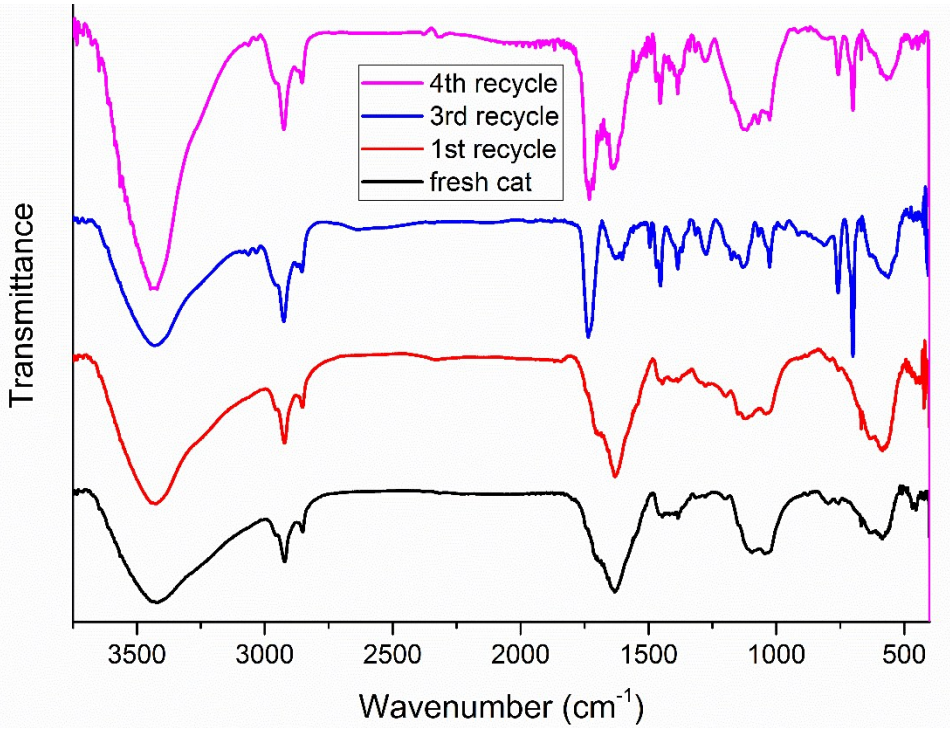



Fig. S2. Comparison of the FT-IR spectra of the fresh and used catalyst GFC-[Mn(L)(OH)]

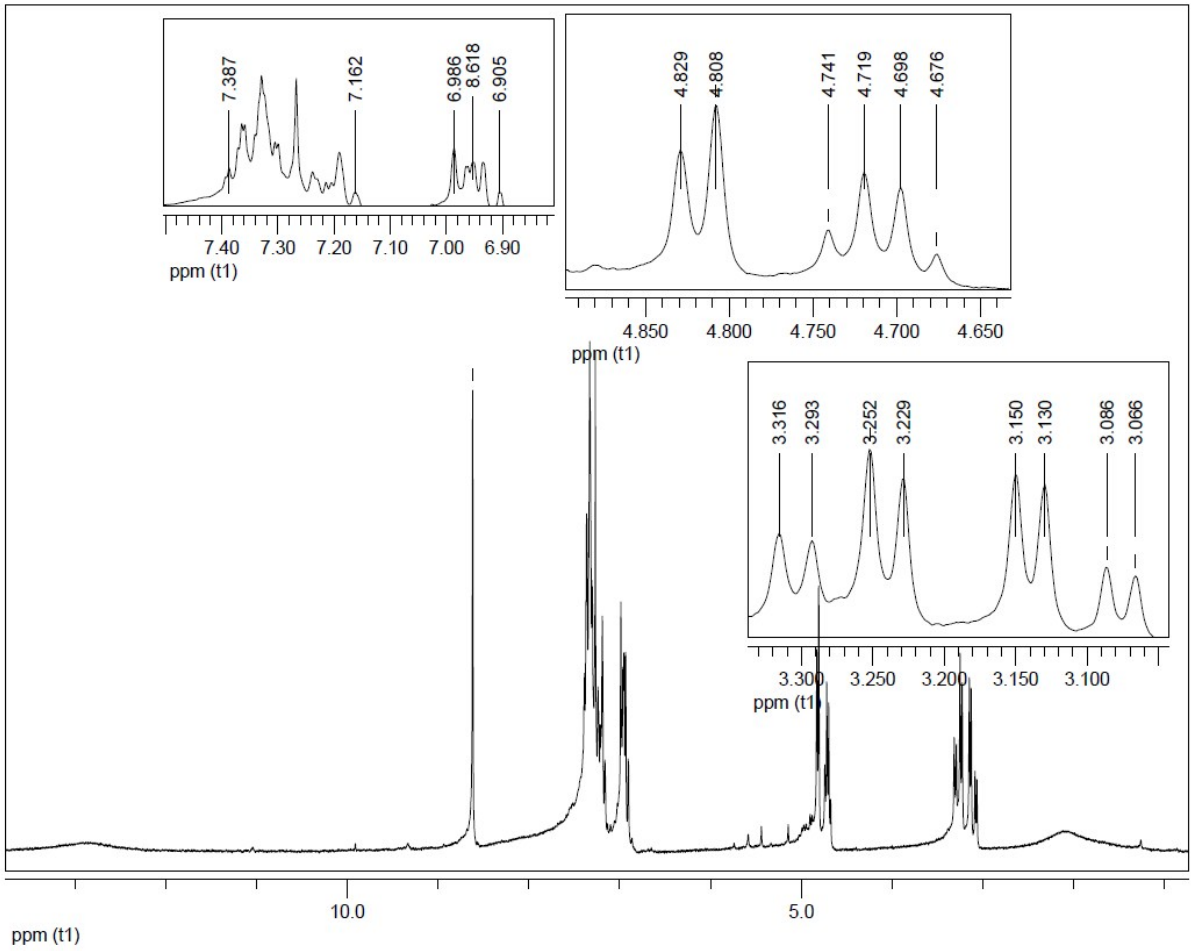



Fig. S3 $^{1}$H-NMR of ligand $H_2L$ ((1*R*,2*S*)-1-(N-salicylideneamino)-2-indanol) in $CDCl_3$

