# Stereocontrolled Synthesis of *cis*- and *trans*-Oligo(phenylene vinylene)s via Palladium-Catalyzed Cross-Coupling Reactions

Hiroyuki Katayama,*,† Masato Nagao,† Fumiyuki Ozawa,*,† Masashi Ikegami,‡ and Tatsuo Arai‡

*International Research Center for Elements Science, Institute for Chemical Research, Kyoto University, Uji, Kyoto 611-0011, Japan, and Department of Chemistry, Graduate School of Pure and Applied Science, University of Tsukuba, Tsukuba, Ibaraki 305-8571, Japan*

hiroyuki@scl.kyoto-u.ac.jp, ozawa@scl.kyoto-u.ac.jp

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## Supporting Information

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**General Experimental Methods.** All manipulations using organometallic compounds were carried out under a nitrogen atmosphere using standard Schlenk-line techniques. $^{1}H$ and $^{13}C$ NMR spectra were recorded at 300.11 and 75.46 MHz, respectively. Chemical shifts are reported in δ (ppm), referred to the $^{1}H$ (of residual protons) and $^{13}C$ signals of deuterated solvents. Mass spectra were measured with a GC-mass spectrometer (EI, 70 eV). GLC analysis was performed on an instrument equipped with an FID detector and CBP-1 capillary column (25 m × 0.25 mm). Recycle GPC (preparative) was performed with $CHCl_3$ as an eluent. Flash column chromatography was performed using silica gel 60 (230-400 mesh). The following compounds were synthesized according to literatures: 2,5-dioctyloxybenzeneboronic acid (**1a**),[1] 2,5-dioctyloxybenzene-1,4-diboronic acid (**1b**),[2] (*Z*)-styryl bromide (**2a**),[3] (*Z,Z*)-1,4-bis(2-bromoethenyl)benzene (**2b**),[4] 2,5-dioctyloxyiodobenzene (**3a**),[5] 2,5-dioctyloxy-1,4-diiodobenzene (**3b**),[6] (*Z*)-dimethyl[3,5-bis(trifluoromethyl)phenyl]styrylsilane (**4a**),[7] (*E,E*)-1,4-bis[2-{dimethyl(3,5-bis(trifluoromethyl)phenyl)silyl}ethenyl]benzene (**4b**),[8] dimethyl[3,5-bis(trifluoromethyl)phenyl]silane,[9] (*p*-bromophenyl)acetylene,[10] $Pd(PPh_3)_4$,[11] $[Pd(\eta^3\text{-allyl})(\mu\text{-Cl})]_2$,[12] and $RuHCl(CO)(PPh_3)_3$.[13] All other chemicals were obtained from commercial suppliers and used without further purification.

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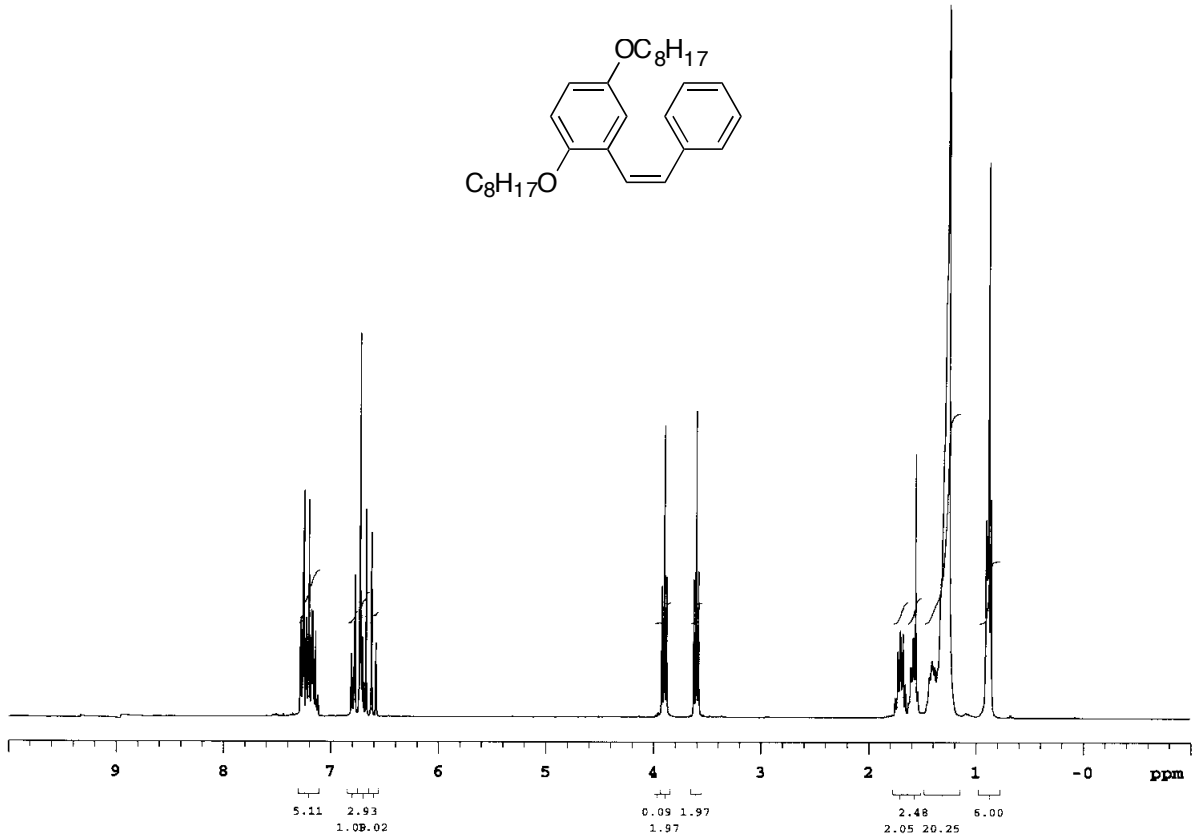
$^{1}$H NMR ($CDCl_3$, 300 MHz) of *cis*-**OPV1**

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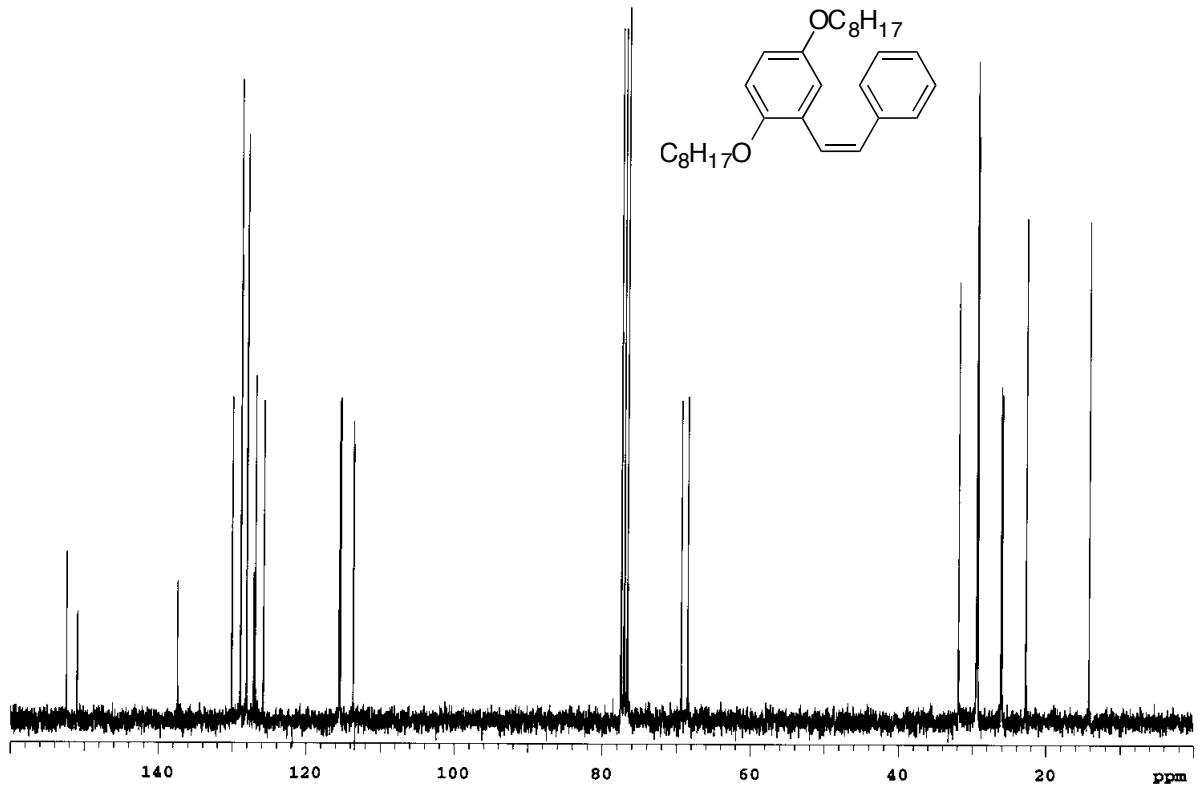

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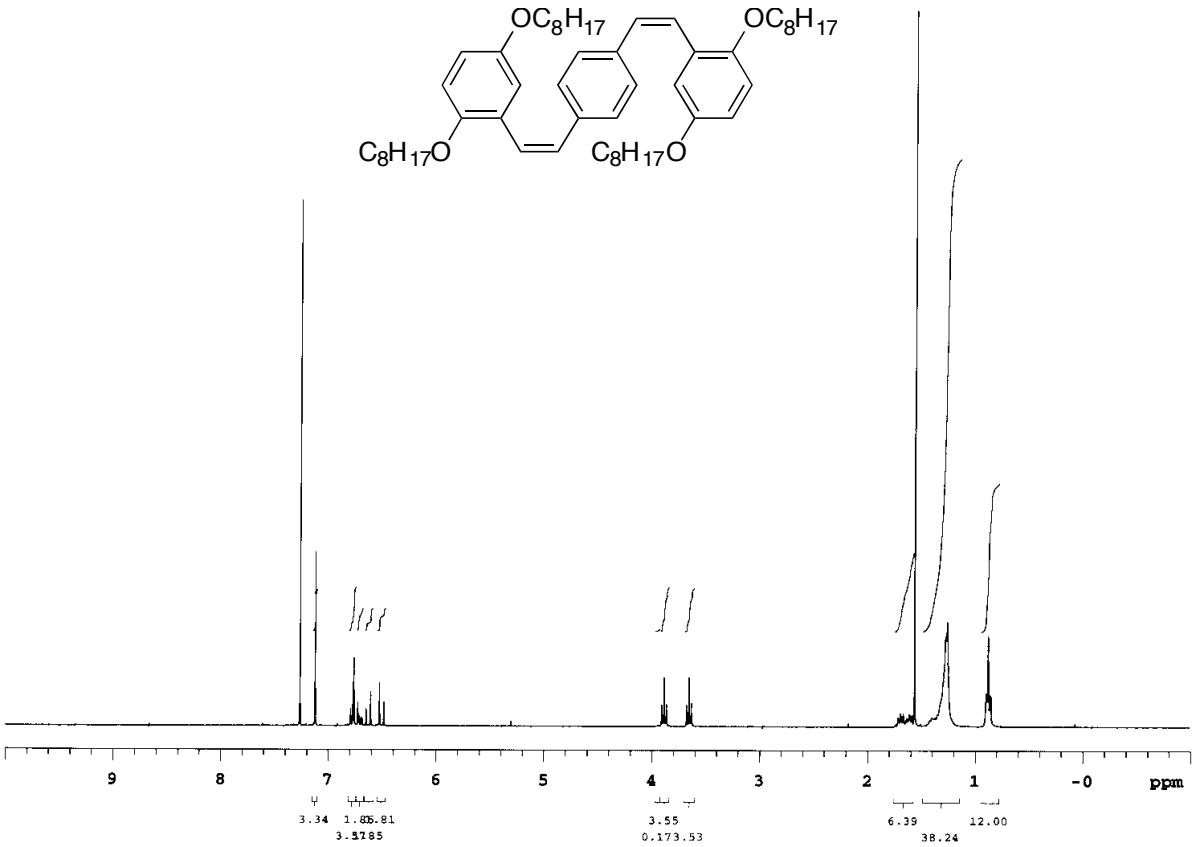


