

Supplementary Information

Synthesis of thioesters through copper-catalyzed coupling of aldehydes with thiols in water

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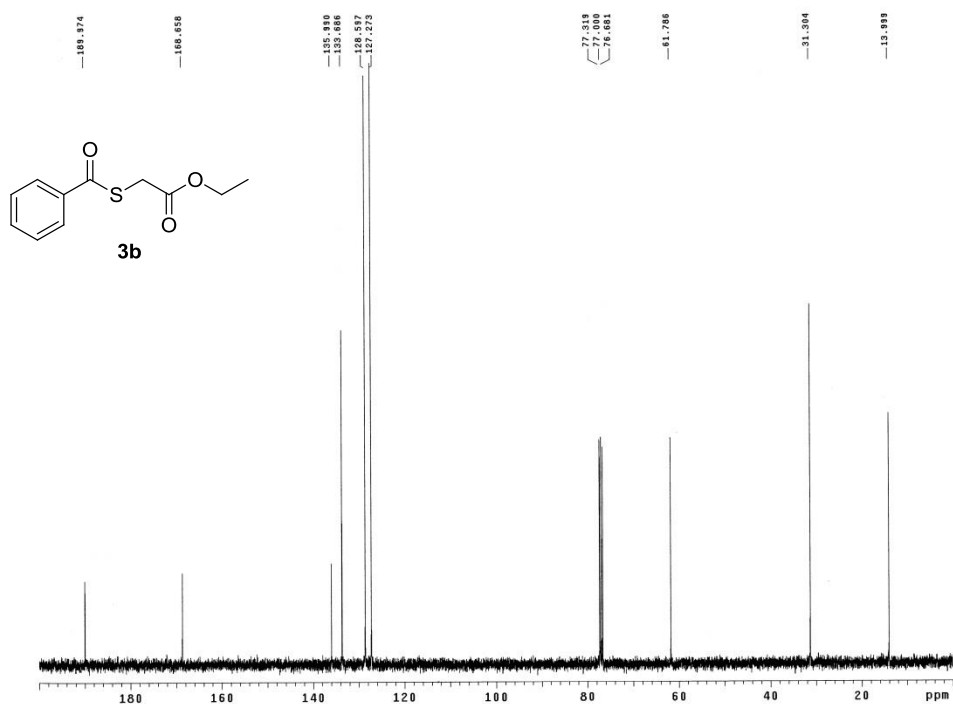
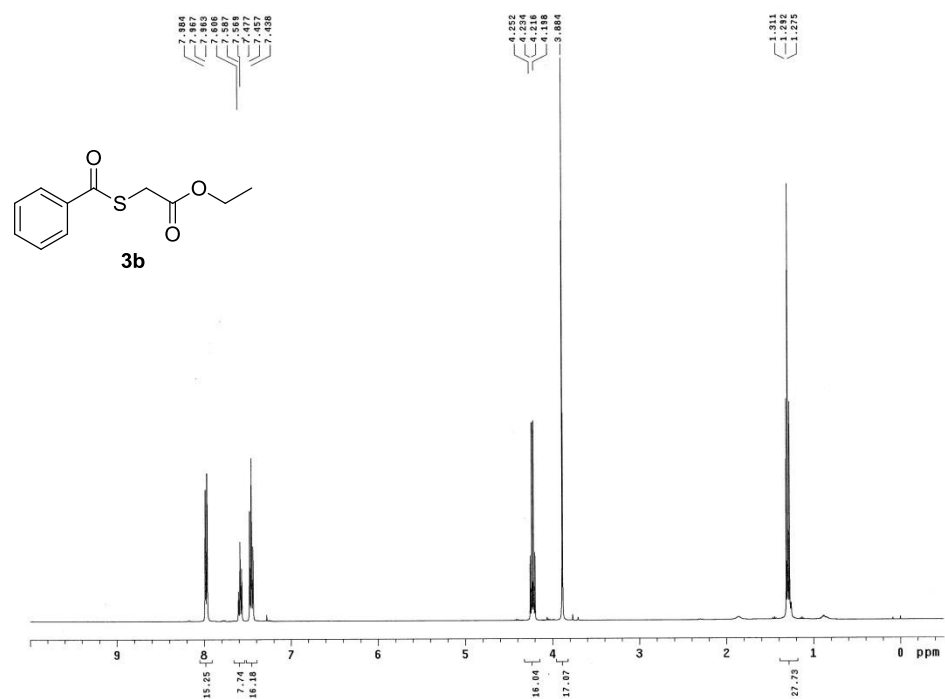
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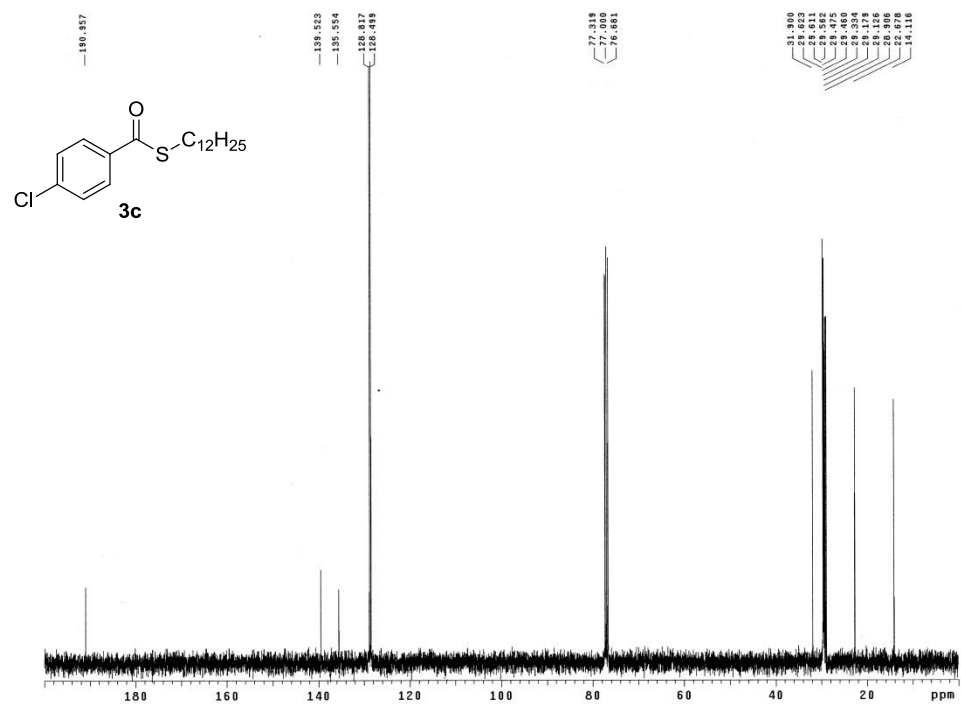
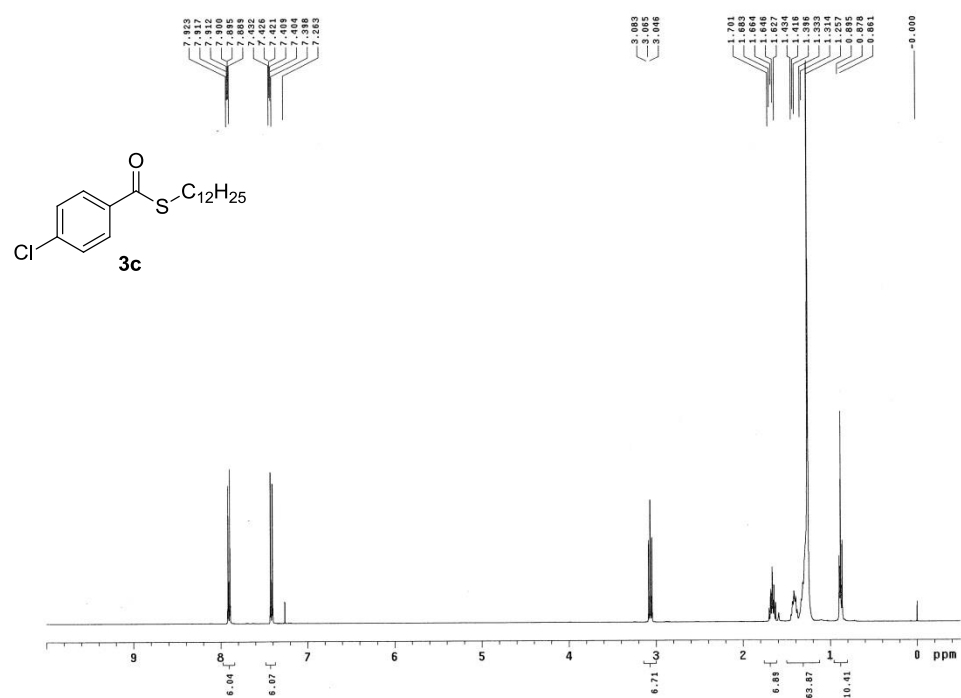
1. General information for NMR measurement

Proton and carbon nuclear magnetic resonance spectra (^1H and ^{13}C NMR) were recorded in CDCl_3 . Chemical shifts (δ) are reported in ppm, and coupling constants (J) are given in Hz.

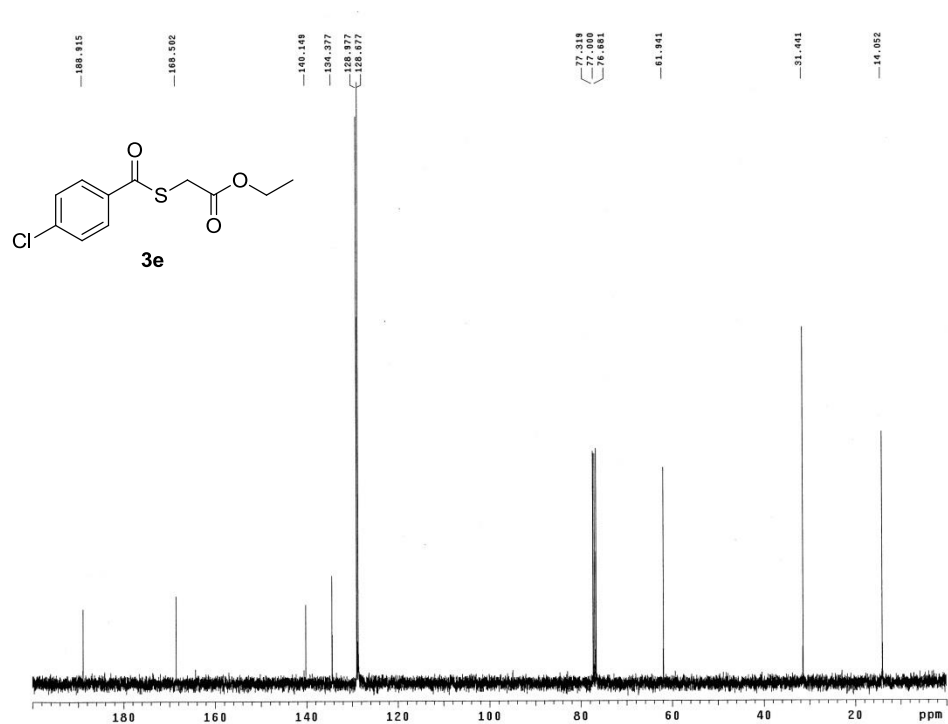
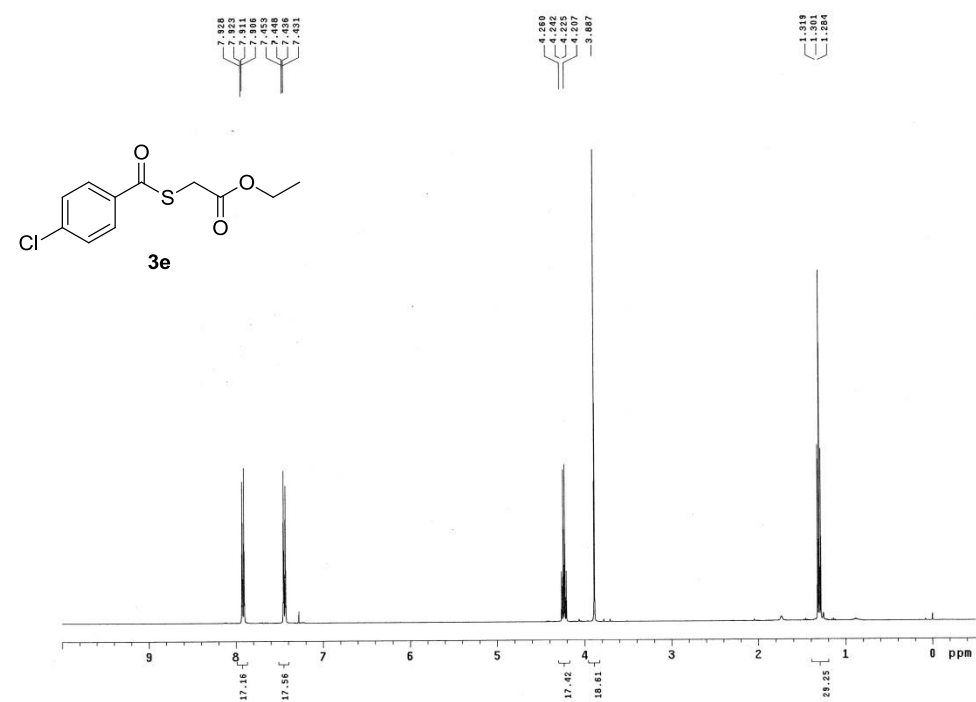
Ethyl 2-(benzoylthio)acetate (**3b**)



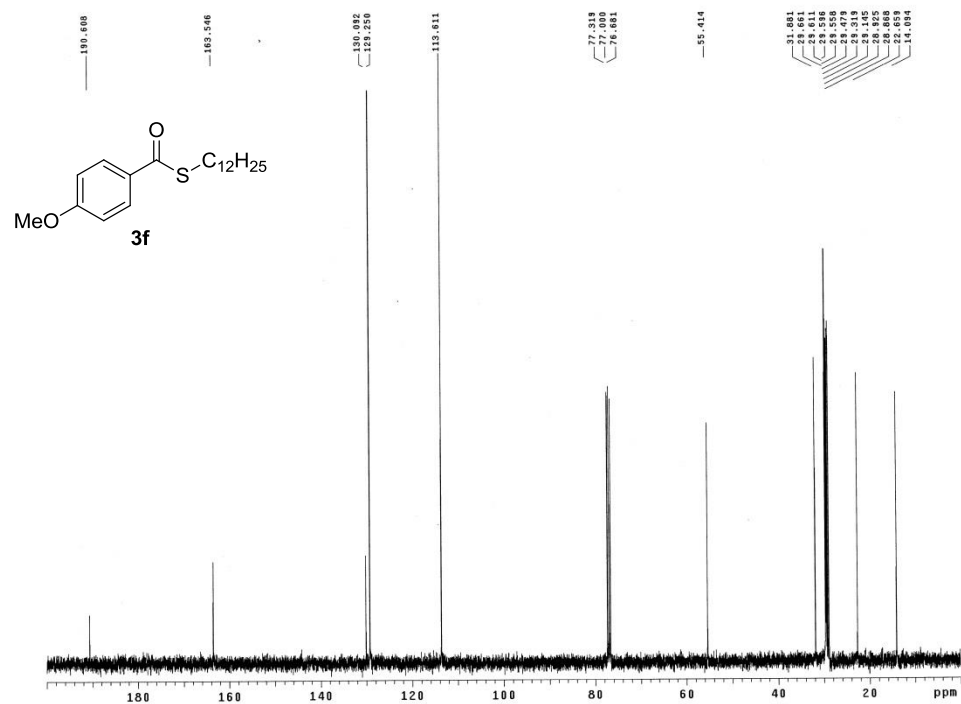
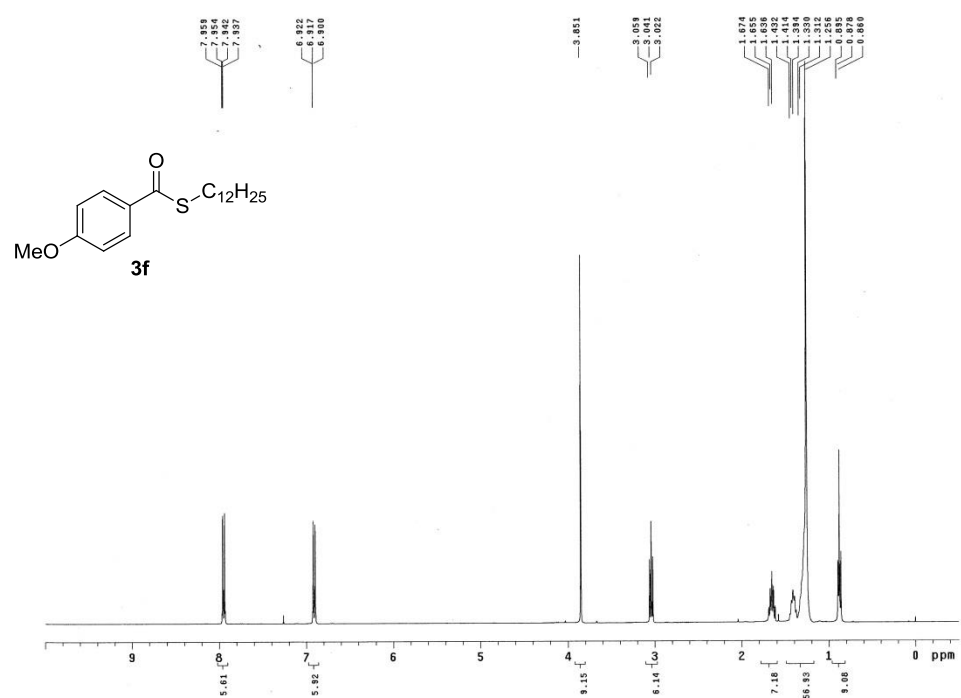
S-Dodecyl 4-chlorobezothioate (3c)



