

Supplementary Information

Synthesis, antimalarial activity, heme binding and docking studies of 4-aminoquinoline-pyrimidine based molecular hybrids

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Phone No: 91-11-27667465, Fax No: 91-11-27667501

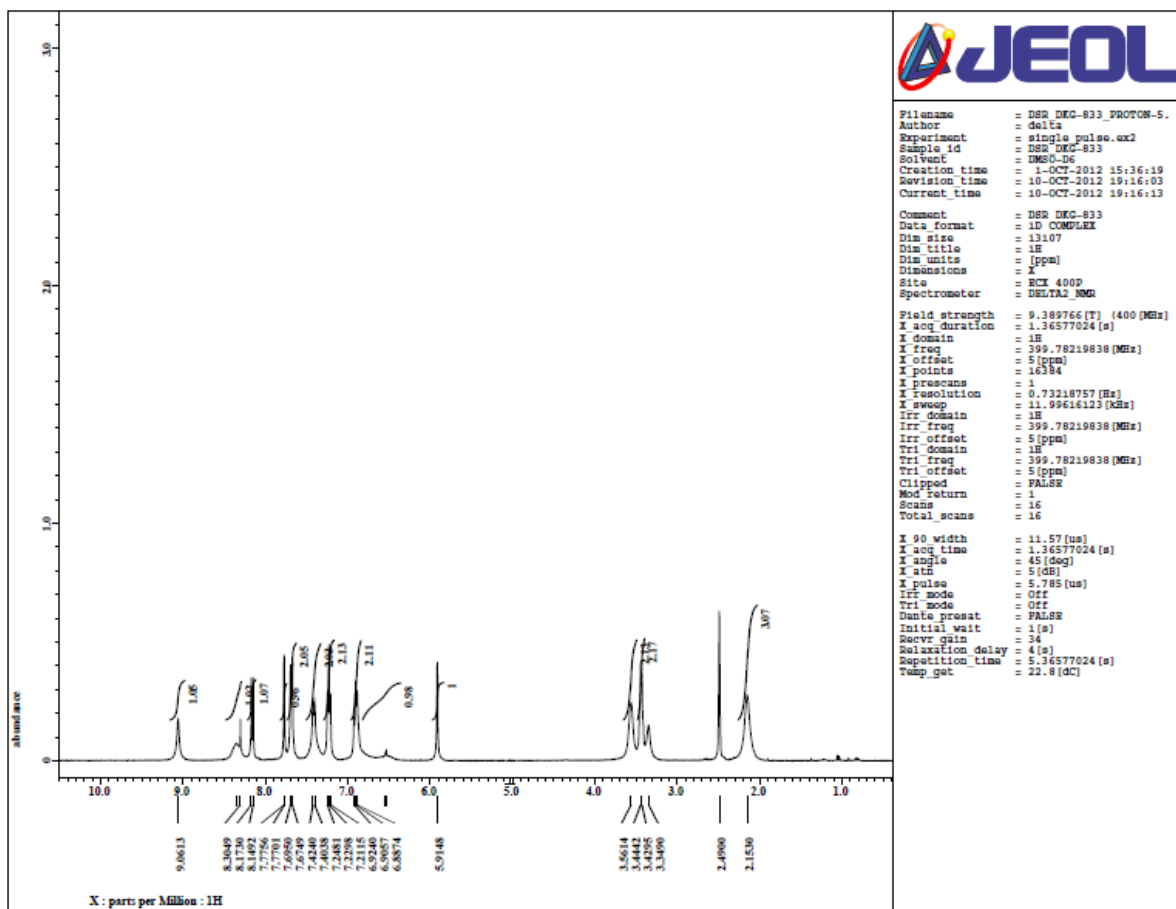
Table S1 Calculated ADMET properties

Comp	^a PercentHumanOral Absorption (>80% high, <25% poor)	^a QPPCaco nms ⁻¹ (<25 poor, >500 great)	^a QPlogKhsa (-1.5to1.5)	^a QPlogHERG (concern below -5)	QPlogS (-6.5- 0.5)	^a PSA (7.0 –200.0)	^a #rotor (0 – 15)
7f	100	2221.844	0.41	-4.787	-4.404	70.87	8
8f	100	1817.817	0.724	-5.952	-5.915	72.149	9
