Supporting Information

Direct *N*-Glycosylation of Amides/Amines with Glycal Donors

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Supporting Information

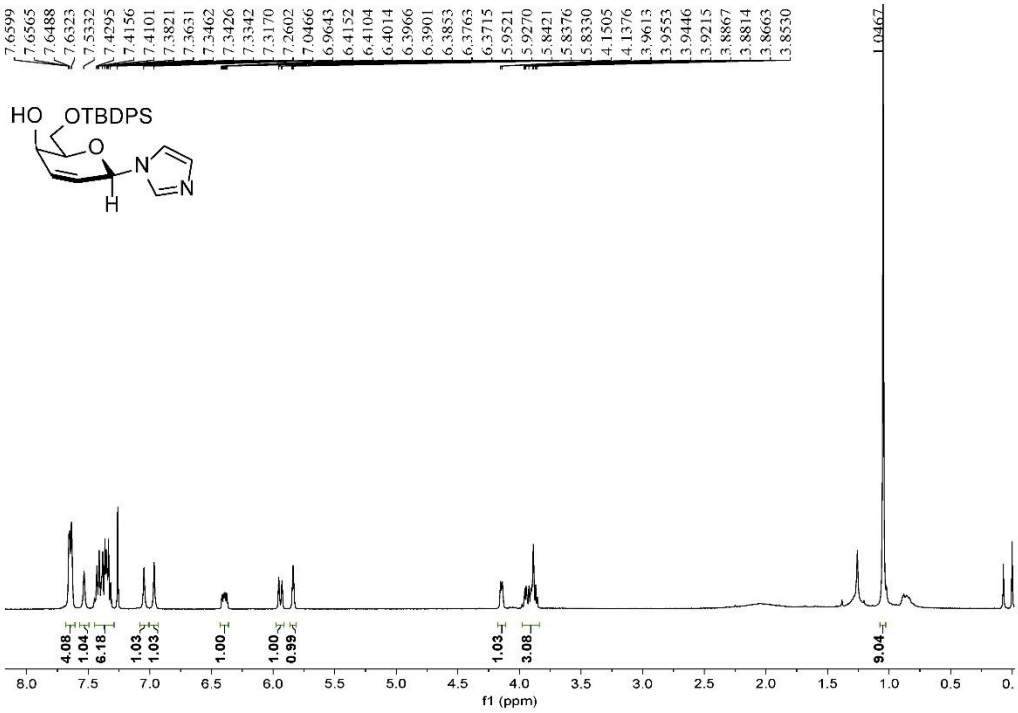
Table of Contents:

Section A: ^{1}H, ^{13}C NMR and Selected 2D-NMR Spectra S2

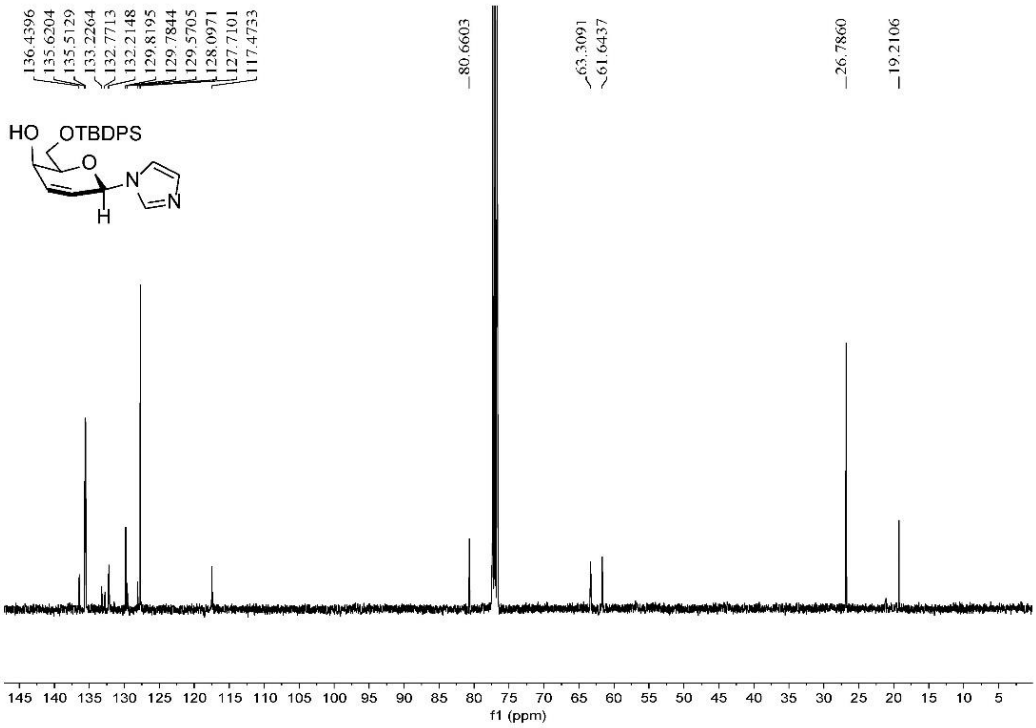
Section B: X-ray Crystal Data for Compound **3a** and **5h** S38

Section A: ^{1}H, ^{13}C NMR and Selected 2D-NMR Spectra

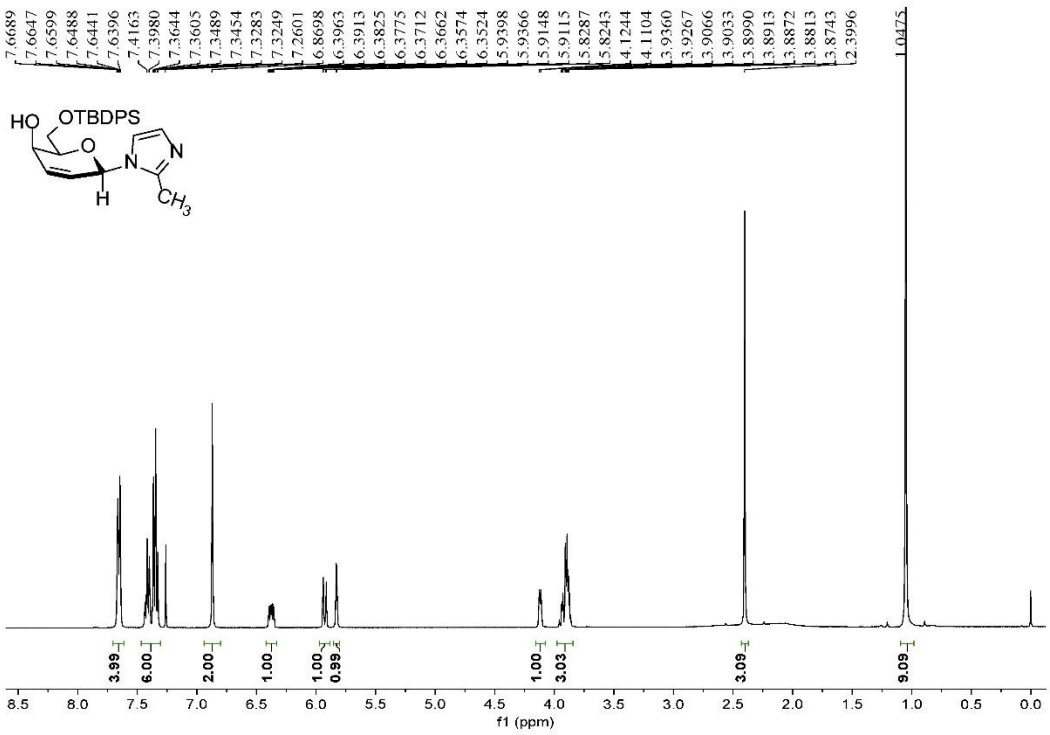
^{1}H NMR (400.13 MHz, $CDCl_3$) Spectrum of Compound **3a**



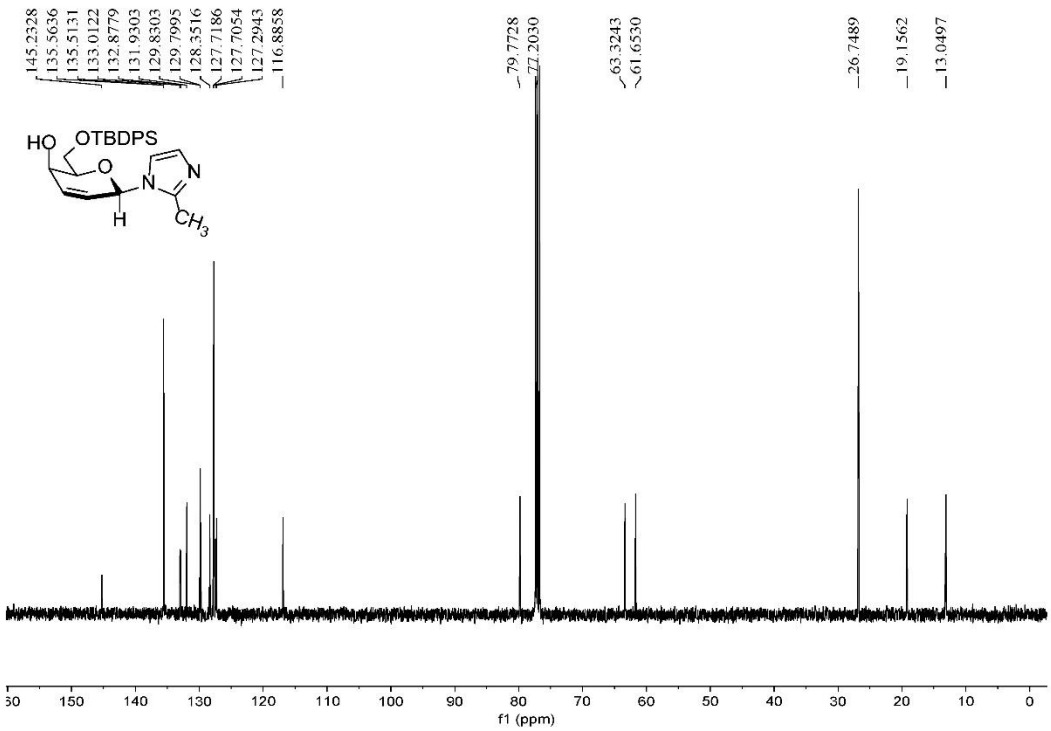
^{13}C{^{1}H} NMR (100.60 MHz, $CDCl_3$) Spectrum of Compound **3a**



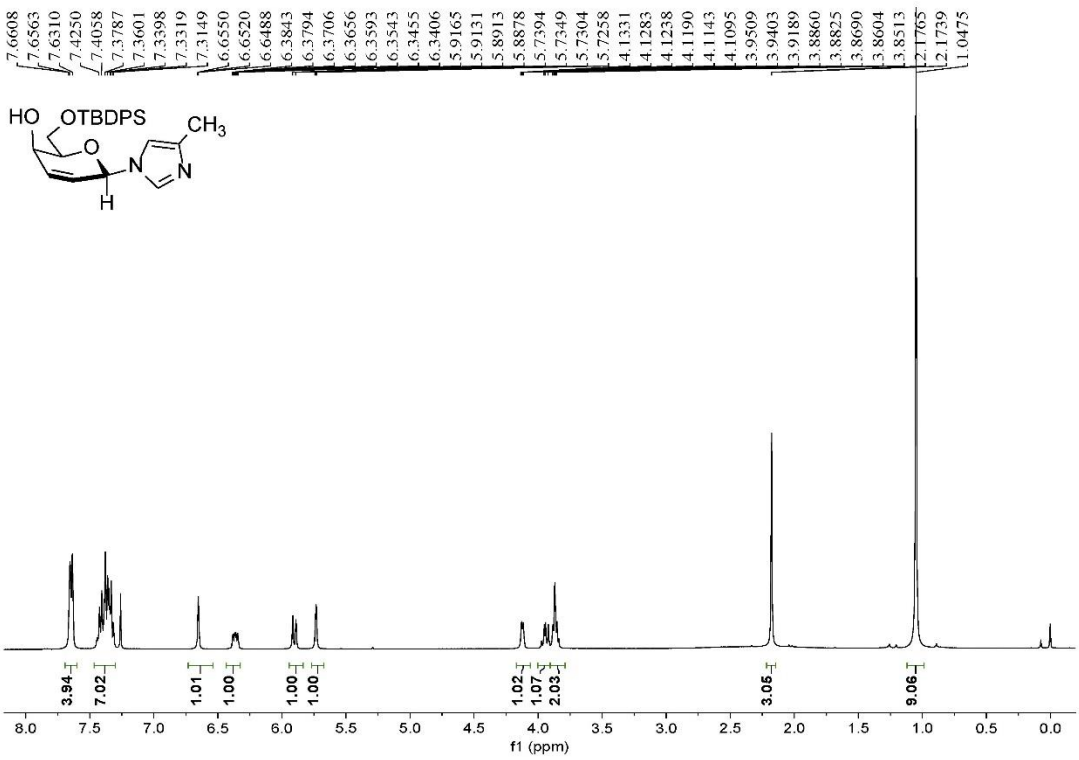
^{1}H NMR (400.13 MHz, $CDCl_3$) Spectrum of Compound **3b**



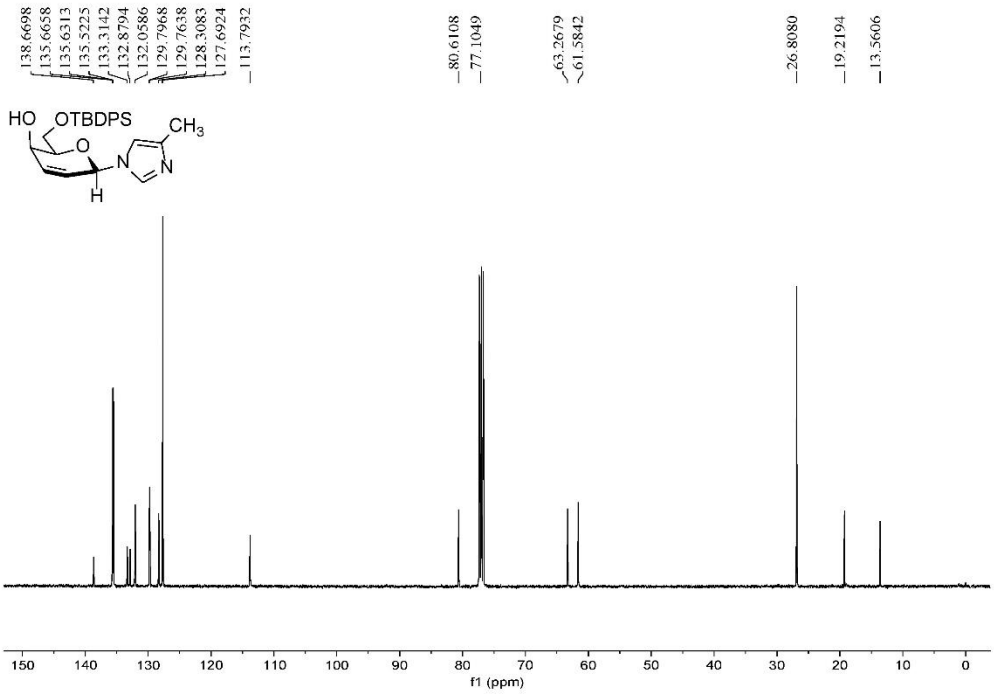
^{13}C{^{1}H} NMR (100.60 MHz, $CDCl_3$) Spectrum of Compound **3b**



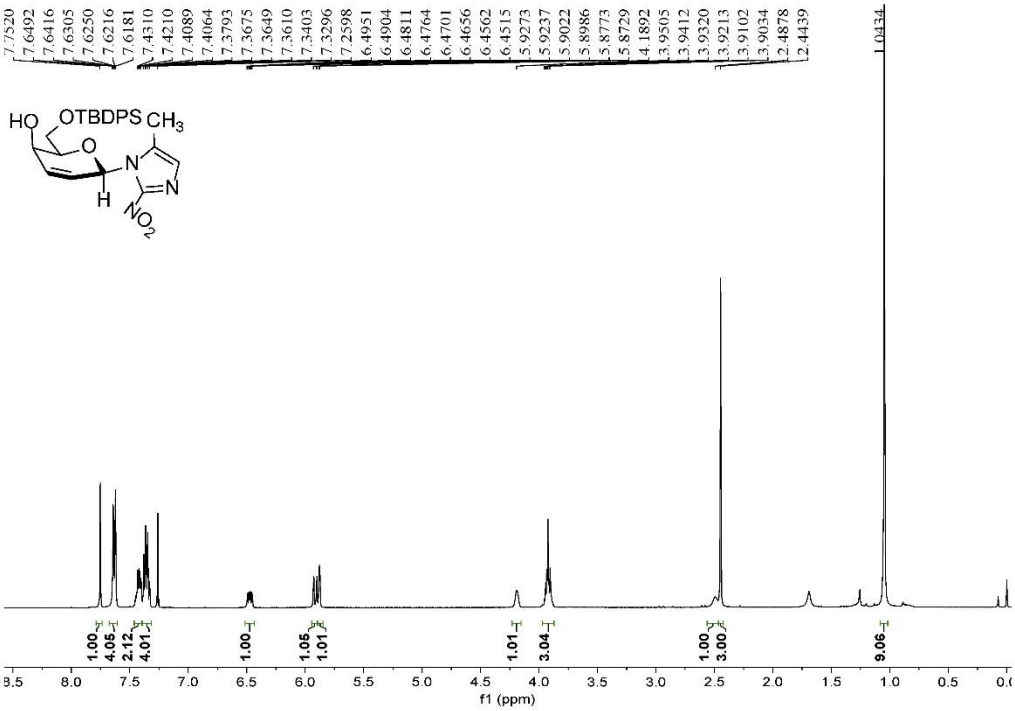
^{1}H NMR (400.13 MHz, $CDCl_3$) Spectrum of Compound **3c**



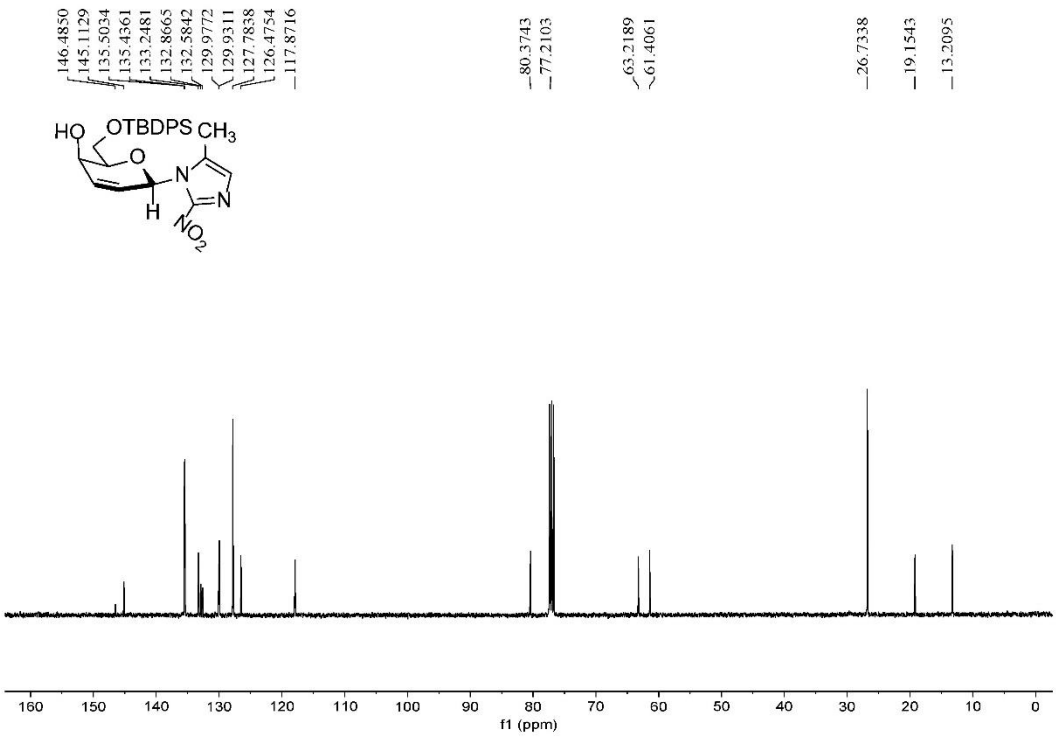
^{13}C{^{1}H} NMR (100.60 MHz, $CDCl_3$) Spectrum of Compound **3c**



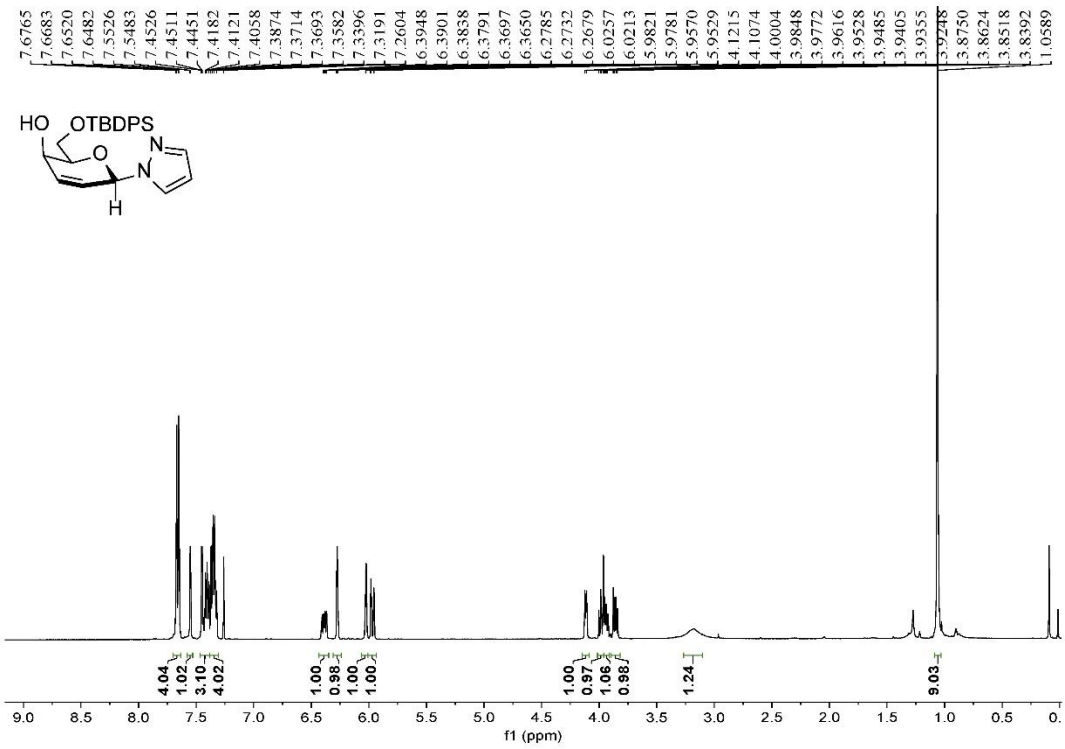
^{1}H NMR (400.13 MHz, $CDCl_3$) Spectrum of Compound **3d**