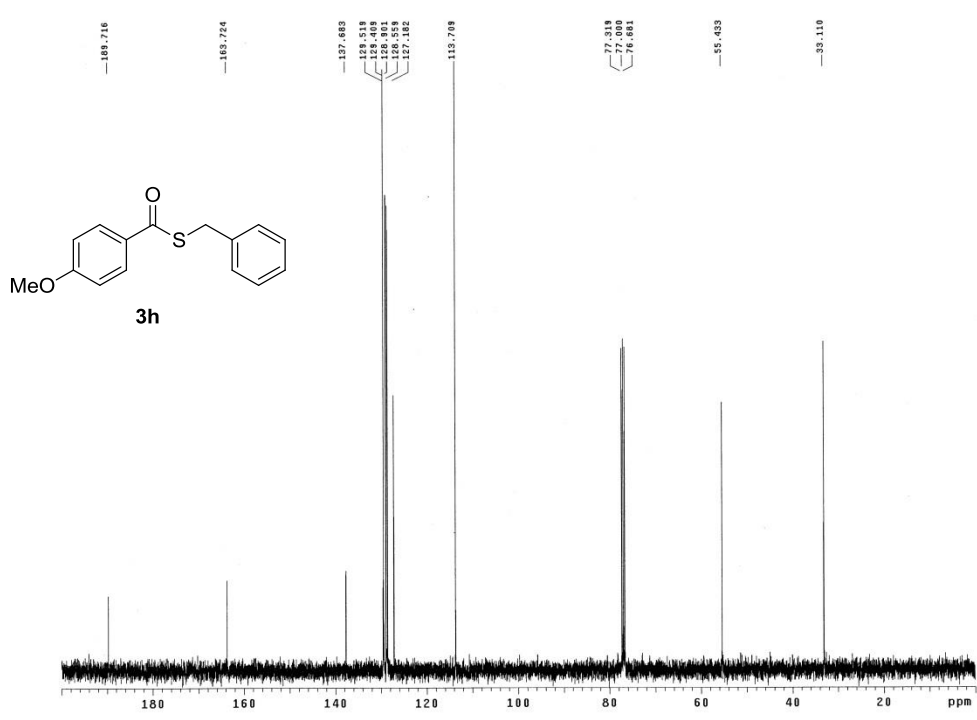
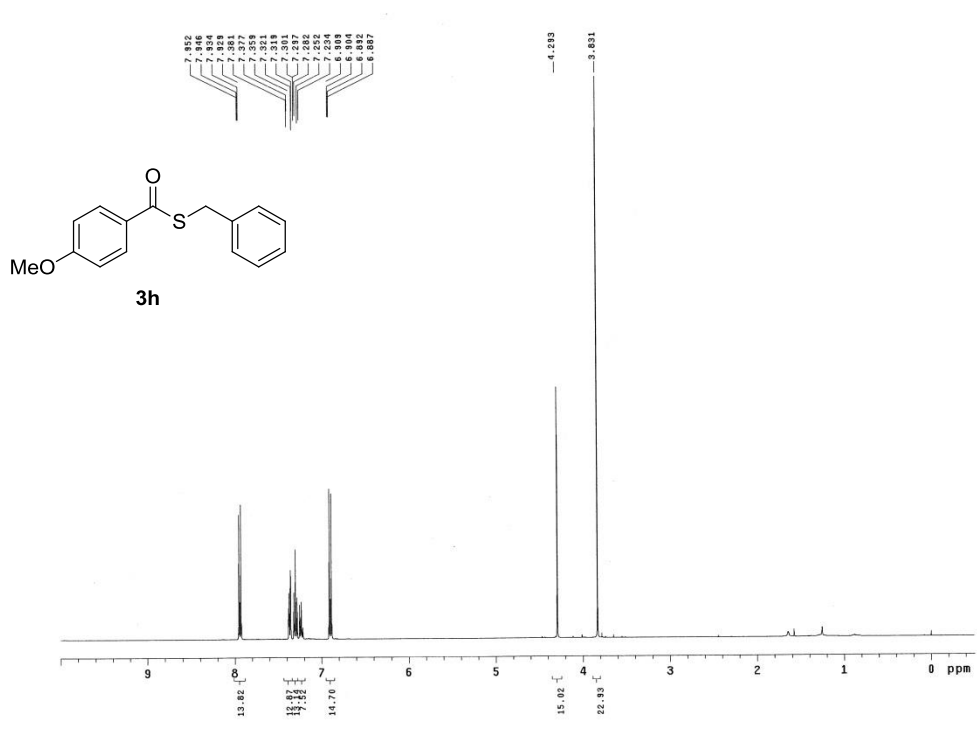
Ethyl 2-((4-chlorobenzoyl)thio)acetate (3e)



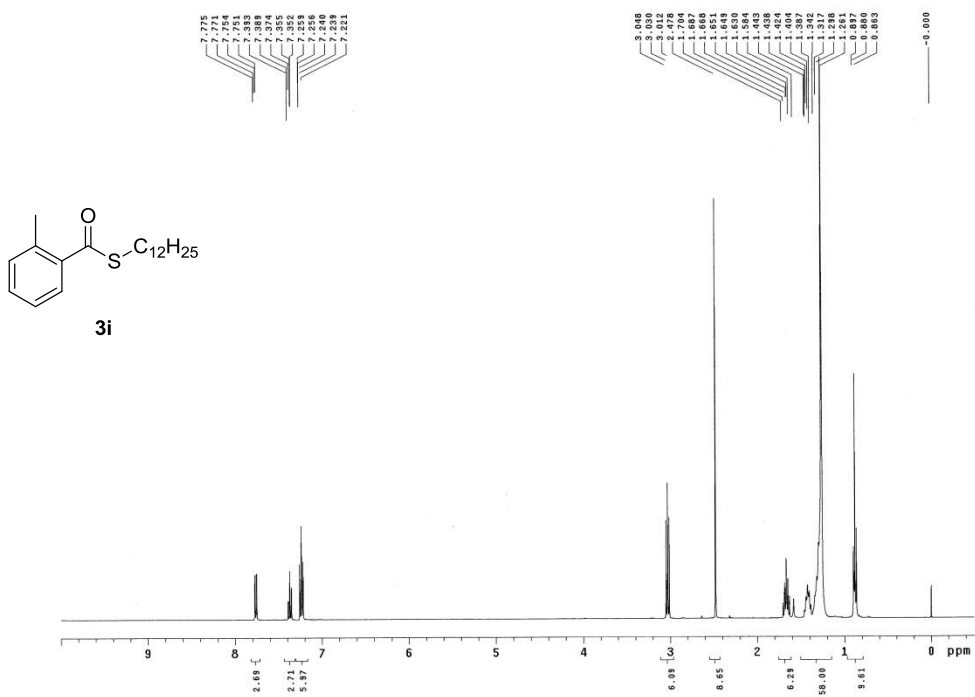
S-Dodecyl 4-methoxybenzothioate (3f)



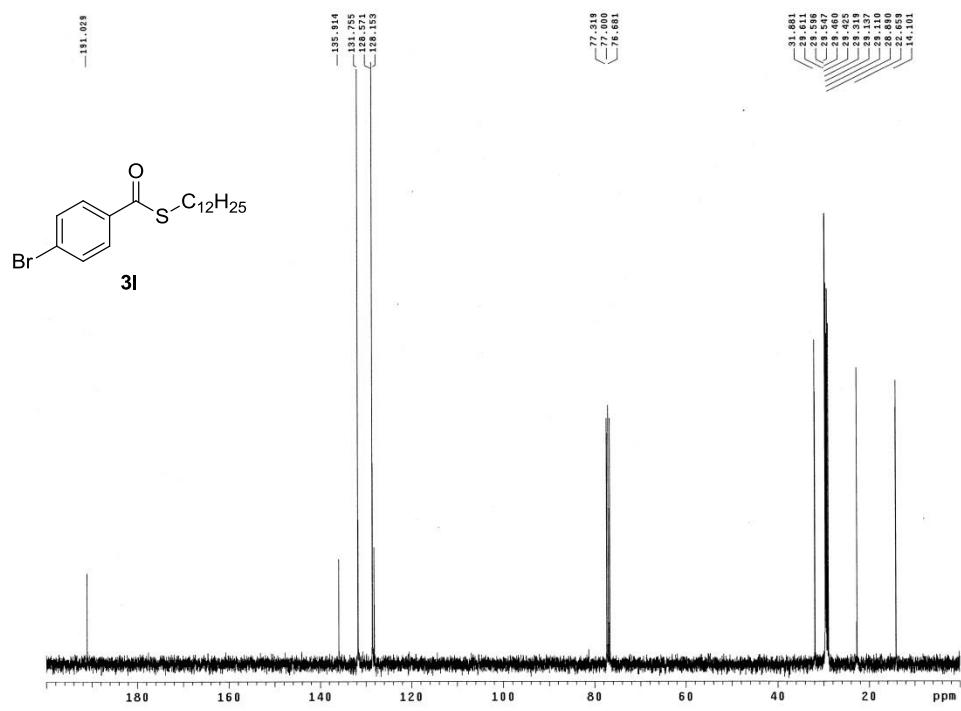
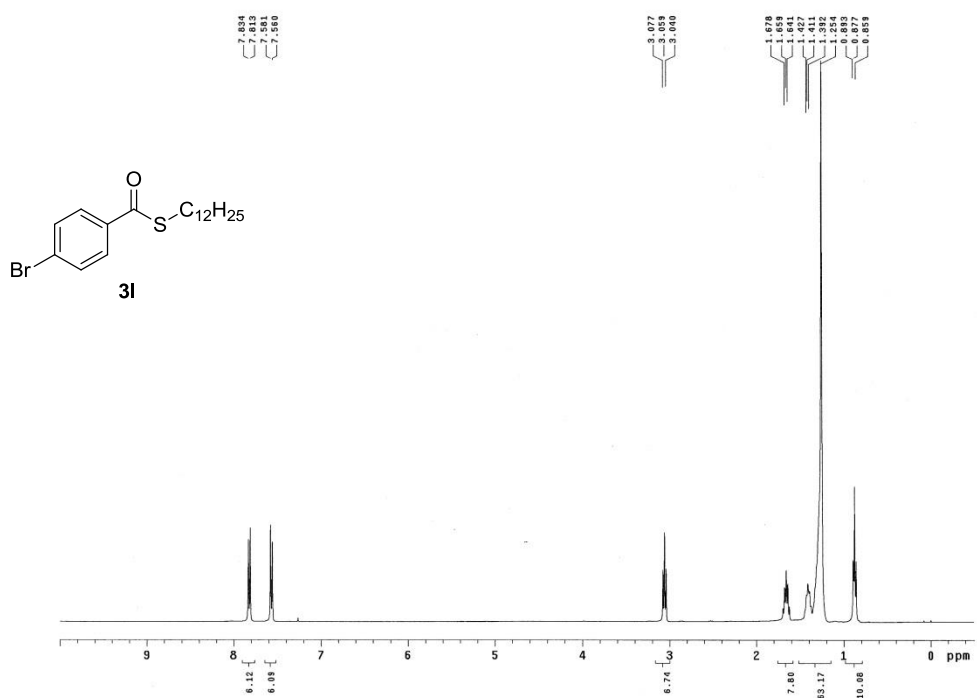
S-Benzyl 4-methoxybenzothioate (3h)



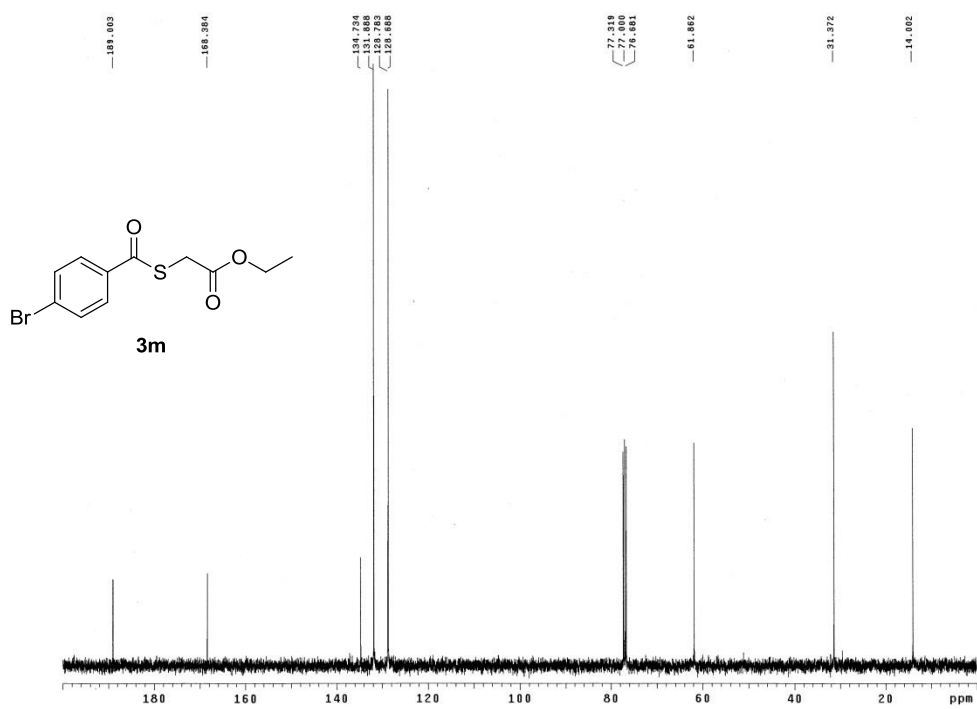
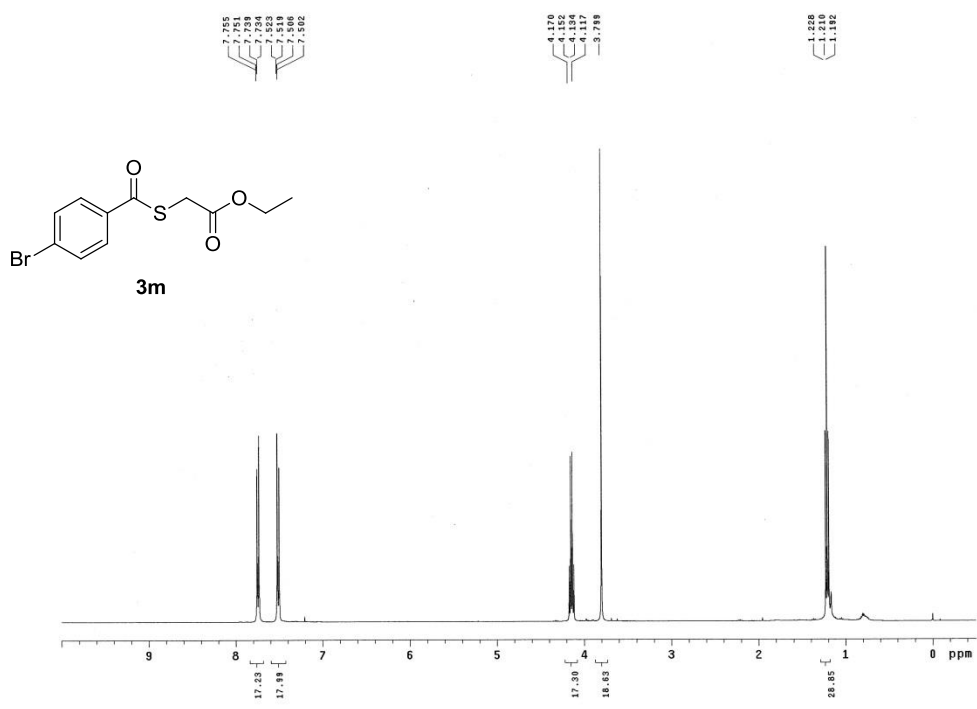
S-Dodecyl 2-methylbenzothioate (**3i**)