9f	100	1969.832	0.664	-5.588	-5.533	71.359	10
7g	100	2112.808	0.446	-4.412	-4.393	79.057	9
8g	100	1789.957	0.729	-6.623	-6.712	81.341	10
7c	100	1818.338	0.384	-5.073	-4.54	64.55	7
8d	100	1668.06	0.733	-5.864	-6.156	64.711	8
9d	91.94	2002.043	0.738	-5.264	-5.677	64.237	9
7b	100	2136.519	0.524	-5.668	-5.509	63.817	7
9b	100	1862.826	0.765	-6.032	-6.202	64.79	9
Pyr	84.346	412.287	-0.243	-4.318	-2.978	73.731	4
Cyg	68.814	111.854	-0.306	-4.578	-1.596	76.262	2

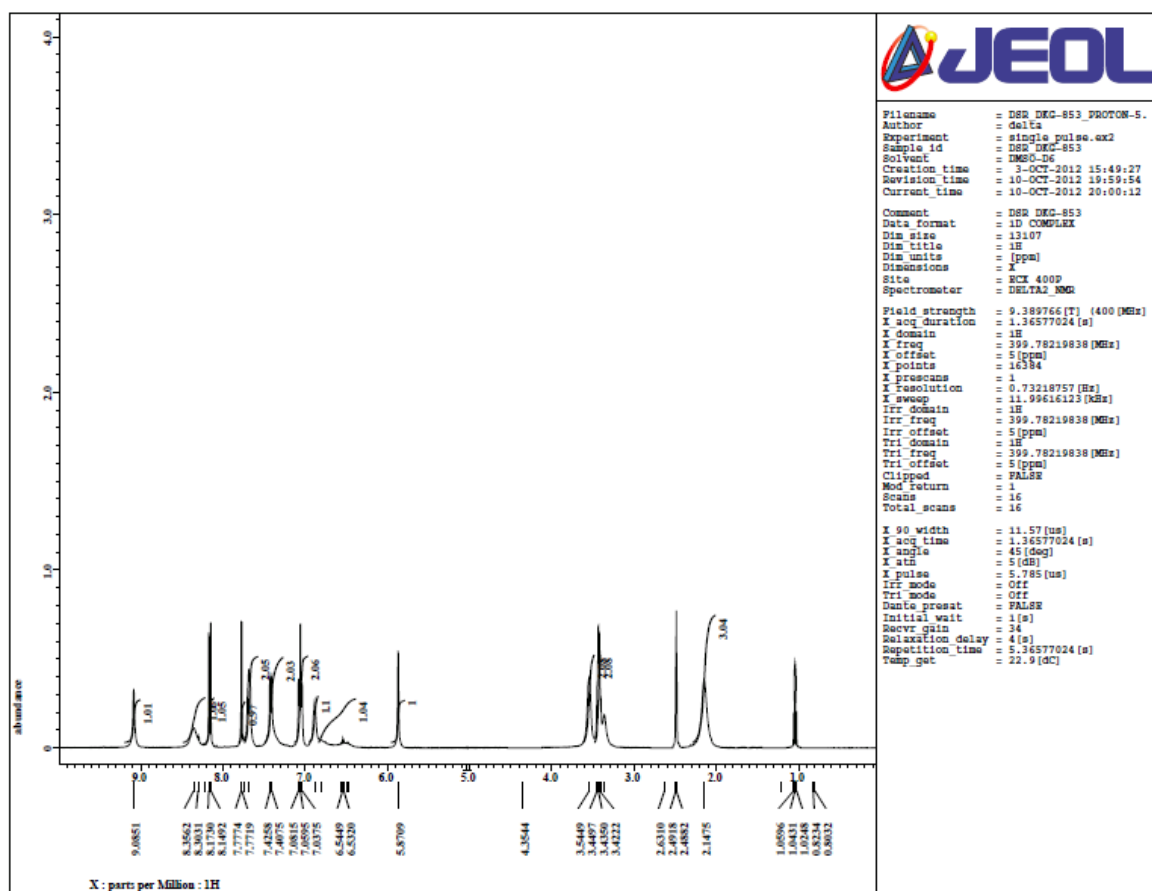
^a Calculated using QikProp v 3.5. Range/recommended values calculated for 95% known drugs.

