

SUPPORTING INFORMATION

Title: Generation of Nucleophilic Chromium Acetylides from *gem*-Trichloroalkanes and Chromium Chloride: Synthesis of Propargyl Alcohols

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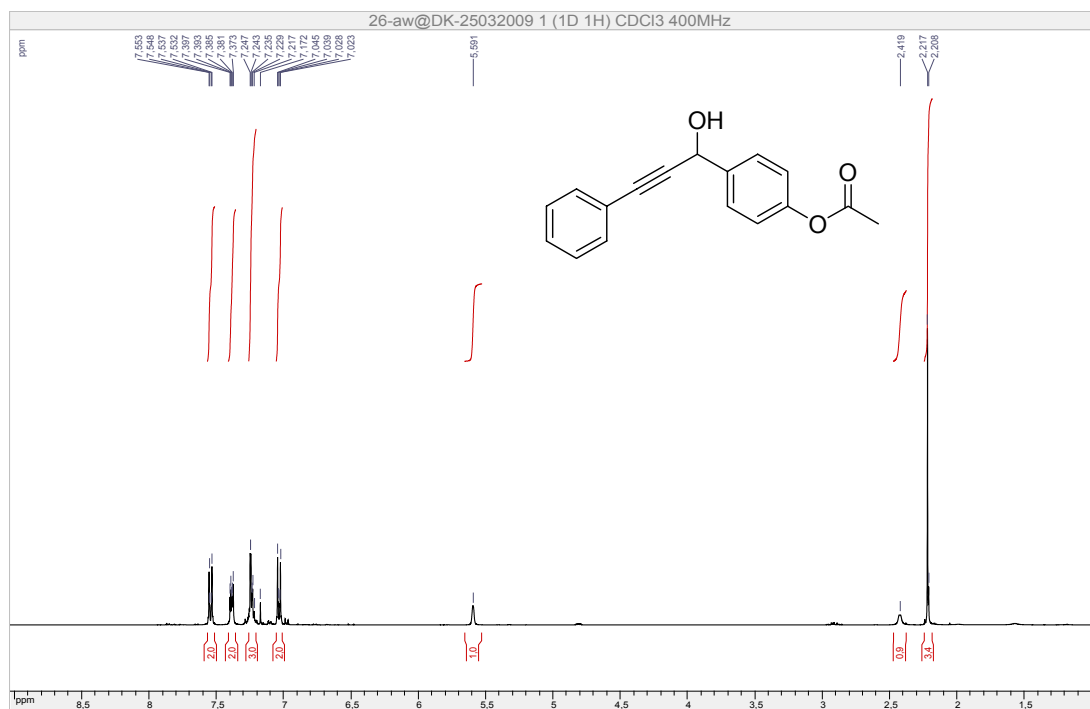
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1. General information

