Electronic Supplementary Material (ESI) for New Journal of Chemistry.

Electronic Supporting Informations

Self-assembly of novel benzimidazole *N*-glycosylamines to nanofibers and nanospheres

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S.I. 1 Description of experimental techniques.

S.I. 1.1: General procedure for gelation

The gelation studies were carried as per reported procedures[1]. A definite amount of benzimidazole *N*-glycosylamine gelator **8-19** was added to 1 ml of a required solvent in a glass vial and warmed gently until clear solution was obtained. After allowing it to cool at ambient temperature, the vessel was turned upside down to verify the gel formation. The reversibility of the gelation was confirmed by repeated heating and cooling. The critical gelator concentration (CGC) of benzimidazole *N*-glcosylamine **8-19** was determined from the minimum amount of gelator required for the formation of gel formation at room temperature.

S.I. 1.2: Scanning electron microscopy (SEM)

Scanning electron microscopic studies were performed by using Hitachi Scanning Electron Microscope SU3500. The samples were prepared by drop casting of gel of benzimidazole *N*-glycosylamines **18** and **19** on aluminum studs at their respective CGC at ambient conditions. SEM images were obtained after drying the sample at ambient temperature.

S.I. 1.3:Transmission electron microscopy (TEM)

Transmission electron microscopic studies were performed by using Hitachi Transmission electron microscope H-9500. The samples were prepared by drop casting of solution, dispersed with gel of benzimidazole *N*-glycosylamines **18** on to carbon coated copper grids (400 mesh) at the concentration of 1 X 10^{-5} M at ambient conditions. TEM images were obtained after drying the sample and without staining in vaccum.

S.I. 1.4: Dropping ball method

Gel to solution transition temperature (T_{gel}) was determined by a 'dropping-ball method. A small tin ball of approximate weight 100 mg was placed on top of the gel in a capped vial of diameter 1.0 cm, which was slowly warmed in a silicon oil bath. The temperature in which the tin ball reaches the bottom of the vial is assigned as T_{gel}. The experiment is duplicated one to obtain the reproducibility within ±2^{o}C. The same condition was repeated on increasing the concentration.

S.I. 1.5: Differential scanning calorimetry (DSC)

DSC analysis of gels were performed on a NETZSCH phenoix DSC 204. The measurements were carried out under nitrogen atmosphere using 50 L sealed aluminium sample pans. Sample was heated from approx. 25 to 250 °C with a heating range of 10 °C min−1 and sample weights of 10–21 mg were used in measurements.

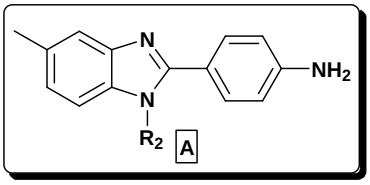
S.I. 1.6: Response of gel towards Cu^{2+}

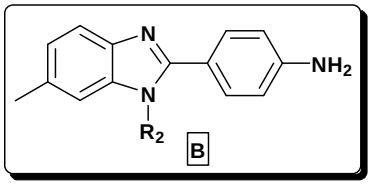
About 10 µl of $Cu_2(OAc).H_2O$ solution (1%, ethanol) was added to gel of glycosylamines **8**-**19** in different solvent. The concentration of copper acetate monohydrate was increased gradually until gel turns to solution. Thus amount of copper acetate monohydrate required for the conversion of gel to solution was recorded.

Reference

1) G. S. Lim, B. M. Jung, S. J. Lee, H. H. Song, C. Kim, and J. Y. Chang *Chem. Mater*., 2007, **19**, 460.

S.I. 2.1 Chemical structure of regioisomers of compound **4**-**7**.





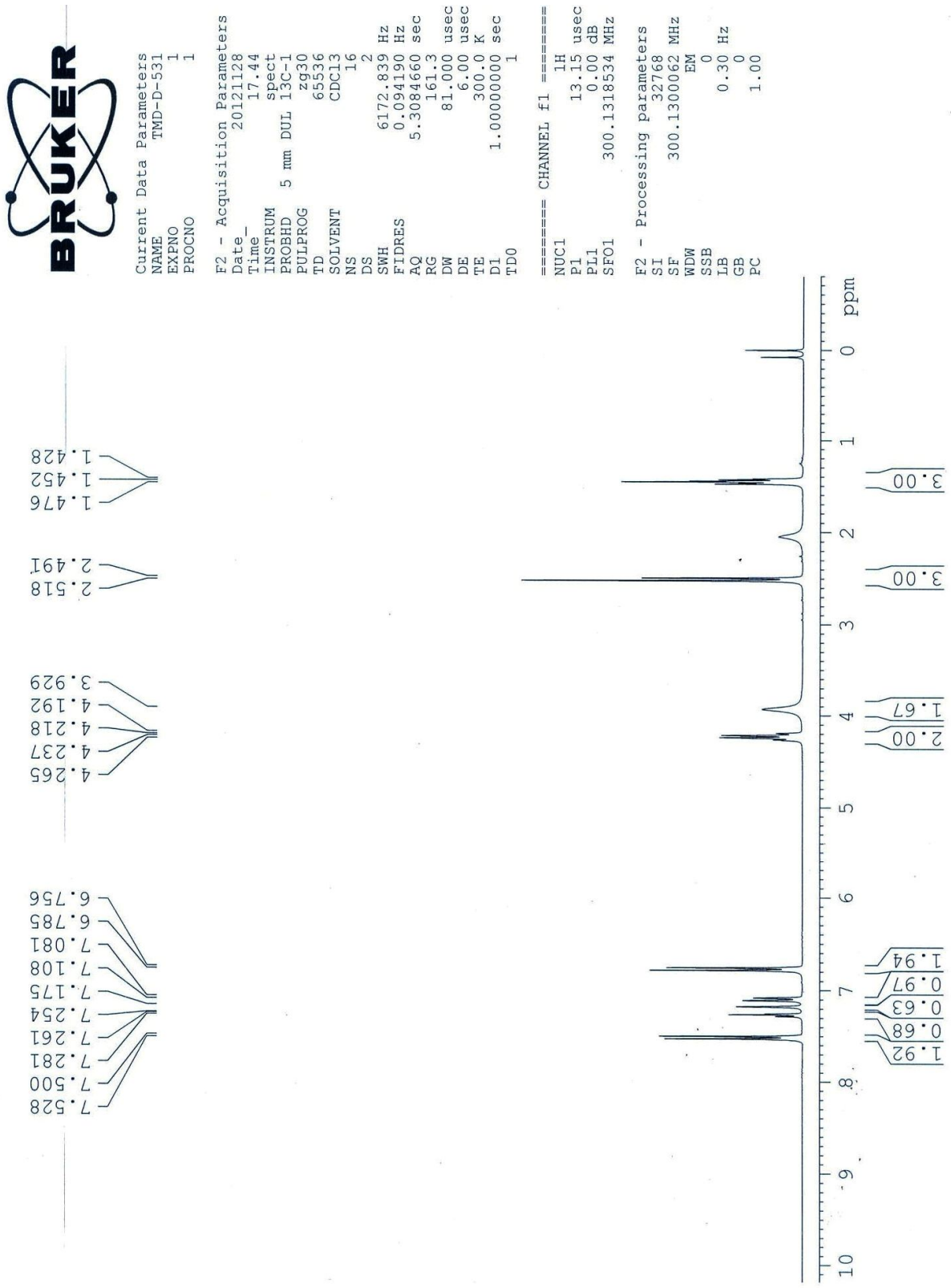


Figure S.I. 1: ^{1}H NMR Spectrum of Compound **4**.

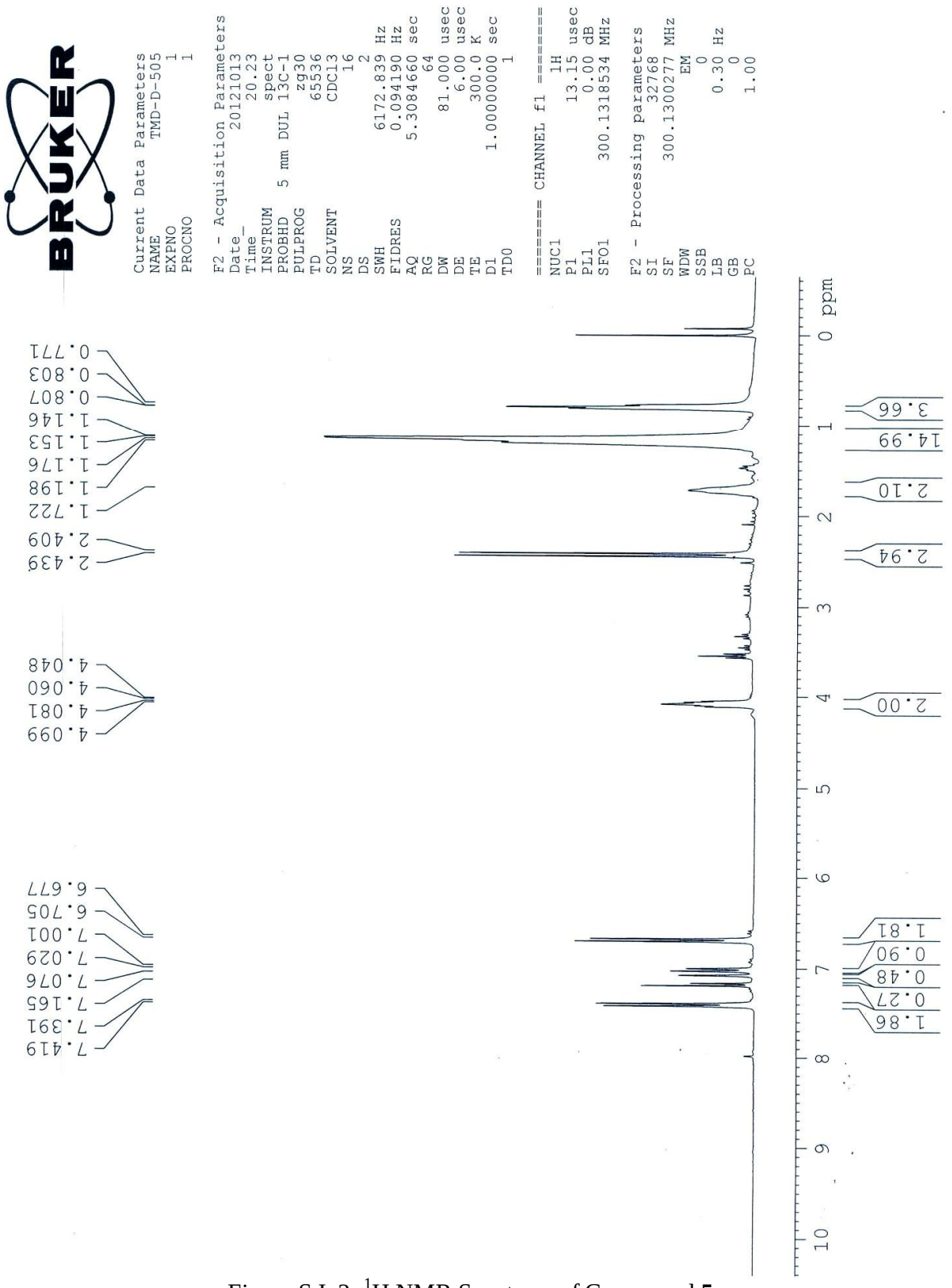


Figure S.I. 2: ^{1}H NMR Spectrum of Compound **5**.

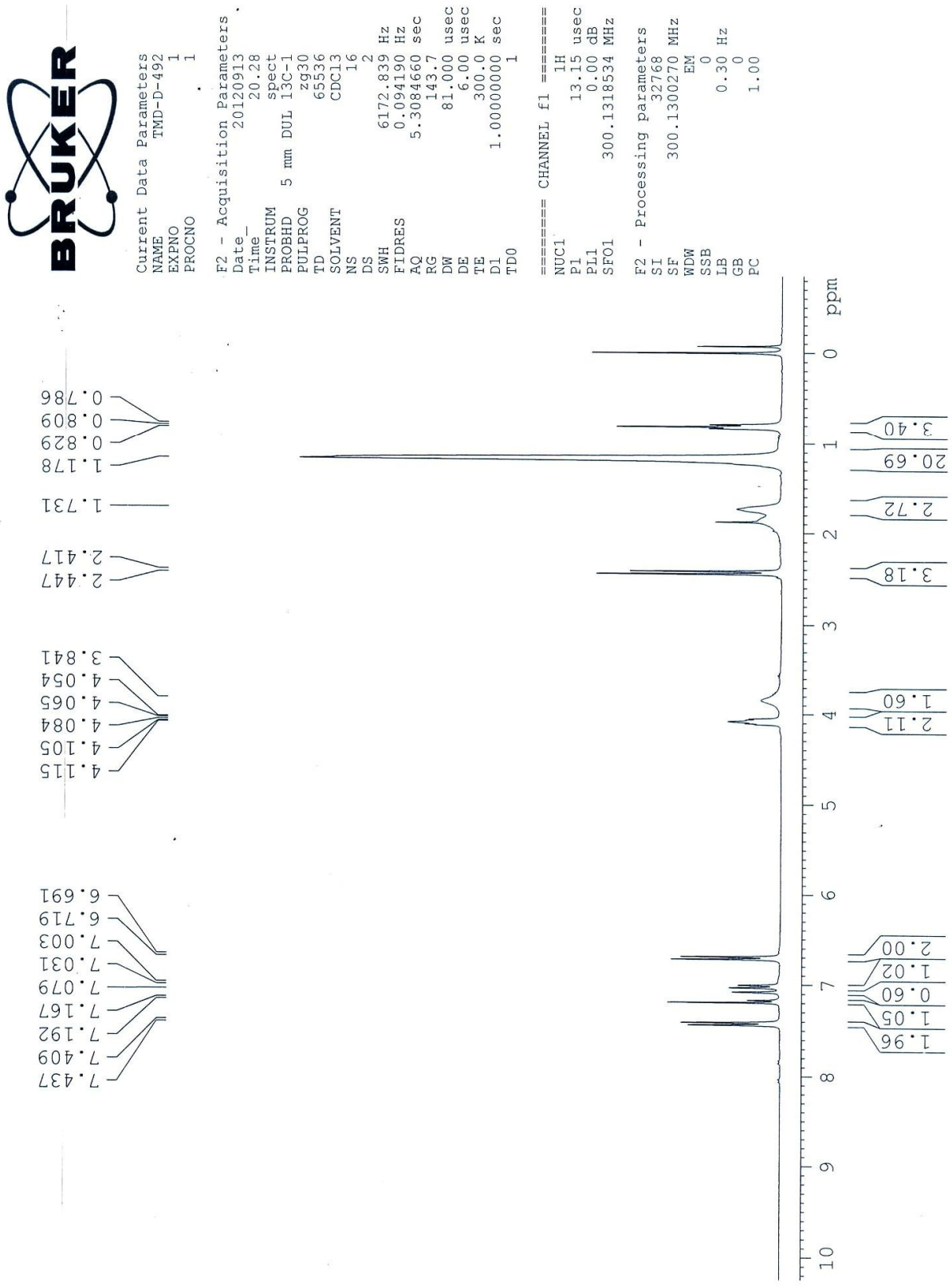


Figure S.I. 3: ^{1}H NMR Spectrum of Compound **6**.