Characterization of Compounds 7a-7g, 8a-8g, 9a-9g

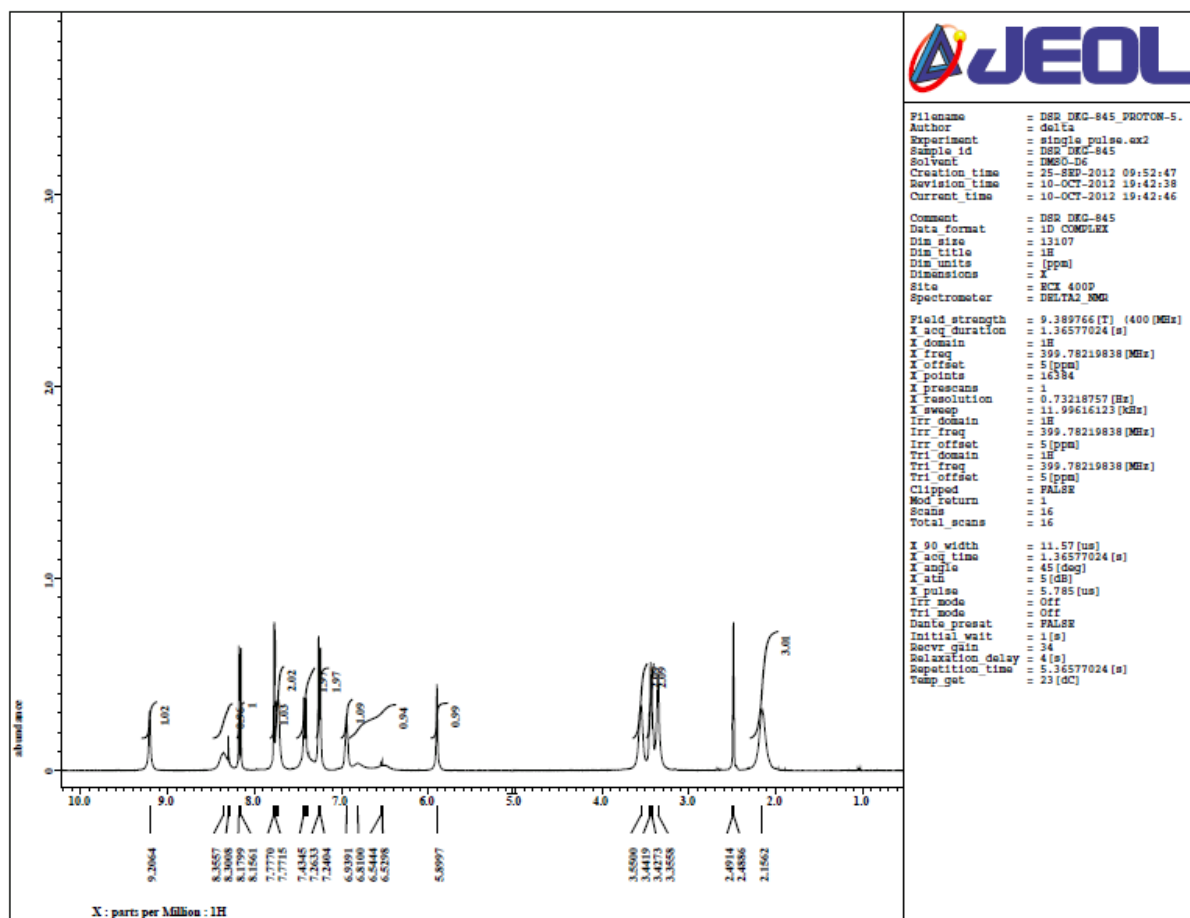
