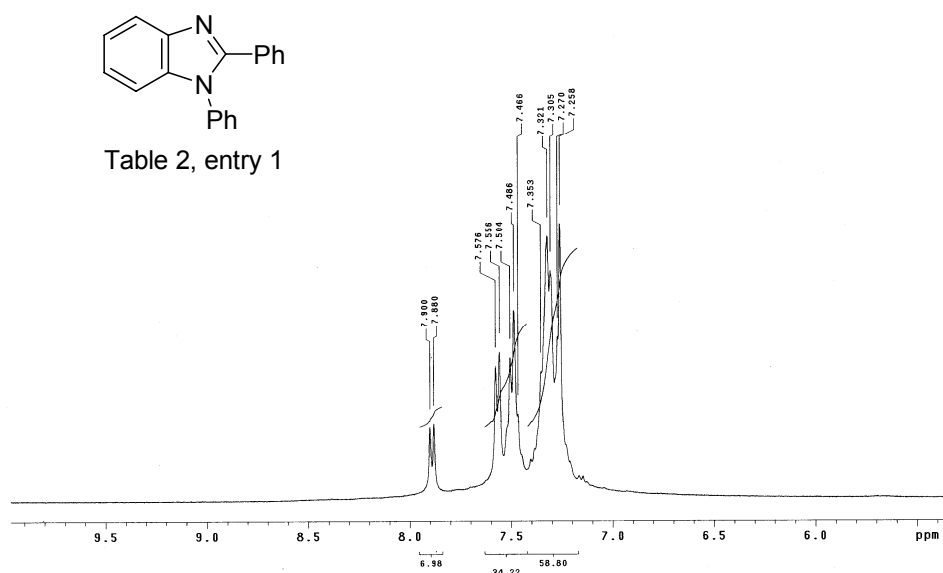


Supporting Information

Cobalt-catalyzed intramolecular *C-N* and *C-O* cross-coupling reactions: synthesis of benzimidazoles and benzoxazoles

Prasenjit Saha, Md Ashif Ali, Pokhraj Ghosh, and Tharmalingam Punniyamurthy

^1H and ^{13}C NMR Spectra:



152.578
143.152
137.378
137.156
130.895
129.628
128.751
128.271
127.594
123.520
123.179
120.014
116.376
110.604
77.556
77.290
76.817

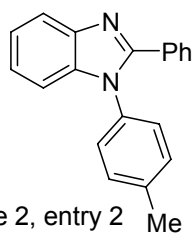


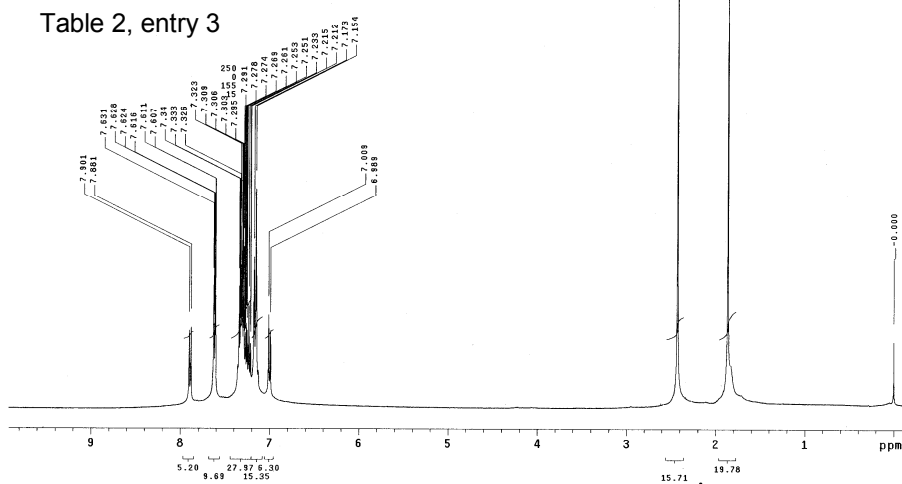
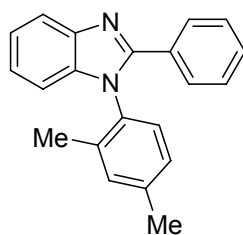
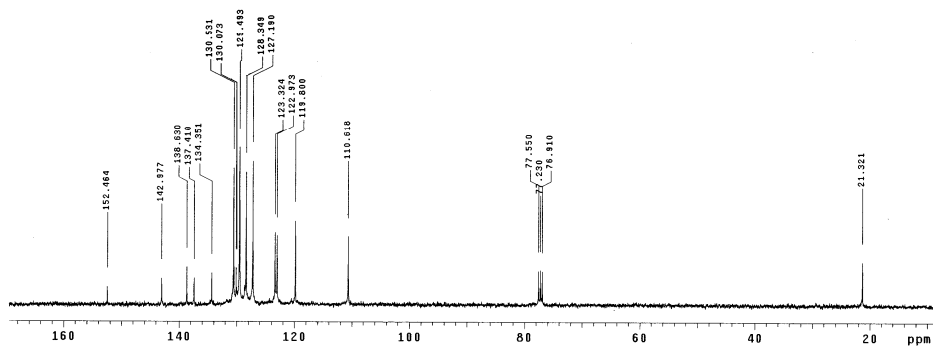
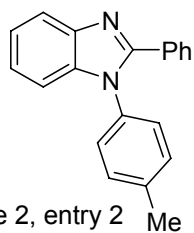
Table 2, entry 2

Chemical structure of compound 2: CC1=CC=C(C=C1)C2=CC=CC=C2 (1-methyl-2-phenylbenzene).

¹H NMR spectrum (CDCl₃) of compound 2. The spectrum shows peaks in the aromatic region (6.5-7.9 ppm) and a singlet at 2.44 ppm. Integration values are provided below the peaks.

Peak list (ppm): 7.885, 7.882, 7.881, 7.868, 7.865, 7.863, 7.514, 7.510, 7.506, 7.578, 7.563, 7.569, 7.350, 7.346, 7.344, 7.342, 7.337, 7.333, 7.330, 7.325, 7.321, 7.317, 7.310, 7.305, 7.303, 7.301, 7.298, 7.296, 7.293, 7.287, 7.285, 7.254, 7.241, 7.238, 7.224, 7.220, 7.216, 7.204, 7.184, 7.179, 2.444.

Integration values: 5.73, 10.36, 15.04, 52.51, 17.36.