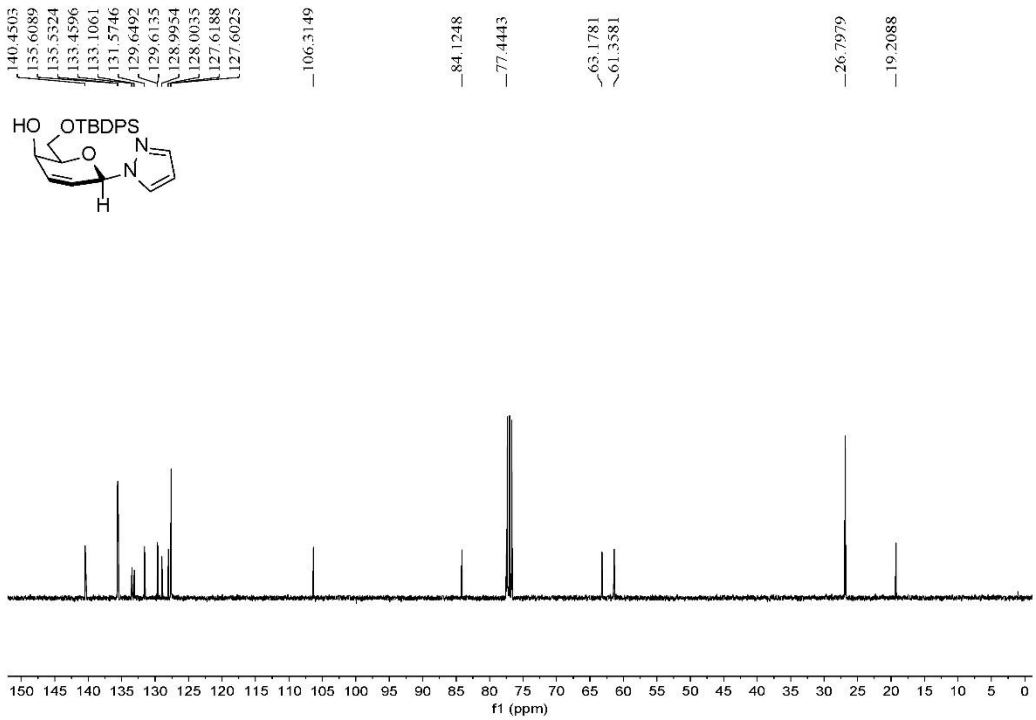
^{13}C{^{1}H} NMR (100.60 MHz, $CDCl_3$) Spectrum of Compound **3d**



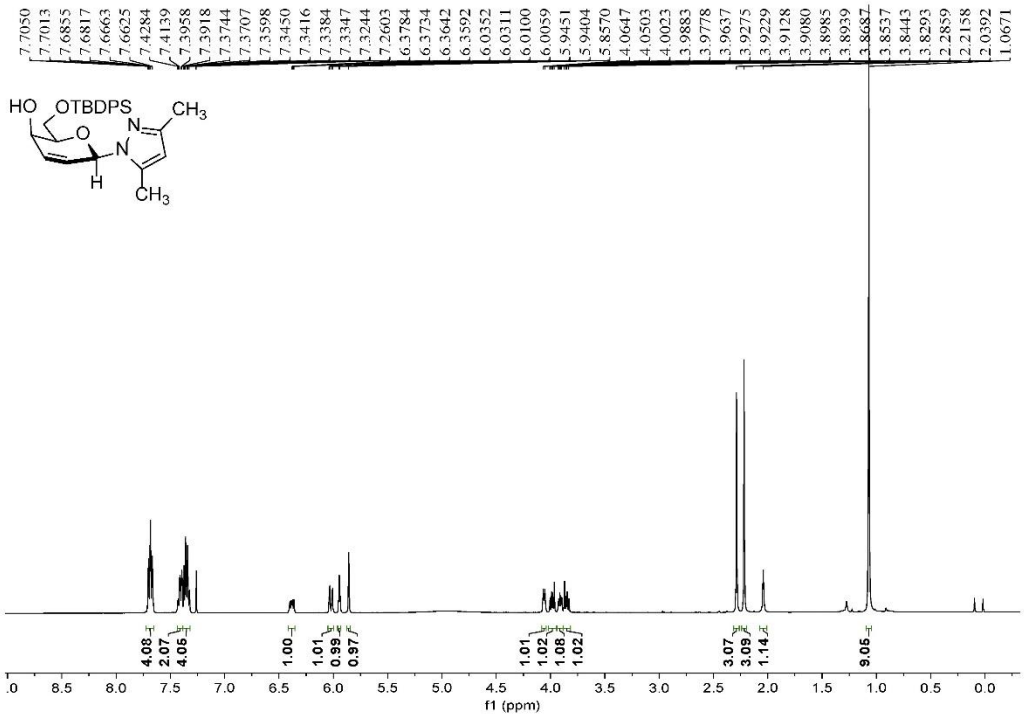
^{1}H NMR (400.13 MHz, $CDCl_3$) Spectrum of Compound **3e**



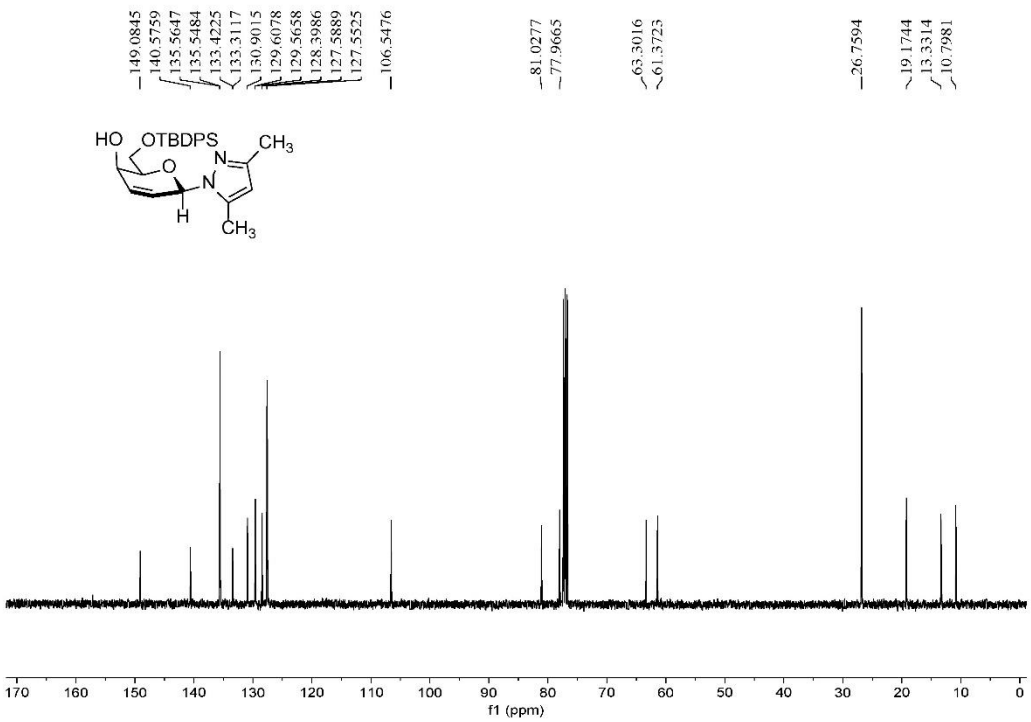
^{13}C{^{1}H} NMR (100.60 MHz, $CDCl_3$) Spectrum of Compound **3e**



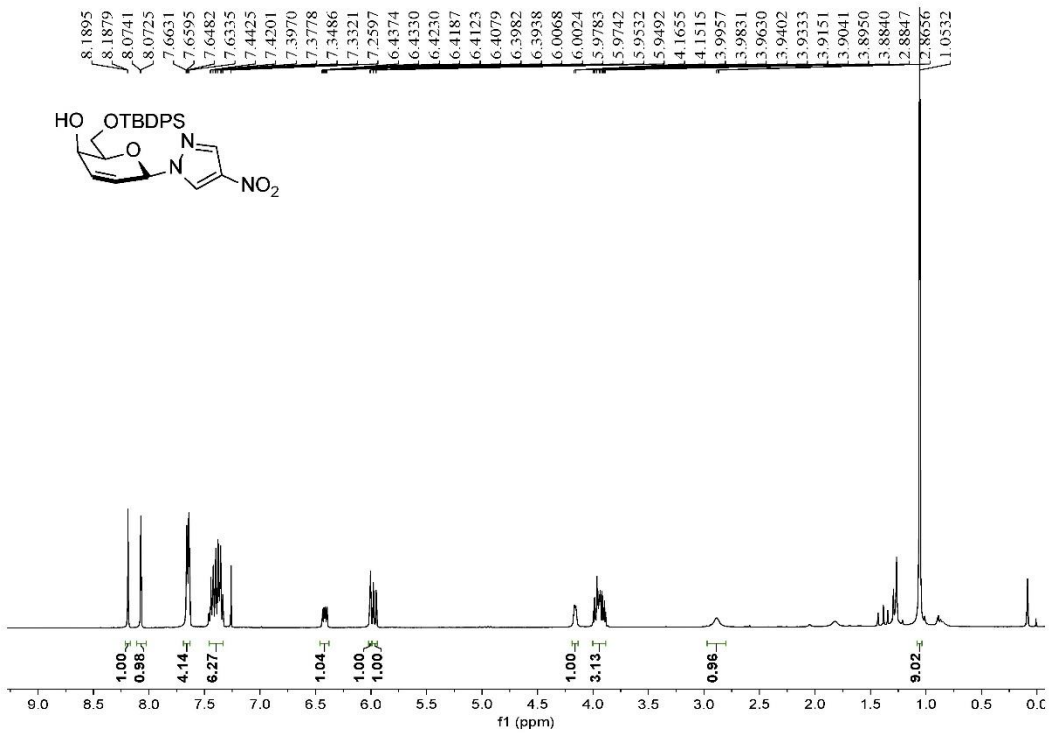
^{1}H NMR (400.13 MHz, $CDCl_3$) Spectrum of Compound **3f**



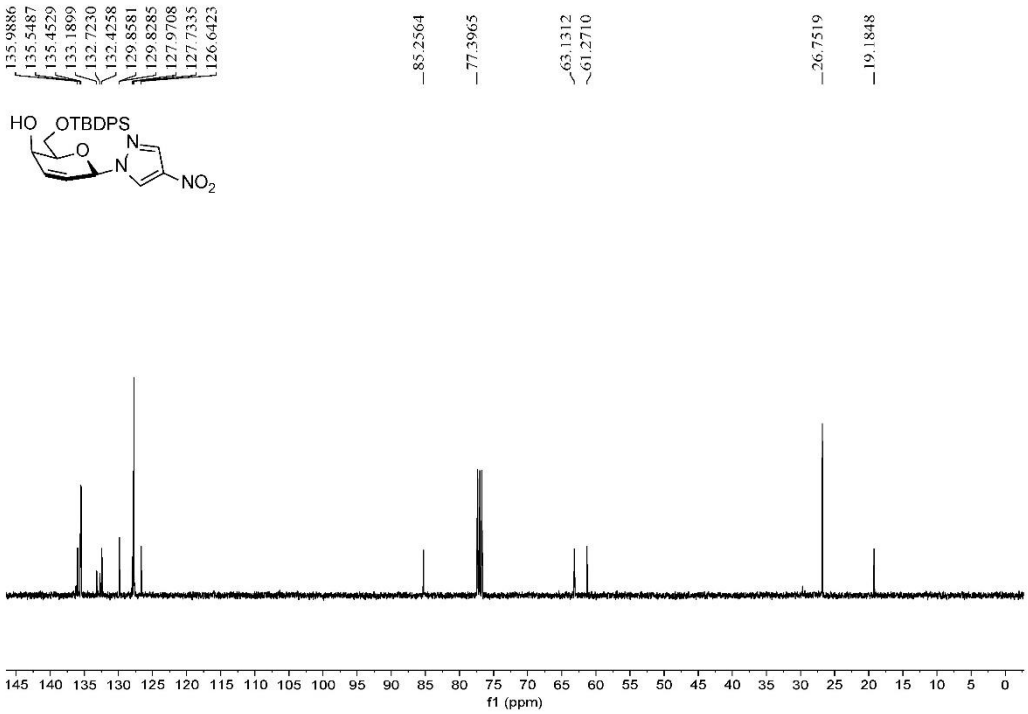
^{13}C{^{1}H} NMR (100.60 MHz, $CDCl_3$) Spectrum of Compound **3f**



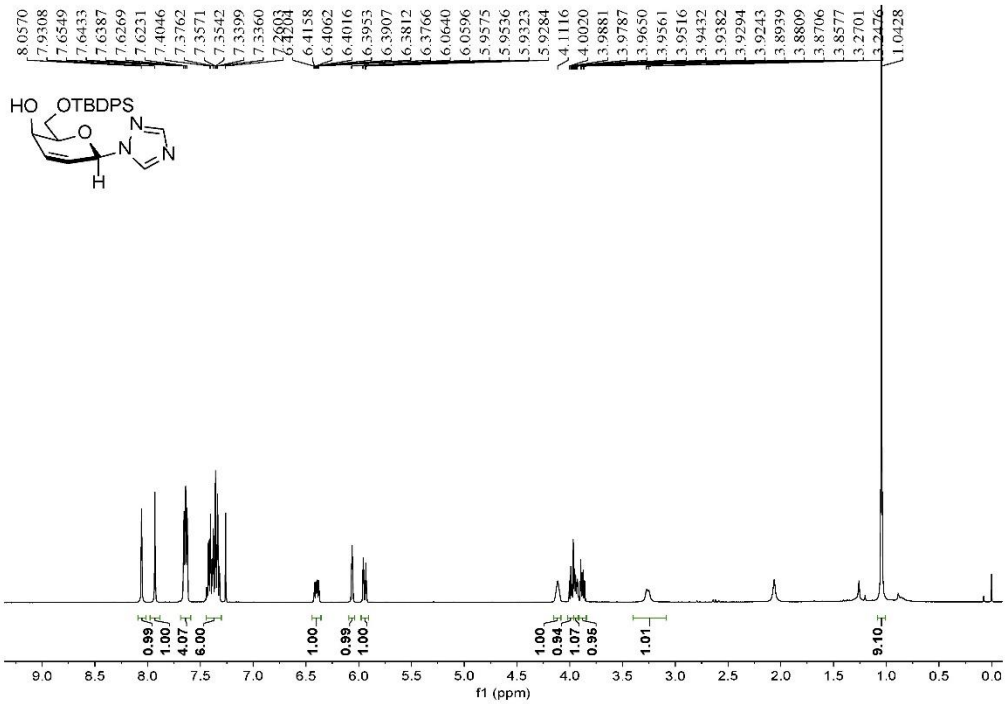
^{1}H NMR (400.13 MHz, $CDCl_3$) Spectrum of Compound **3g**



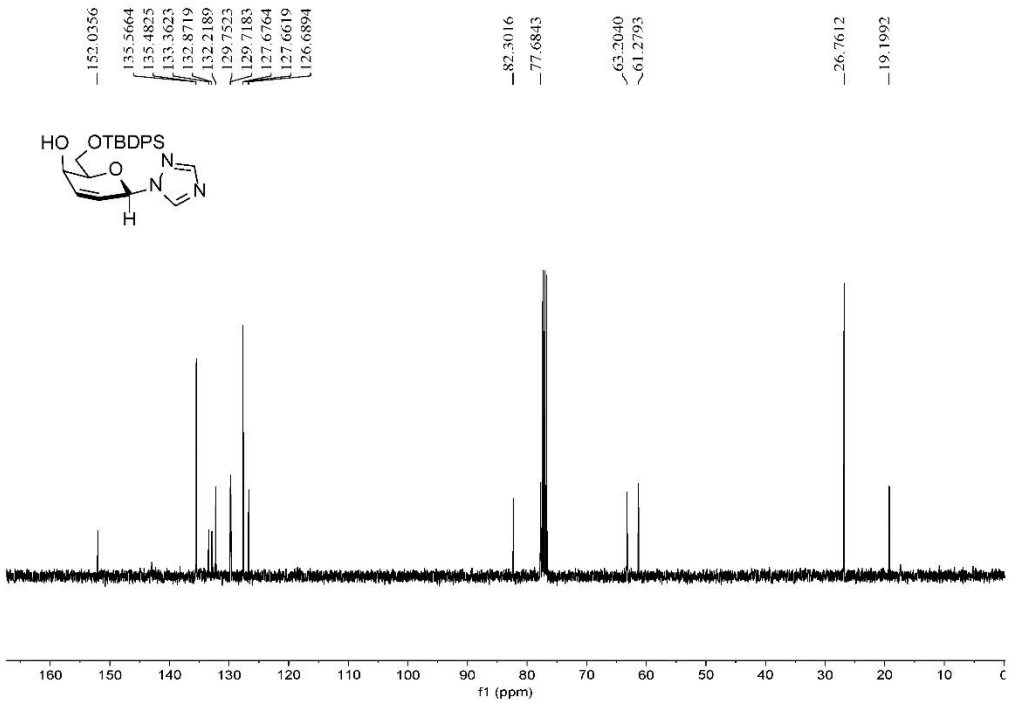
^{13}C{^{1}H} NMR (100.60 MHz, $CDCl_3$) Spectrum of Compound **3g**



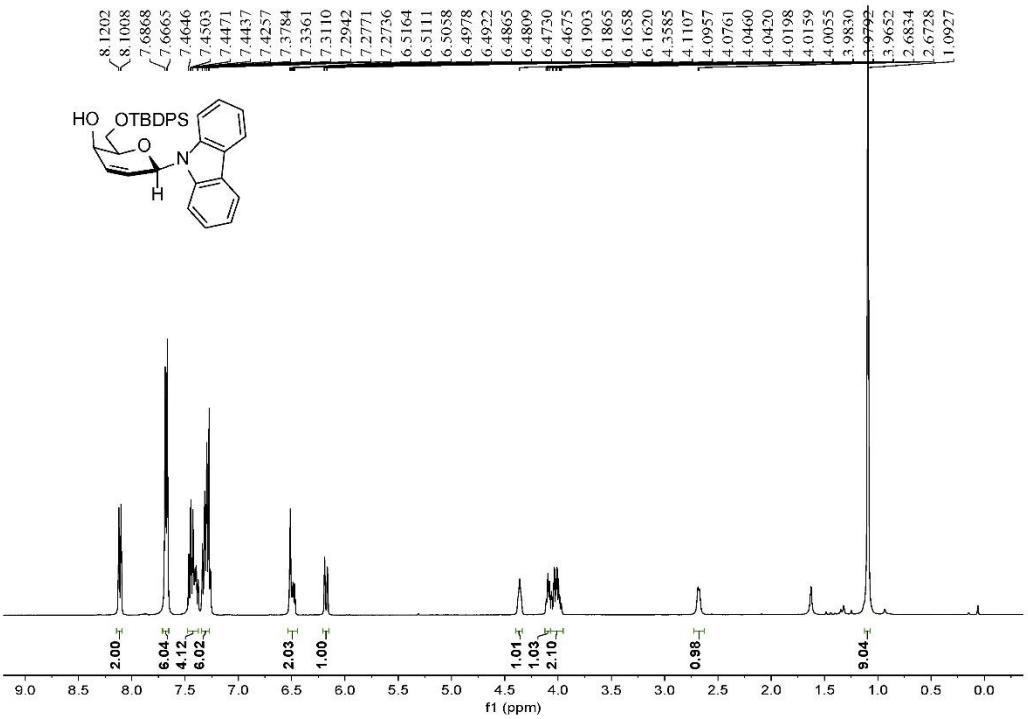
^{1}H NMR (400.13 MHz, $CDCl_3$) Spectrum of Compound **3h**



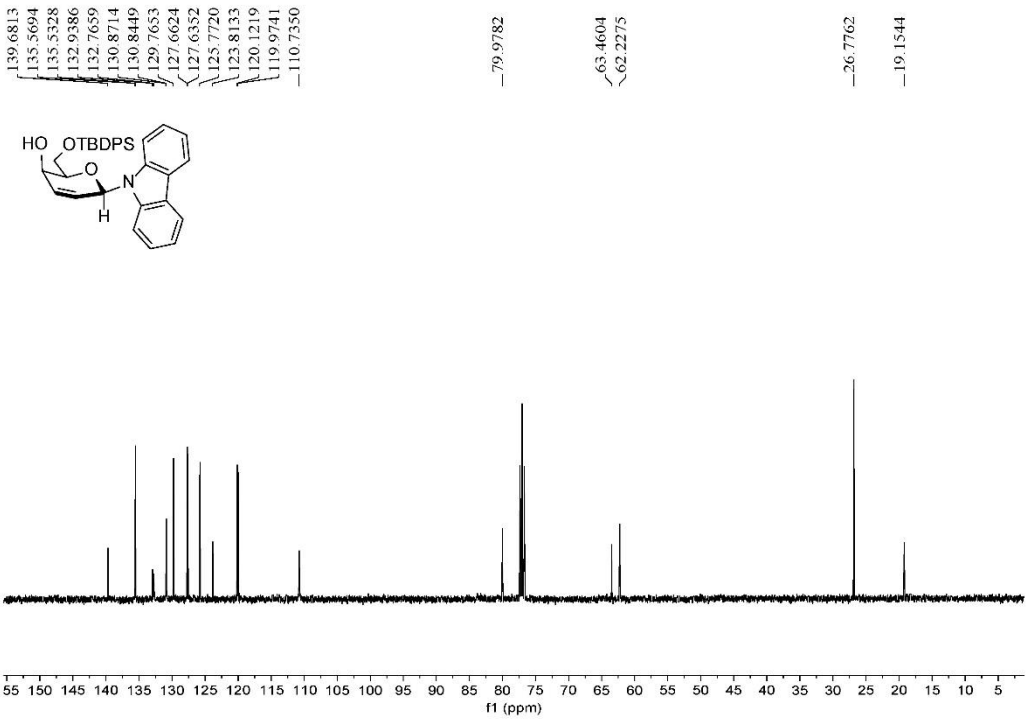
^{13}C{^{1}H} NMR (100.60 MHz, $CDCl_3$) Spectrum of Compound **3h**



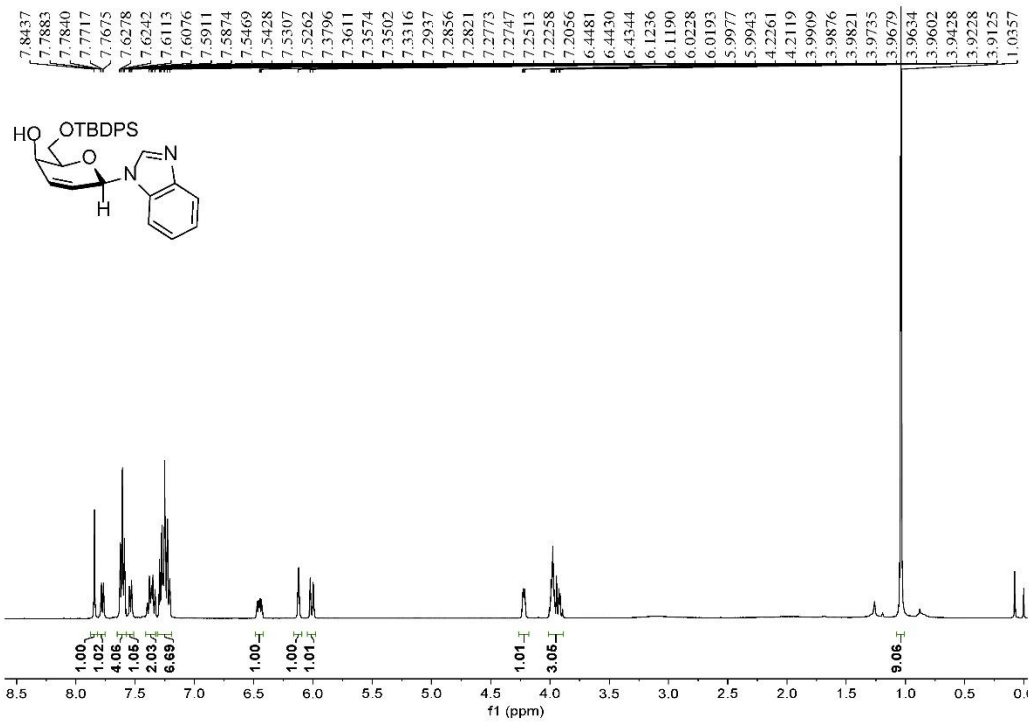
^{1}H NMR (400.13 MHz, $CDCl_3$) Spectrum of Compound **3i**



