

Supporting information:

Highly efficient and reusable MCM-41-immobilized bipyridine copper catalyst for the C–Se coupling of organoboronic acids with diaryl diselenides

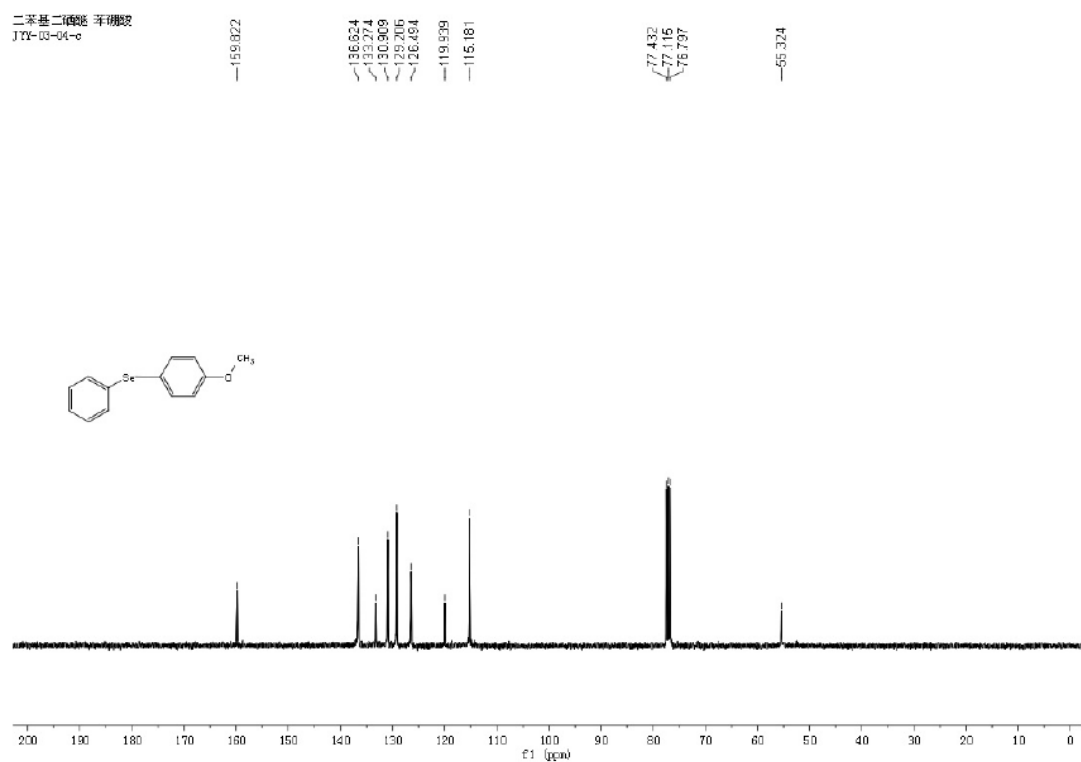
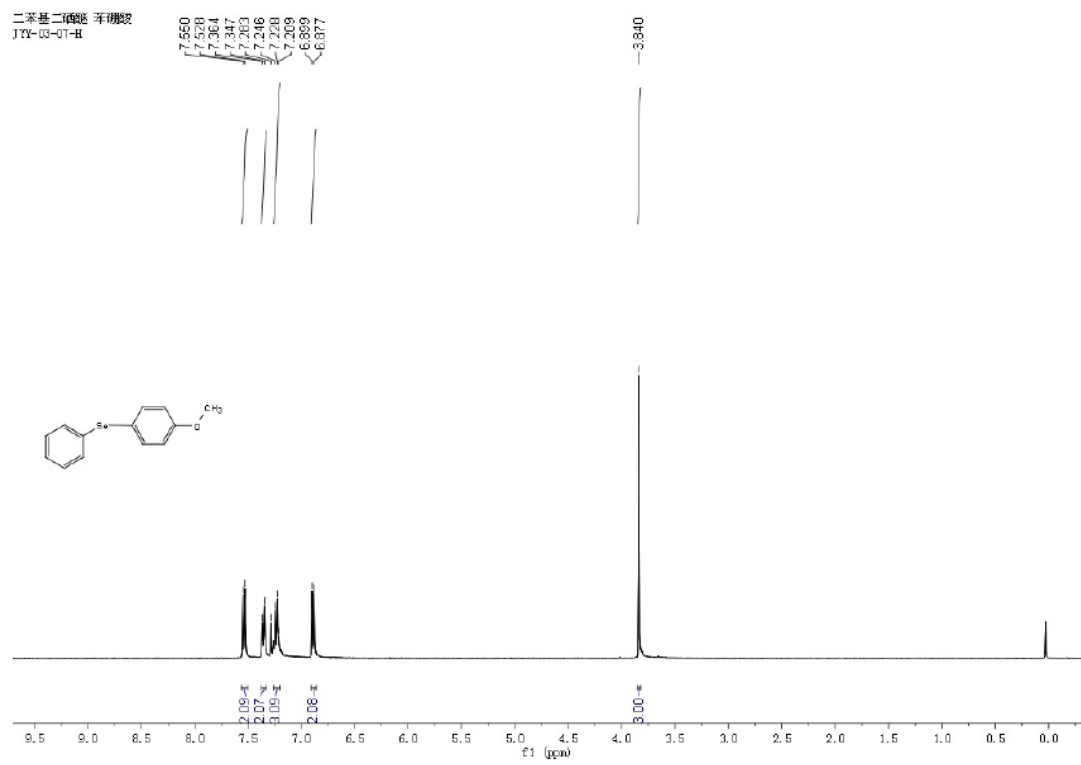
Hong Zhao,^{a,b} Yuanyuan Jiang,^a Qiurong Chen^a and Mingzhong Cai^{a,*}

^a *Key Laboratory of Functional Small Organic Molecule, Ministry of Education and College of Chemistry & Chemical Engineering, Jiangxi Normal University, Nanchang 330022, P. R. China*

^b *School of Chemistry and Chemical Engineering, Guangdong Pharmaceutical University, Guangzhou 510006, P. R. China*

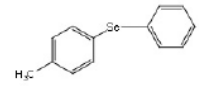
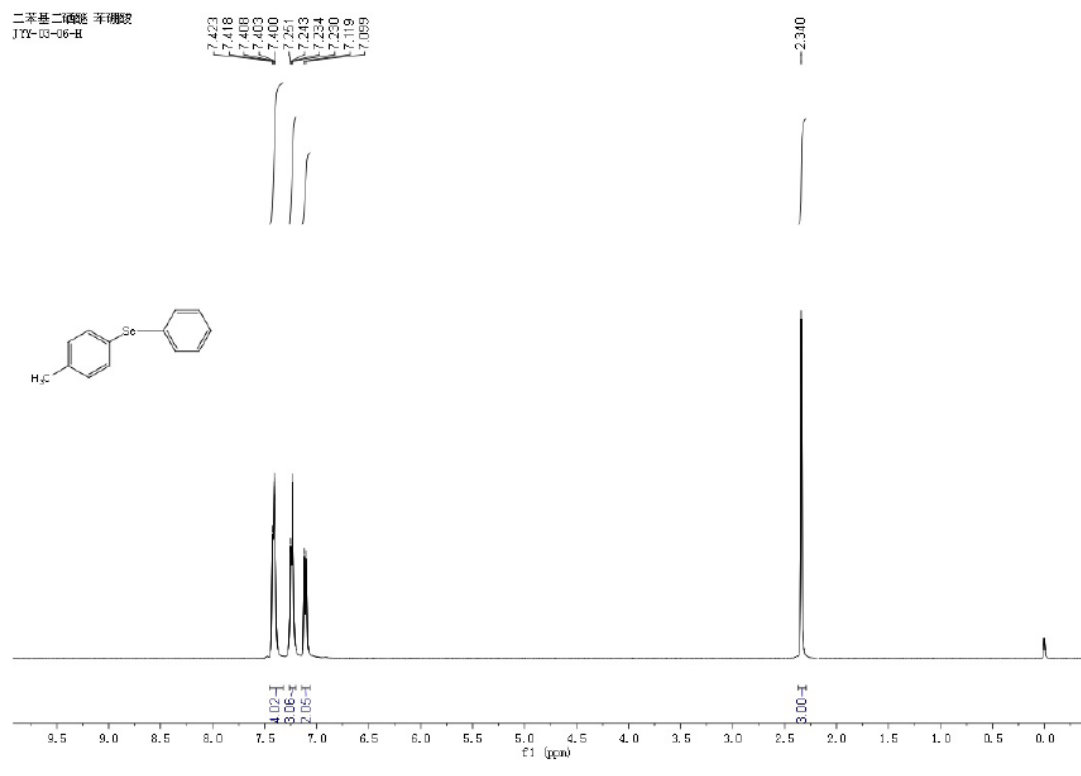
Fax: (+86)-791-8812-0388; E-mail: mzcai@jxnu.edu.cn

¹H NMR and ¹³C NMR spectra of compounds 3a-3z.

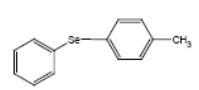
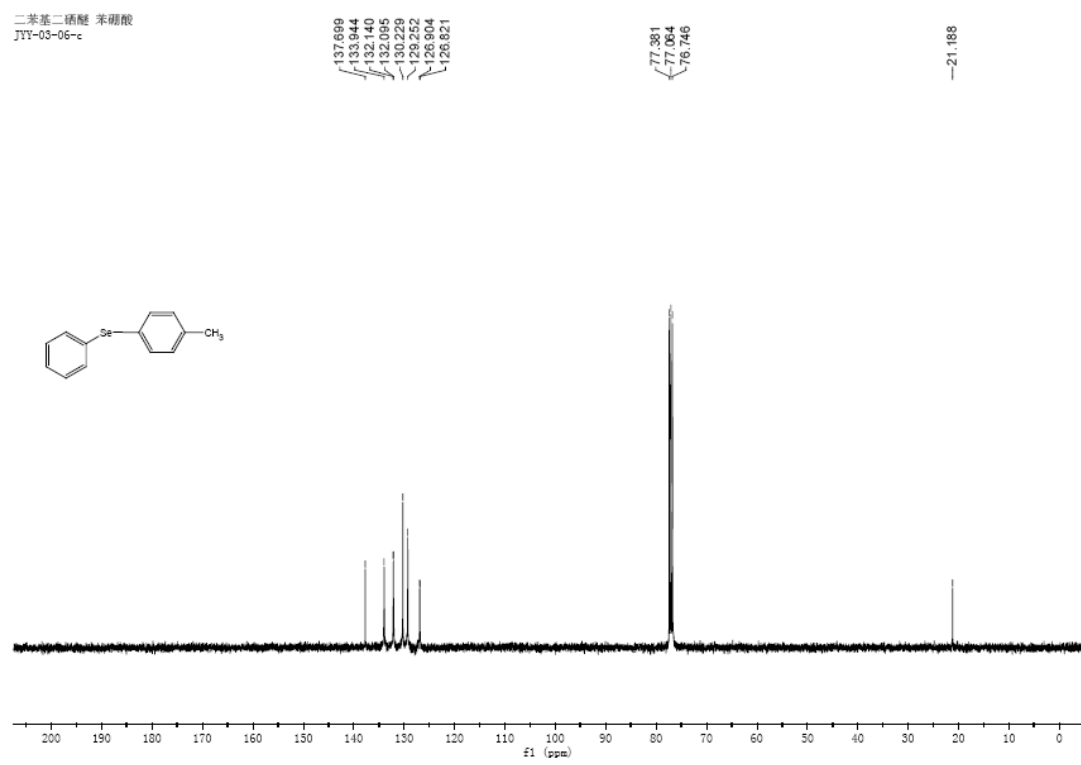


^1H NMR and ^{13}C NMR spectra of compound **3a**

二苯基二硒醚 苯硼酸
JZY-03-06-H



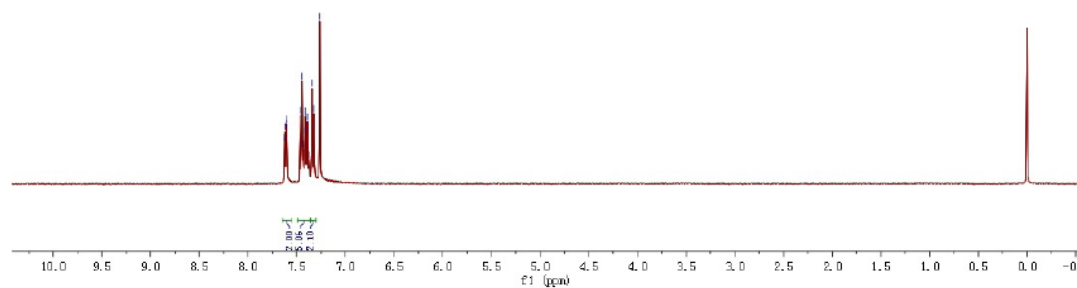
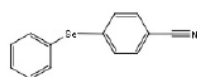
二苯基二硒醚 苯硼酸
JZY-03-06-c



¹H NMR and ¹³C NMR spectra of compound **3b**

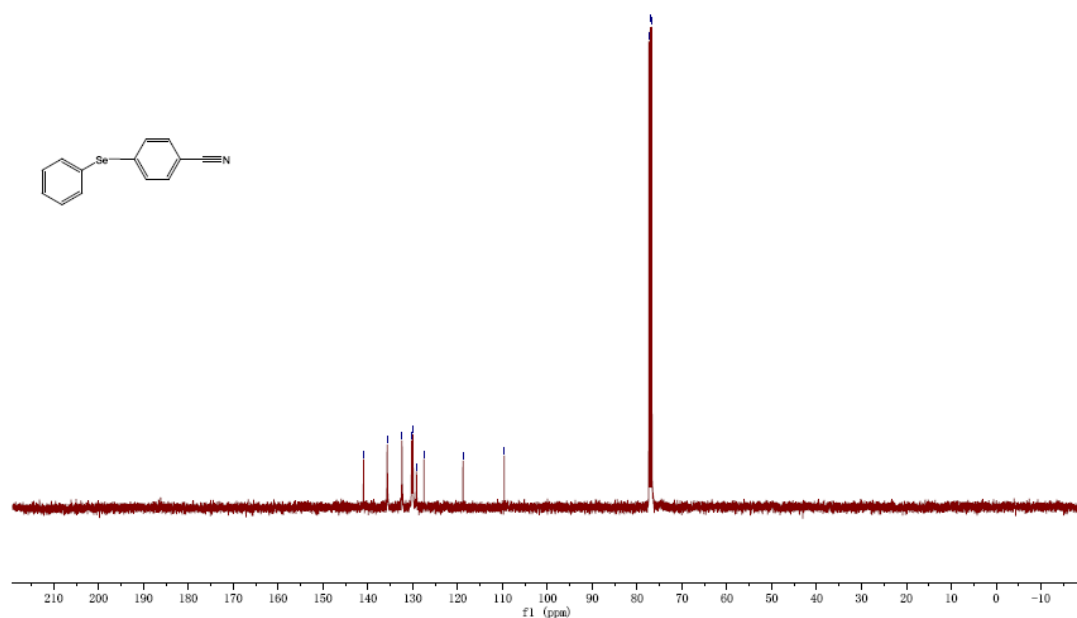
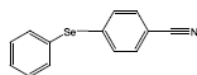
JY-03-12