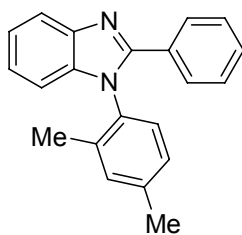


Table 2, entry 3

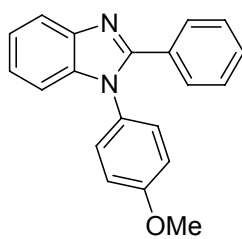
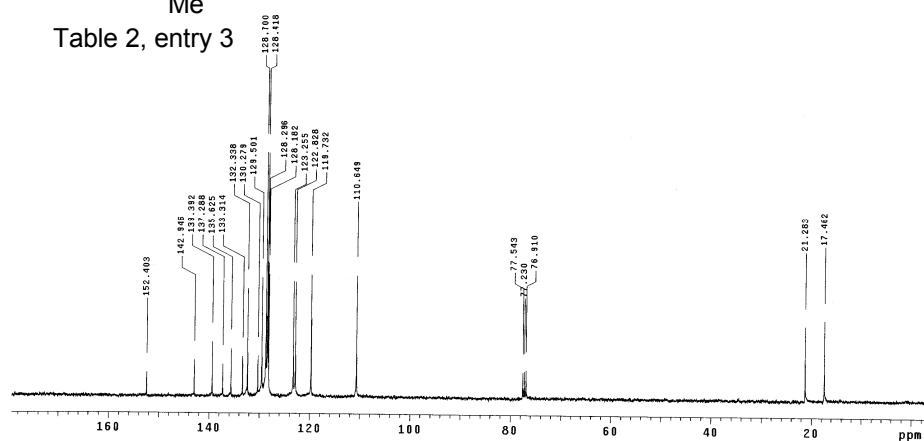
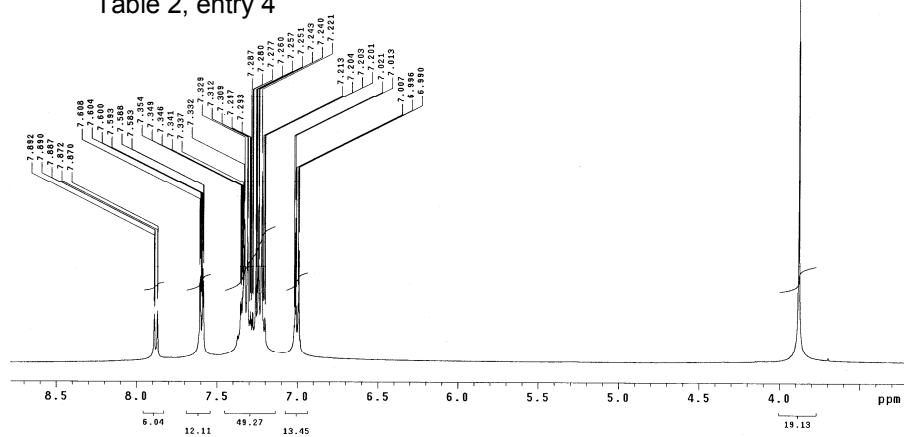


Table 2, entry 4



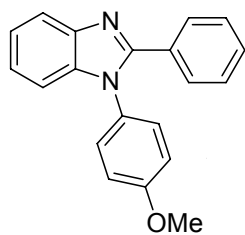


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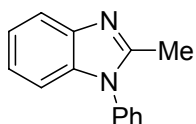
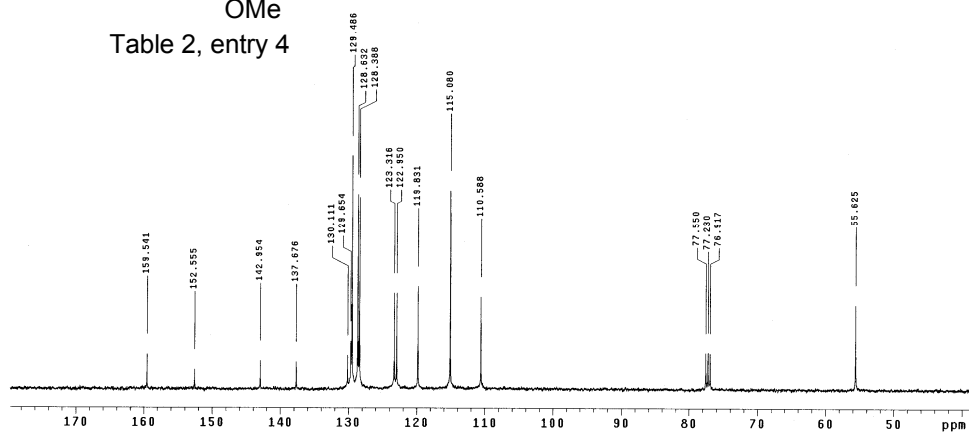
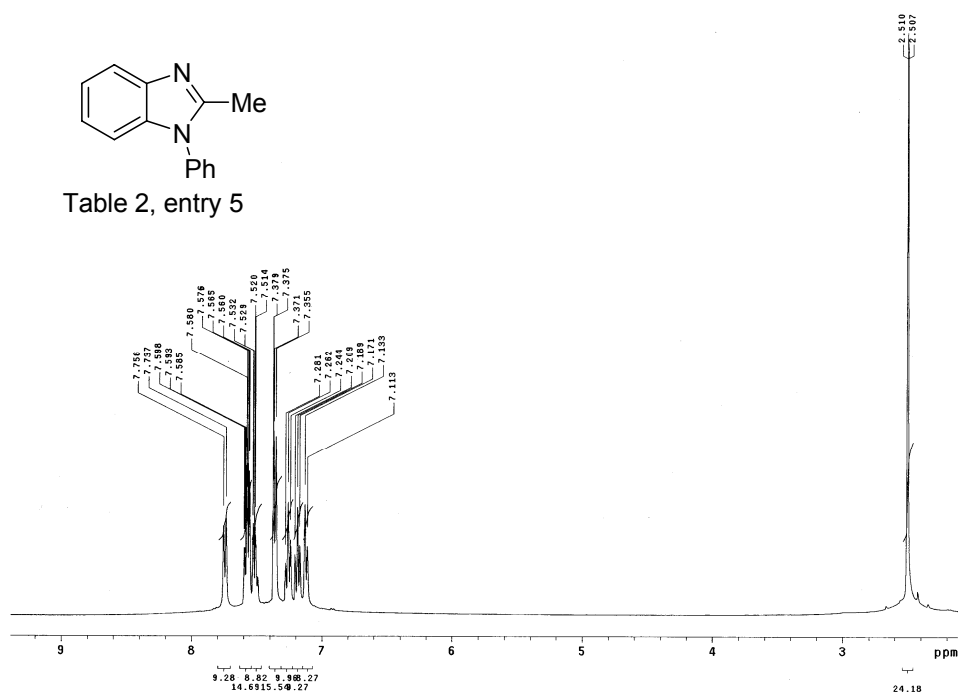


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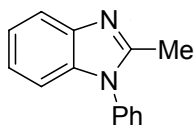