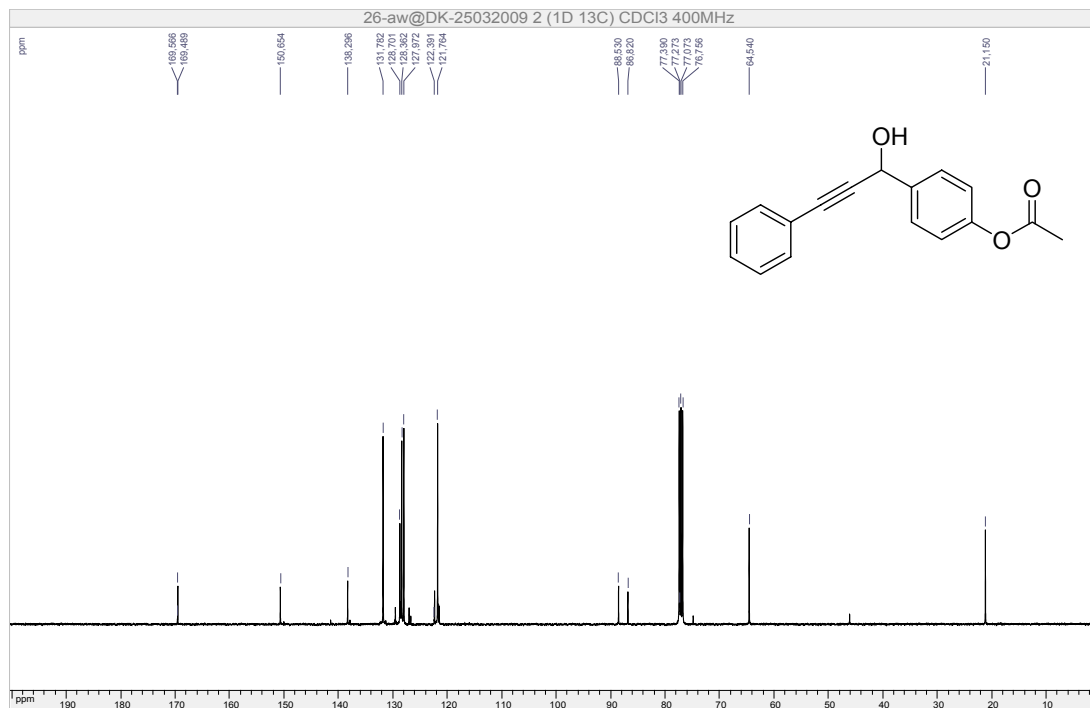
All reactions were performed under an Argon atmosphere. THF solvent was distilled from the indicated drying agents THF (Na, benzophenone). All commercially available reagents were used without further purification. Analytical thin-layer chromatography (TLC) was performed on glass-backed silica gel plates. Visualization of the developed chromatogram was performed using UV absorbance and a vanillin solution. Flash column chromatography was performed with silica gel (40-63 μm) according to a standard technique. Nuclear magnetic resonance spectra (^1H , ^{13}C and ^{19}F) were recorded on a 400 MHz spectrometers equipped with a BBI or a DUAL probe. Chemical shifts for ^1H and ^{13}C spectra are recorded in parts per million using the residual chloroform as internal standard (^1H , $\delta = 7.26$ ppm; ^{13}C , $\delta = 77.16$ ppm). Multiplicities are indicated by s (singlet), brs (broad singlet), d (doublet), t (triplet). Coupling constants, J , are reported in Hertz. Mass spectra were recorded on a MS/MS high resolution Micromass ZABSpecTOF spectrometry. Infrared spectra were recorded on a FTIR spectrometer equipped with KRS-5 (ThI/ThBr) lenses and are reported in reciprocal centimetres (cm^{-1}).

The general procedure for the formation of chromium acetylides, and their reaction with aldehydes can be found in the experimental section of the manuscript. Data of all original compounds are also provided in the experimental section.