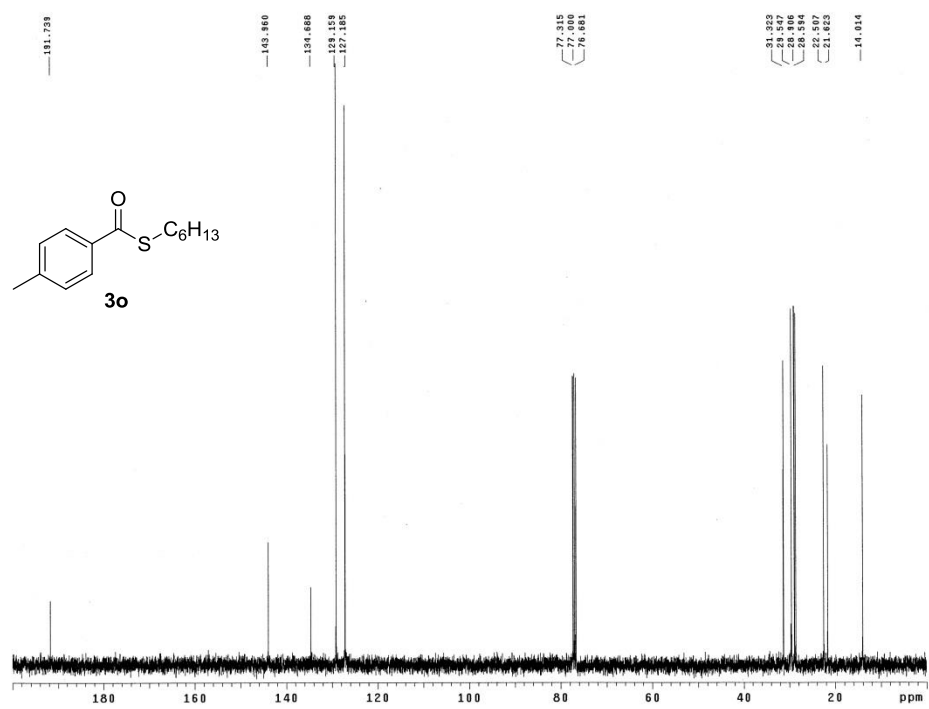
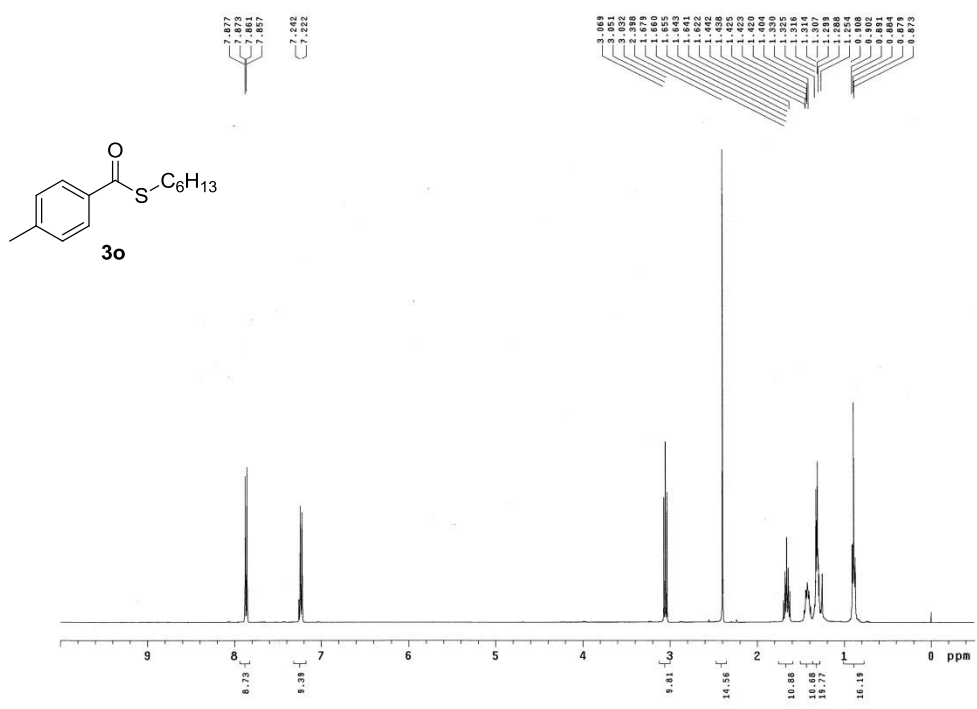
S-Dodecyl 4-bromobenzothioate (3I)



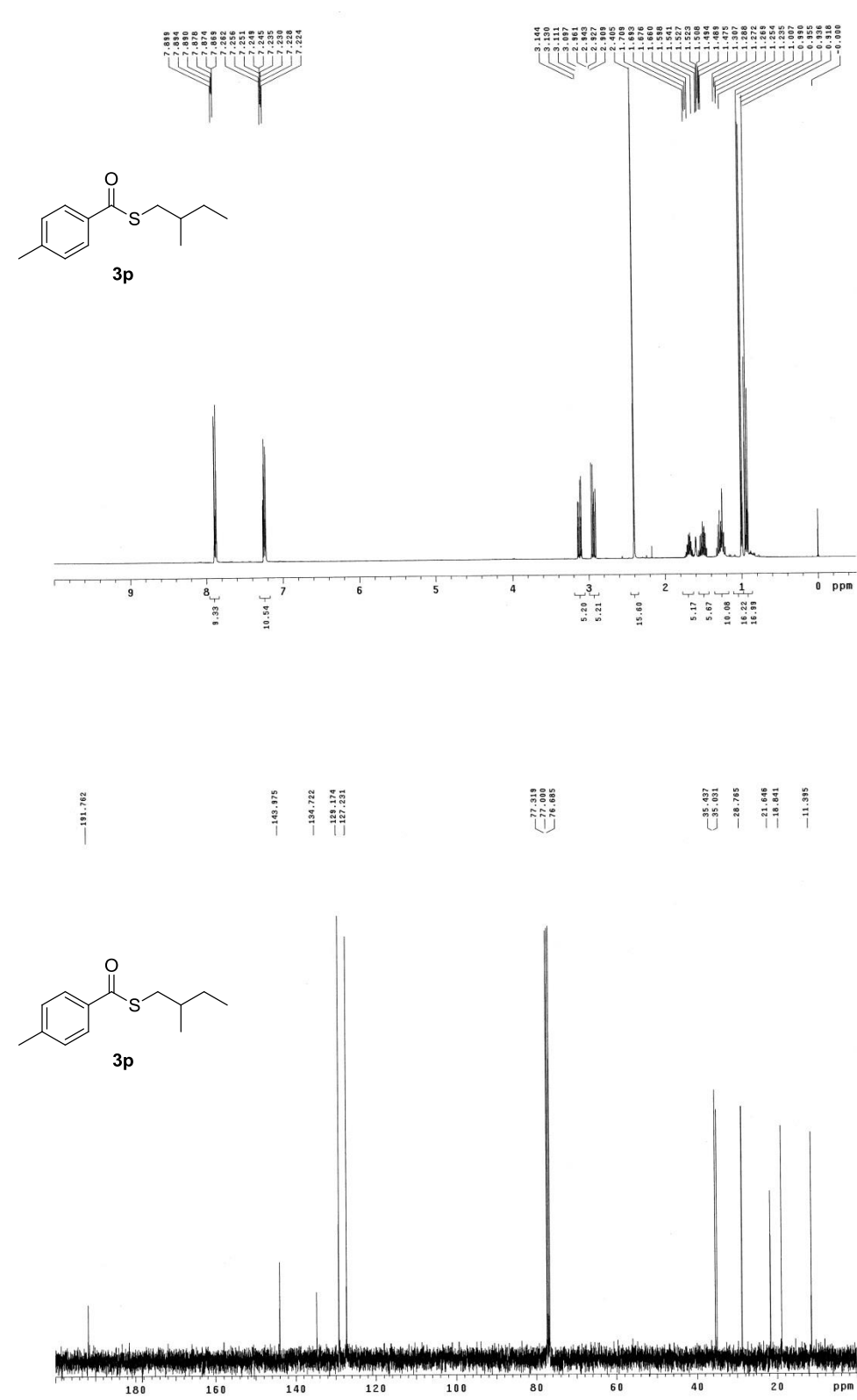
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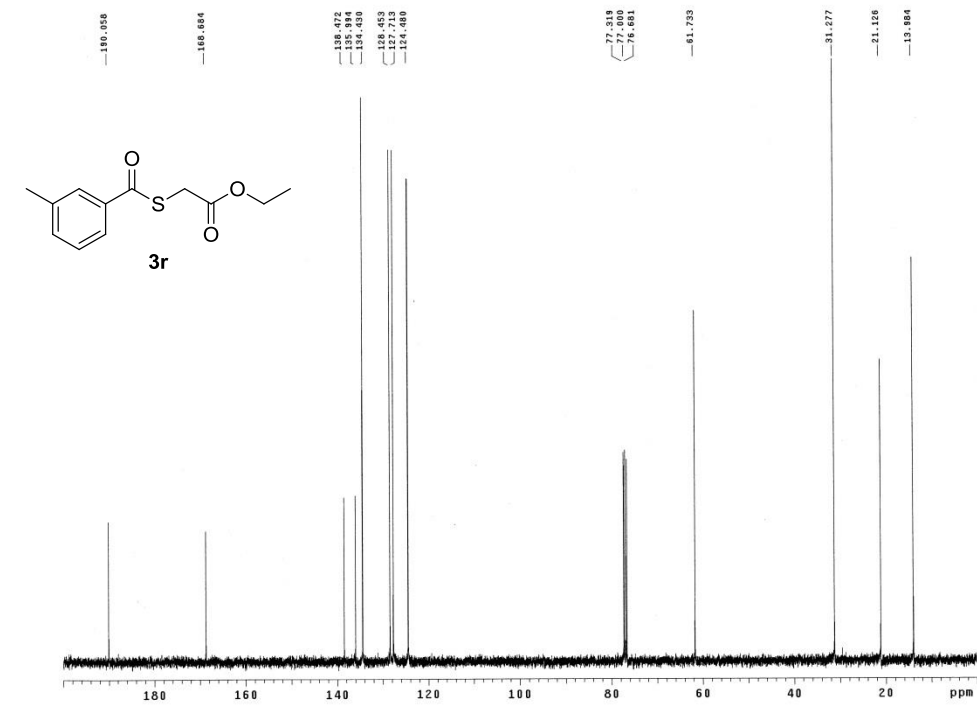
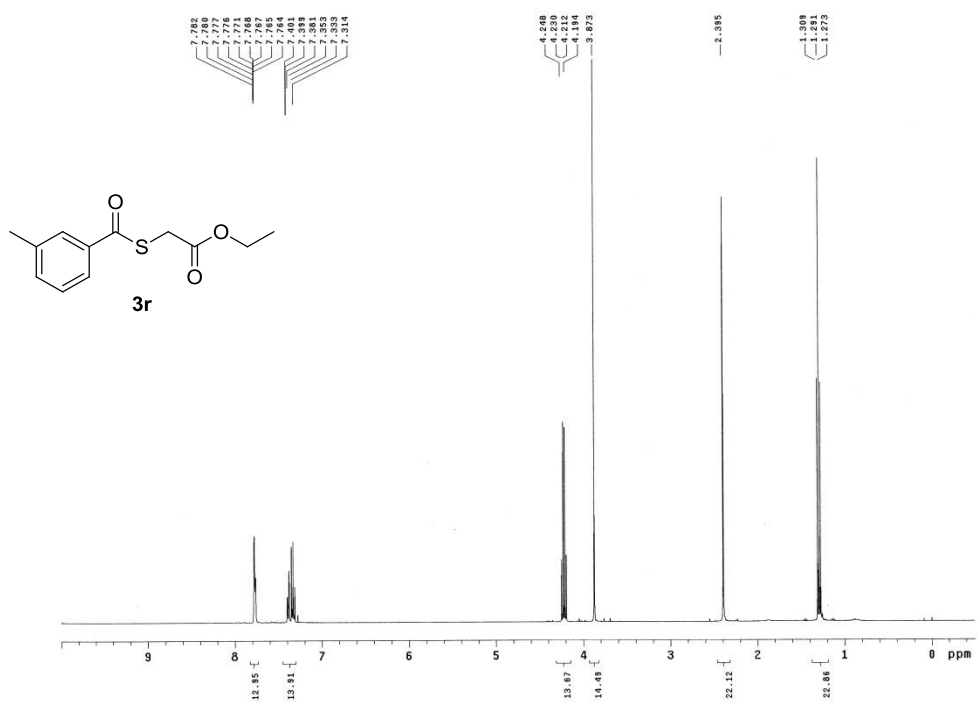
S-Hexyl 4-methylbenzothioate (3o)