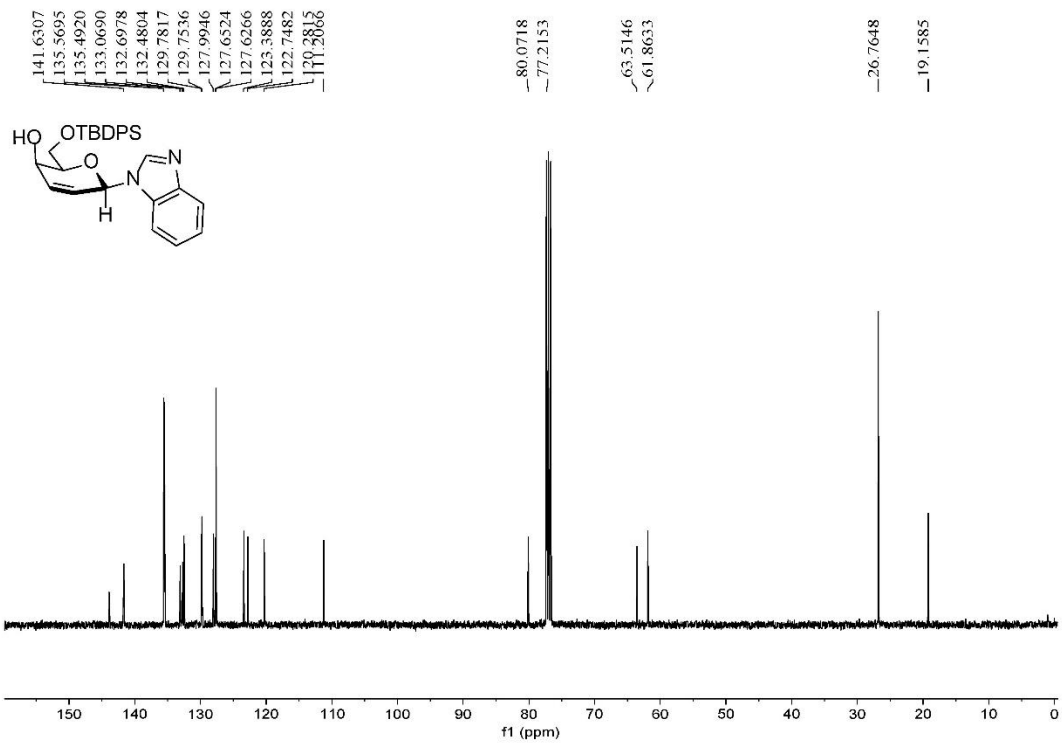
^{13}C{^{1}H} NMR (100.60 MHz, $CDCl_3$) Spectrum of Compound **3i**



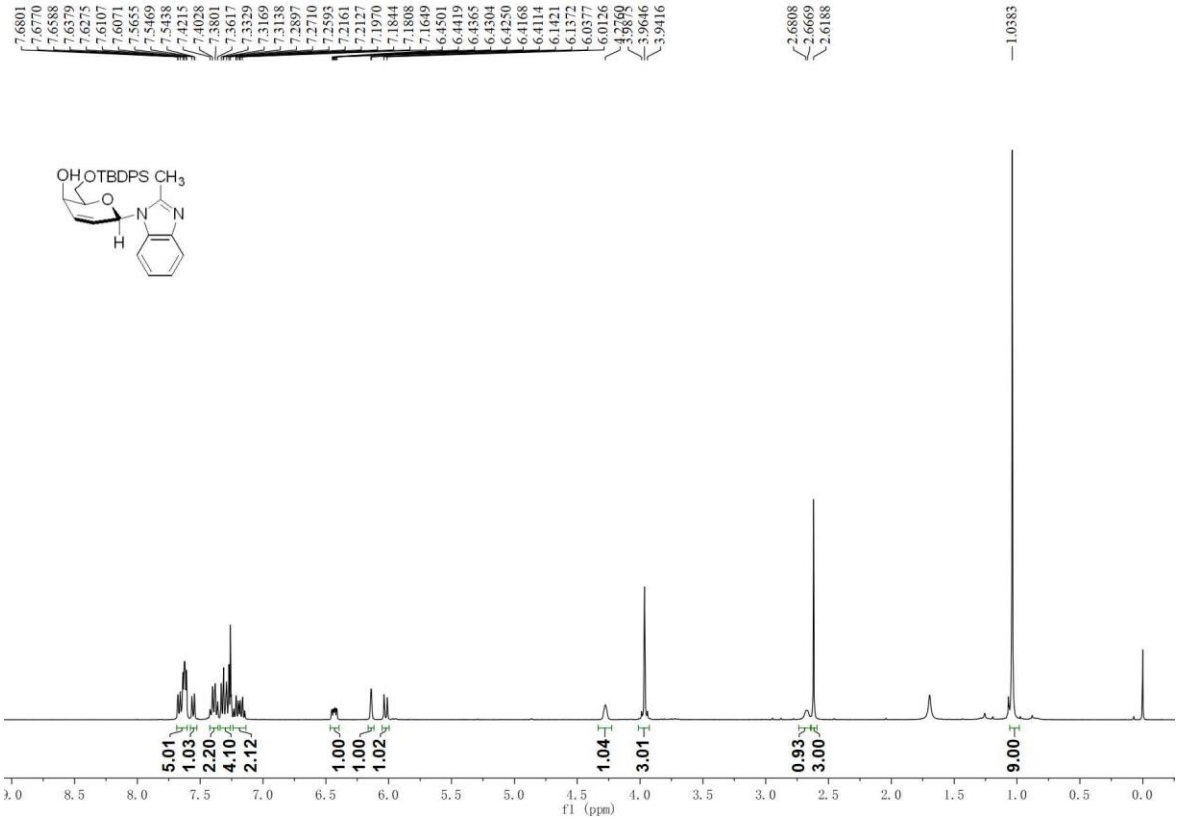
^{1}H NMR (400.13 MHz, $CDCl_3$) Spectrum of Compound **3j**



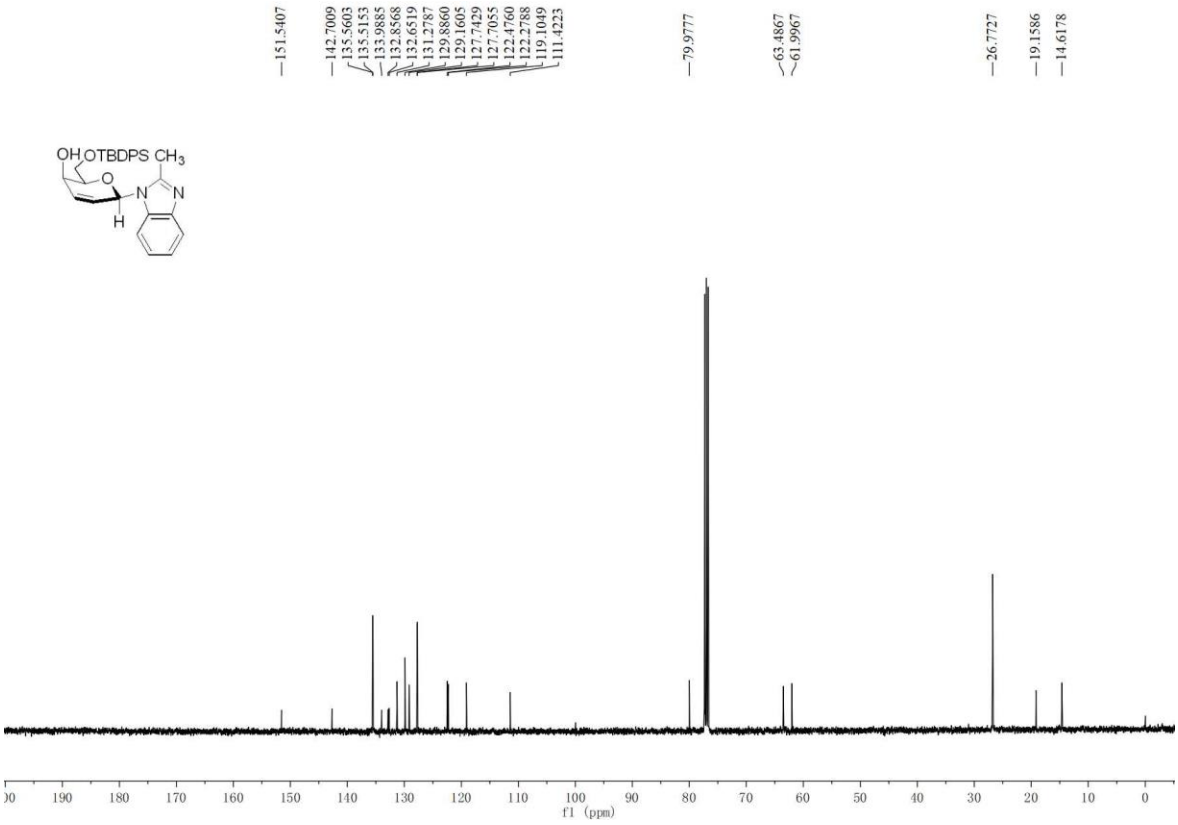
^{13}C{^{1}H} NMR (100.60 MHz, $CDCl_3$) Spectrum of Compound **3j**



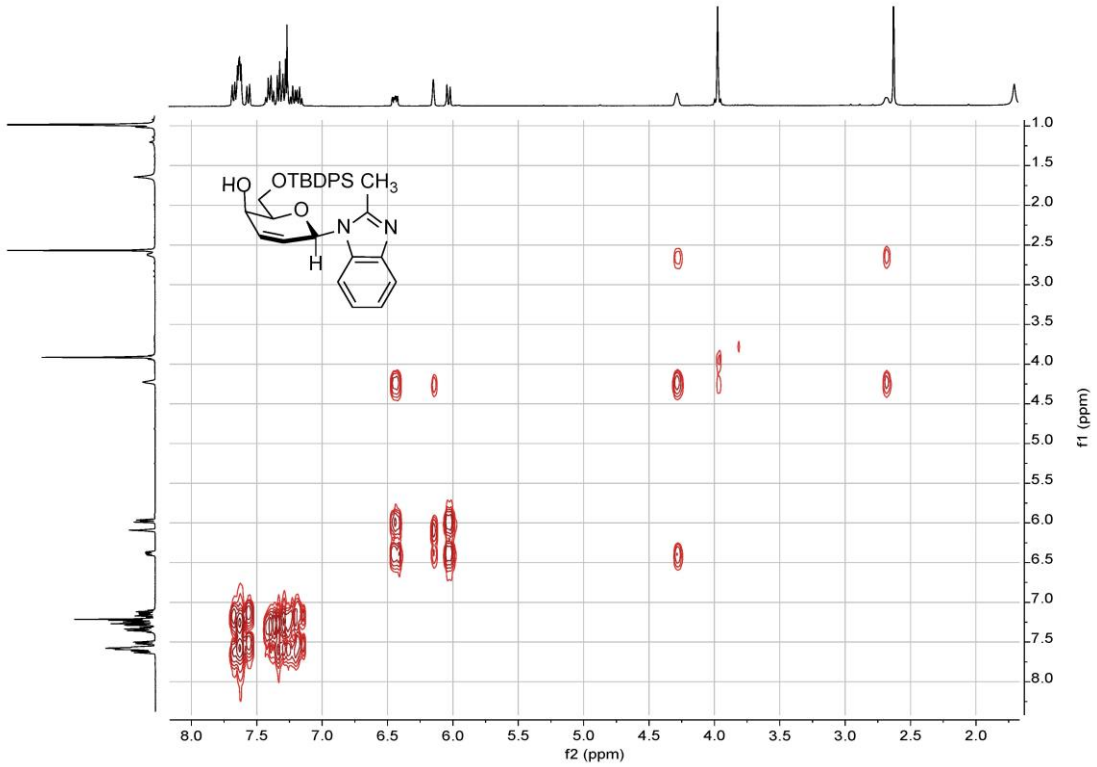
^{1}H NMR (400.13 MHz, $CDCl_3$) Spectrum of Compound **3k**



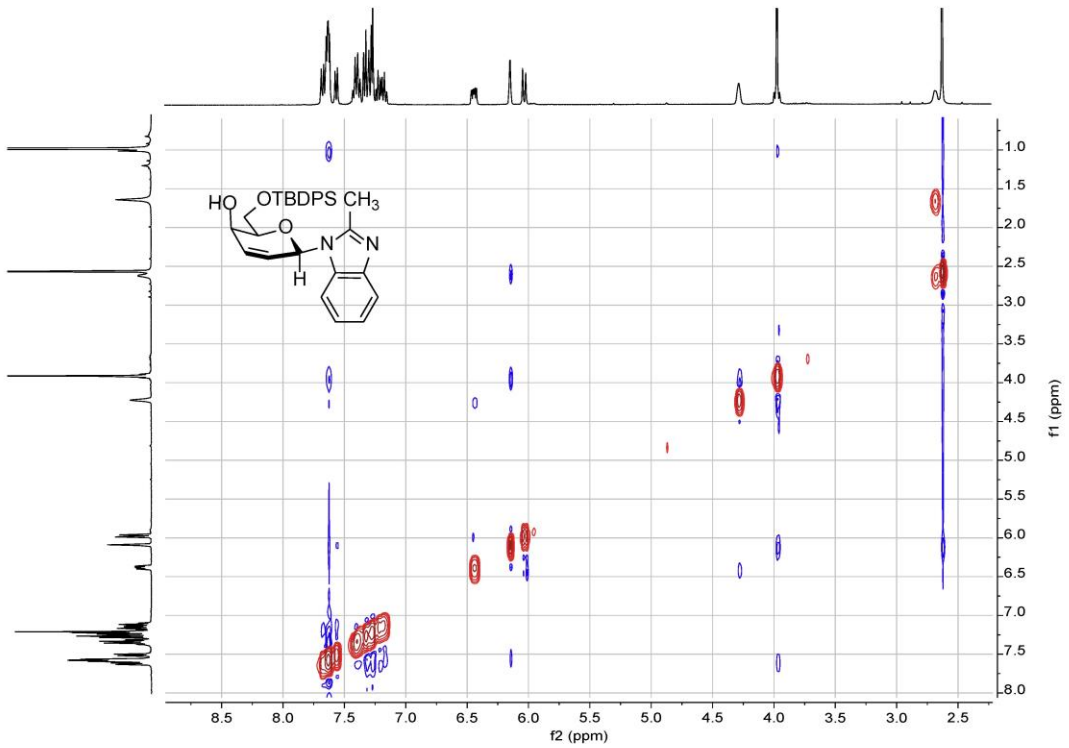
^{13}C{^{1}H} NMR (100.60 MHz, $CDCl_3$) Spectrum of Compound **3k**



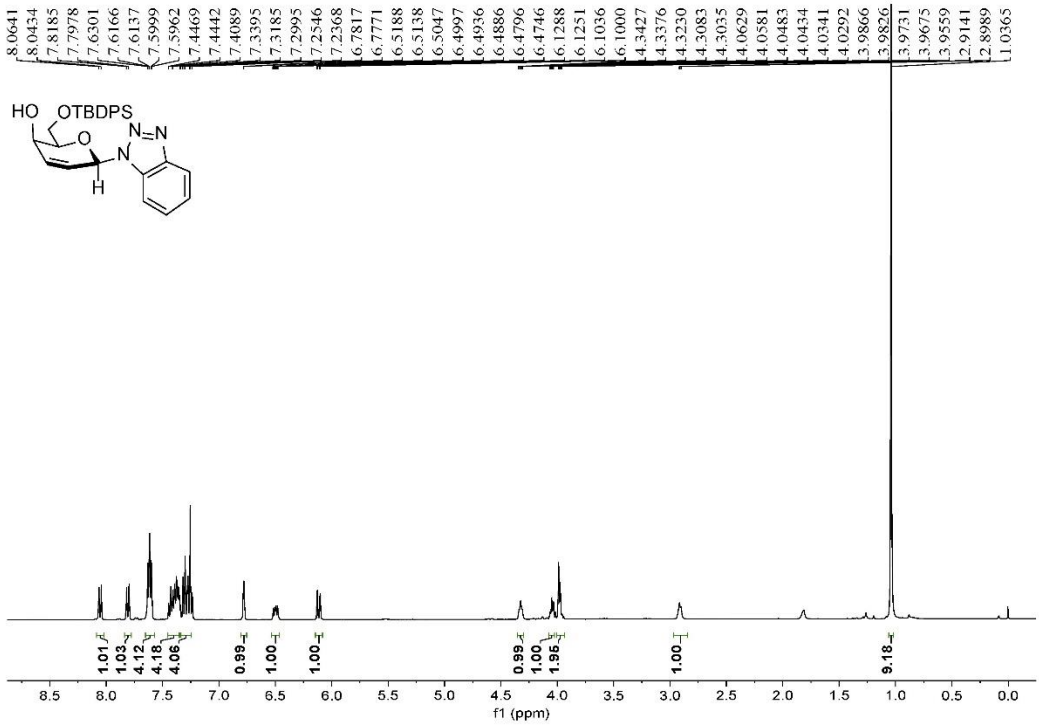
2D-COSY (400.13 MHz, $CDCl_3$) Spectrum of Compound **3k**



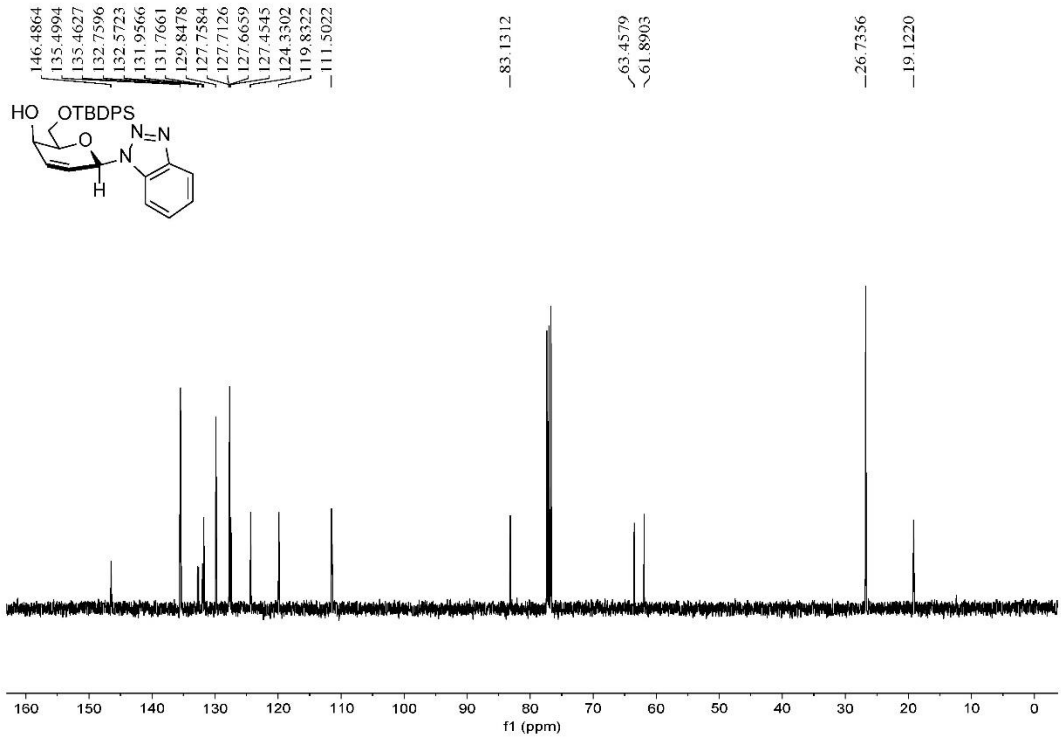
2D-NOESY (400.13 MHz, $CDCl_3$) Spectrum of Compound **3k**



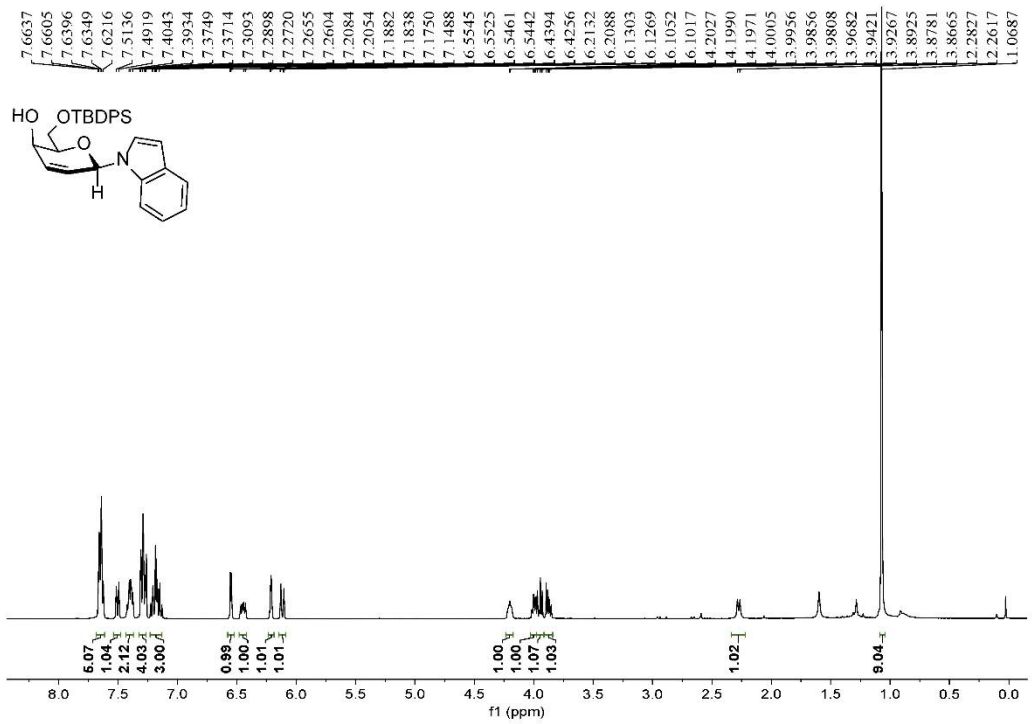
^{1}H NMR (400.13 MHz, $CDCl_3$) Spectrum of Compound **3l**