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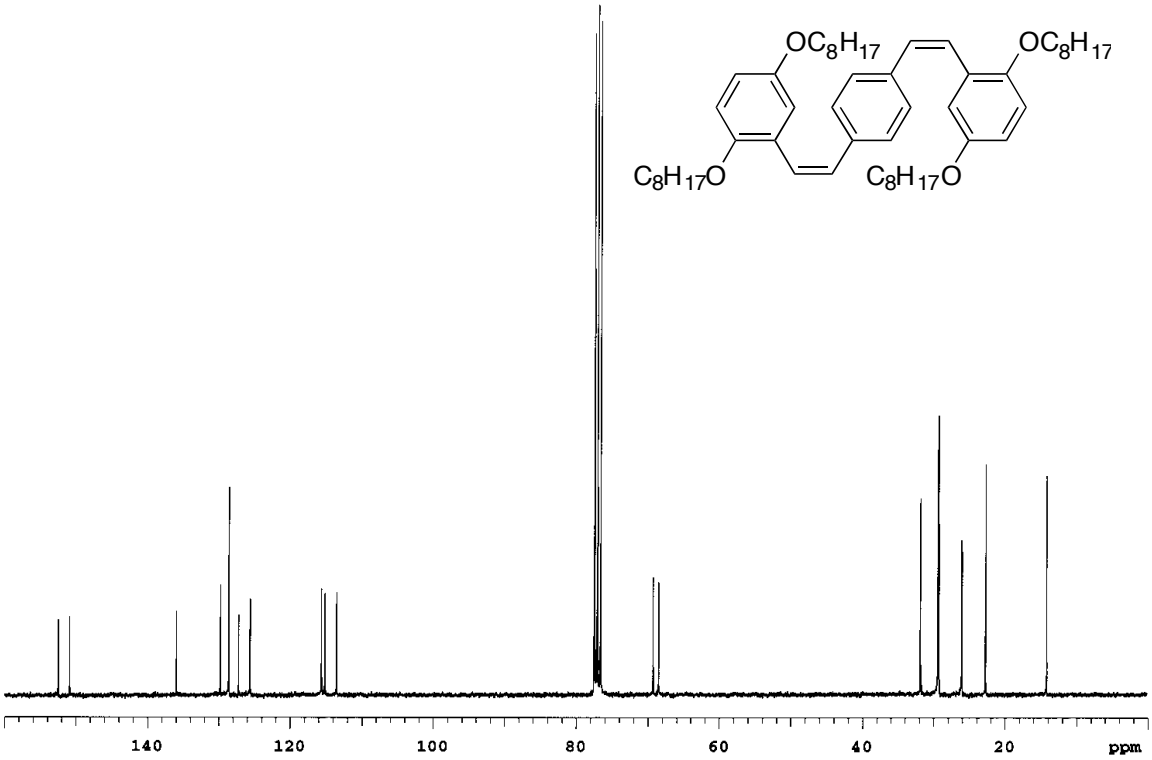

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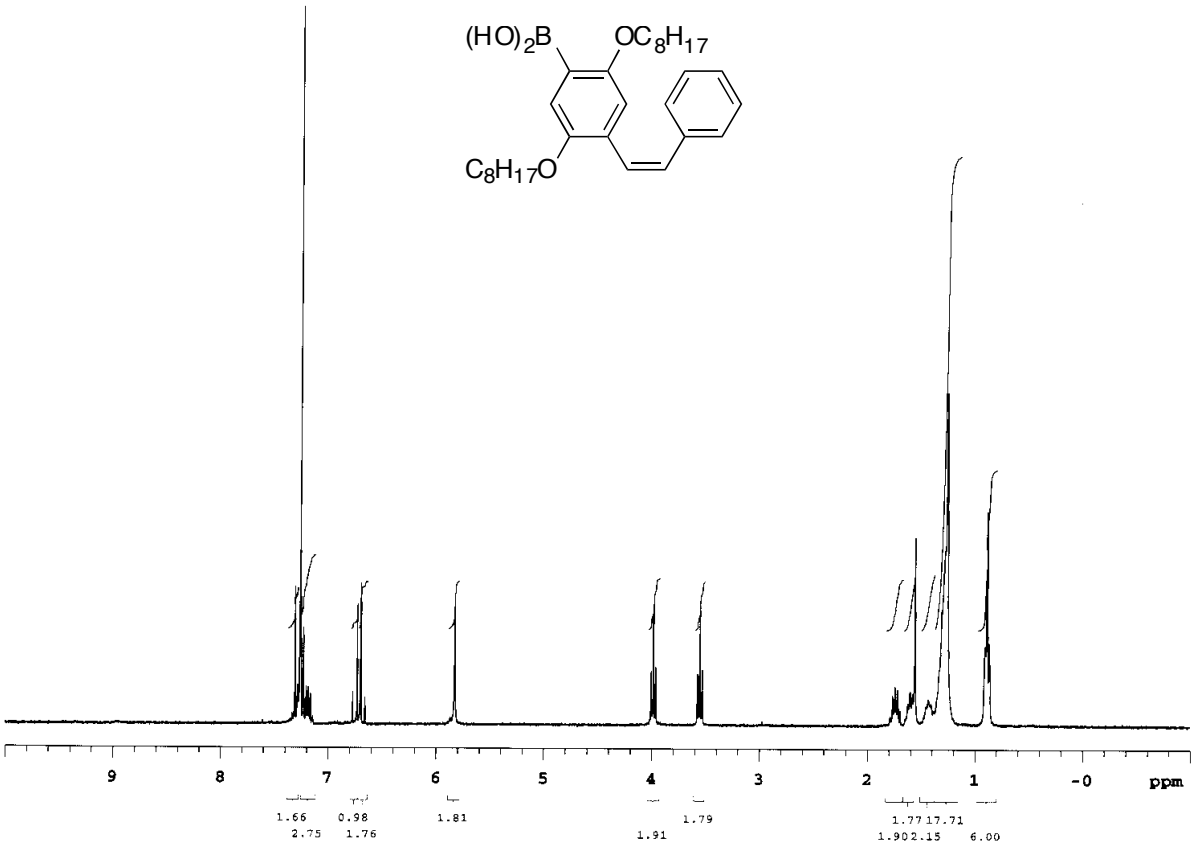


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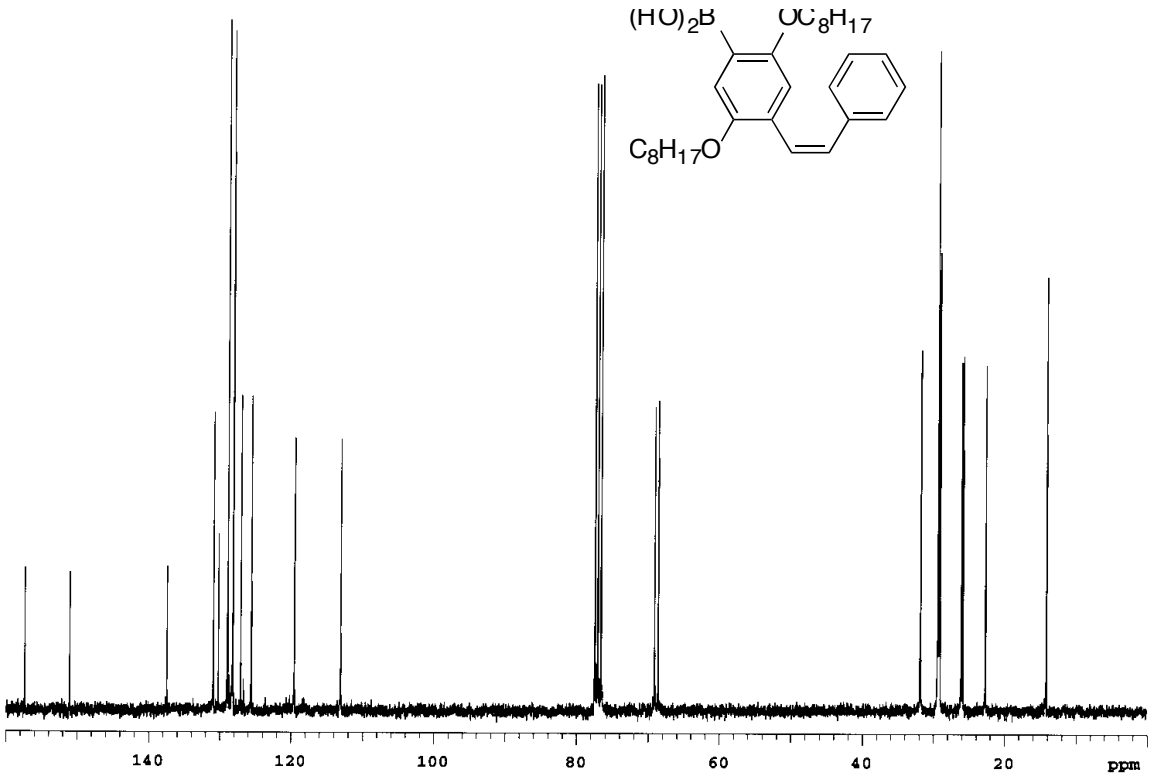

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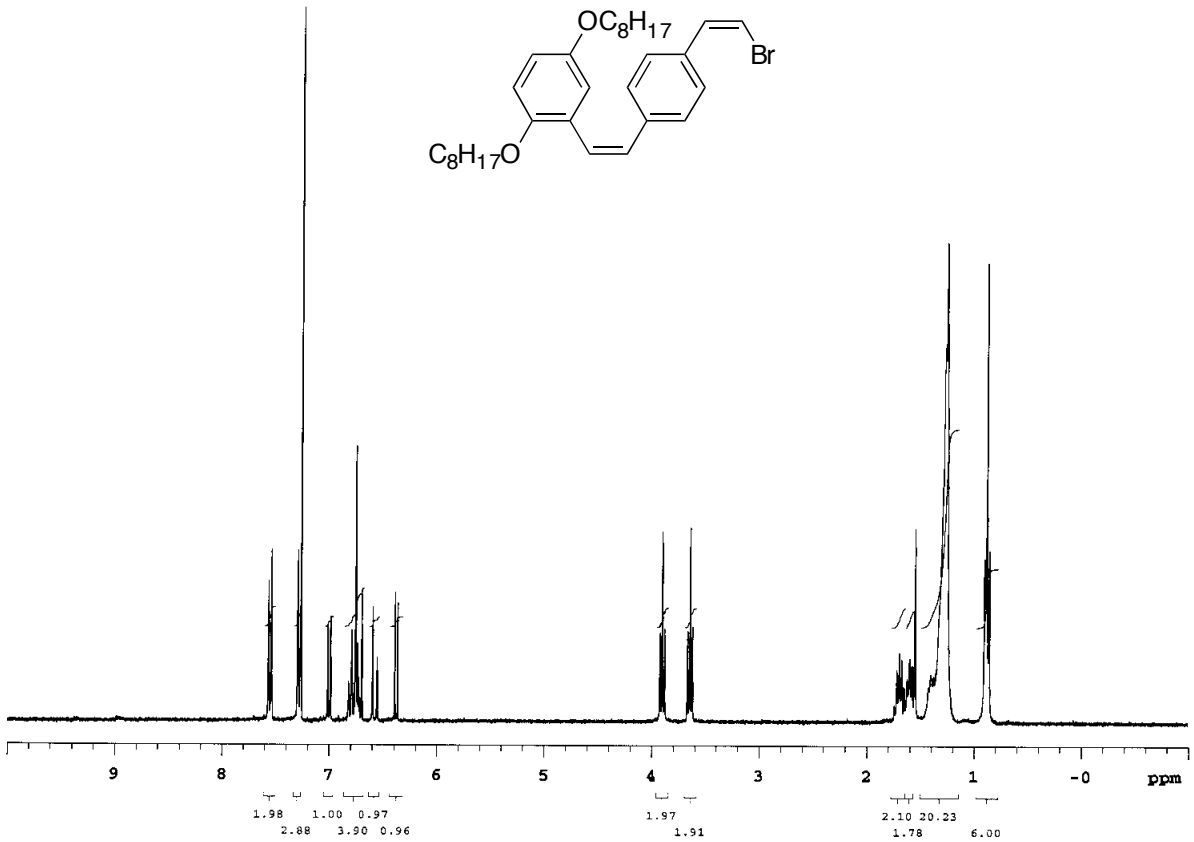