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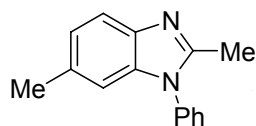
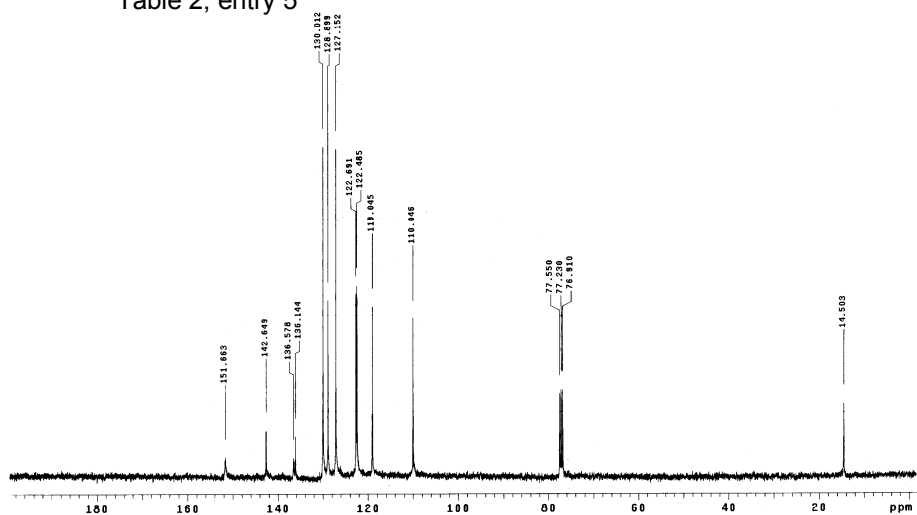
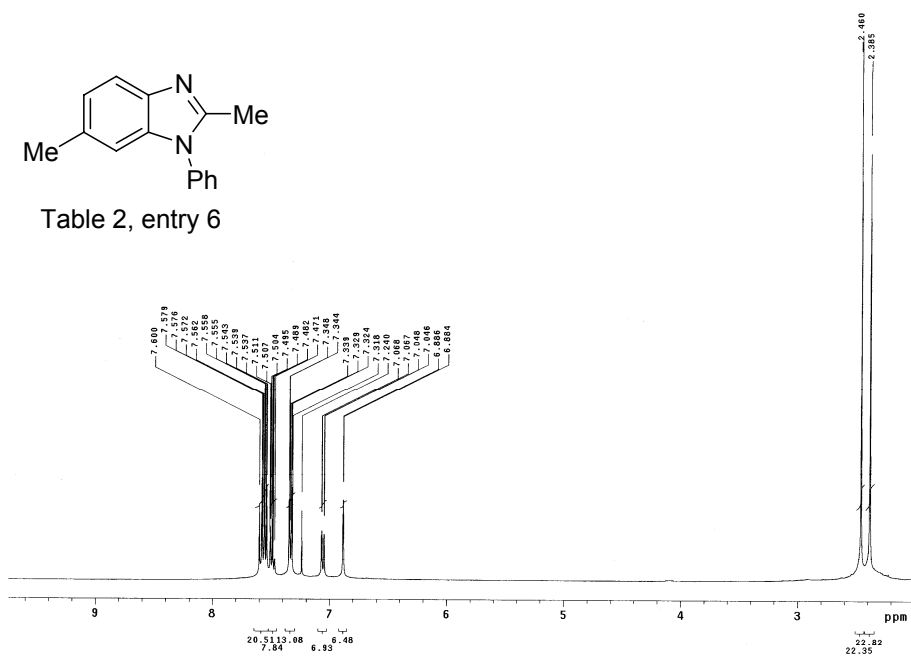


Table 2, entry 6



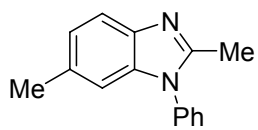


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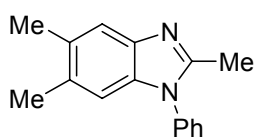
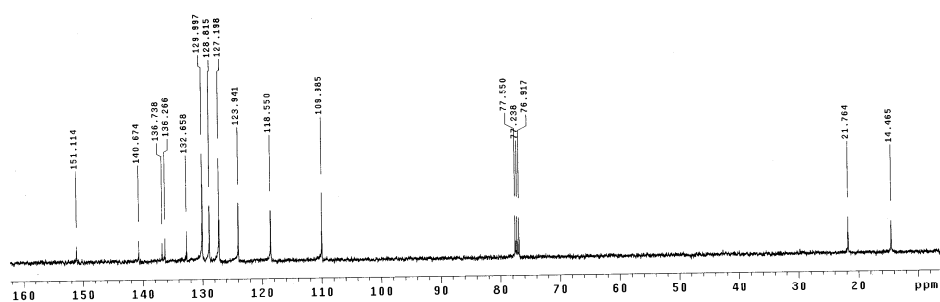
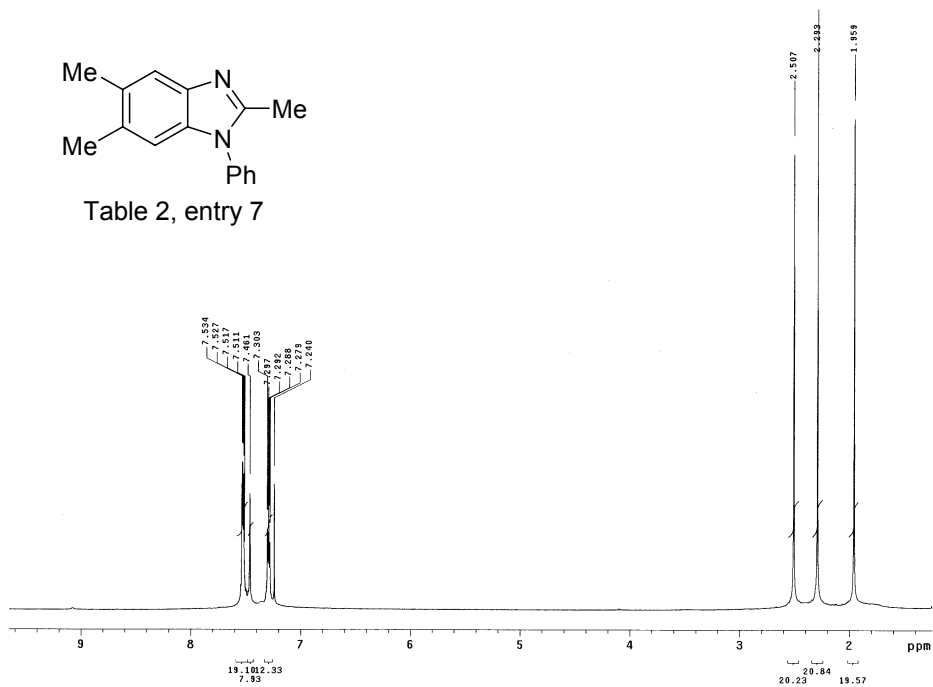


