Electronic Supplementary Information

Straightforward one-pot synthesis of bioactive *N*-aryl oxazolidin-2-ones *via* highly efficient Fe_3O_4@SiO_2-supported acetate-based butylimidazolium ionic liquid nanocatalyst under metal- and solvent-free conditions

Radhika Gupta, Manavi Yadav, Rashmi Gaur, Gunjan Arora and Rakesh Kumar Sharma*

Green Chemistry Network Centre, Department of Chemistry, University of Delhi, Delhi- 110007, India

rksharmagreenchem@hotmail.com

Table of contents

Table S1 Calculation of crystallite size of IL-OAc@FSMNP catalyst from XRD data.

Entry	2θ/degree	FWHM/degree	Size/nm
1	30.23	0.483	17.04
2	35.59	0.400	20.88
3	53.68	0.438	20.33
4	56.80	0.402	22.52
5	62.81	0.515	18.09

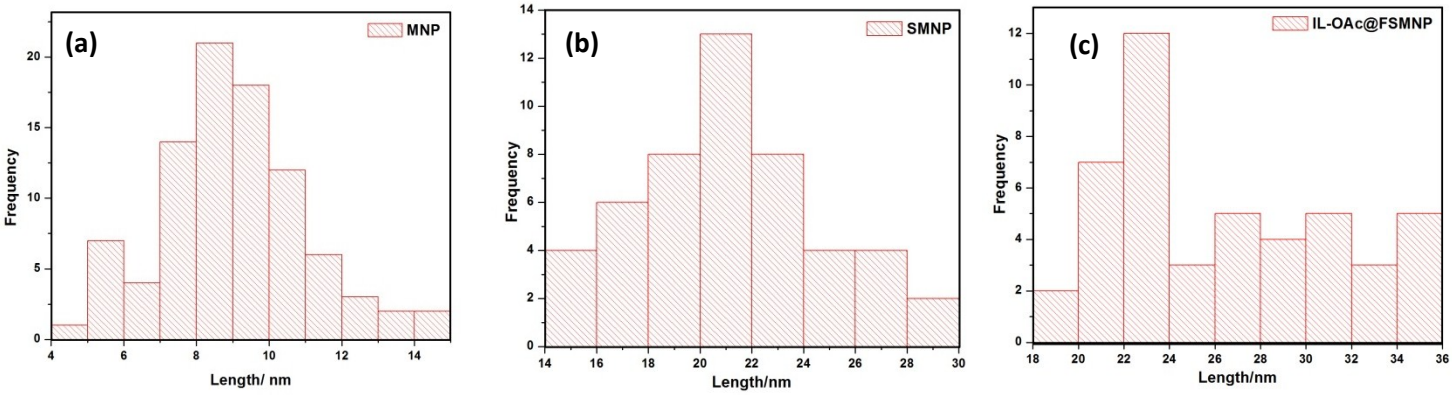


Fig. S1 Size distribution diagrams of (a) MNP, (b) SMNP, and (c) IL-OAc@FSMNP.

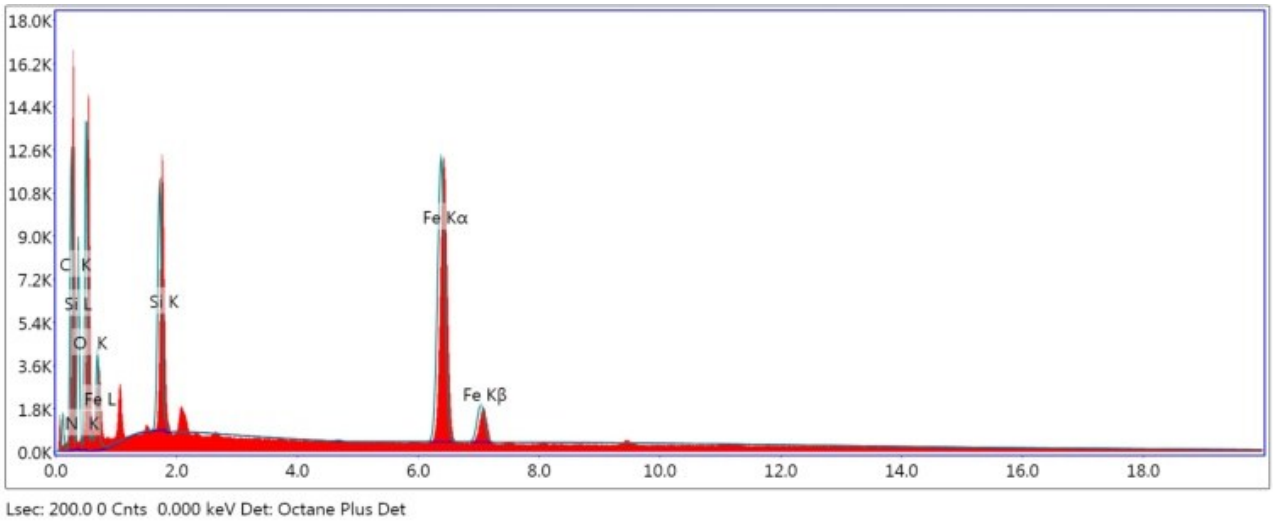


Fig. S2 SEM-coupled EDX spectrum of IL-OAc@FSMNP.