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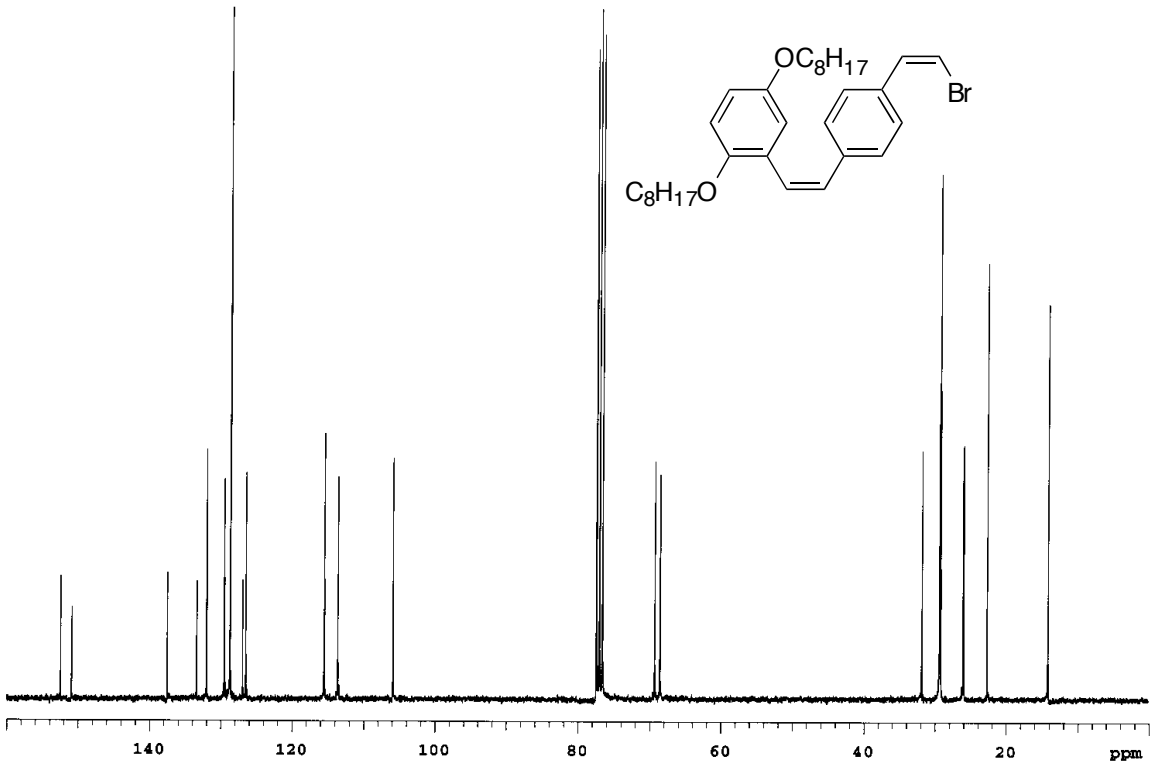

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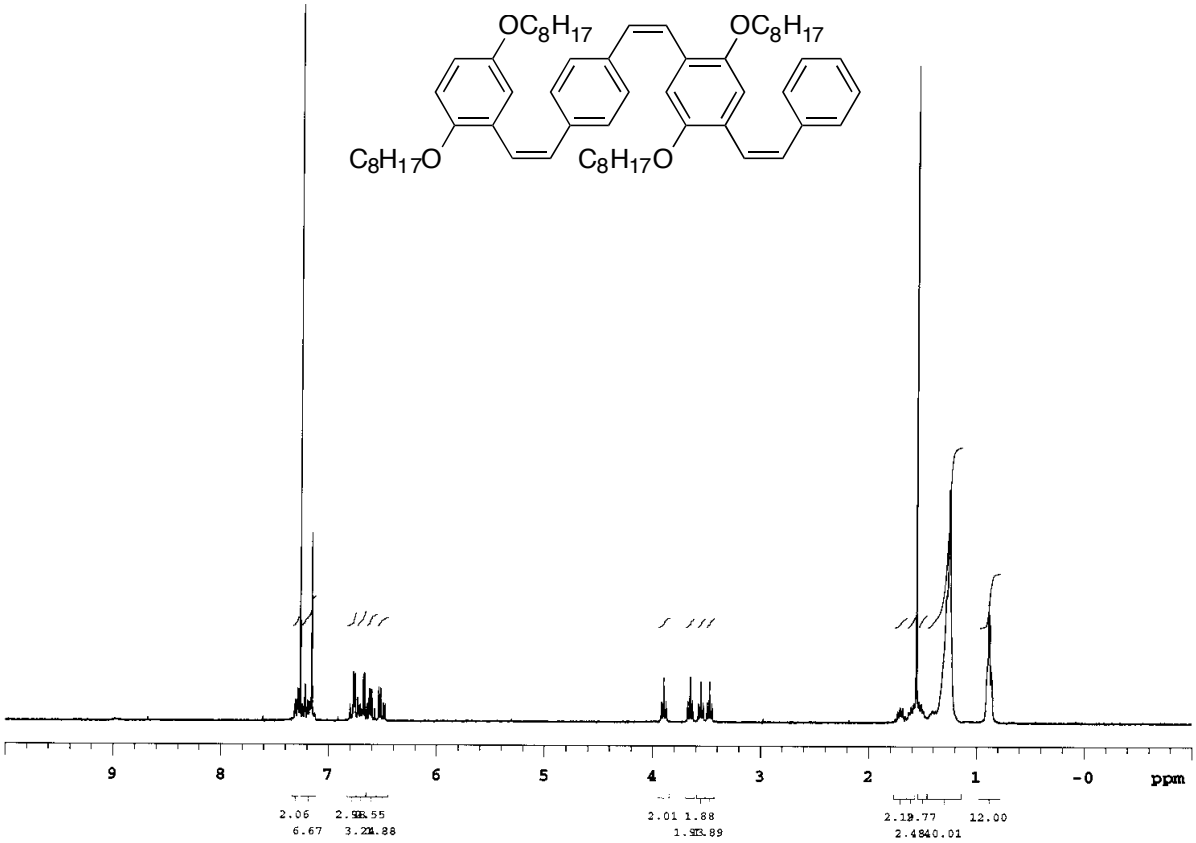


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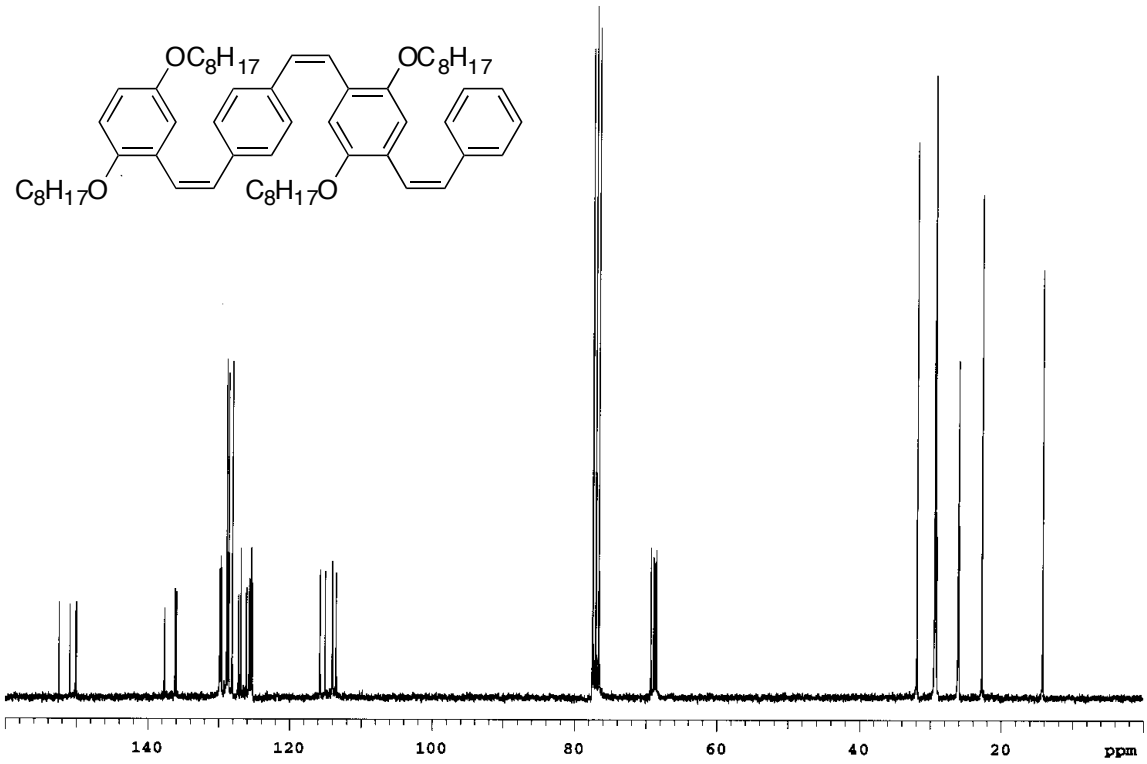

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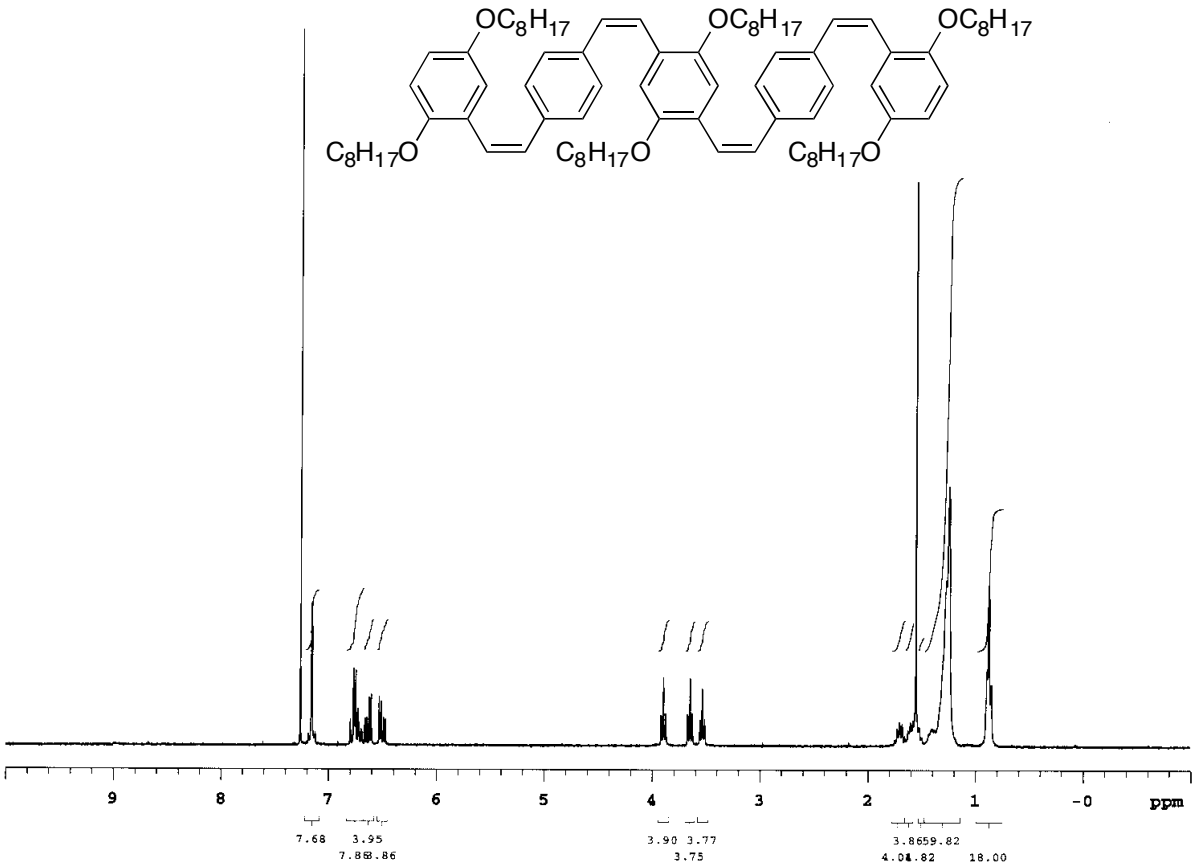


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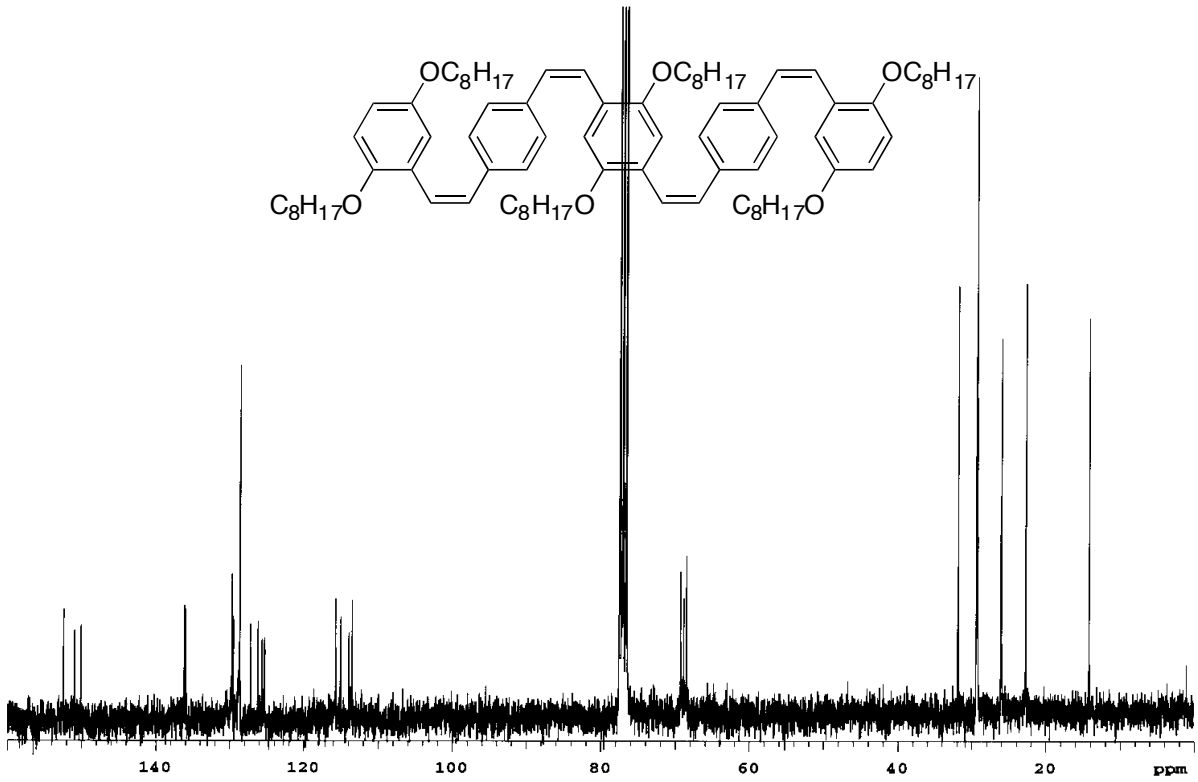