^1H NMR of compound 7a



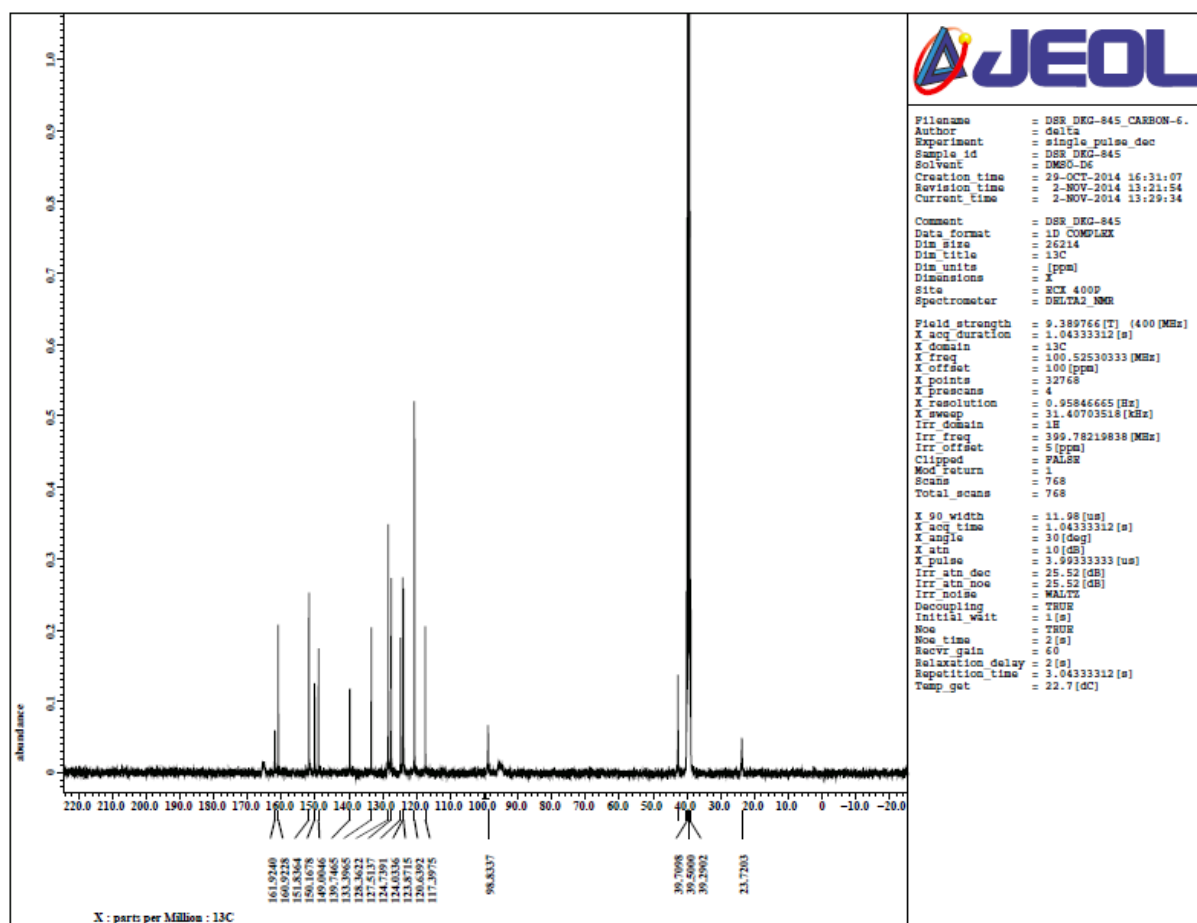