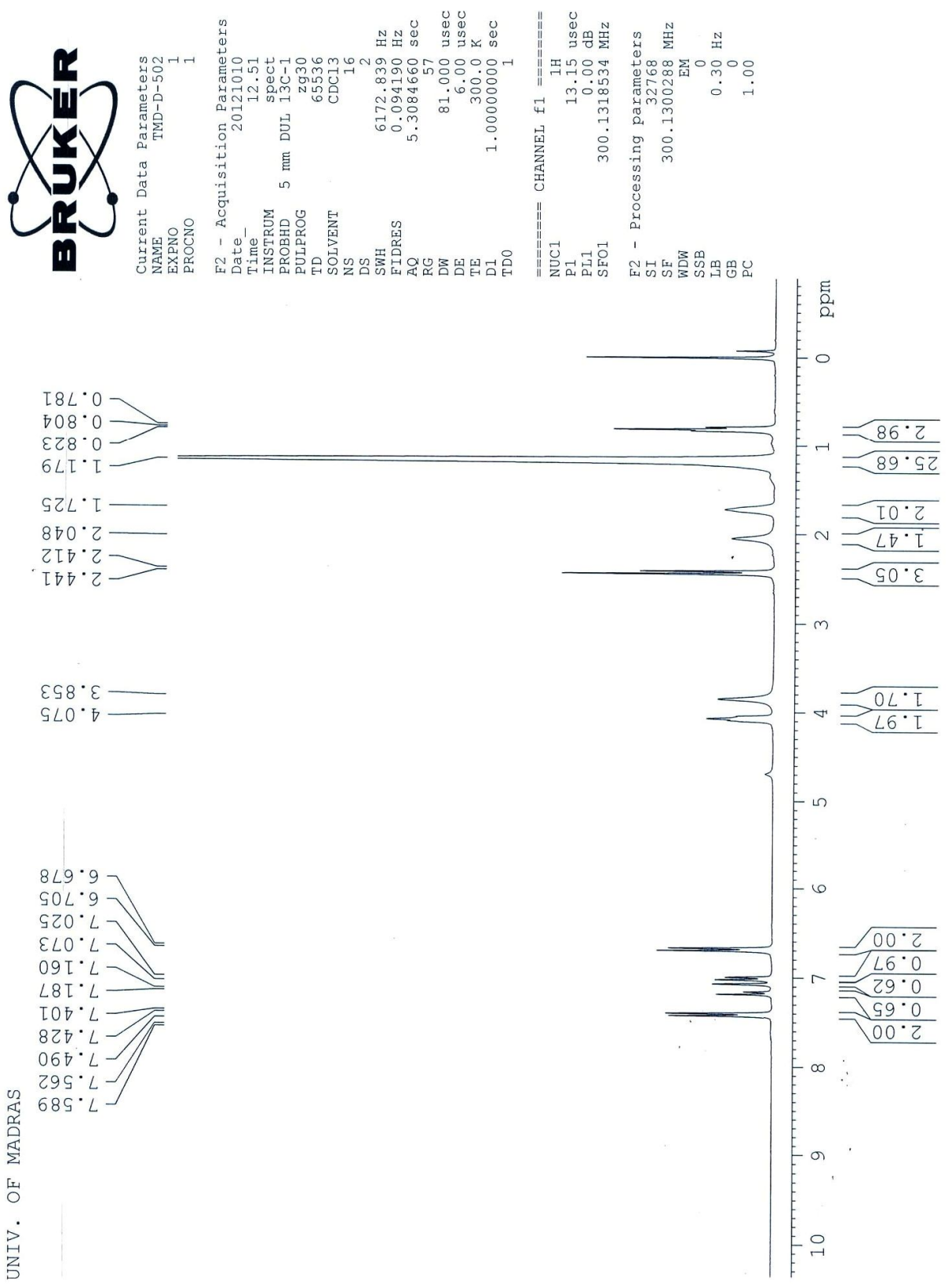


Figure S.I. 4: ^{1}H NMR Spectrum of Compound **7**.

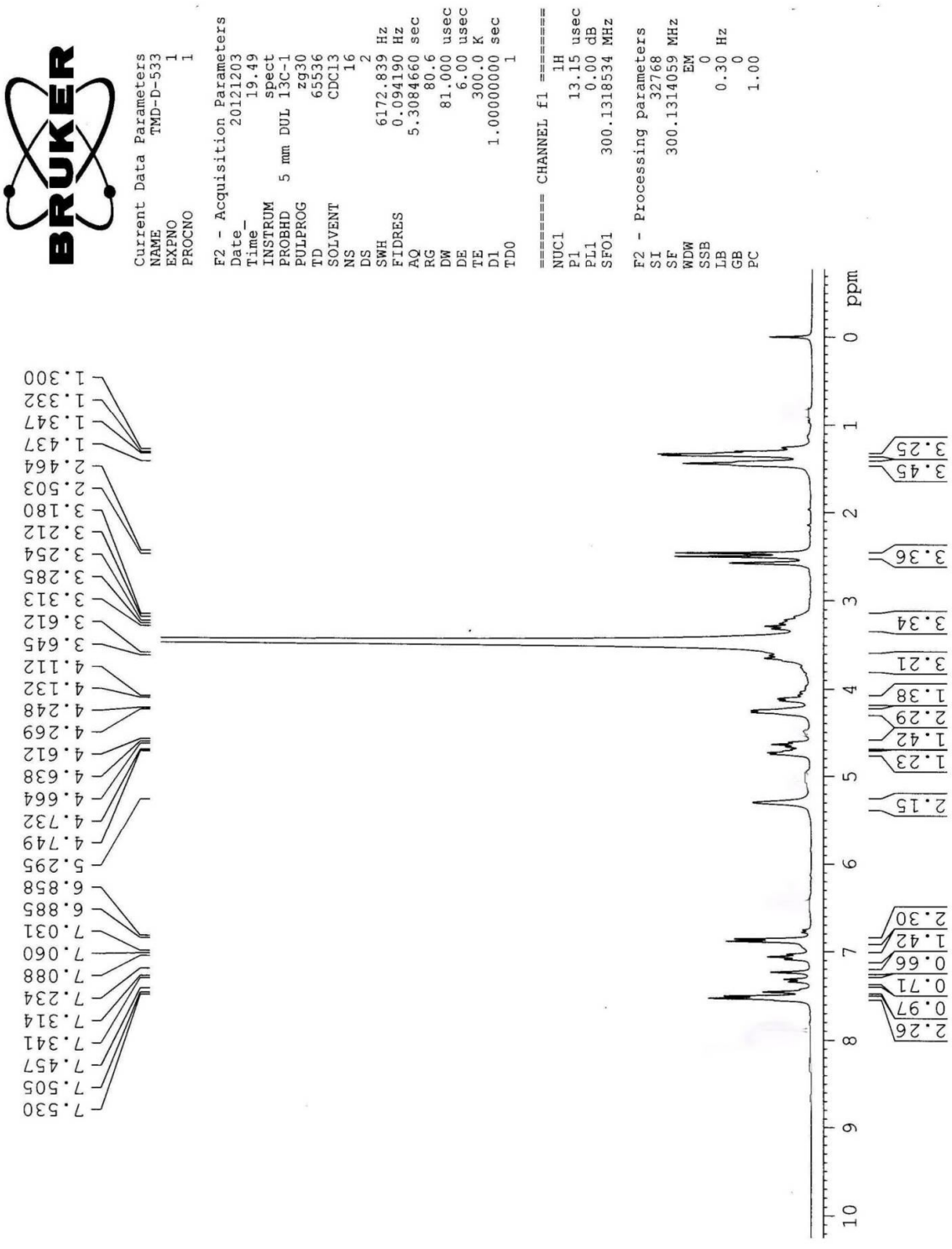


Figure S.I. 5: ^{1}H NMR Spectrum of Compound **8**.

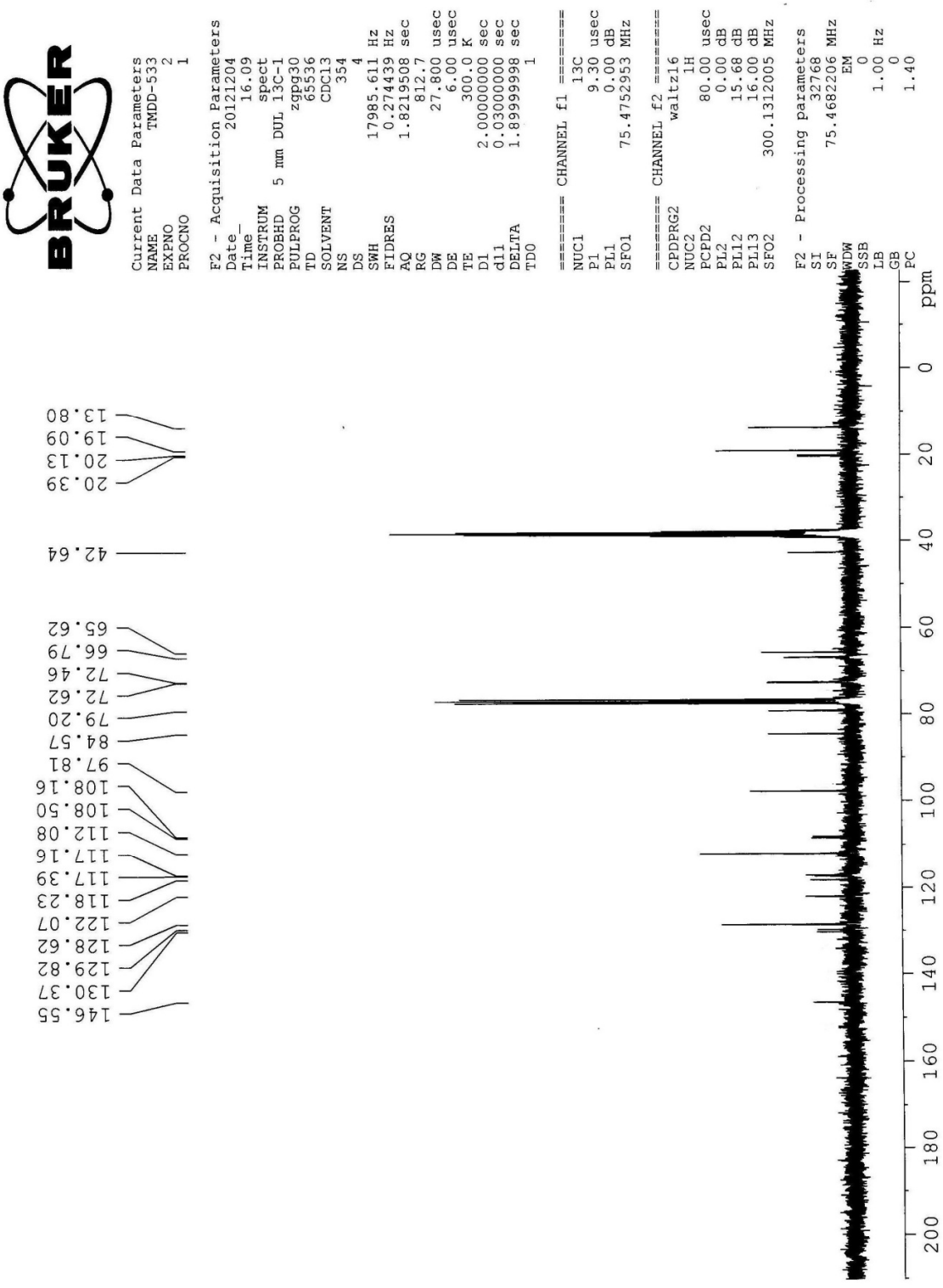


Figure S.I. 6: ^{13}C NMR Spectrum of Compound **8**.

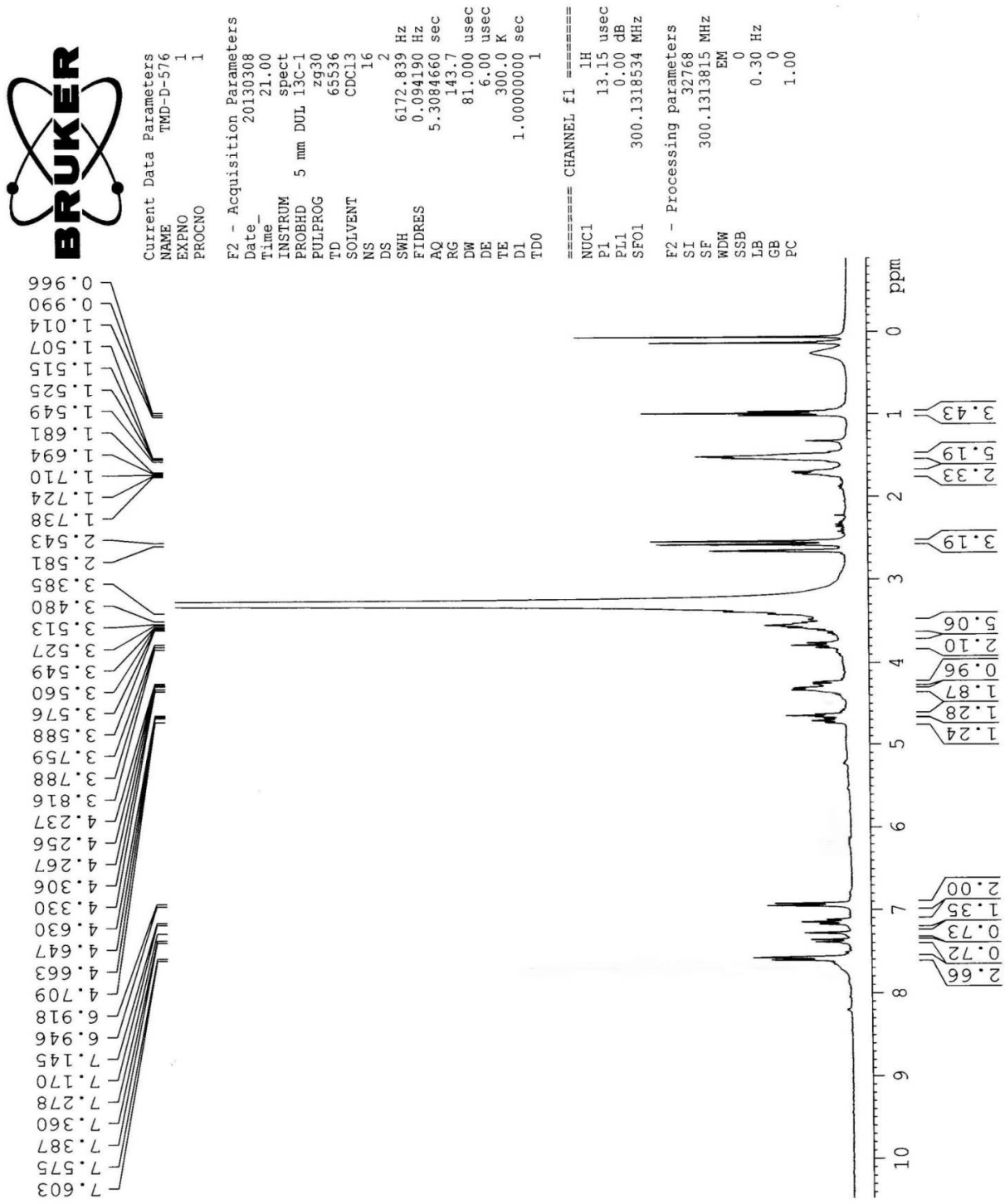


Figure S.I. 7: ^{1}H NMR Spectrum of Compound **9**.