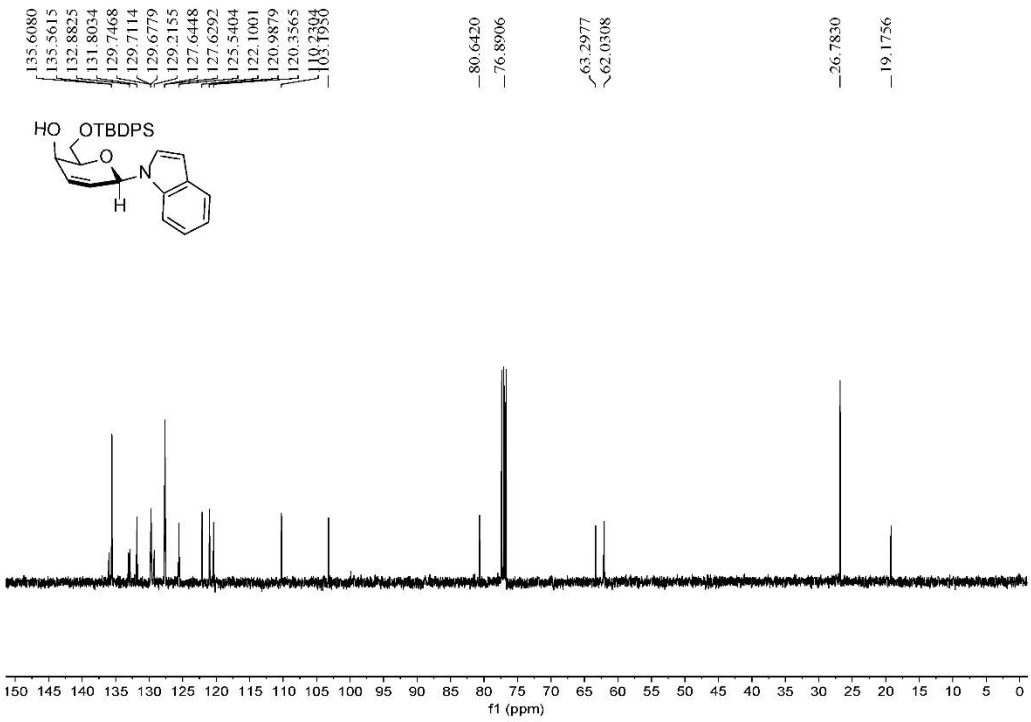
^{13}C{^{1}H} NMR (100.60 MHz, $CDCl_3$) Spectrum of Compound **3l**



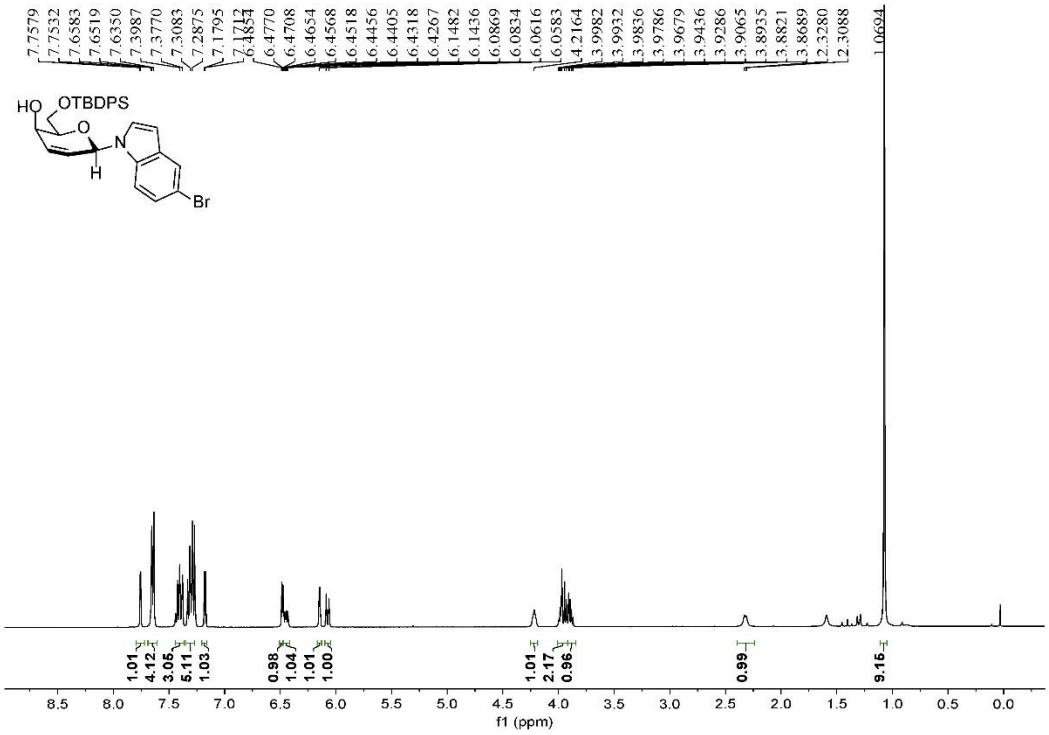
^{1}H NMR (400.13 MHz, $CDCl_3$) Spectrum of Compound **3m**



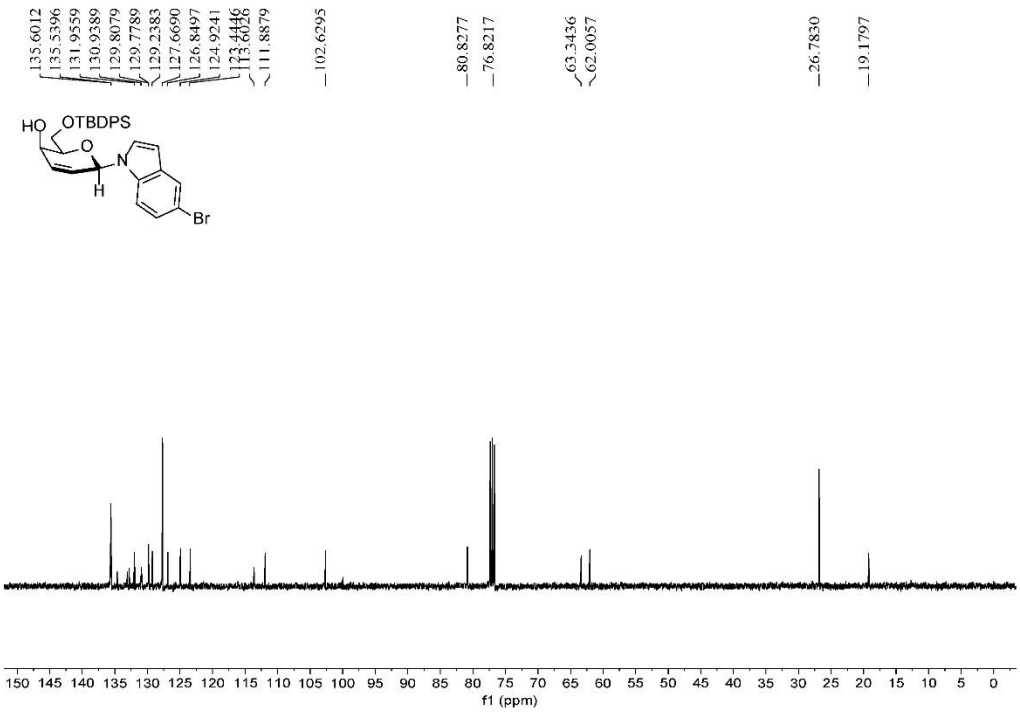
^{13}C{^{1}H} NMR (100.60 MHz, $CDCl_3$) Spectrum of Compound **3m**



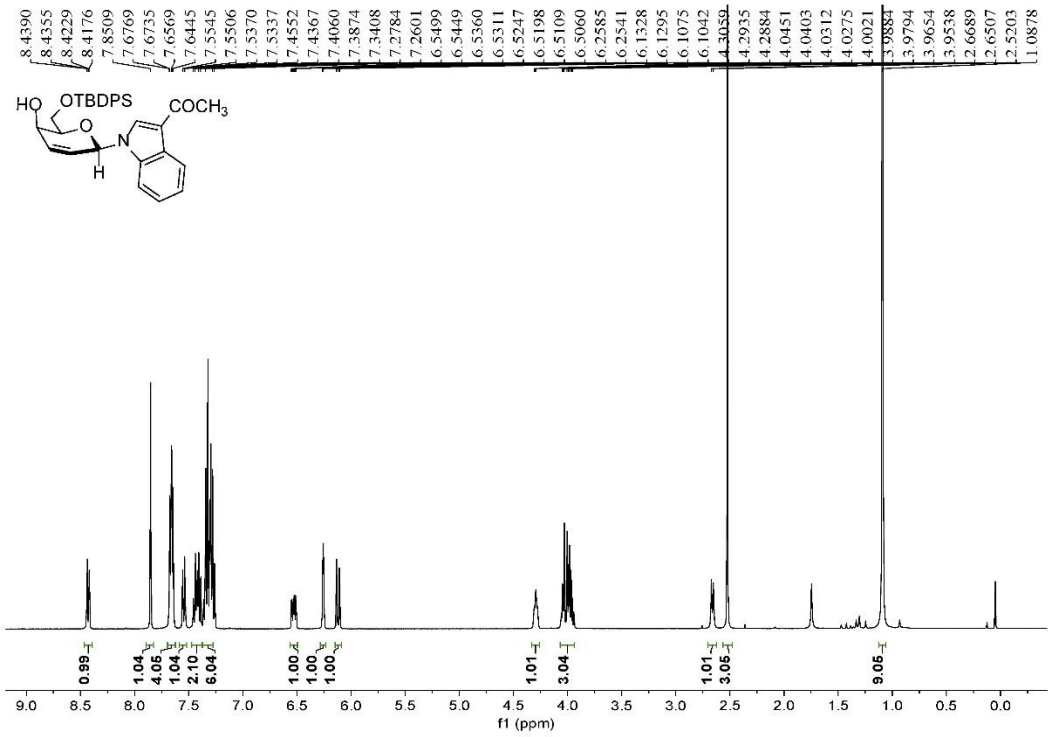
^{1}H NMR (400.13 MHz, $CDCl_3$) Spectrum of Compound **3n**



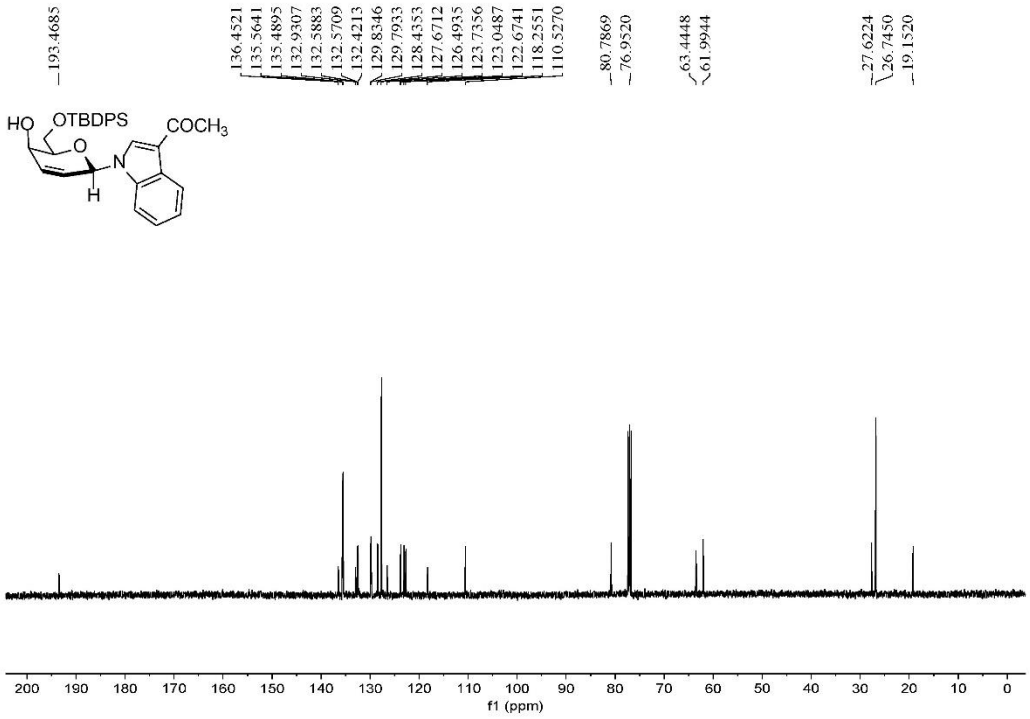
^{13}C{^{1}H} NMR (100.60 MHz, $CDCl_3$) Spectrum of Compound **3n**



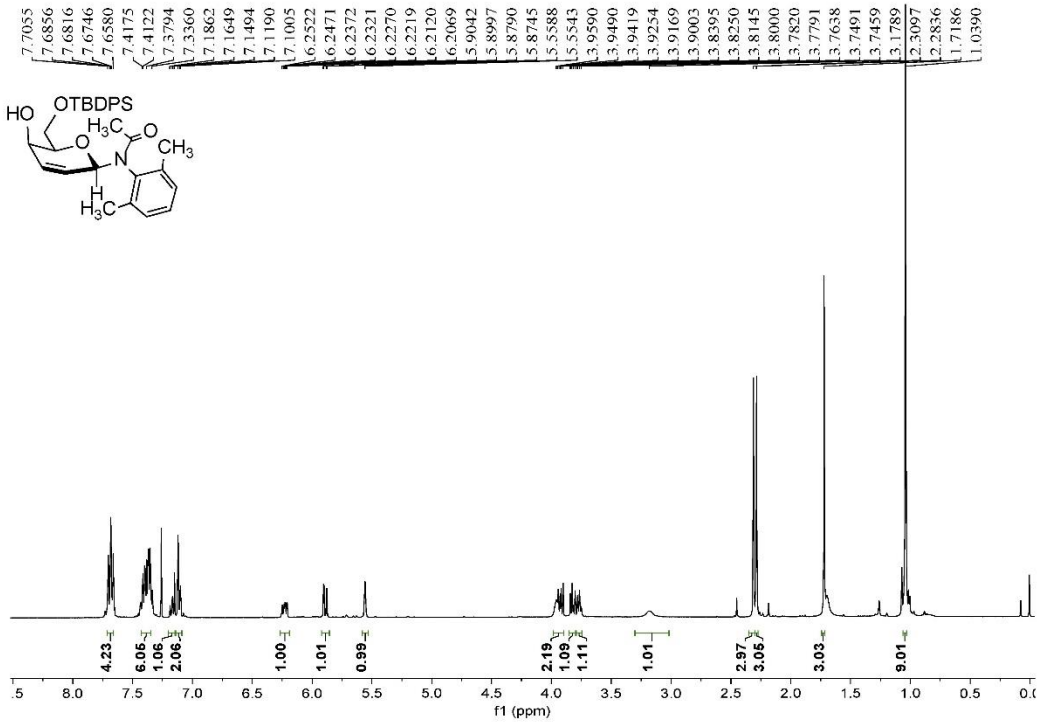
^{1}H NMR (400.13 MHz, $CDCl_3$) Spectrum of Compound **3o**



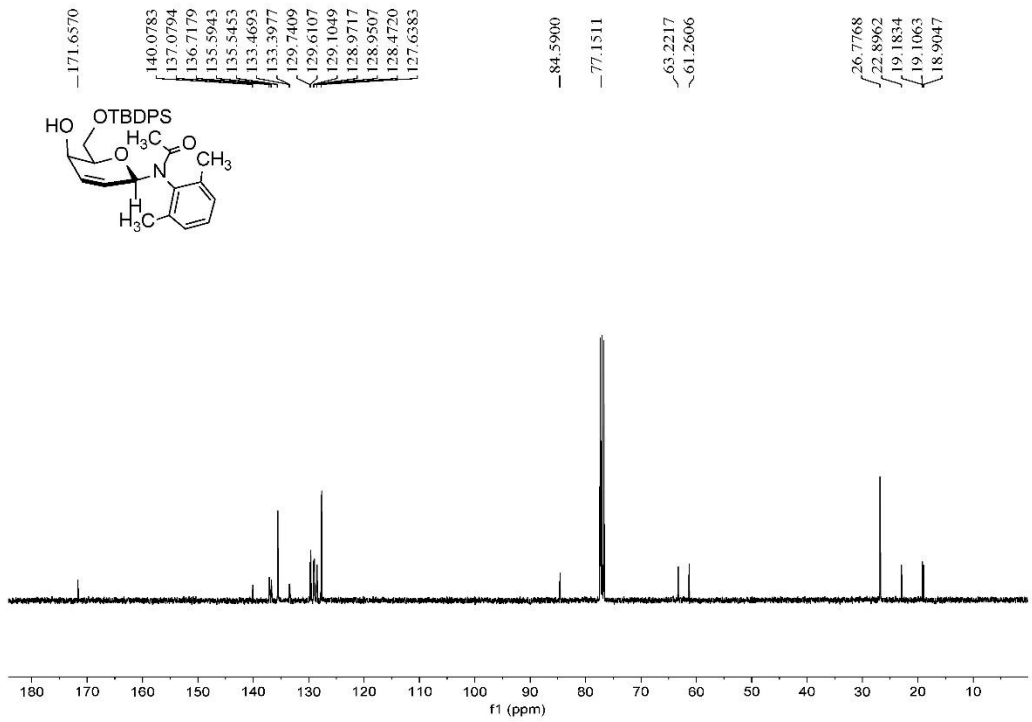
^{13}C{^{1}H} NMR (100.60 MHz, $CDCl_3$) Spectrum of Compound **3o**



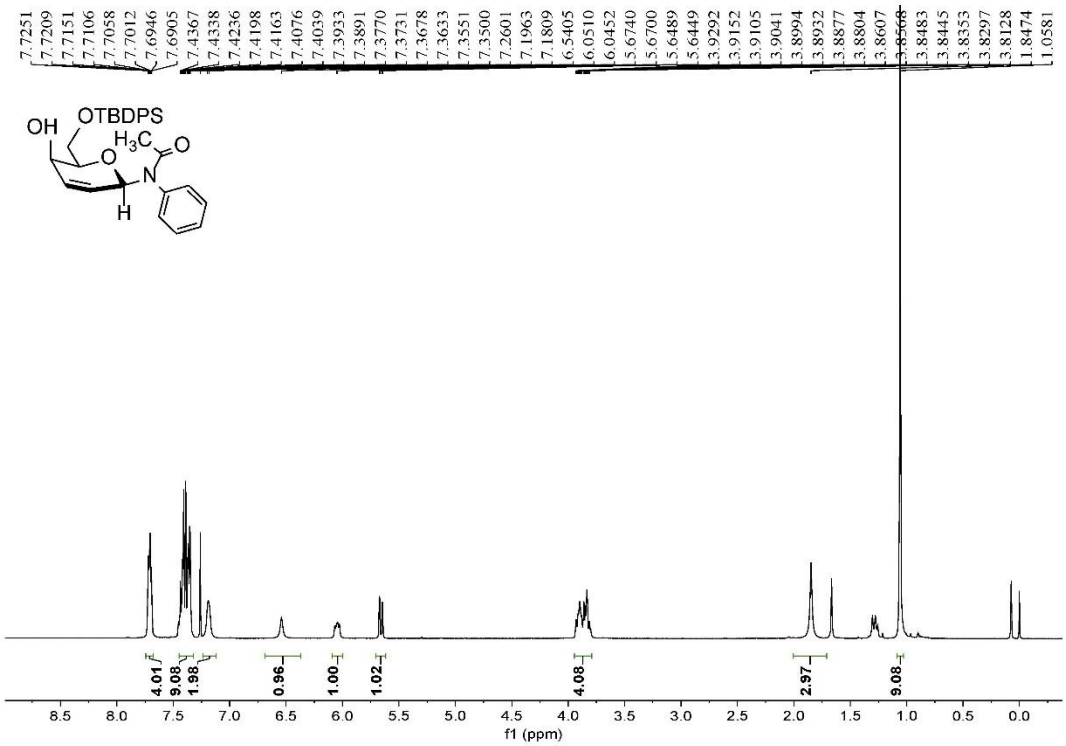
^{1}H NMR (400.13 MHz, $CDCl_3$) Spectrum of Compound **5a**



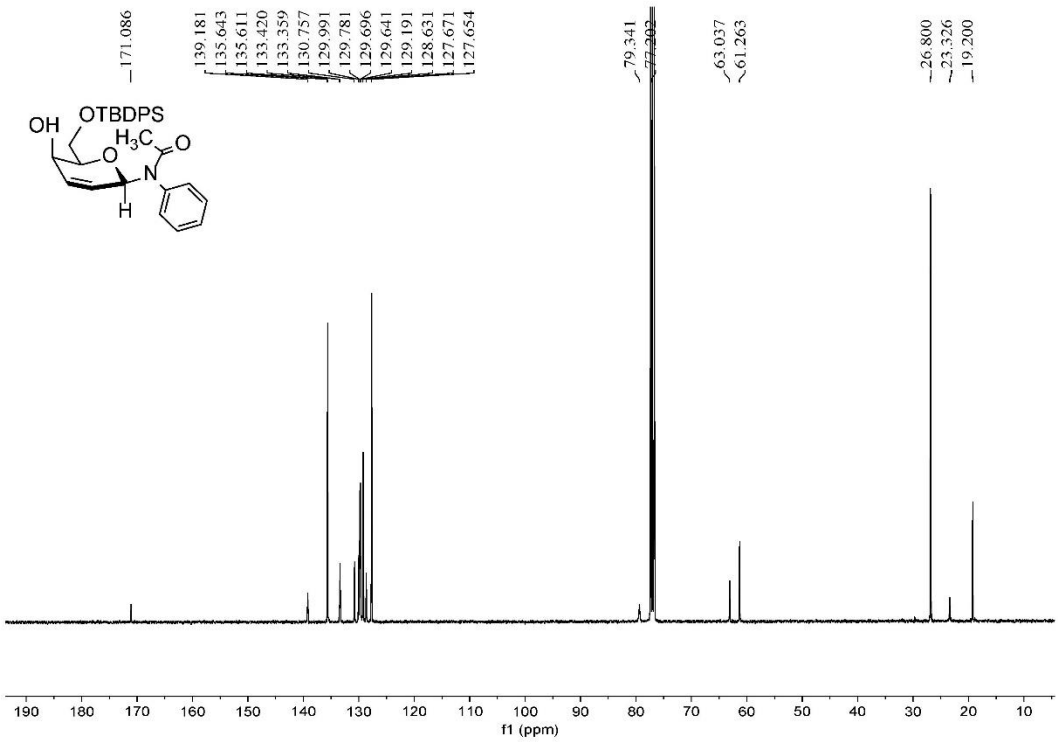
^{13}C{^{1}H} NMR (100.60 MHz, $CDCl_3$) Spectrum of Compound **5a**



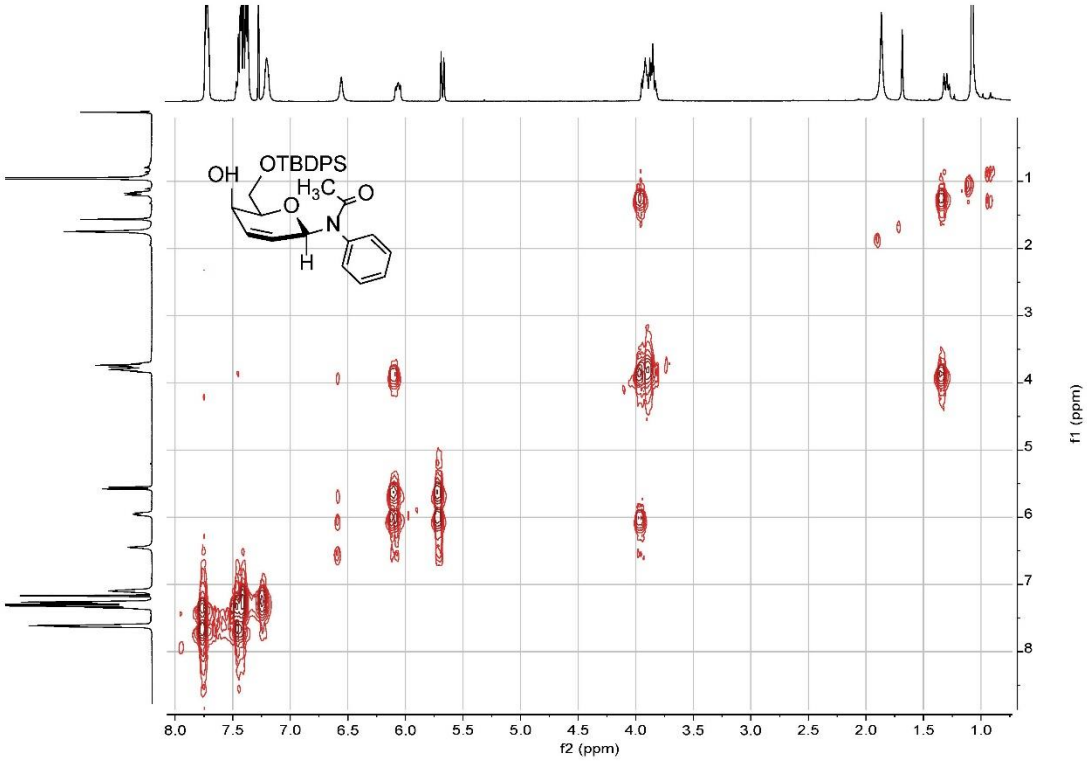
^{1}H NMR (400.13 MHz, $CDCl_3$) Spectrum of Compound **5b**