7.523
7.519
7.503
7.399
7.366
7.345
7.341
7.315
7.309
7.300
7.374
7.342
7.321
7.262

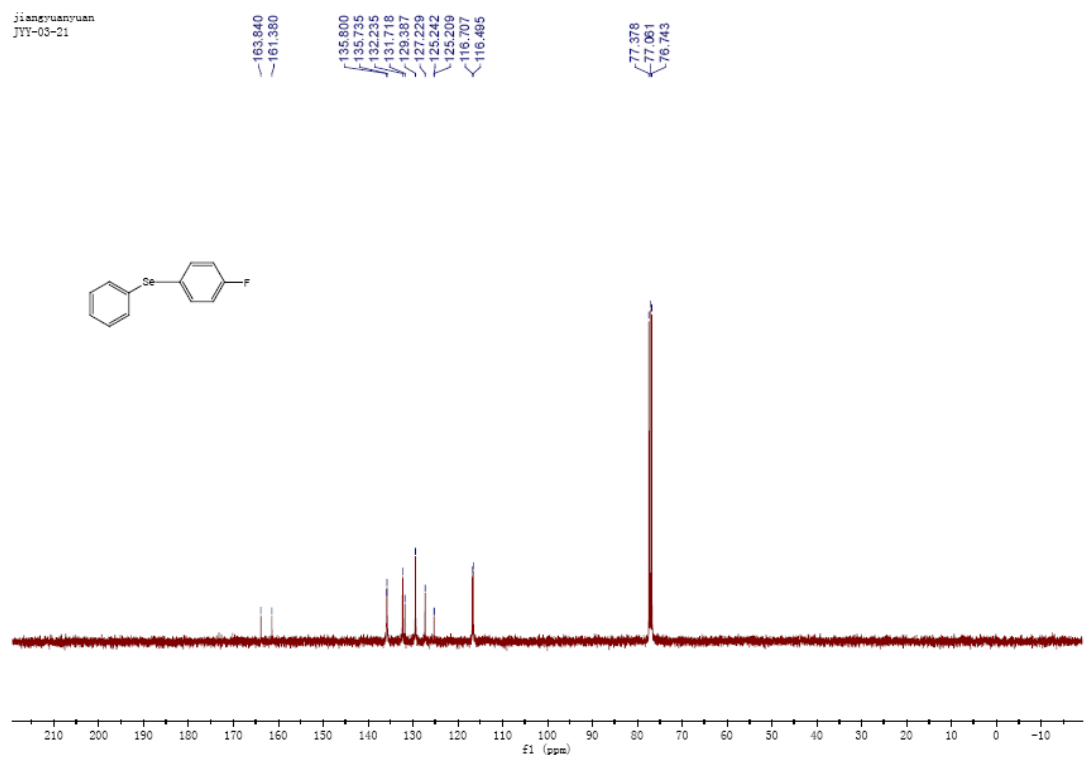
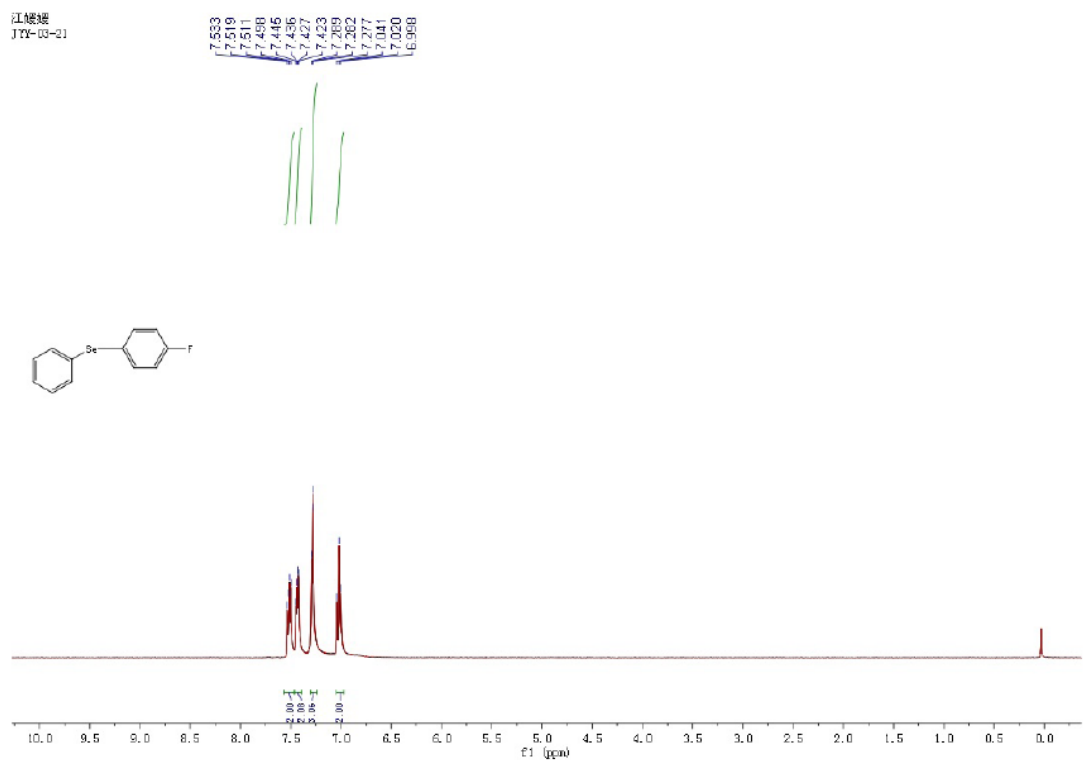


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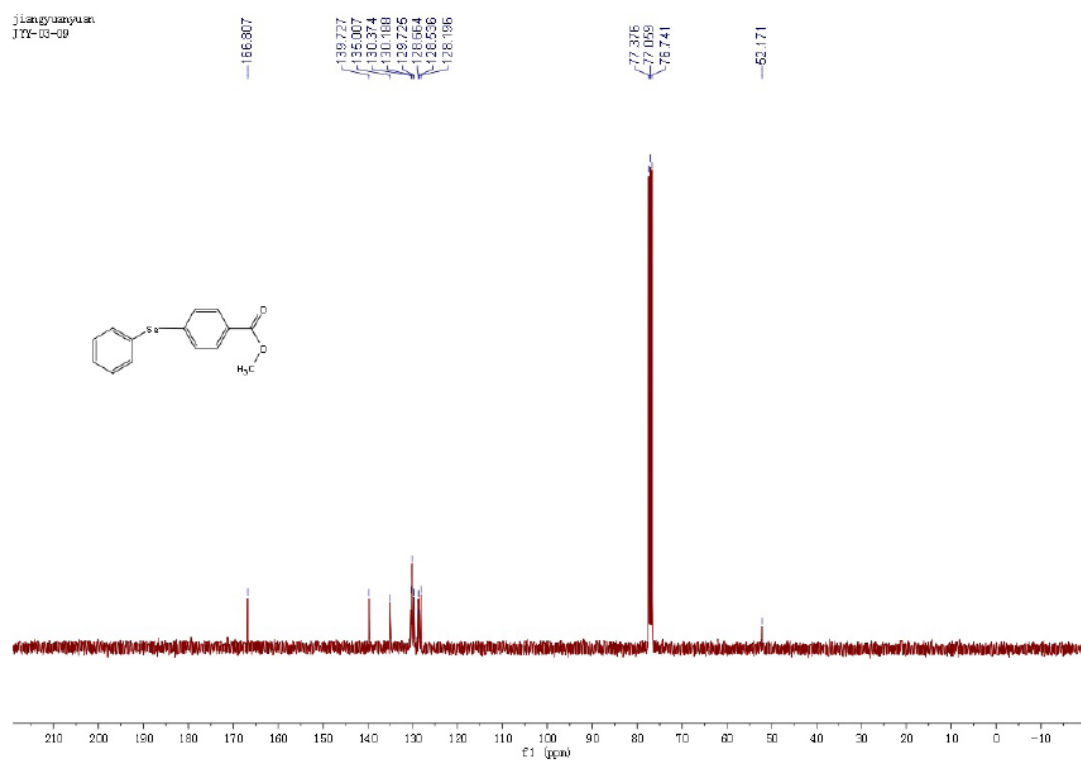
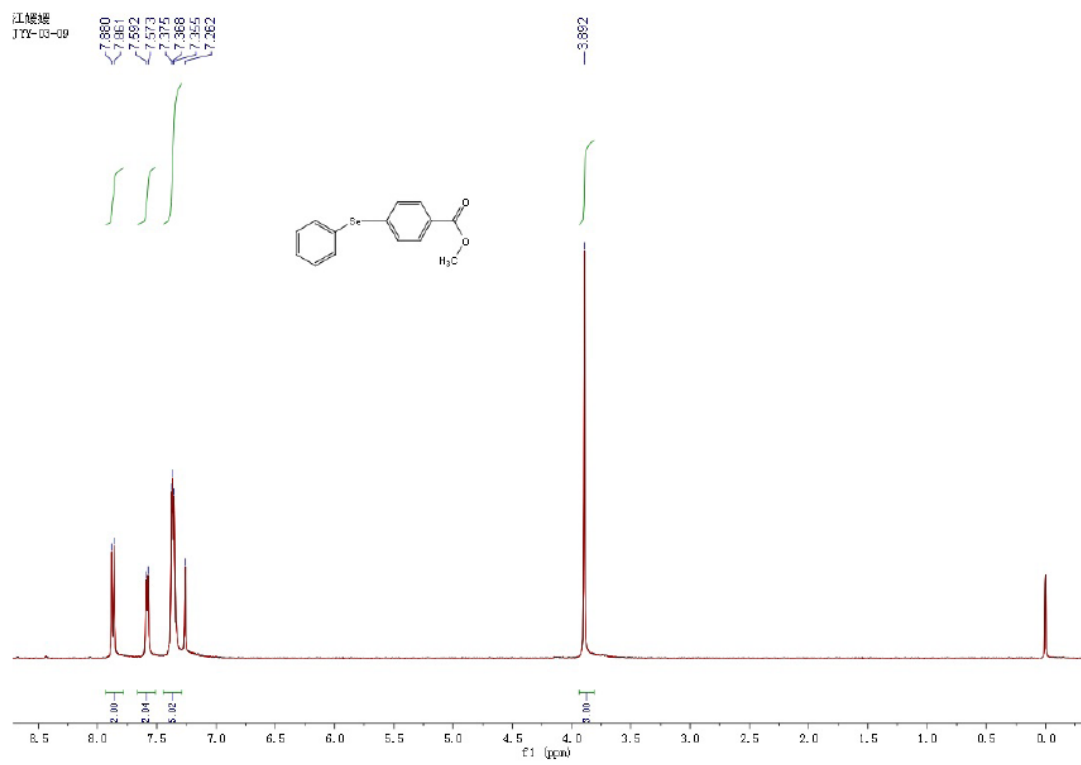
140.868
135.680
132.398
130.227
129.970
129.182
127.993
118.801
109.625
77.377
77.059
76.742



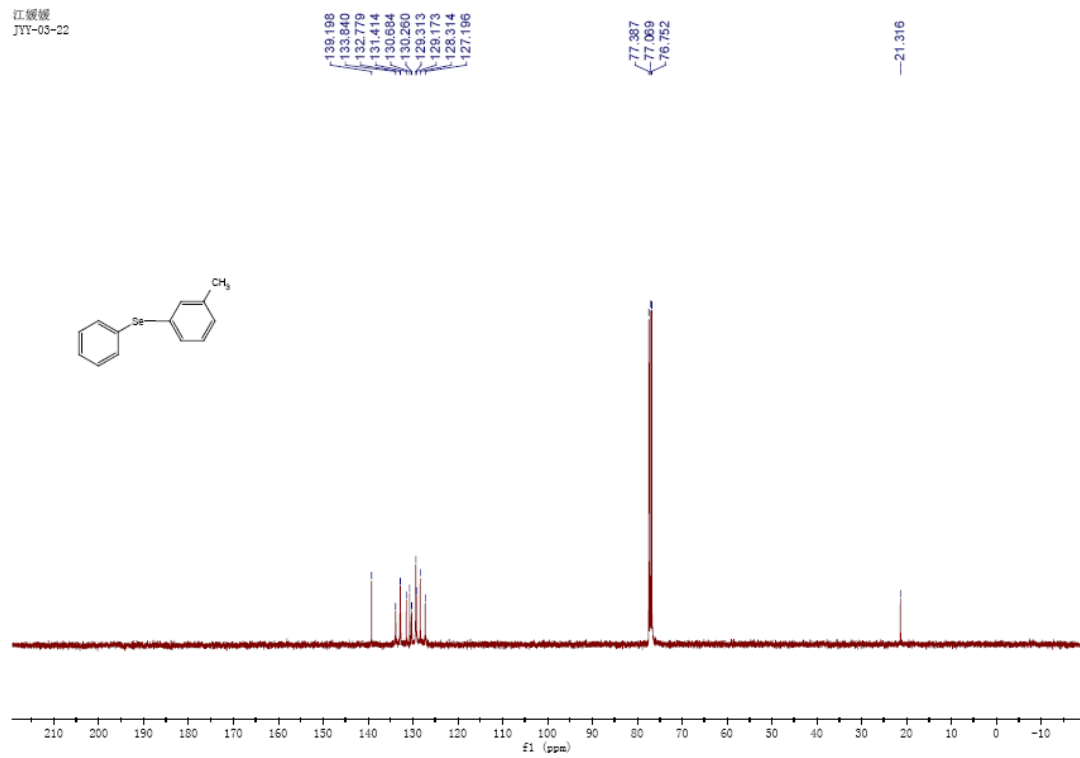
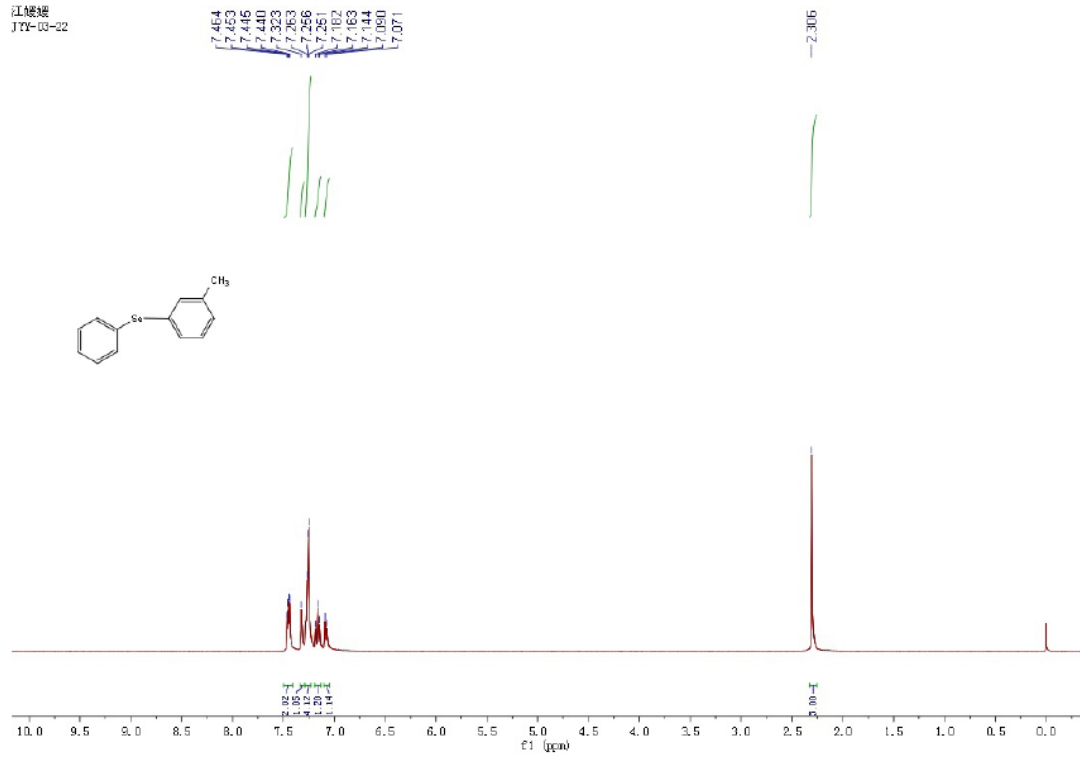
¹H NMR and ¹³C NMR spectra of compound 3d