Table 2, entry 7



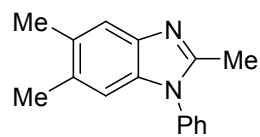


Table 2, entry 7

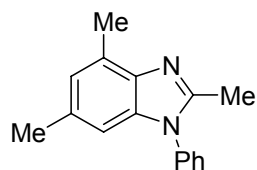
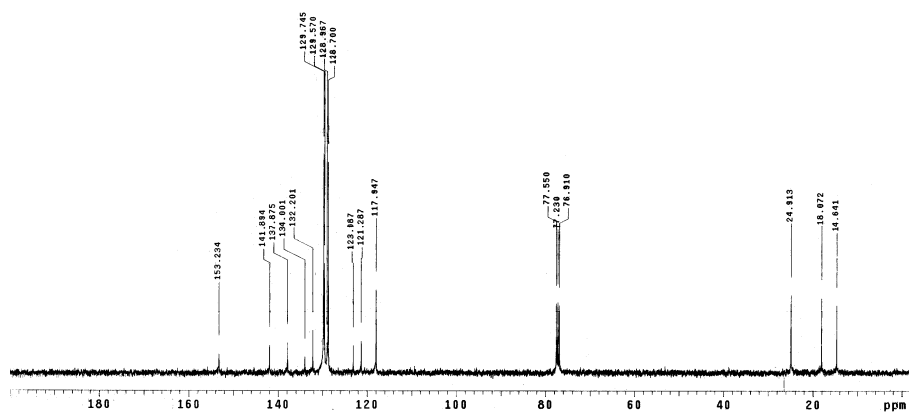
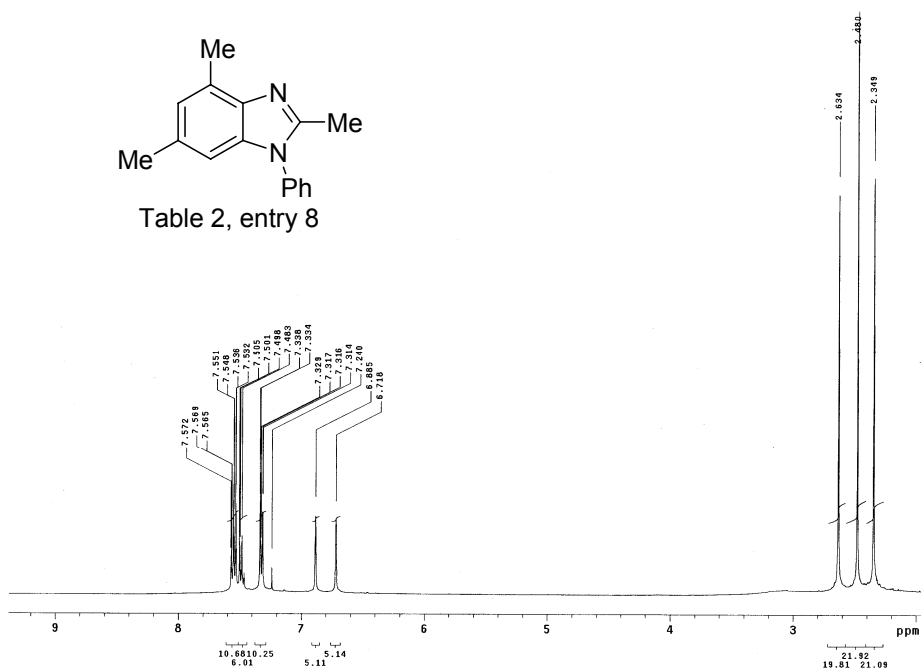


Table 2, entry 8



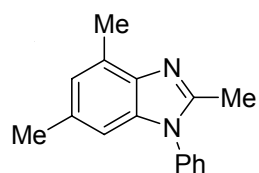


Table 2, entry 8

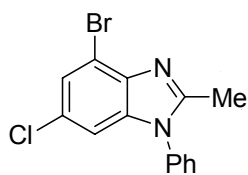
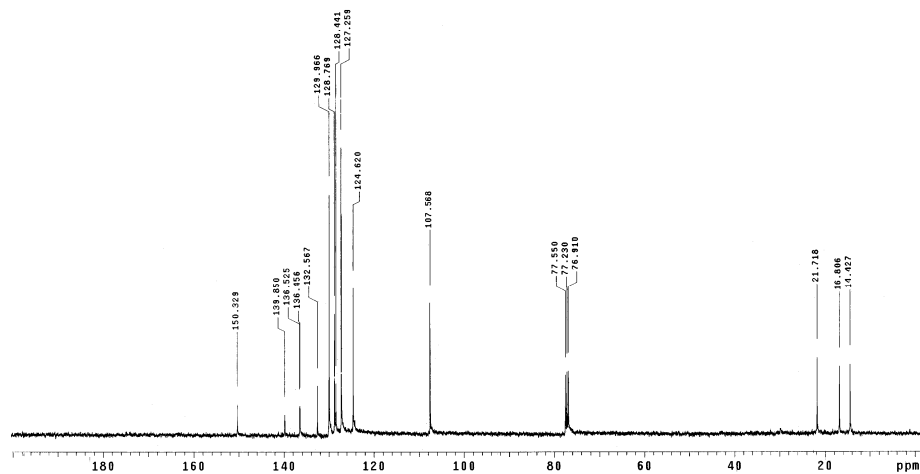
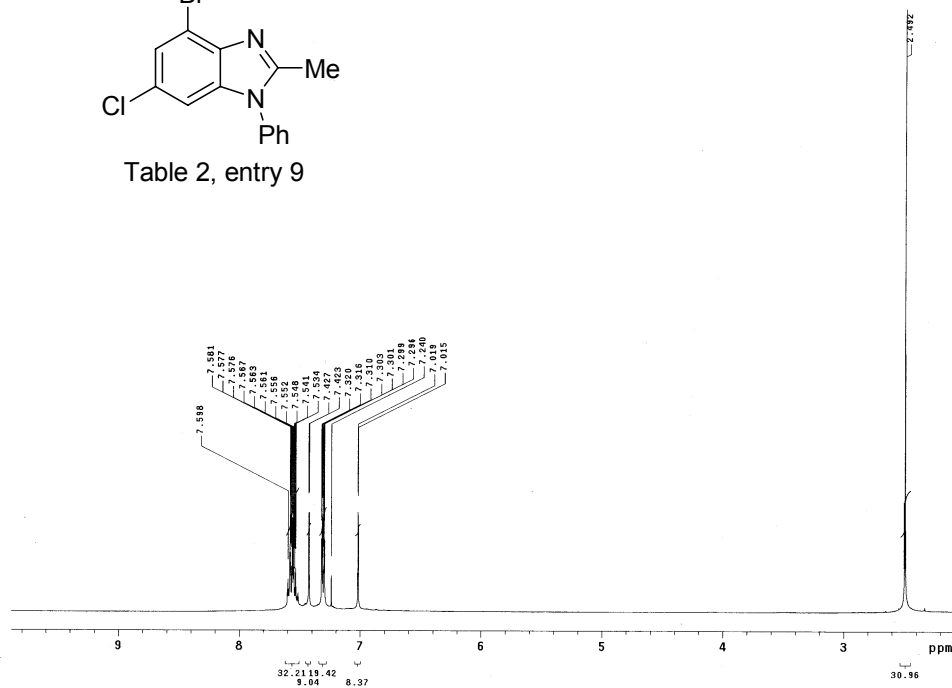