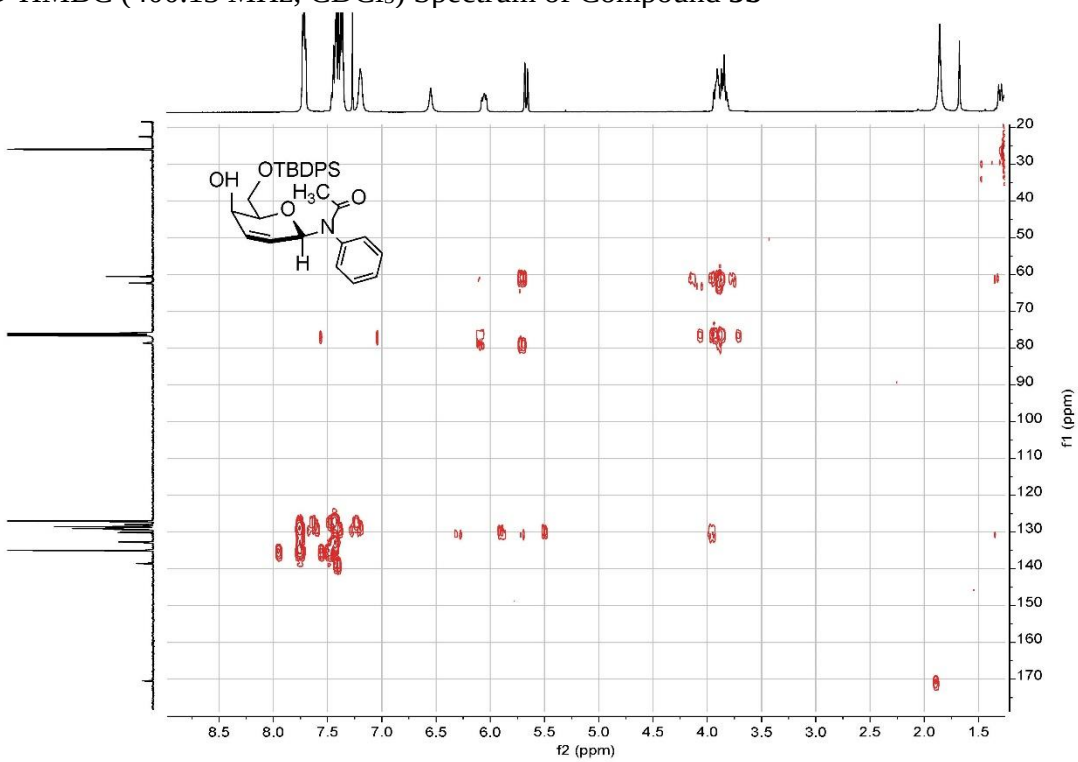
^{13}C{^{1}H} NMR (100.60 MHz, $CDCl_3$) Spectrum of Compound **5b**



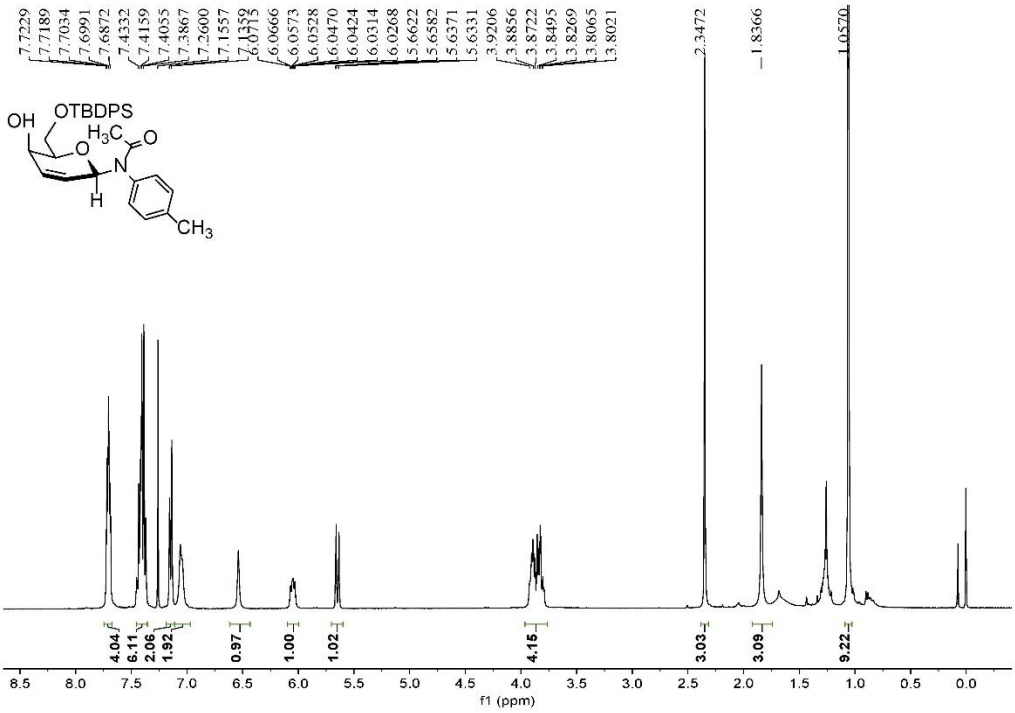
2D-COSY (400.13 MHz, $CDCl_3$) Spectrum of Compound **5b**



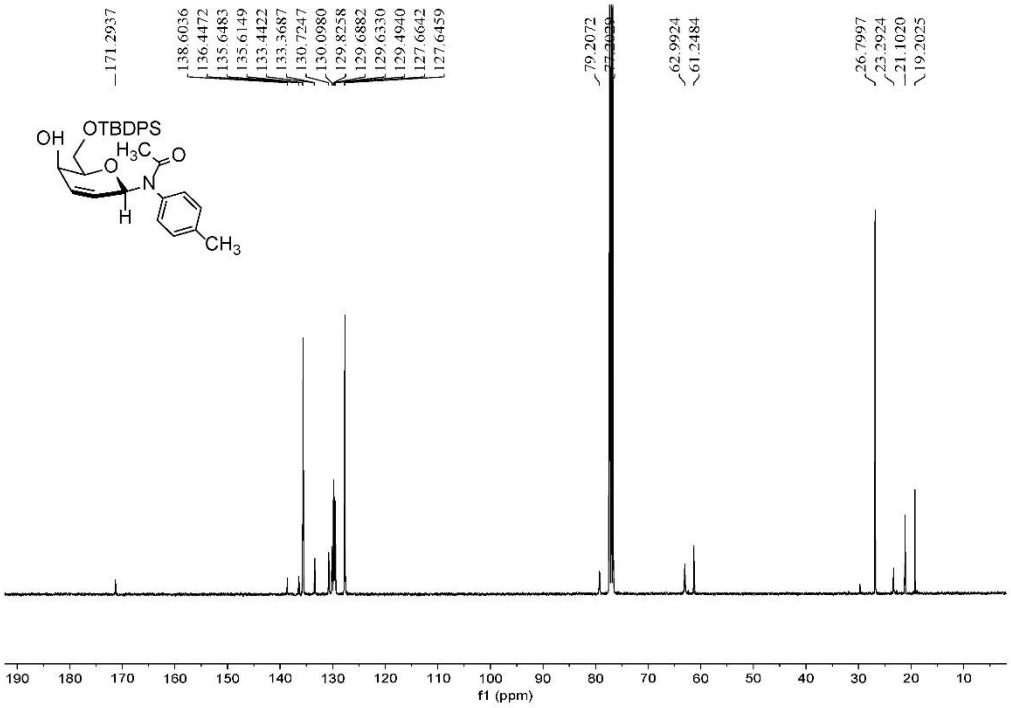
2D-HMBC (400.13 MHz, $CDCl_3$) Spectrum of Compound **5b**



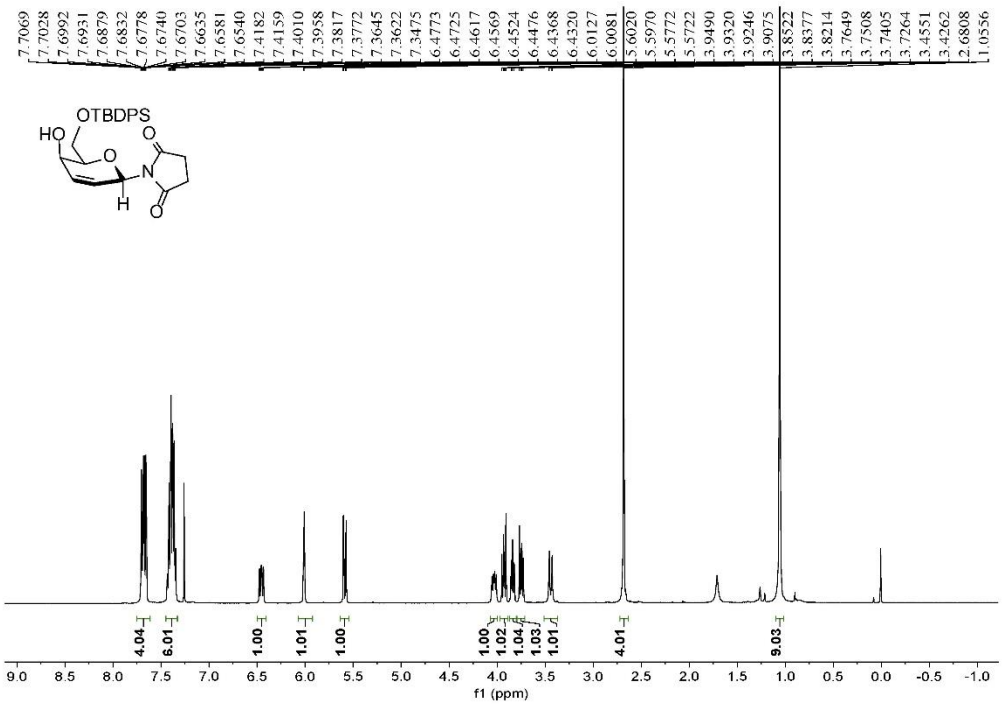
^{1}H NMR (400.13 MHz, $CDCl_3$) Spectrum of Compound **5c**



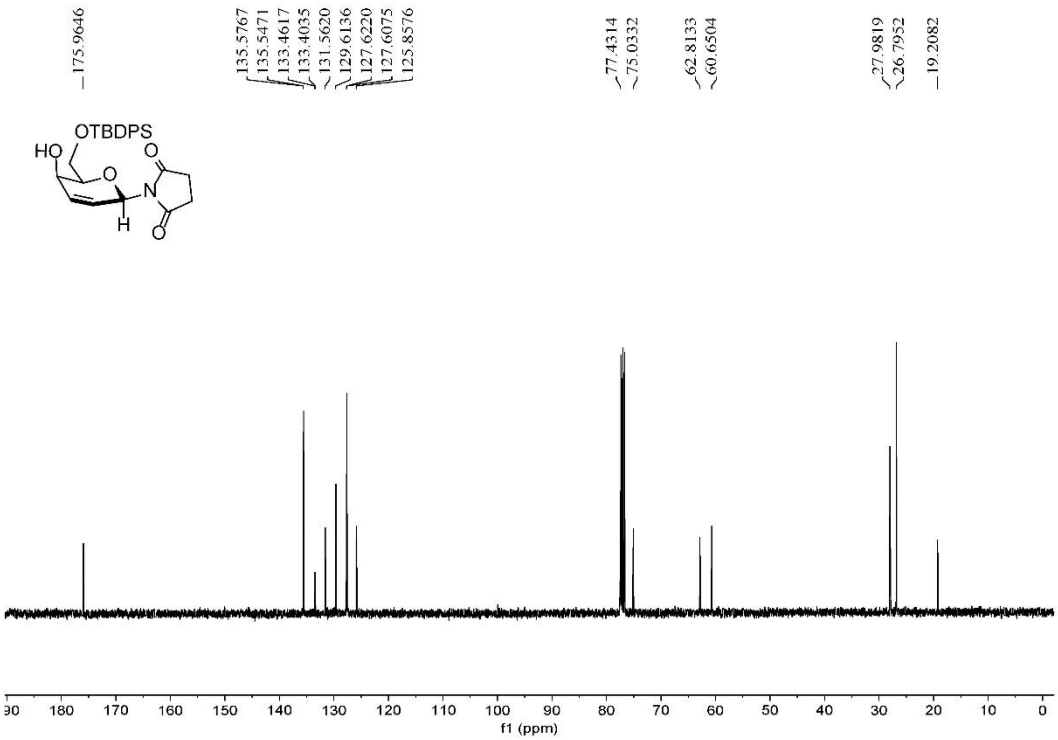
^{13}C{^{1}H} NMR (100.60 MHz, $CDCl_3$) Spectrum of Compound **5c**



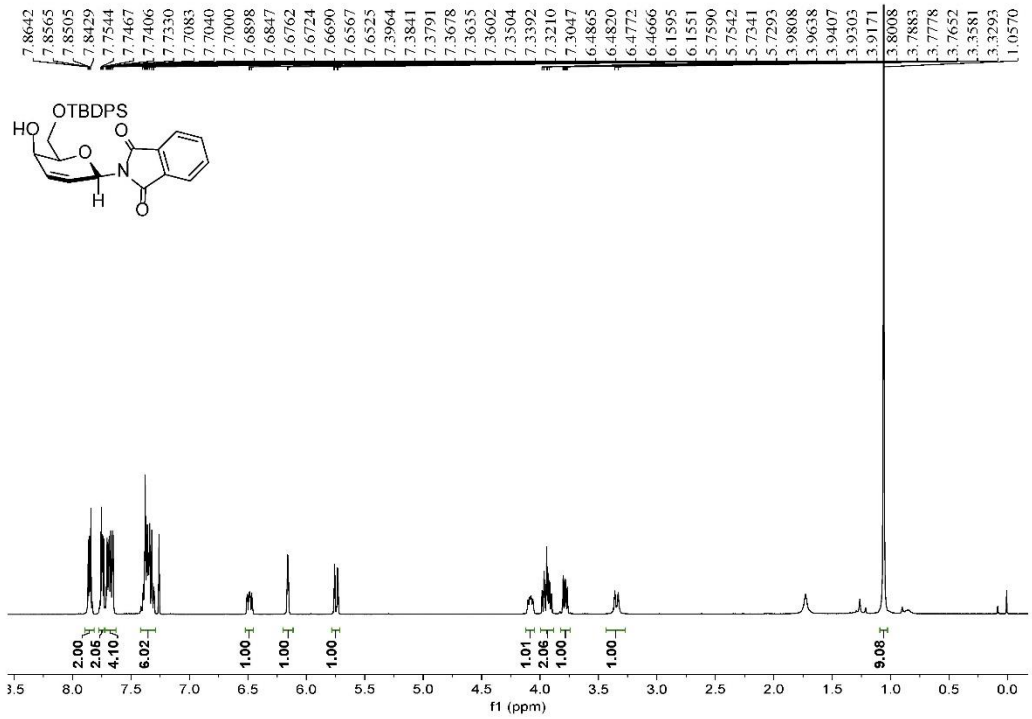
^{1}H NMR (400.13 MHz, $CDCl_3$) Spectrum of Compound **5d**



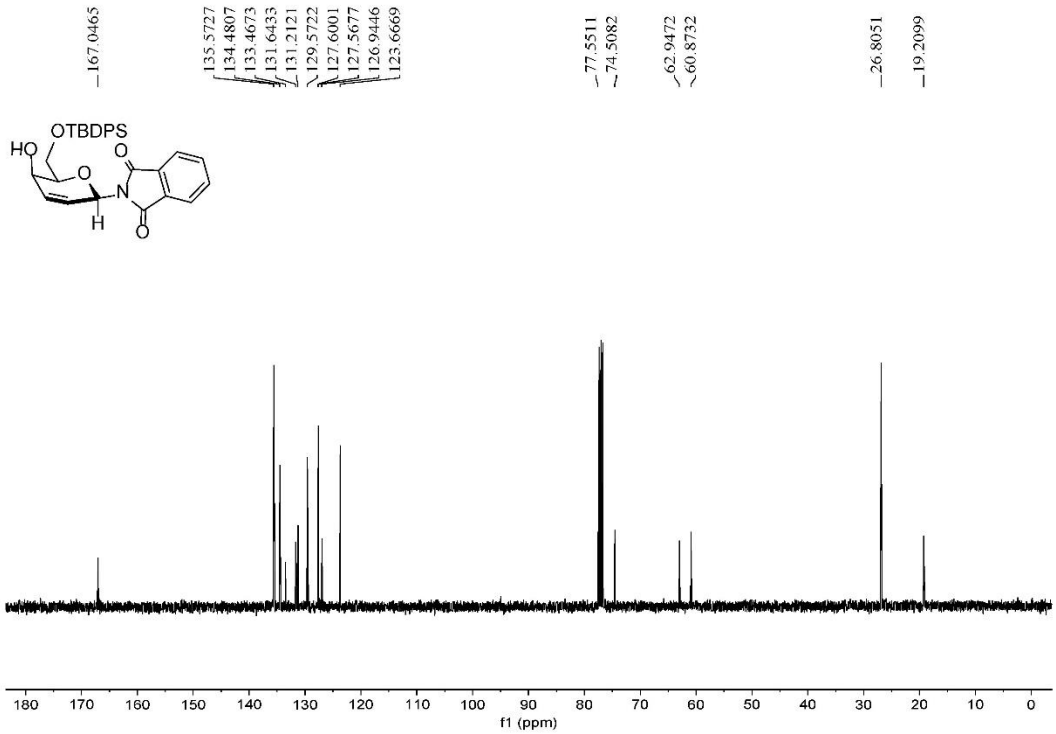
^{13}C{^{1}H} NMR (100.60 MHz, $CDCl_3$) Spectrum of Compound **5d**



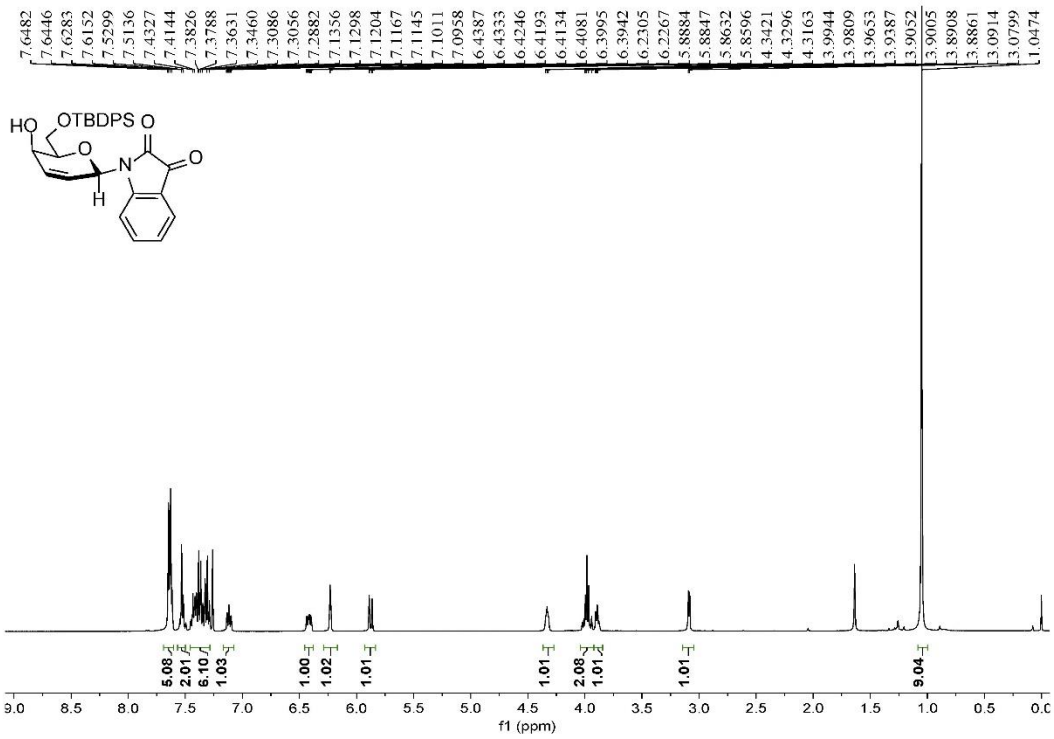
^{1}H NMR (400.13 MHz, $CDCl_3$) Spectrum of Compound **5e**



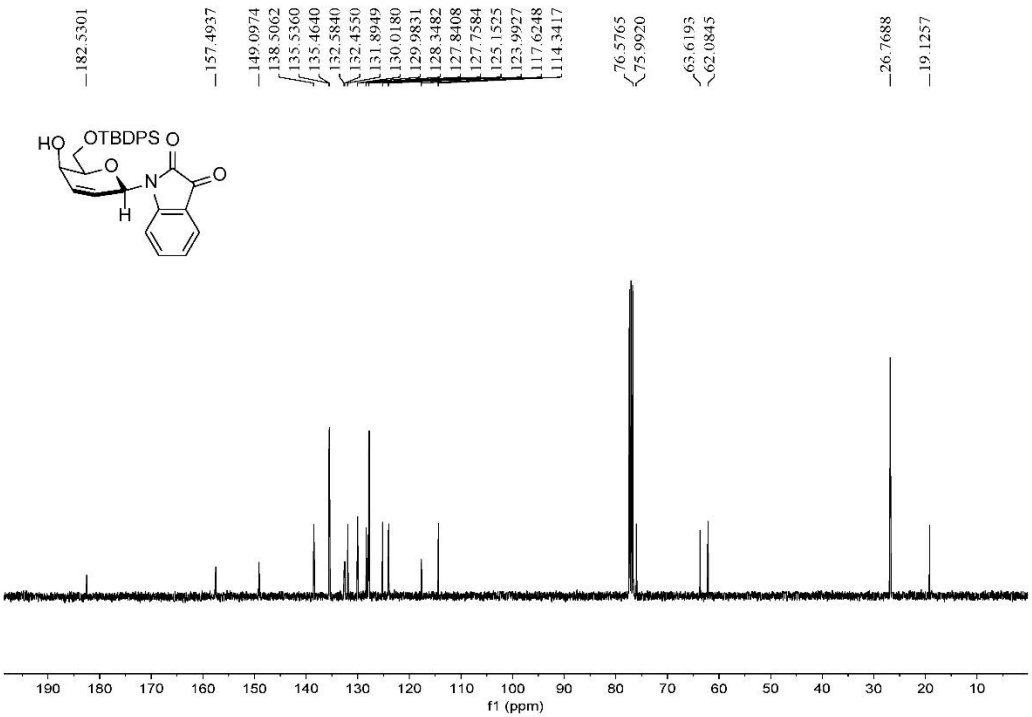
^{13}C{^{1}H} NMR (100.60 MHz, $CDCl_3$) Spectrum of Compound **5e**