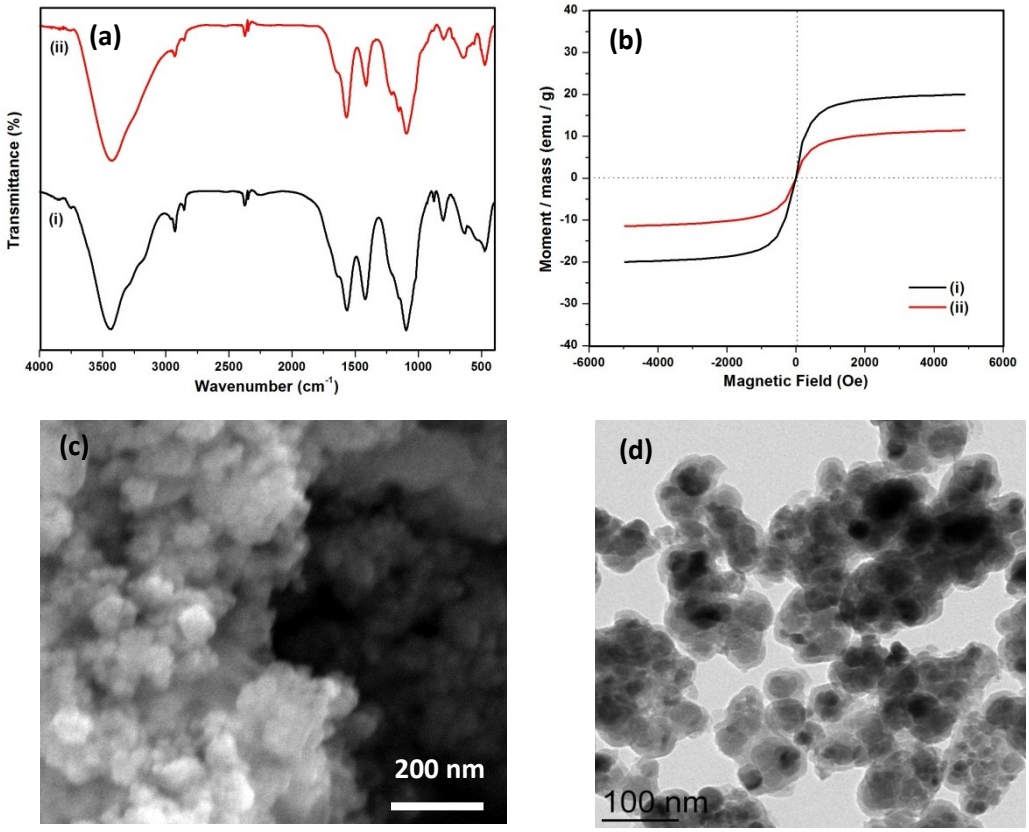
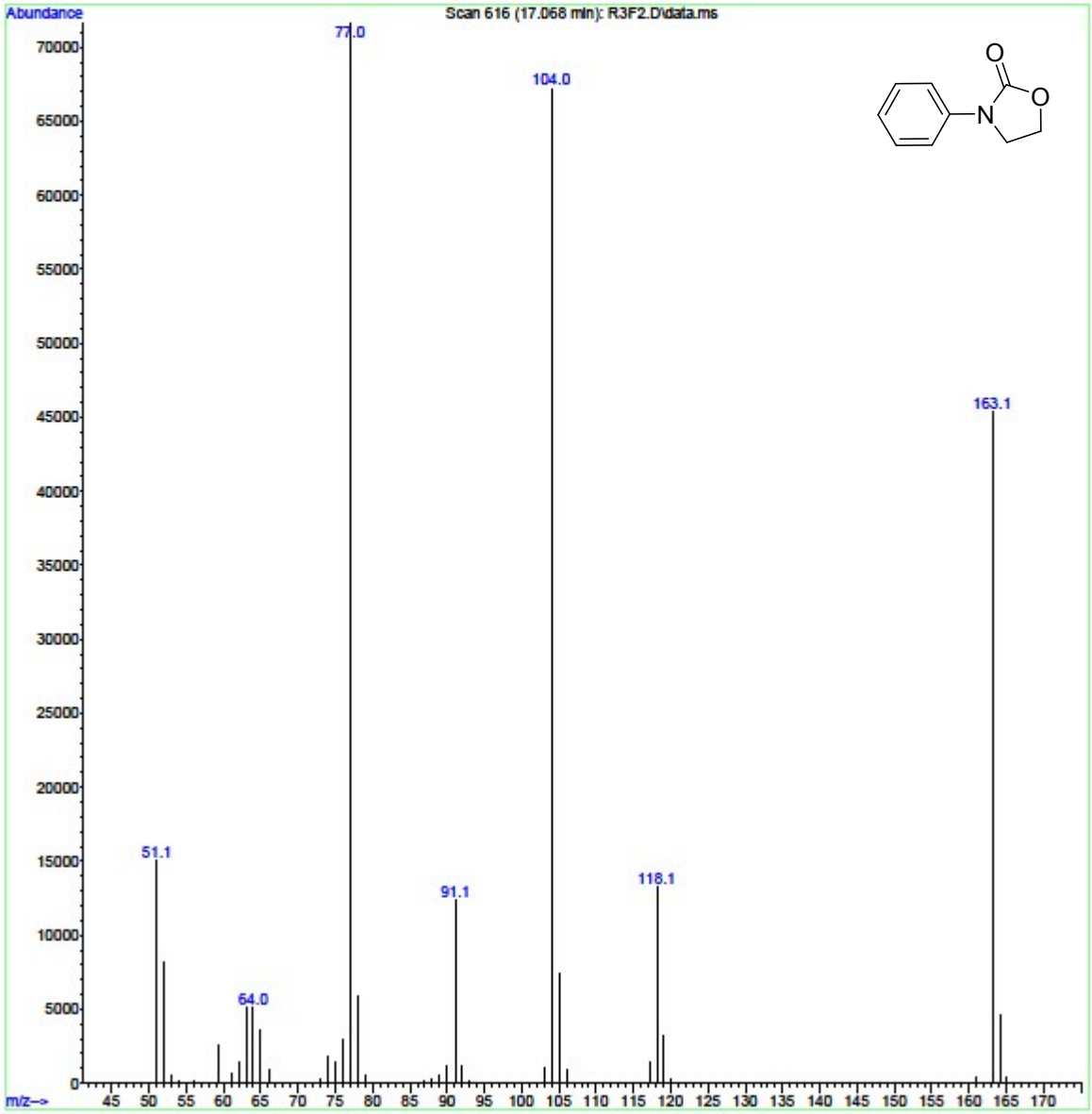
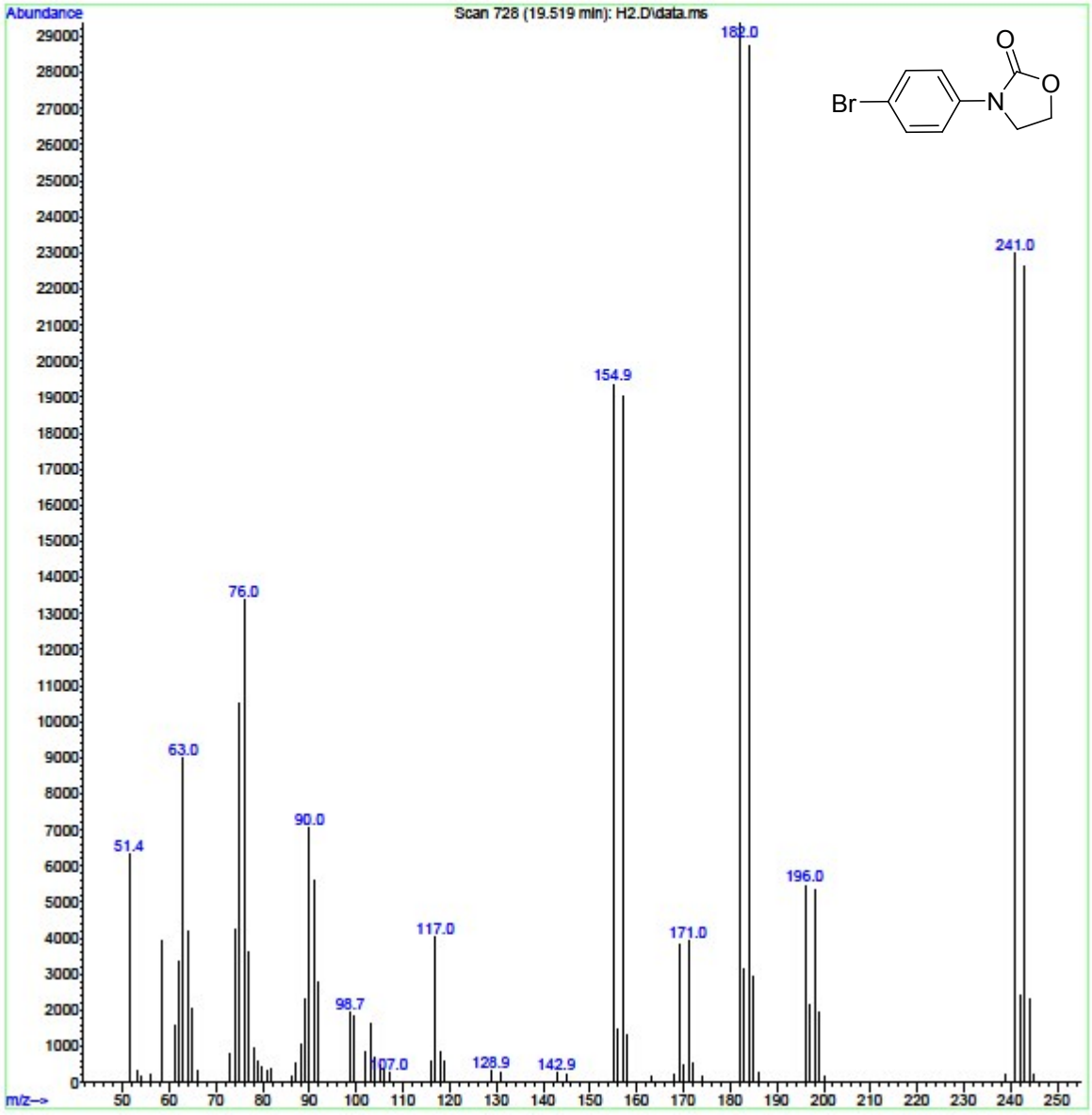


Fig. S3 (a) FT-IR spectra, and (b) magnetization curves of (i) fresh IL-OAc@FSMNP and (ii) recovered IL-OAc@FSMNP, (c) FE-SEM, and (d) TEM images of recovered IL-OAc@FSMNP.