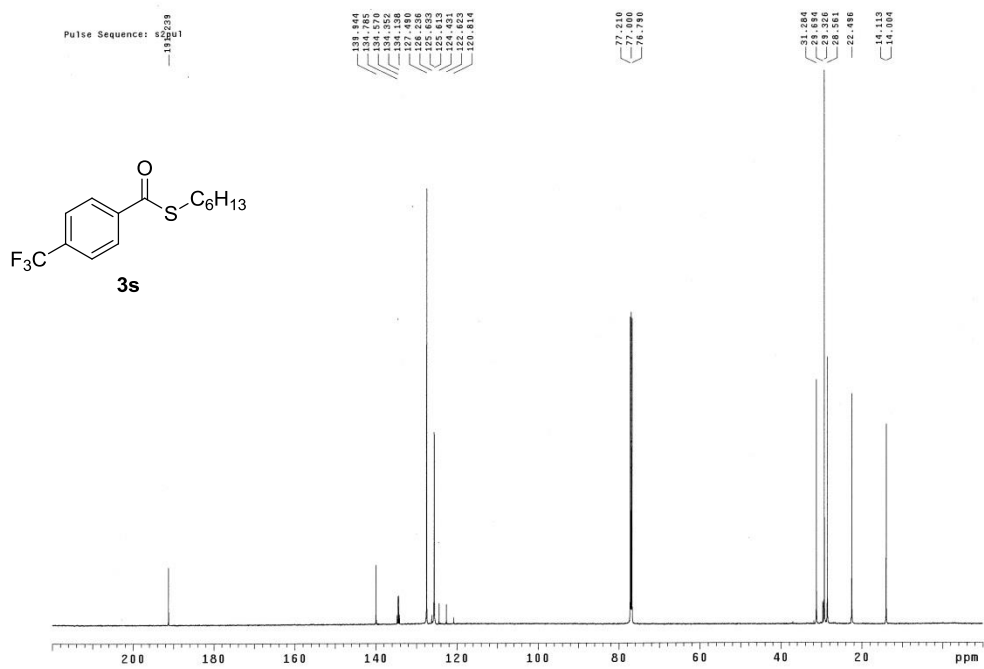
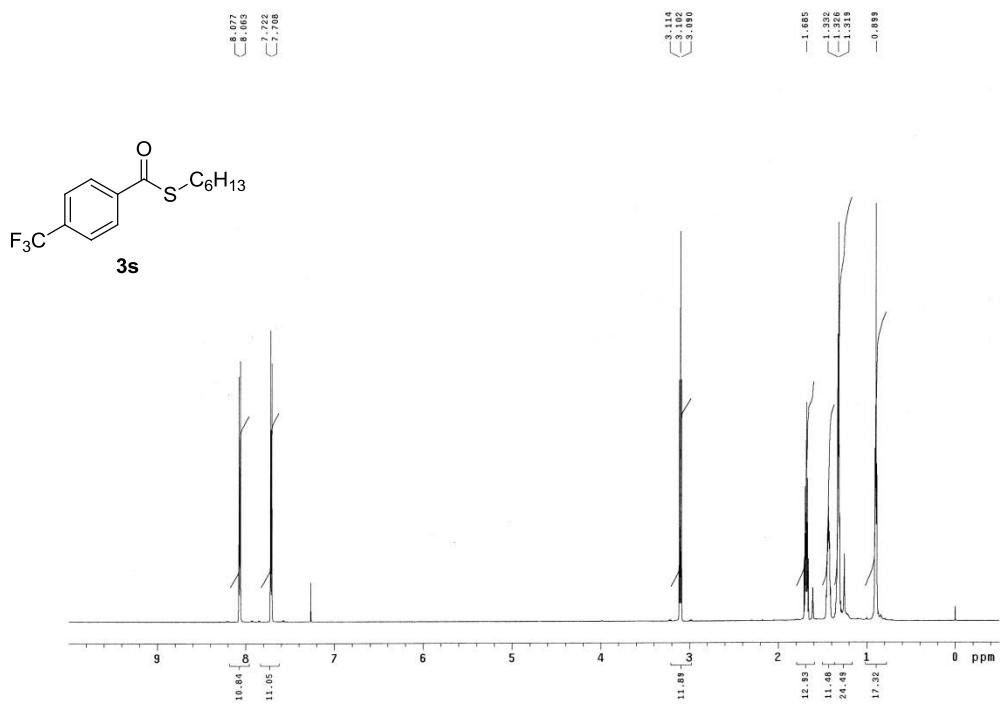
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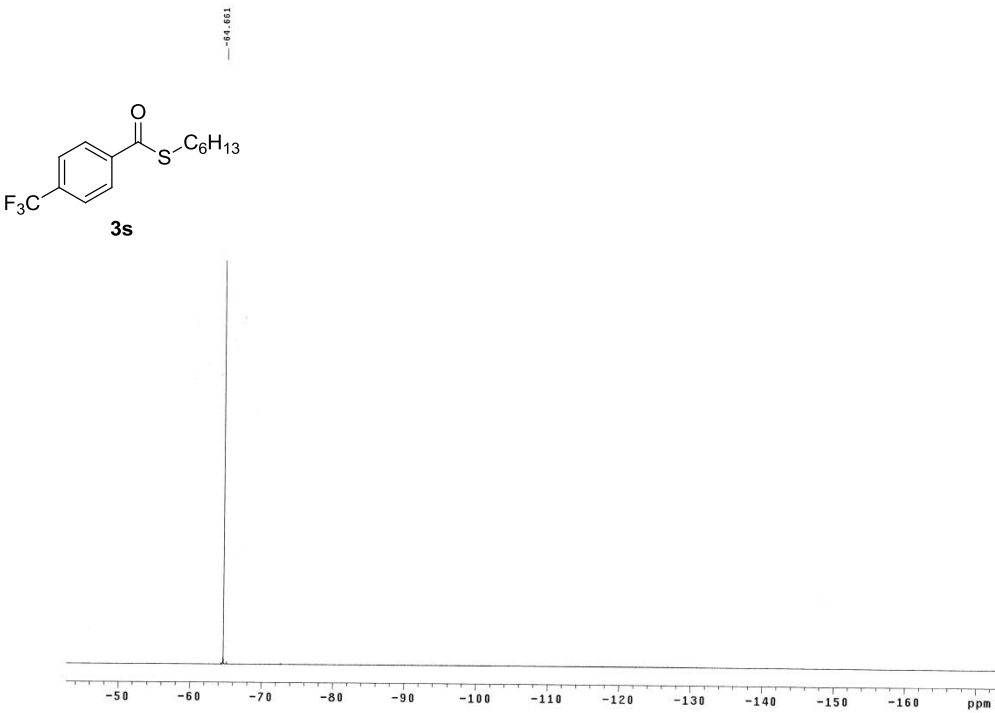


Ethyl 2-((3-methylbenzoyl)thio)acetate (3r)

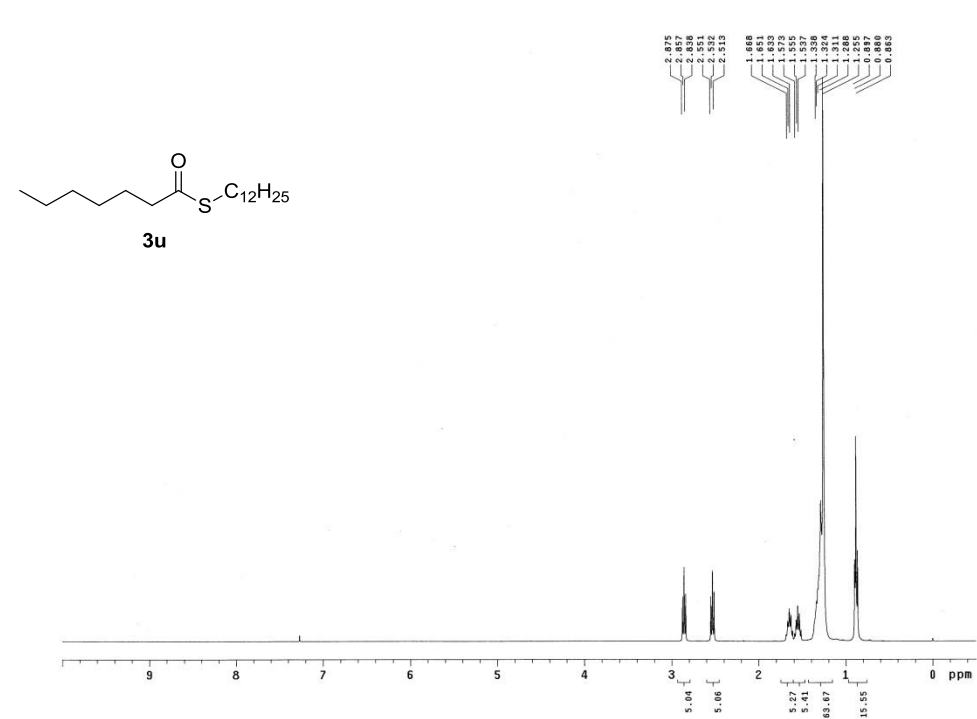


S-Hexyl 4-(trifluoromethyl)benzothioate (3s)

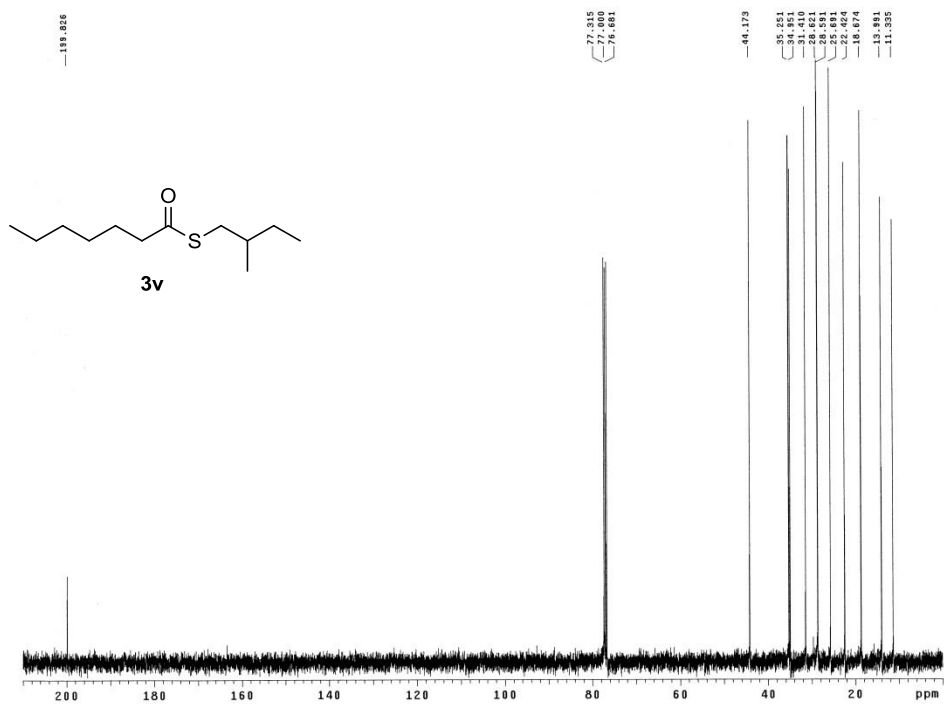
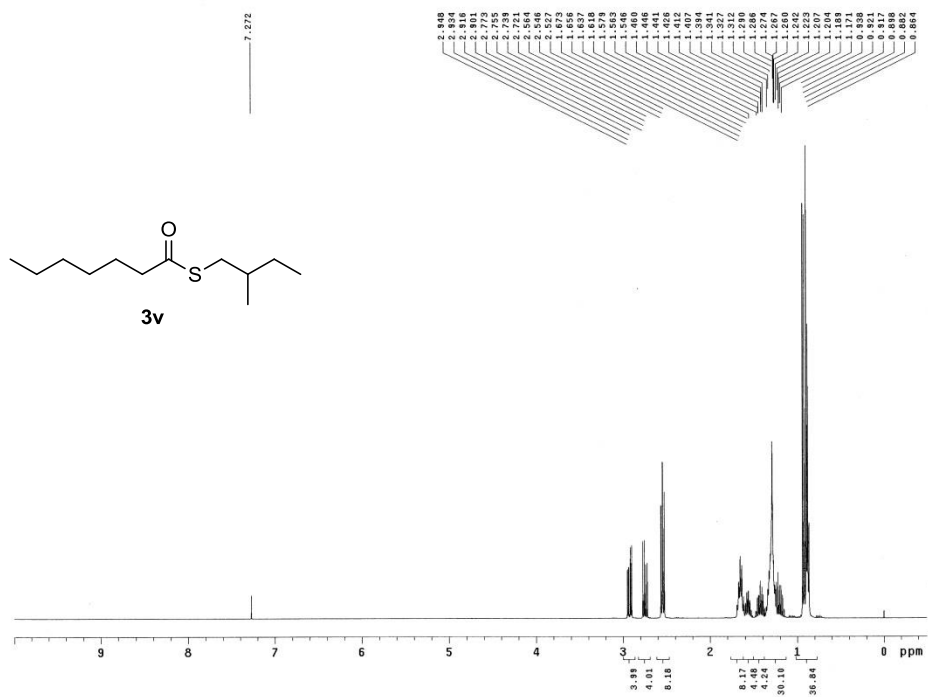




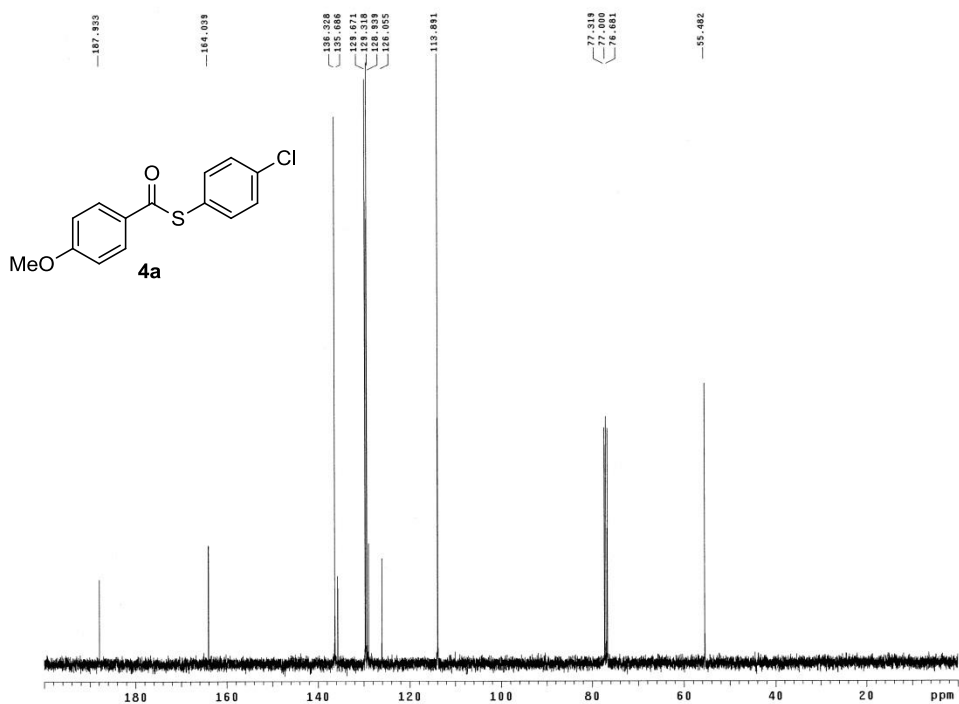
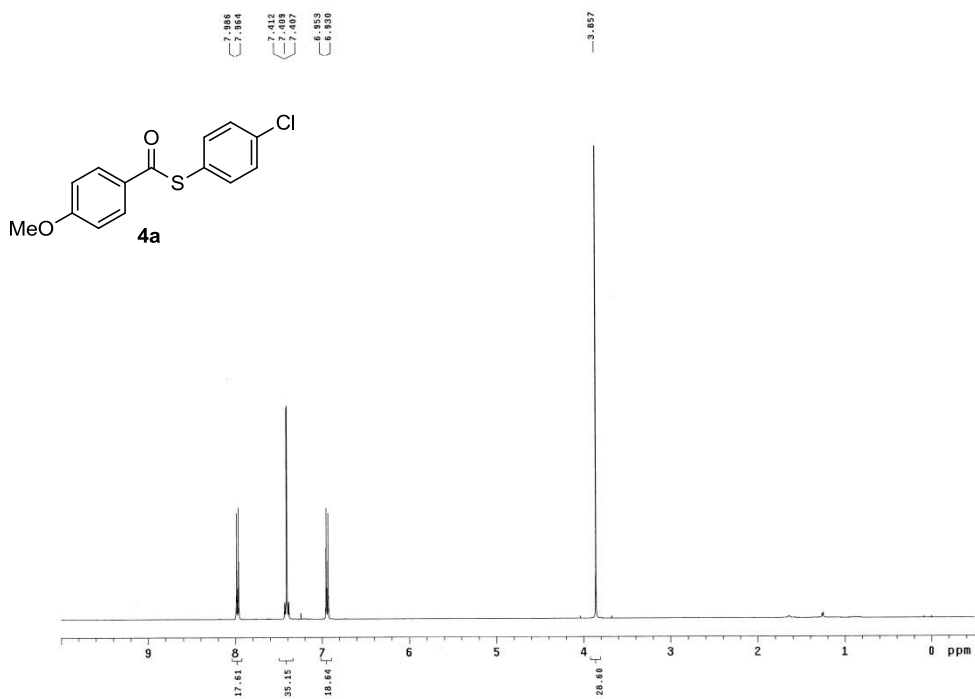
S-Dodecyl heptanethioate (3u)