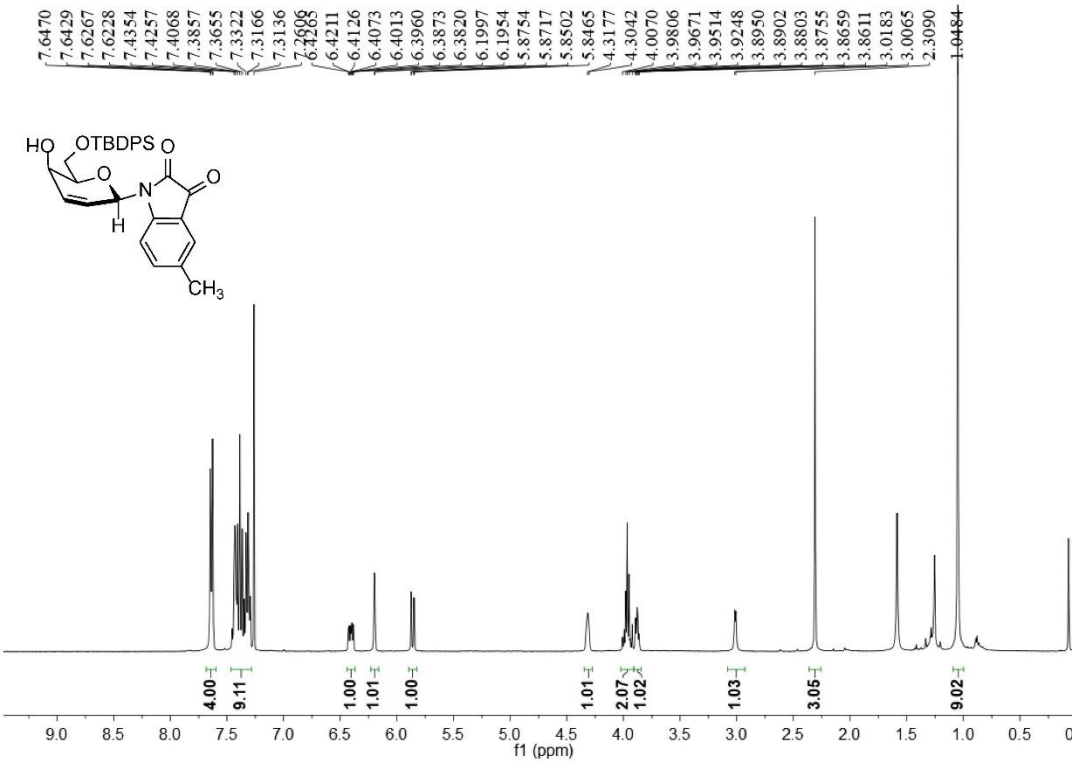
^{1}H NMR (400.13 MHz, $CDCl_3$) Spectrum of Compound **5f**



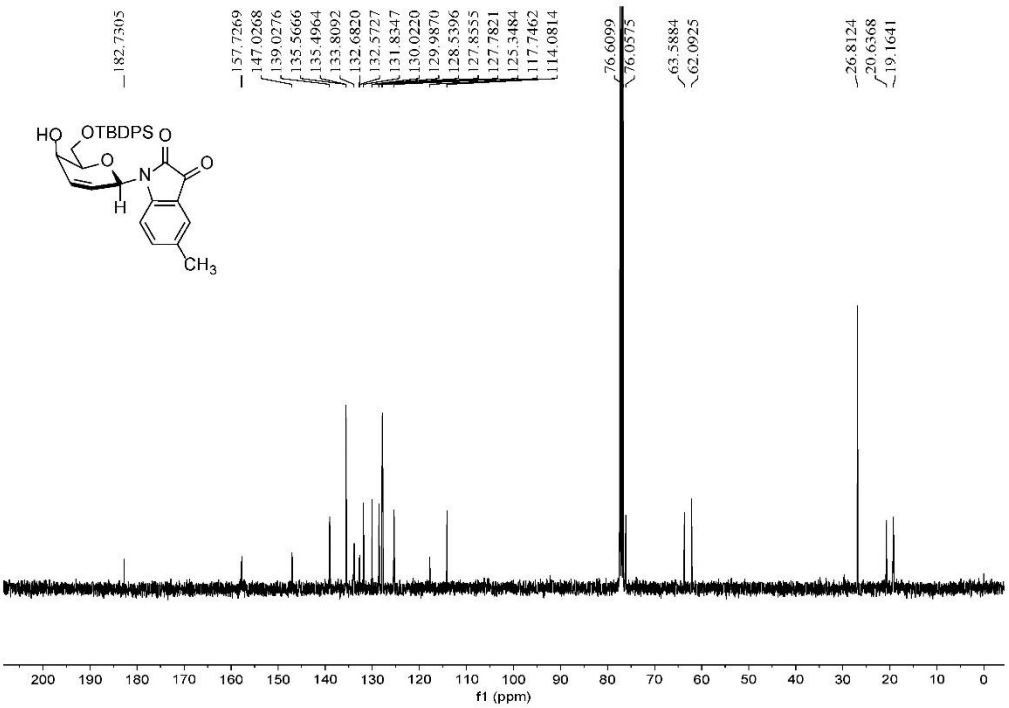
^{13}C{^{1}H} NMR (100.60 MHz, $CDCl_3$) Spectrum of Compound **5f**



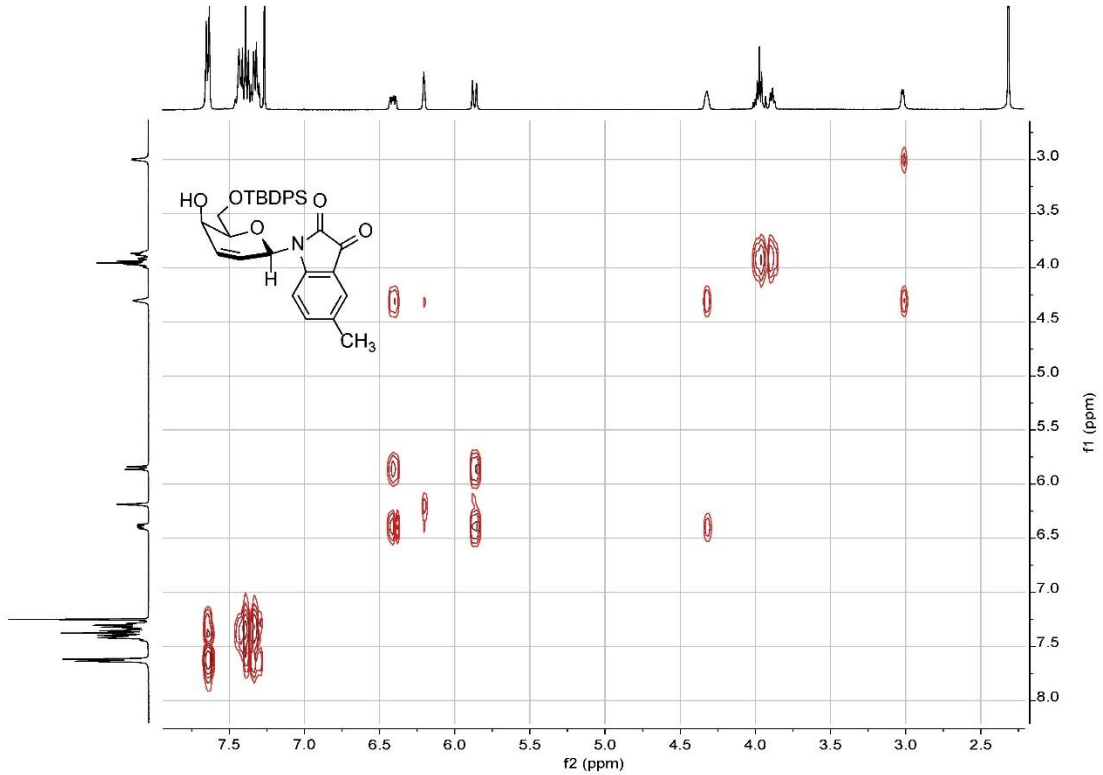
^{1}H NMR (400.13 MHz, $CDCl_3$) Spectrum of Compound **5g**



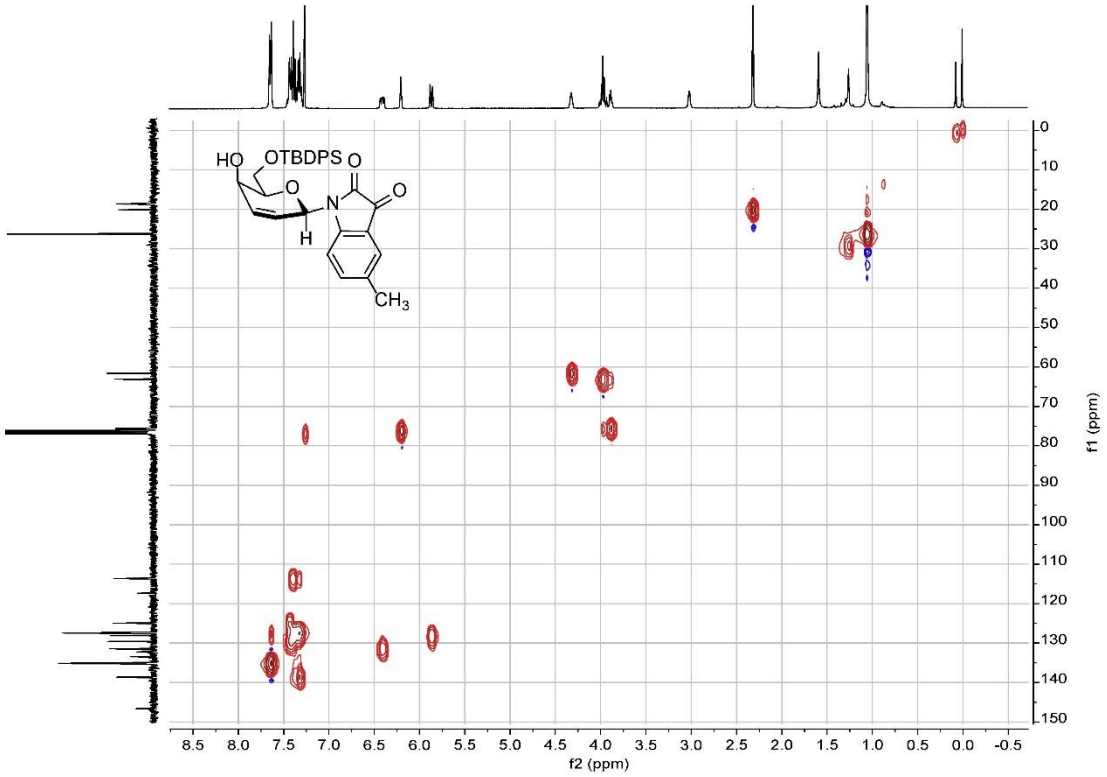
^{13}C{^{1}H} NMR (100.60 MHz, $CDCl_3$) Spectrum of Compound **5g**



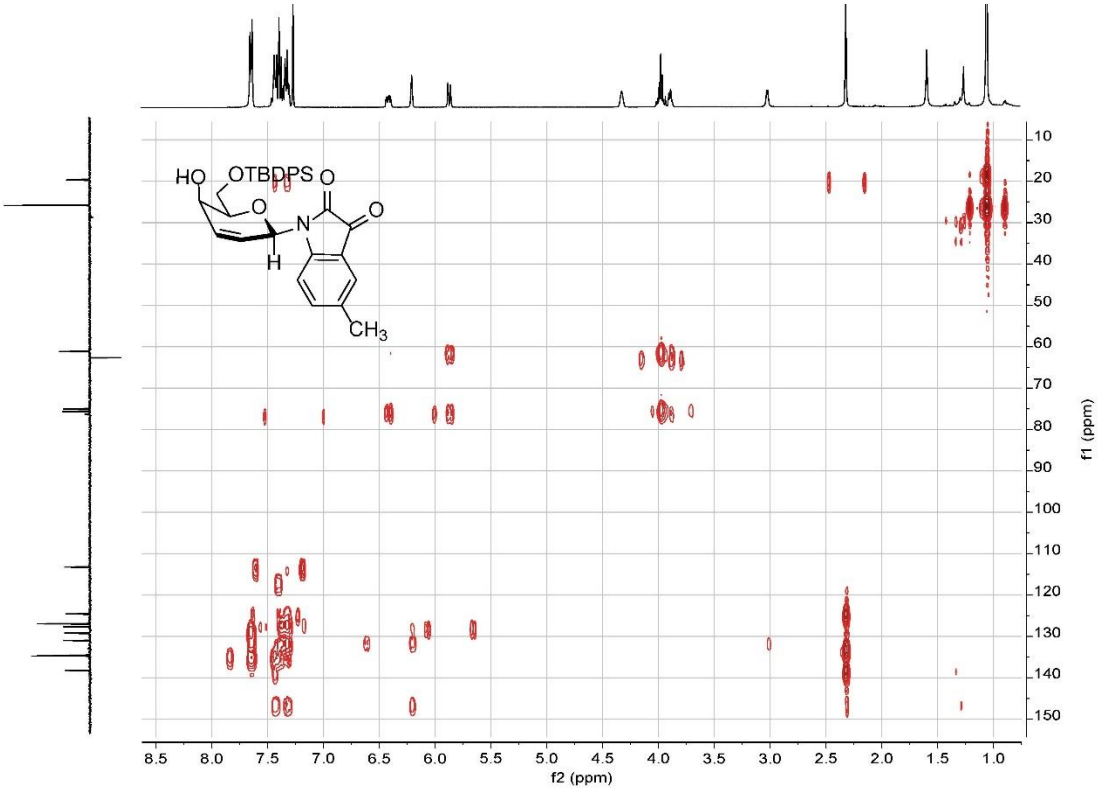
2D-COSY (400.13 MHz, $CDCl_3$) Spectrum of Compound **5g**



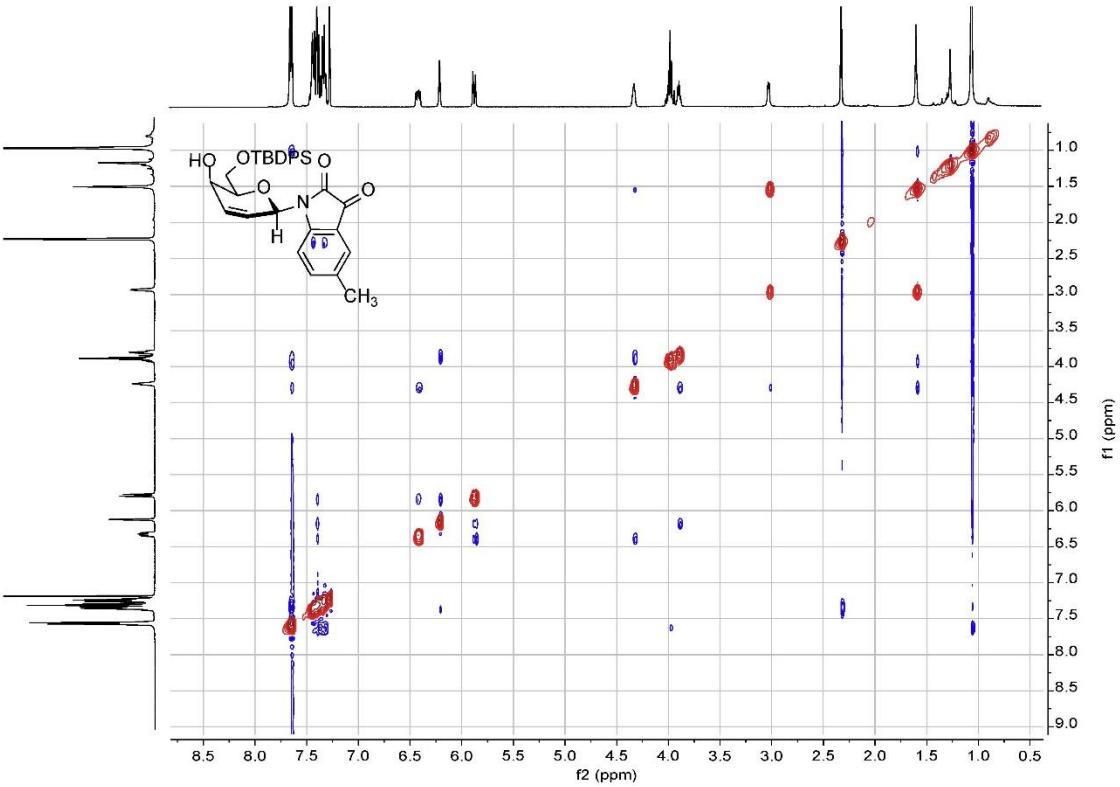
2D-HMQC (400.13 MHz, $CDCl_3$) Spectrum of Compound **5g**



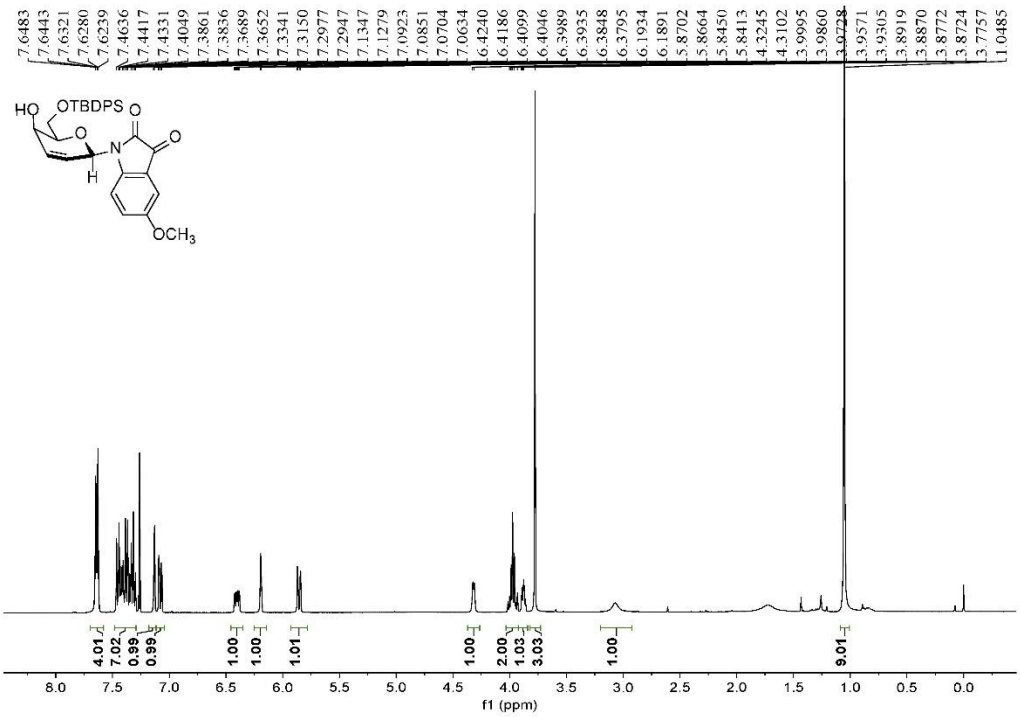
2D-HMBC (400.13 MHz, $CDCl_3$) Spectrum of Compound **5g**



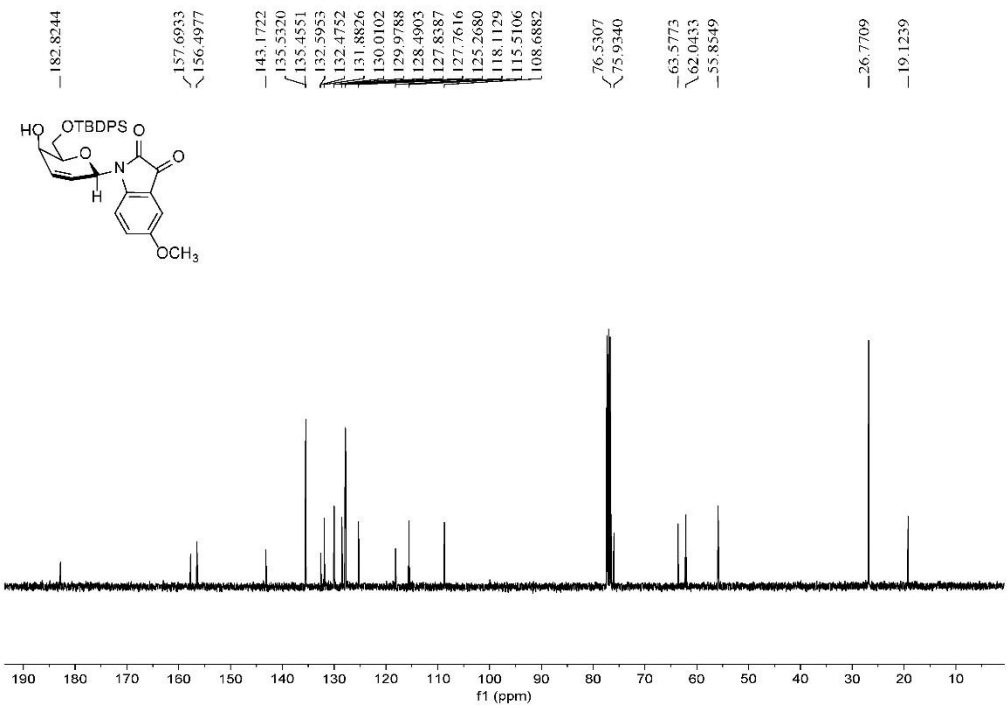
2D-NOESY (400.13 MHz, $CDCl_3$) Spectrum of Compound **5g**



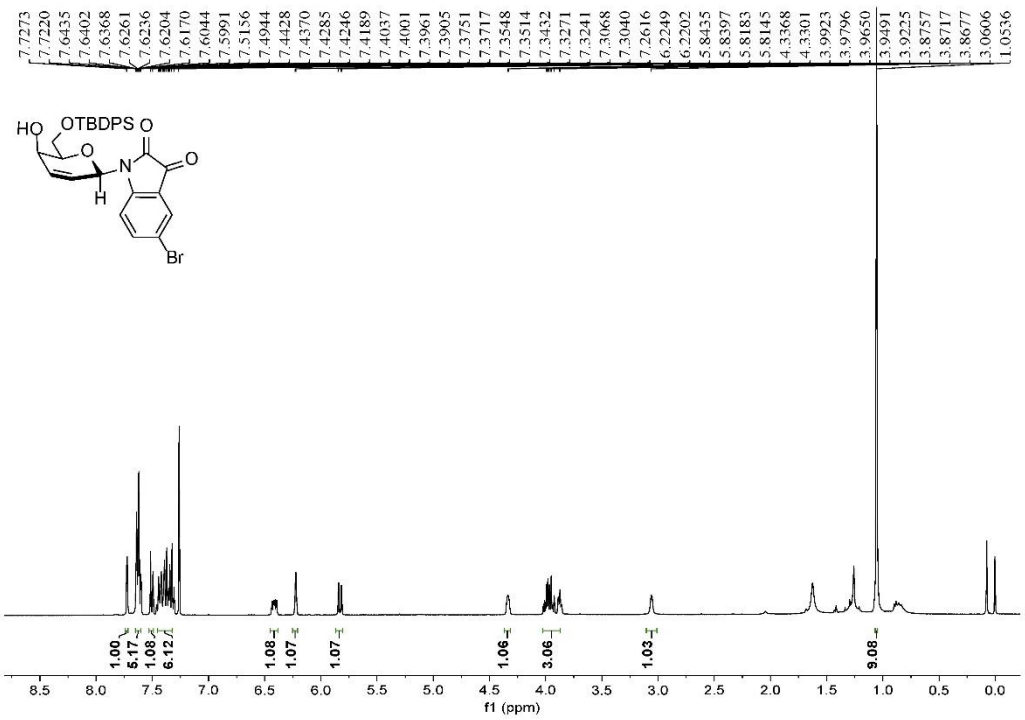
^{1}H NMR (400.13 MHz, $CDCl_3$) Spectrum of Compound **5h**