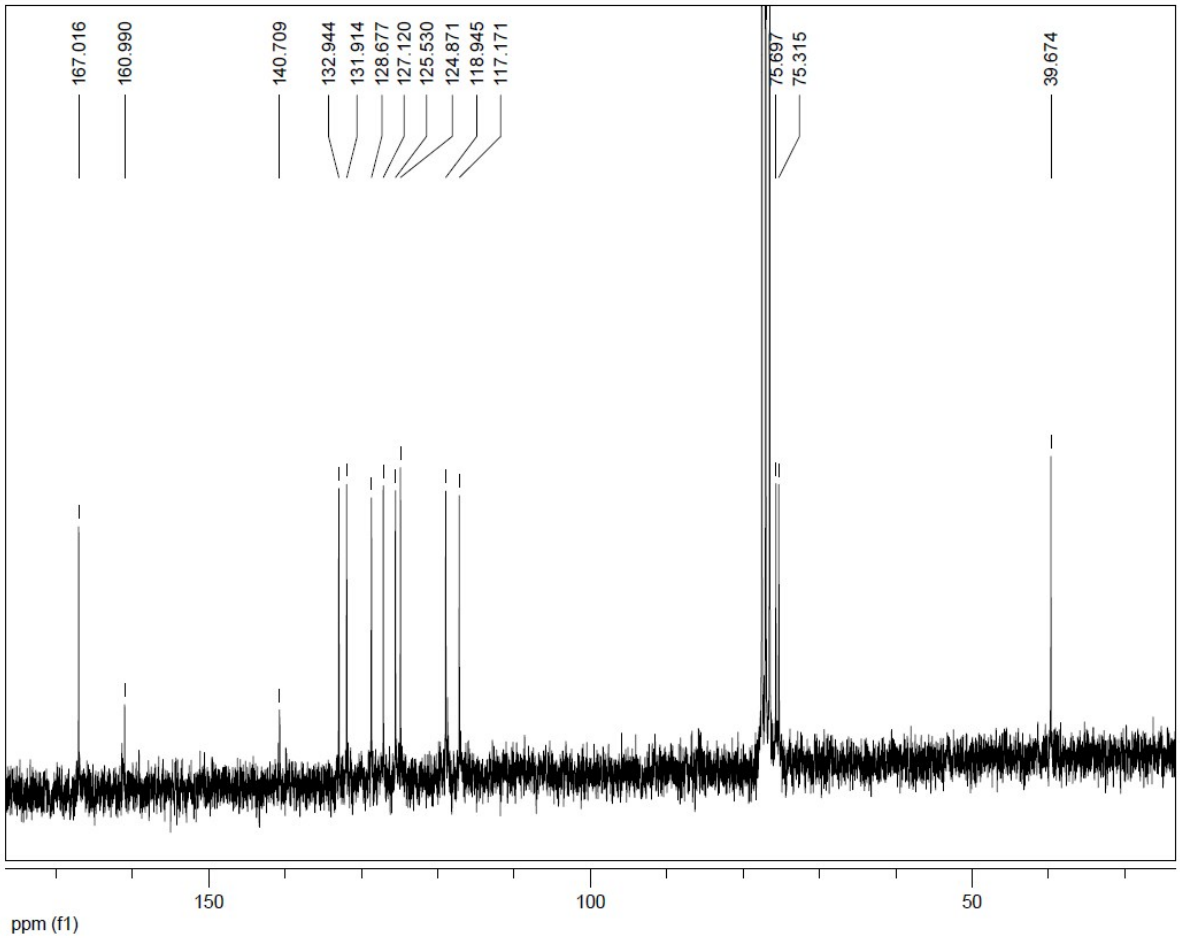



Fig. S4 $^{13}$C-NMR of ligand $H_2L$ ((1*R*,2*S*)-1-(N-salicylideneamino)-2-indanol) in $CDCl_3$

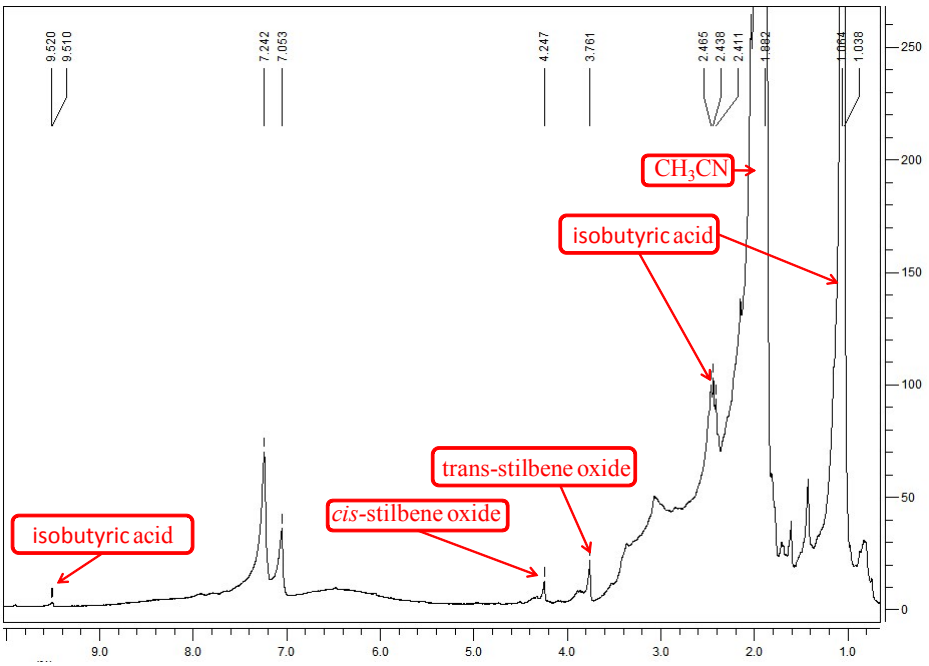
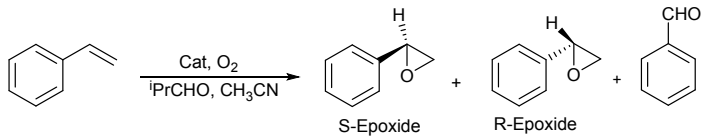
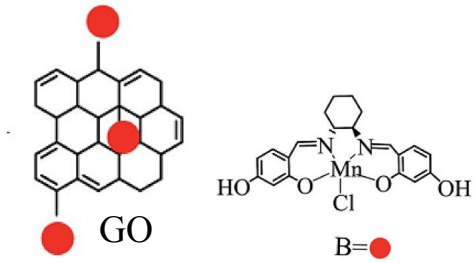
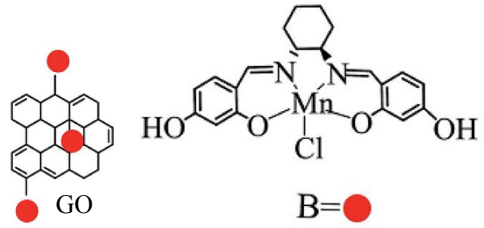
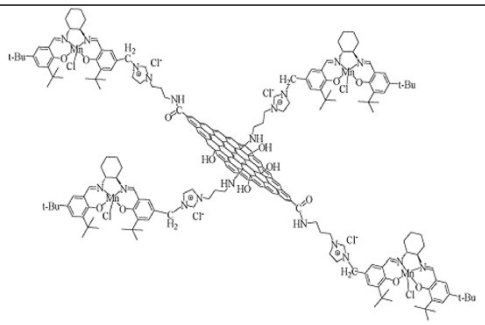
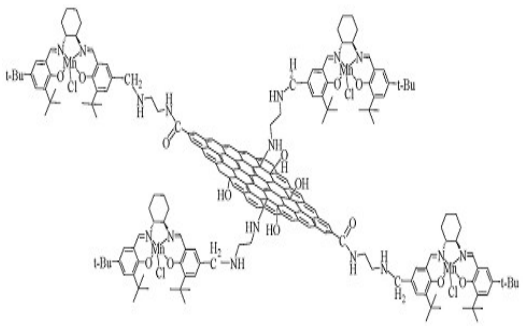
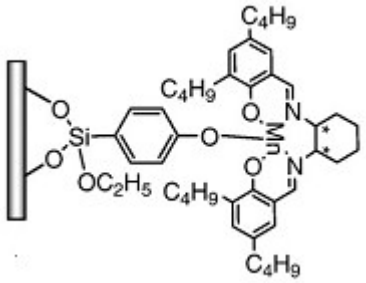