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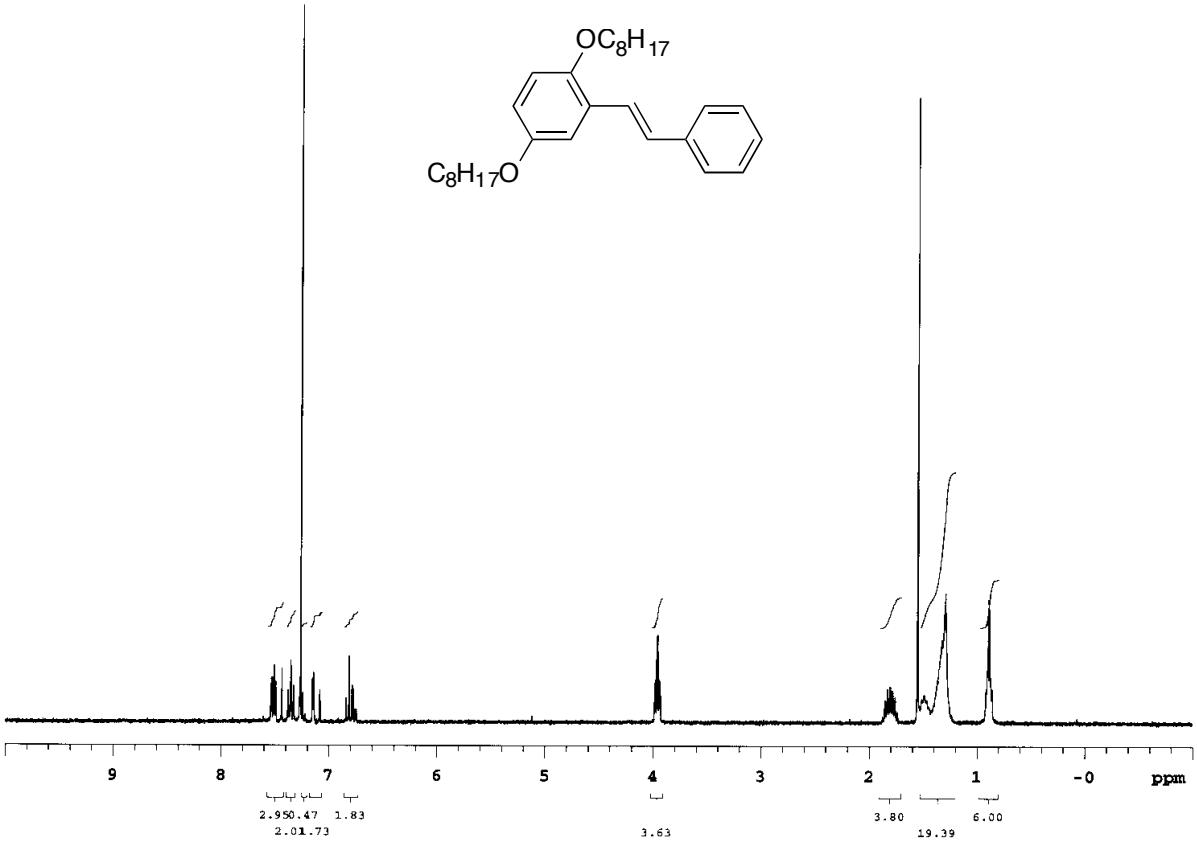


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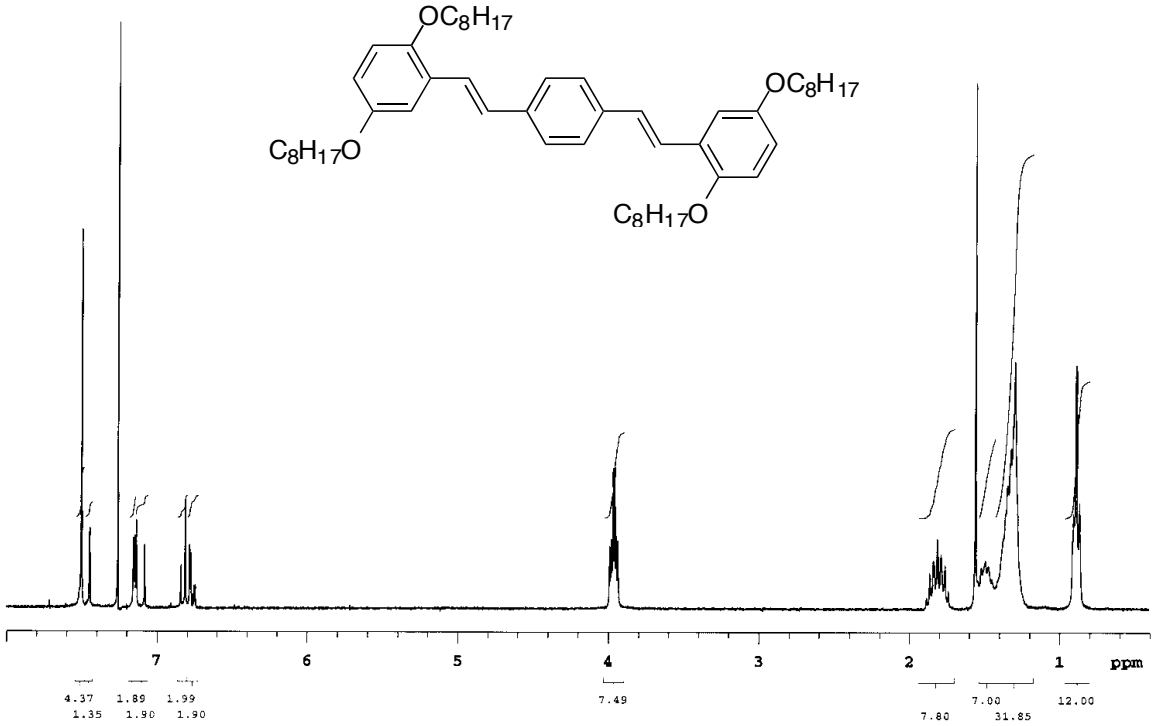

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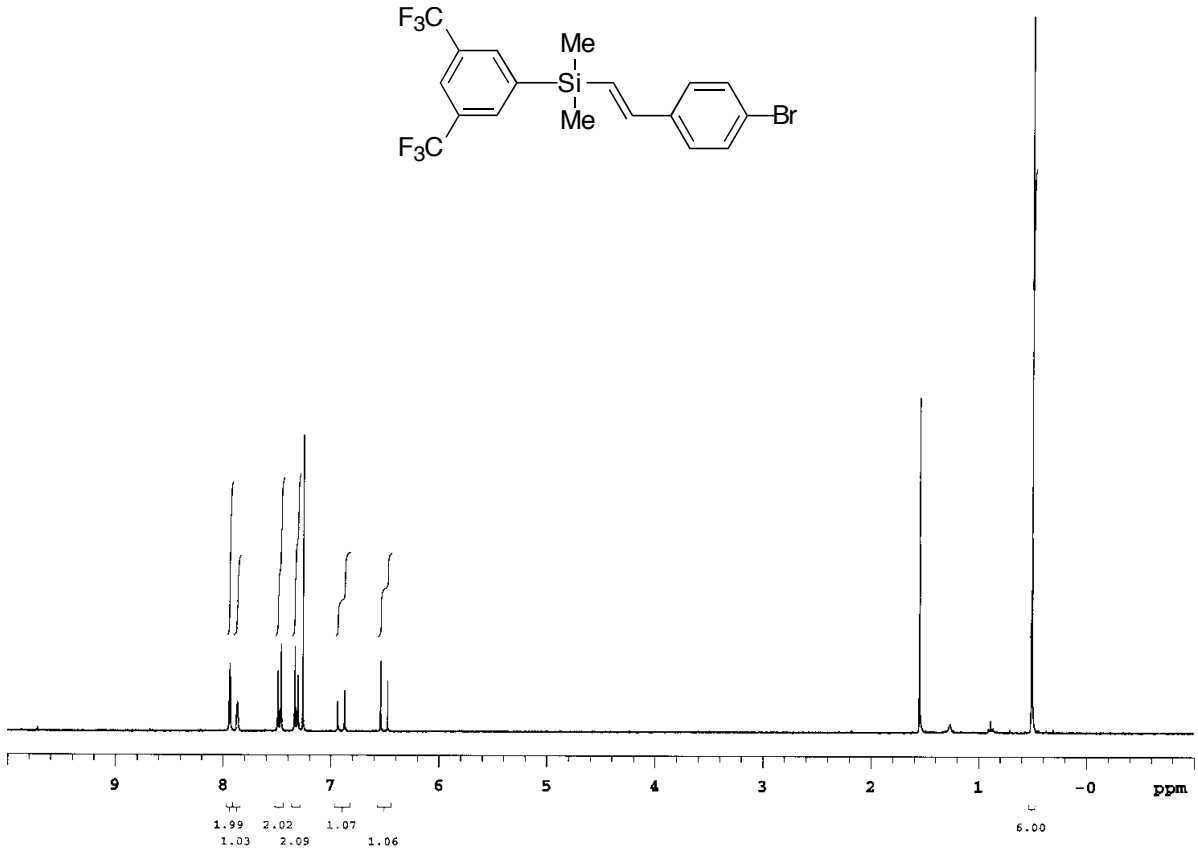


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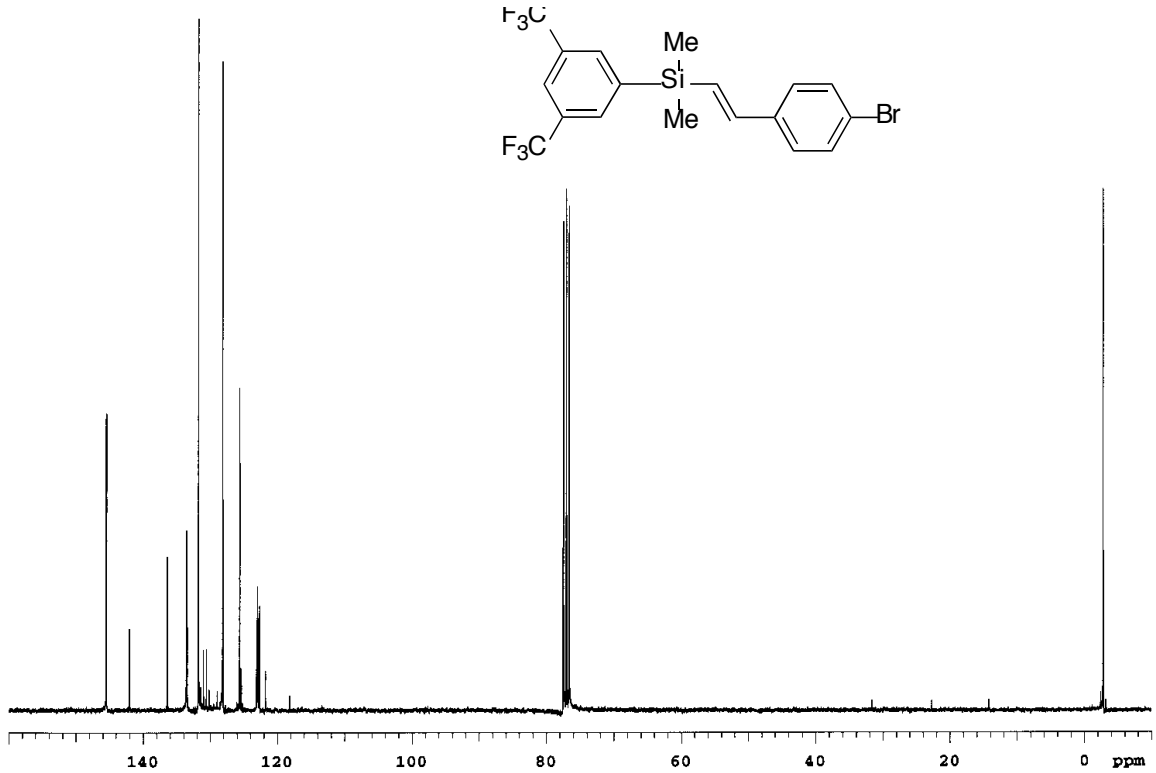