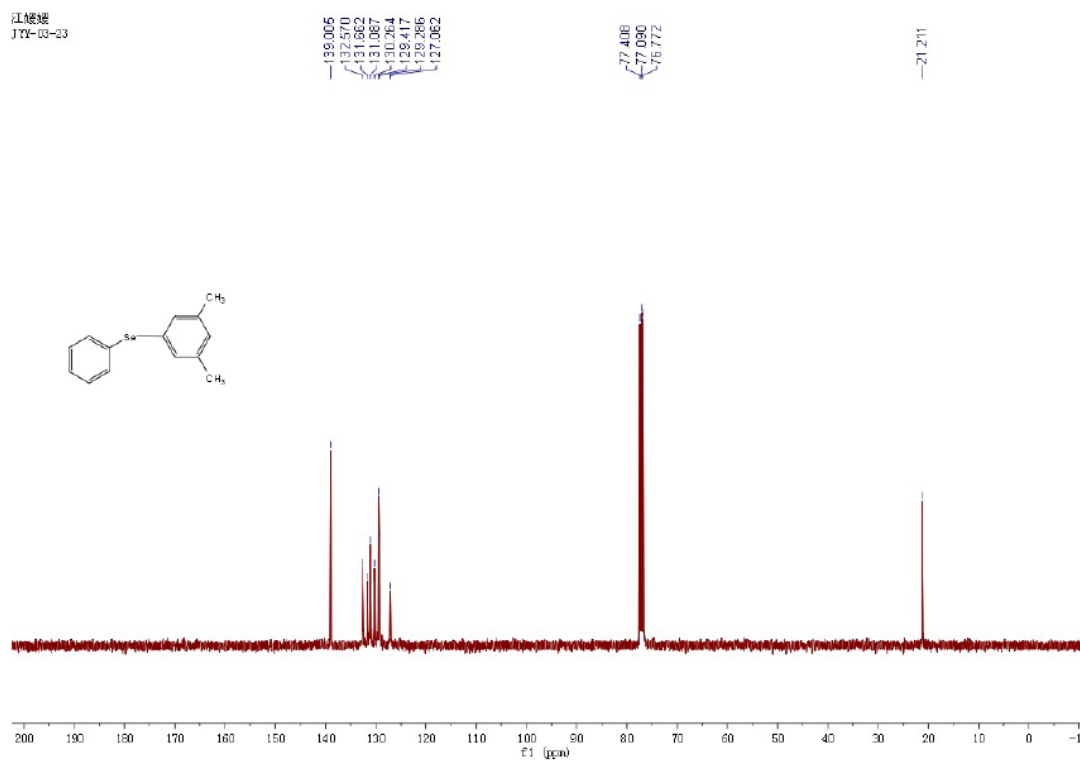
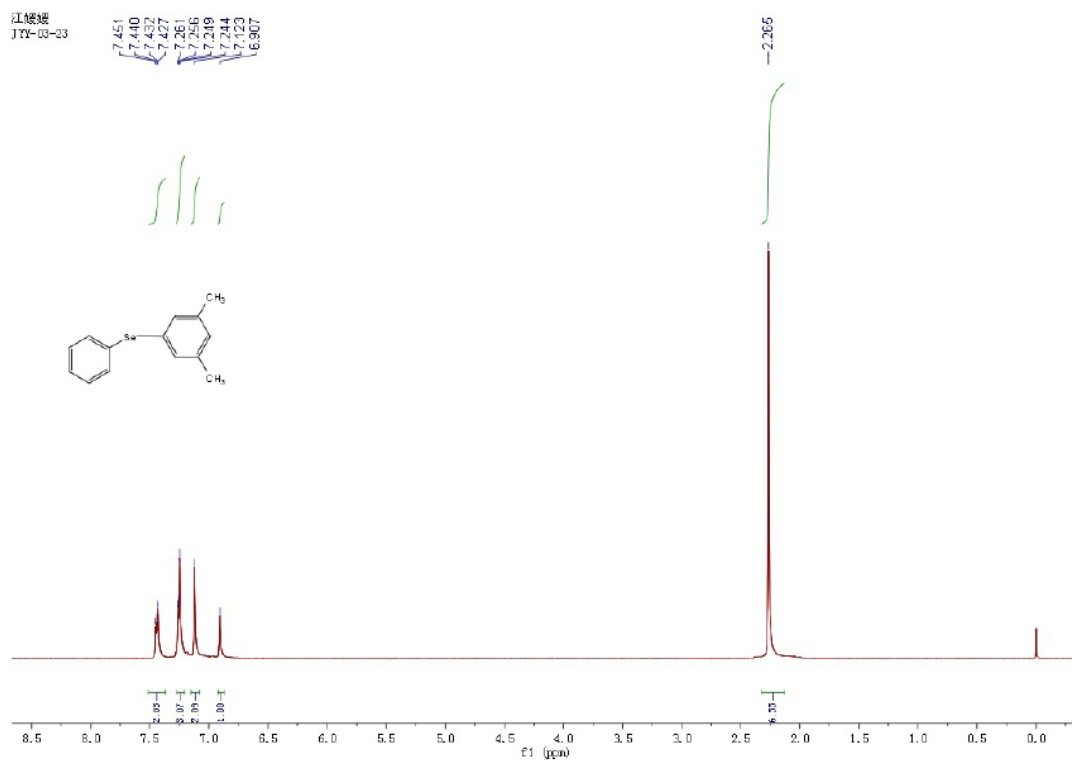
¹H NMR and ¹³C NMR spectra of compound **3e**



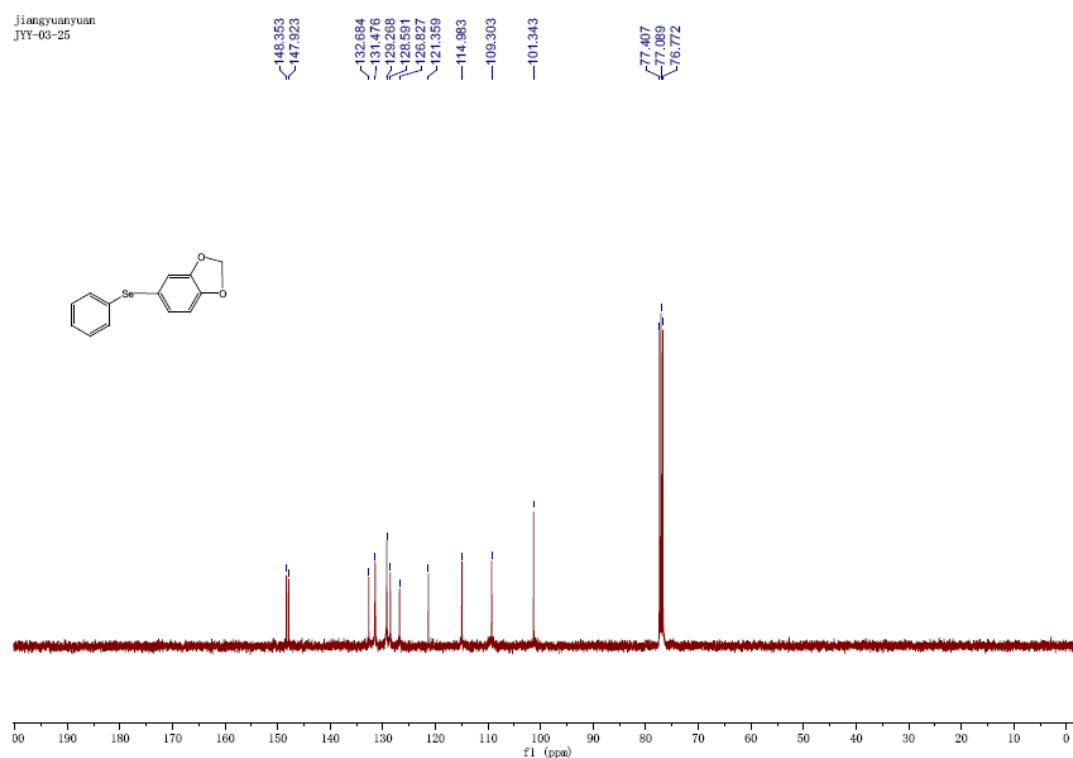
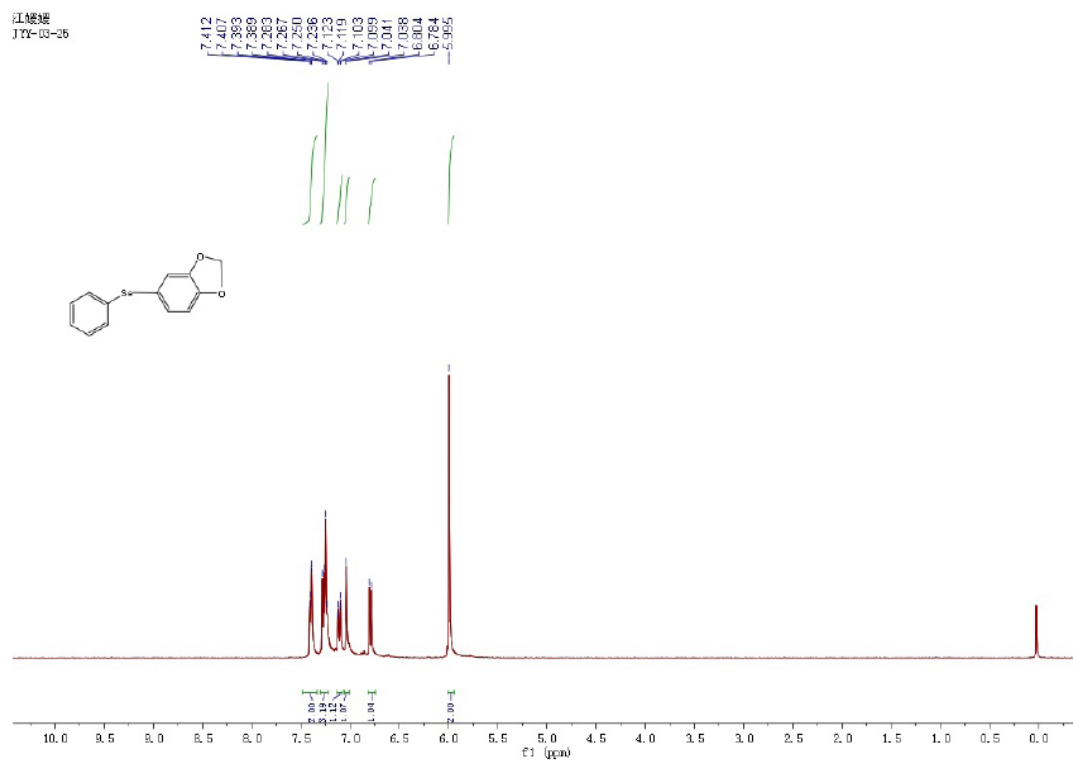
^1H NMR and ^{13}C NMR spectra of compound **3f**



^1H NMR and ^{13}C NMR spectra of compound **3g**



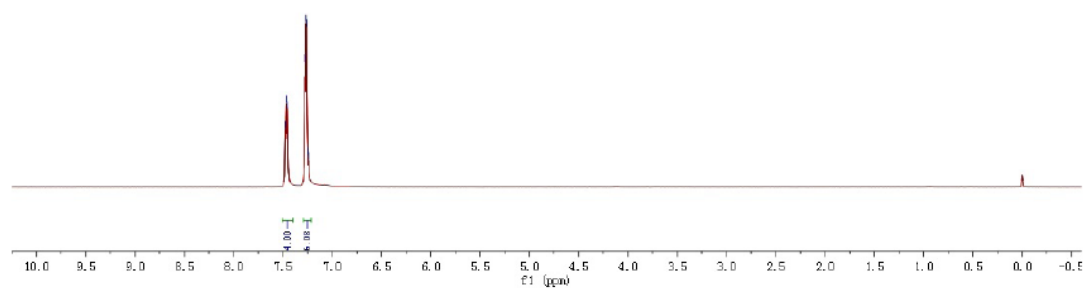
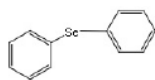
^1H NMR and ^{13}C NMR spectra of compound **3h**



^1H NMR and ^{13}C NMR spectra of compound **3i**

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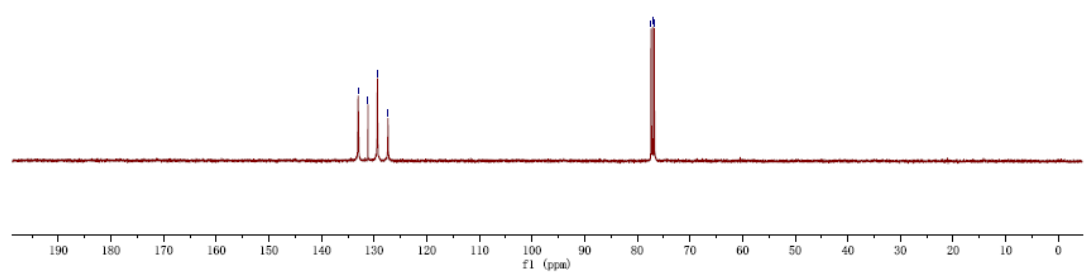
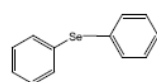
7.477
7.468
7.459
7.453
7.273
7.264
7.240
7.210