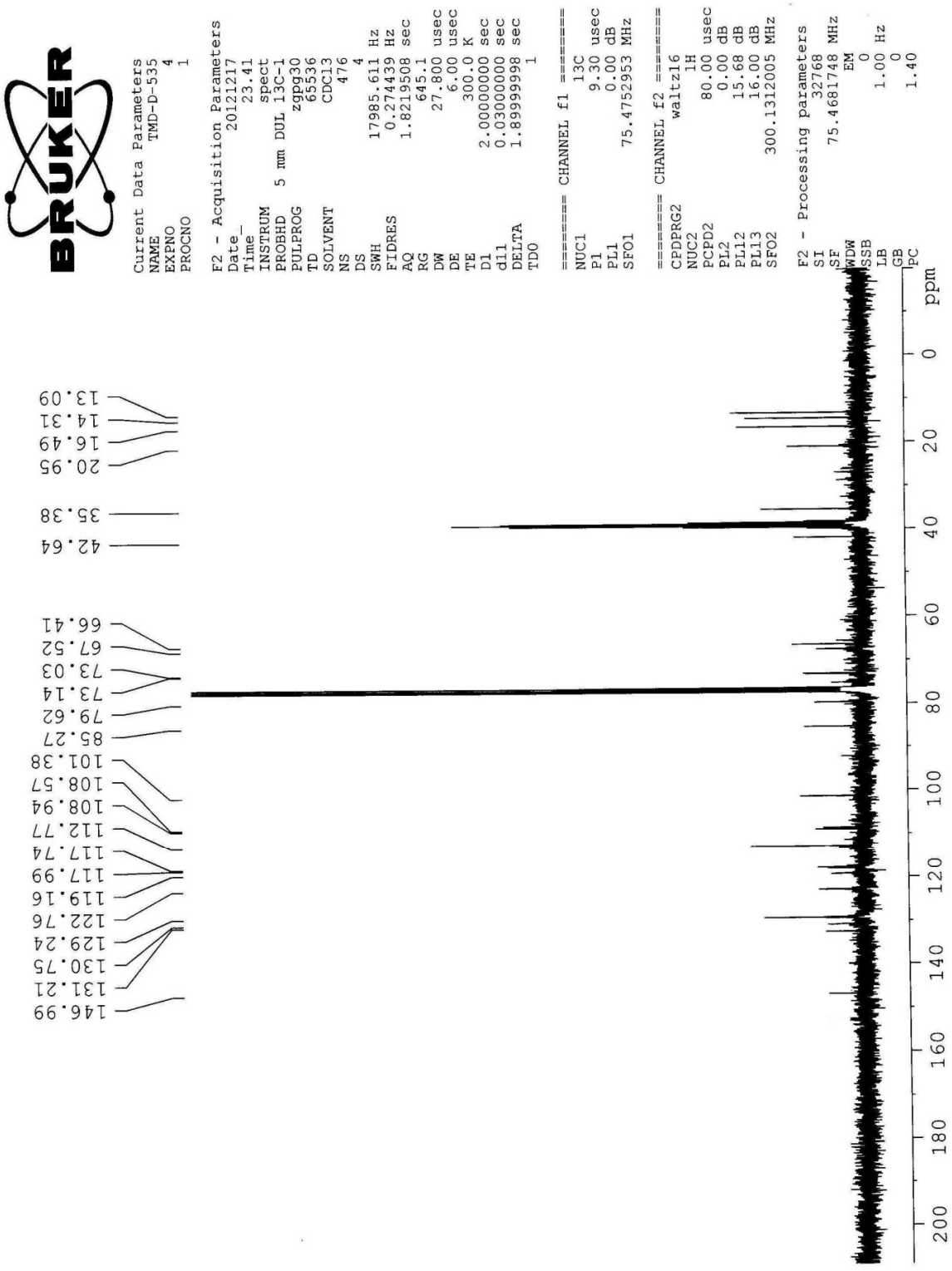


Figure S.I. 8: ^{13}C NMR Spectrum of Compound **9**.

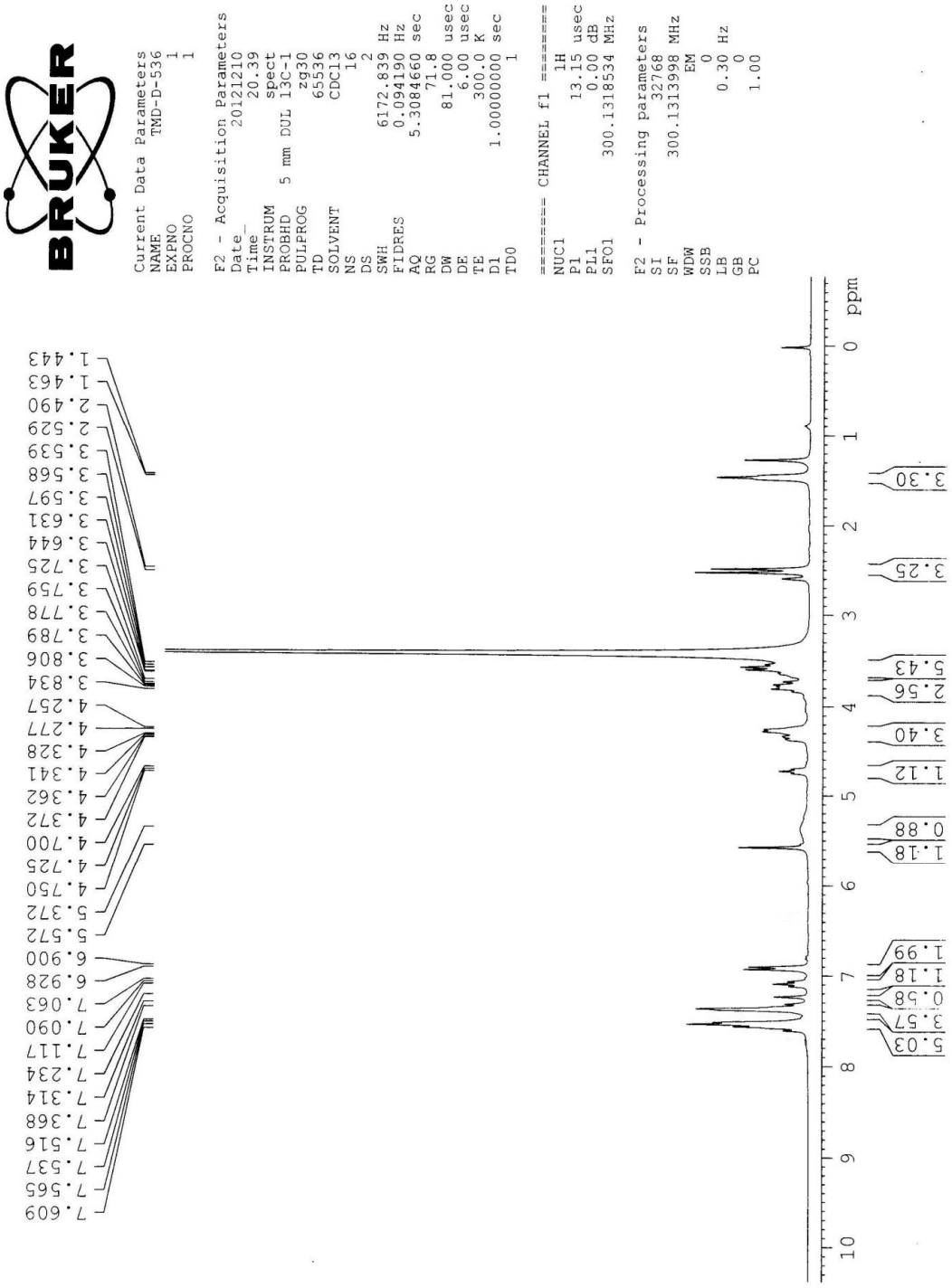


Figure S.I. 9: ^{1}H NMR Spectrum of Compound **10**.

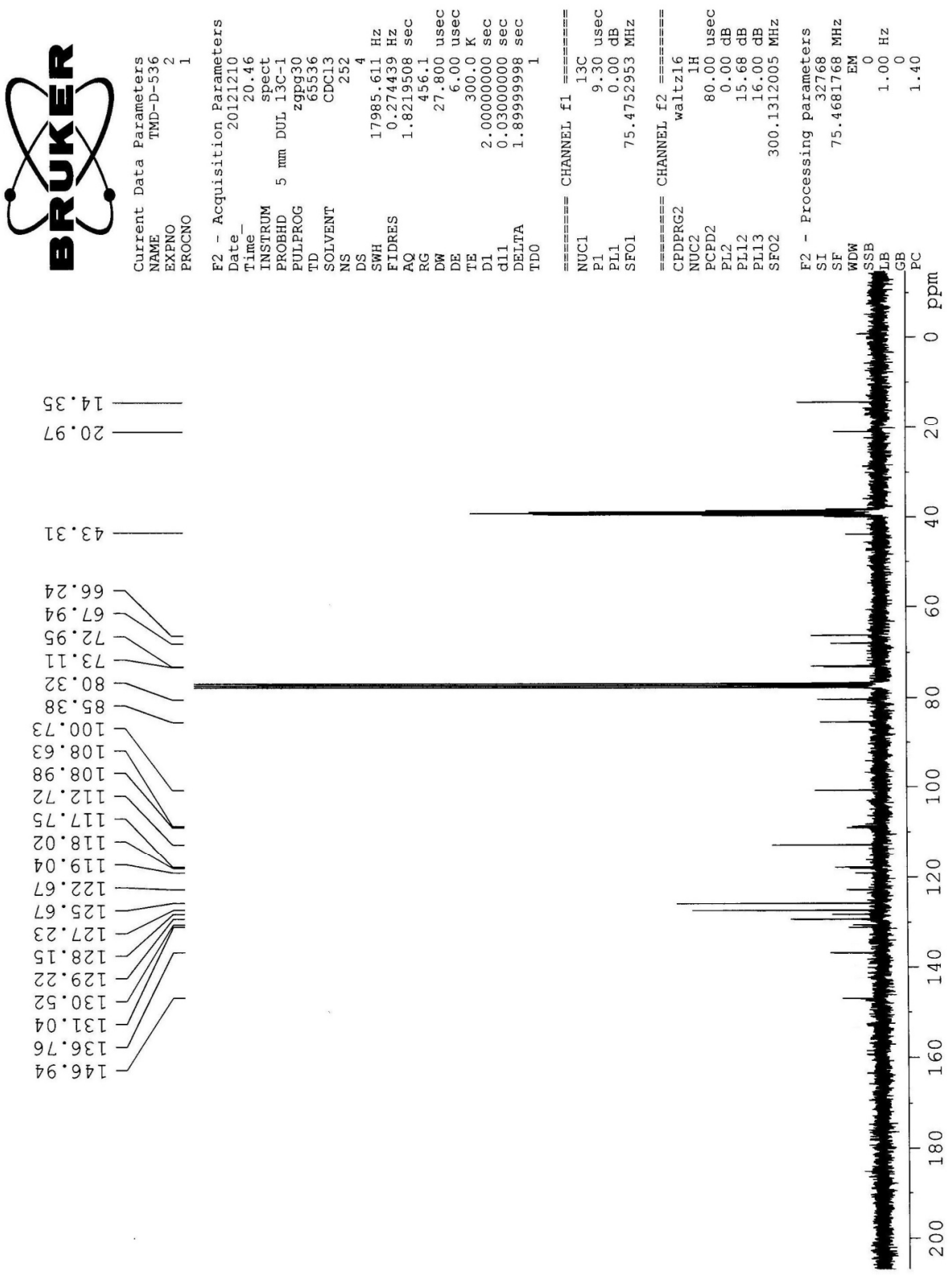


Figure S.I. 10: ^{13}C NMR Spectrum of Compound **10**.

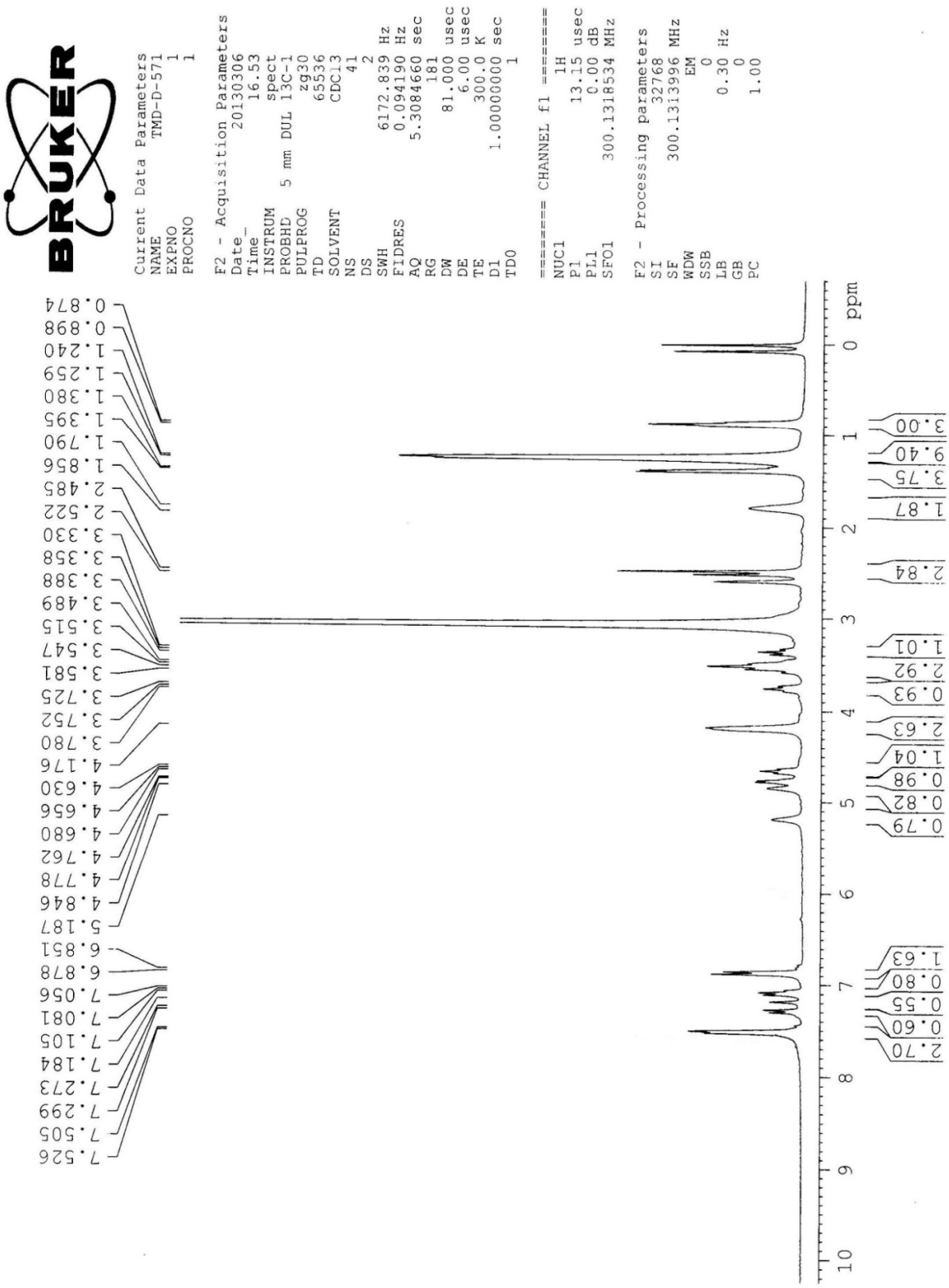


Figure S.I. 11: ^{1}H NMR Spectrum of Compound **11**.