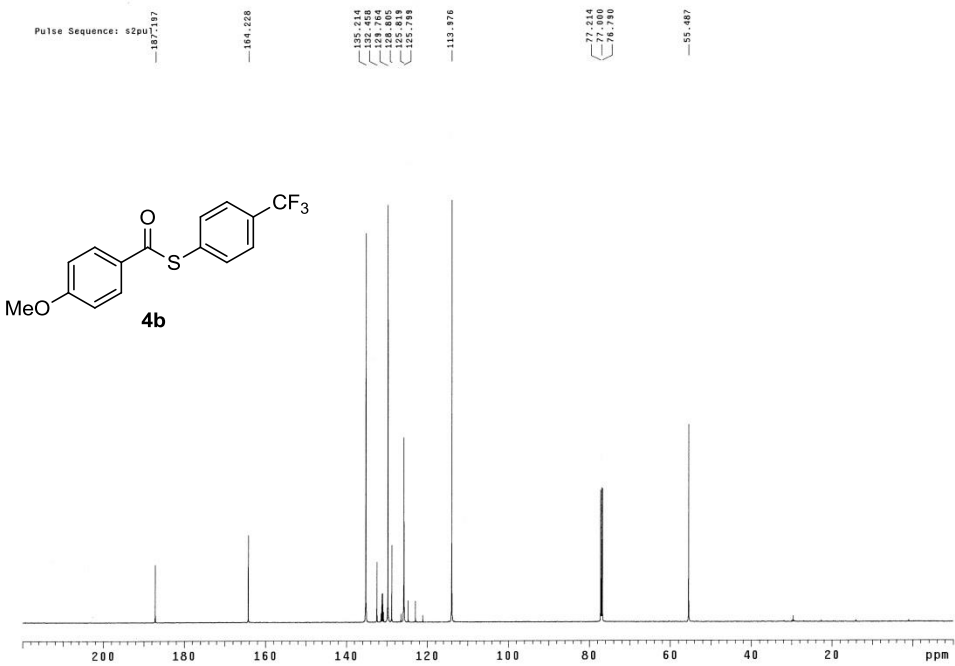
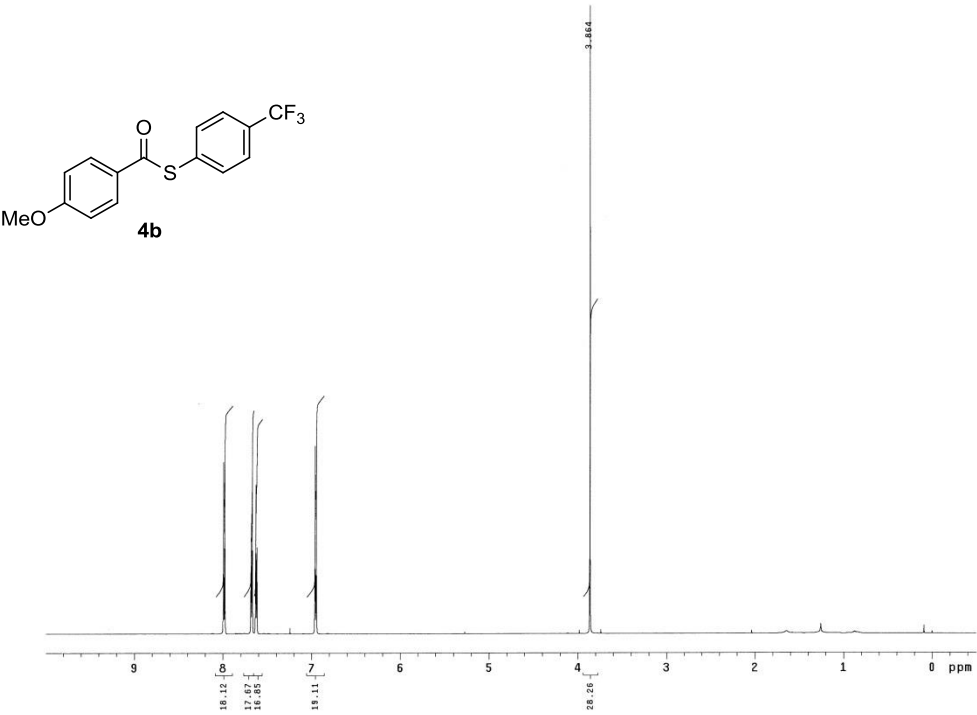
***S*-(2-Methyl-1-butyl) heptanethioate (3v)**

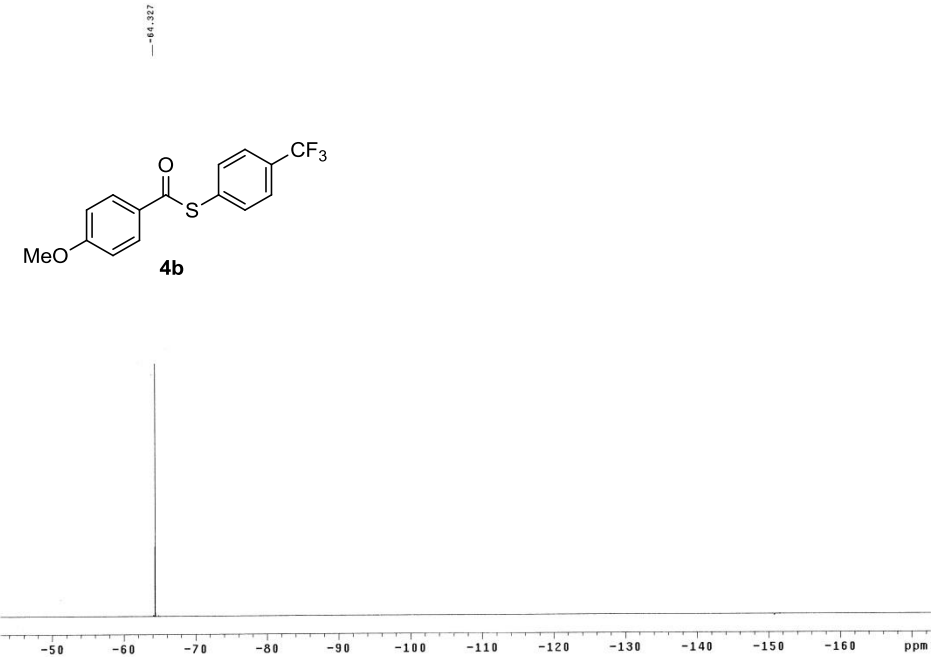


***S*-(4-Chlorophenyl) 4-methoxybenzothioate (4a)**

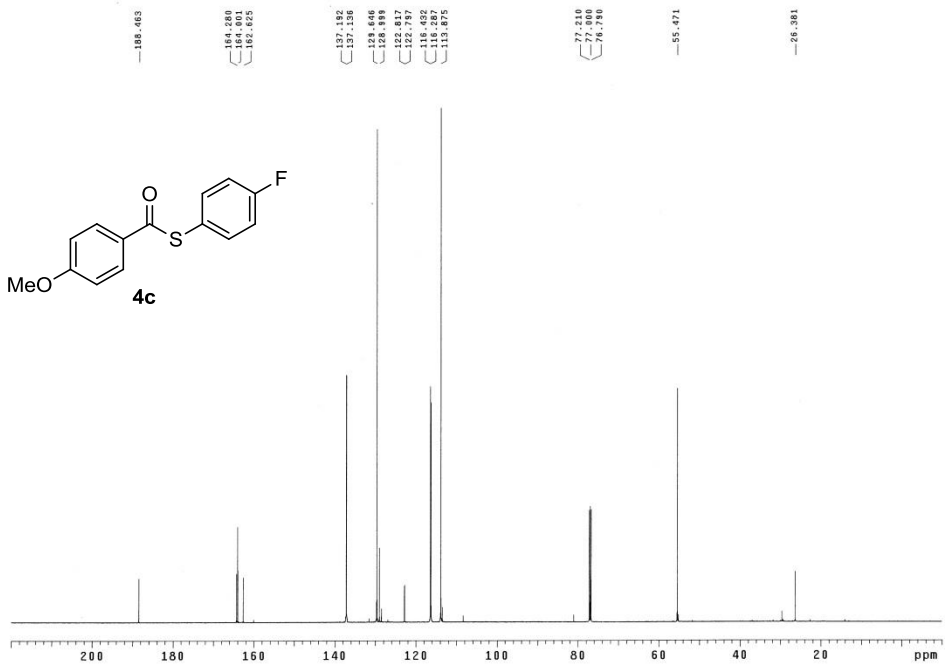
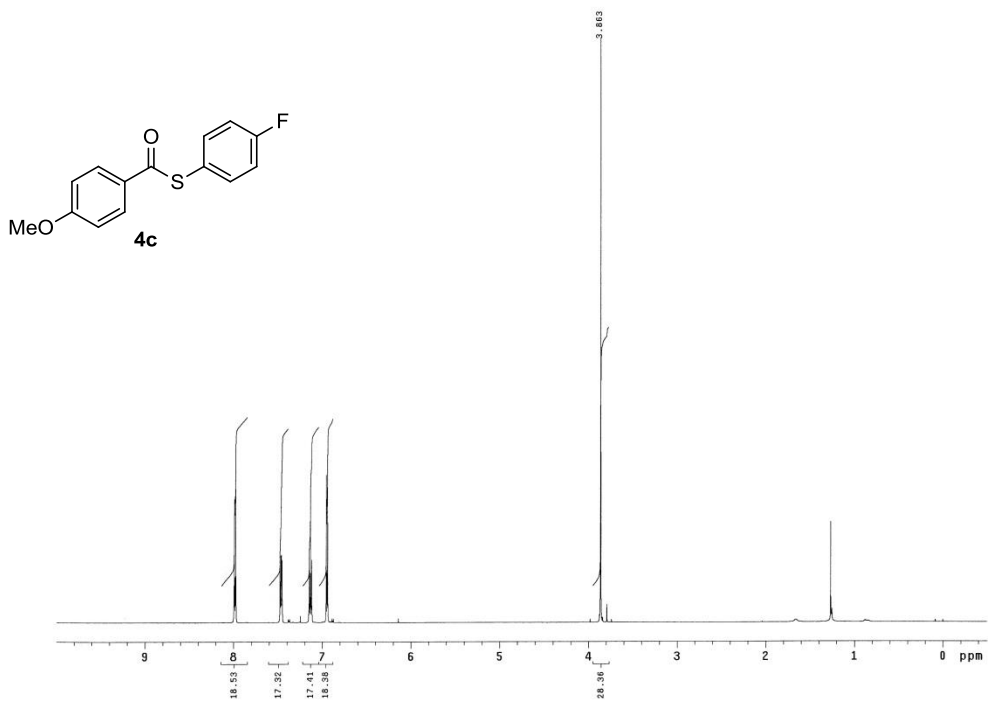


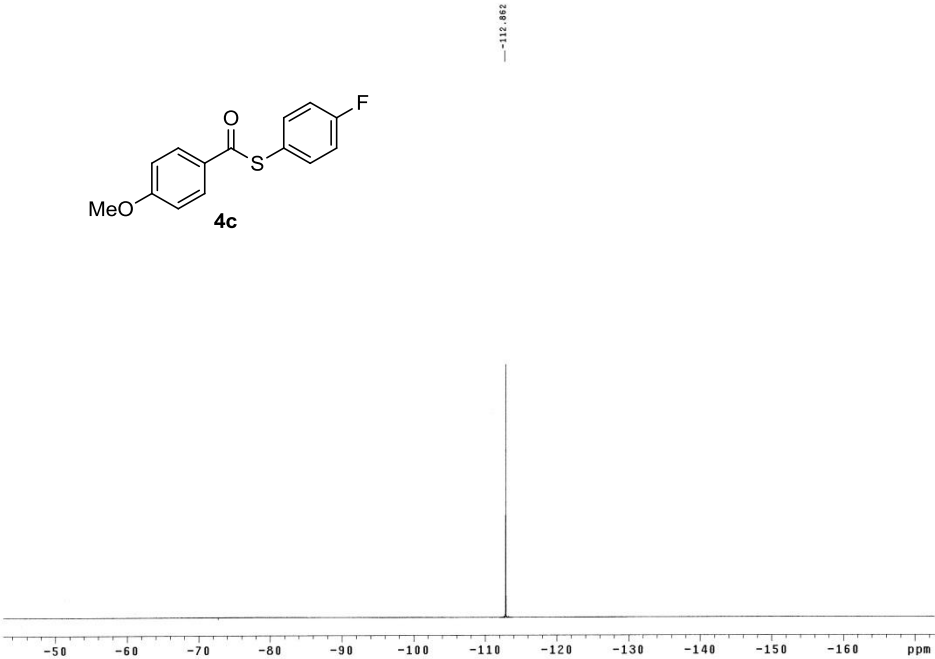
***S*-(4-(Trifluoromethyl)phenyl) 4-methoxybenzothioate (4b)**



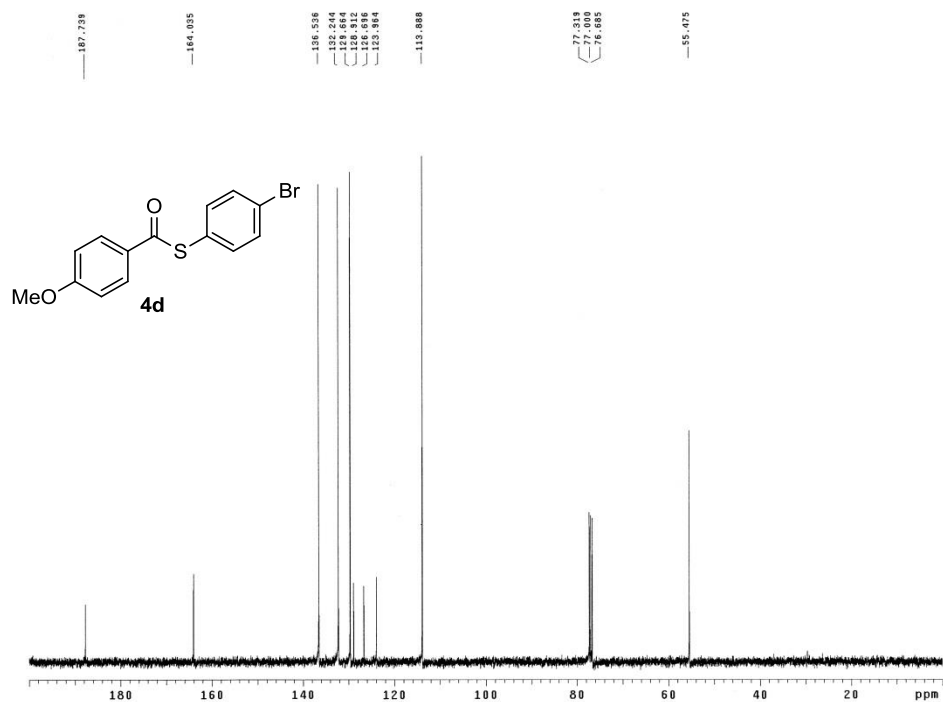
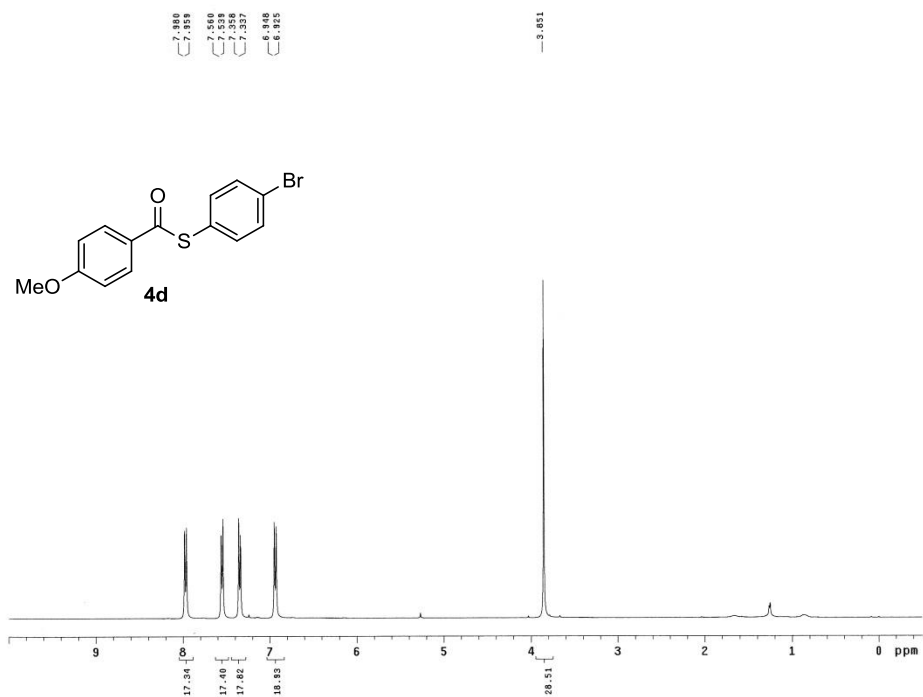