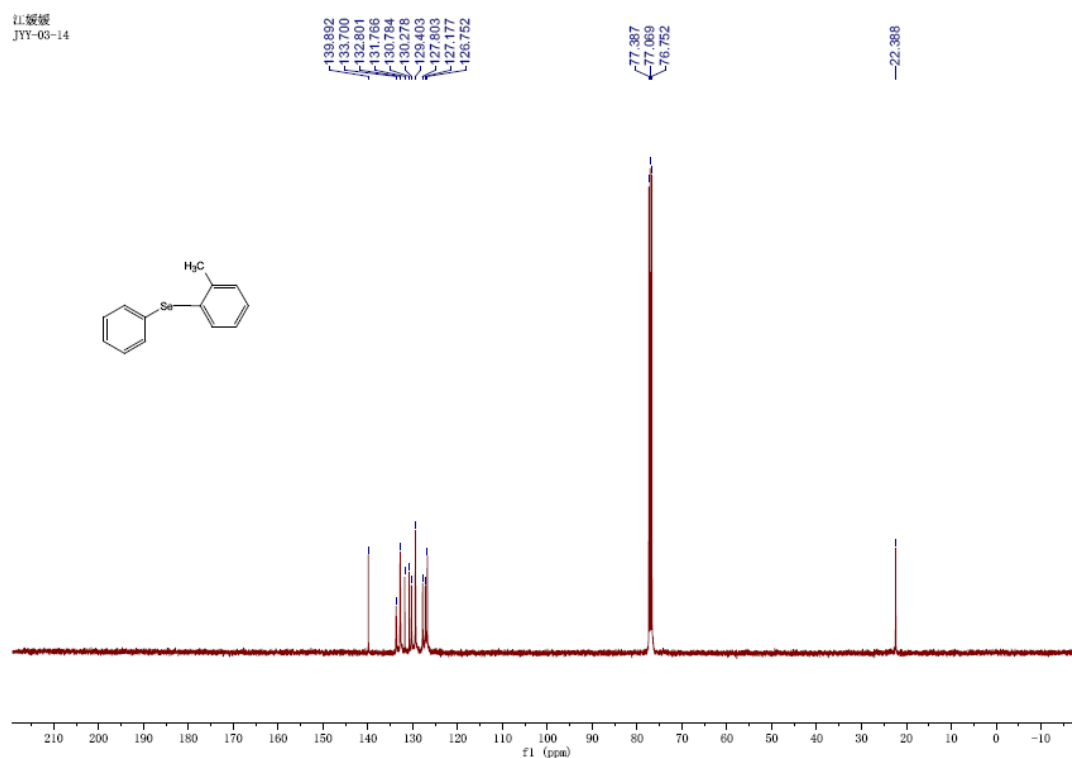
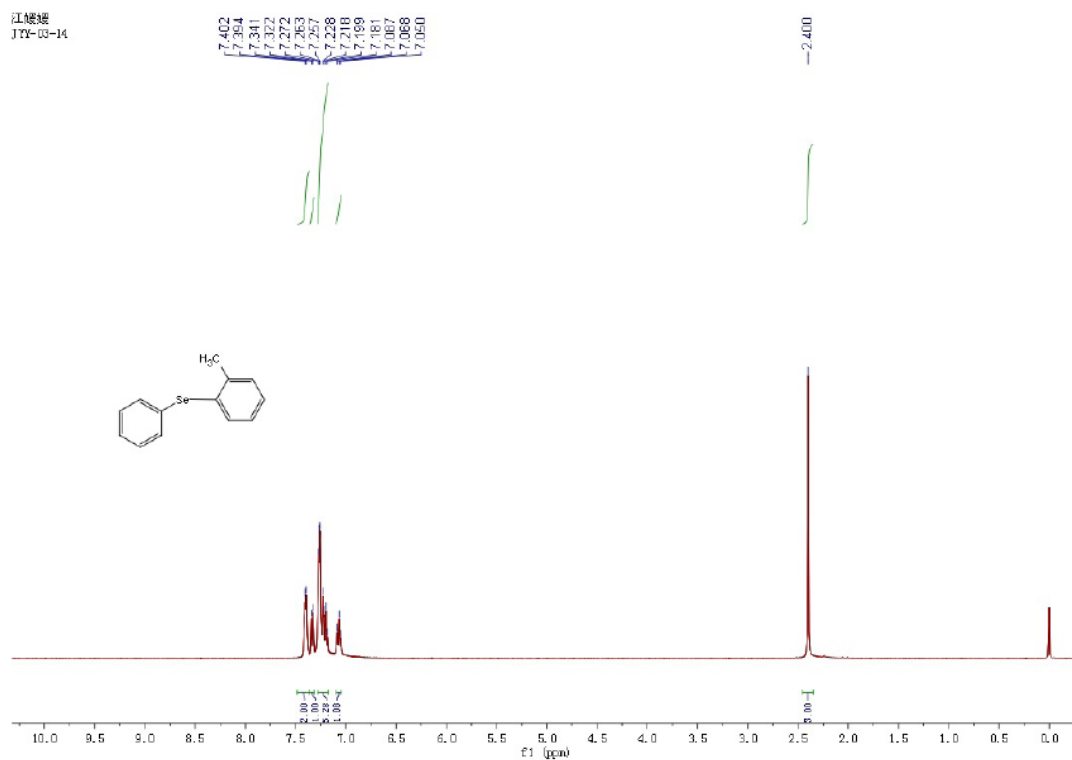
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133.042
131.185
129.377
127.361

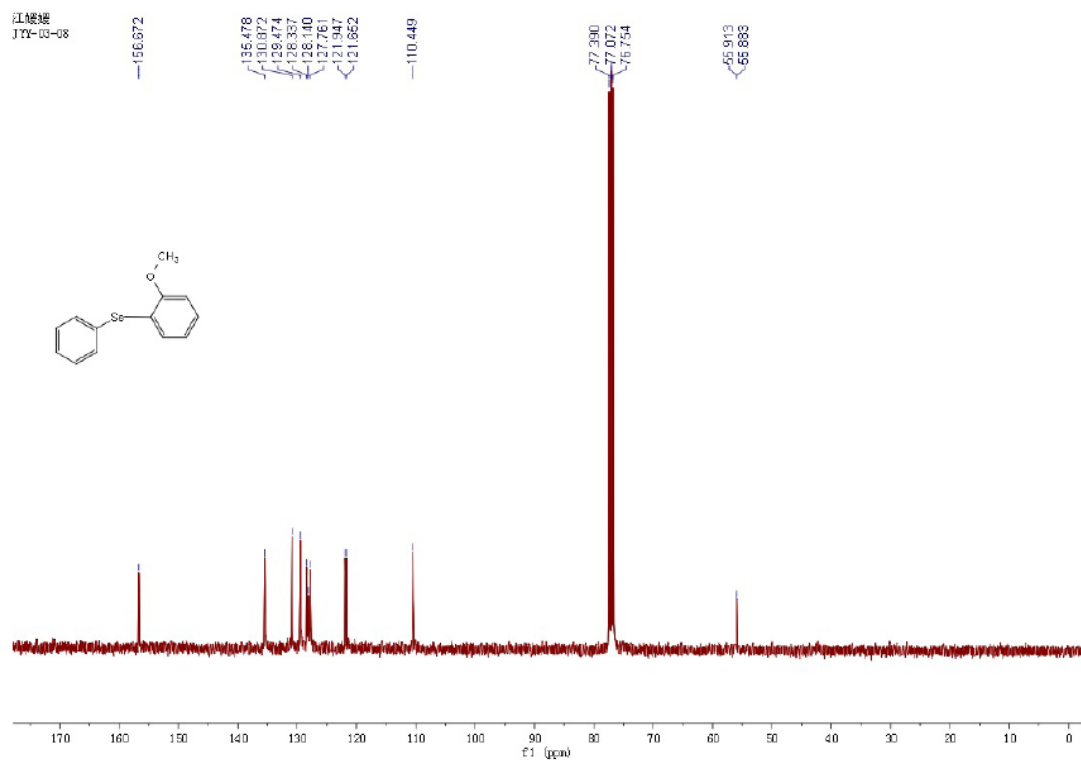
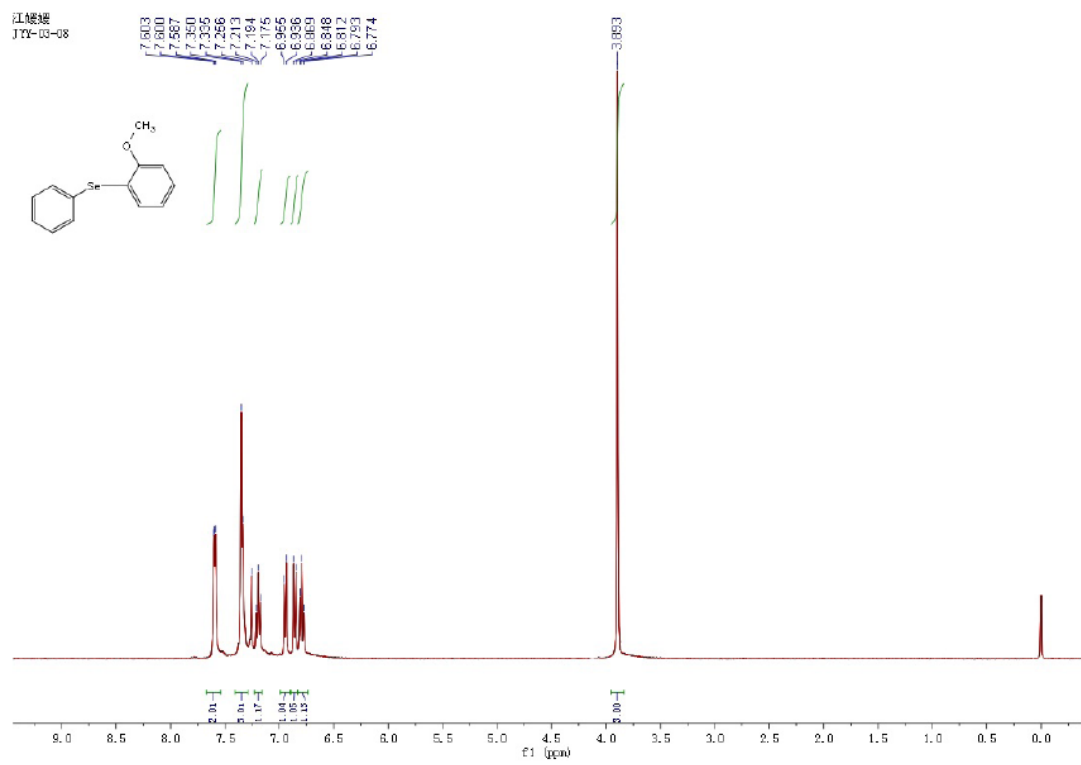
77.406
77.089
76.771



^1H NMR and ^{13}C NMR spectra of compound **3j**



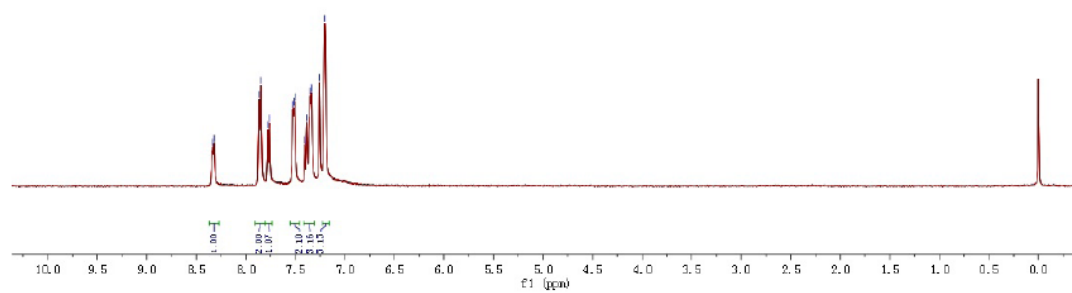
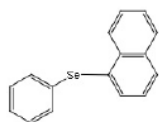
^1H NMR and ^{13}C NMR spectra of compound **3k**



^1H NMR and ^{13}C NMR spectra of compound **31**

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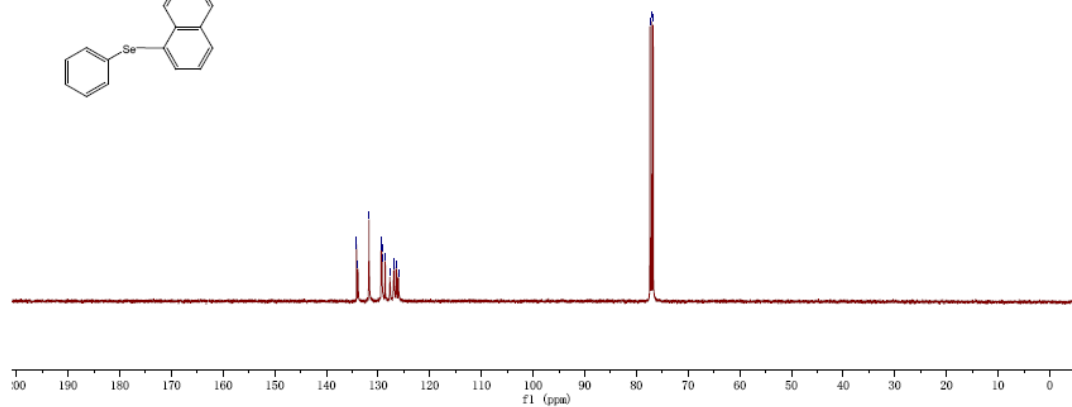
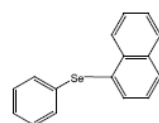
8.335
8.331
7.967
7.947
7.777
7.759
7.577
7.560
7.400
7.384
7.349
7.330
7.266
7.204



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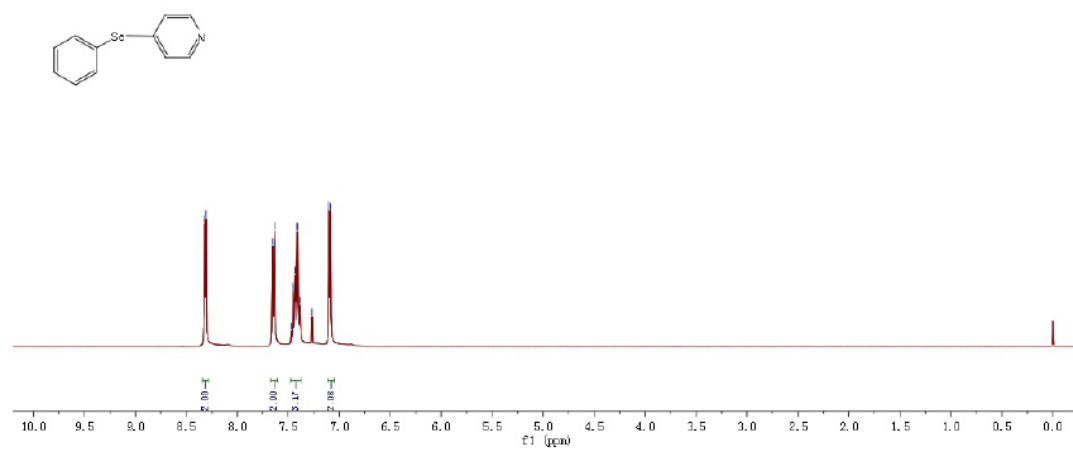
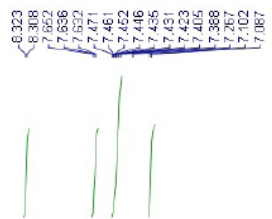
134.186
134.146
133.908
131.766
129.443
129.335
129.226
129.203
128.619
127.733
126.972
126.853
126.410
126.028