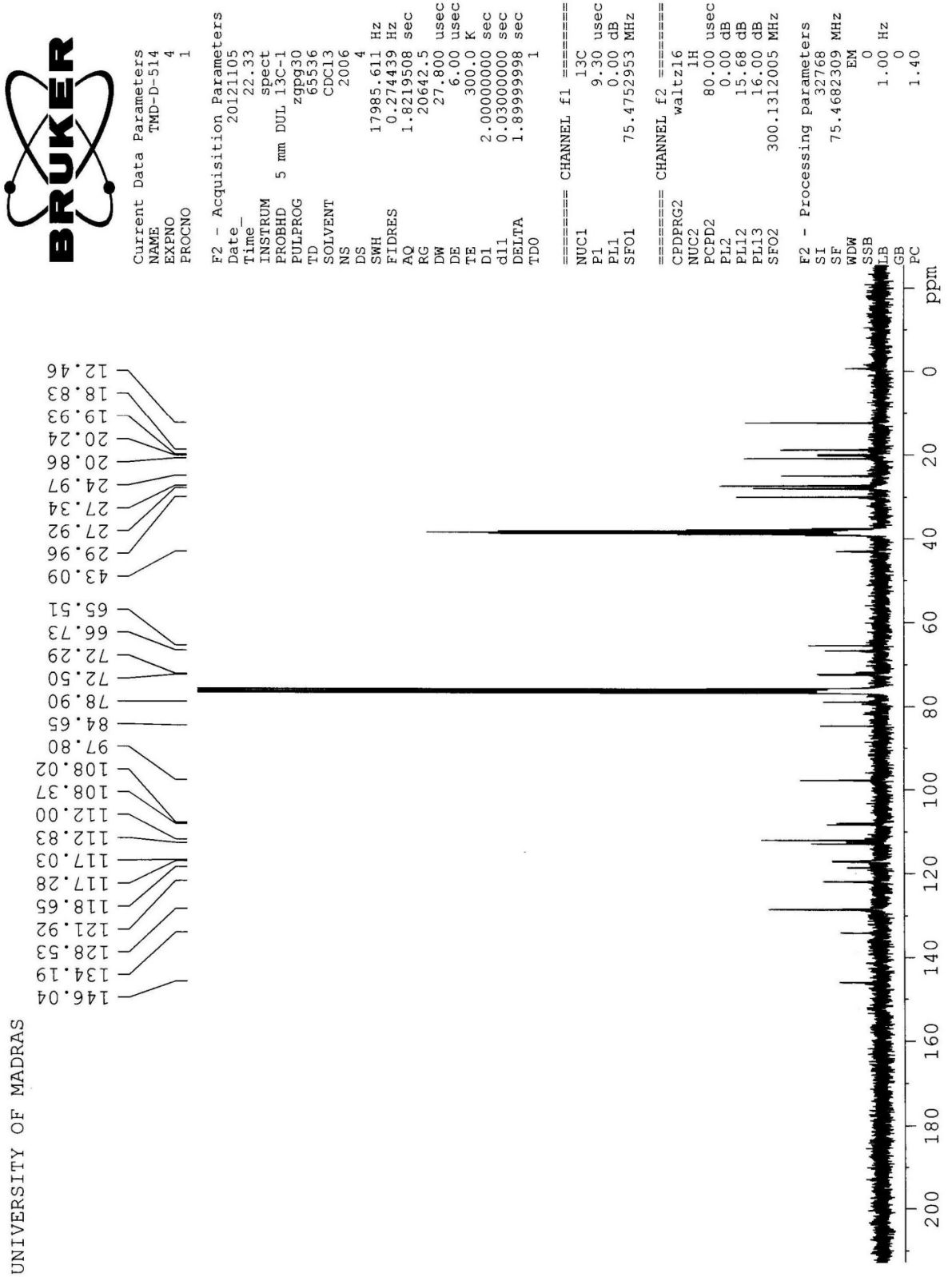


Figure S.I. 12: ^{13}C NMR Spectrum of Compound **11**.

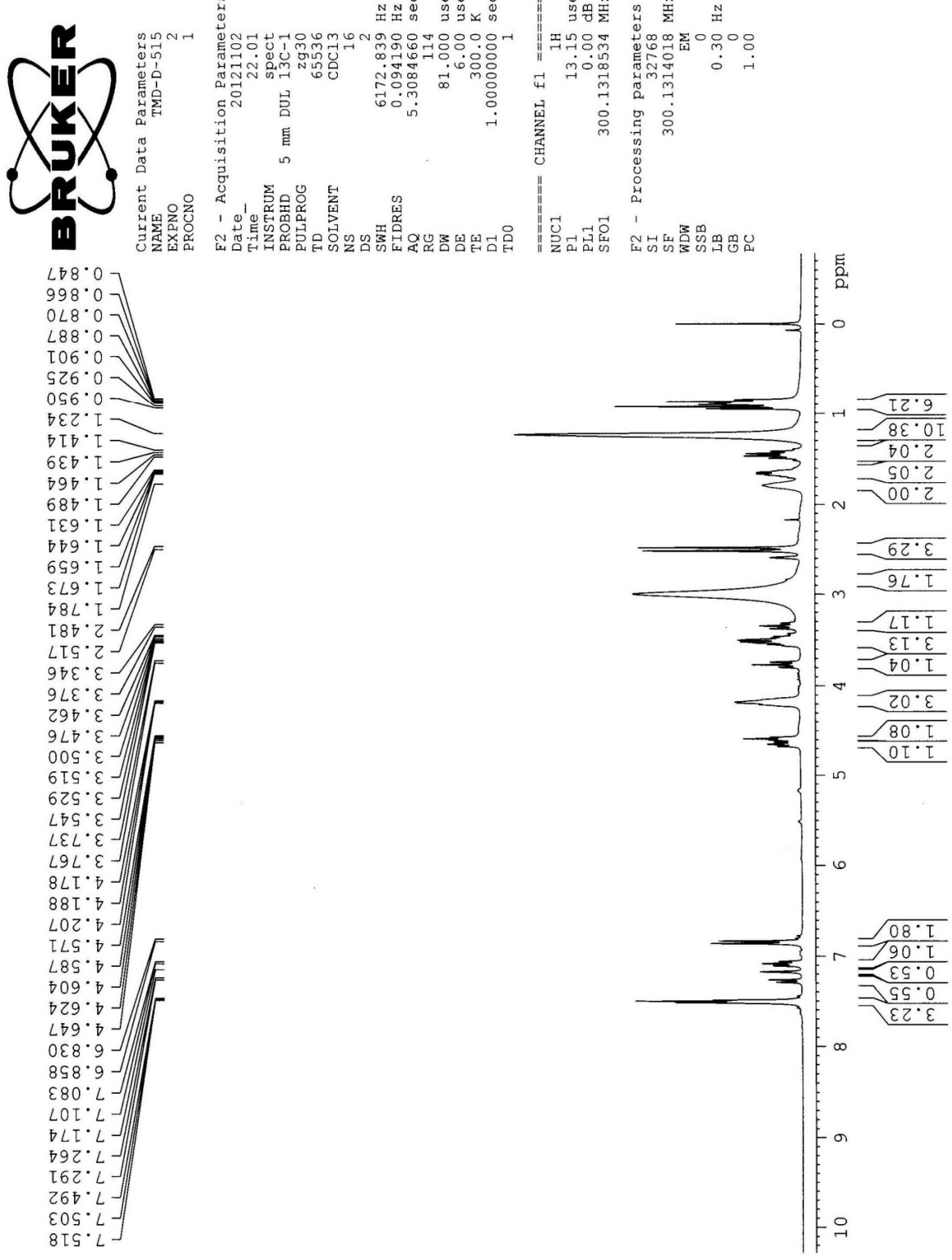


Figure S.I. 13: ^{1}H NMR Spectrum of Compound **12**.

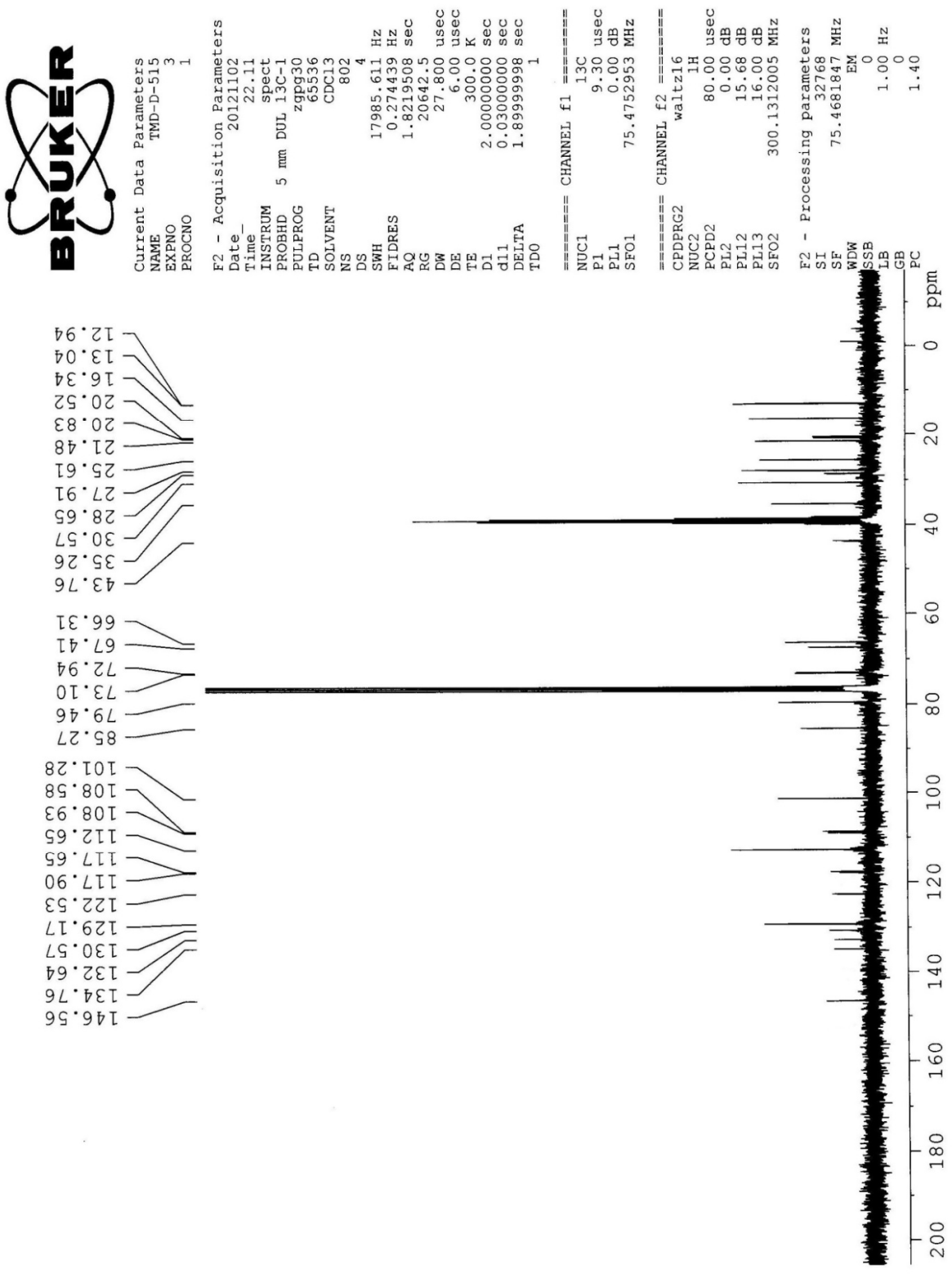


Figure S.I. 14: ^{13}C NMR Spectrum of Compound **12**.

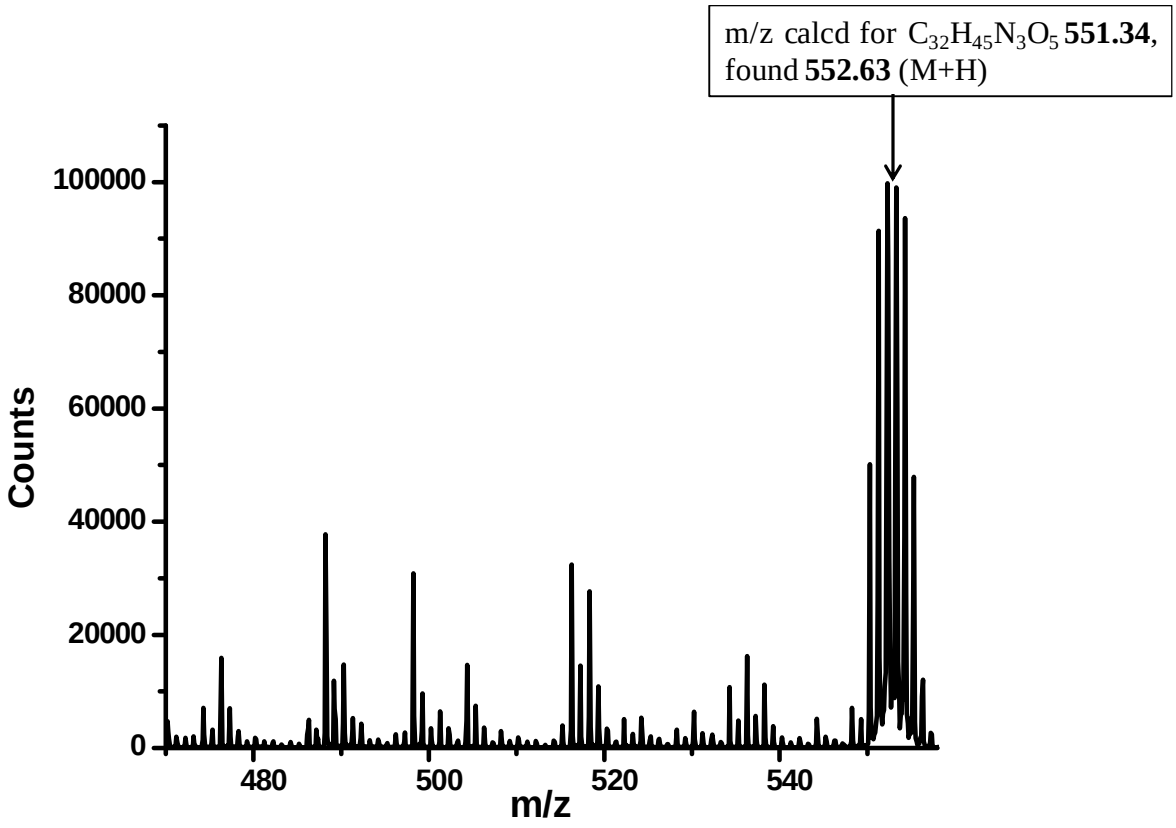


Figure S.I. 15: MALDI-TOF mass spectrum of Compound **12**.