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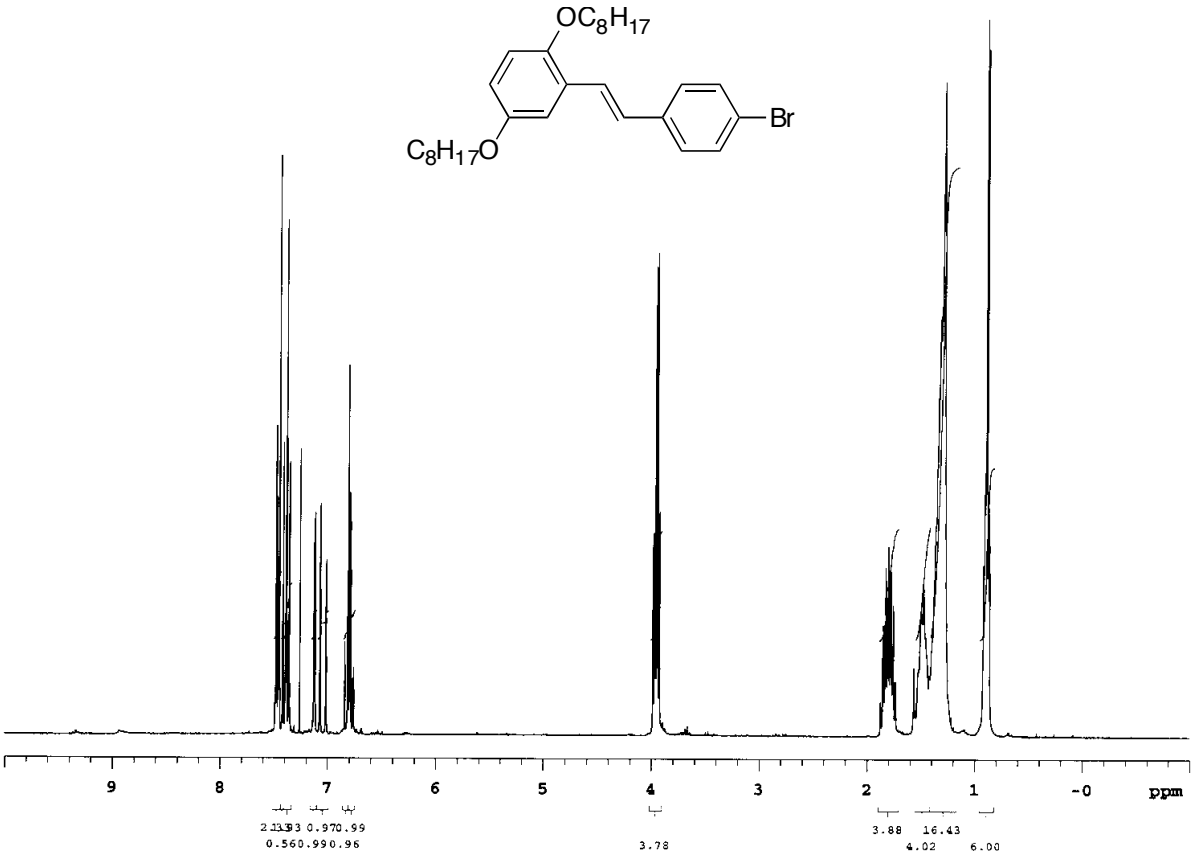


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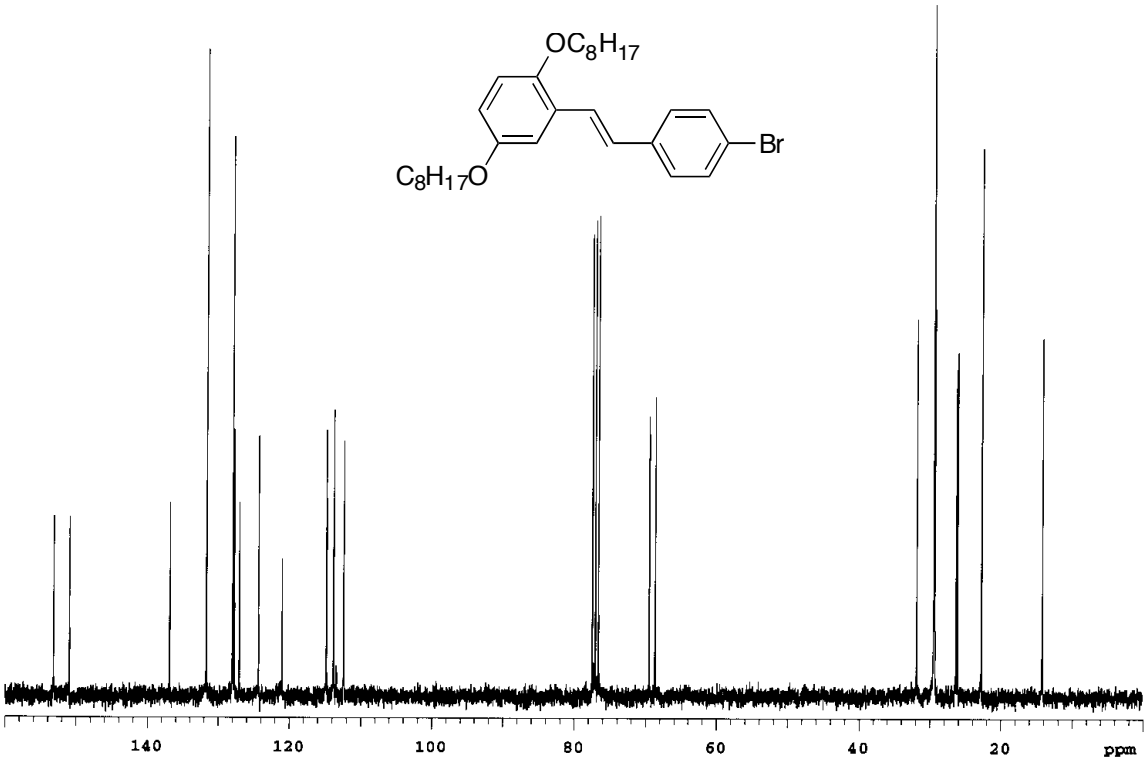

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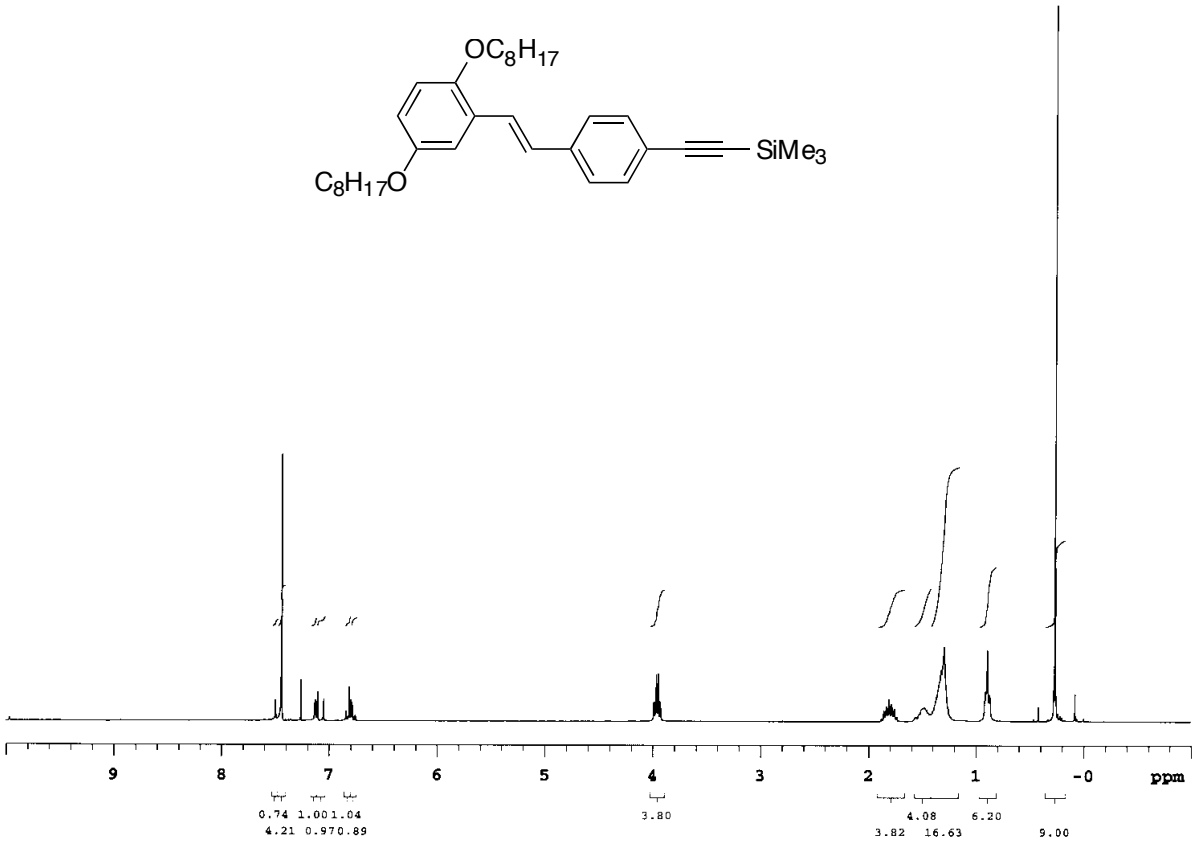


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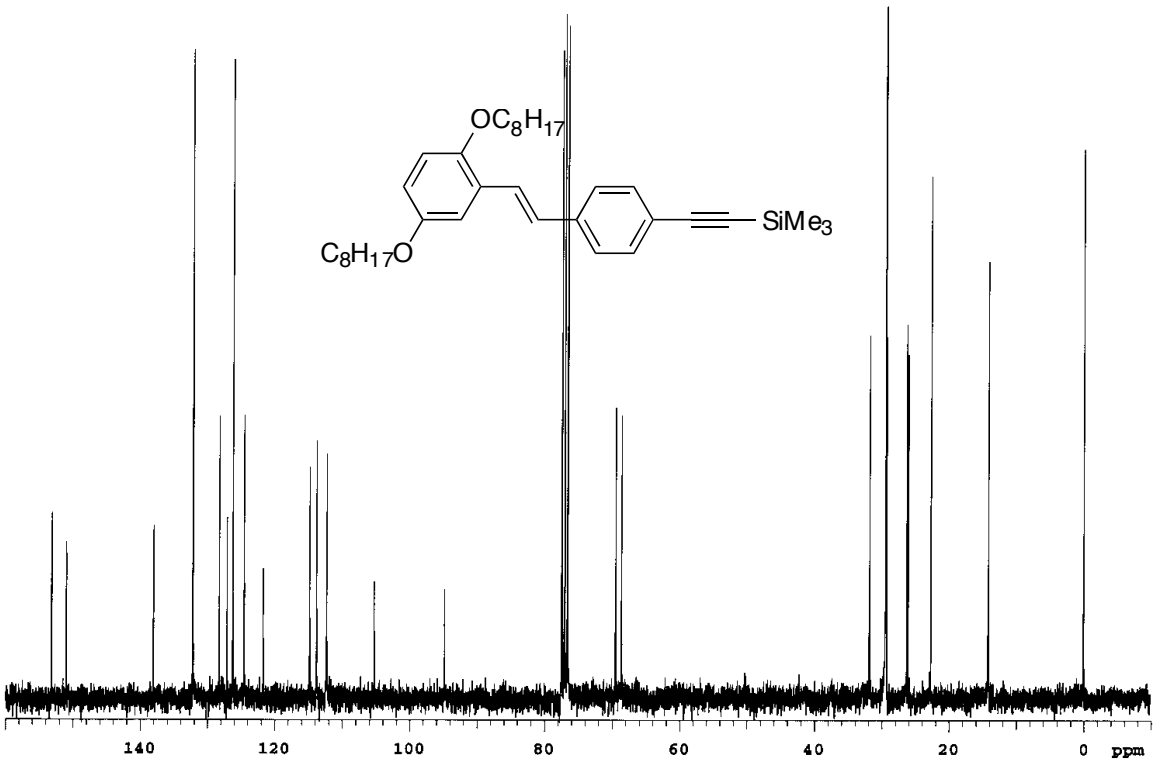