77.395
77.078
76.760



¹H NMR and ¹³C NMR spectra of compound 3m

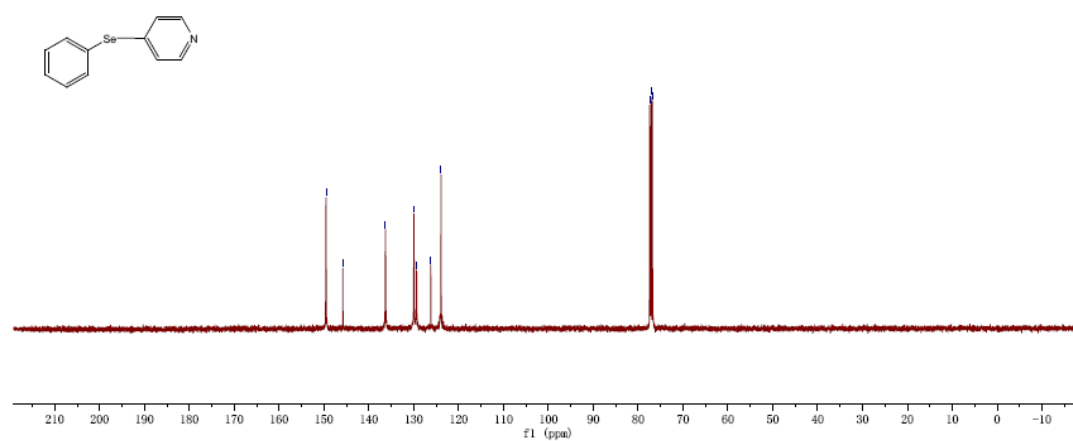
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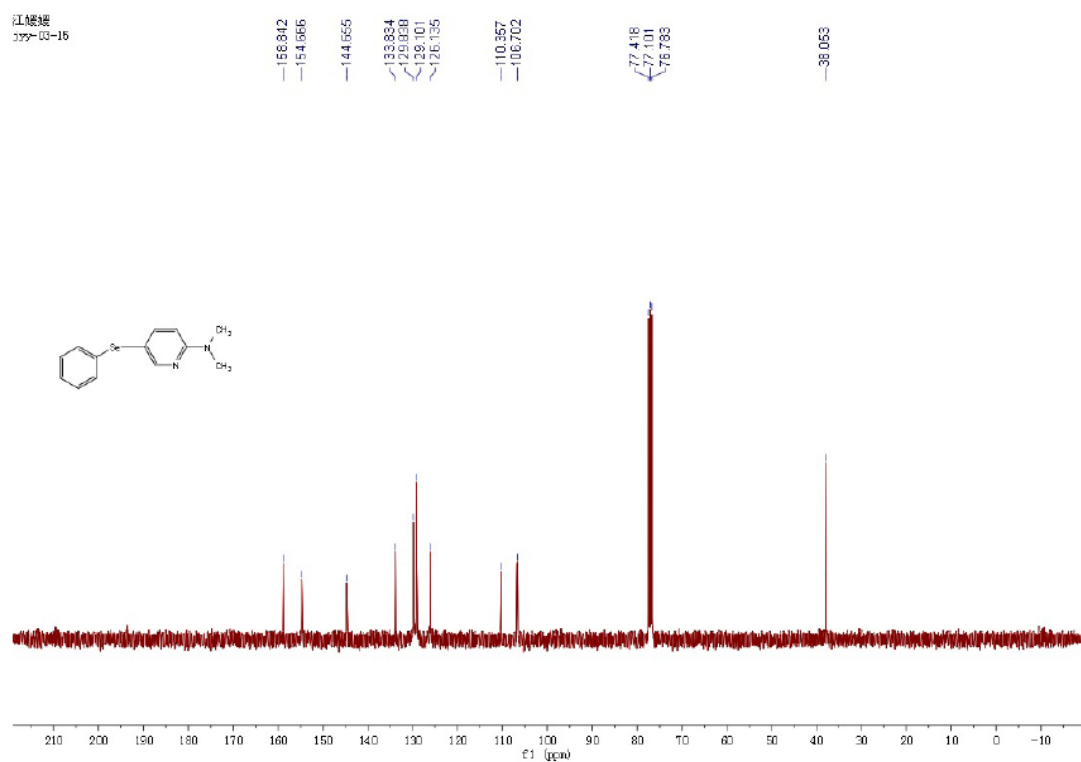
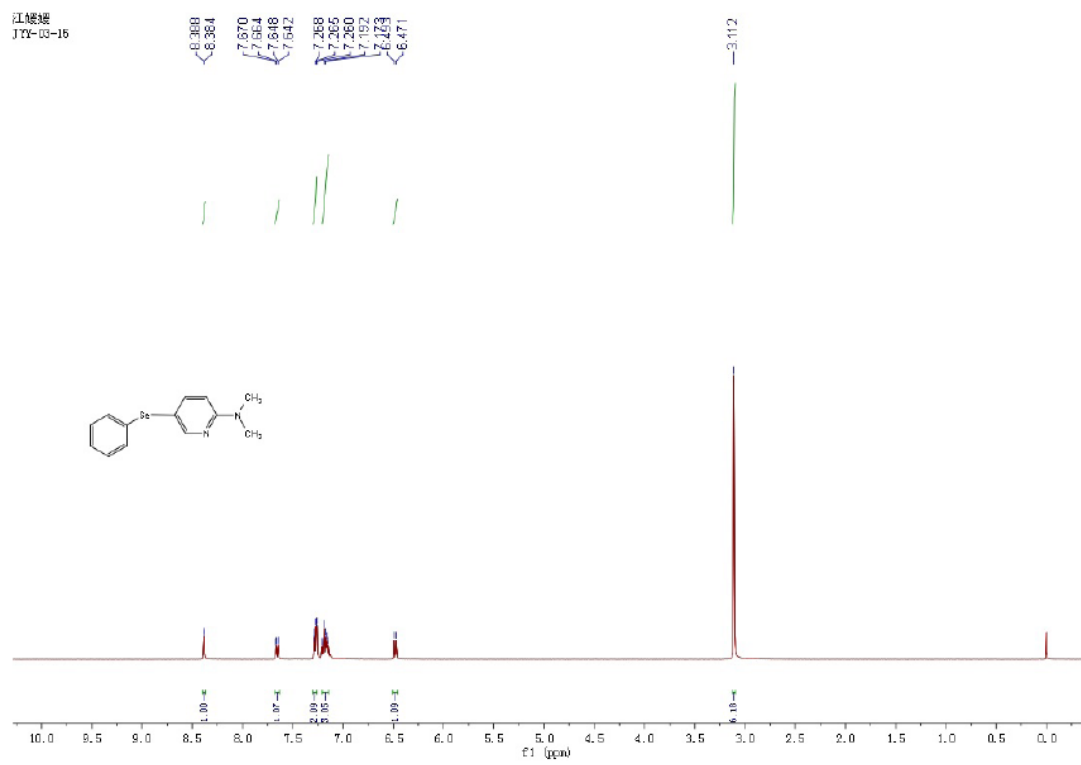
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149.521
145.784
136.306
129.960
129.367
126.199
123.926

77.443
77.125
76.807

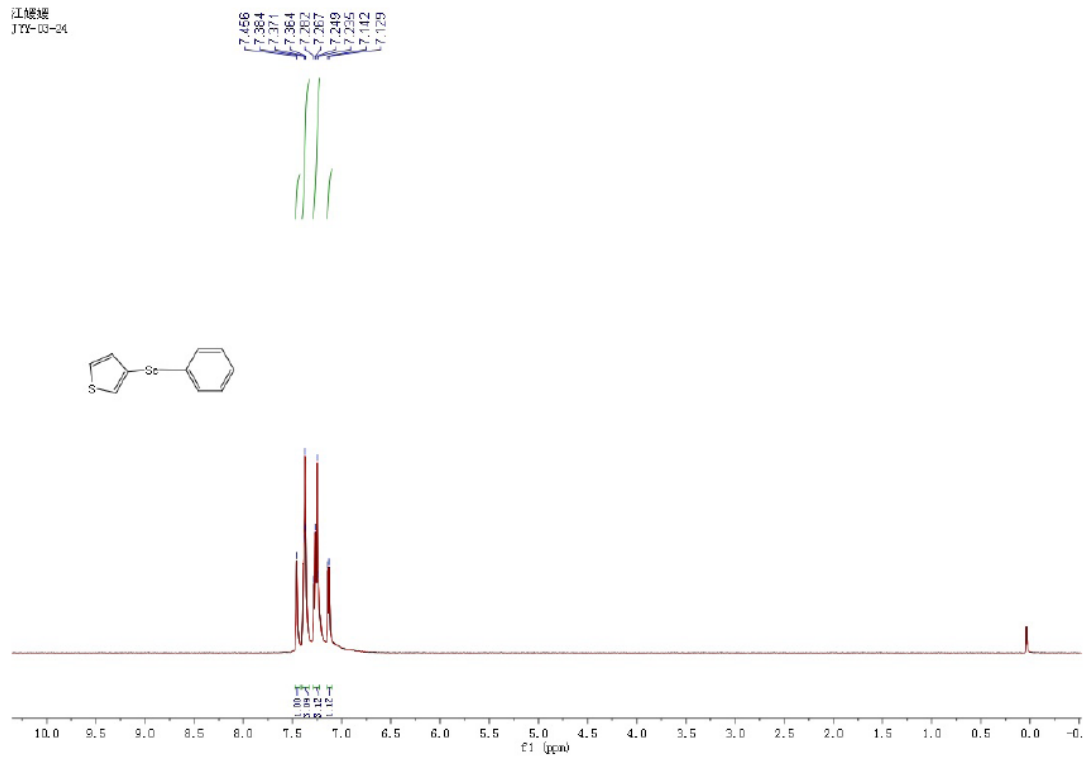


^1H NMR and ^{13}C NMR spectra of compound 3n

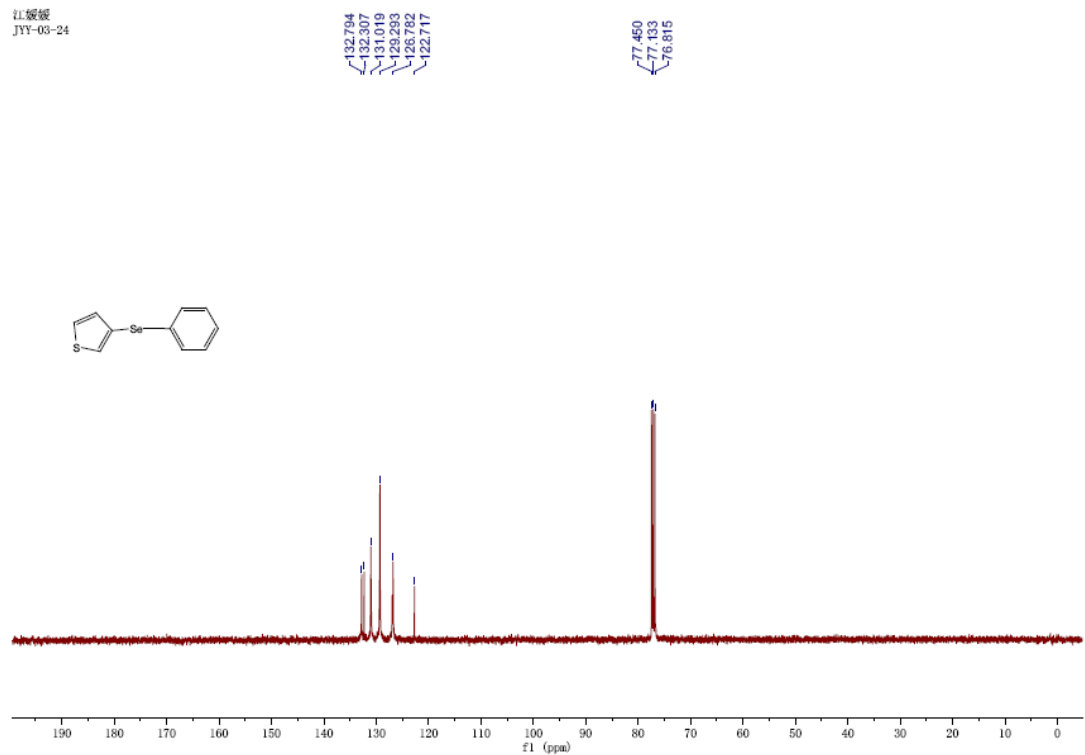


^1H NMR and ^{13}C NMR spectra of compound **3o**

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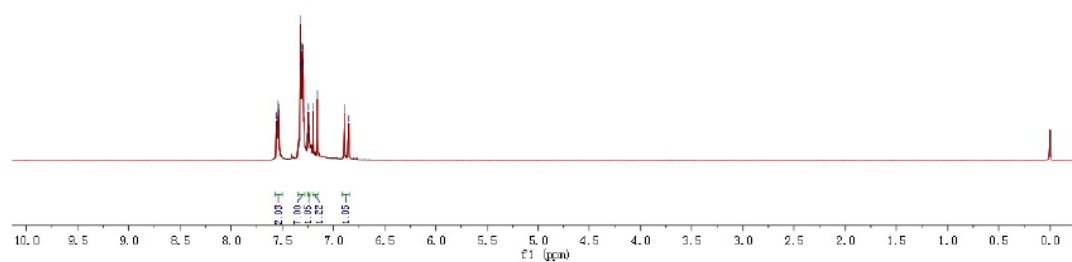
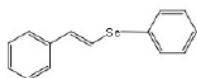
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¹H NMR and ¹³C NMR spectra of compound 3p

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JYY-03-17

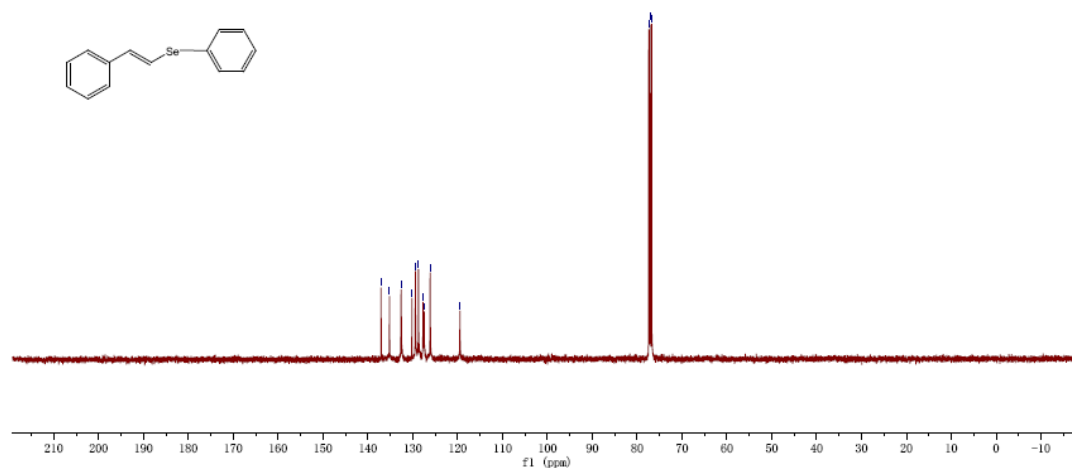
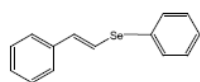
7.557
7.552
7.537
7.533
7.322
7.317
7.306
7.300
7.288
7.282
7.252
7.247
7.233
7.188
7.159
6.984
6.854