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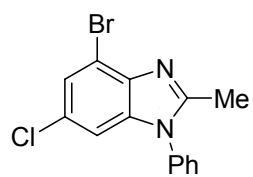


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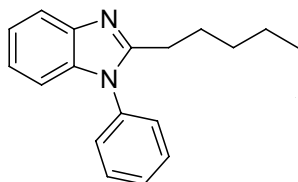
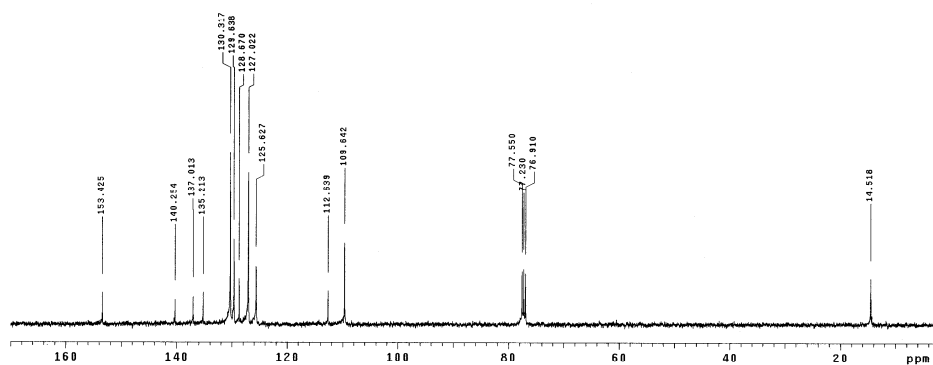
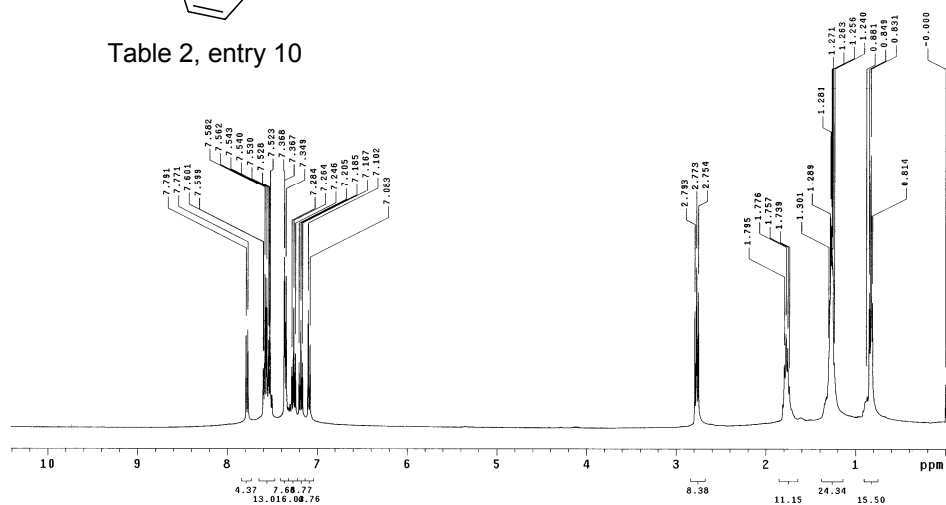


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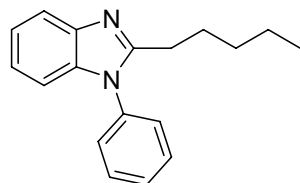


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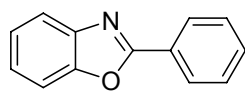
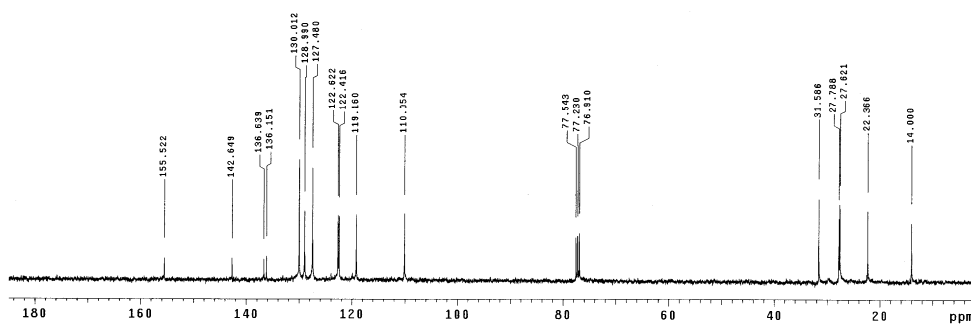
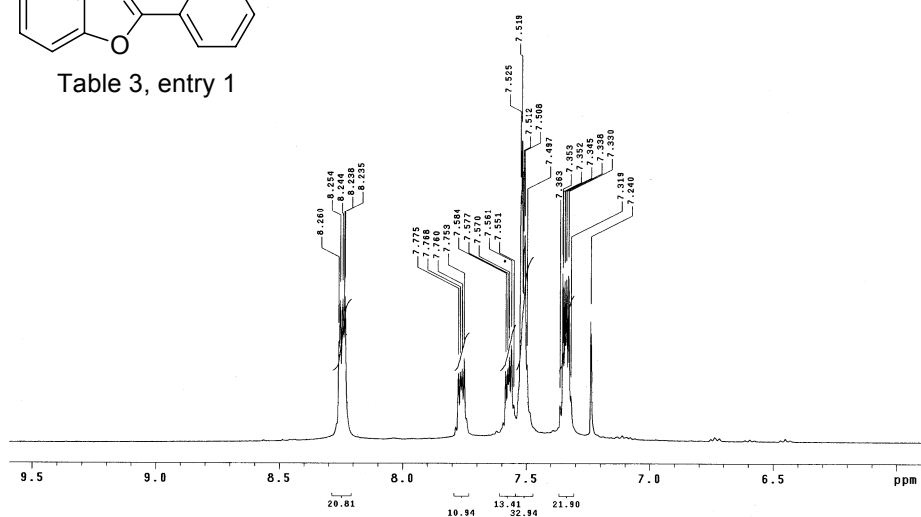