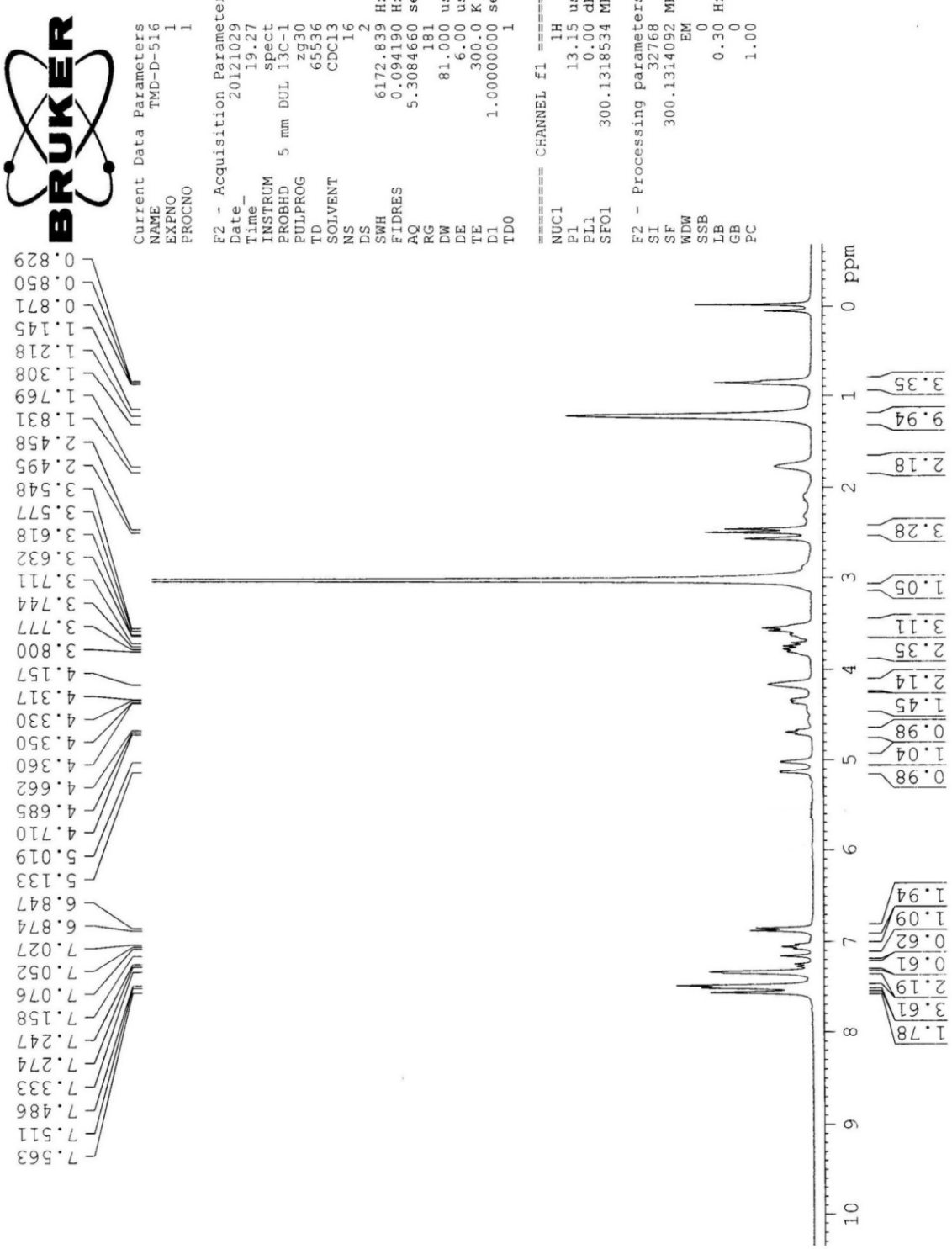


Figure S.I. 16: ^{1}H NMR Spectrum of Compound **13**.

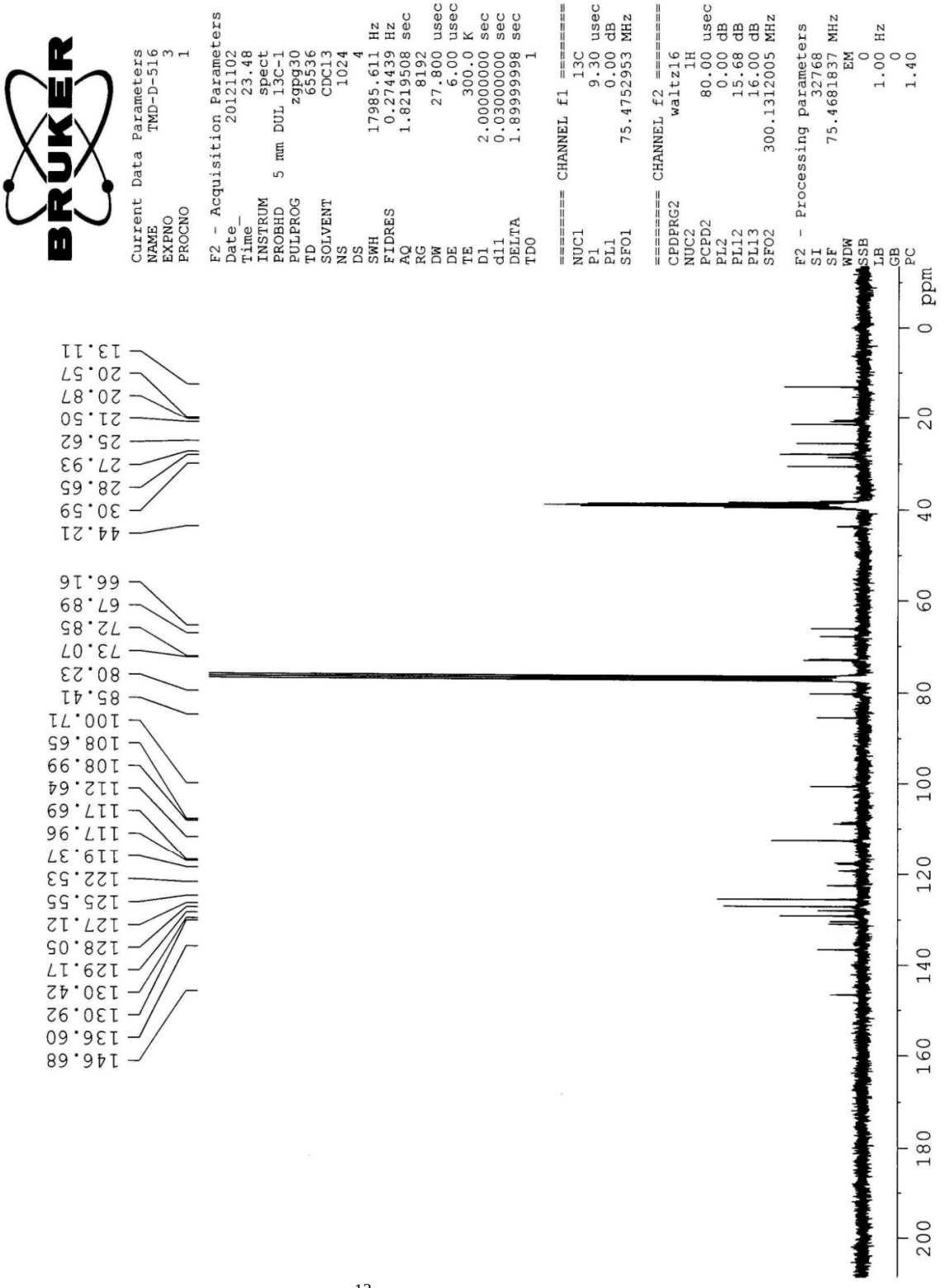


Figure S.I. 17: ^{13}C NMR Spectrum of Compound **13**.

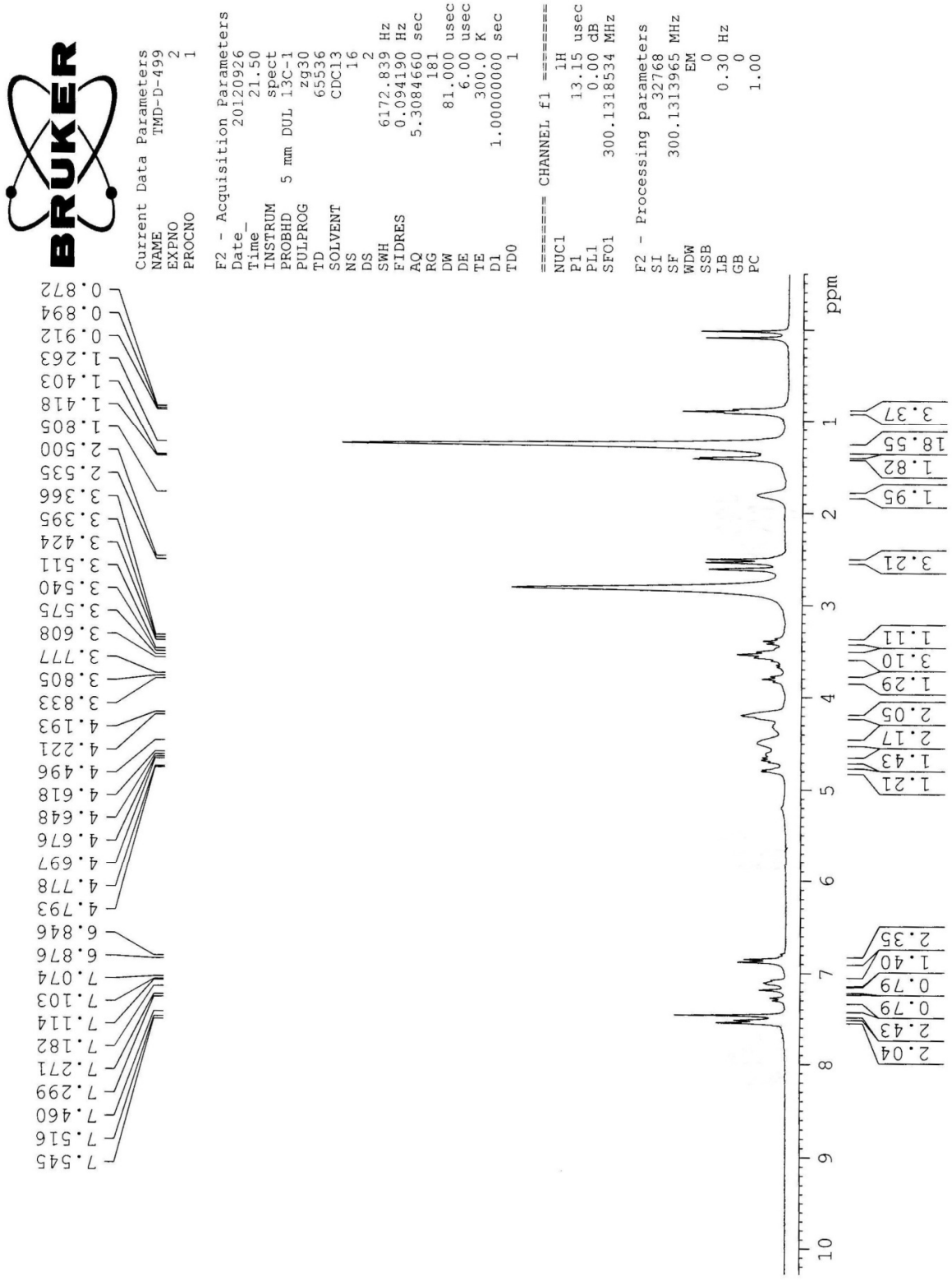


Figure S.I. 18: ^{1}H NMR Spectrum of Compound **14**.

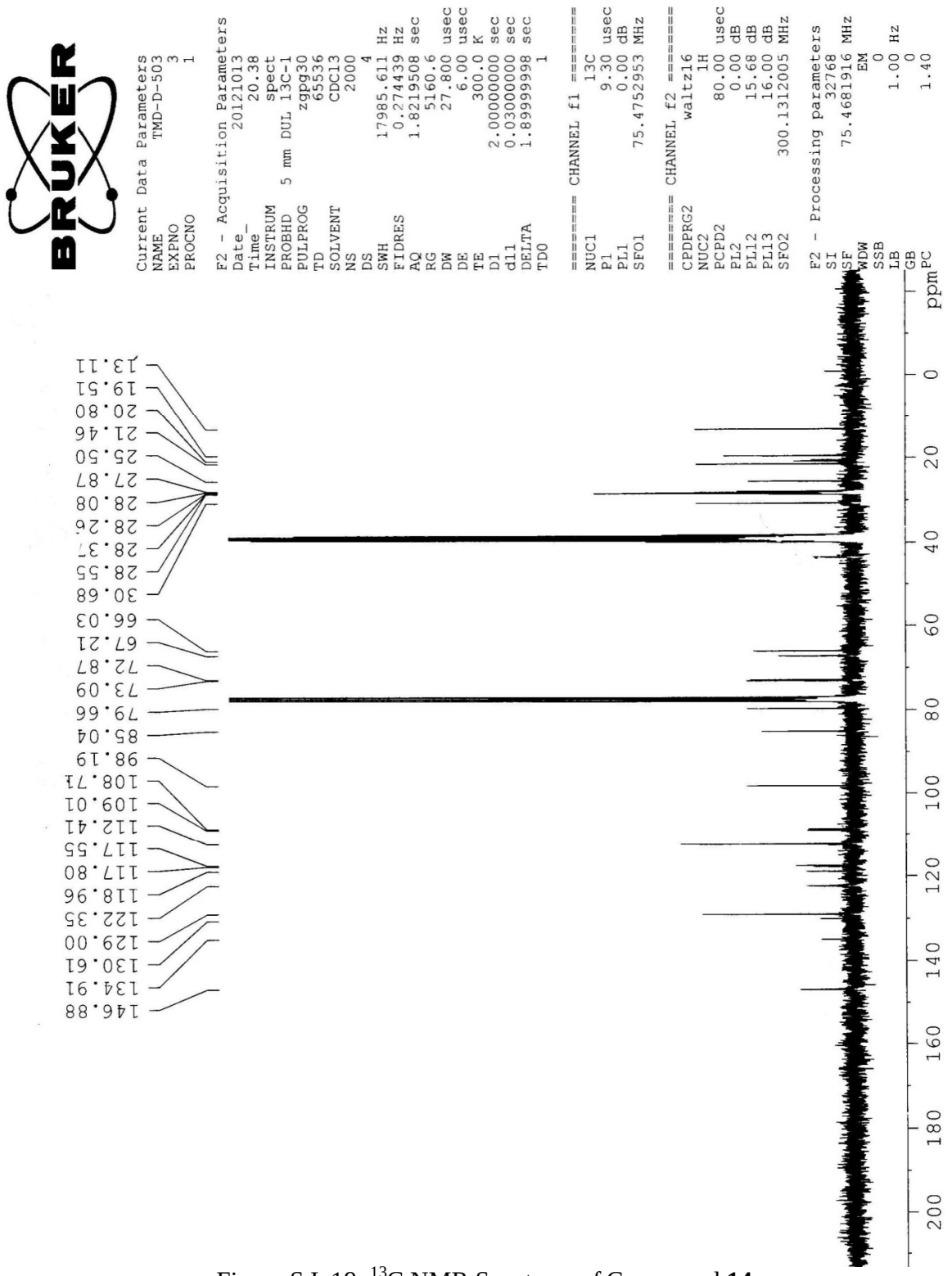


Figure S.I. 19: ^{13}C NMR Spectrum of Compound **14**.