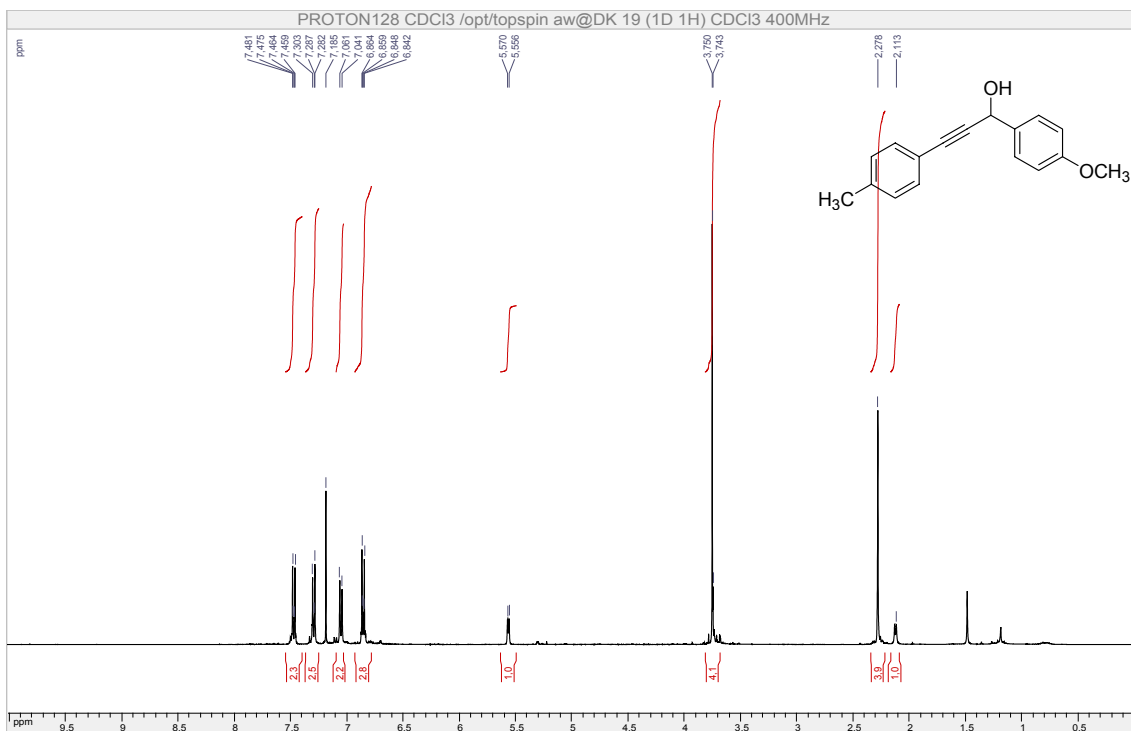
2. ^1H and ^{13}C NMR spectra of original compounds



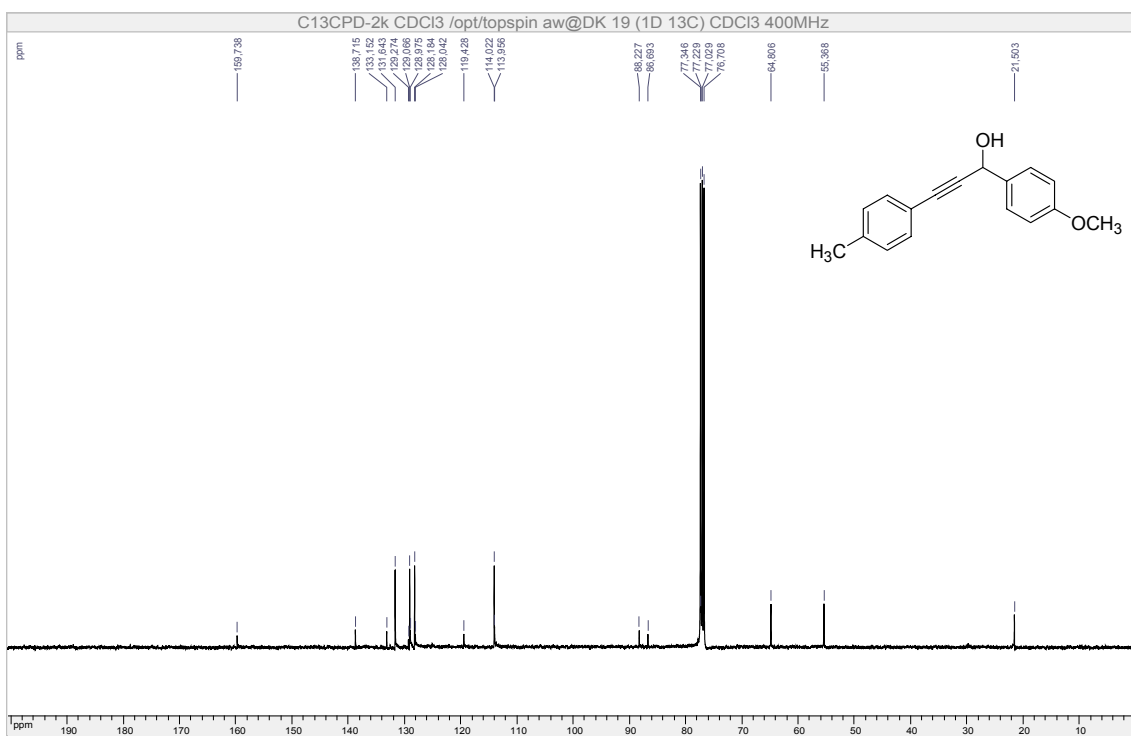
^1H -Spectrum of propargyl alcohol **3d**