GC-MS Spectra

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O
O
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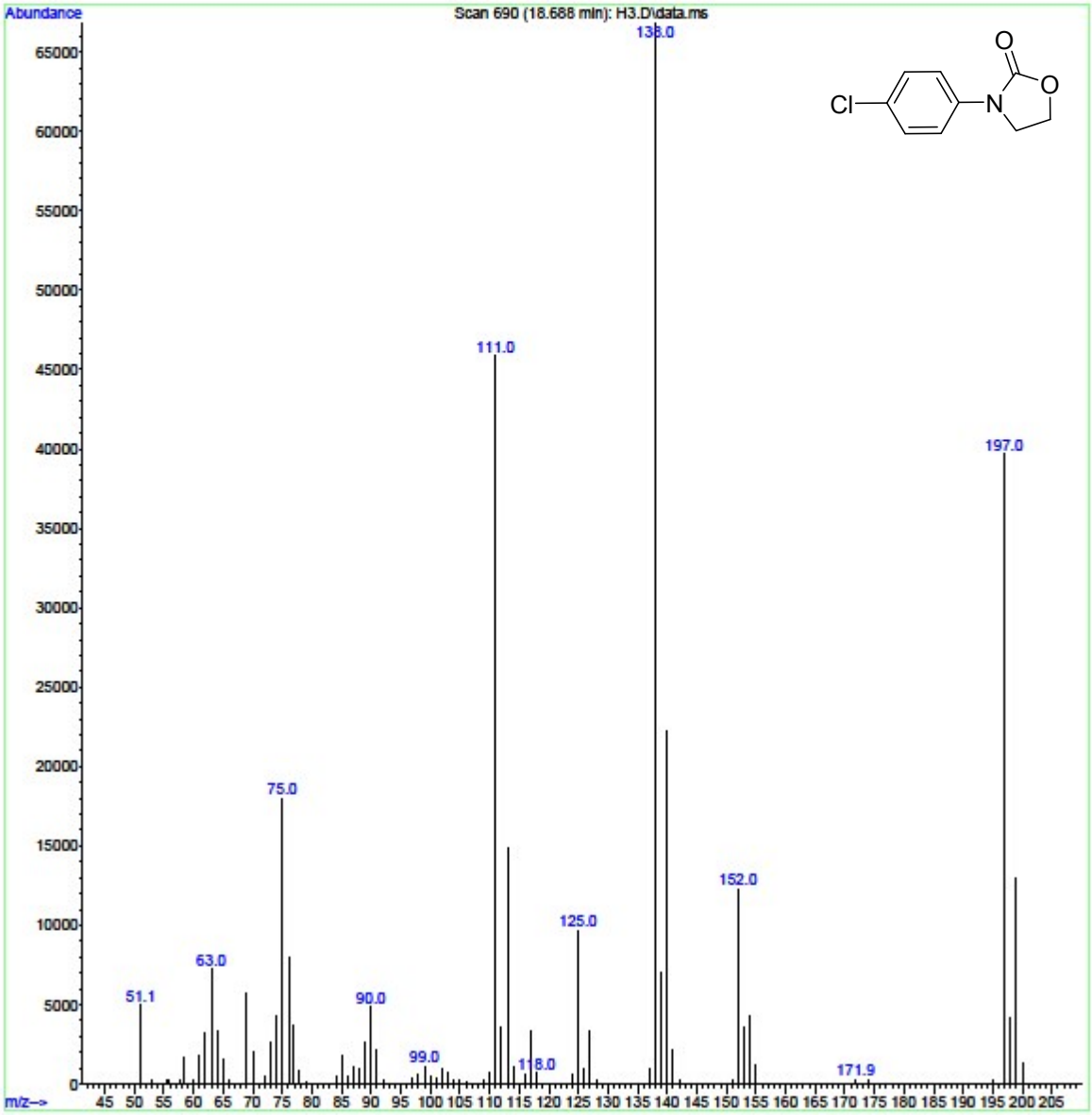
63.0
90.0
51.4
196.0
117.0
171.0
98.7
107.0
128.9
142.9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63.0
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90.0
99.0
118.0
171.9
m/z-->
Cl