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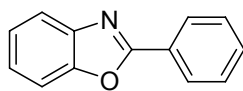


Table 3, entry 1

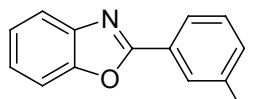
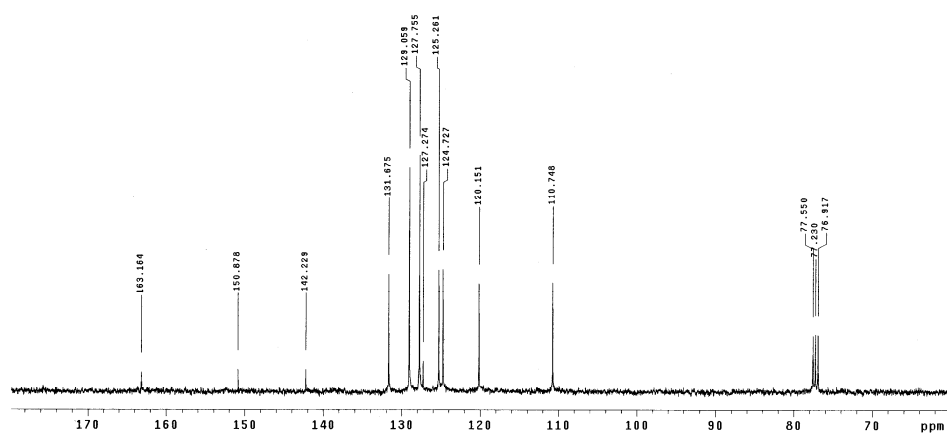
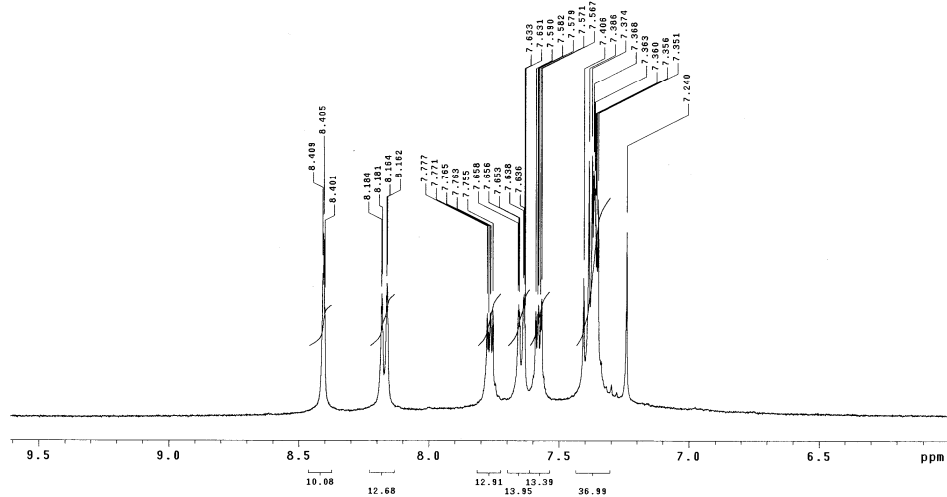
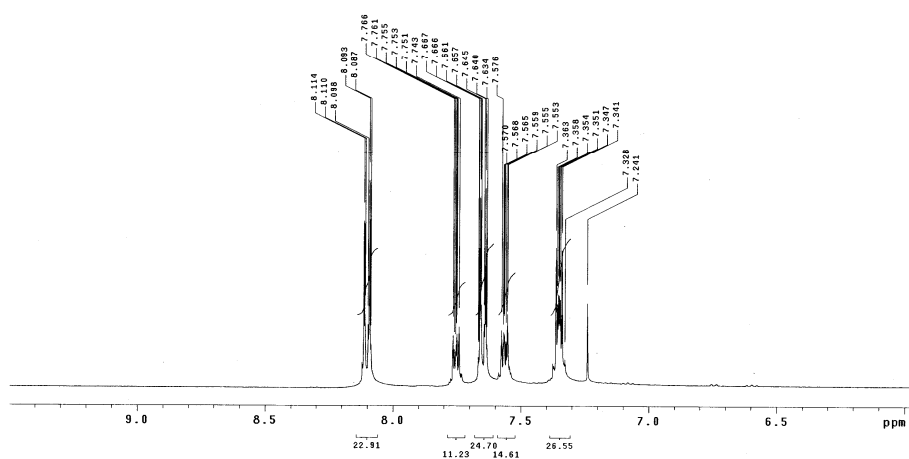
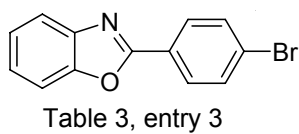
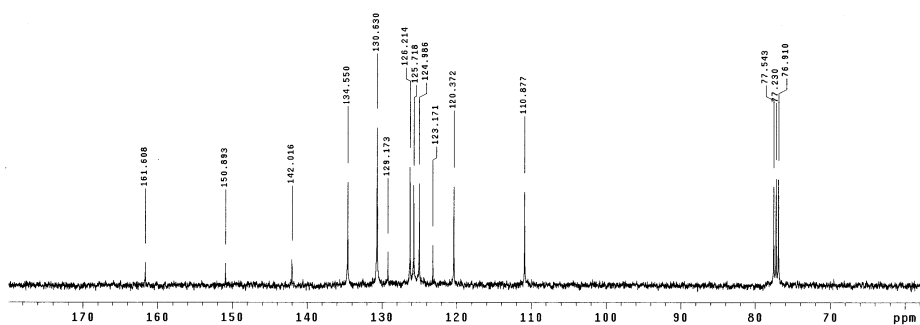
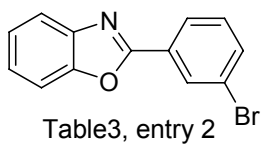