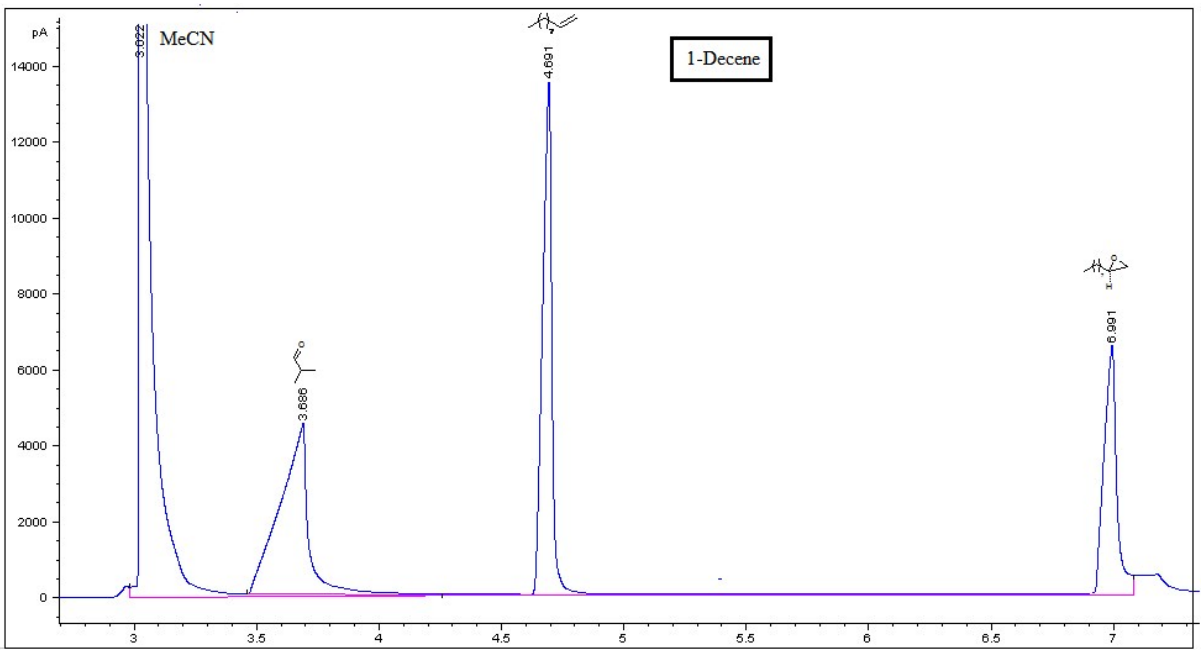

Fig. S5 $^{1}$H-NMR spectrum in $CDCl_3$ of the crude product obtained upon oxidation of cis-stilbene provided 100% conversion with 39% cis-epoxide, 61% trans-epoxide(R,R).

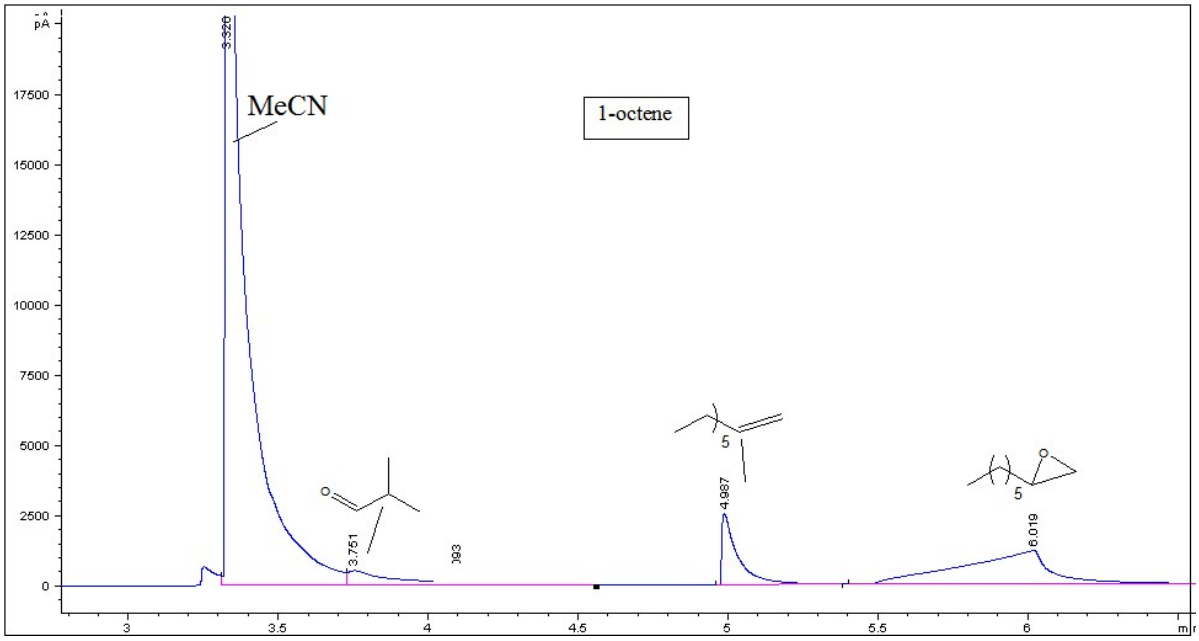
Table S1 Asymmetric oxidation of styrene catalyzed by different heterogenized Mn complexs.