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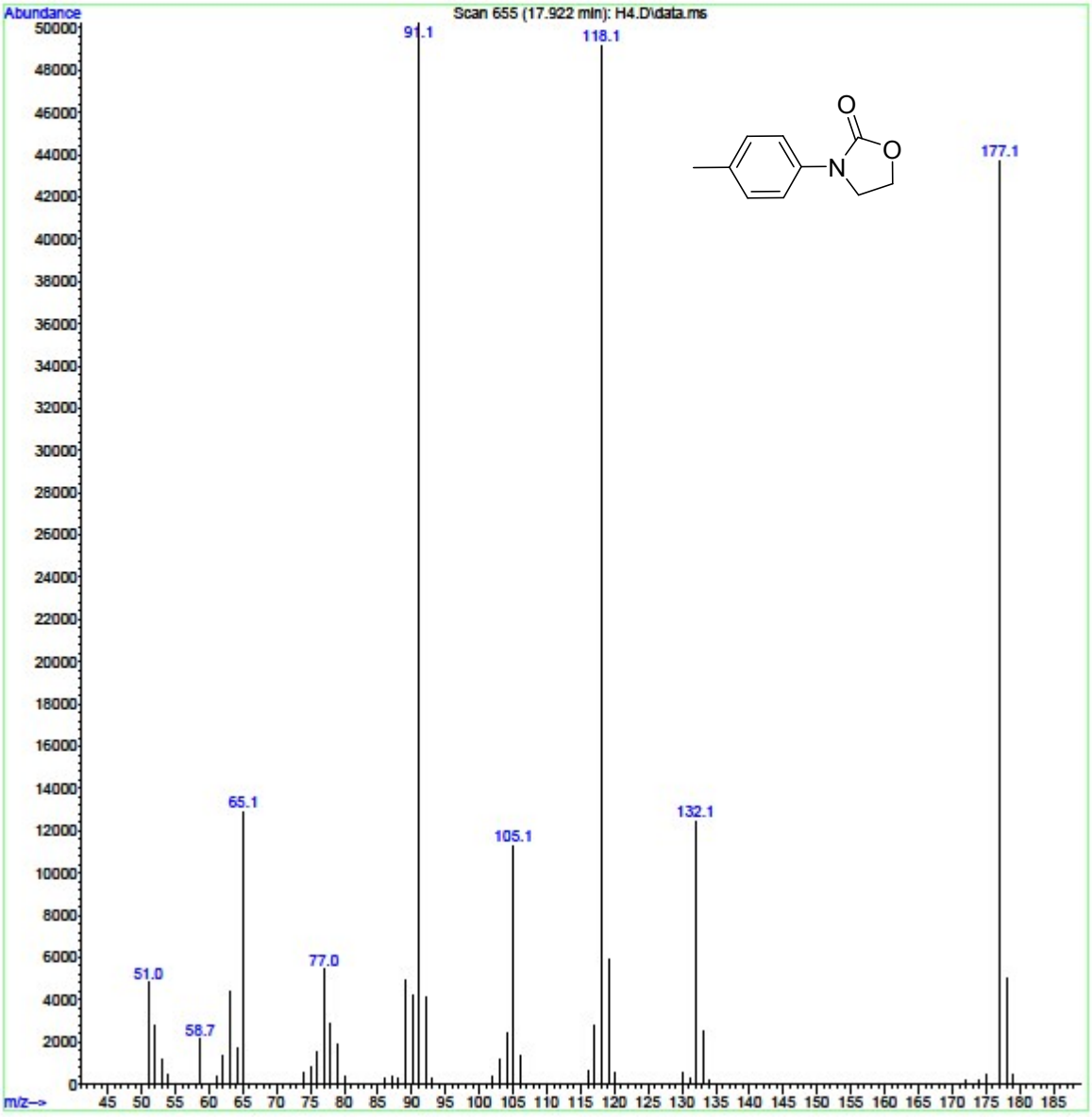
O
O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177.1
65.1
105.1
132.1
51.0
77.0
58.7
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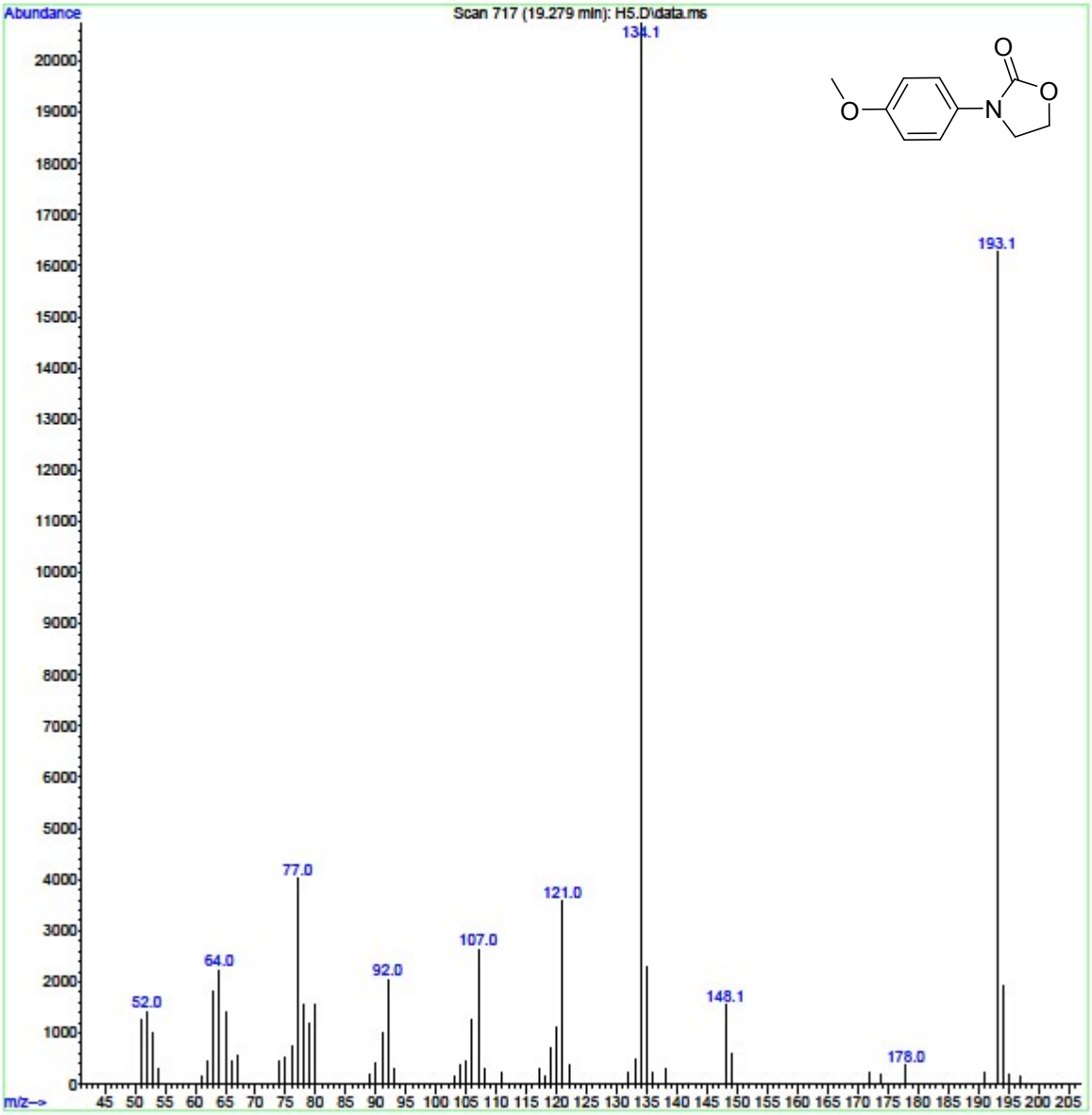
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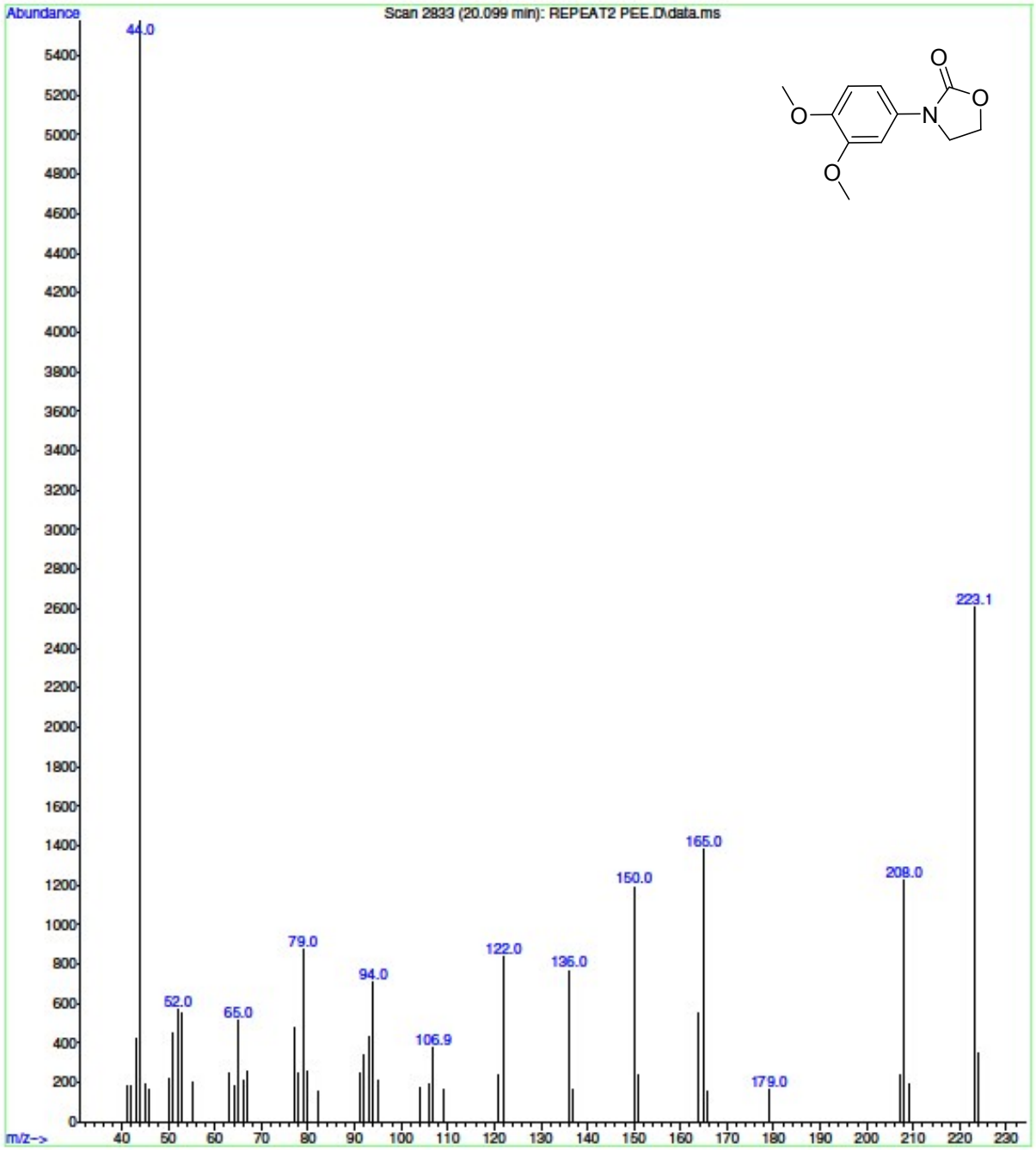