江耀耀
JYY-03-17

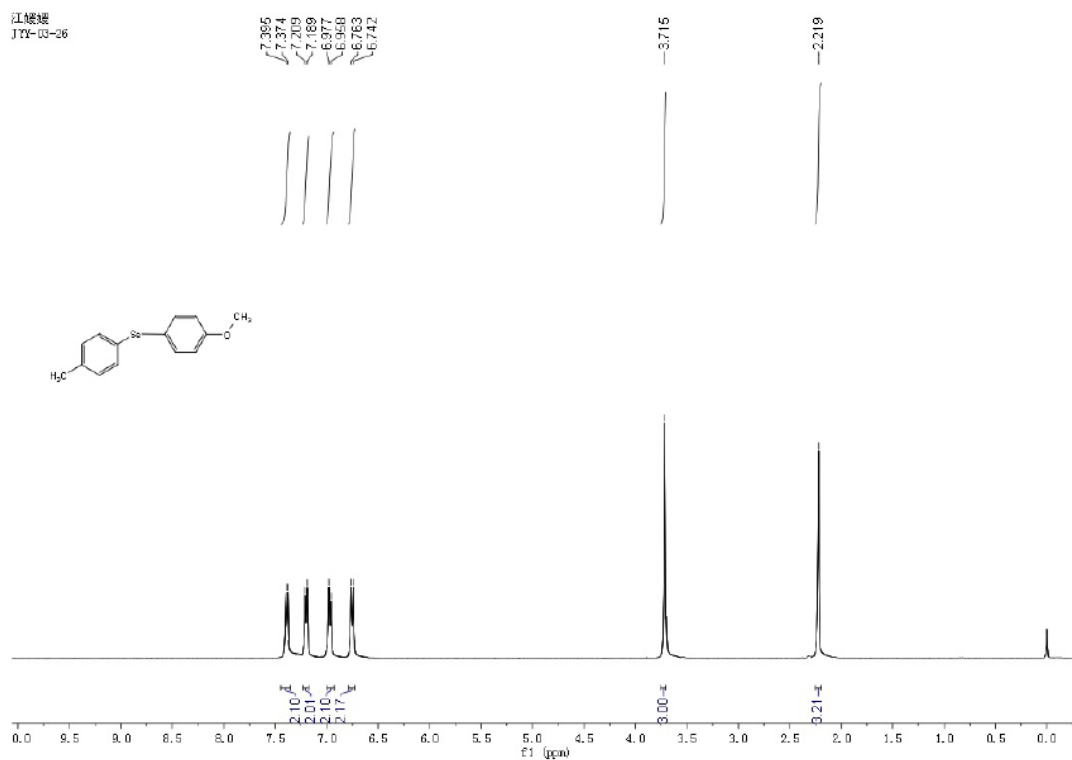
137.047
135.188
132.589
130.186
129.404
128.729
127.705
127.465
126.119
119.489

77.409
77.082
76.774

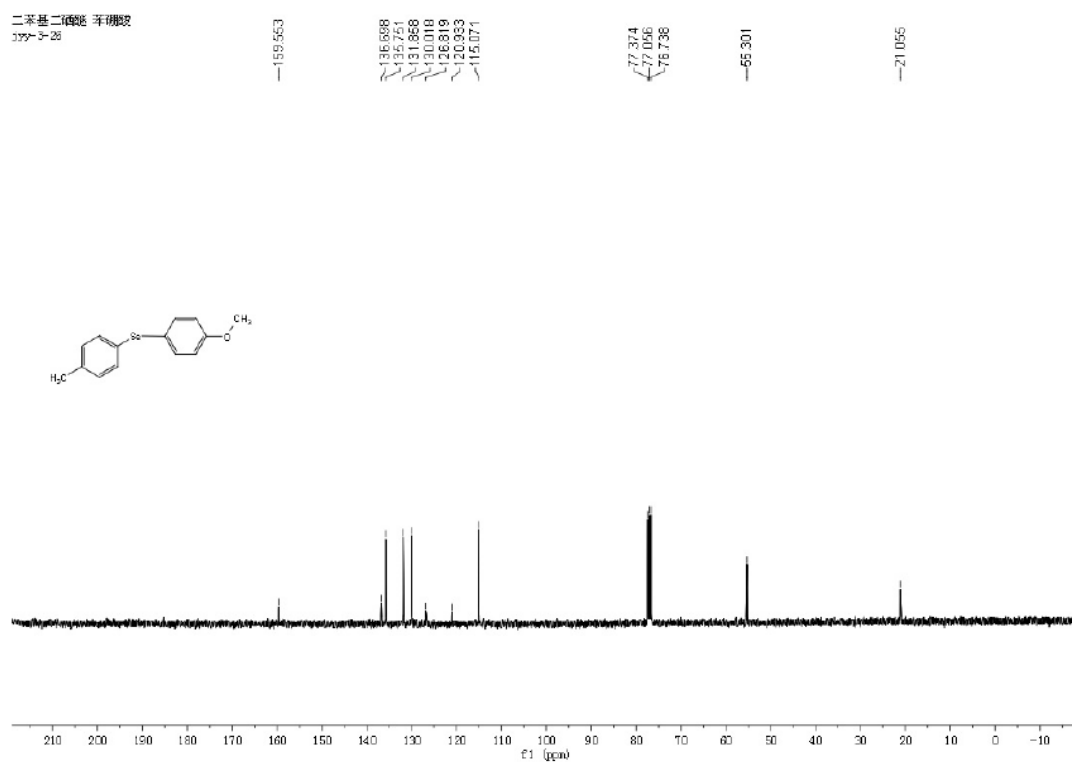


^1H NMR and ^{13}C NMR spectra of compound **3q**

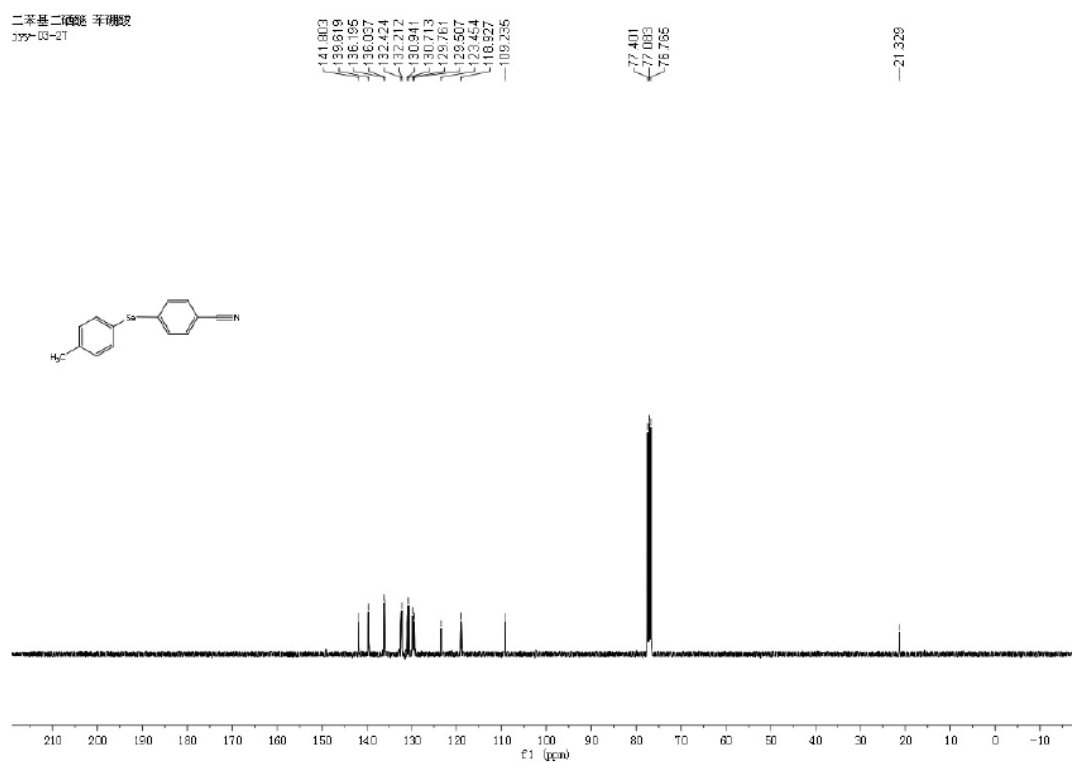
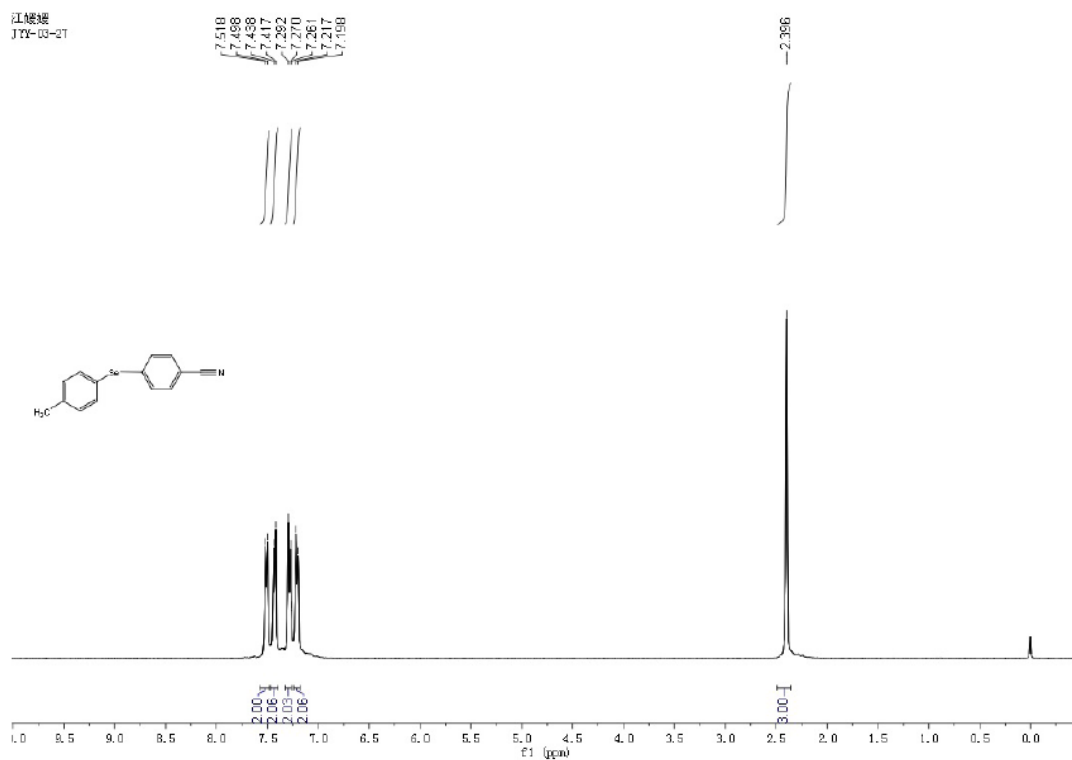
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JZY-03-26



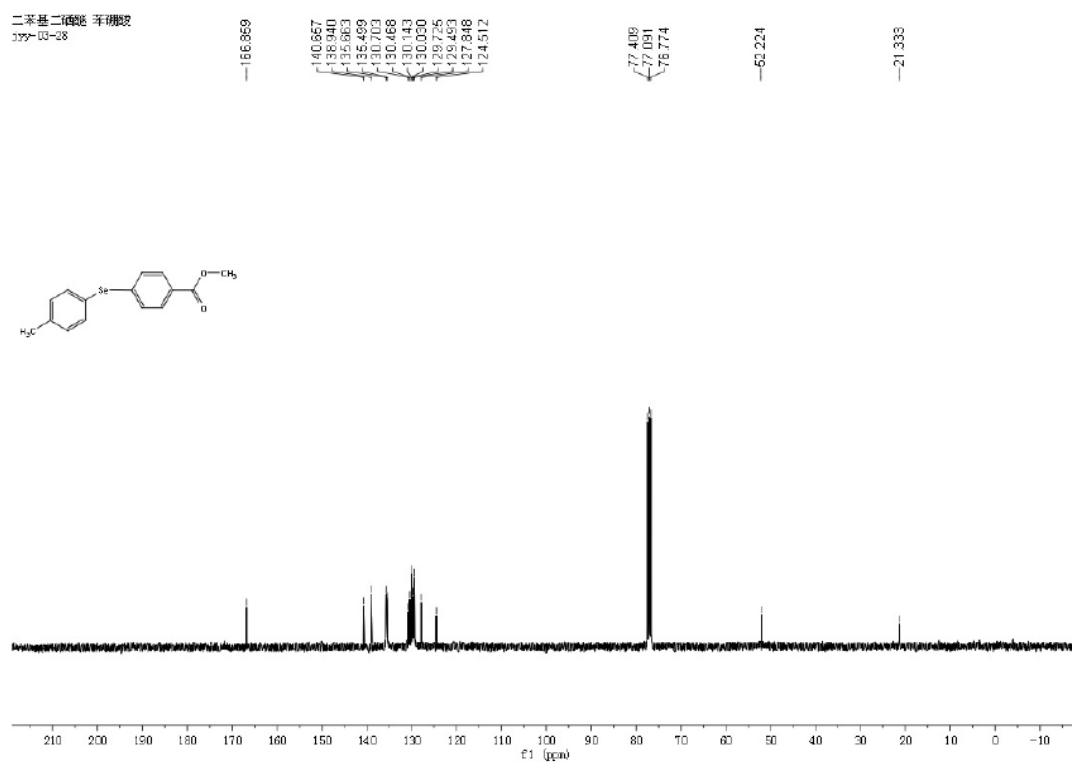
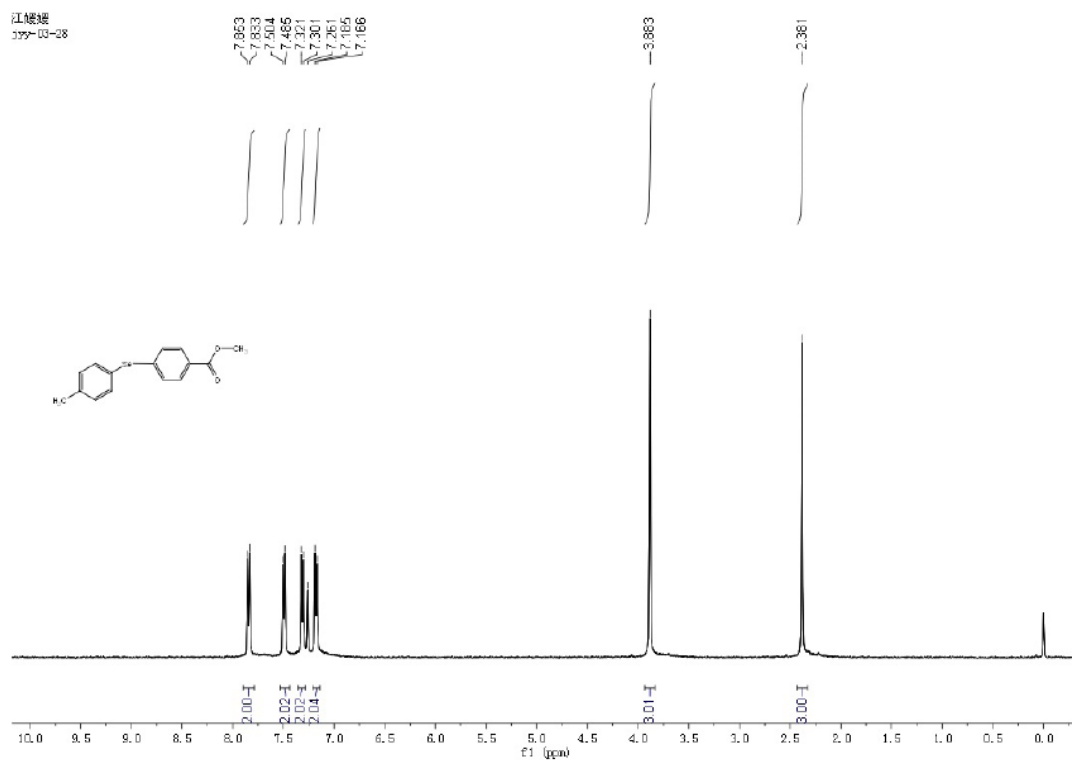
江健雄
JZY-03-26