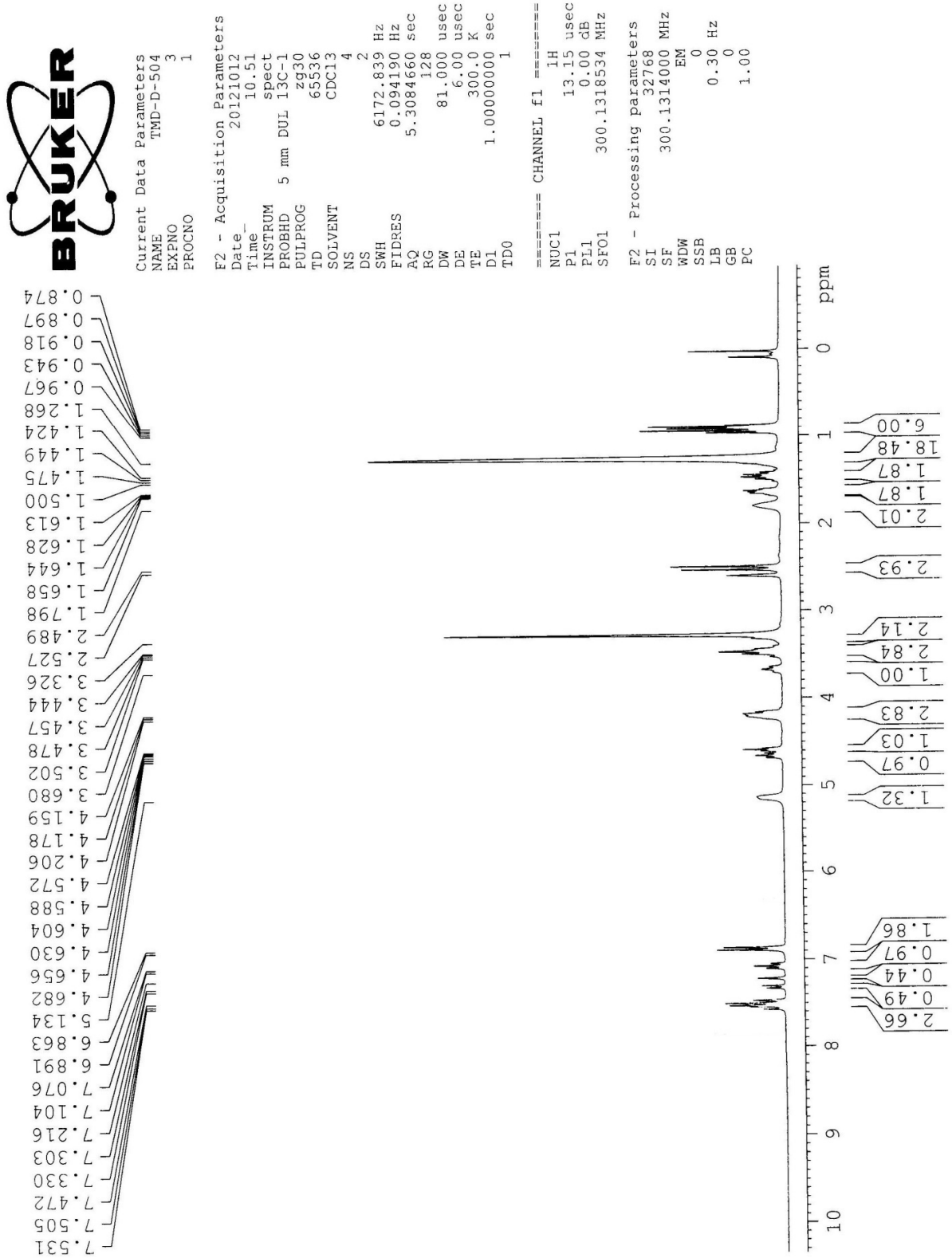


Figure S.I. 20: ^{1}H NMR Spectrum of Compound **15**.

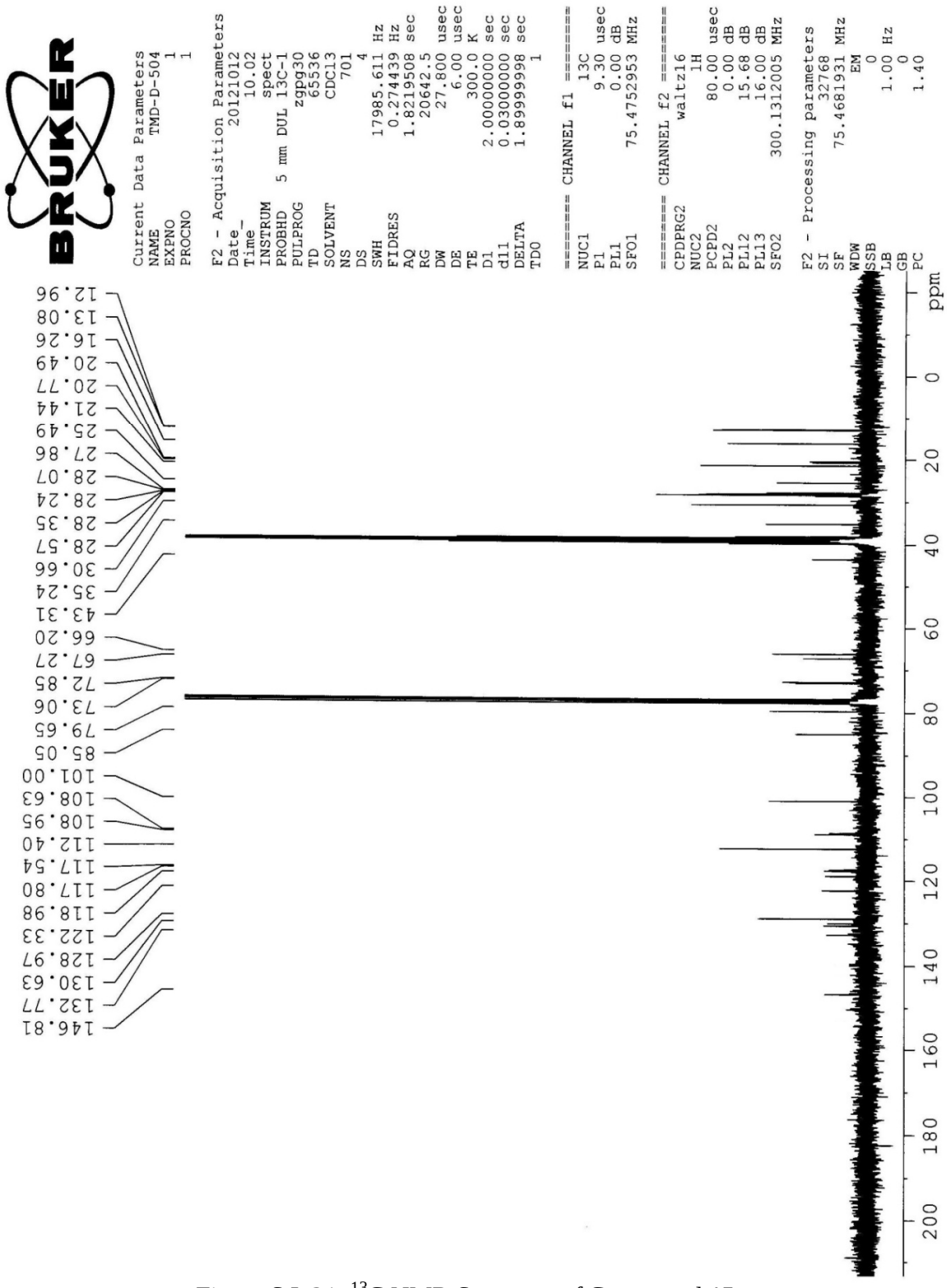


Figure S.I. 21: ^{13}C NMR Spectrum of Compound **15**.

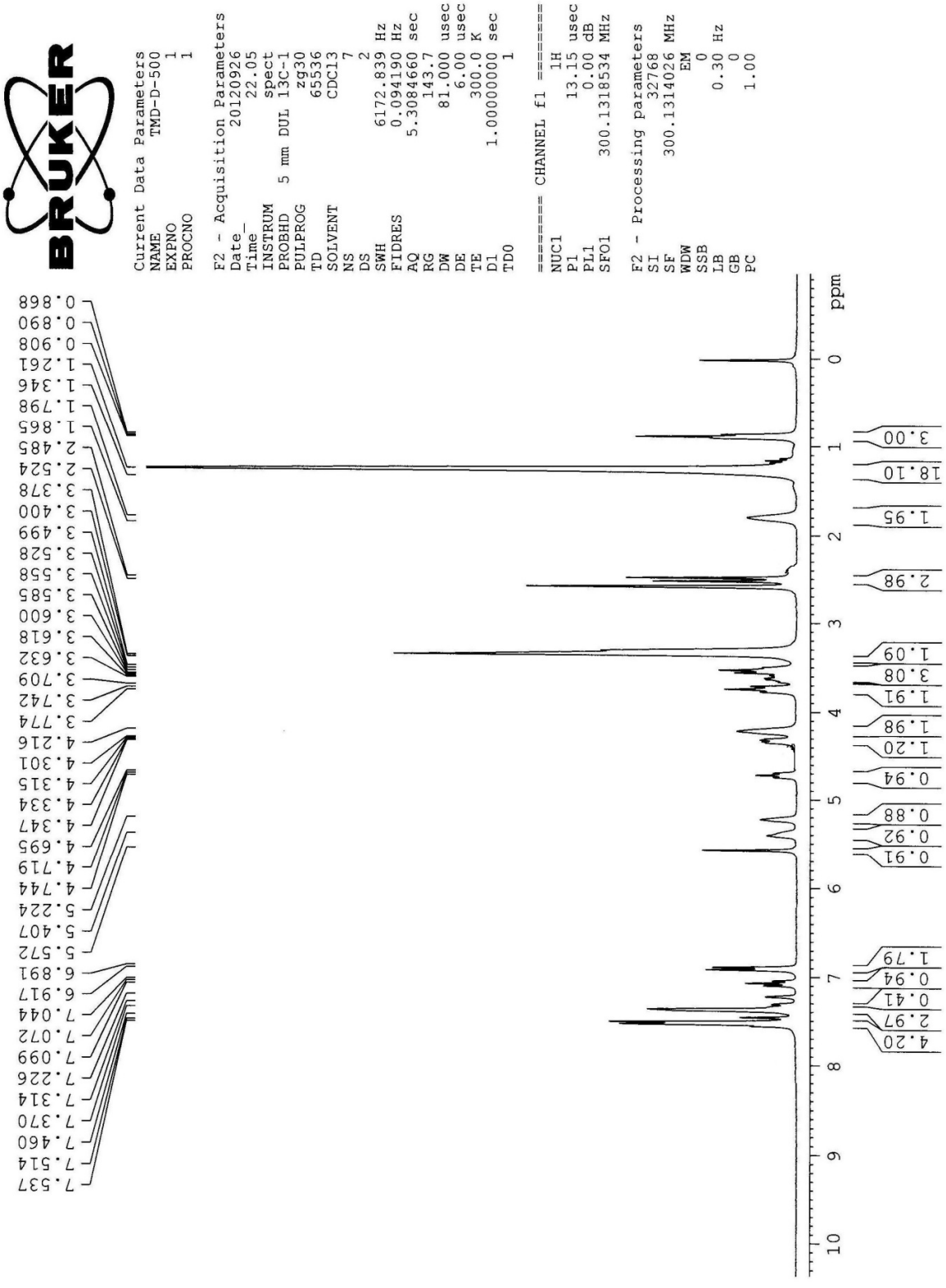


Figure S.I. 22: ^{1}H NMR Spectrum of Compound **16**.

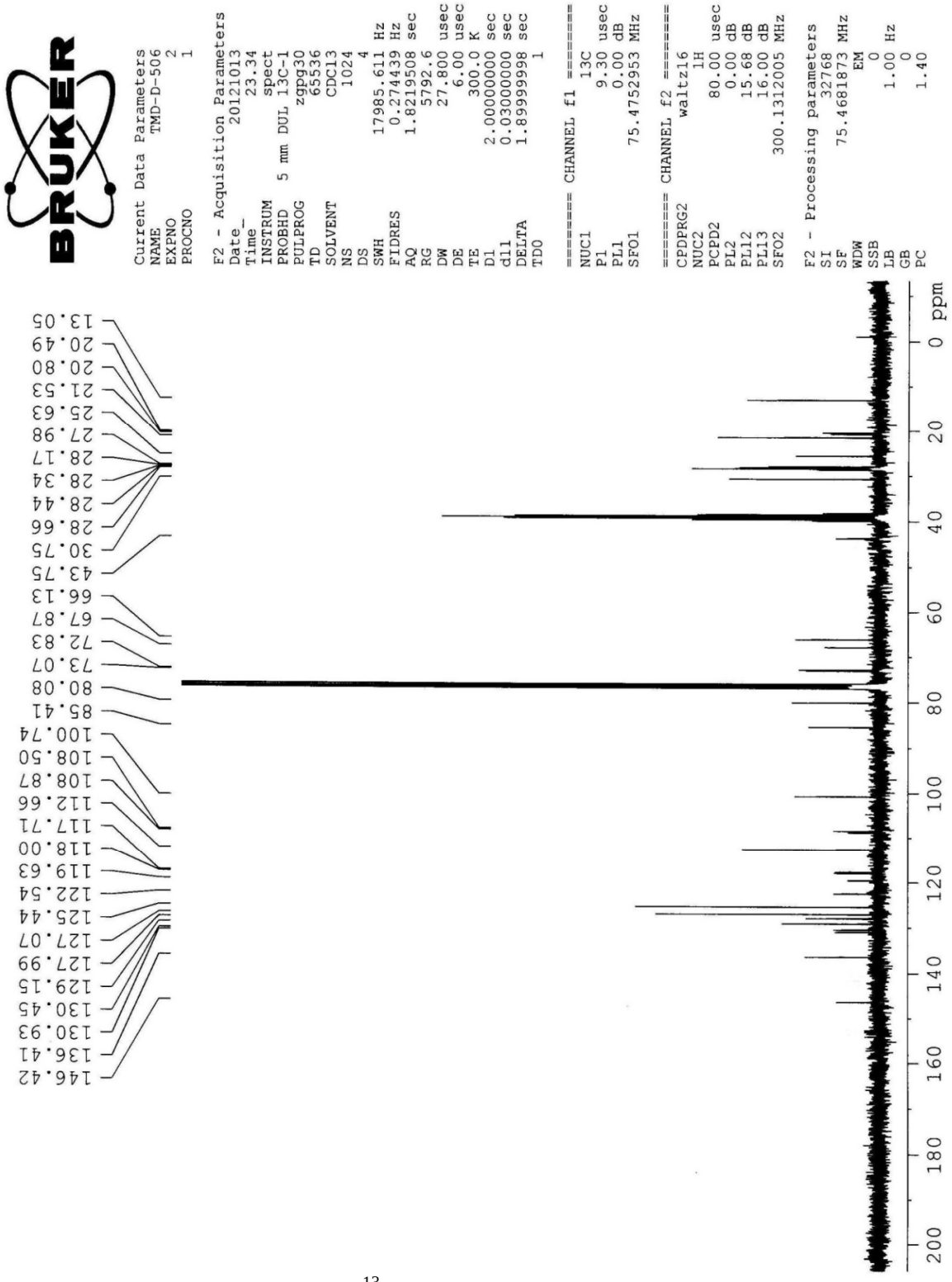


Figure S.I. 23: ^{13}C NMR Spectrum of Compound **16**.