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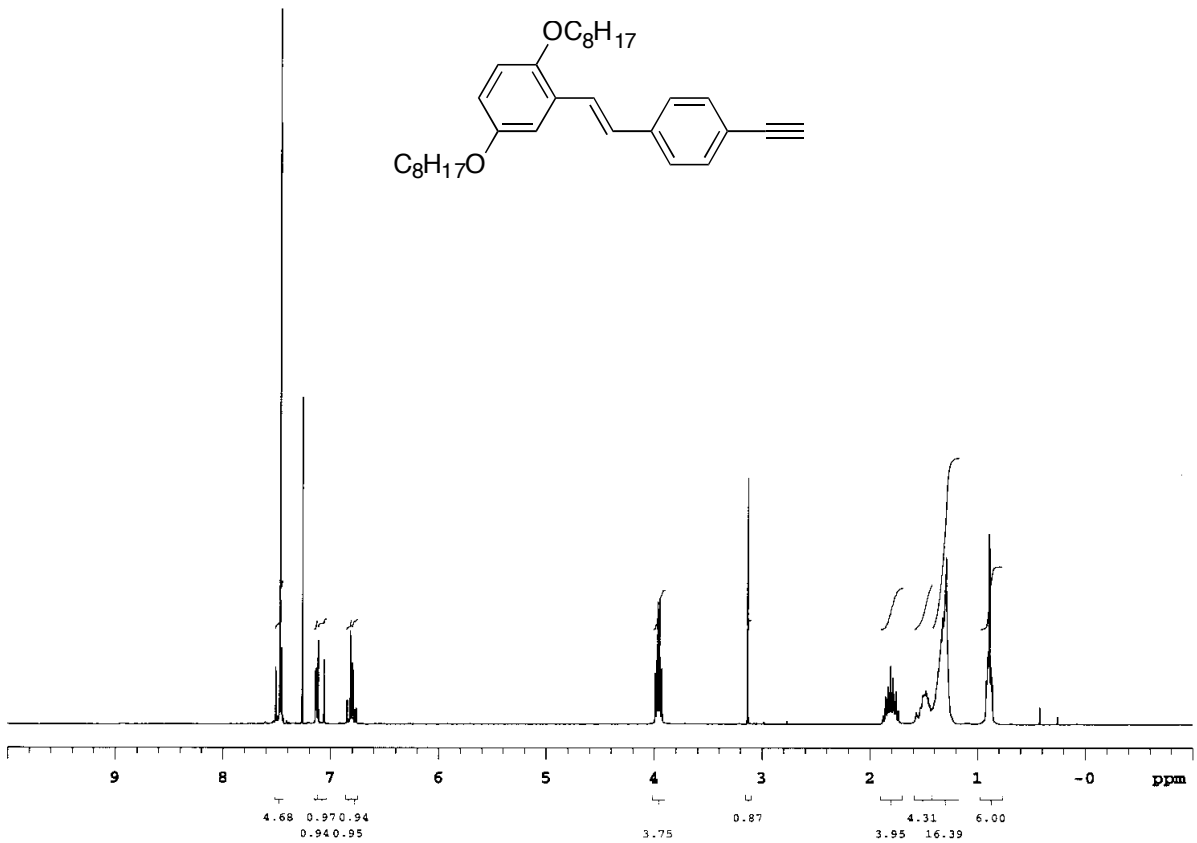


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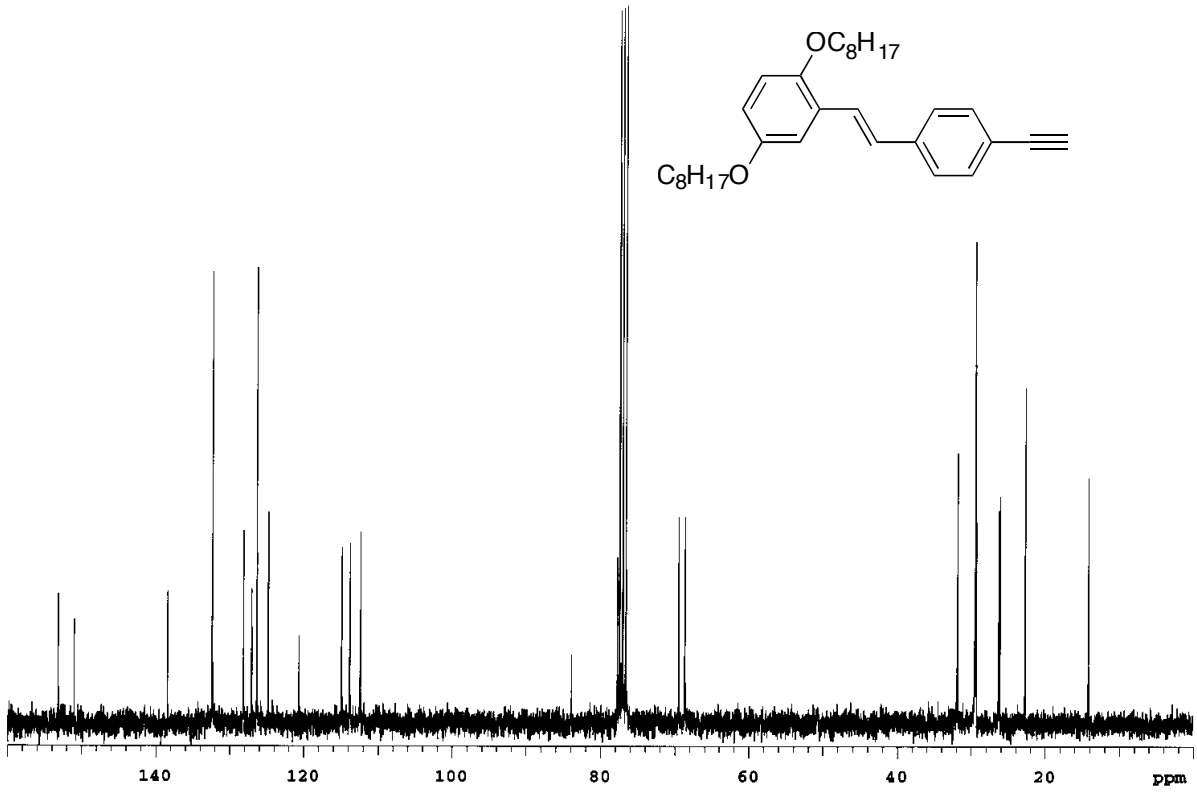

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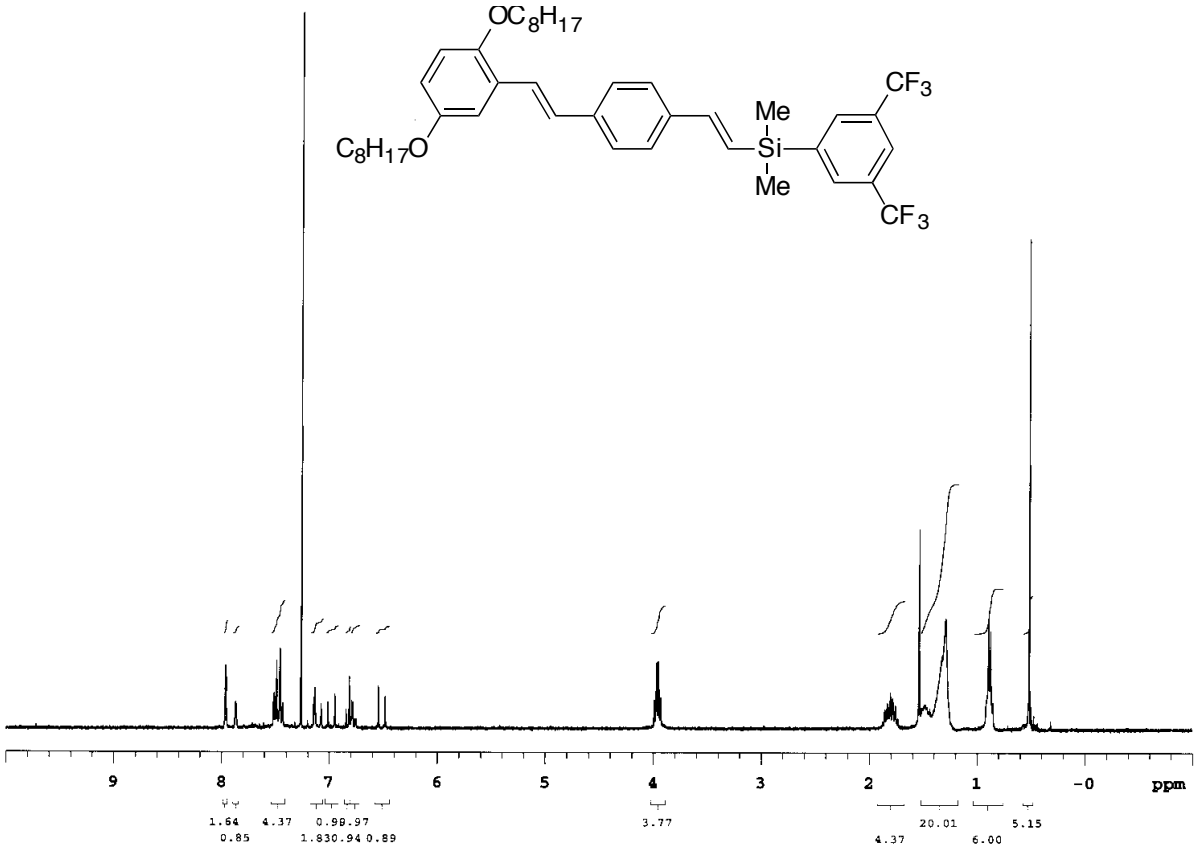


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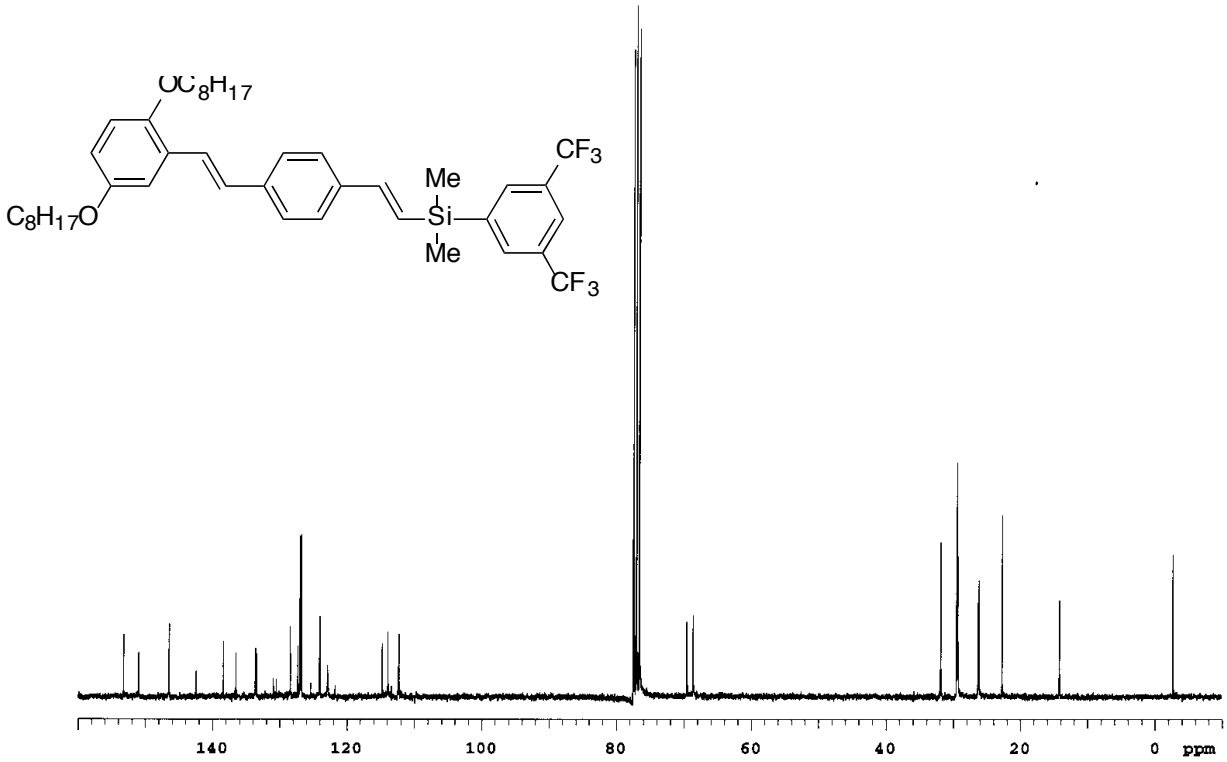