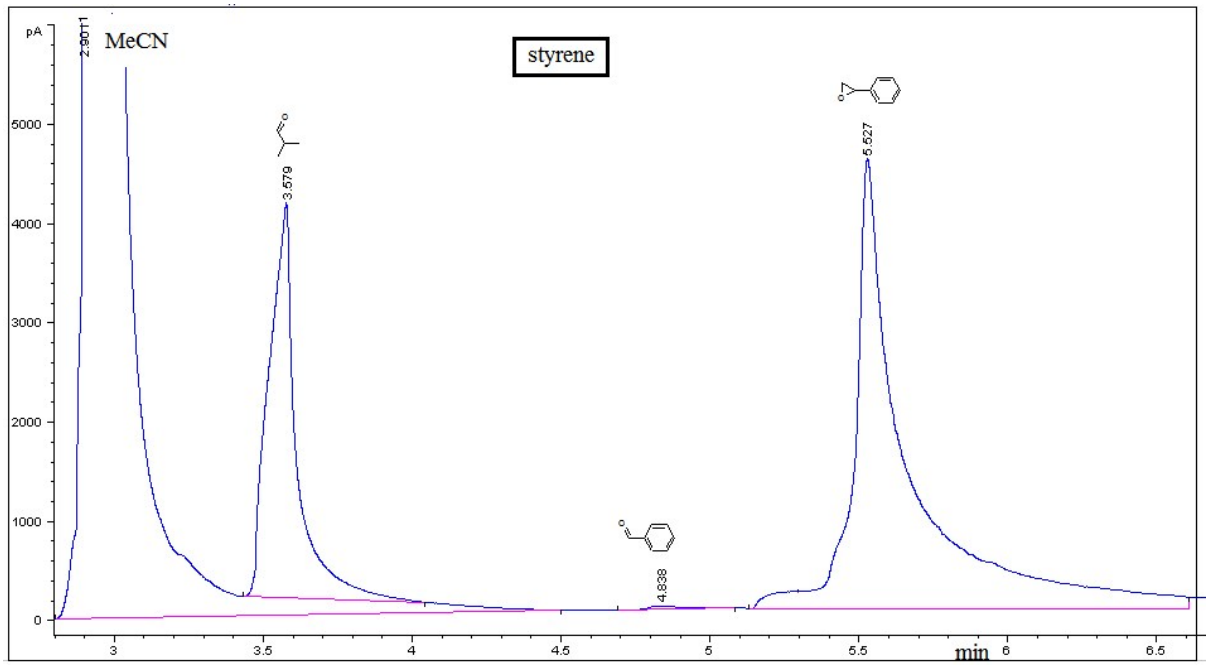


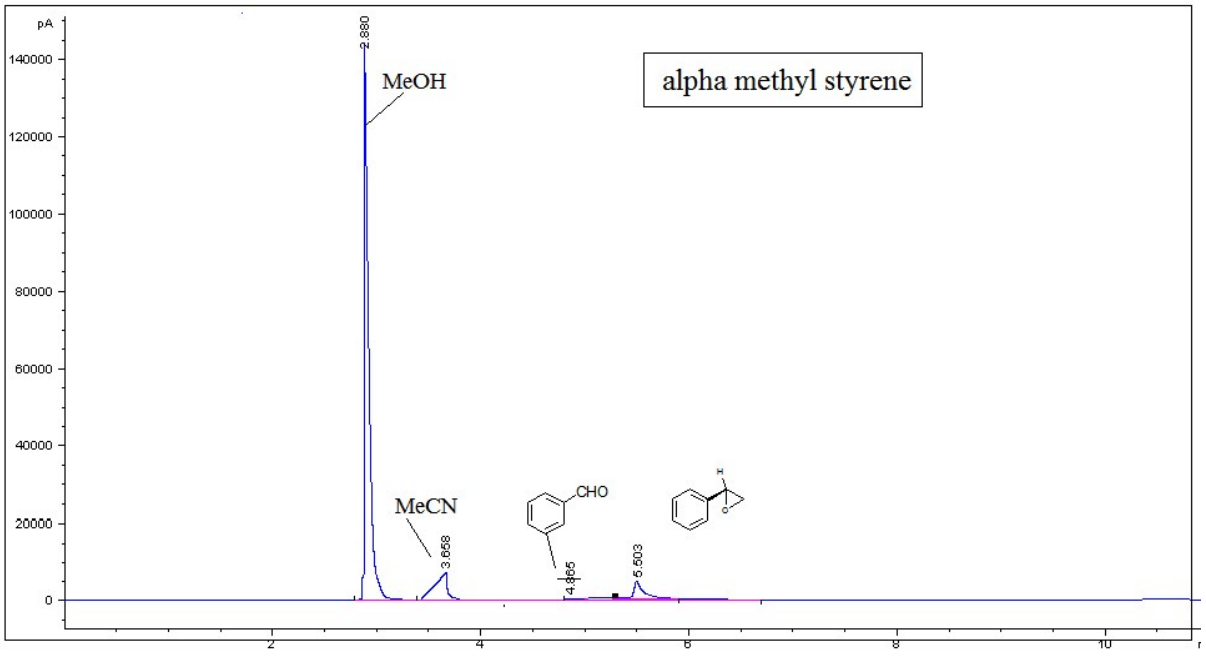

| No. | Catalyst | Oxidant | Time (h) | Epoxide Yield (%) | ee% | Ref. |
|---|---|---|---|---|---|---|
| 1 | GFC-[Mn(L)(OH)] | $O_2$ | 2 | 78 | 67 | This work |
| 2 |   | m-CPBA | 6 | 90 | 65 | S1 |
| 3 |   | m-CPBA | 4 | 93 | 61 | S1 |
| 4 | $Mn^{2+}$/GO nanocomposite | $H_2O_2$ | 0.5 | >99 | - | S2 |
| 5 |  | NaClO | 1 | 92 | 40 | S3 |
| 6 |  | NaClO | 1 | 68 | 36 | S3 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 7 |  | m-CPBA | 2 | 39 | 18 | S4 |