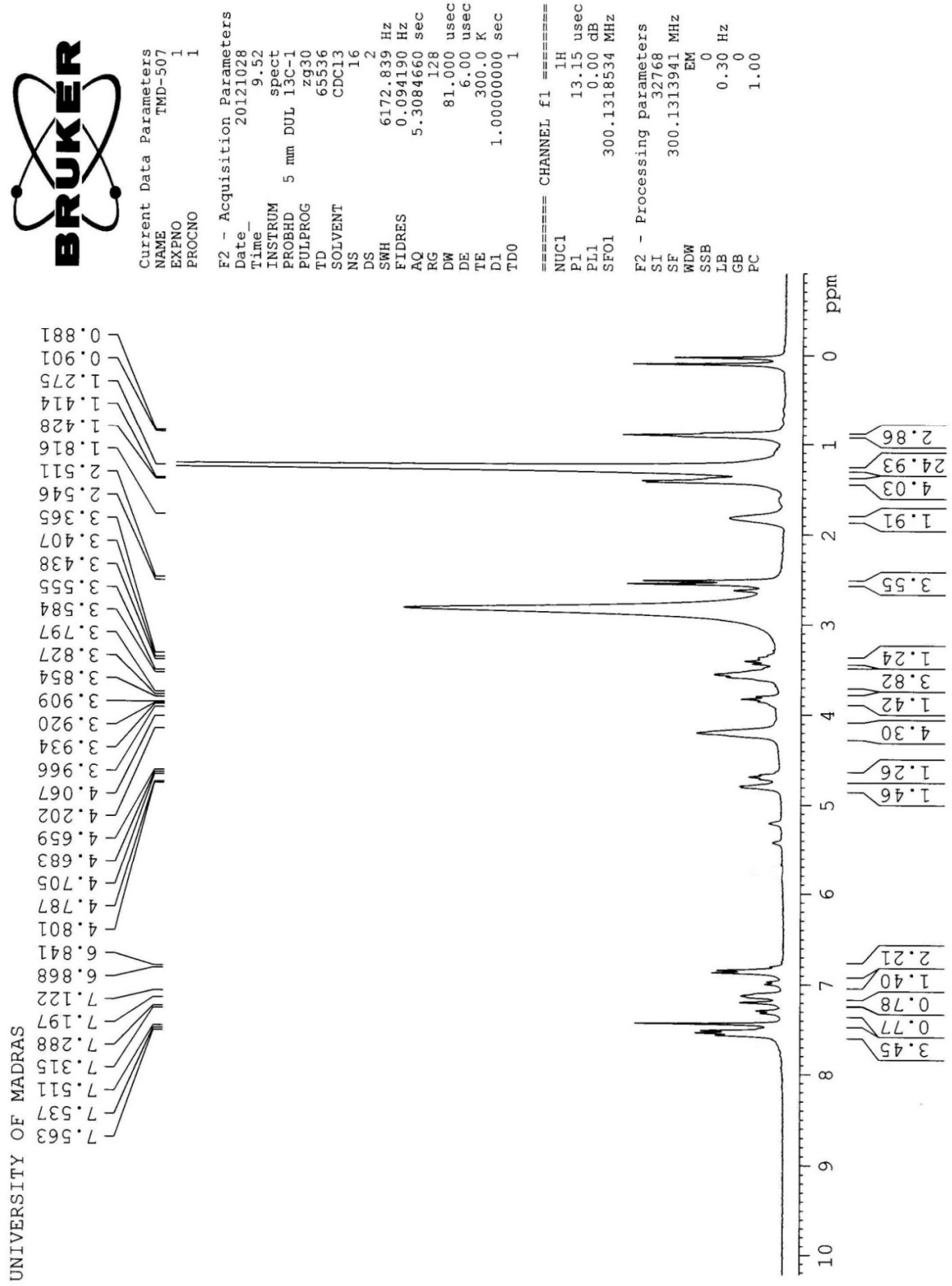


Figure S.I. 24: ^{1}H NMR Spectrum of Compound **17**.

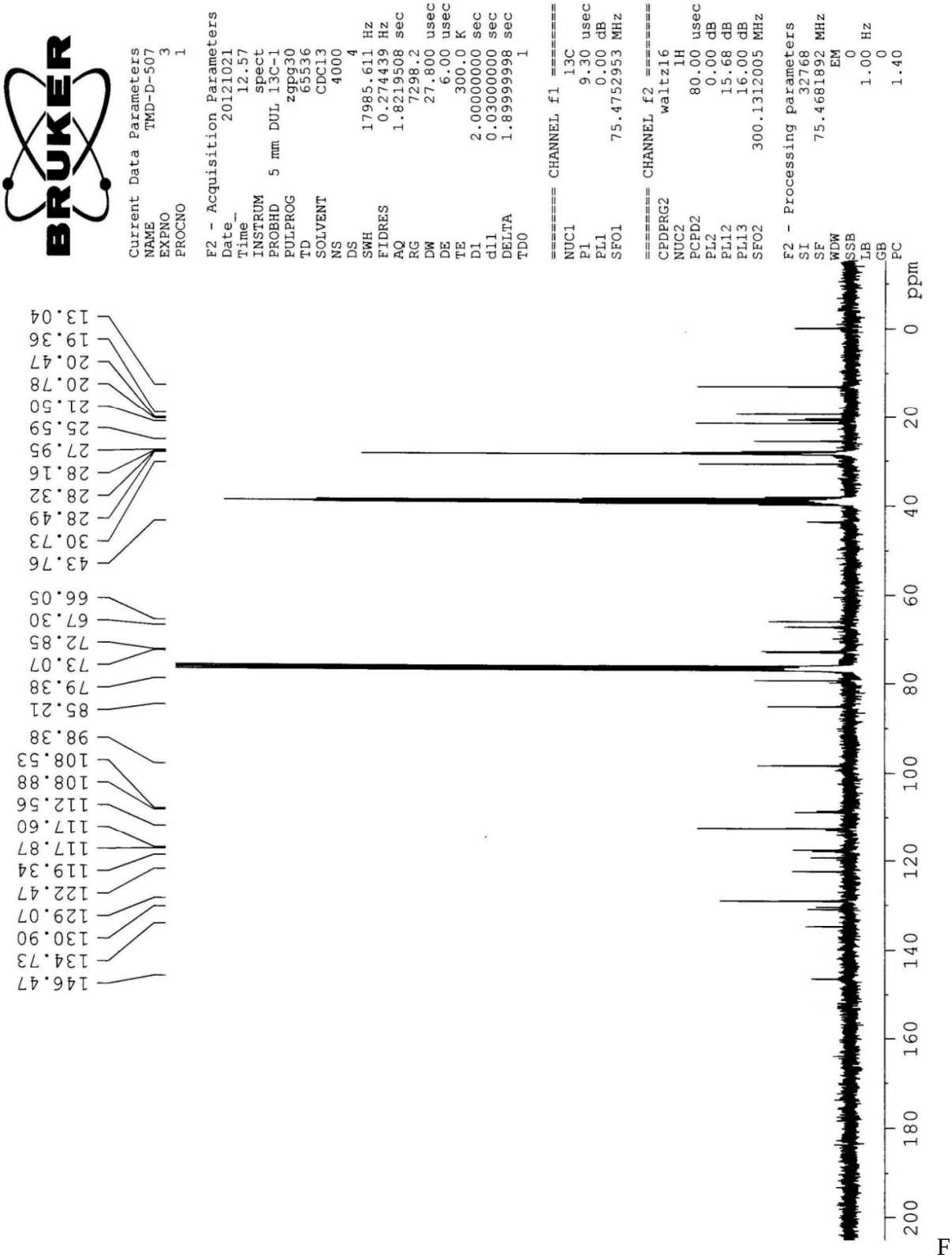


Figure S.I. 25: ^{13}C NMR Spectrum of Compound **17**.

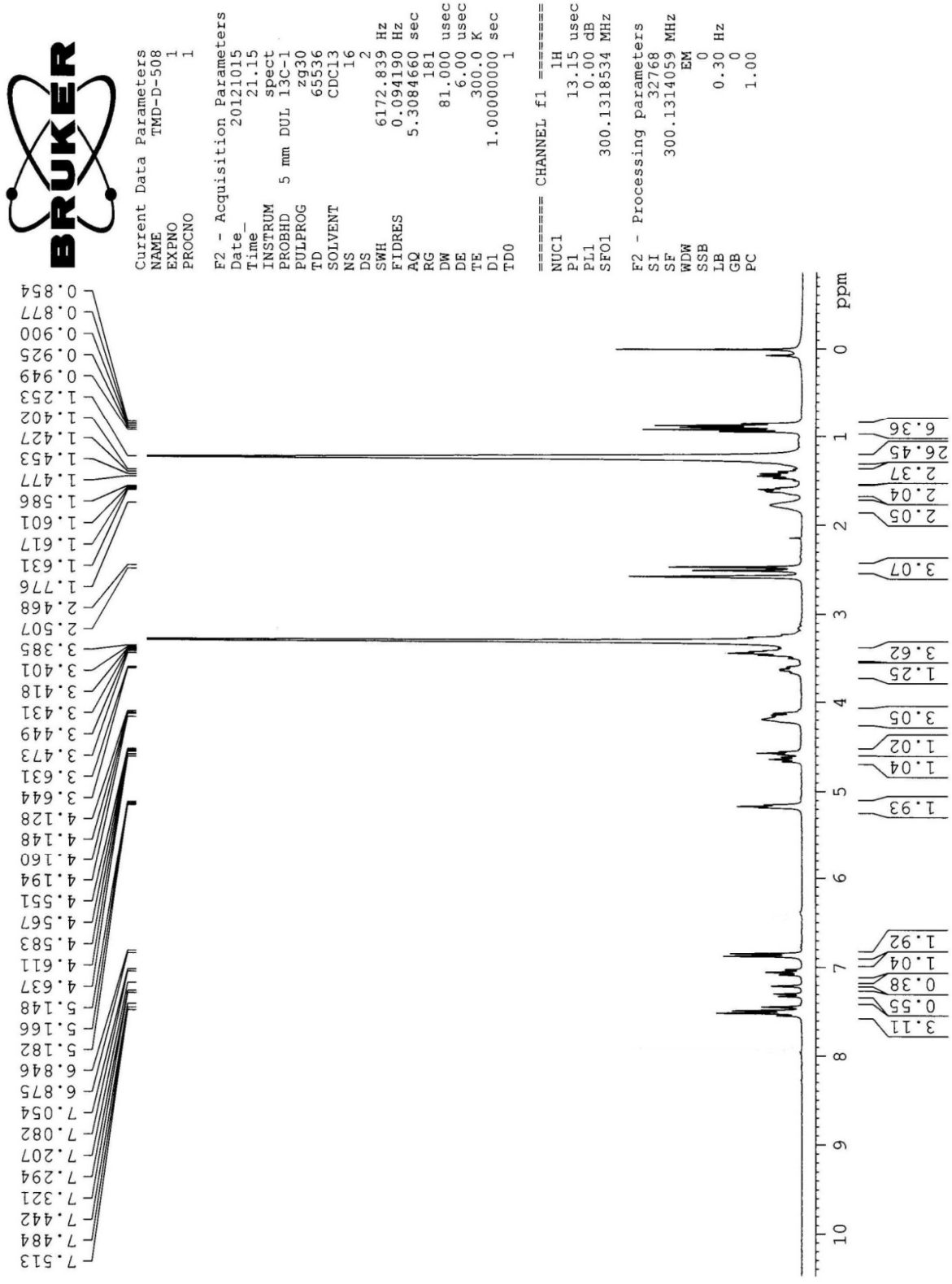


Figure S.I. 26: ^{1}H NMR Spectrum of Compound **18**.

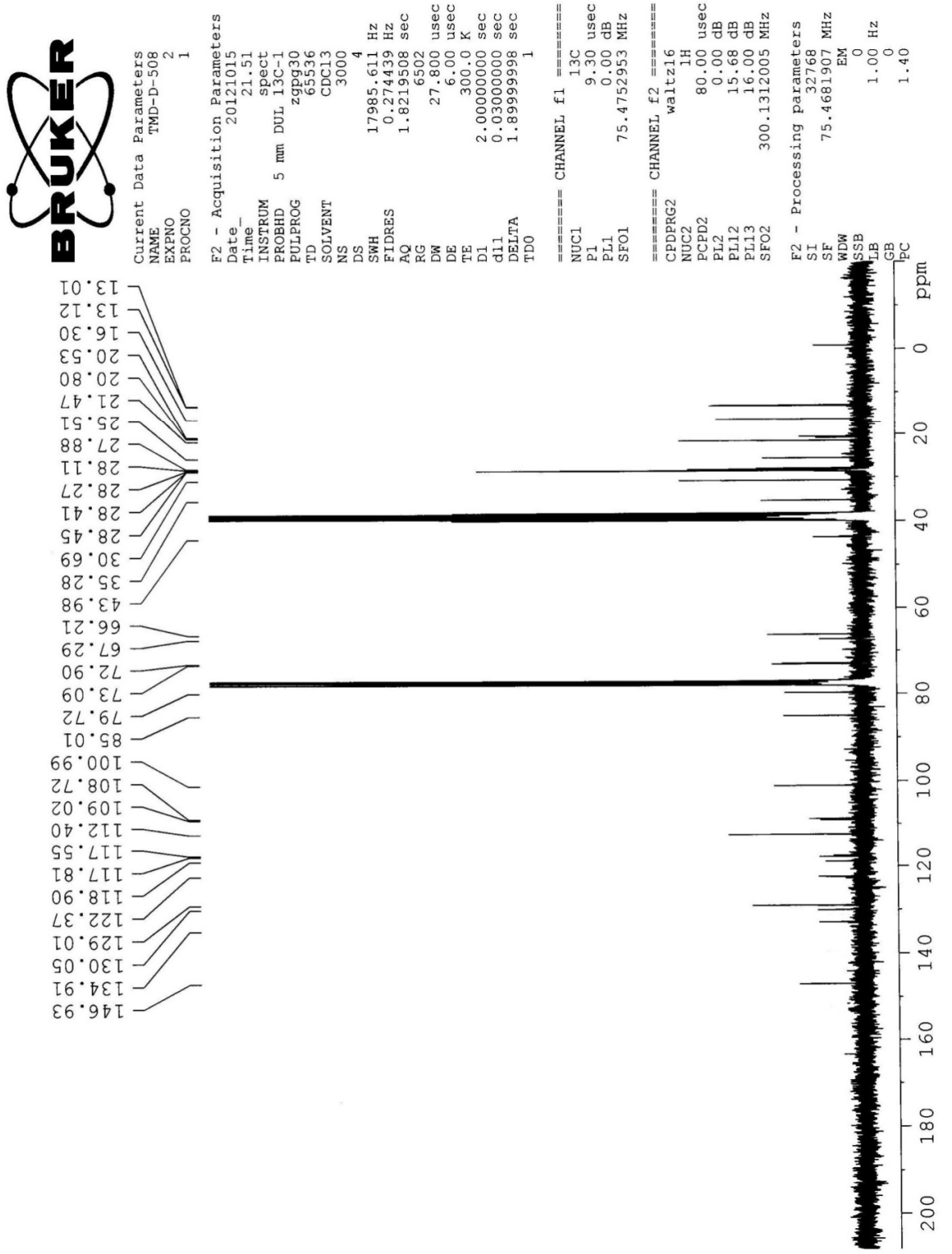


Figure S.I. 27: ^{13}C NMR Spectrum of Compound **18**.