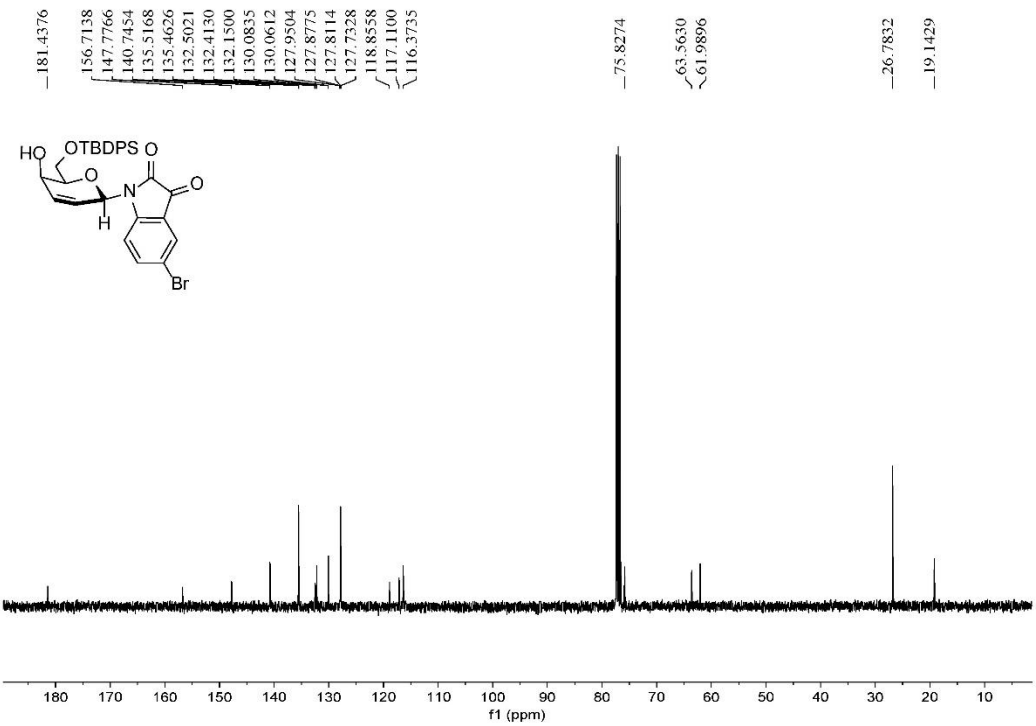
^{13}C{^{1}H} NMR (100.60 MHz, $CDCl_3$) Spectrum of Compound **5h**



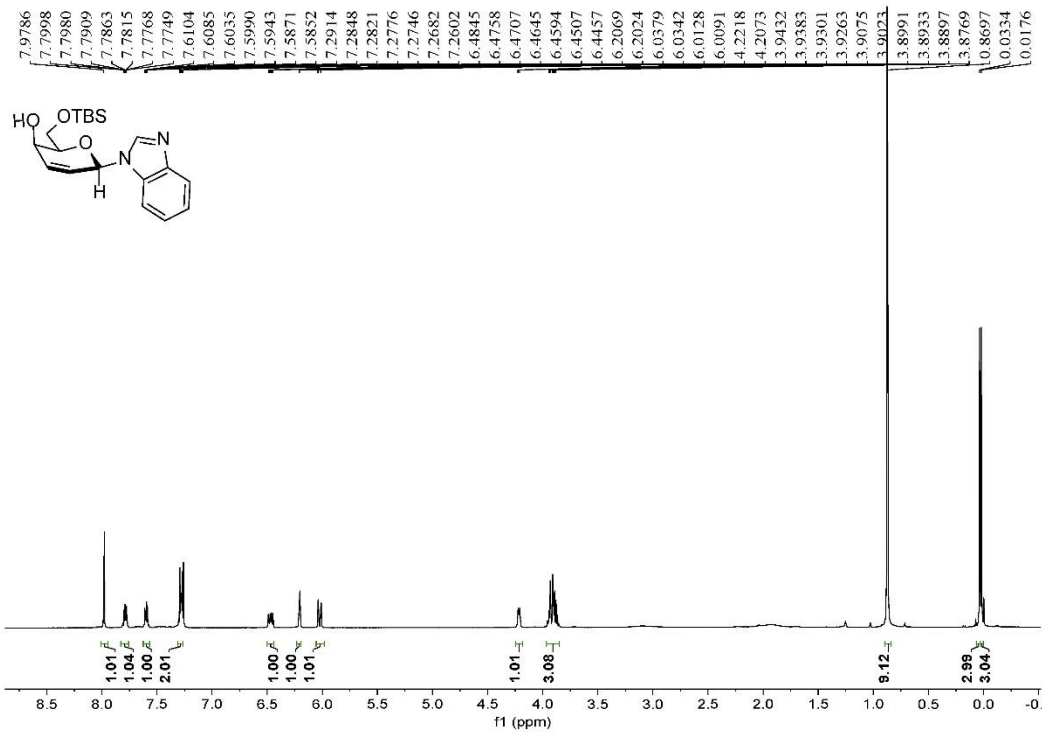
^{1}H NMR (400.13 MHz, $CDCl_3$) Spectrum of Compound **5i**



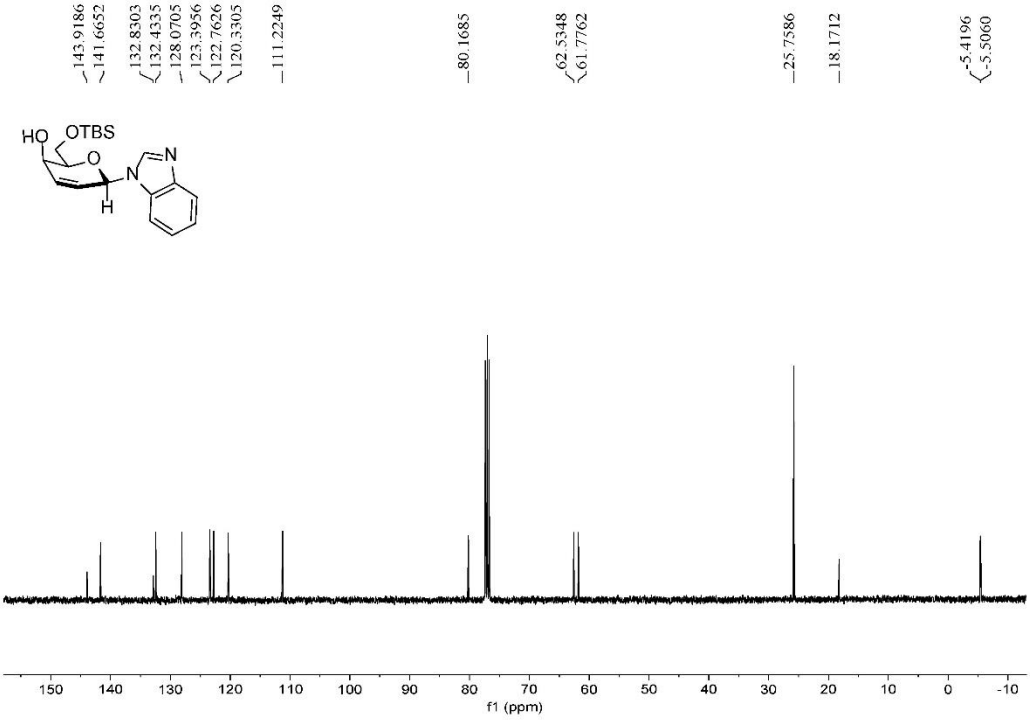
^{13}C{^{1}H} NMR (100.60 MHz, $CDCl_3$) Spectrum of Compound **5i**



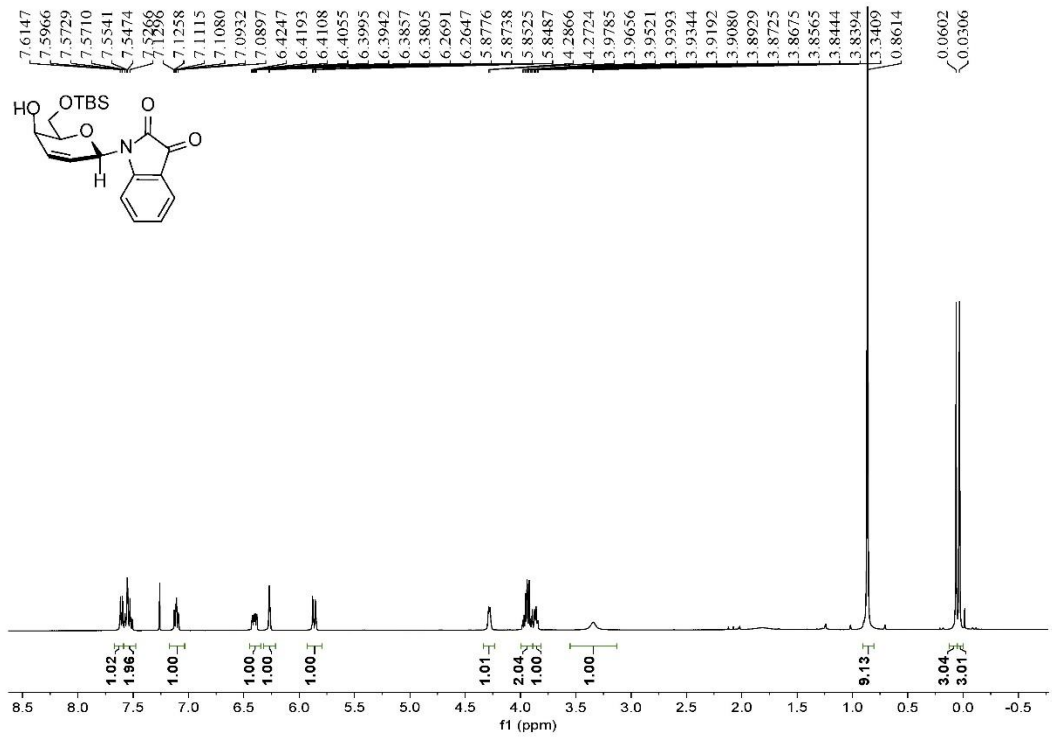
^{1}H NMR (400.13 MHz, $CDCl_3$) Spectrum of Compound **6b**



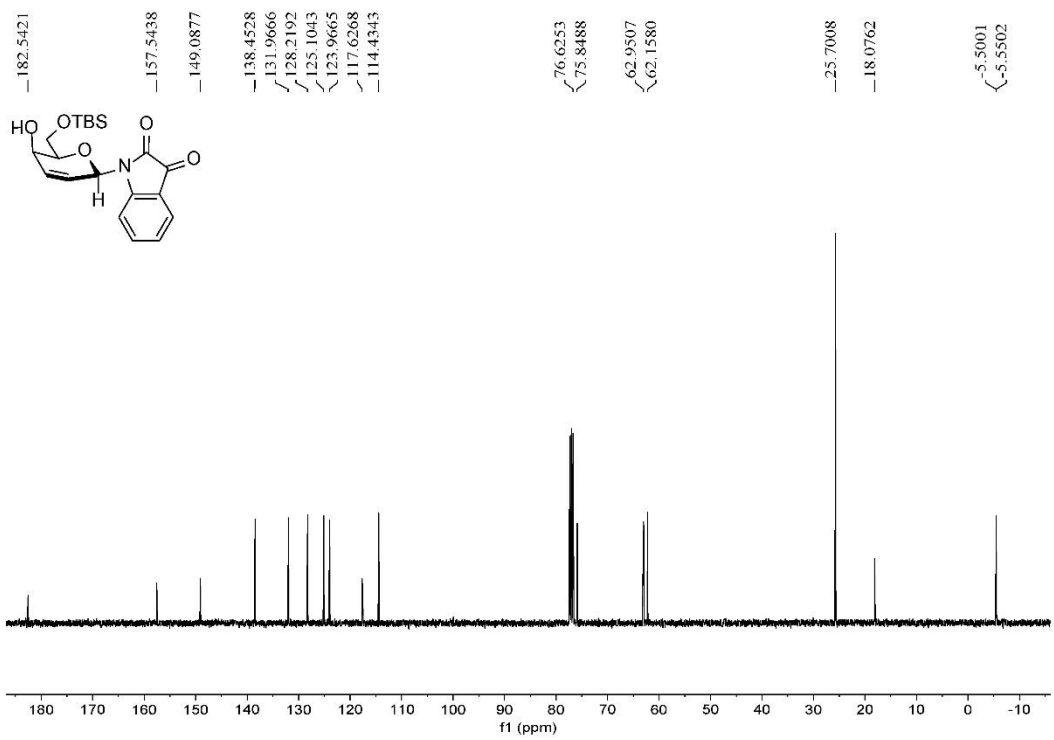
^{13}C{^{1}H} NMR (100.60 MHz, $CDCl_3$) Spectrum of Compound **6b**



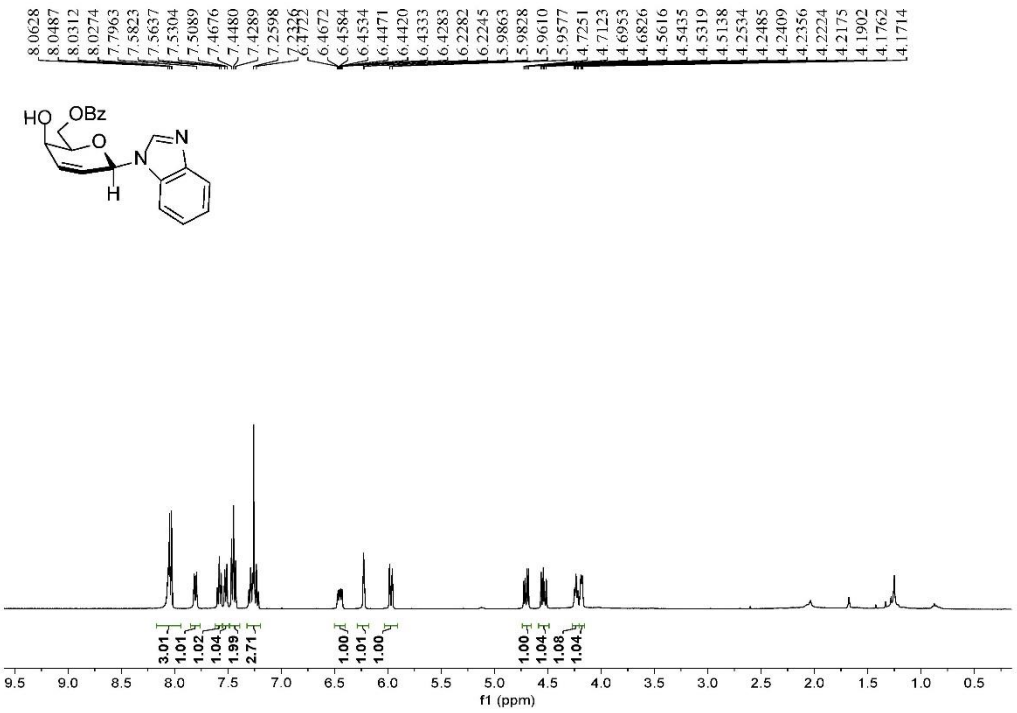
^{1}H NMR (400.13 MHz, $CDCl_3$) Spectrum of Compound **6c**



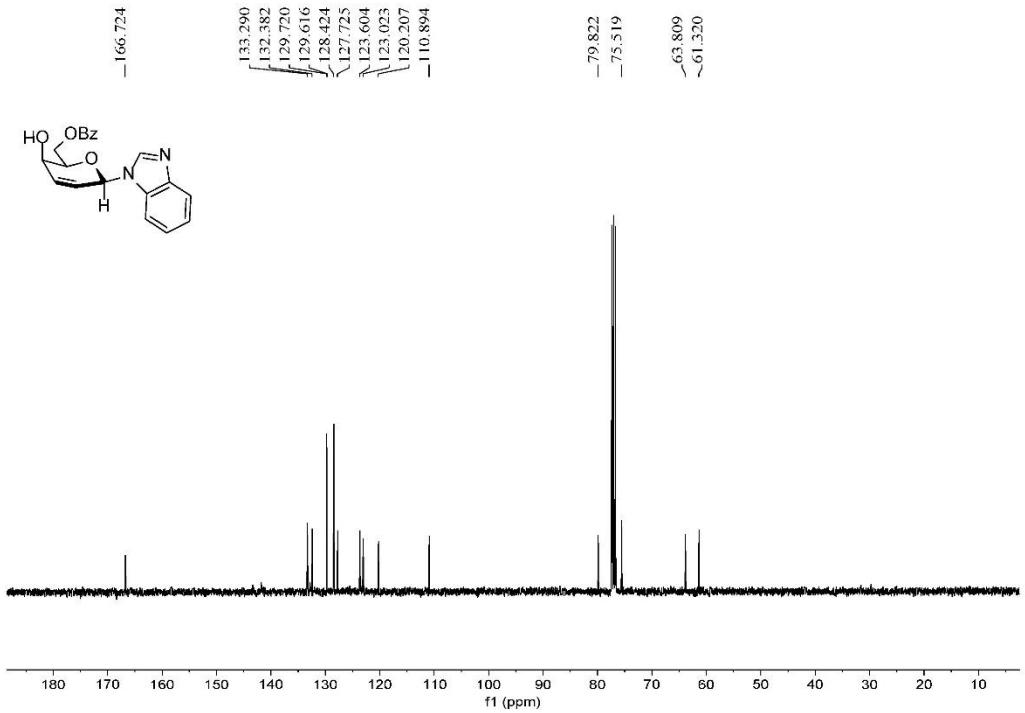
^{13}C{^{1}H} NMR (100.60 MHz, $CDCl_3$) Spectrum of Compound **6c**



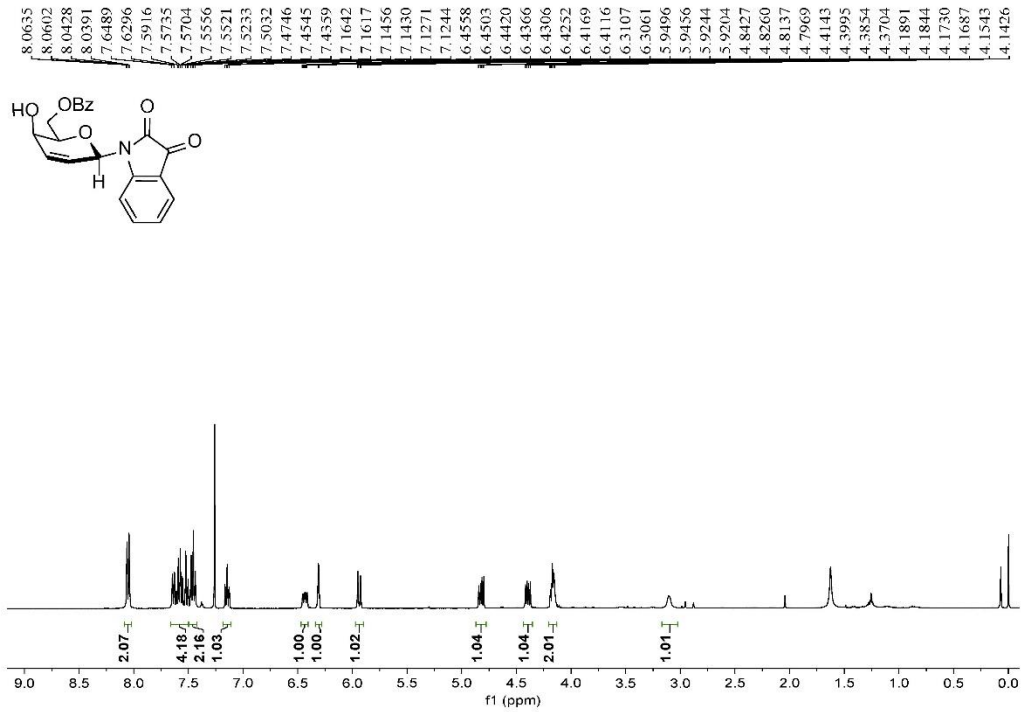
^{1}H NMR (400.13 MHz, $CDCl_3$) Spectrum of Compound **7b**



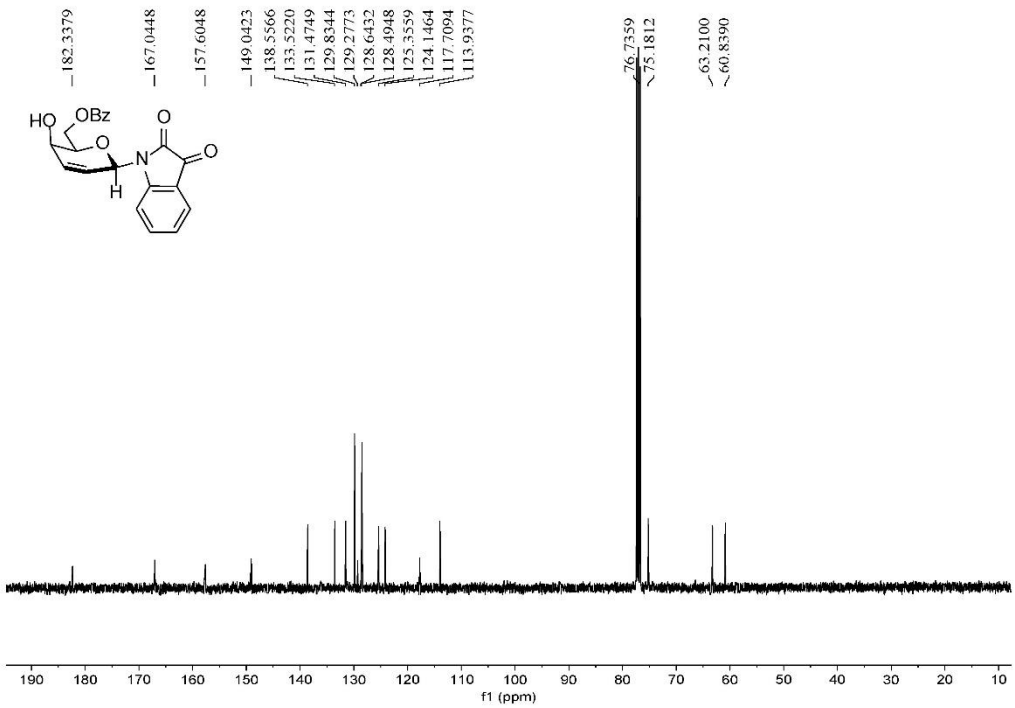
^{13}C{^{1}H} NMR (100.60 MHz, $CDCl_3$) Spectrum of Compound **7b**