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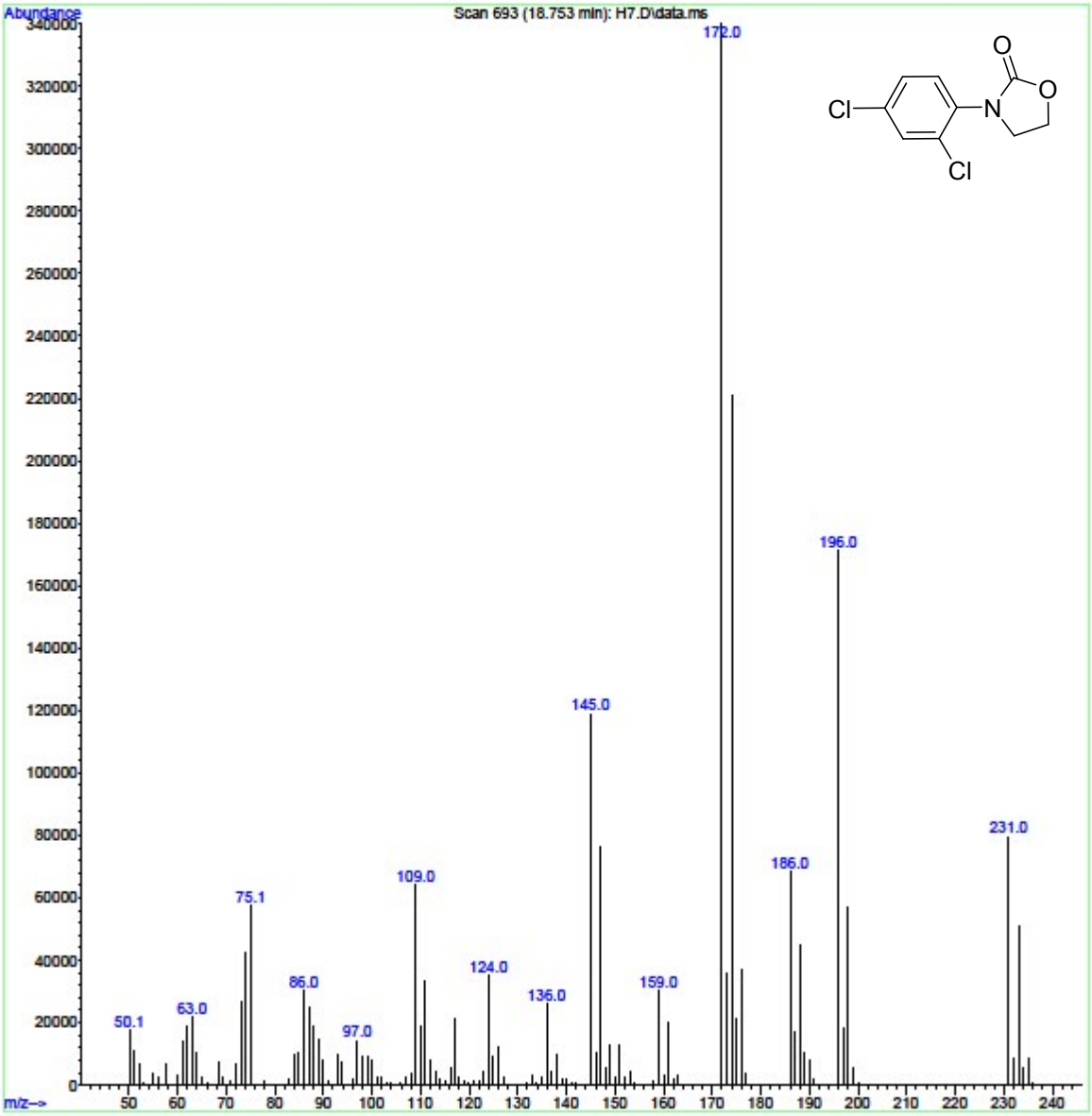
m/z-->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231.0
186.0
109.0
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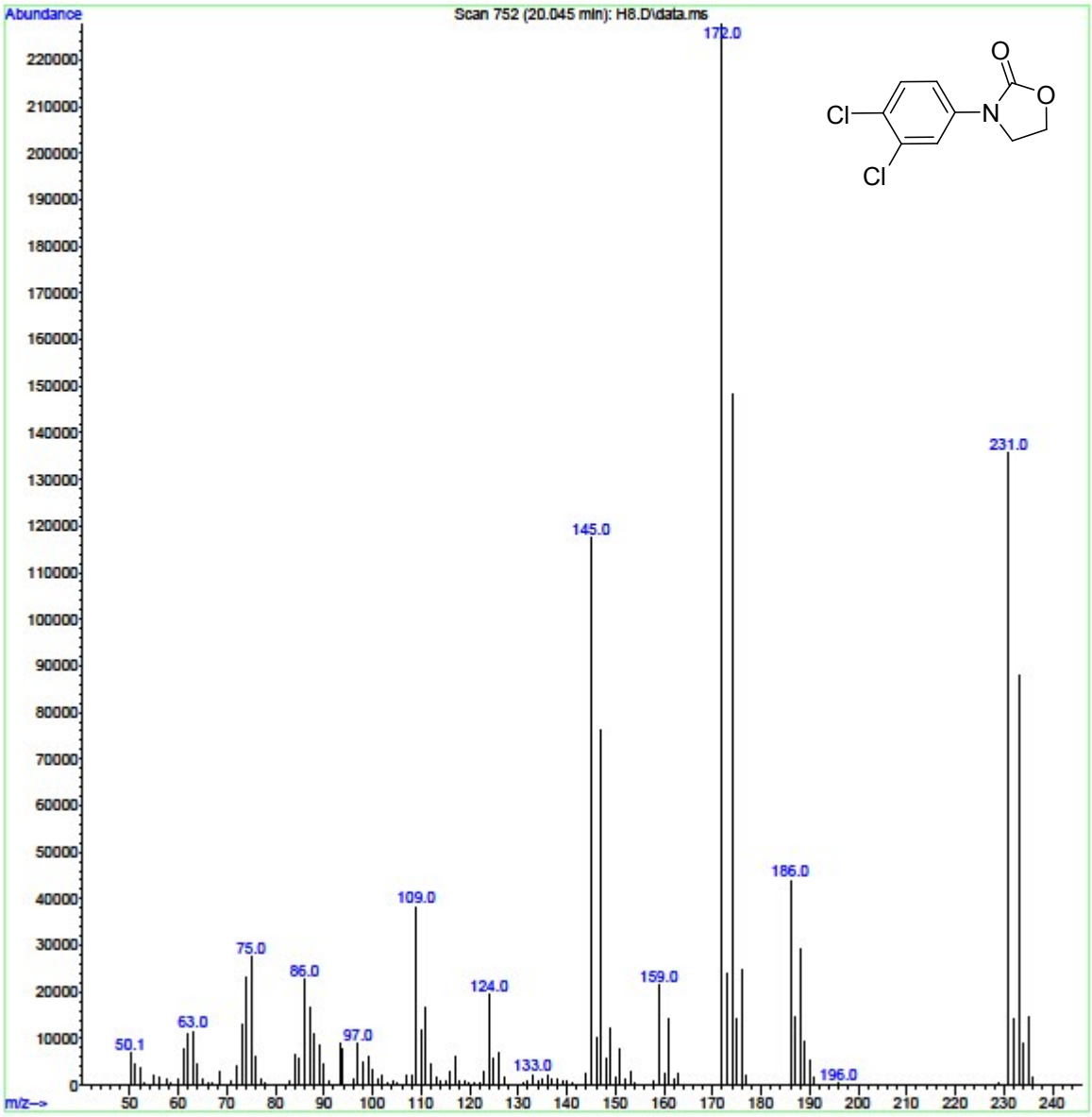
50.1
m/z-->
Cl
Cl
N
O
O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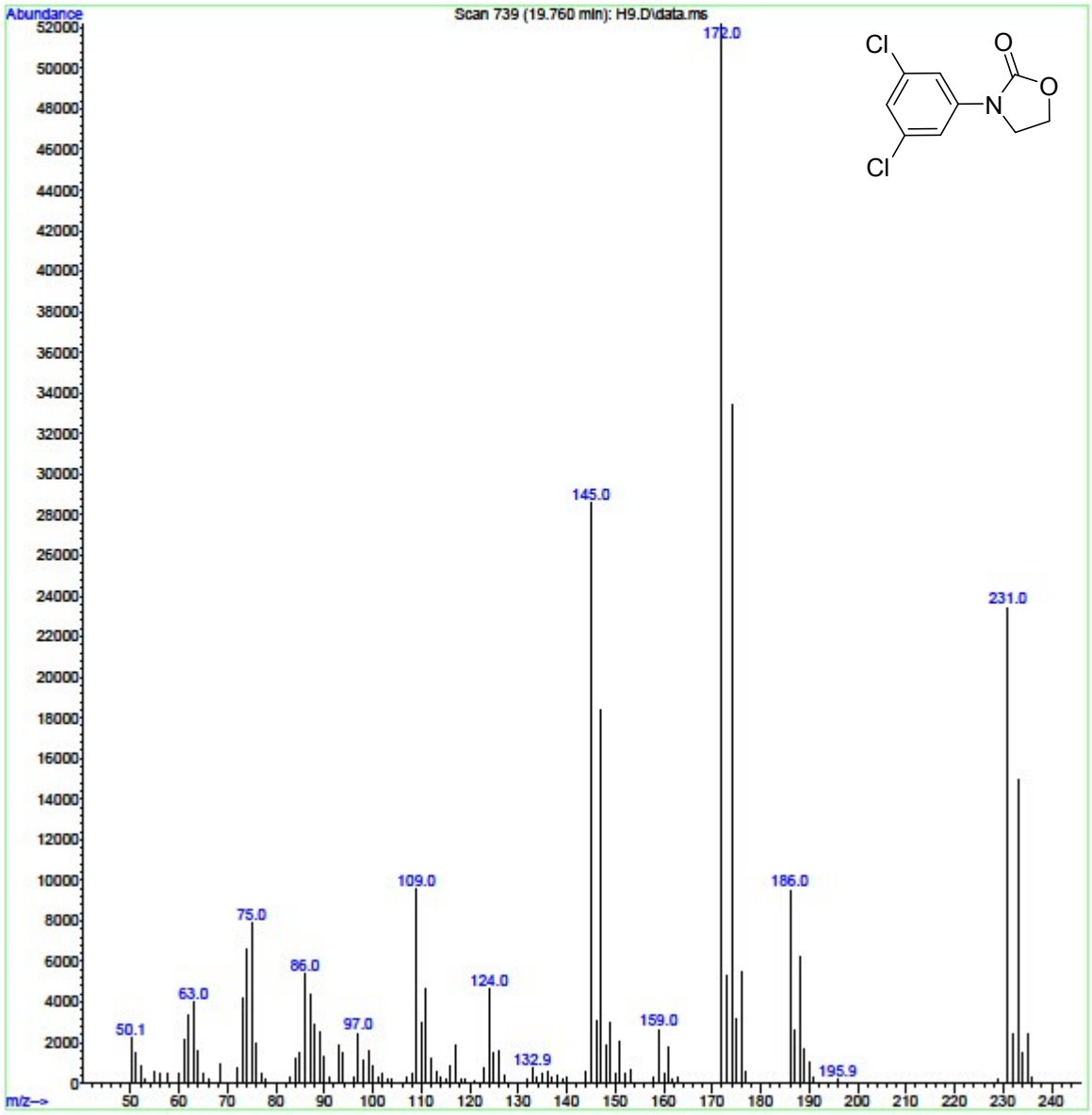