pA
MeCN
1-Decene
3.022
3.686
4.691
6.991


pA
MeCN
1-octene
3.320
3.751
4.987
6.019


pA
MeCN
styrene
2.901
3.579
4.838
5.527
min


pA
MeOH
alpha methyl styrene
2.880
MeCN
3.658
CHO
4.865
5.503

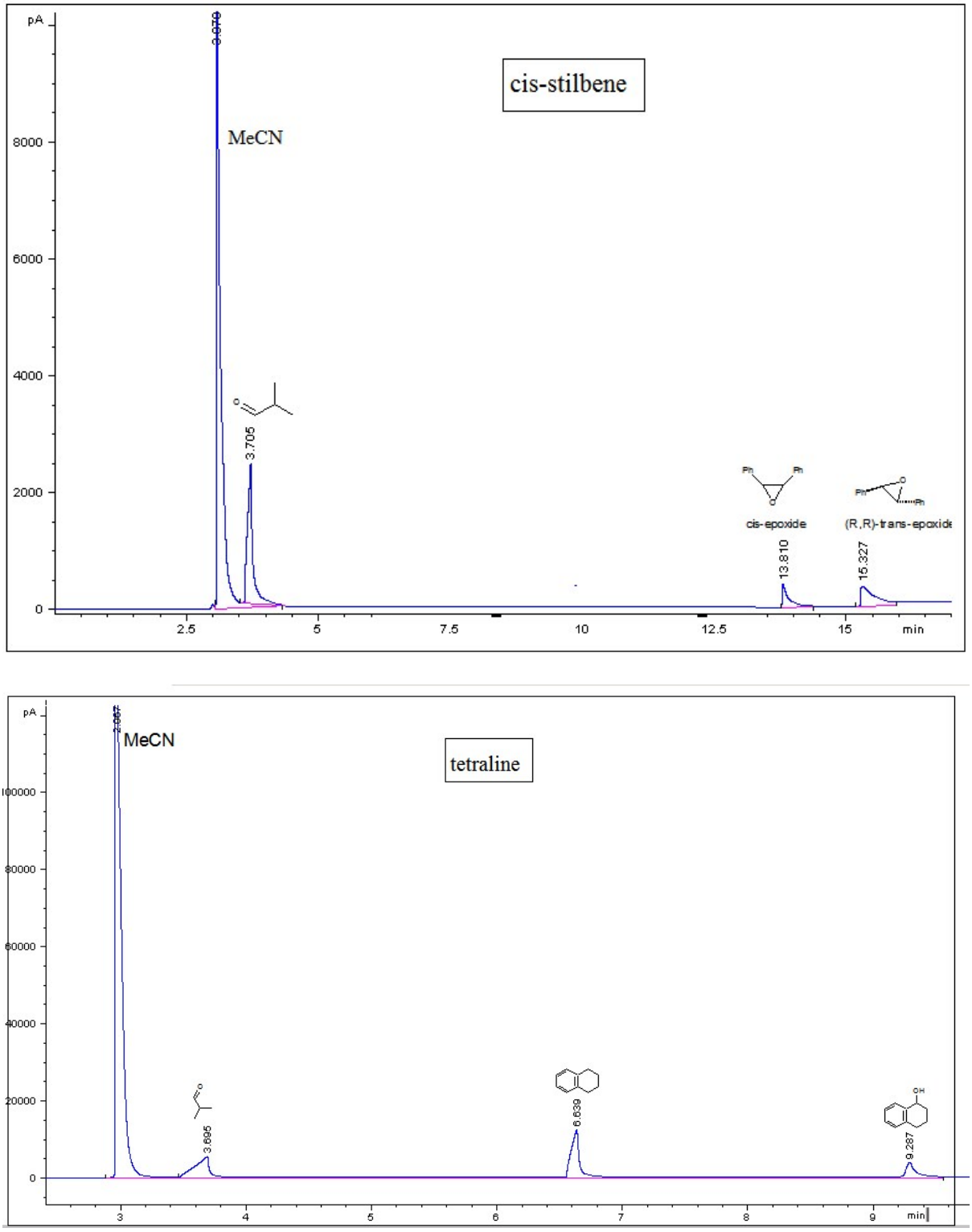
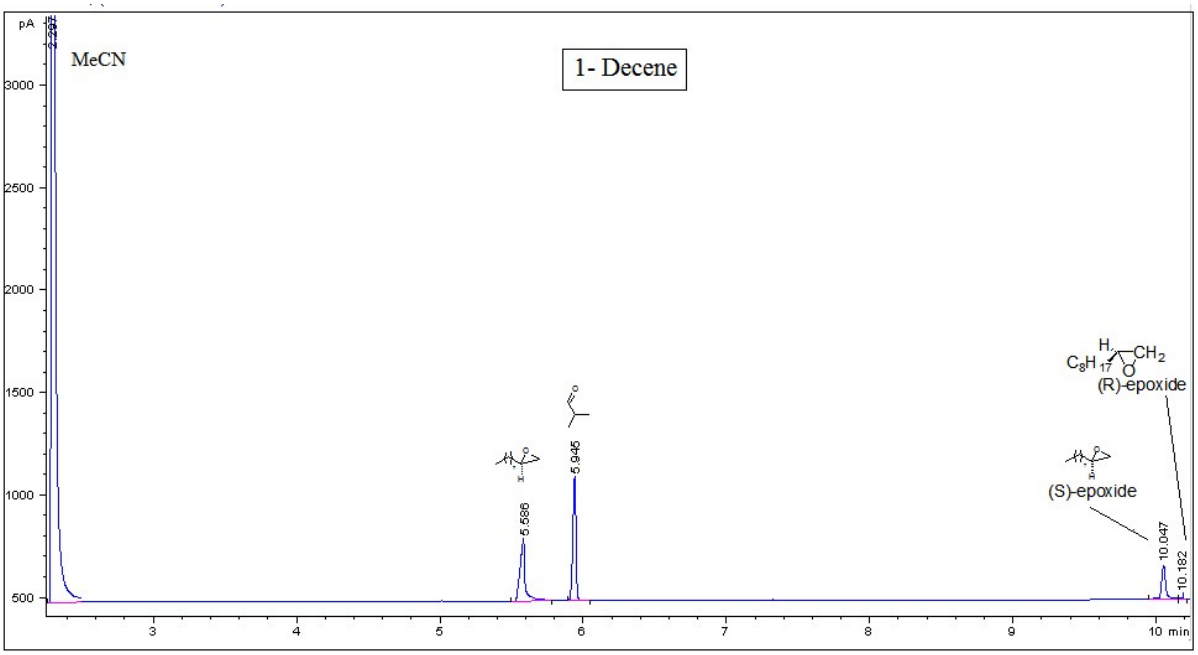
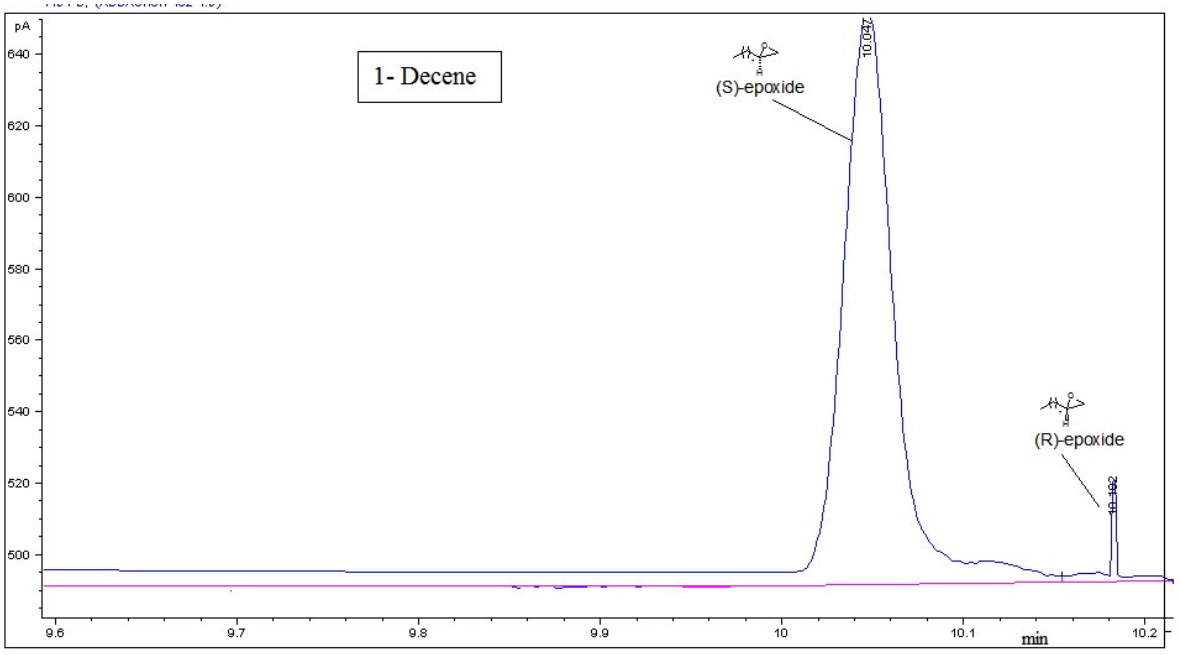
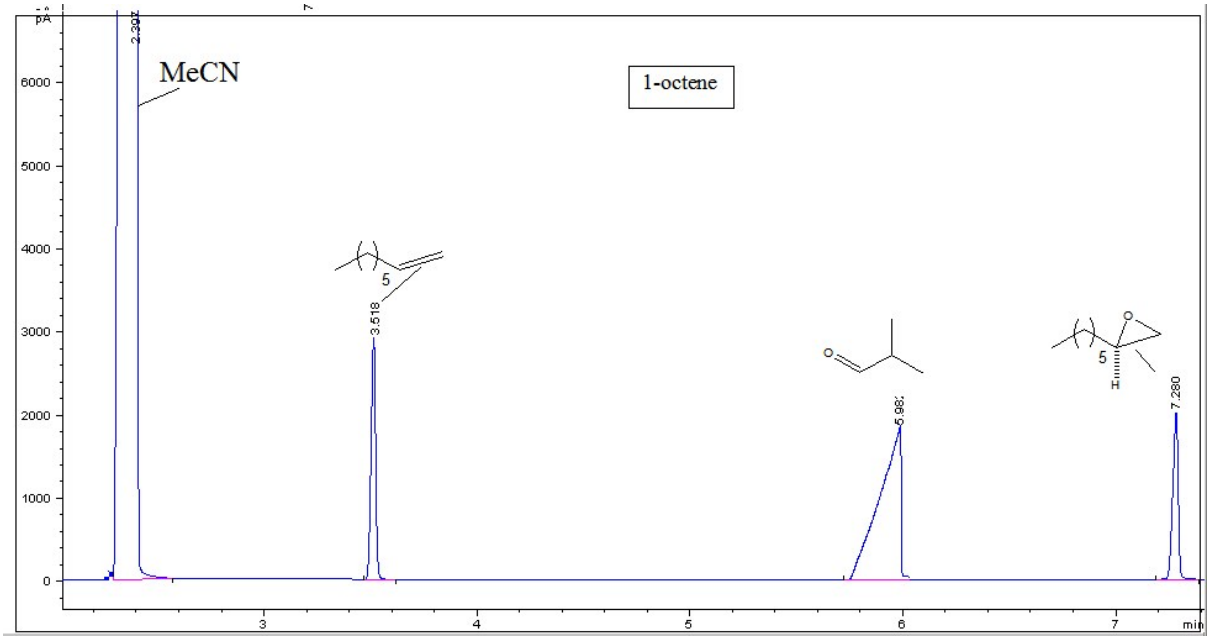
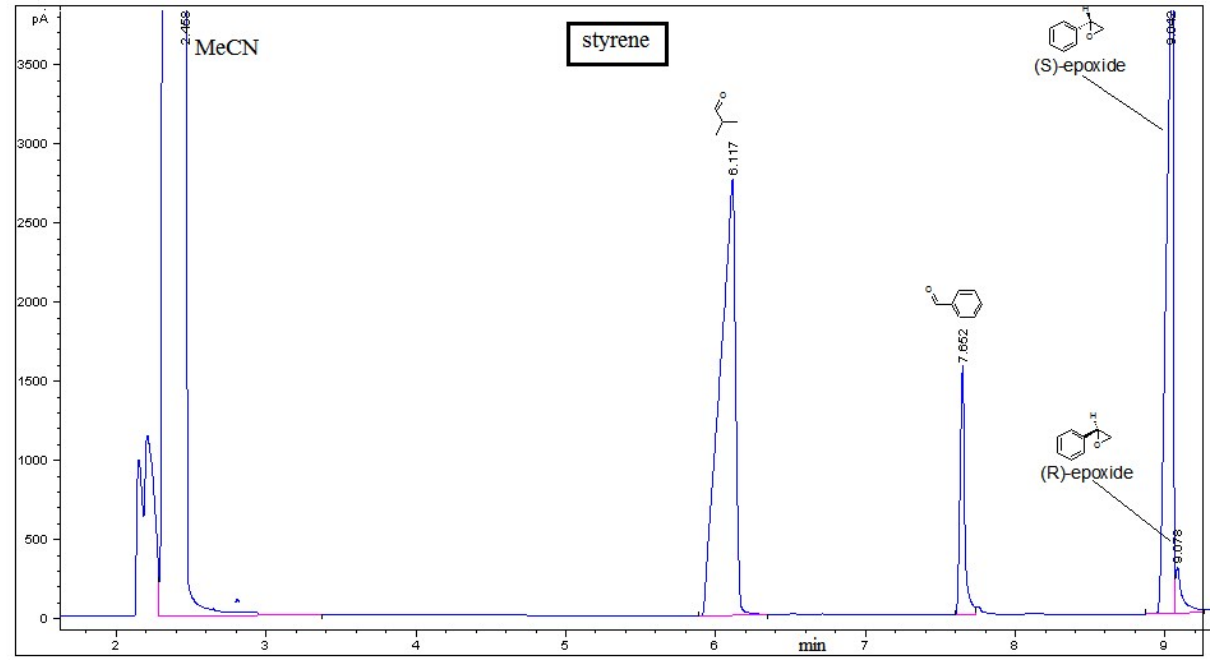