***S*-(4-Fluorophenyl) 4-methoxybenzothioate (4c)**

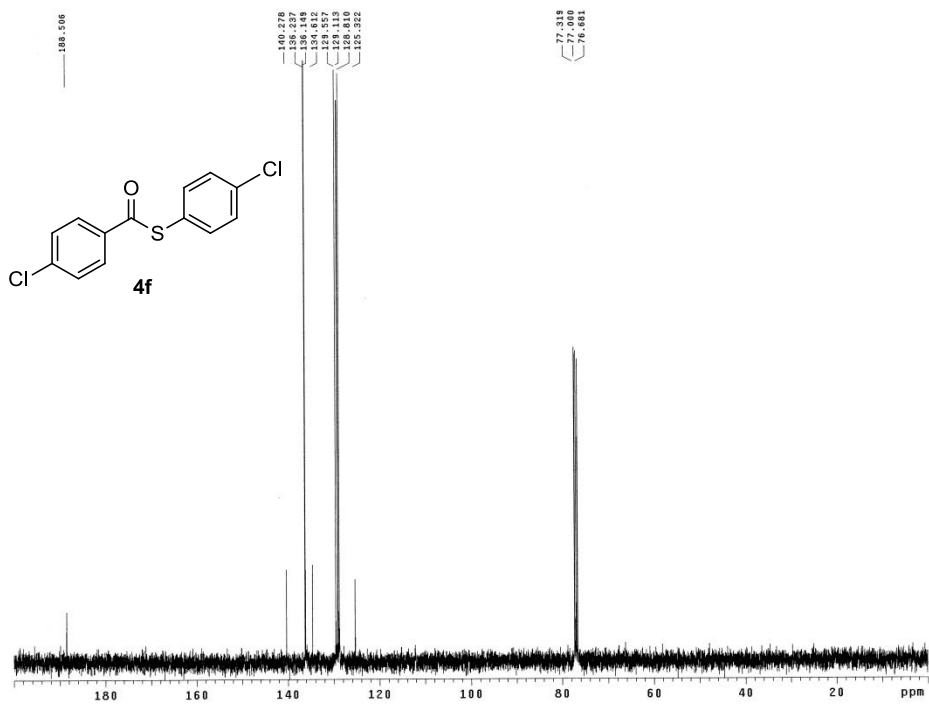
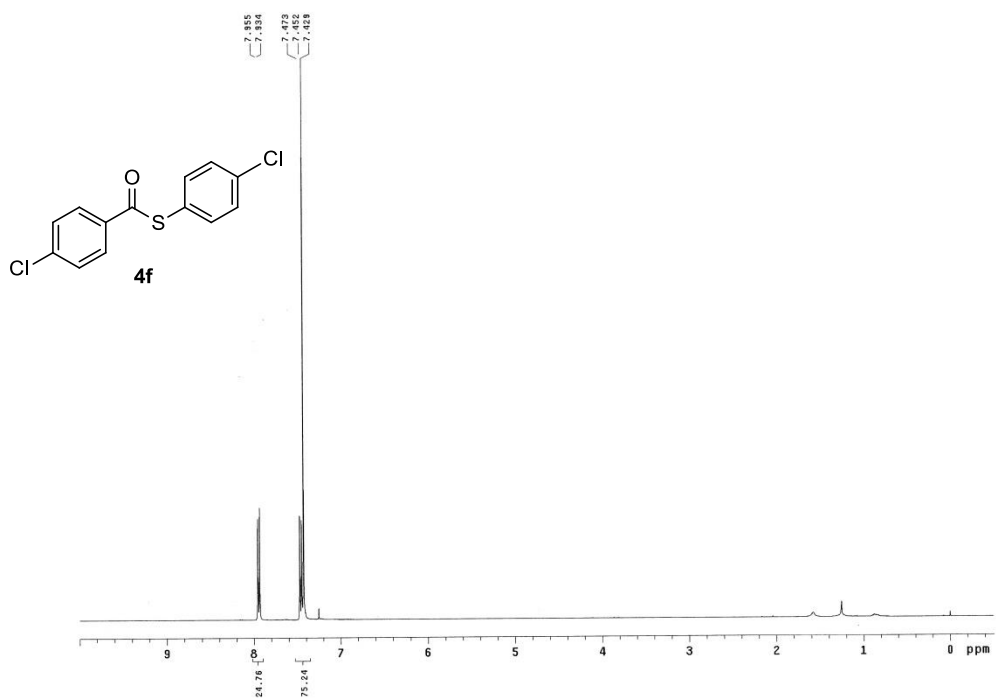


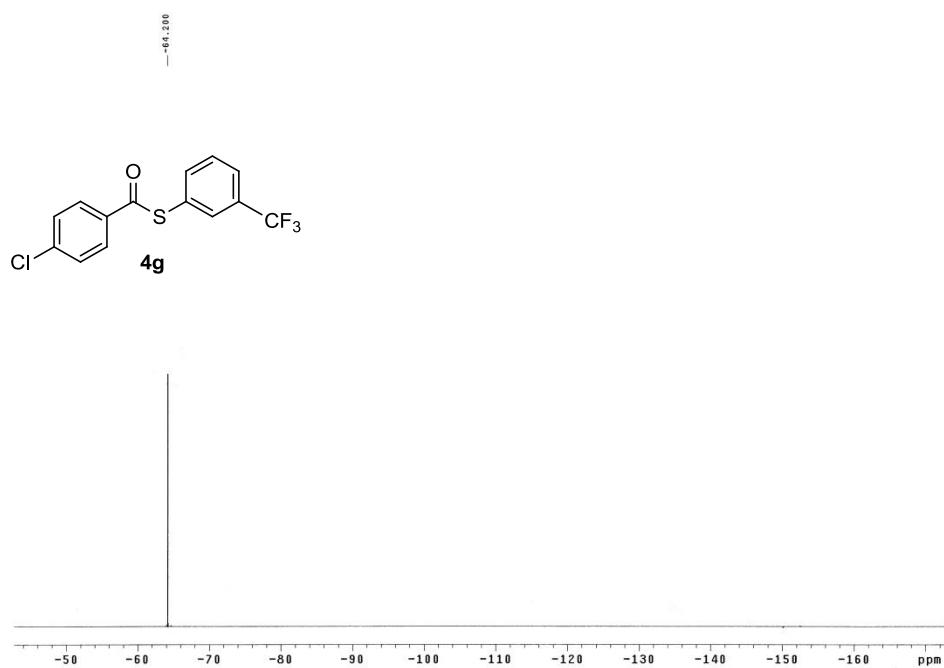


***S*-(4-Bromophenyl) 4-methoxybenzothioate (4d)**

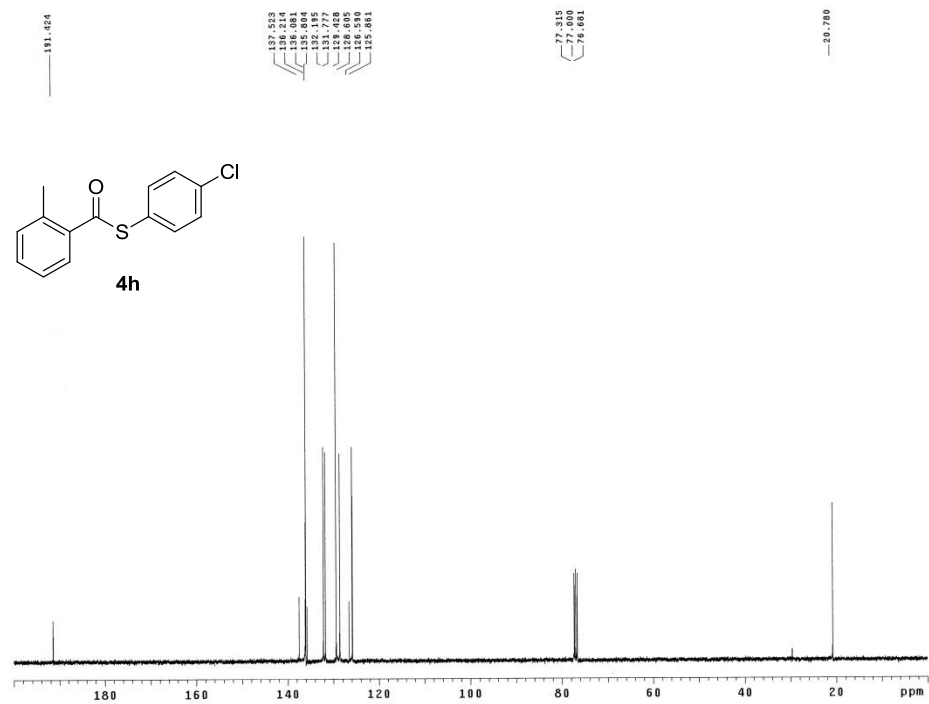
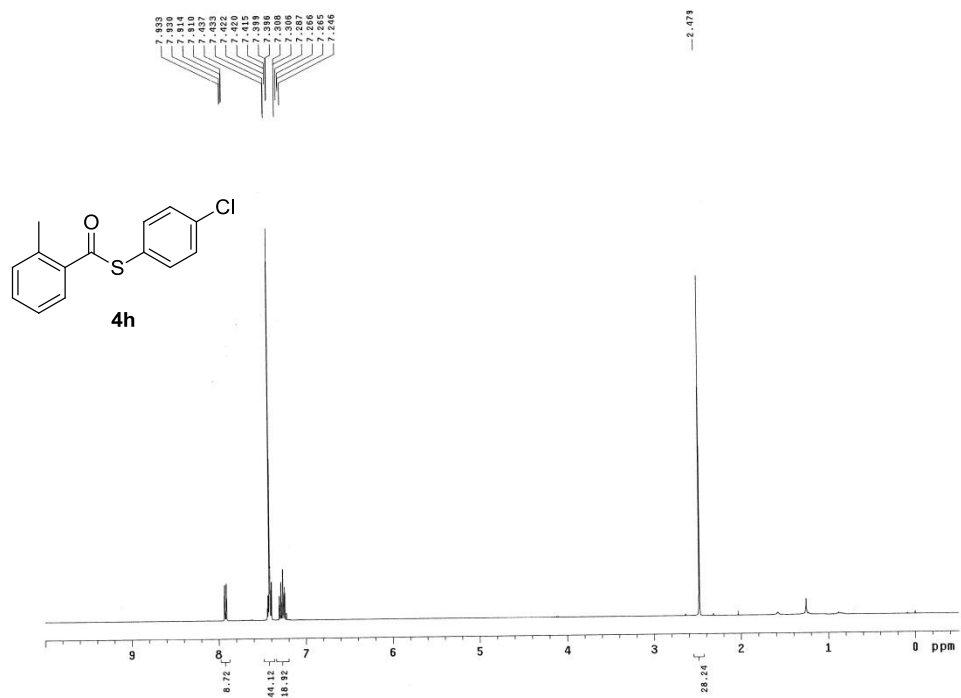


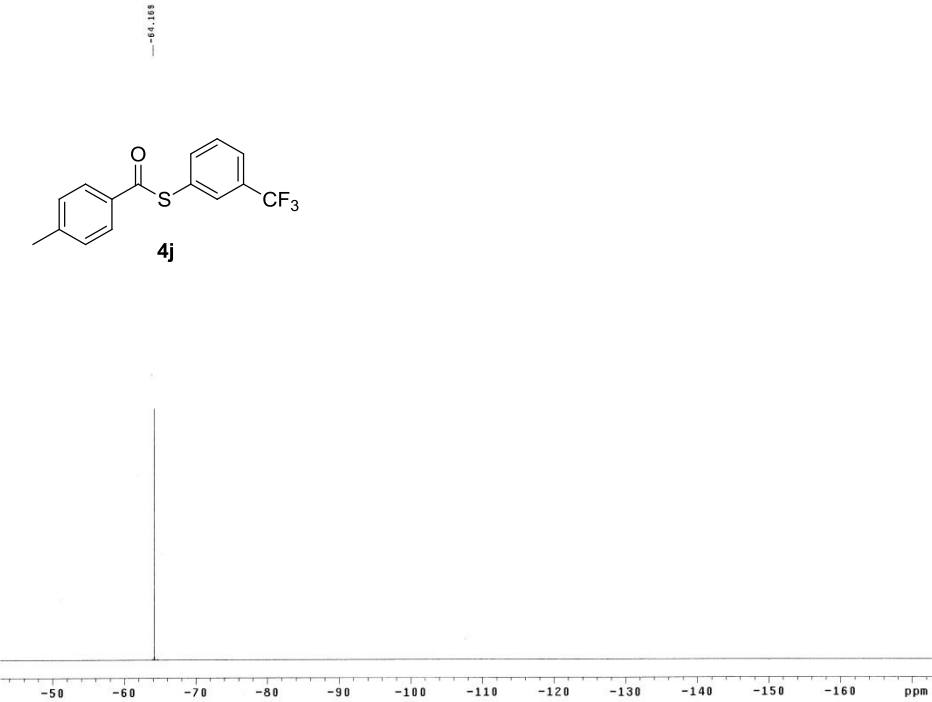
***S*-(4-Chlorophenyl) 4-chlorobenzothioate (4f)**