Table3, entry 2 Br





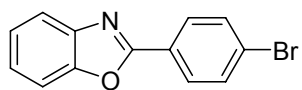


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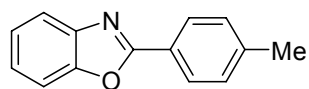
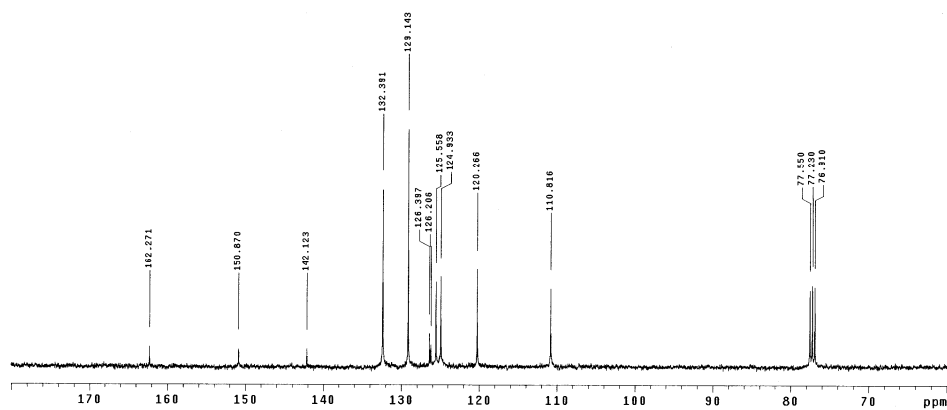
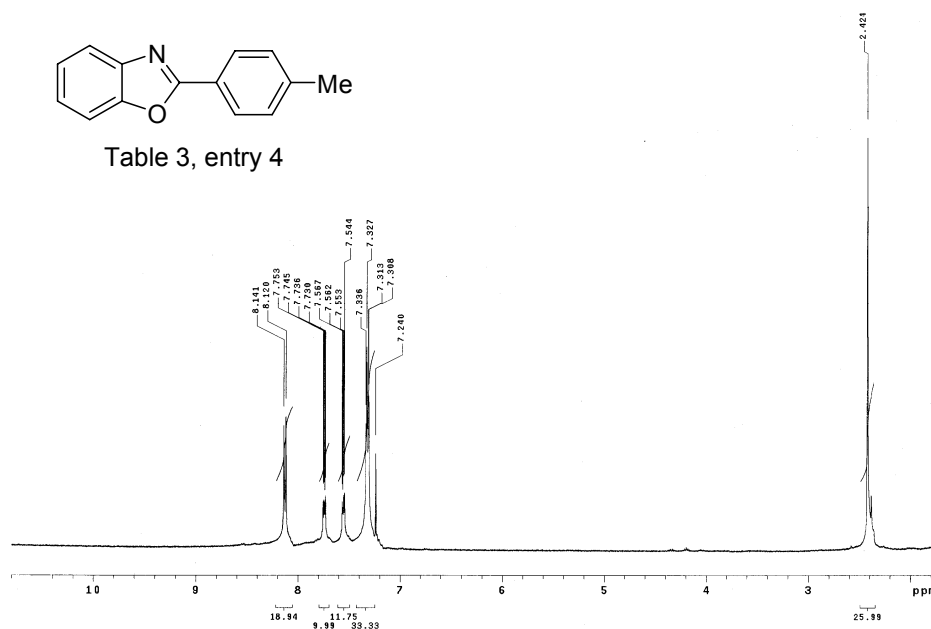
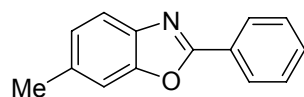


Table 3, entry 4



163.469
150.847
142.240
132.393
128.837
128.716
127.762
127.589
127.584
125.065
124.666
124.459
122.539
120.006
119.687
77.550
76.917
21.847



¹H NMR spectrum of compound 10 in CDCl₃. The spectrum shows several multiplets in the aromatic region (6.5-8.3 ppm) and a reference peak at 0 ppm. Integration values are provided below the baseline.

Chemical Shift (ppm)	Integration
8.200, 8.129, 8.219, 8.115, 8.212, 8.110, 8.206	16.89
7.632, 7.542, 7.517	8.37
7.484, 7.481, 7.484, 7.386, 7.388, 7.240	27.80
7.161, 7.160, 7.158, 7.139	9.96
7.508, 7.492, 7.487, 7.484	8.27
0	27.51