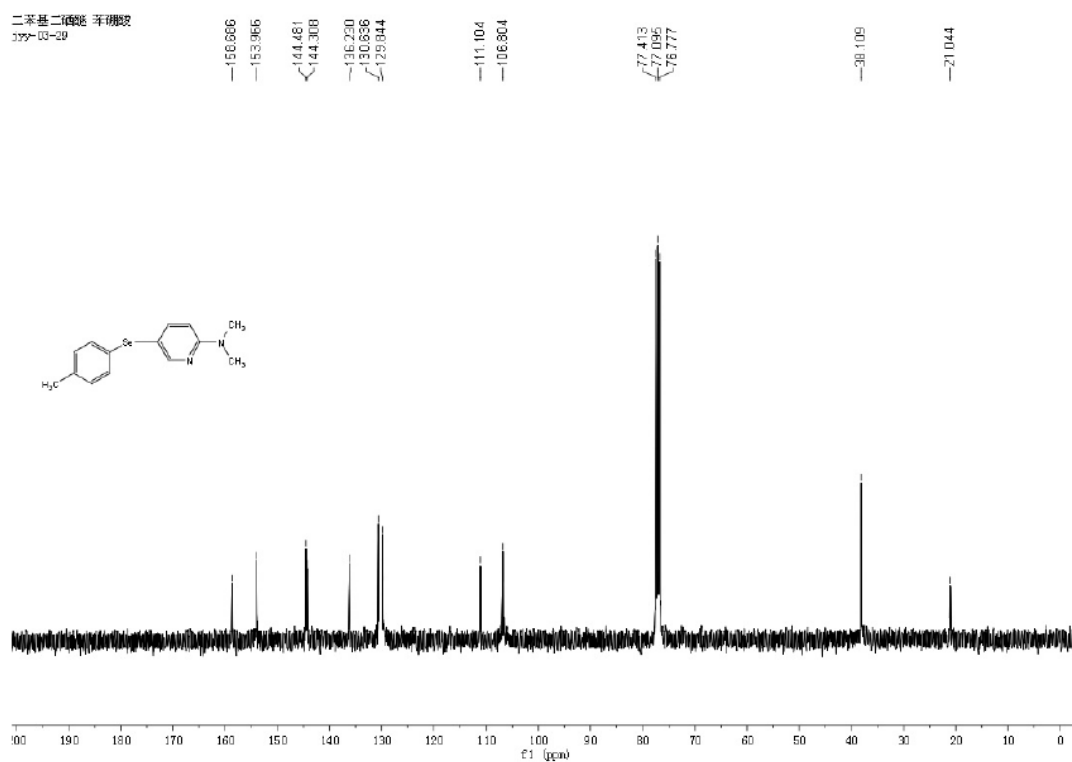
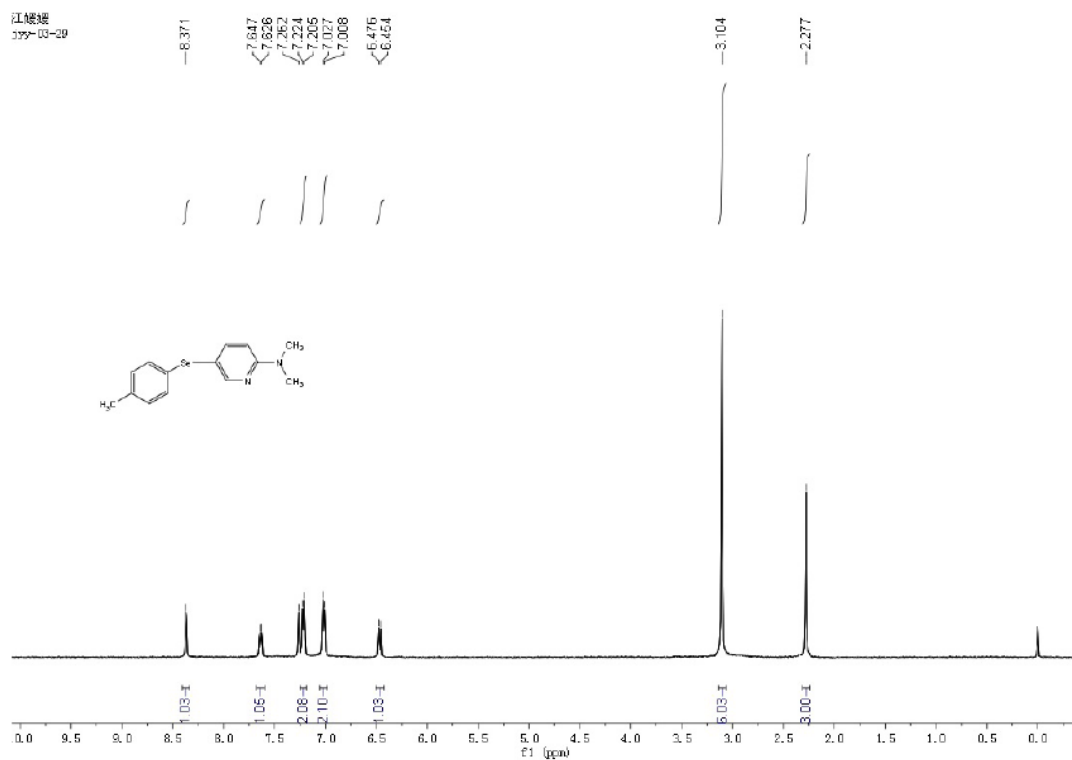
¹H NMR and ¹³C NMR spectra of compound **3r**



^1H NMR and ^{13}C NMR spectra of compound **3s**

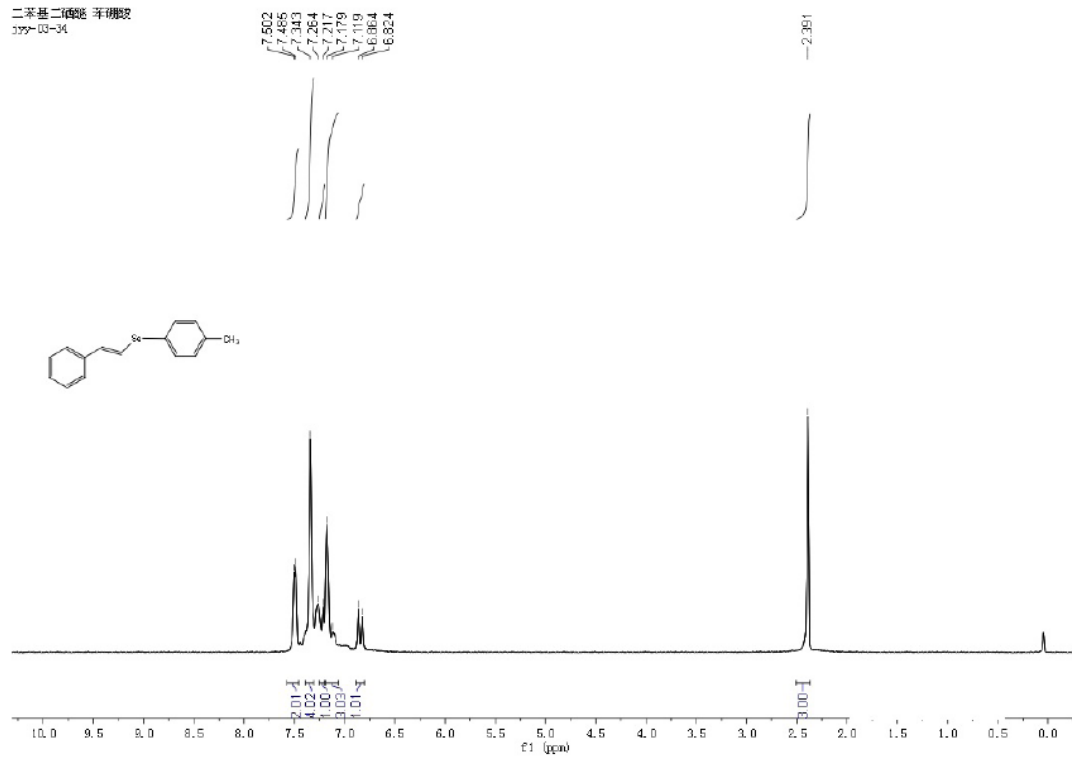


^1H NMR and ^{13}C NMR spectra of compound **3t**

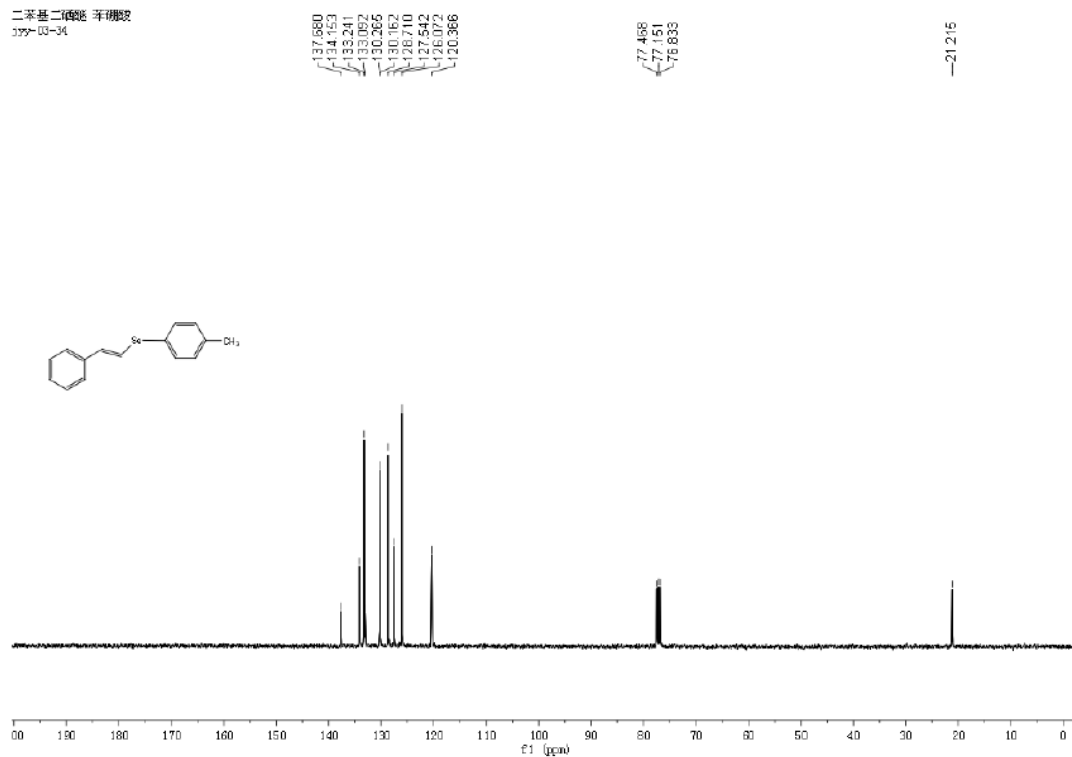


^1H NMR and ^{13}C NMR spectra of compound **3u**

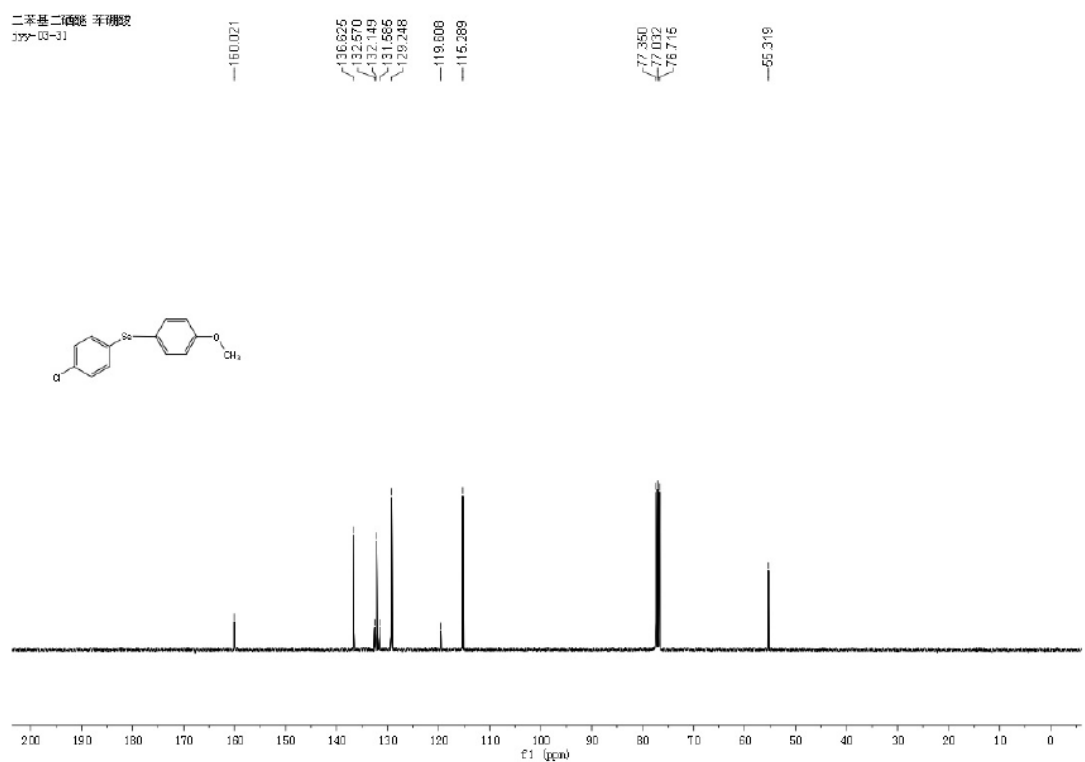
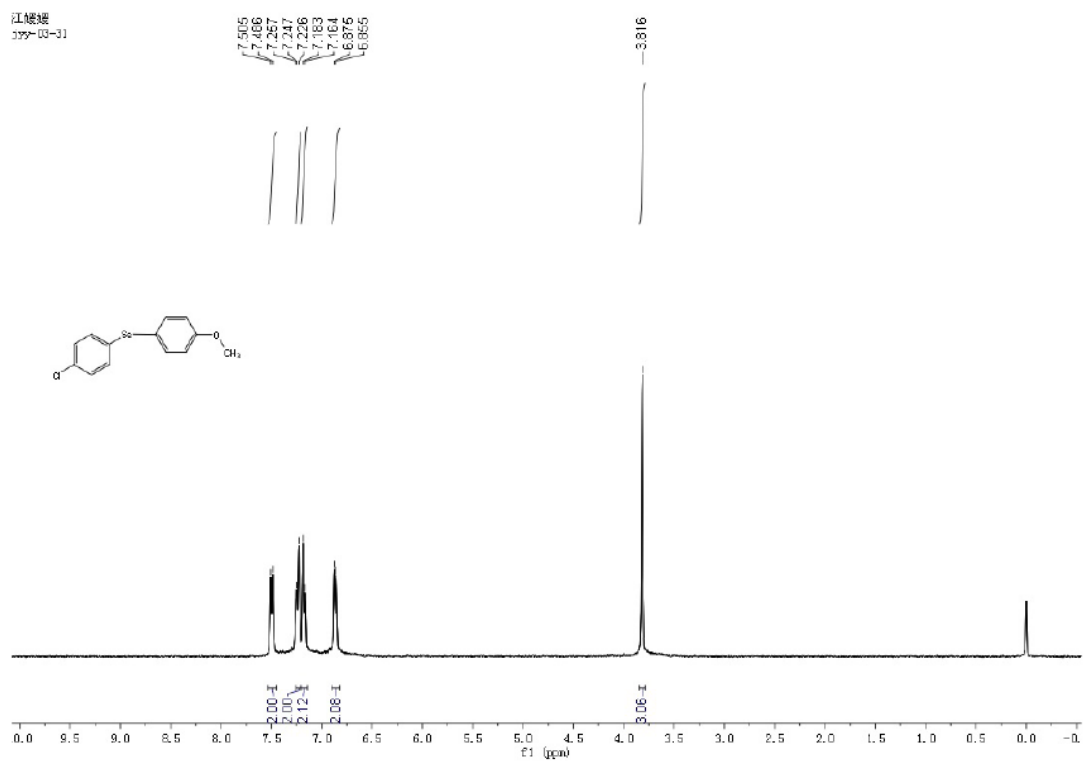
二苯基二硫醚 苯磺酸
322-03-34