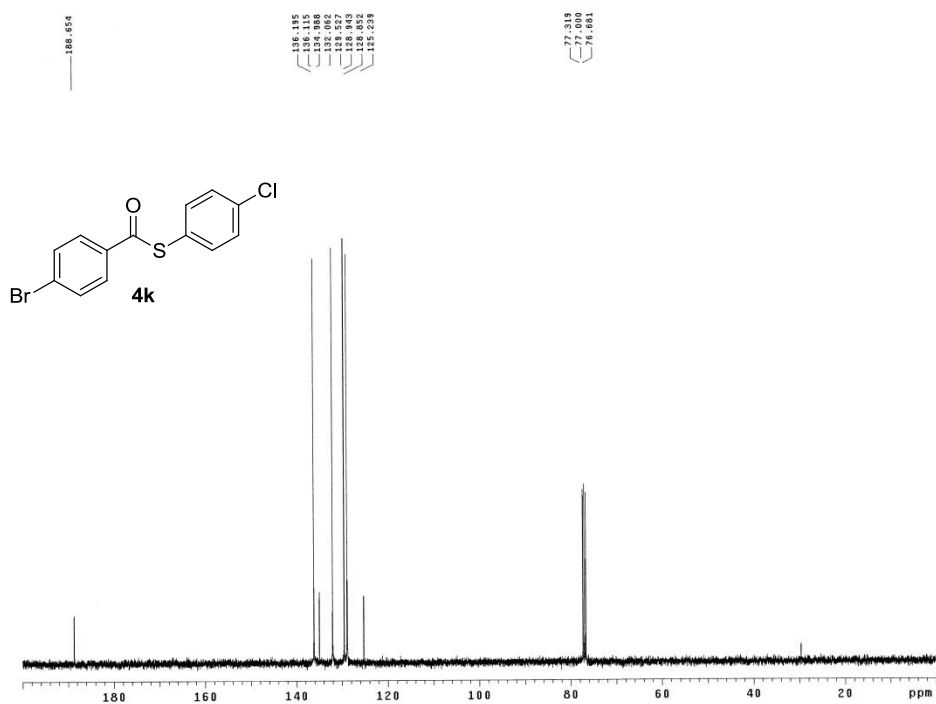
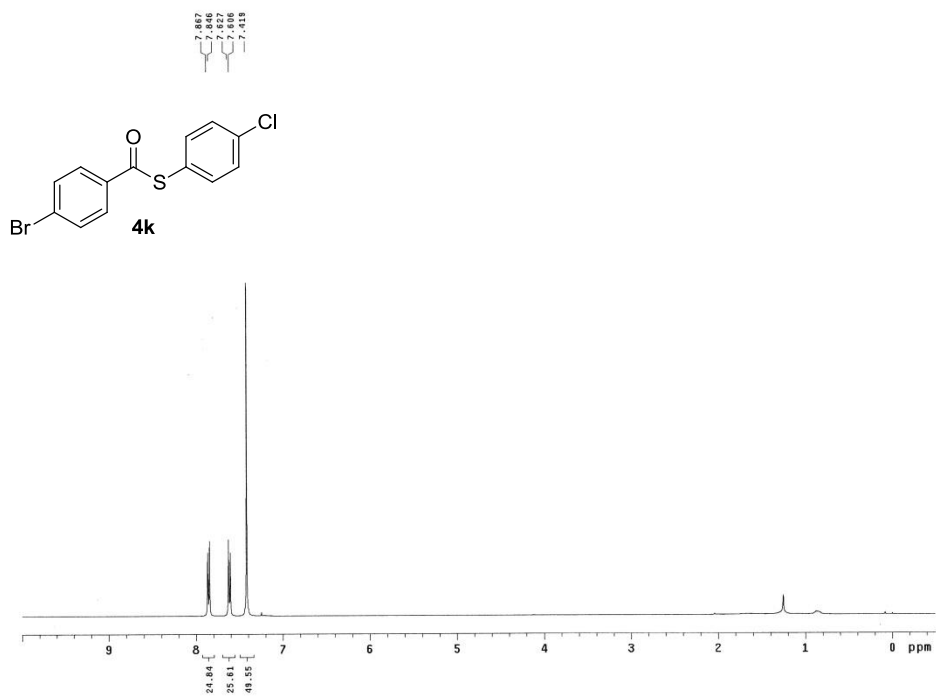


S-(4-Chlorophenyl) 2-methylbenzothioate (4h)

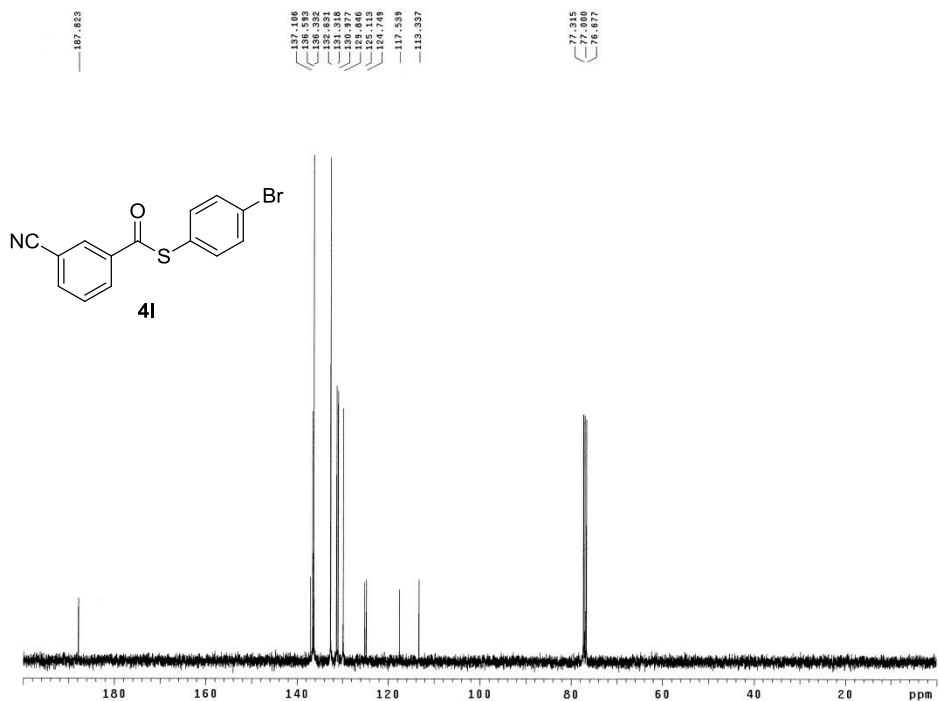
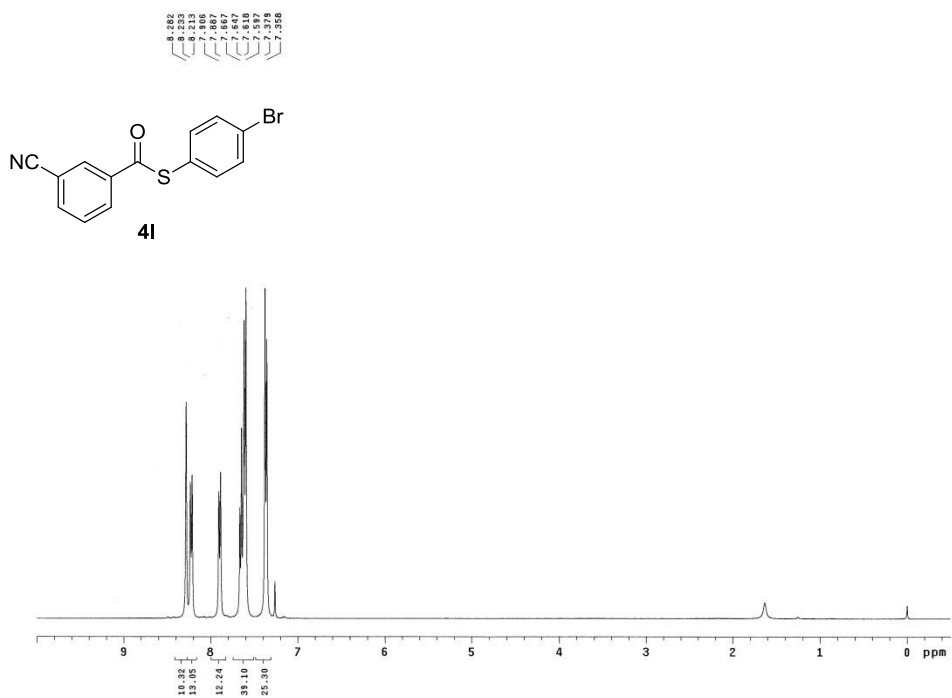




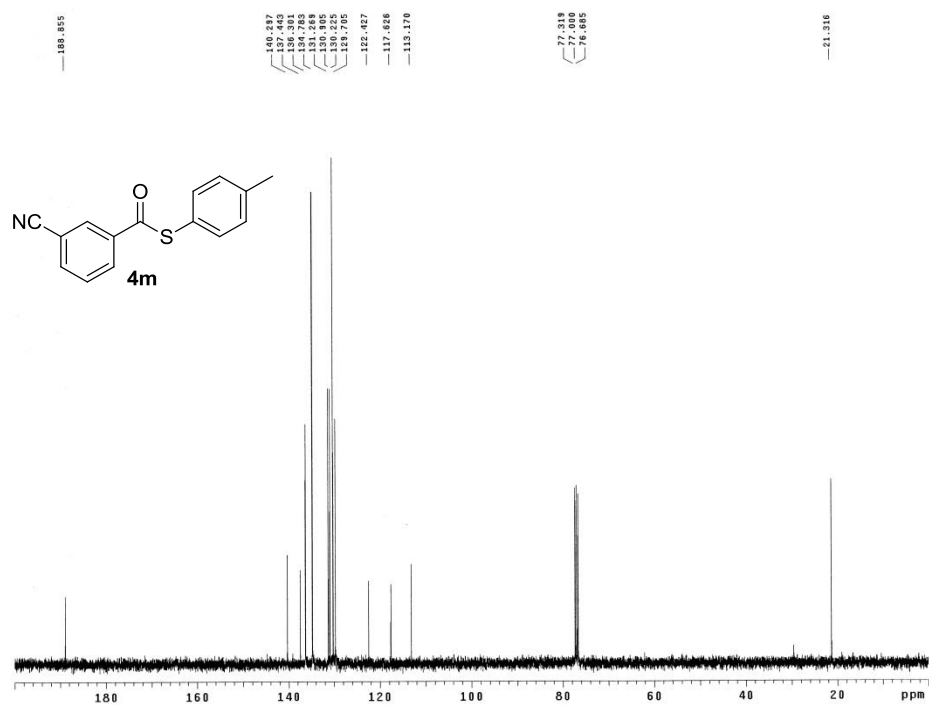
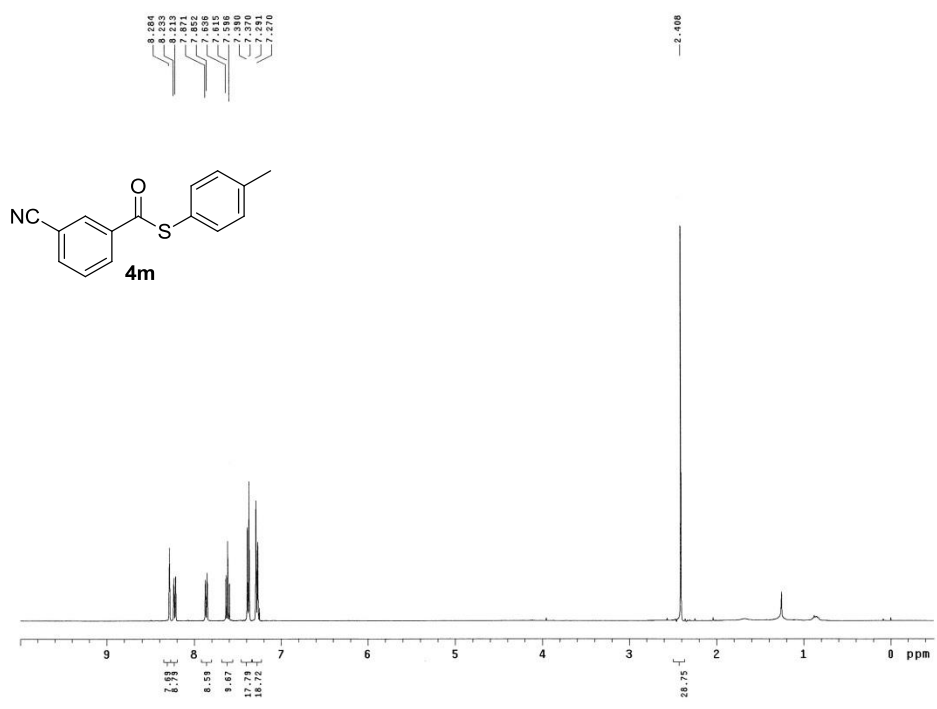
***S*-(4-Chlorophenyl) 4-bromobenzothioate (4k)**



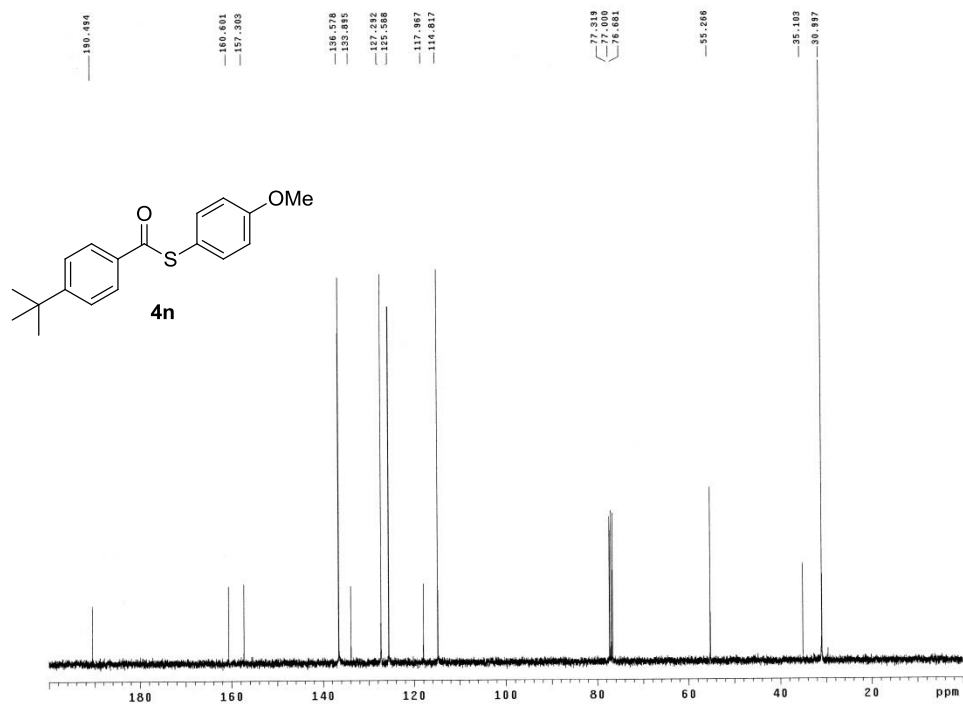
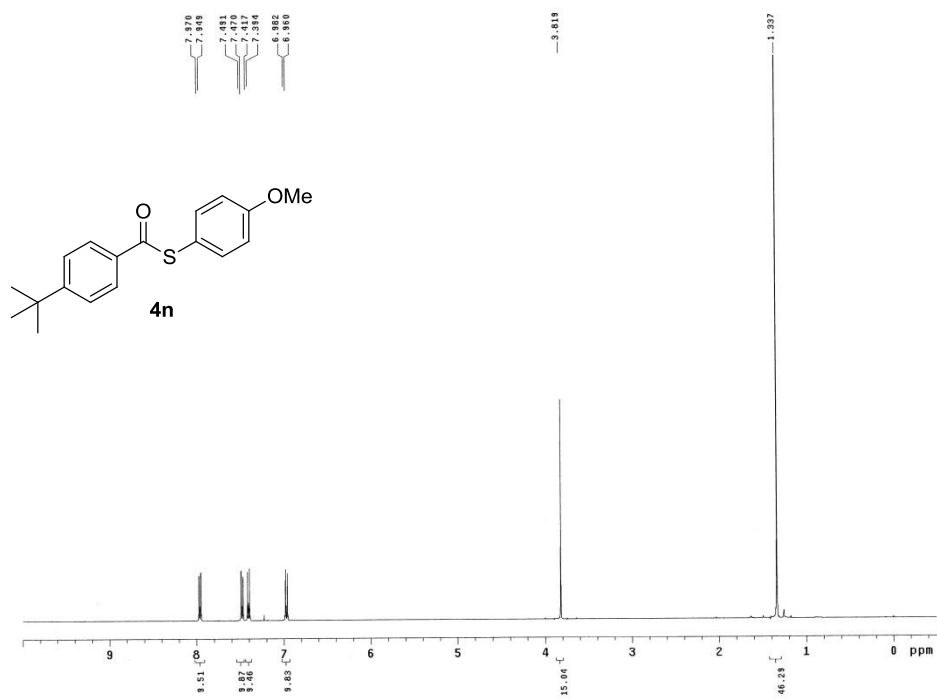
S-(4-Bromophenyl) 3-cyanobenzothioate (4l)