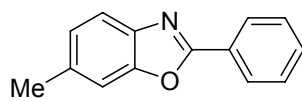


Table 3, entry 5

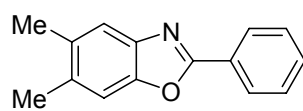
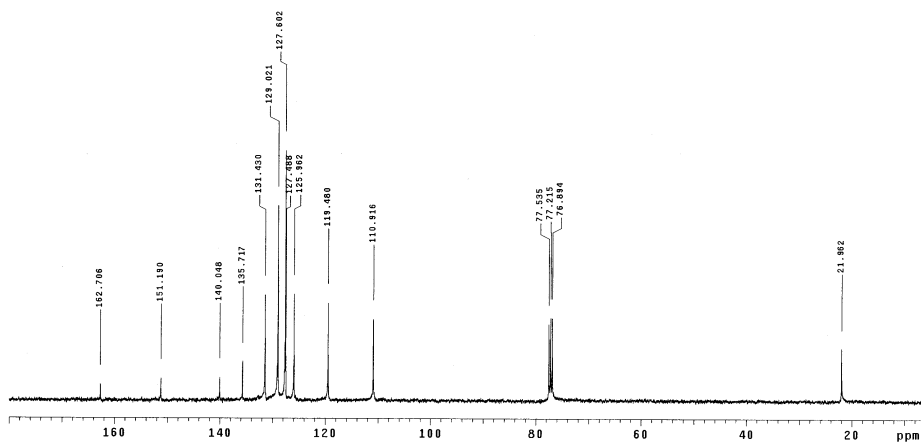
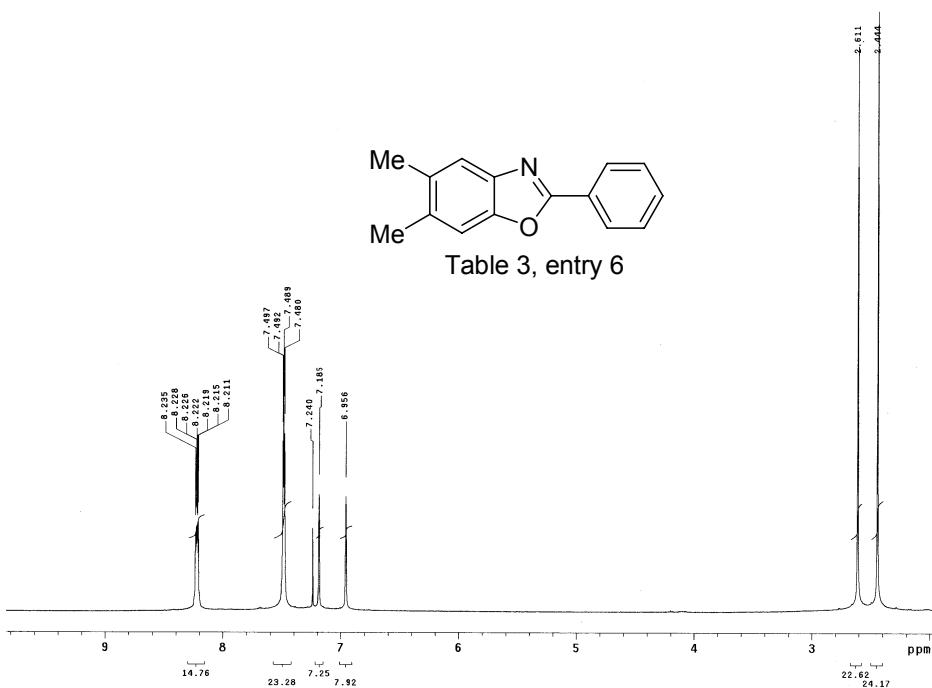
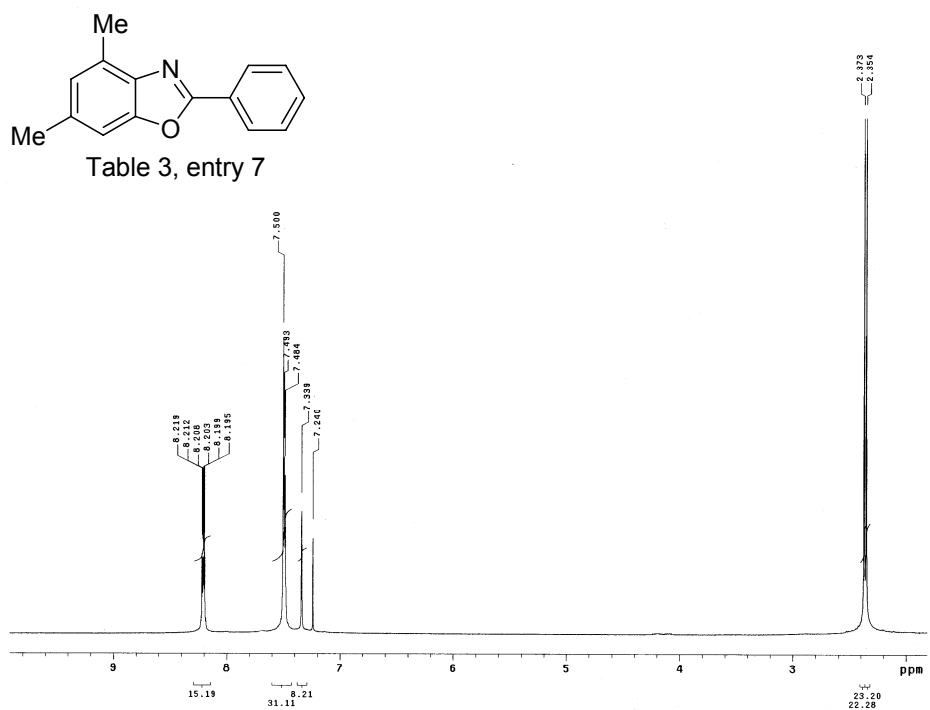
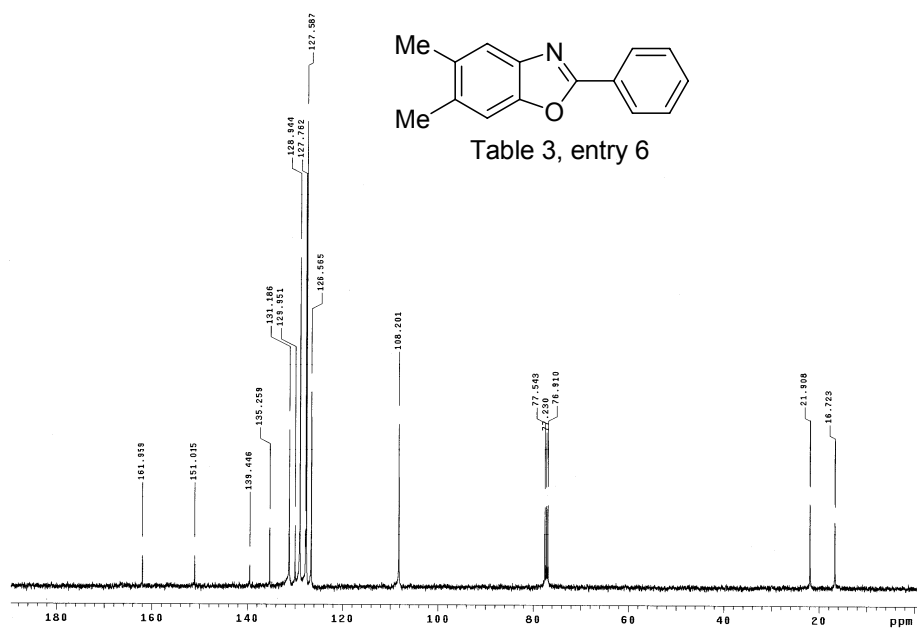


Table 3, entry 6





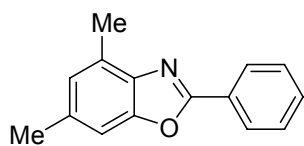


Table 3, entry 7

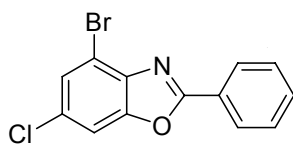
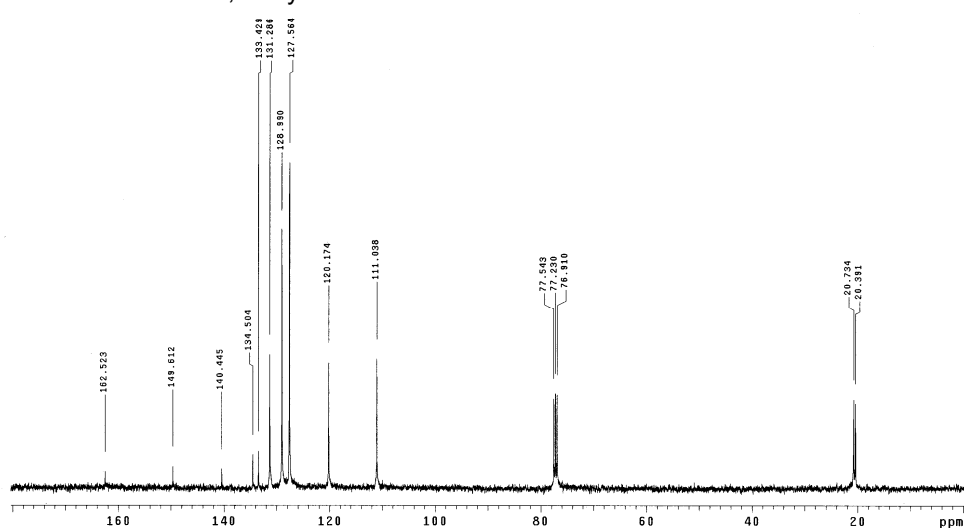


Table 3, entry 8