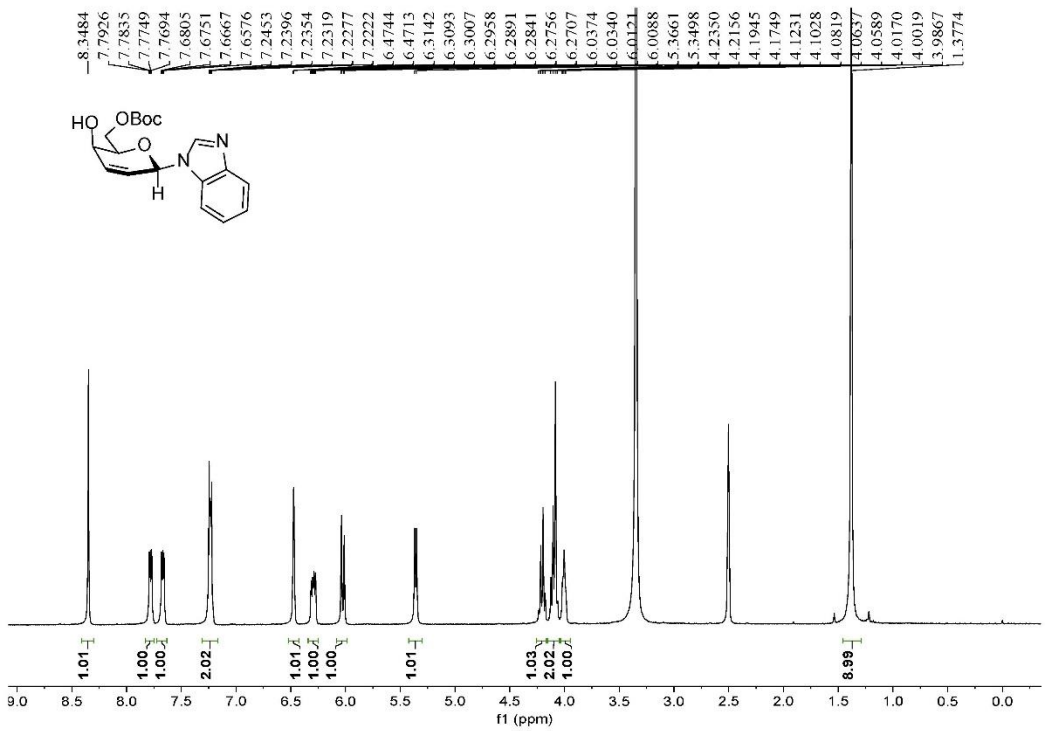
^{1}H NMR (400.13 MHz, $CDCl_3$) Spectrum of Compound **7c**



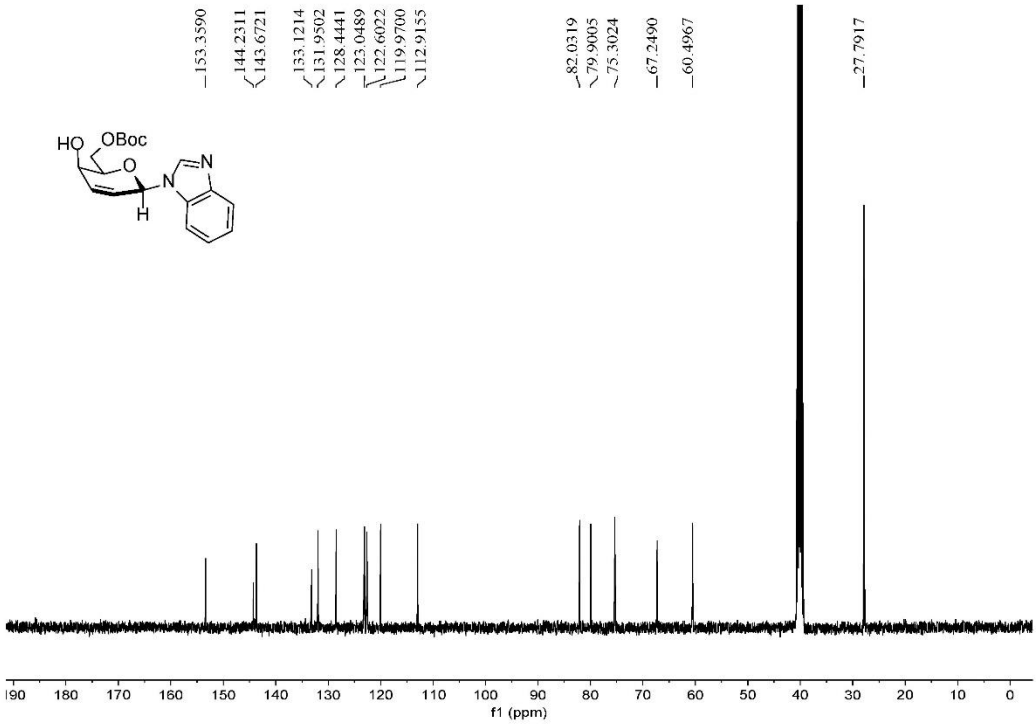
^{13}C{^{1}H} NMR (100.60 MHz, $CDCl_3$) Spectrum of Compound **7c**



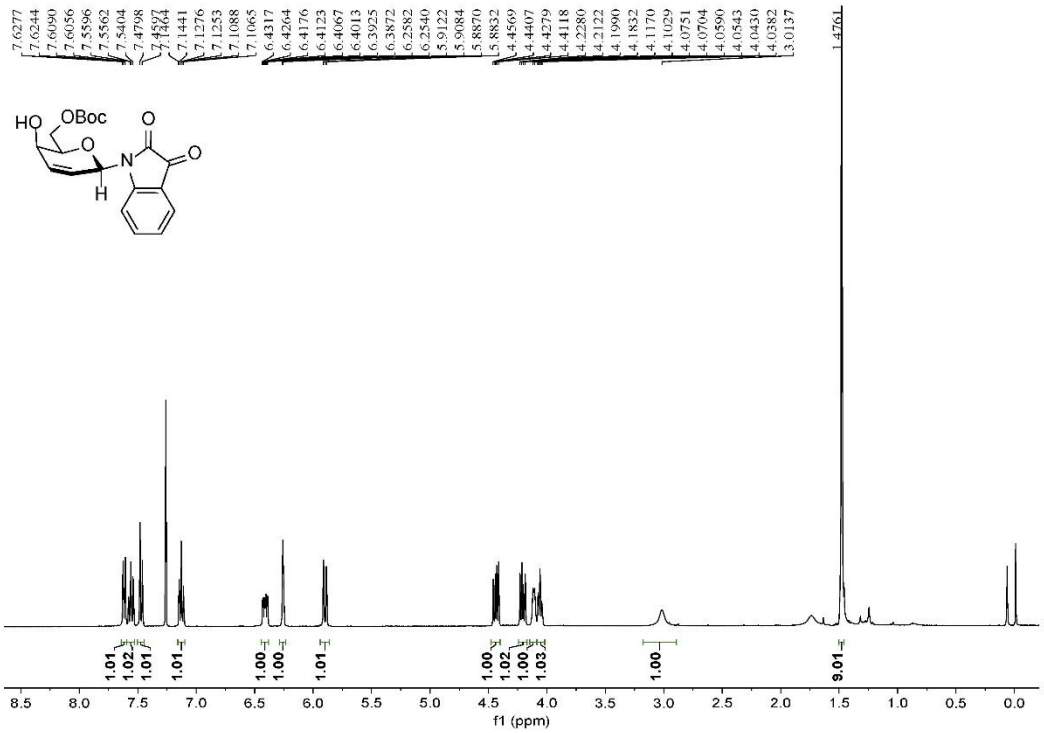
^{1}H NMR (400.13 MHz, DMSO-*d*$_6$) Spectrum of Compound **8b**



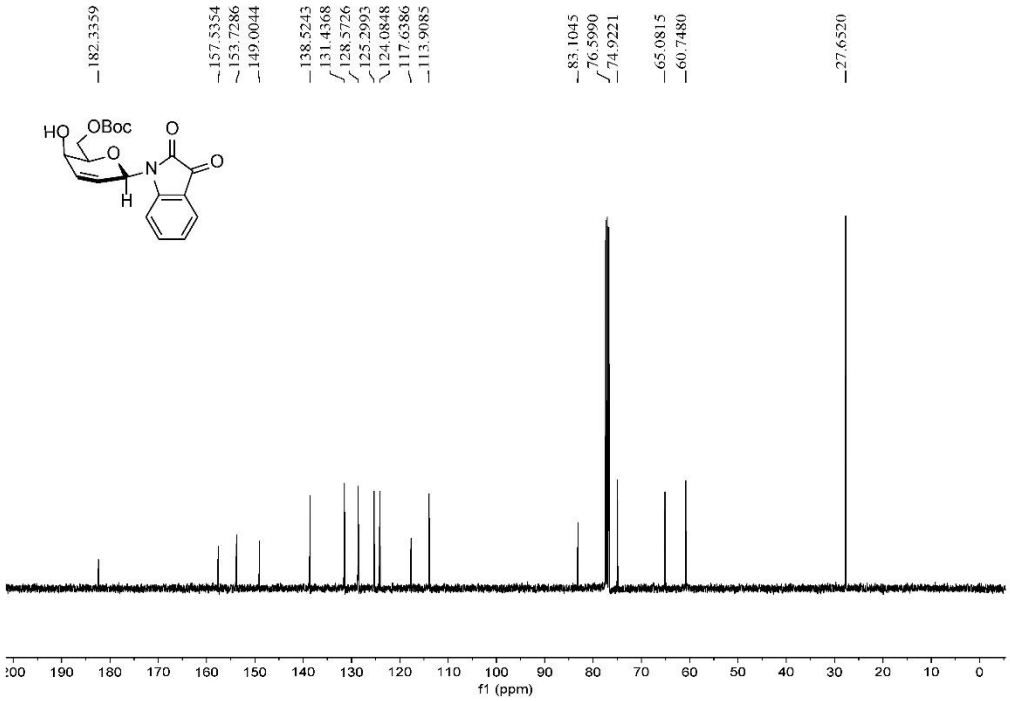
^{13}C{^{1}H} NMR (100.60 MHz, DMSO-*d*$_6$) Spectrum of Compound **8b**



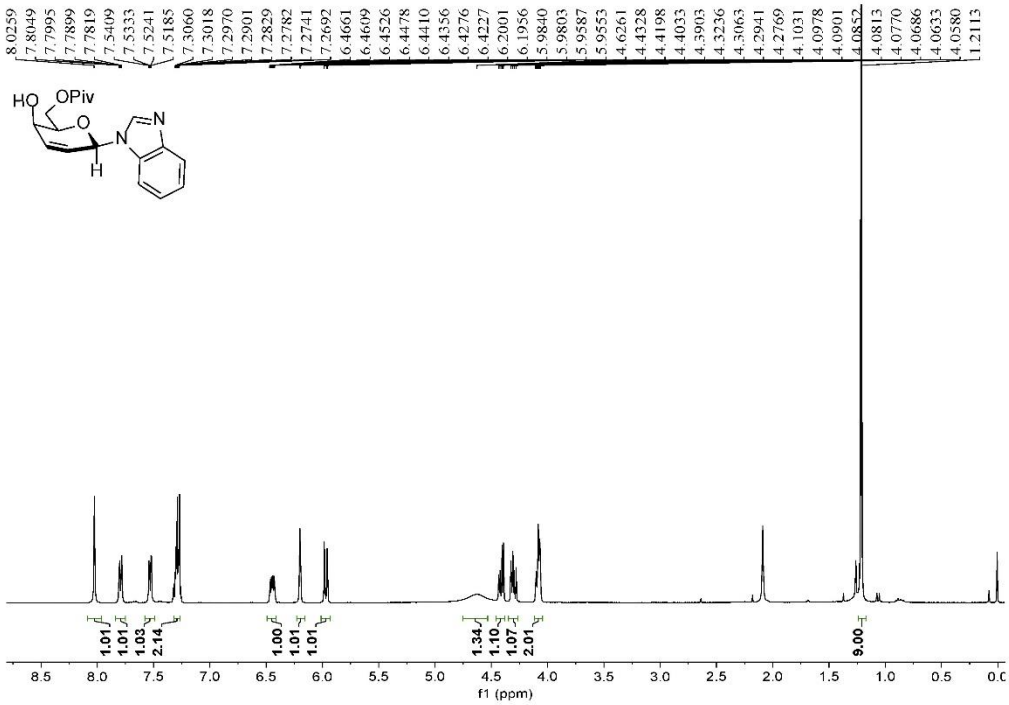
^{1}H NMR (400.13 MHz, $CDCl_3$) Spectrum of Compound **8c**



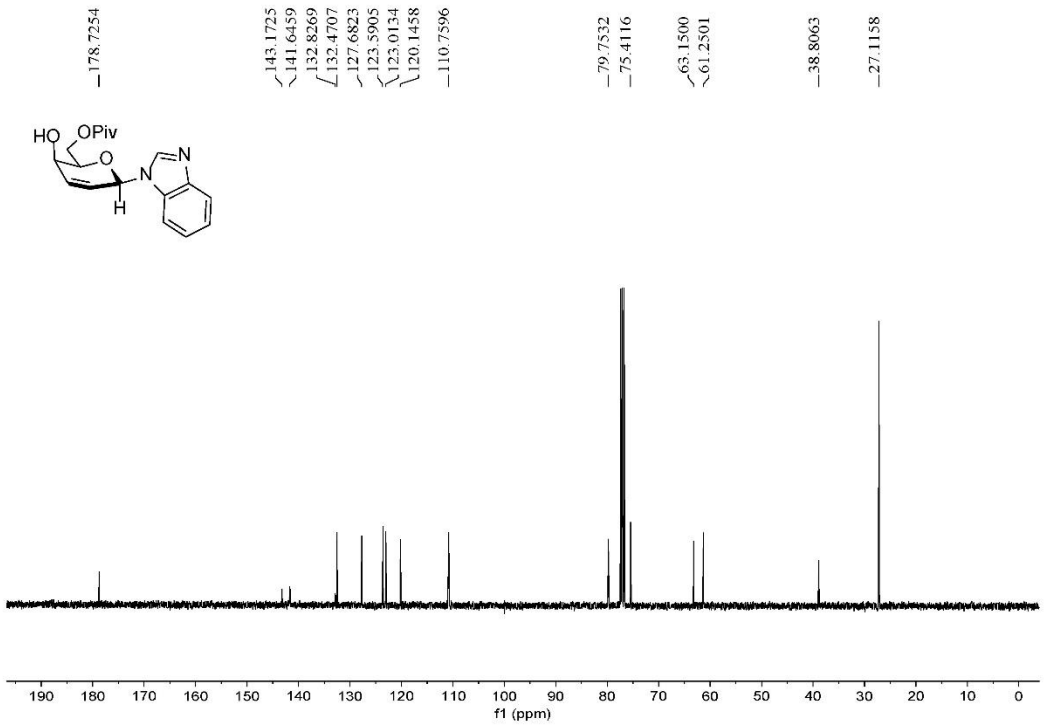
^{13}C{^{1}H} NMR (100.60 MHz, $CDCl_3$) Spectrum of Compound **8c**



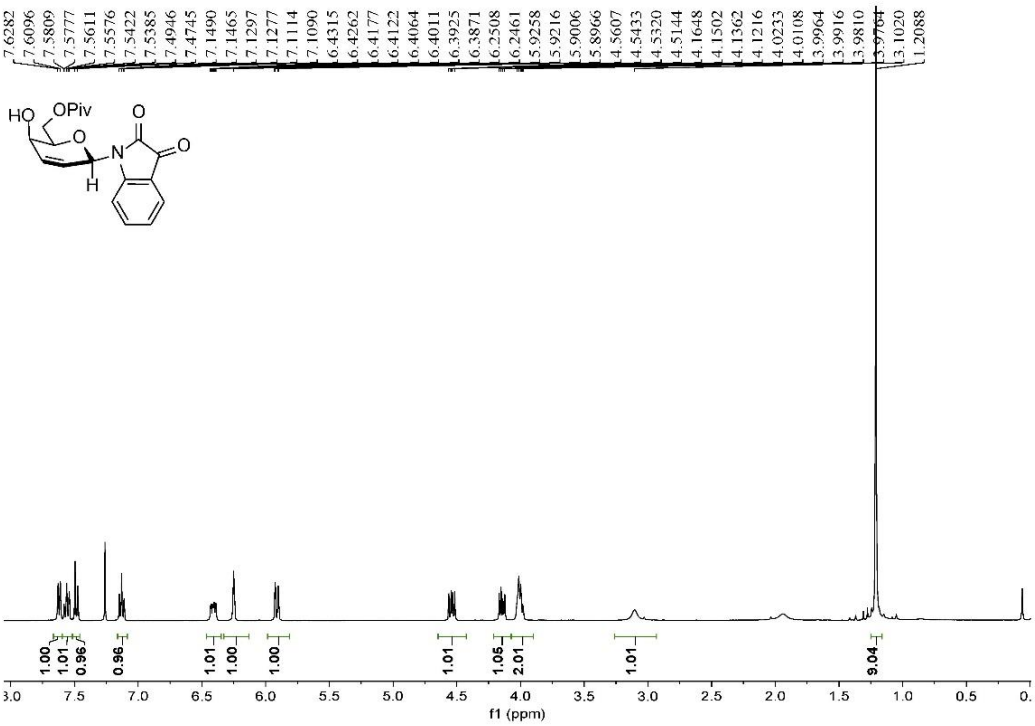
^{1}H NMR (400.13 MHz, $CDCl_3$) Spectrum of Compound **9b**



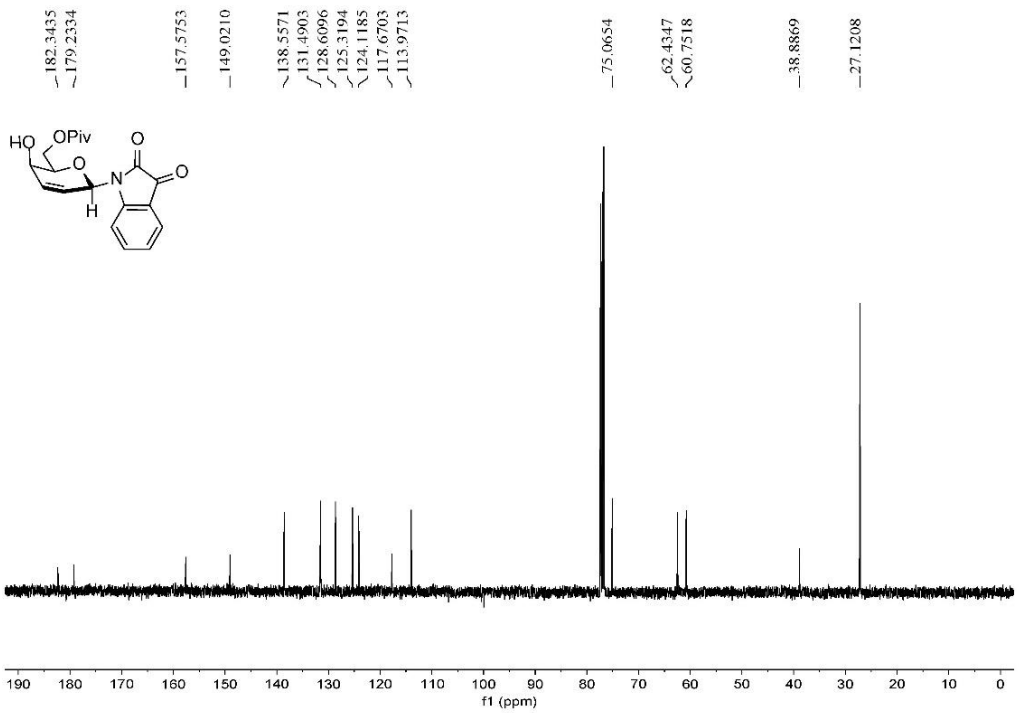
^{13}C{^{1}H} NMR (100.60 MHz, $CDCl_3$) Spectrum of Compound **9b**



^{1}H NMR (400.13 MHz, $CDCl_3$) Spectrum of Compound **9c**



^{13}C{^{1}H} NMR (100.60 MHz, $CDCl_3$) Spectrum of Compound **9c**



Section B: X-ray Crystal Data for Compound 3a and 5h

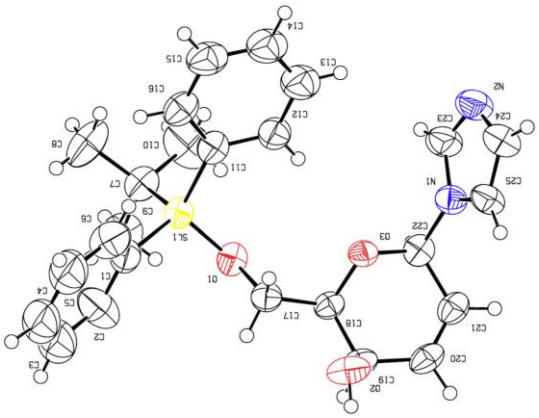


Figure S1. ORTEP drawing of compound **3a** showing thermal ellipsoids at the 50% probability level (CCDC: 1965654).

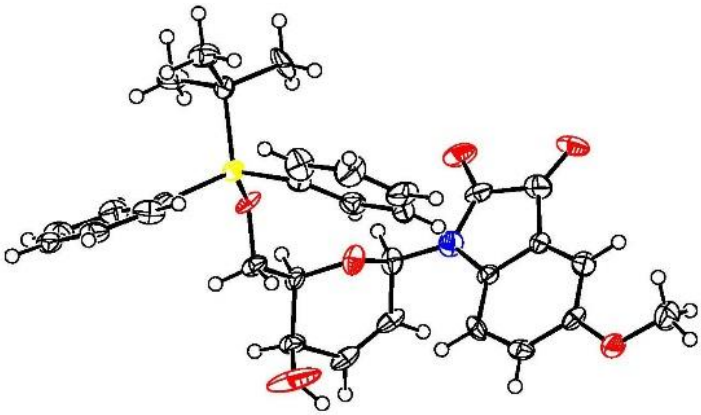


Figure S2. ORTEP drawing of compound **5h** showing thermal ellipsoids at the 50% probability level (CCDC 1966832).

Table S1. Crystal data and structure refinement summaries for **3a** and **5h**.

Compound	**3a**	**5h**
Empirical formula	$C_{25}H_{30}N_2O_3Si$	$C_{31}H_{33}NO_6Si$
Formula weight	434.60	543.67
Temperature/K	293(2)	100.00(10)
Crystal system	orthorhombic	monoclinic
Space group	$P2_12_12_1$	$P2_1$
a/Å	8.7756(3)	11.8075(3)
b/Å	9.2014(2)	8.3928(2)
c/Å	30.2363(9)	29.1851(10)
α/°	90	90
β/°	90	100.116(3)
γ/°	90	90
Volume/Å^3	2441.51(12)	2847.24(15)
Z	4	4
ρ_{calc}g/cm^3	1.182	1.268
μ/mm^{-1}	1.064	1.092
F(000)	928.0	1152.0
Crystal size/mm^3	0.13 × 0.11 × 0.09	0.13 × 0.12 × 0.1
Radiation	CuKα (λ = 1.54184)	Cu Kα (λ = 1.54184)
2Θ range for data collection/°	10.048 to 148.932	6.152 to 147.12
Index ranges	$-10 \leq h \leq 5$, $-11 \leq k \leq 11$, $-37 \leq l \leq 33$	$-14 \leq h \leq 10$, $-10 \leq k \leq 6$, $-29 \leq l \leq 35$
Reflections collected	8410	10973
Independent reflections	4400 [R_{int} = 0.1342, R_{sigma} = 0.1317]	7592 [R_{int} = 0.0303, R_{sigma} = 0.0413]
Data/restraints/parameters	4400/35/285	7592/16/711
Goodness-of-fit on F^2	1.036	1.113
Final R indexes [I>=2σ (I)]	R_1 = 0.1003, wR_2 = 0.2326	R_1 = 0.1005, wR_2 = 0.2568
Final R indexes [all data]	R_1 = 0.1151, wR_2 = 0.2515	R_1 = 0.1018, wR_2 = 0.2575
Largest diff. peak/hole/e Å^{-3}	0.50/-0.42	1.05/-0.65
Flack parameter	0.04(6)	0.09(3)/0.089(19)