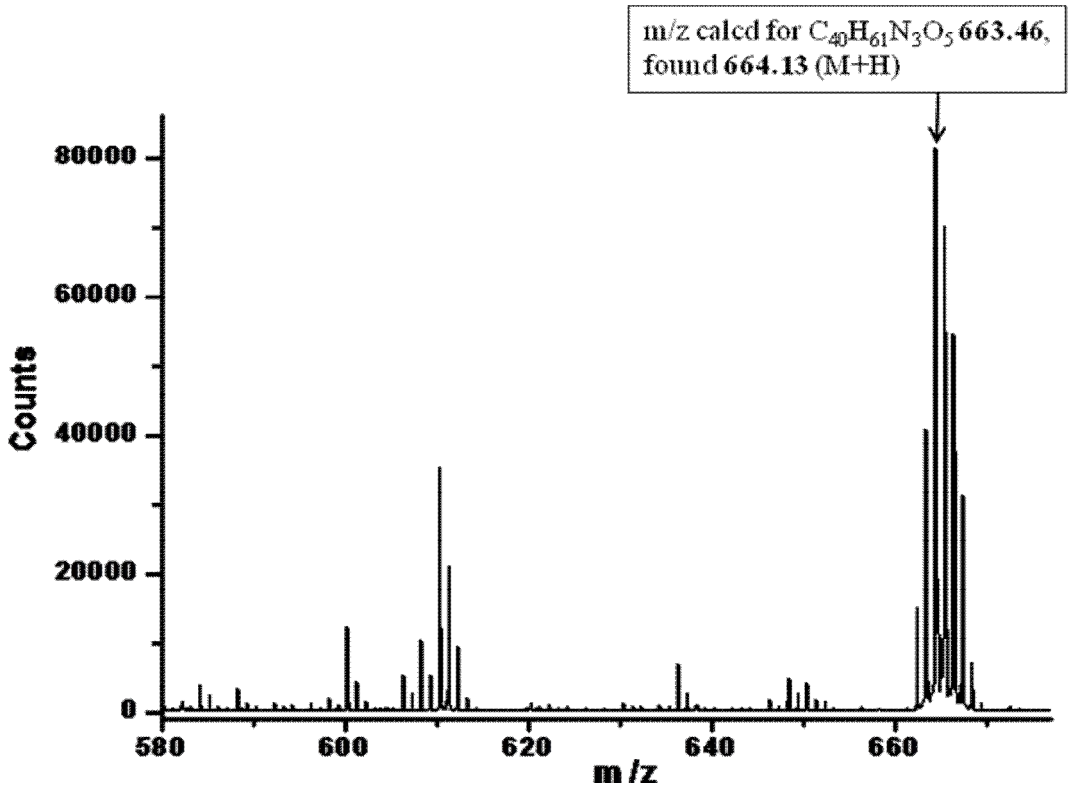


Figure S.I. 28: MALDI-TOF mass spectrum of Compound **18**.

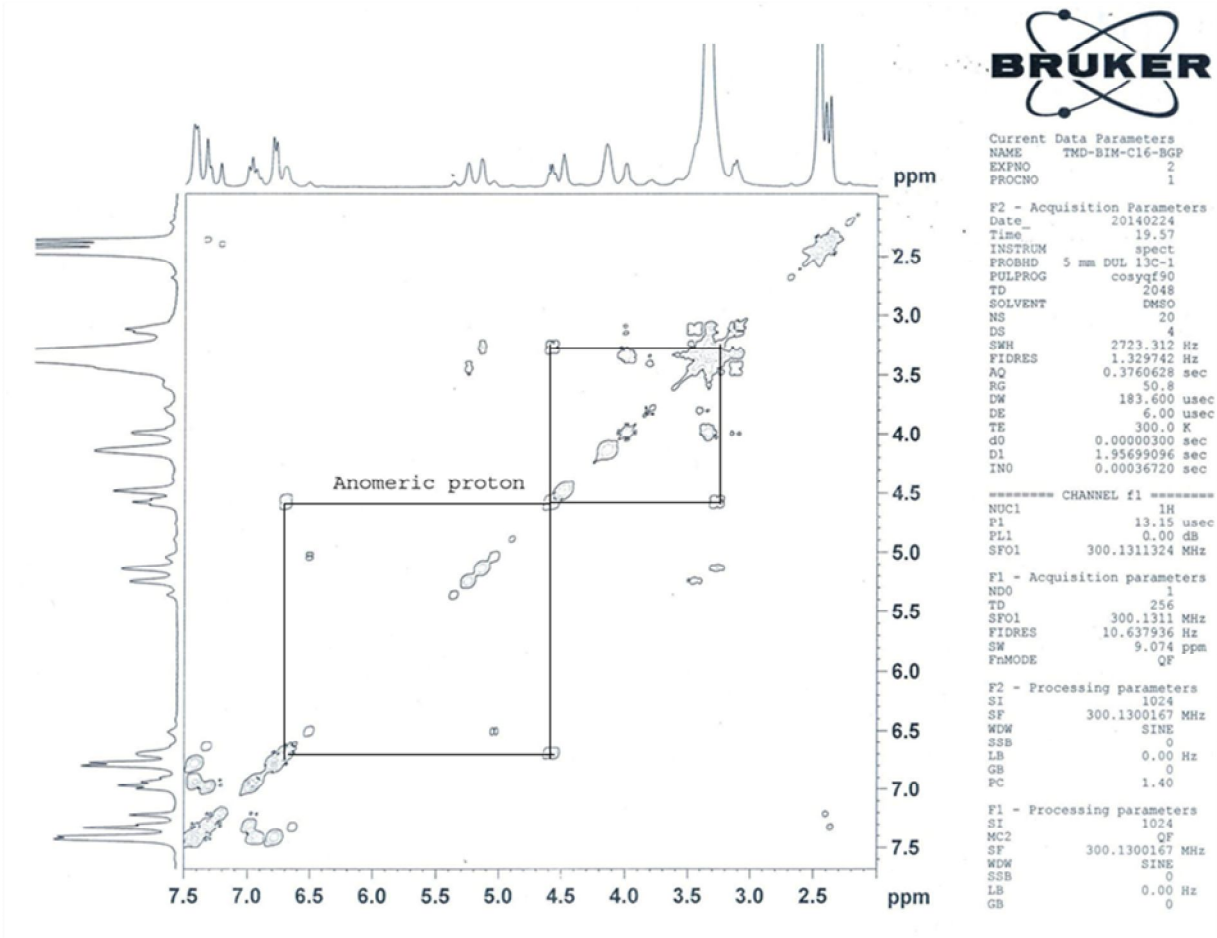


Figure S.I. 29: HH-COSY NMR Spectrum of Compound **18**.

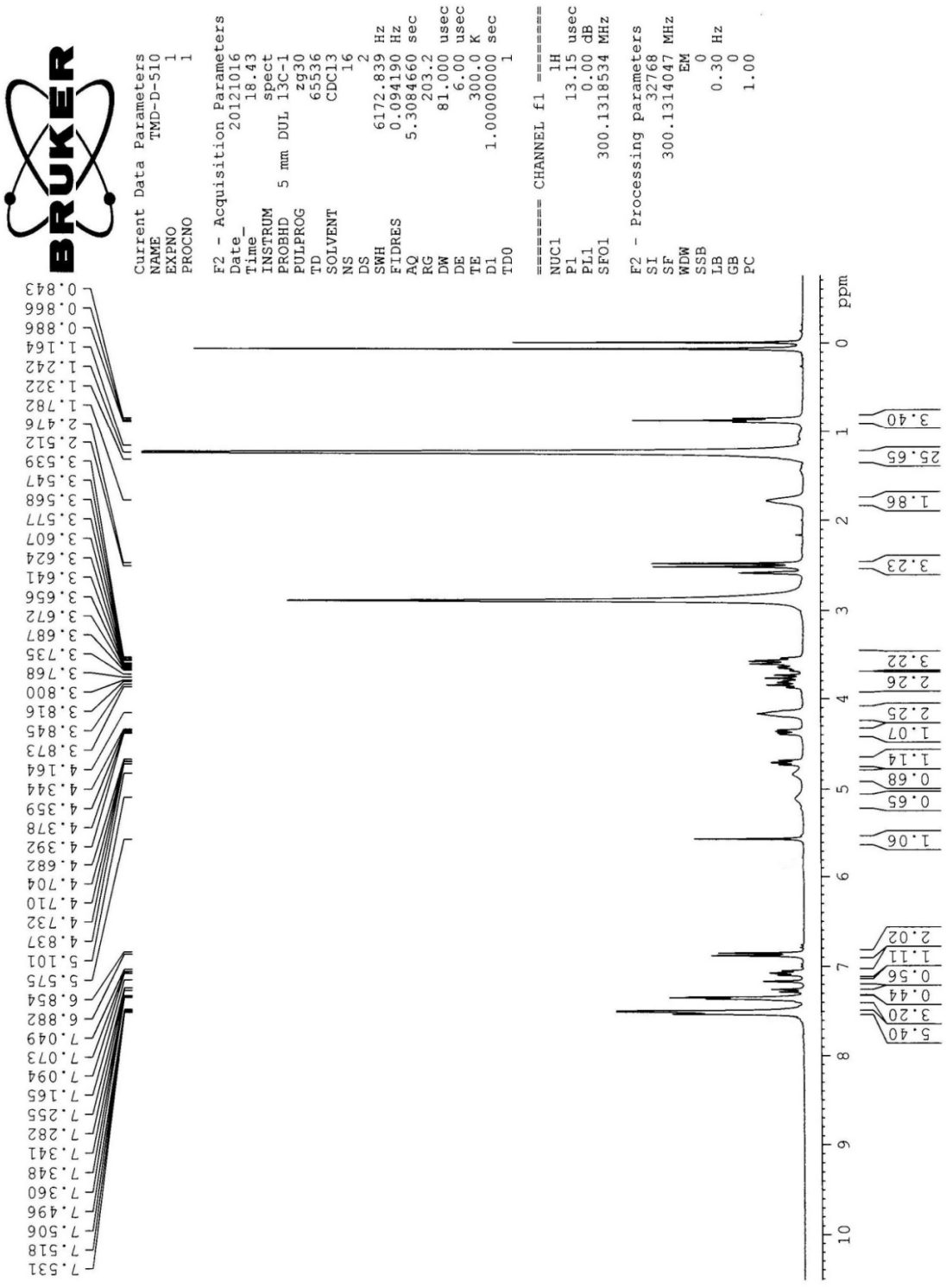


Figure S.I. 30: ^{1}H NMR Spectrum of Compound **19**.

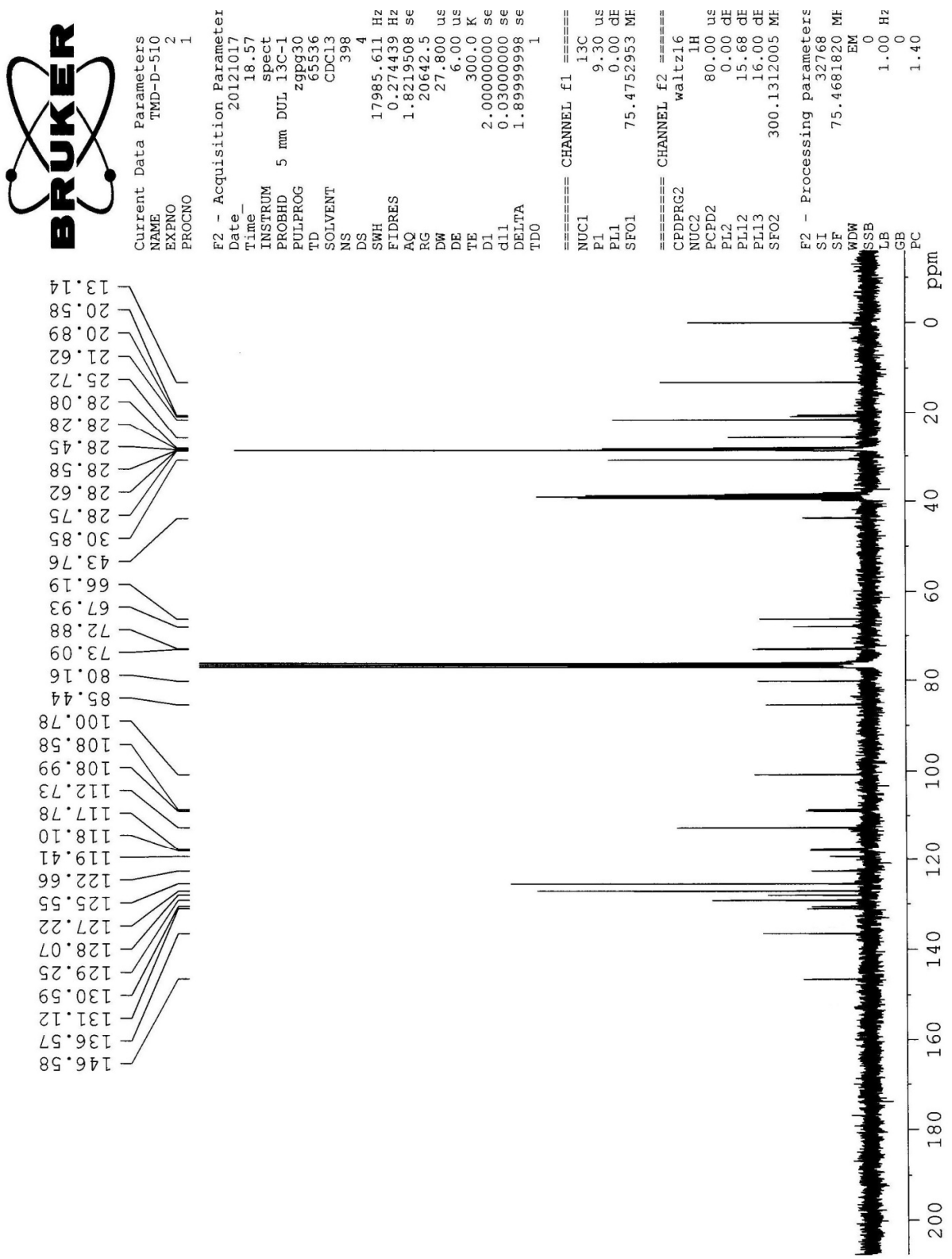
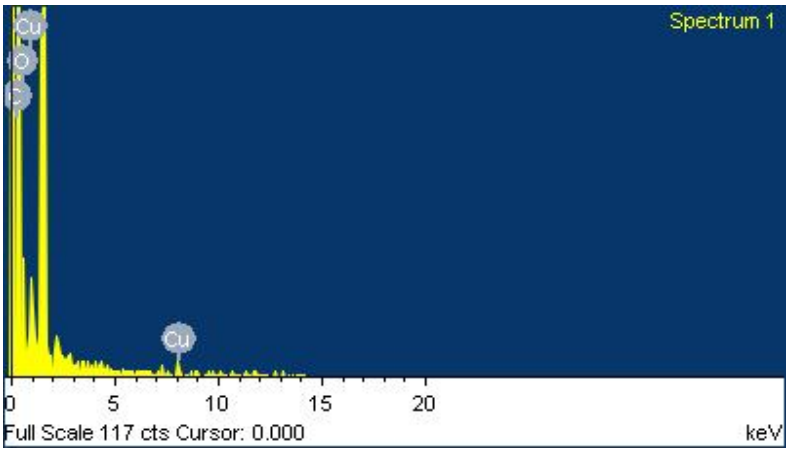


Figure S.I. 31: ^{13}C NMR Spectrum of Compound **19**.



Element	Weight%	Atomic%
C K	69.69	76.89
O K	27.10	22.44
Cu K	3.21	0.67
Totals	100.00	

Figure S.I. 32: EDAX spectrum of solution derived from gel **18** in ethanol with Cu^{2+}ion (20 µL of 0.1 % in ethanol).