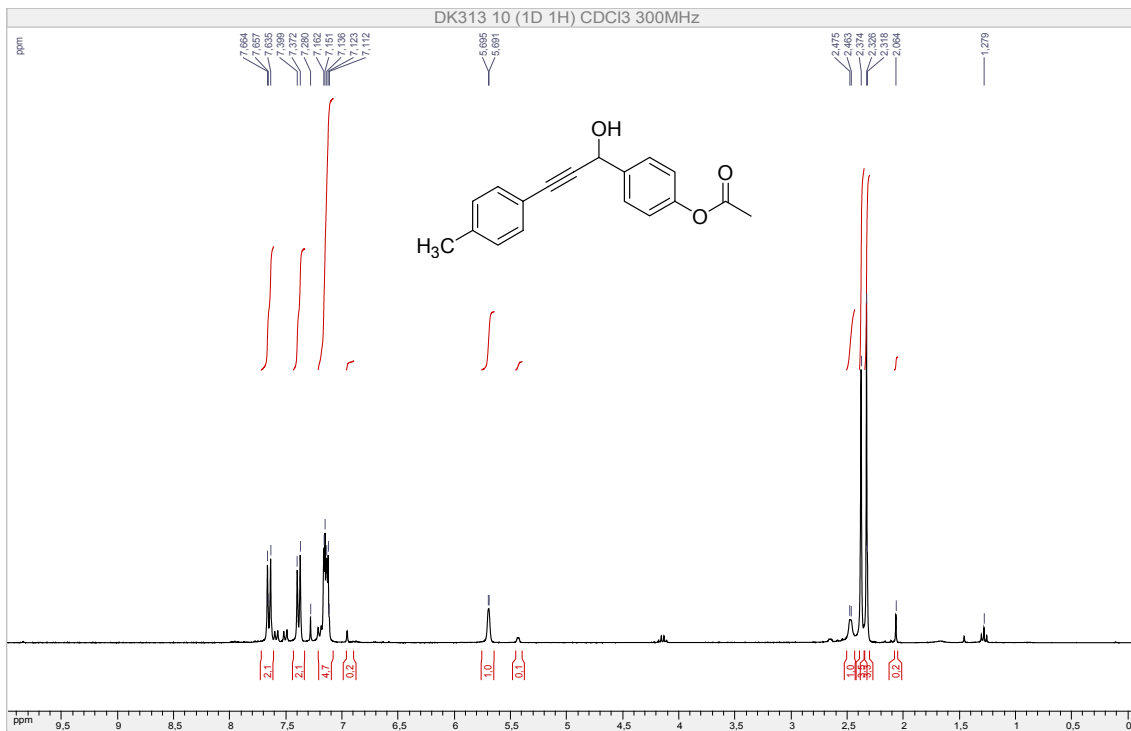
^{13}C -Spectrum of propargyl alcohol **3d**