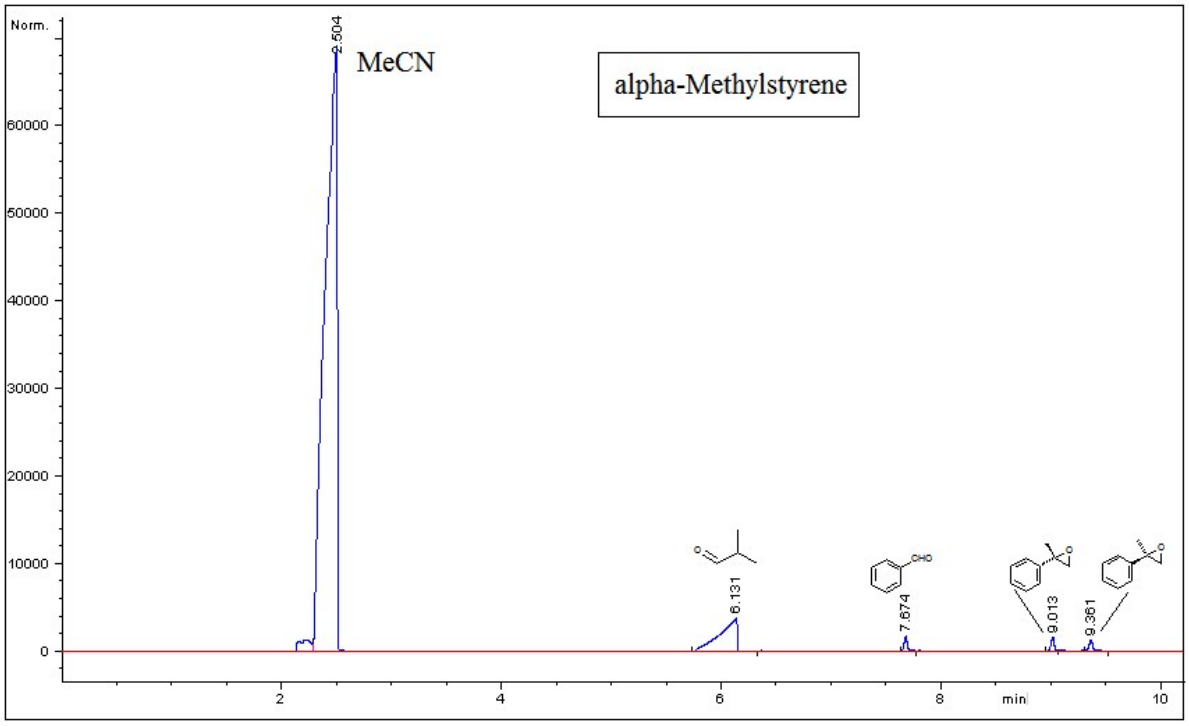

Fig. S6 GC-chromatograms of the olefin epoxidation catalyzed by GFC-[Mn(L)(OH)]/$O_2$/iPrCHO in $CH_3CN$ analyzed by a HP-5 capillary column (phenyl methyl siloxane 30 mm×320 µm×0.25 µm). Conditions: initial temperature 90 °C for 0.1 min, slope 10 °C/min, final temperature 190 °C for 10 min. Flow rate 0.7 mL/min.

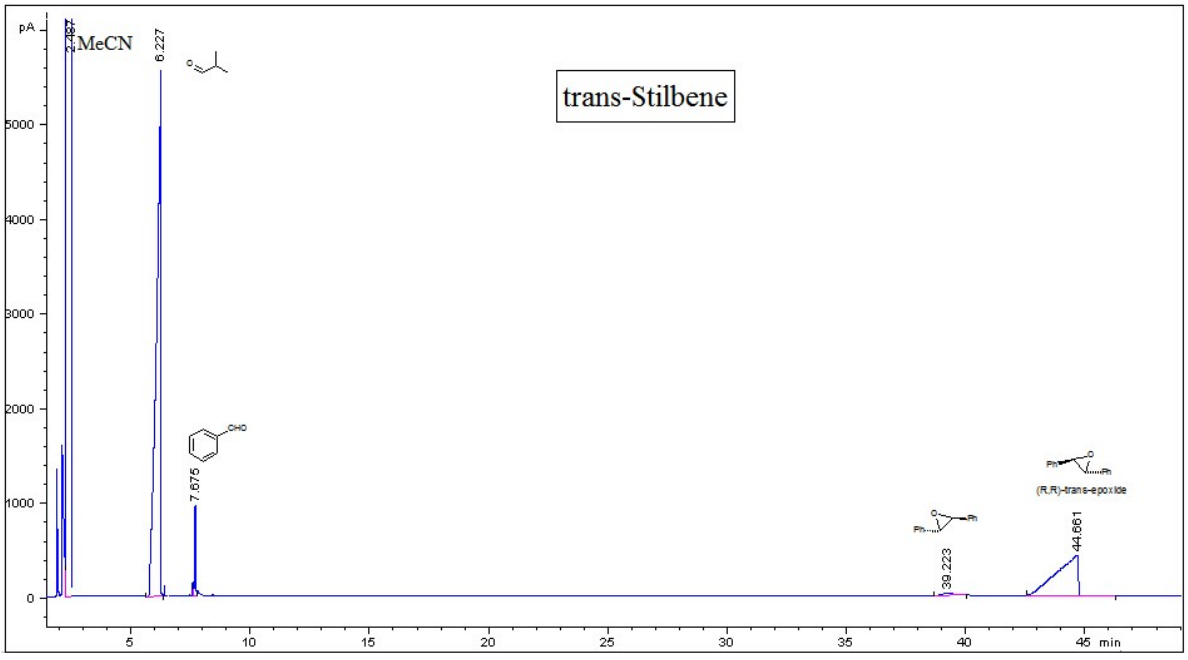

pA
MeCN
1- Decene
3000
2500
2000
1500
1000
500
5.586
5.945
10.047
10.182
(S)-epoxide
(R)-epoxide
3
4
5
6
7
8
9
10 min