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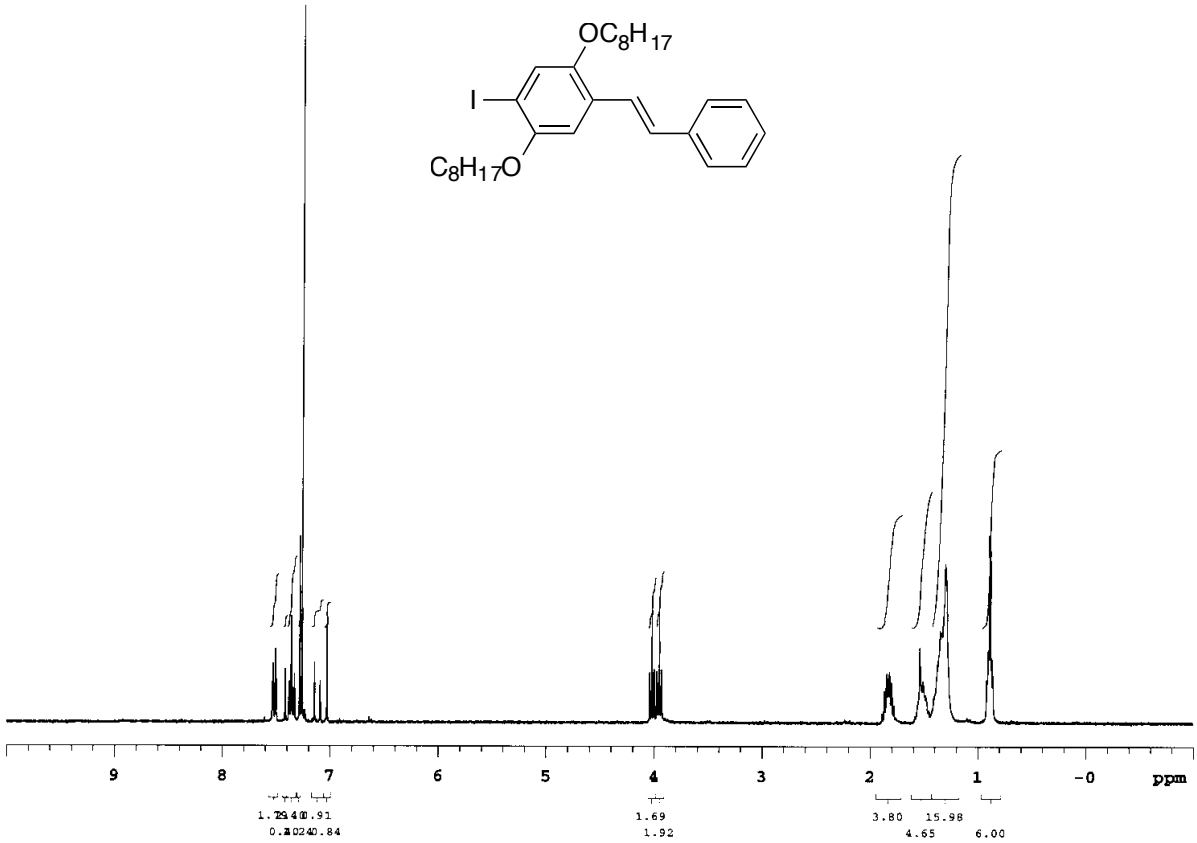


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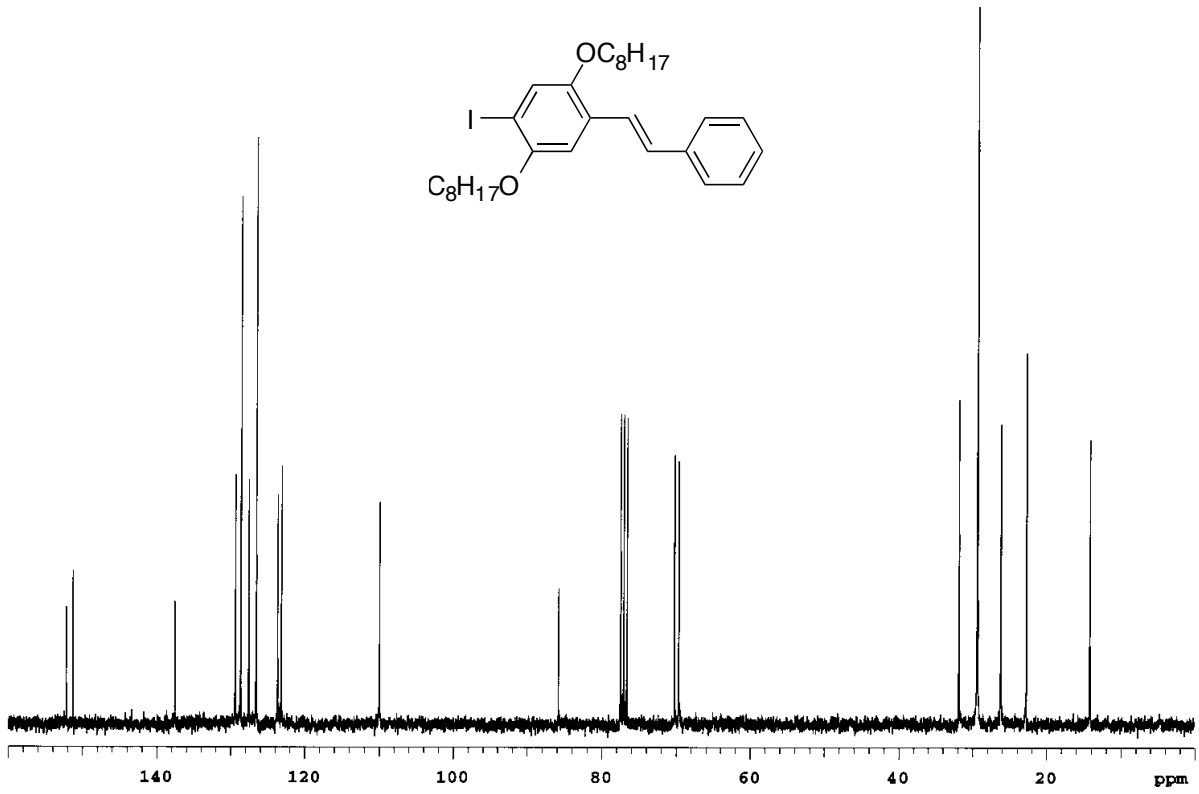

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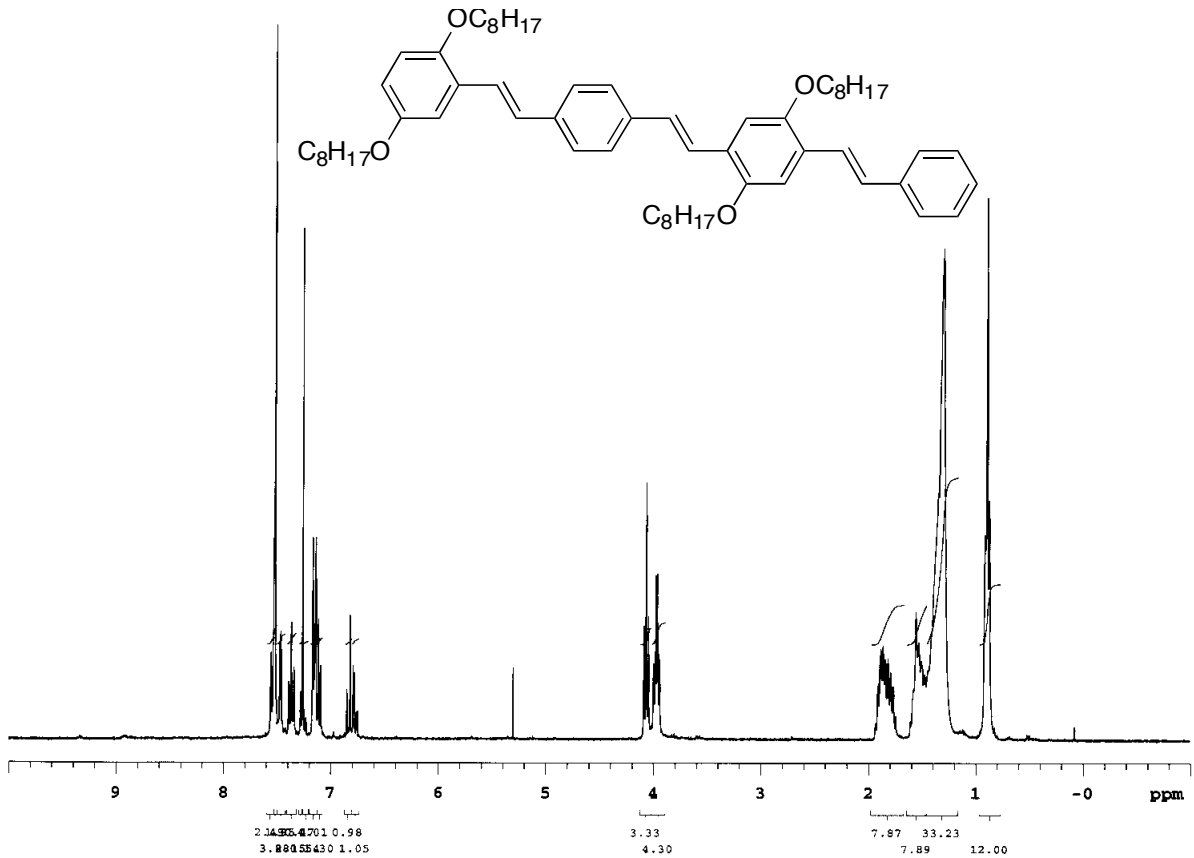


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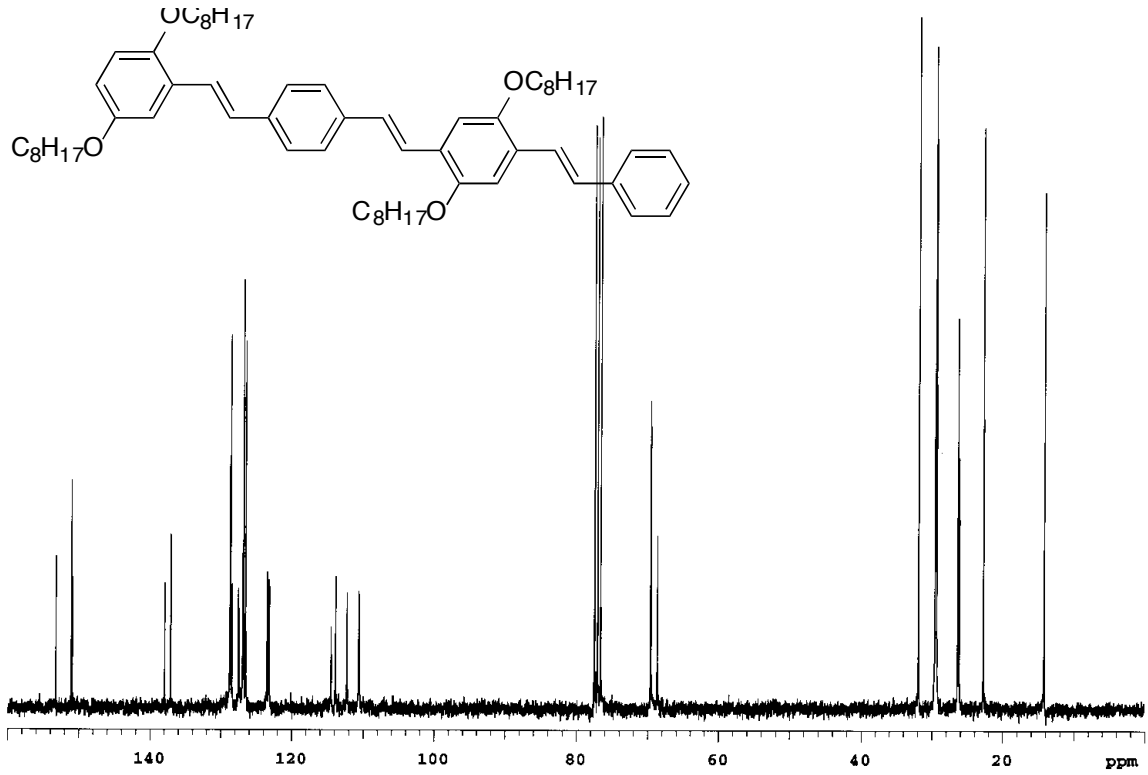