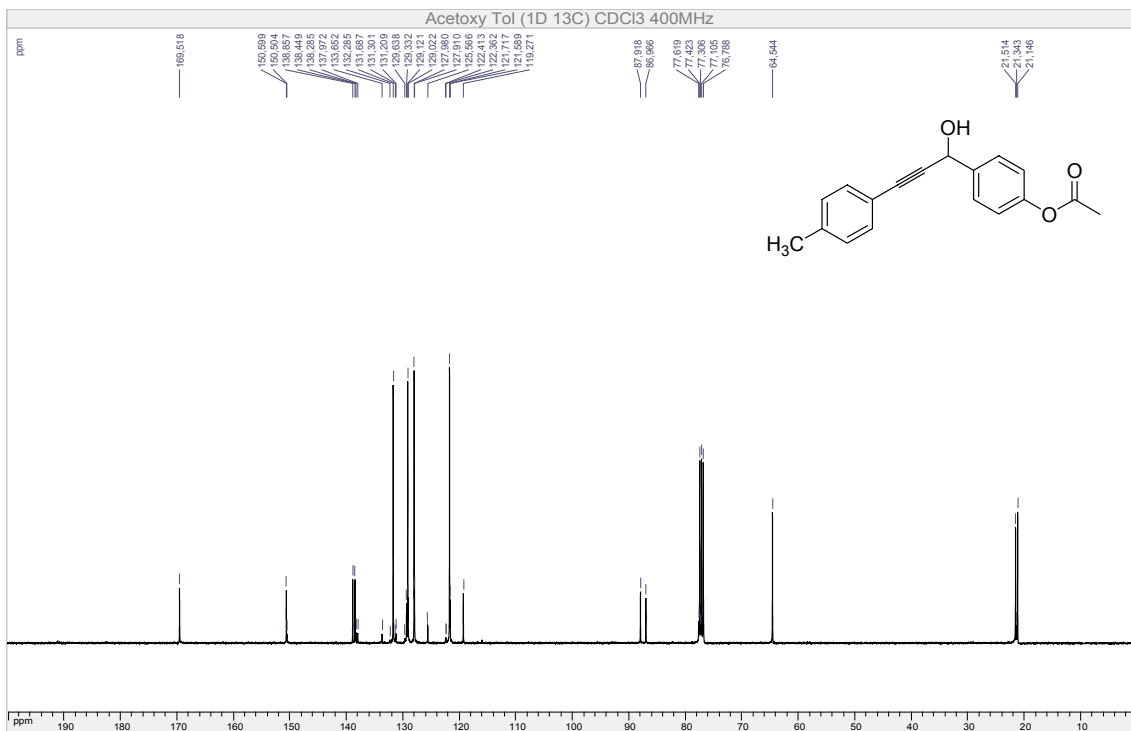
^1H -Spectrum of propargyl alcohol **3g**



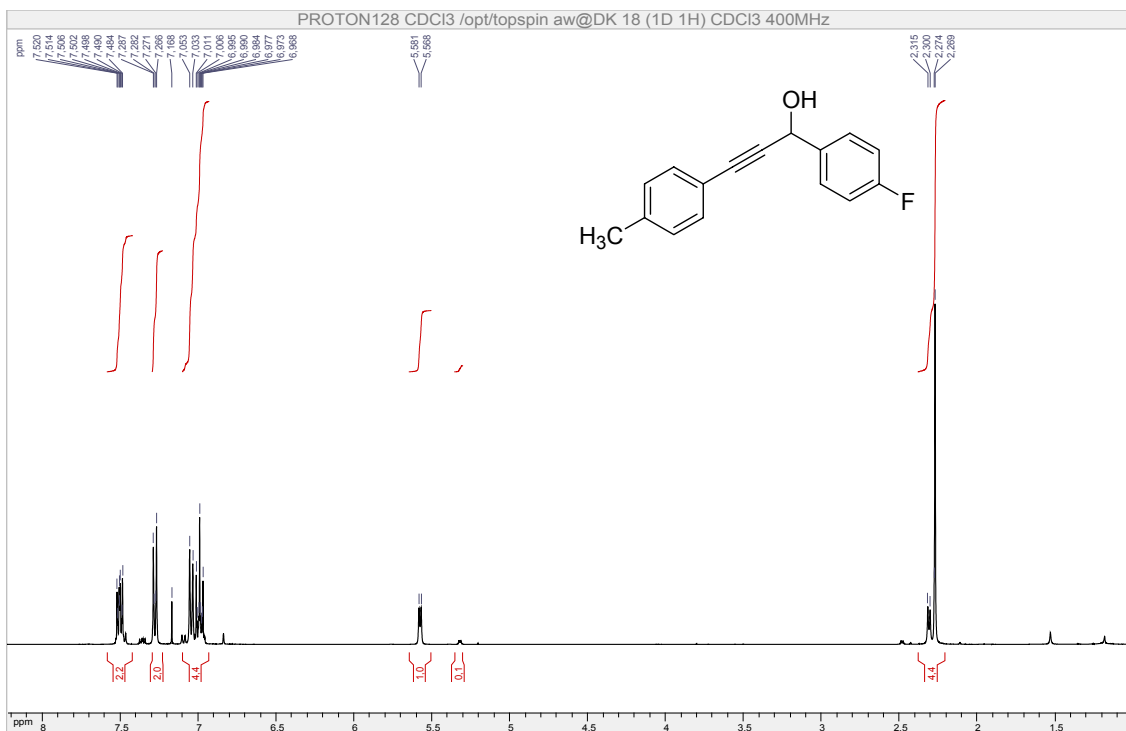
^{13}C -Spectrum of propargyl alcohol **3g**