pA
1- Decene
(S)-epoxide
(R)-epoxide
640
620
600
580
560
540
520
500
9.6
9.7
9.8
9.9
10
10.1
10.2
min


MeCN
1-octene
3.518
5.983
7.280
min


MeCN
styrene
6.117
7.852
(S)-epoxide
(R)-epoxide
9.078
min


Norm.
2.504
MeCN
alpha-Methylstyrene
6.131
7.674
9.013
9.361
min


pA
2.487
MeCN
6.227
trans-Stilbene
7.675
39.223
44.661
(R,R)-trans-epoxide
min

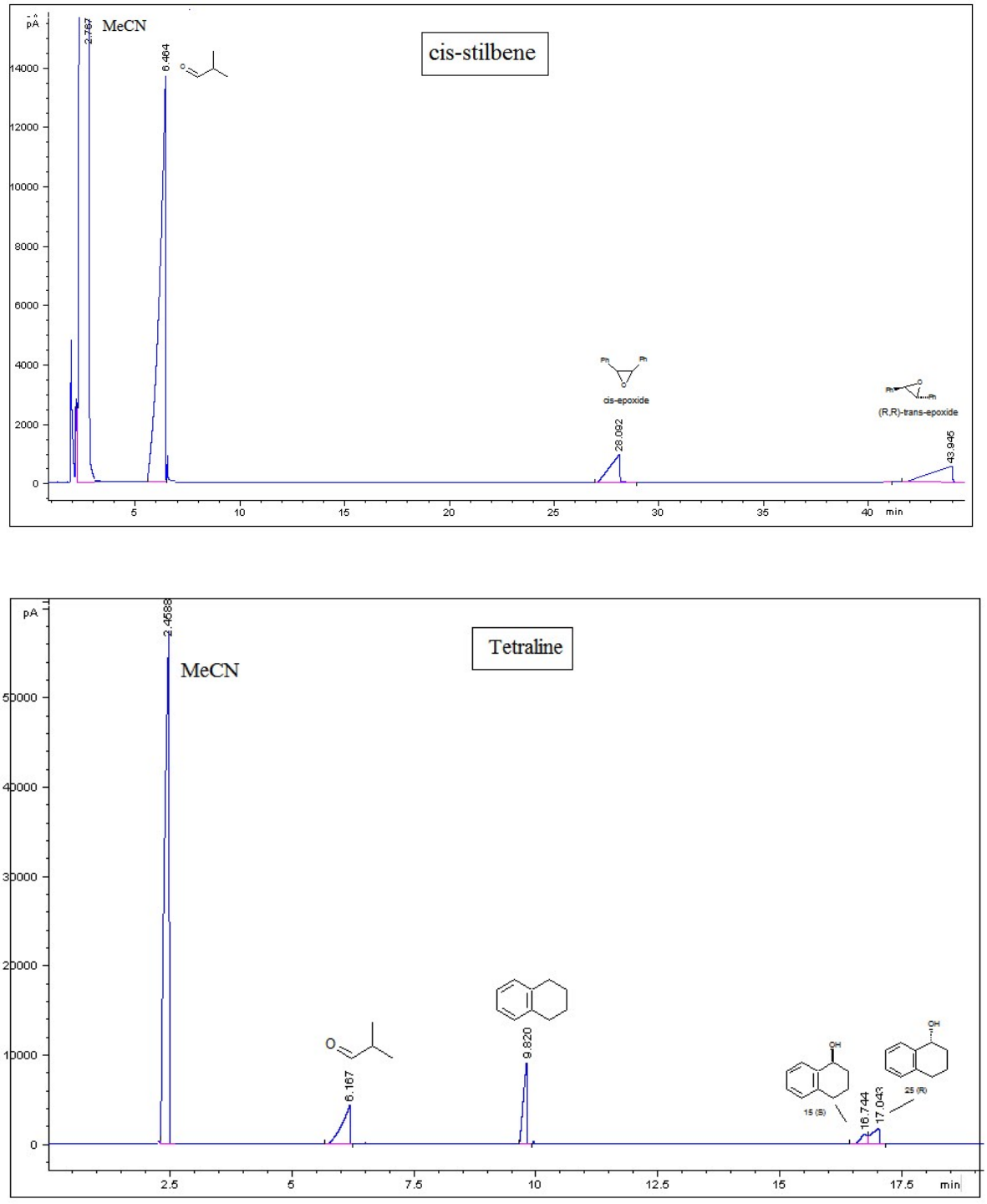



Fig. S7 GC-chromatograms of the olefin epoxidation catalyzed by GFC-[Mn(L)(OH)]/$O_2$/iPrCHO in $CH_3CN$ analyzed by a using a chiral SGE-CYDEX-B capillary column (25 m × 0.22 mm × 0.25 μm). Conditions: initial temperature 50 °C for 0.1 min, slope 10 °C/min, final temperature 150 °C for 10 min. Flow rate 0.7 mL/min.

S1 . M. Nasseri, A. Allahresani and H. Raissi, *RSC Adv.*, 2014, **4**, 26087.

S2. W. Zheng, R. Tan, L. Zhao, Y. Chen, C. Xiong and D. Yin, *RSC Adv.*, 2014, **4**, 11732.

S3 . W. Zheng, R. Tan, S. Yin, Y. Zhang, G. Zhao, Y. Chen and D. Yin, *Catal. Sci. Technol.*, 2015, **5**, 2092.

S4 I. Kuźniarska-Biernacka, C. Pereira, A. Carvalho, J. Pires and C. Freire, *Appl. Clay Sci.* 2011, **53**, 195.