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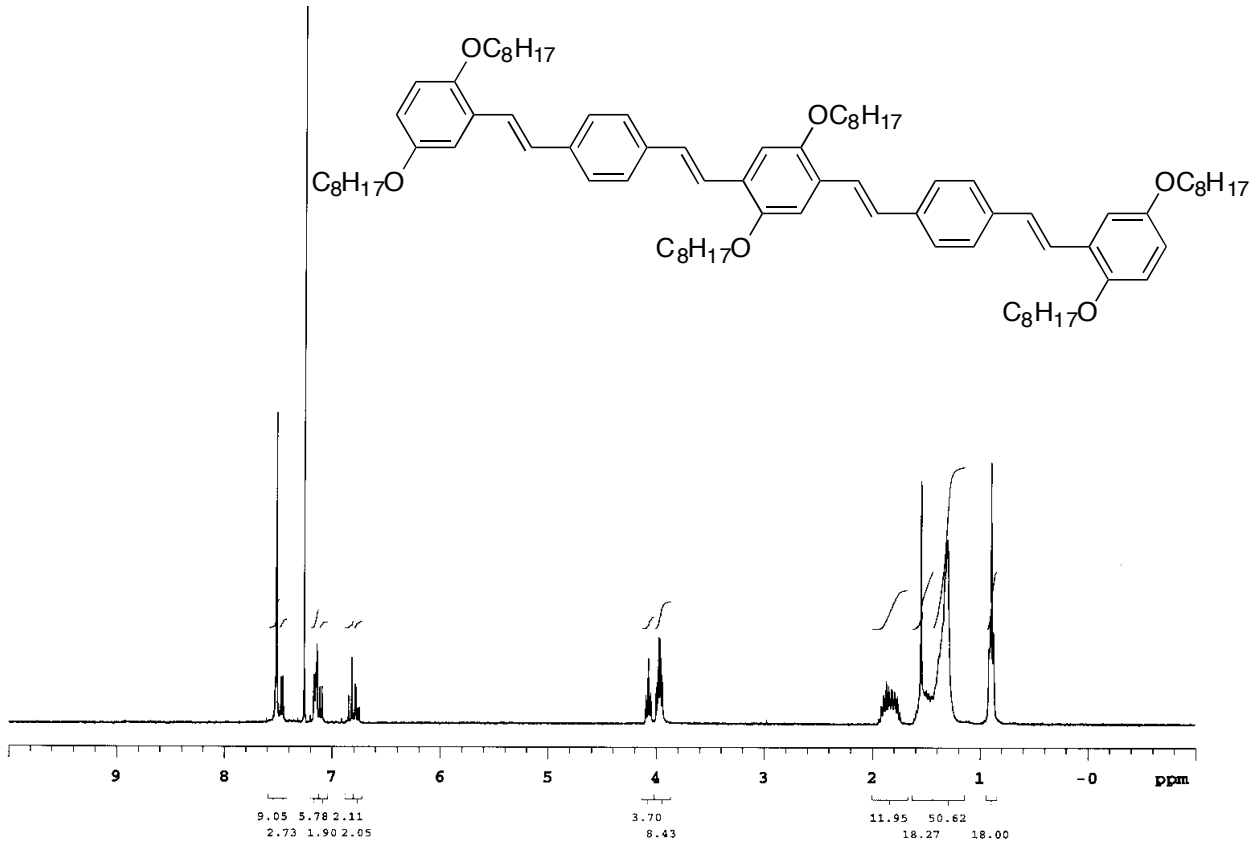


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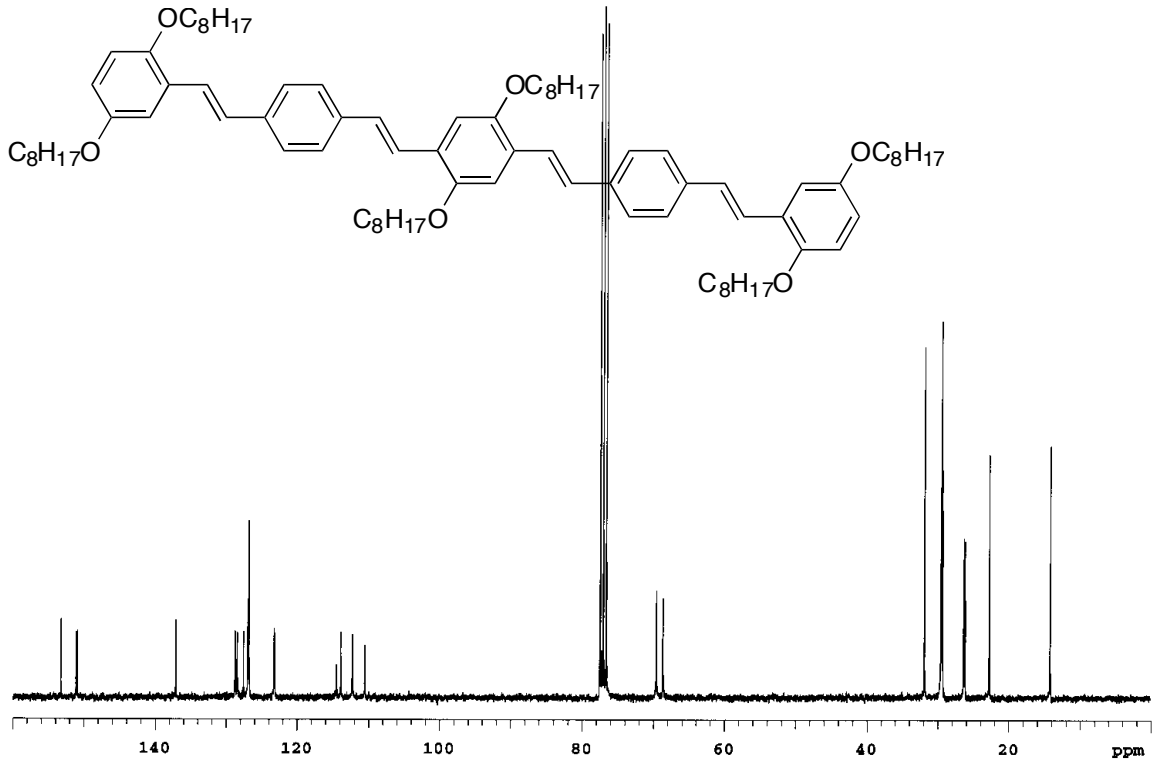

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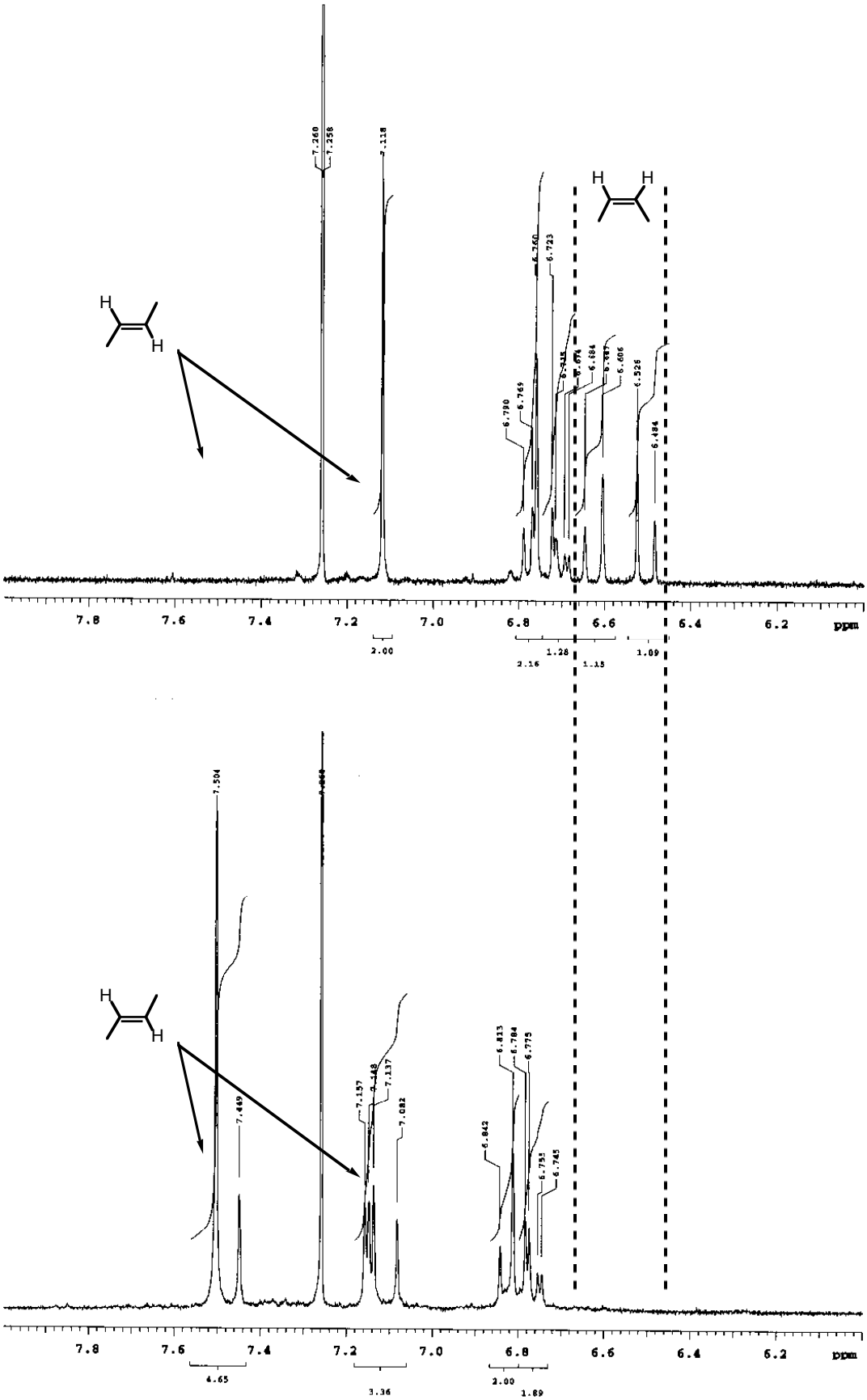

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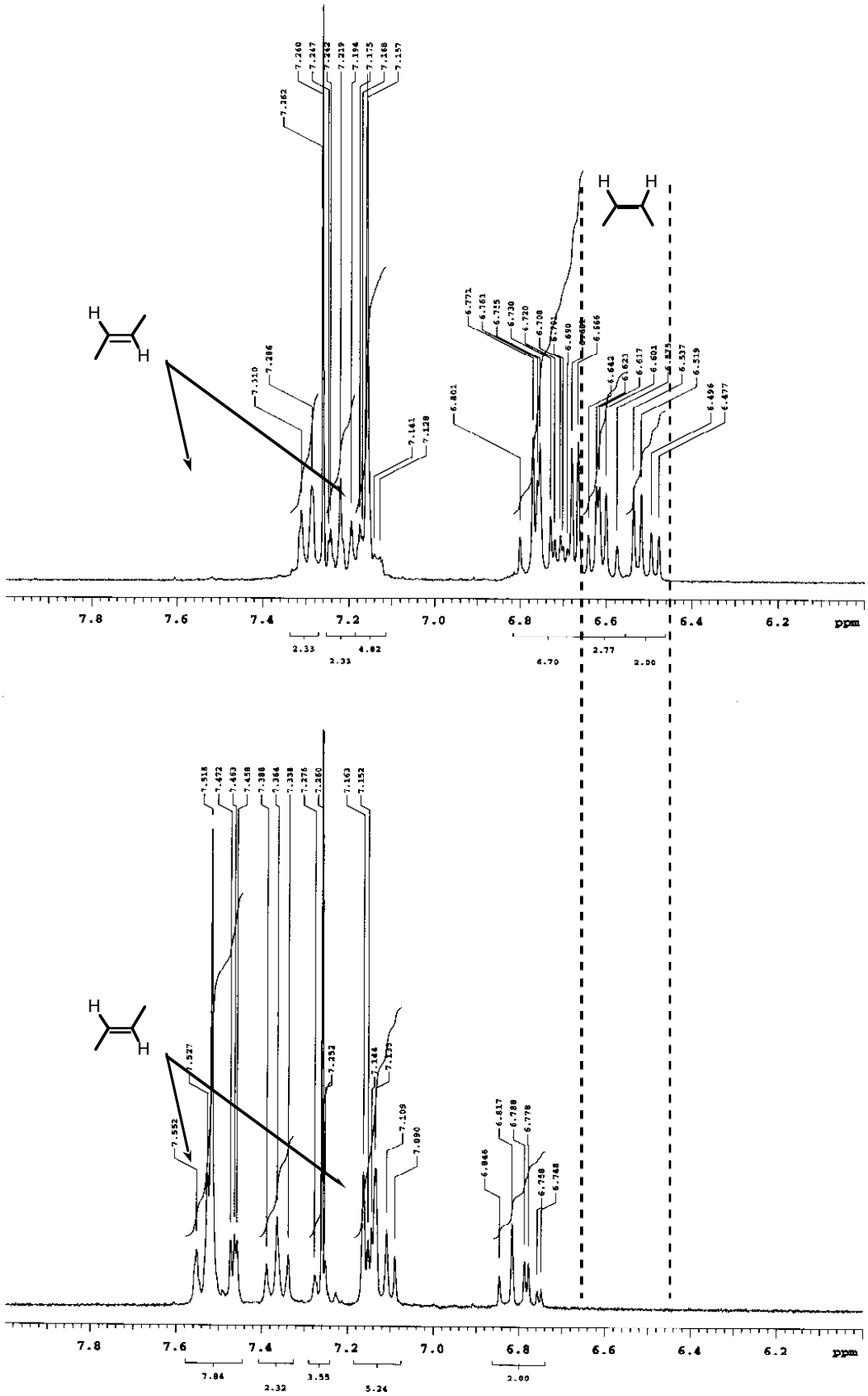

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