196.0
m/z-->
Cl
Cl
N
O
O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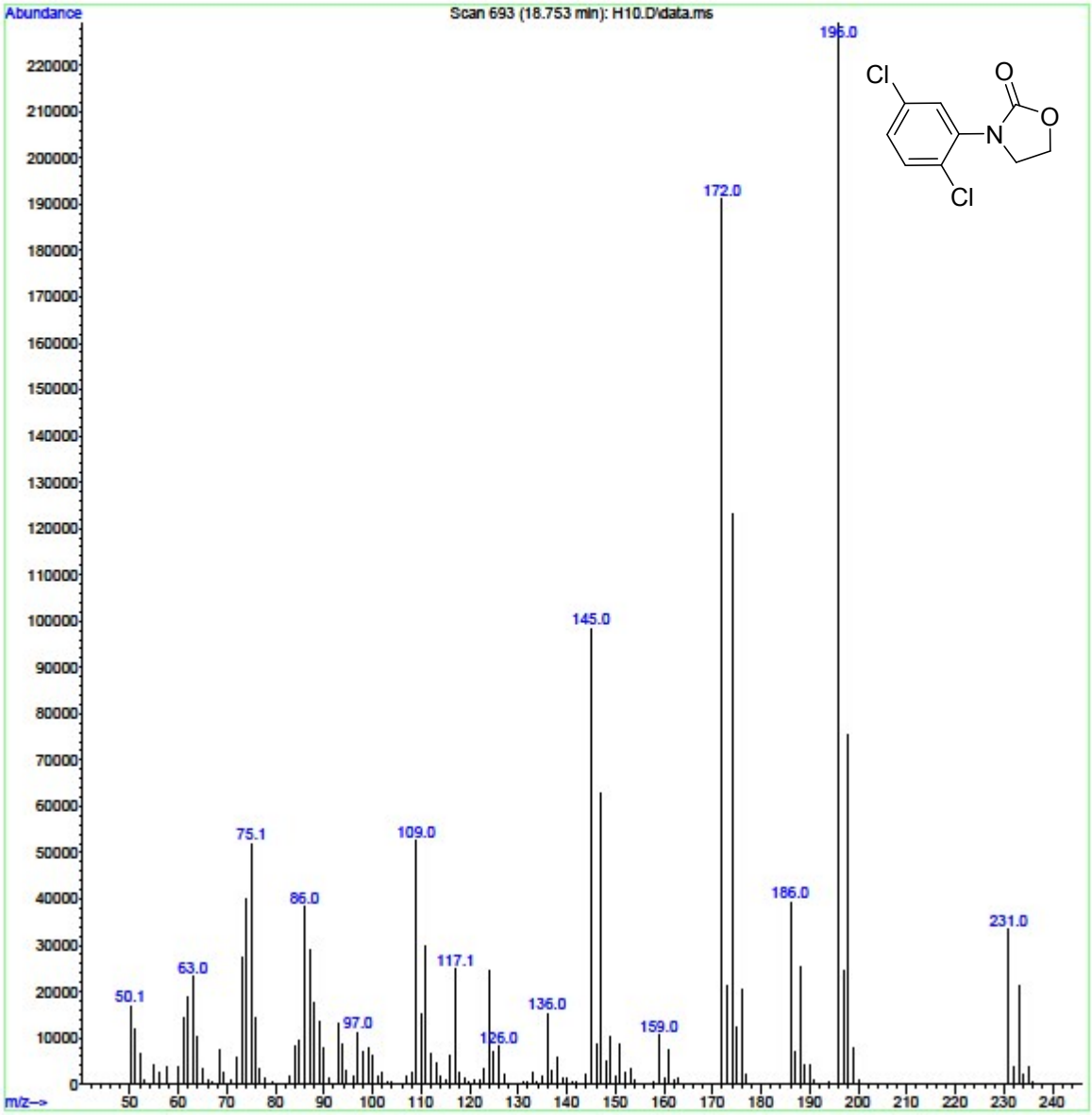
50.1
132.9
195.9
Cl
Cl
O
O
N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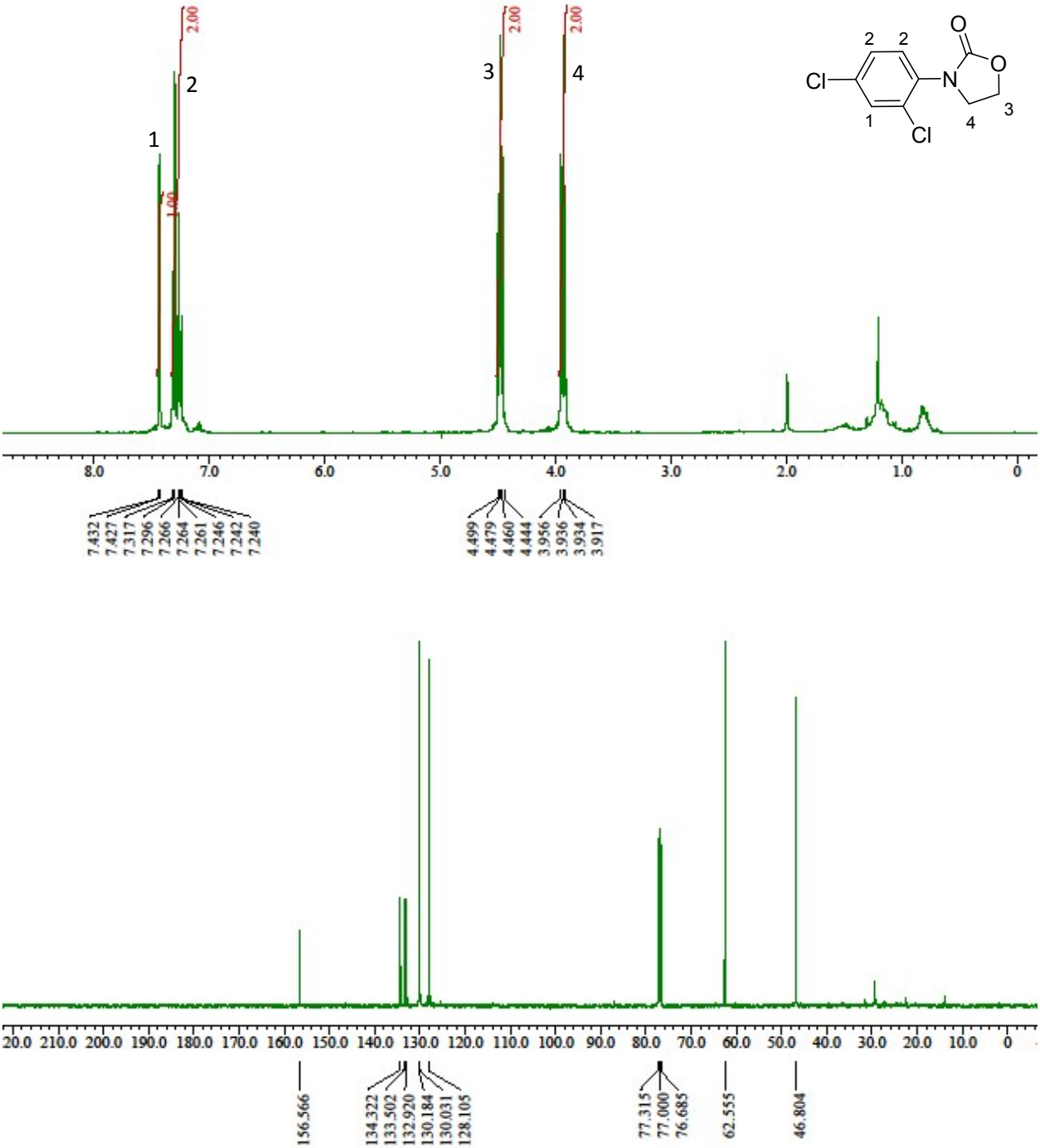
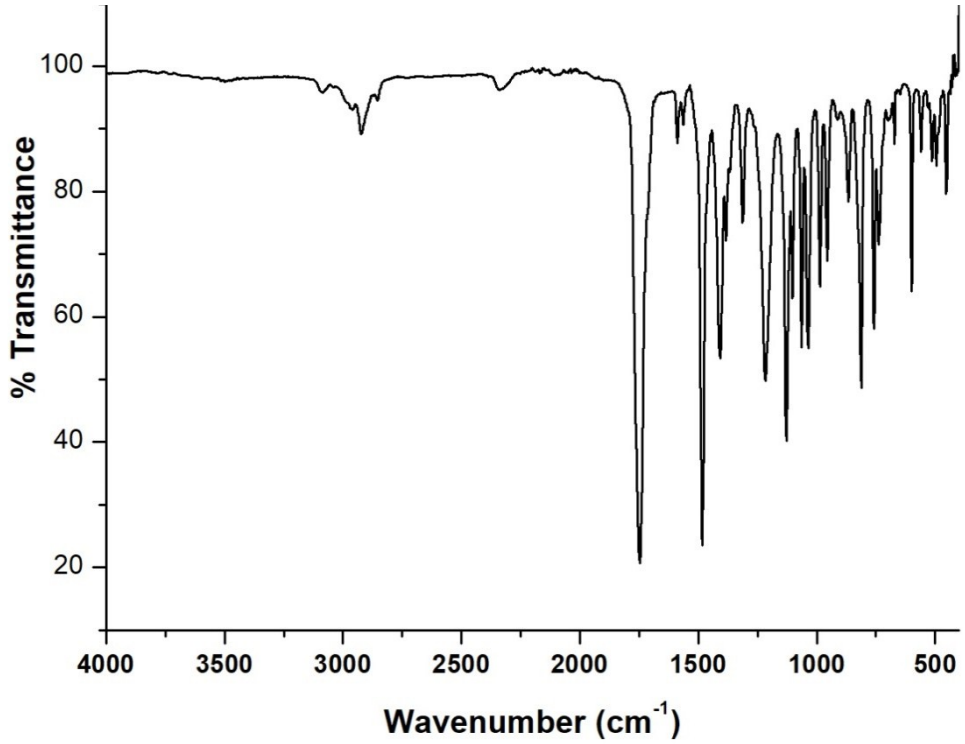
117.1
63.0
50.1
136.0
97.0
126.0
159.0
Cl
O
O
N
Cl