二苯基二硫醚 苯磺酸
322-03-34



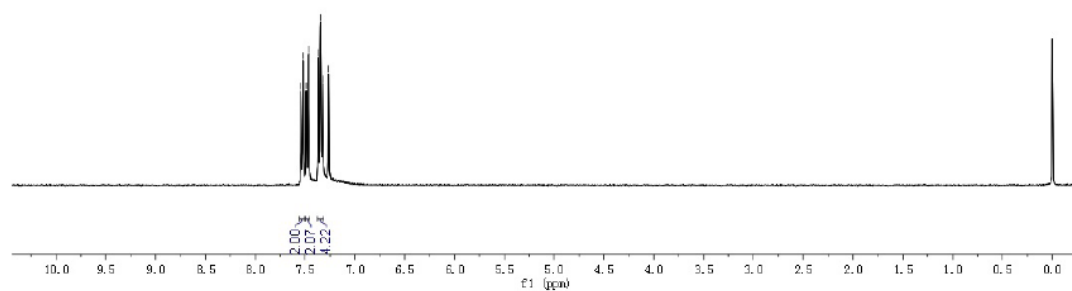
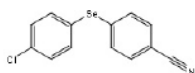
¹H NMR and ¹³C NMR spectra of compound 3v



^1H NMR and ^{13}C NMR spectra of compound **3w**

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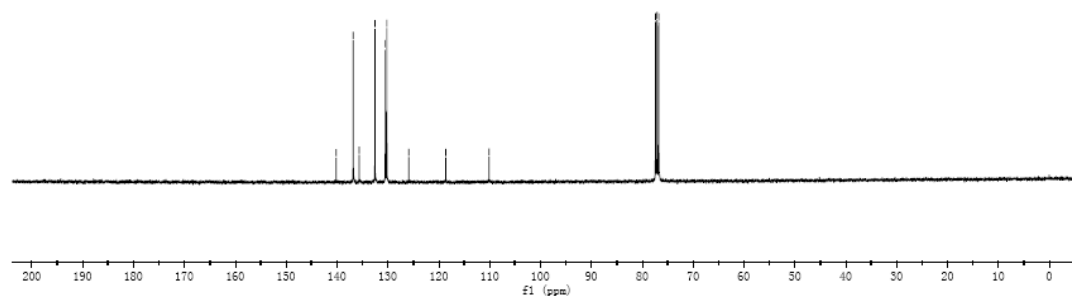
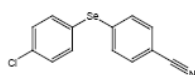
7.541
7.520
7.485
7.465
7.369
7.345
7.324
7.264



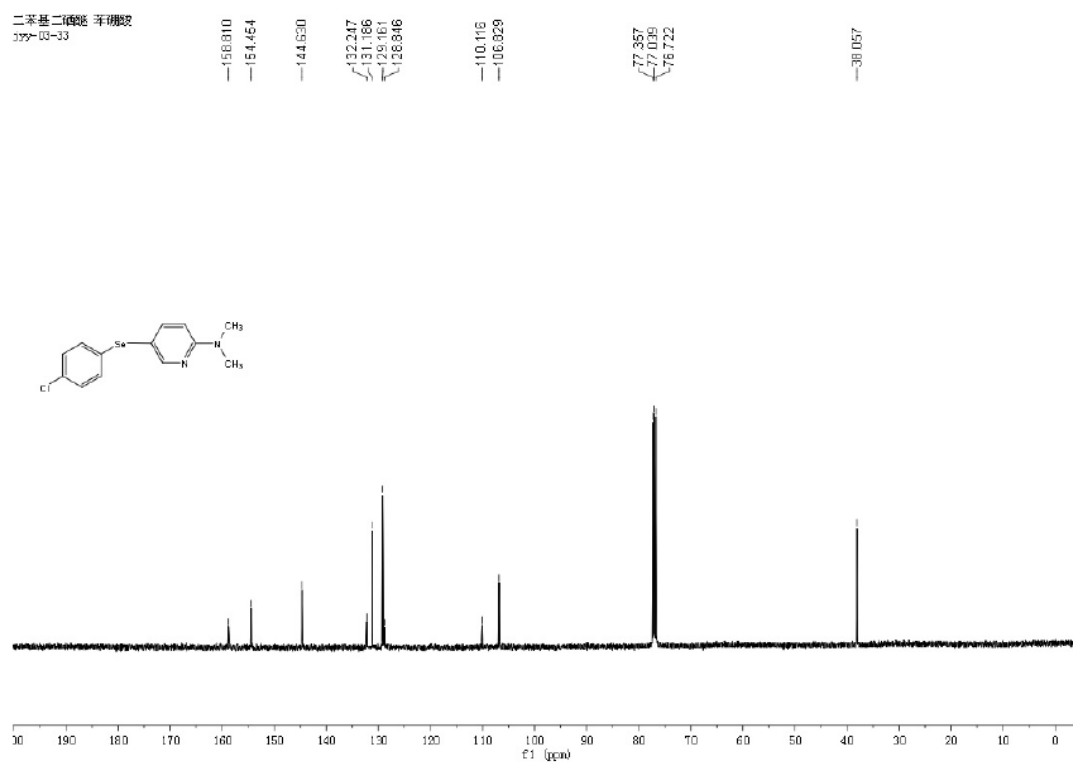
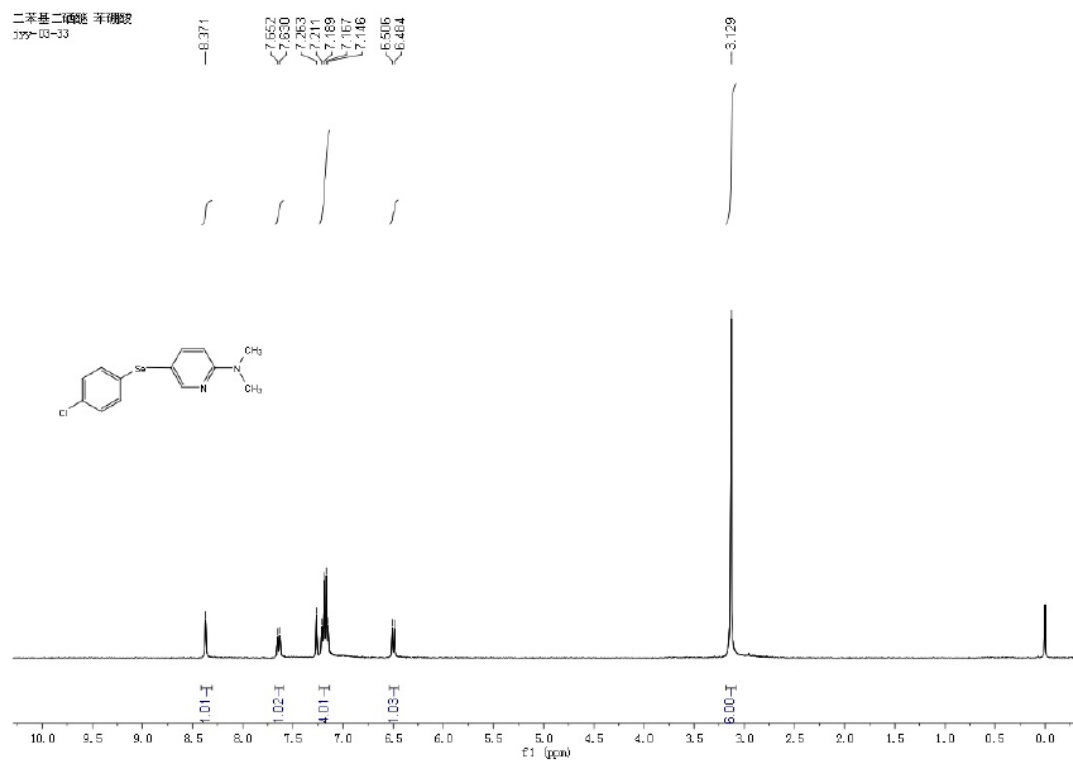
jiangyuanruan
jyy-03-32

140.148
136.707
135.615
132.523
130.485
130.182
125.865
118.589
110.103

77.371
77.054
76.736

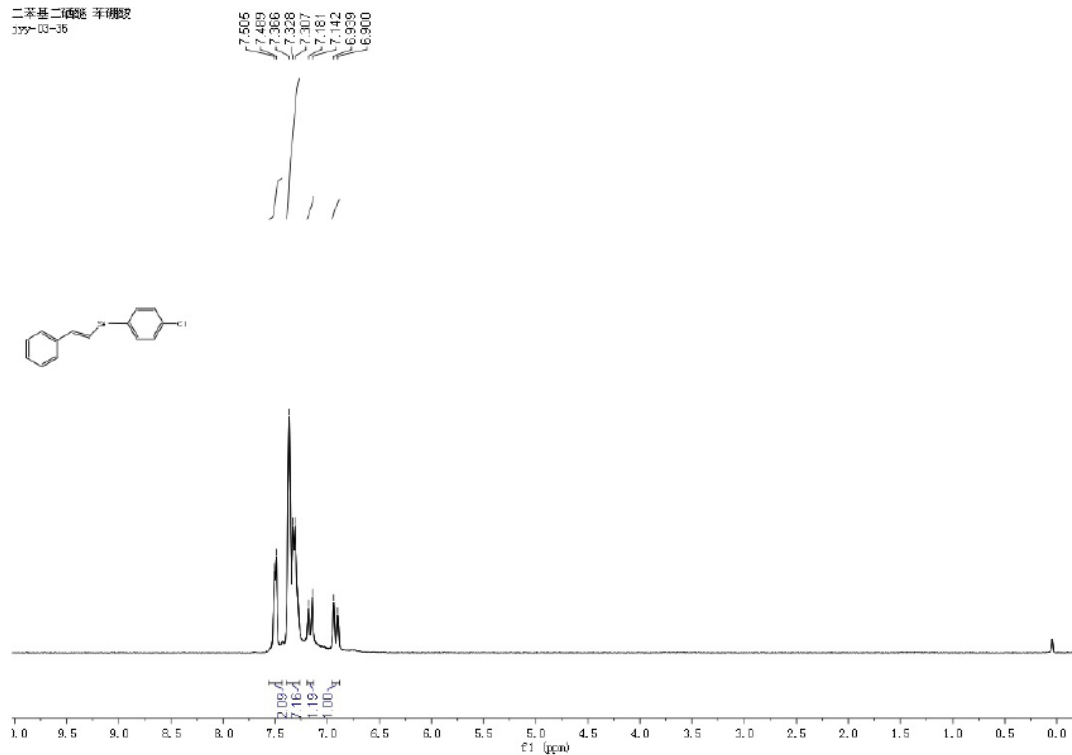


^1H NMR and ^{13}C NMR spectra of compound 3x

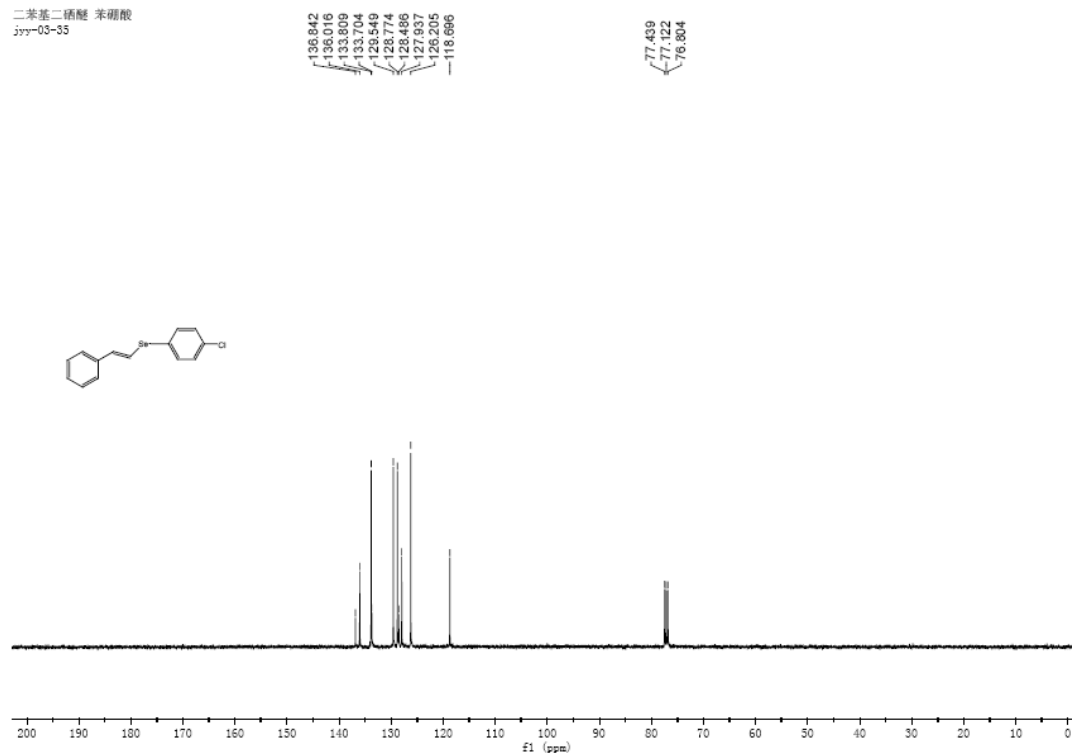


^1H NMR and ^{13}C NMR spectra of compound **3y**

二苯基二硫醚 苯硼酸
jyy-03-36



二苯基二硫醚 苯硼酸
jyy-03-35



¹H NMR and ¹³C NMR spectra of compound 3z