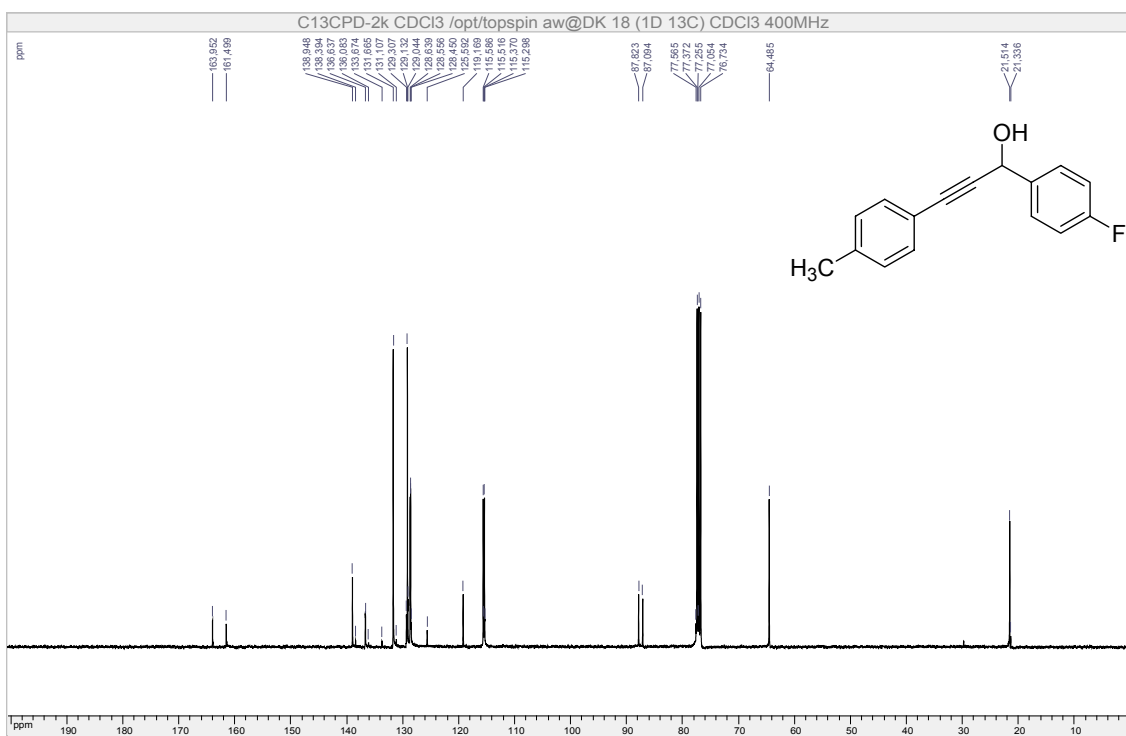
¹H-Spectrum of propargyl alcohol **3h**



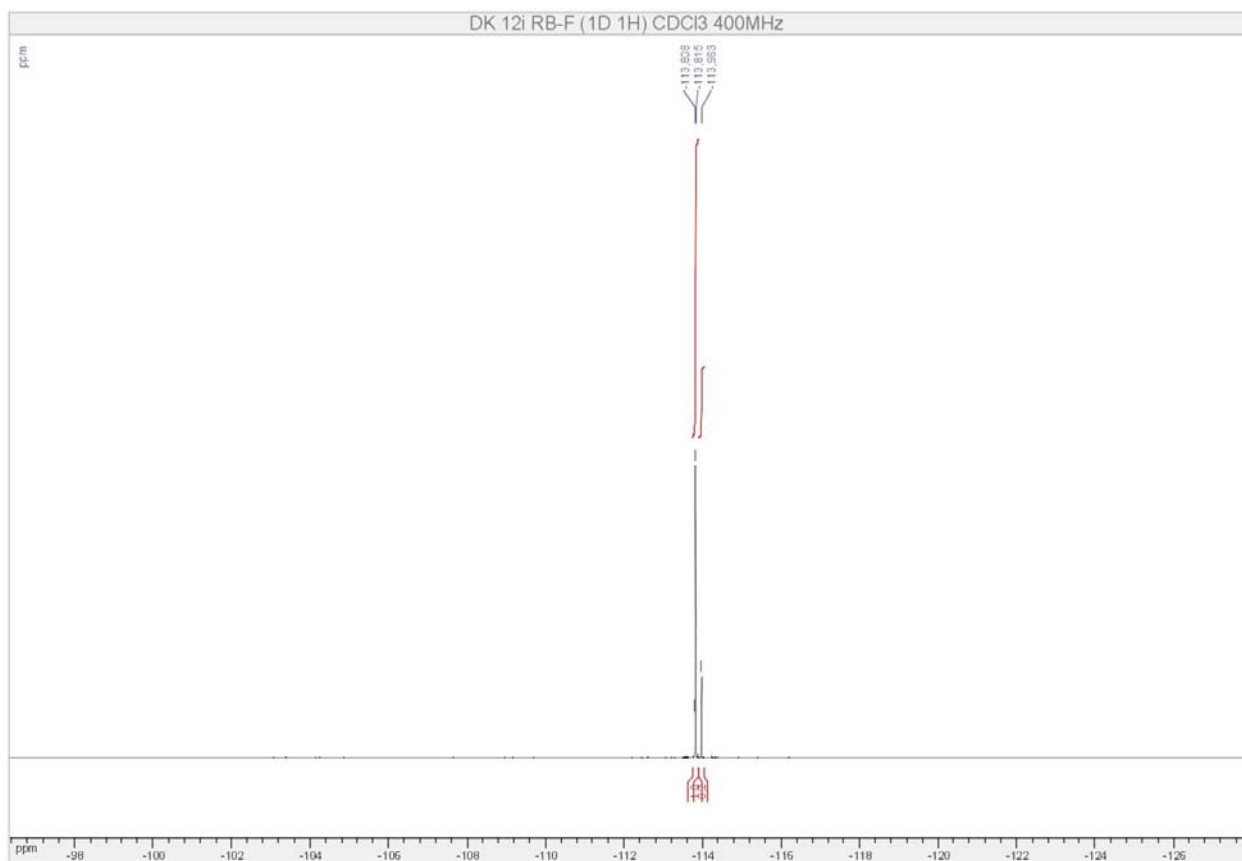
¹³C-Spectrum of propargyl alcohol **3h**



^1H -Spectrum of propargyl alcohol **3i**



^{13}C -Spectrum of propargyl alcohol **3i**



¹⁹F-Spectrum of propargyl alcohol **3i**