NMR and FT-IR Data

***N*-2, 4-dichlorophenyloxazolidin-2-one** (Table 1, entry 6)

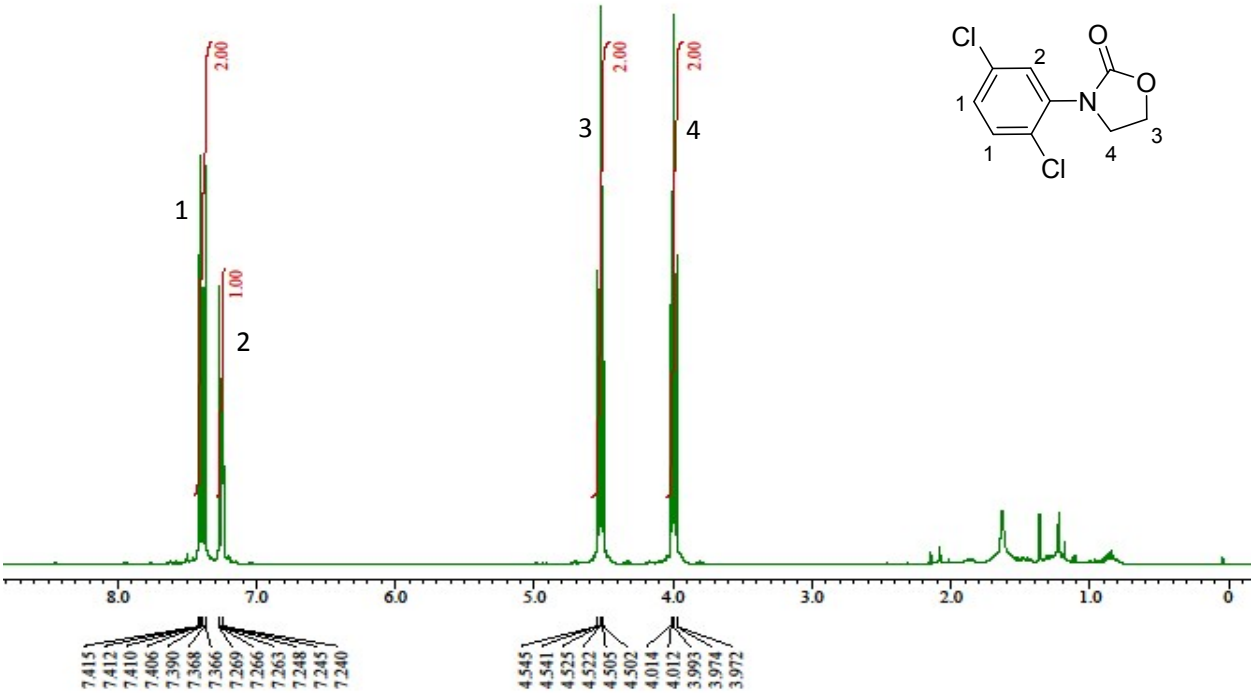
^{1}H NMR (400 MHz, $CDCl_3$, TMS) δ 7.43 (d, *J* = 2.3 Hz, 1H), 7.32-7.24 (m, 2H), 4.47 (q, *J* = 7.3 Hz, 2H), 3.94 (dd, *J* = 8.2, 7.3 Hz, 2H); ^{13}C NMR (100 MHz, $CDCl_3$, TMS) δ 156.6, 134.3, 133.5, 132.9, 130.2, 130.0, 128.1, 62.6, 46.8; IR (cm^{-1}): 3095, 2923, 1747, 1476; M. Pt.: 110-113 °C