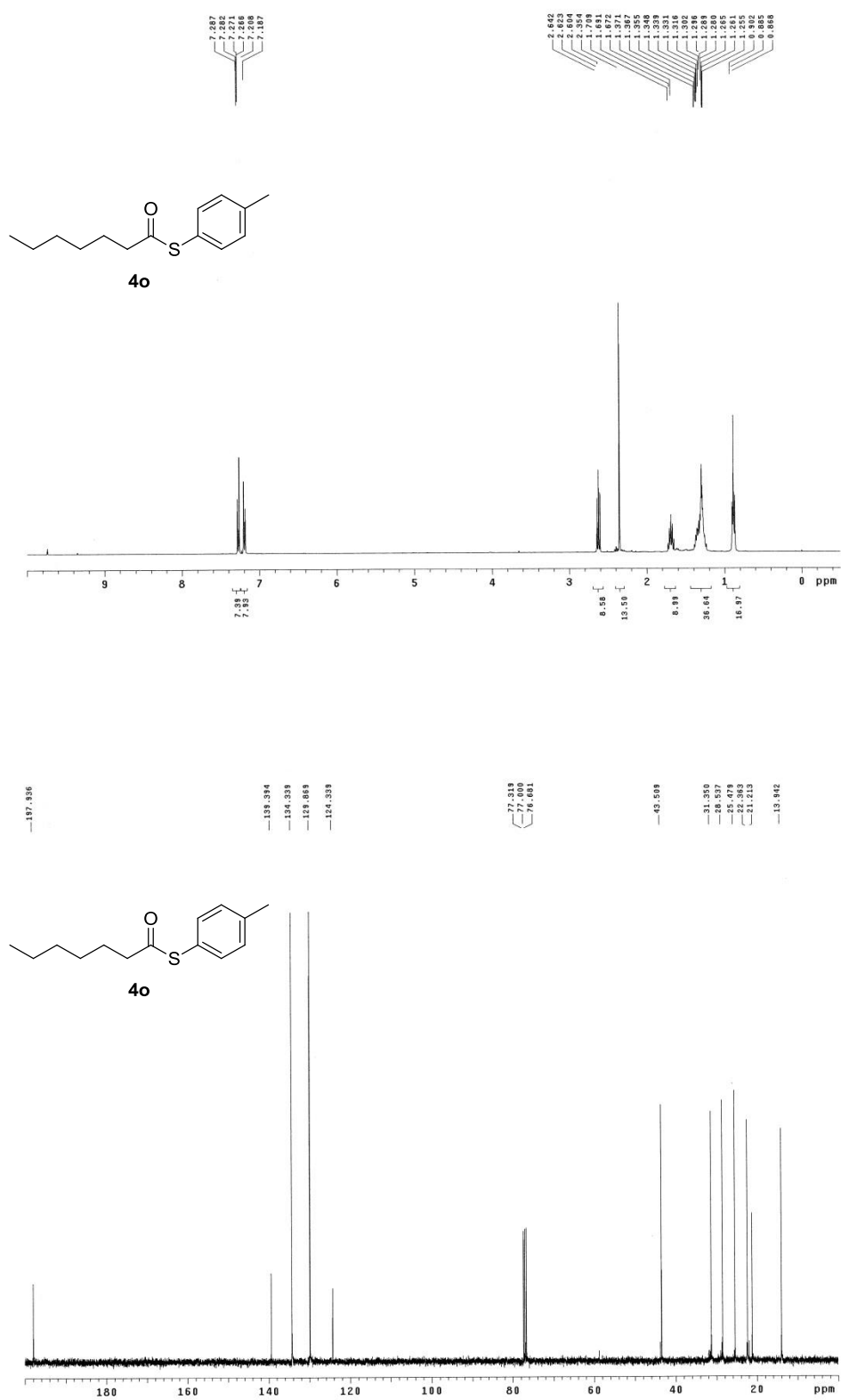
S-p-Tolyl 3-cyanobenzothioate (**4m**)



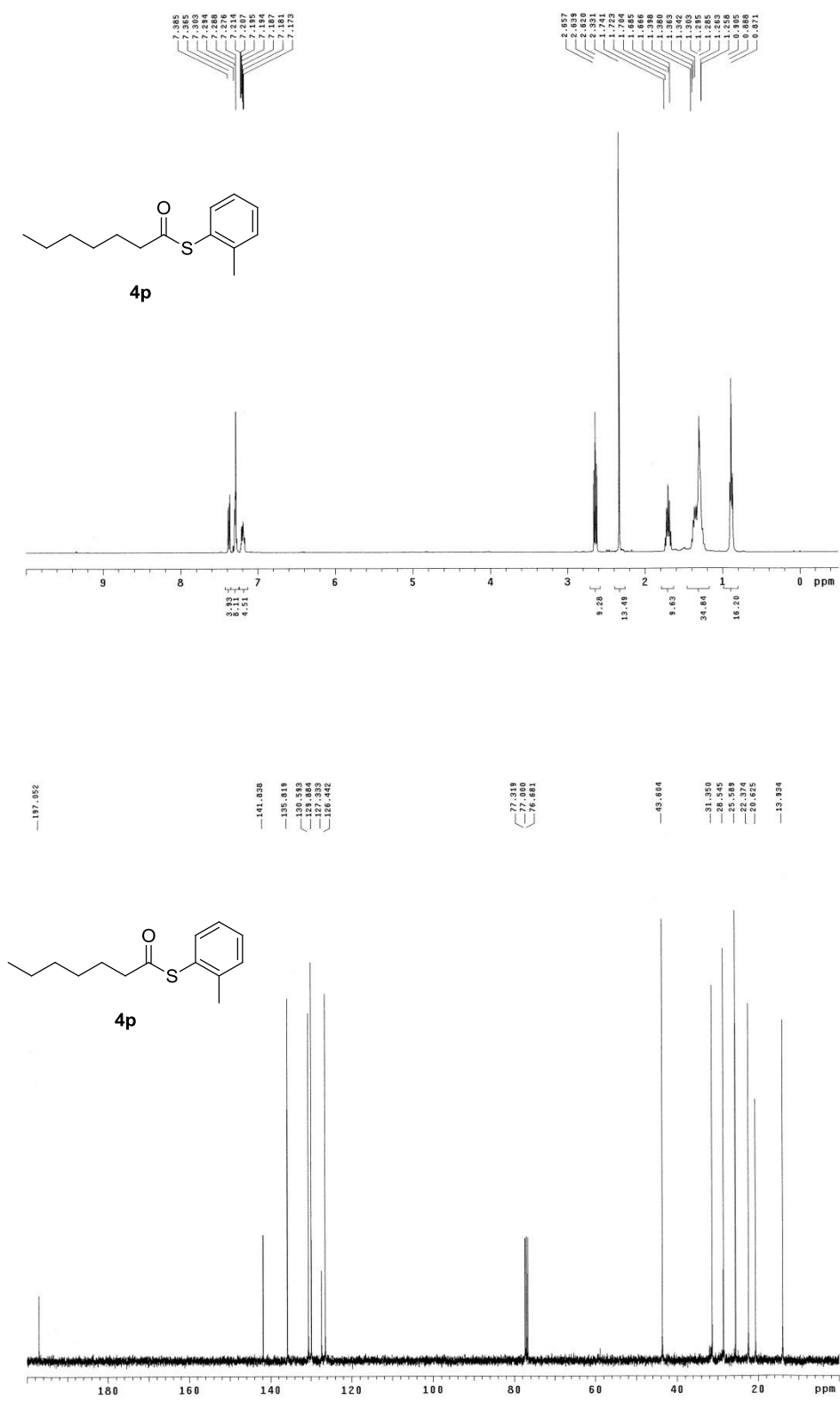
***S*-(4-Methoxyphenyl) 4-(tert-butyl)benzothioate (4n)**



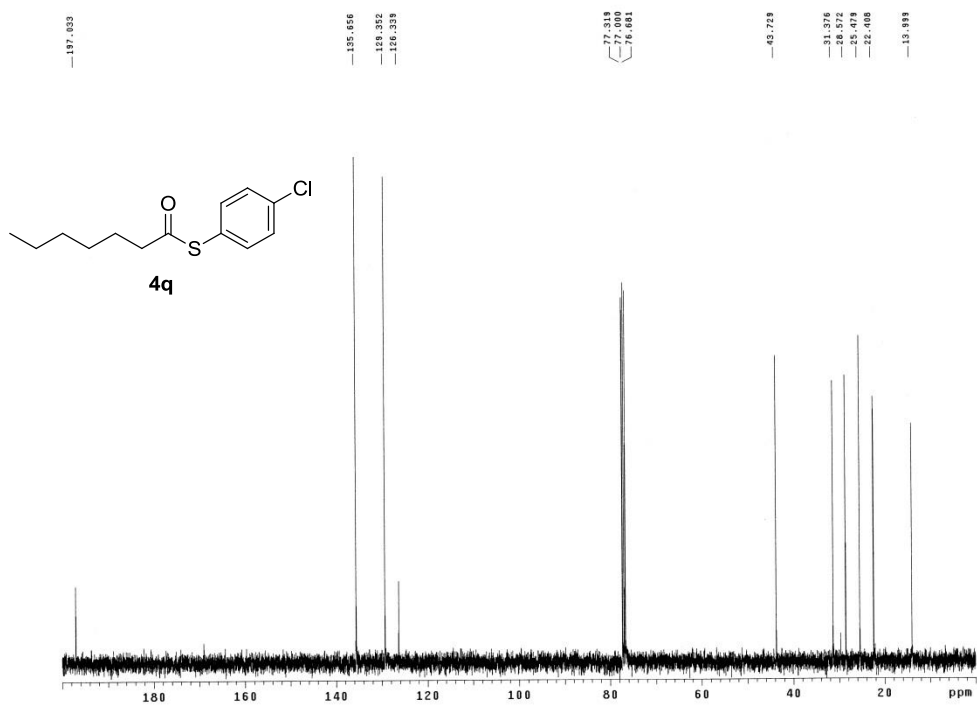
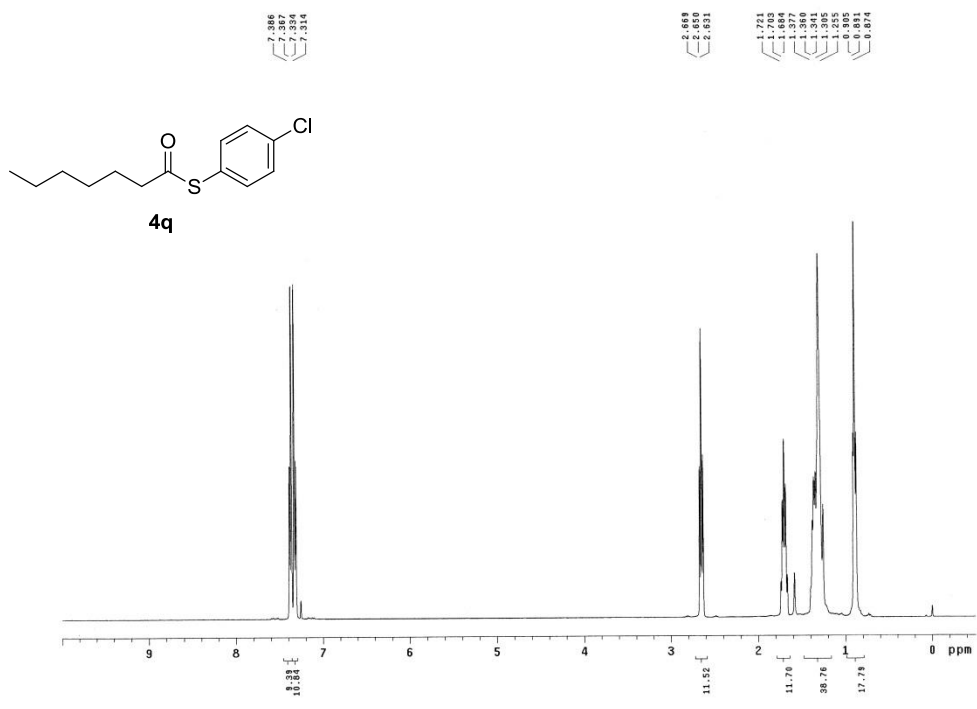
S-p-Tolyl heptanethioate (**4o**)



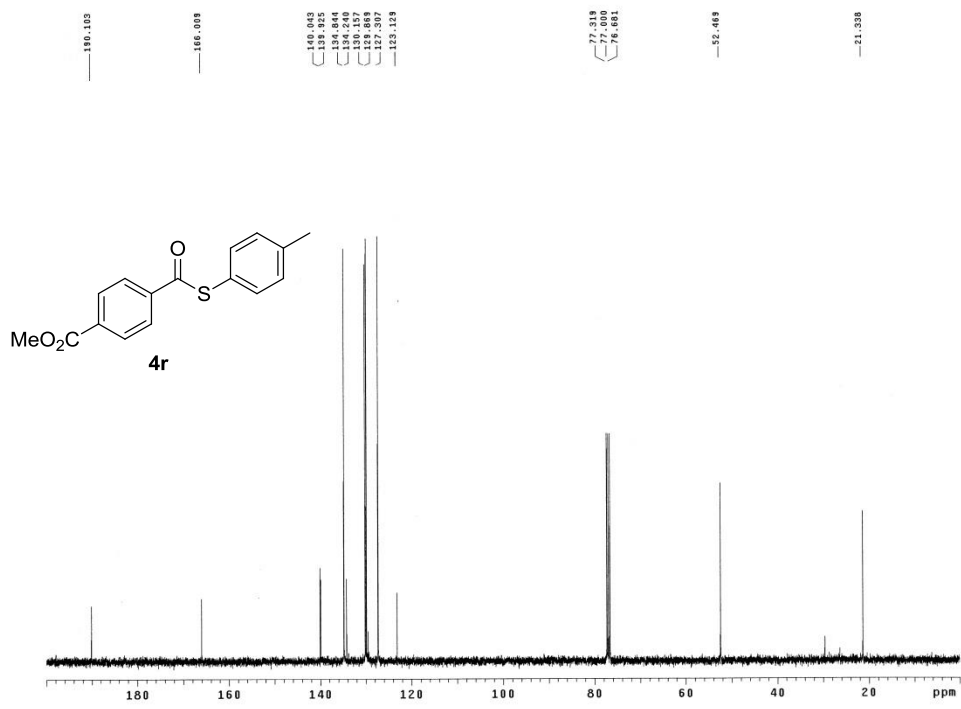
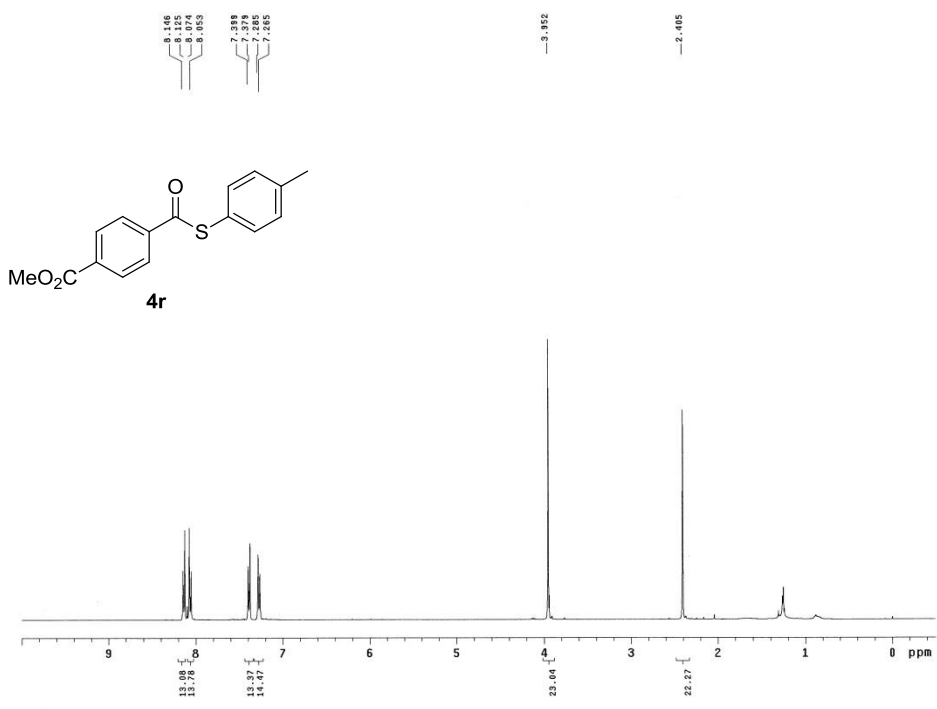
S-*o*-Tolyl heptanethioate (4p)



***S*-(4-Chlorophenyl) heptanethioate (4q)**



Methyl 4-((*p*-tolylthio)carbonyl)benzoate (**4r**)



S-p-Tolyl thiophene-2-carbothioate (**4s**)