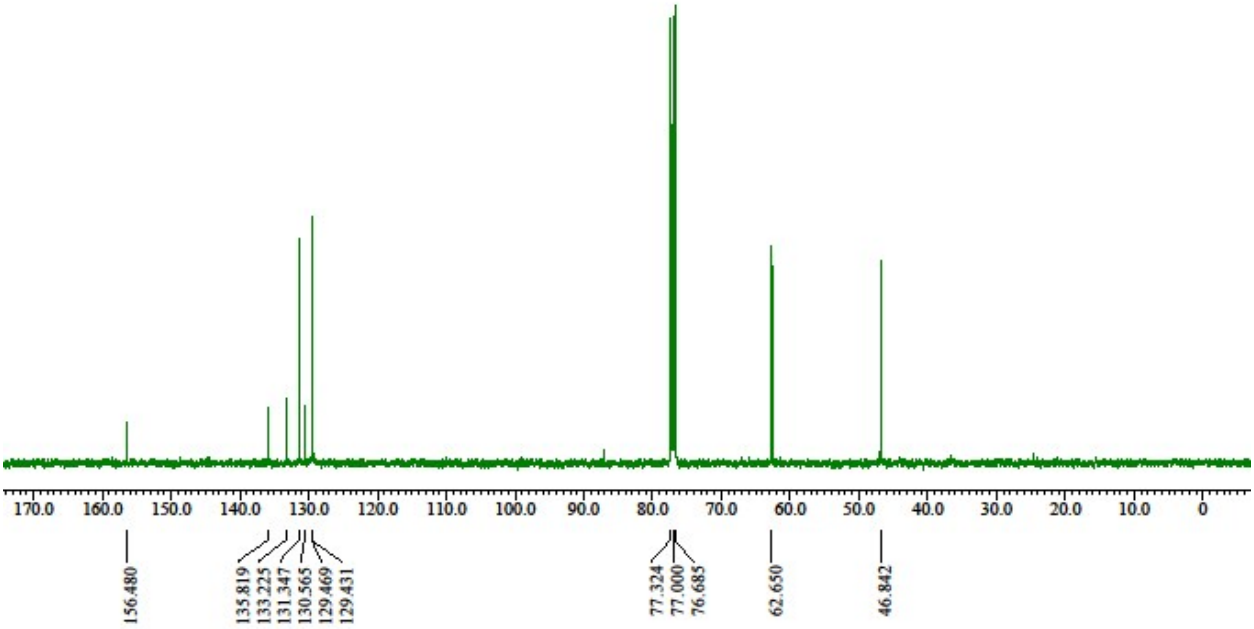


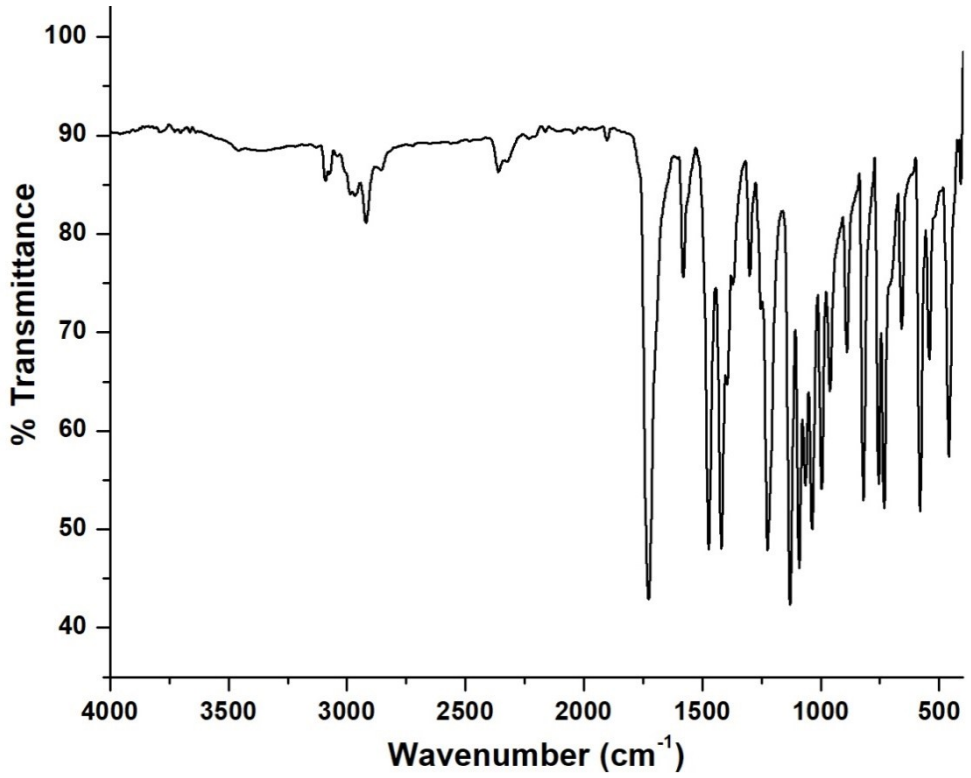


***N*-2, 5-dichlorophenyloxazolidin-2-one** (Table 1, entry 8)

^{1}H NMR (400 MHz, $CDCl_3$, TMS) δ 7.42-7.37 (m, 2H), 7.27-7.24 (dt, *J* = 8.7, 1.4 Hz, 1H), 4.52 (td, *J* = 7.9, 1.2 Hz, 2H), 4.01-3.98 (m, 2H); ^{13}C NMR (100 MHz, $CDCl_3$, TMS) δ 156.5, 135.8, 133.2, 131.4, 130.6, 129.5, 129.4, 62.6, 46.8; IR (cm^{-1}): 3093, 3073, 2921, 1726, 1478; M. Pt.: 110-113 °C







***N*-Phenyloxazolidin-2-one** (Table 1, entry 1)[1-3]

^{1}H NMR (400 MHz, $CDCl_3$, TMS) δ 7.53-7.55 (m, 2H), 7.36-7.39 (m, 2H), 7.14-7.15 (m, 1H), 4.44-4.49 (m, 2H), 4.01-4.07 (m, 2H); ^{13}C NMR (100 MHz, $CDCl_3$, TMS) δ 155.4, 138.4, 129.2, 124.2, 118.4, 61.4, 45.3; IR (cm^{-1}): 3070, 3009, 2918, 1738; M. Pt.: 118-119 ^{o}C

***N*-4-chlorophenyloxazolidin-2-one** (Table 1, entry 2)[1, 4, 5]

^{1}H NMR (400 MHz, $CDCl_3$, TMS) δ 7.47-7.49 (m, 2H), 7.31-7.34 (m, 2H), 4.46-4.50 (m, 2H), 4.00-4.04 (m, 2H); ^{13}C NMR (100 MHz, $CDCl_3$, TMS) δ 155.2, 137.0, 129.4, 129.2, 119.5, 61.4, 45.2; IR (cm^{-1}): 1740. M. Pt.: 118.5-119 °C

***N*-4-bromophenyloxazolidin-2-one** (Table 1, entry 3)[1, 2, 6]

^{1}H NMR (400 MHz, $CDCl_3$, TMS) δ 7.41-7.48 (m, 4H), 4.45-4.49 (m, 2H), 3.99-4.03 (m, 2H); ^{13}C NMR (100 MHz, $CDCl_3$,TMS) δ 155.1, 137.5, 132.1, 119.8, 117.0, 61.4, 45.1; IR (cm^{-1}) 3123, 3071, 3012, 2984, 2953, 2923, 1739, 1590; M. Pt.: 132-133 °C

***N*-4-methylphenyloxazolidin-2-one** (Table 1, entry 4)[2, 5, 7, 8]

^{1}H NMR (400 MHz, $CDCl_3$, TMS) δ 7.42 (d, *J* = 8.4 Hz, 2H), 7.18 (d, *J* = 8.4 Hz, 2H), 4.48 (t, *J* = 8.0 Hz, 2H), 4.04 (t, *J* = 8.0 Hz, 2H), 2.33 (s, 3H). ^{13}C NMR (125 MHz, $CDCl_3$) δ: 155.6, 143.2, 135.9, 134.0, 129.8, 129.0, 118.6, 61.5, 45.6, 21.0. IR (cm^{-1}): 3034, 2925, 1728, 1515; M. Pt.: 91 °C

***N*-4-methoxyphenyloxazolidin-2-one** (Table 1, entry 5)[1, 2, 9]

^{1}H NMR (400 MHz, $CDCl_3$, TMS) δ 7.43(d, *J* = 9.2 Hz, 2H), 6.91(d, *J* = 9.2 Hz, 2H), 4.46 (t, *J* = 8.0 Hz, 2H), 4.01 (t, *J* = 8.0 Hz, 2H), 3.78 (s, 3H). ^{13}C NMR (100 MHz, $CDCl_3$, TMS) δ 156.5, 155.7, 131.6, 120.4, 114.4, 61.4, 55.6, 45.8; IR (cm^{-1}): 2981, 2972, 2890, 2839, 1723, 1513; M. Pt.: 112-114 °C

***N*-3,5-dichlorophenyloxazolidin-2-one** (Table 1, entry 9)[7]

^{1}H NMR (500 MHz, $CDCl_3$, TMS) δ 7.52 (s, 2H), 7.15 (s, 1H), 4.53 (t, *J* = 8.0 Hz, 2H), 4.05 (t, *J* = 8.0 Hz, 2H).

***N*-2-nitrophenyloxazolidin-2-one** (Table 1, entry 11)[10, 11]

^{1}H NMR (400 MHz, $CDCl_3$, TMS): δ 4.10 (t, *J* = 7.8 Hz, 2H), 4.59 (t, *J* = 7.8 Hz, 2H), 7.44-7.49 (m, 2H), 7.67 (dd, *J* = 7.8, 7.8 Hz, 1H), 7.67 (d, *J* = 8.2 Hz, 1H); ^{13}C NMR (60 MHz, $CDCl_3$, TMS): δ 47.4, 62.8, 126.0, 128.0, 128.1, 131.6, 133.9, 145.6, 156.2; M. Pt.: 165 °C

***N*-4-nitrophenyloxazolidin-2-one** (Table 1, entry 13)[3]

^{1}H NMR (400 MHz, $CDCl_3$, TMS) δ 8.25 (d, *J* = 9.2 Hz, 2H), 7.72 (d, *J* = 9.6 Hz, 2H), 4.54 (t, *J* = 8.0 Hz, 2H), 4.12 (t, *J* = 8.0 Hz, 2H); ^{13}C NMR (100 MHz, $CDCl_3$, TMS) δ 143.9, 126.6, 125.2, 117.6, 111.4, 61.6, 45.1; IR (cm^{-1}) 3445, 2925, 2853, 1761, 1596, 1514, 1480; M. Pt.: 153-156 ˚C

***N*-4-acetylphenyloxazolidin-2-one** (Table 1, entry 14)[2, 9]

^{1}H NMR (300 MHz, $CDCl_3$) δ 8.03-7.88 (m, 2H), 7.70-7.57 (m, 2H), 4.52(dd, *J* = 8.9, 7.0 Hz, 2H), 4.10 (dd, *J* = 8.9, 7.0 Hz, 2H), 2.58 (s, 3H); ^{13}C NMR (75 MHz, $CDCl_3$) δ 197.4, 155.4, 142.9, 133.1, 130.2, 117.8, 61.9, 45.4, 27.0; IR (cm^{-1}): 2972, 2913, 1745, 1735, 1665; M. Pt.: 146-147 °C

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