¹H NMR of compound 7b



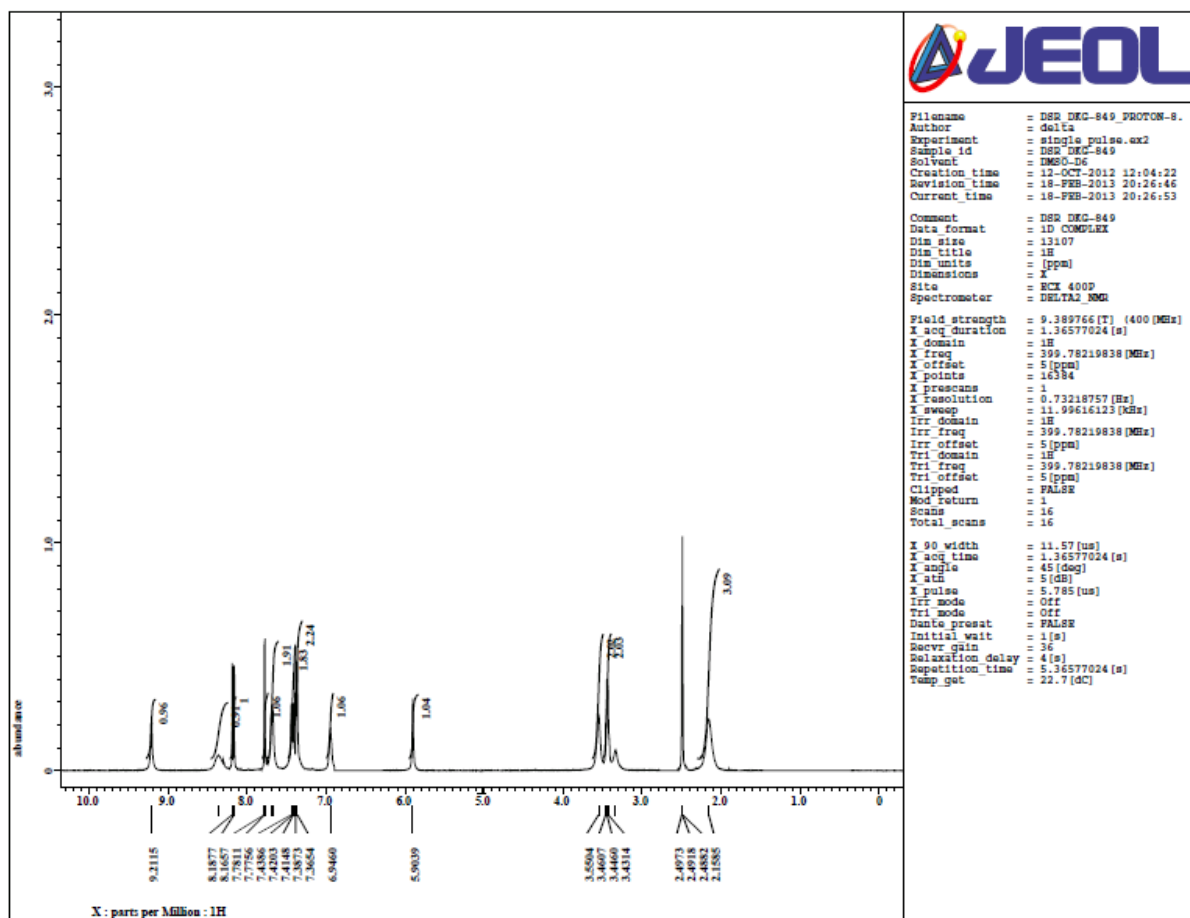
¹H NMR of compound 7c



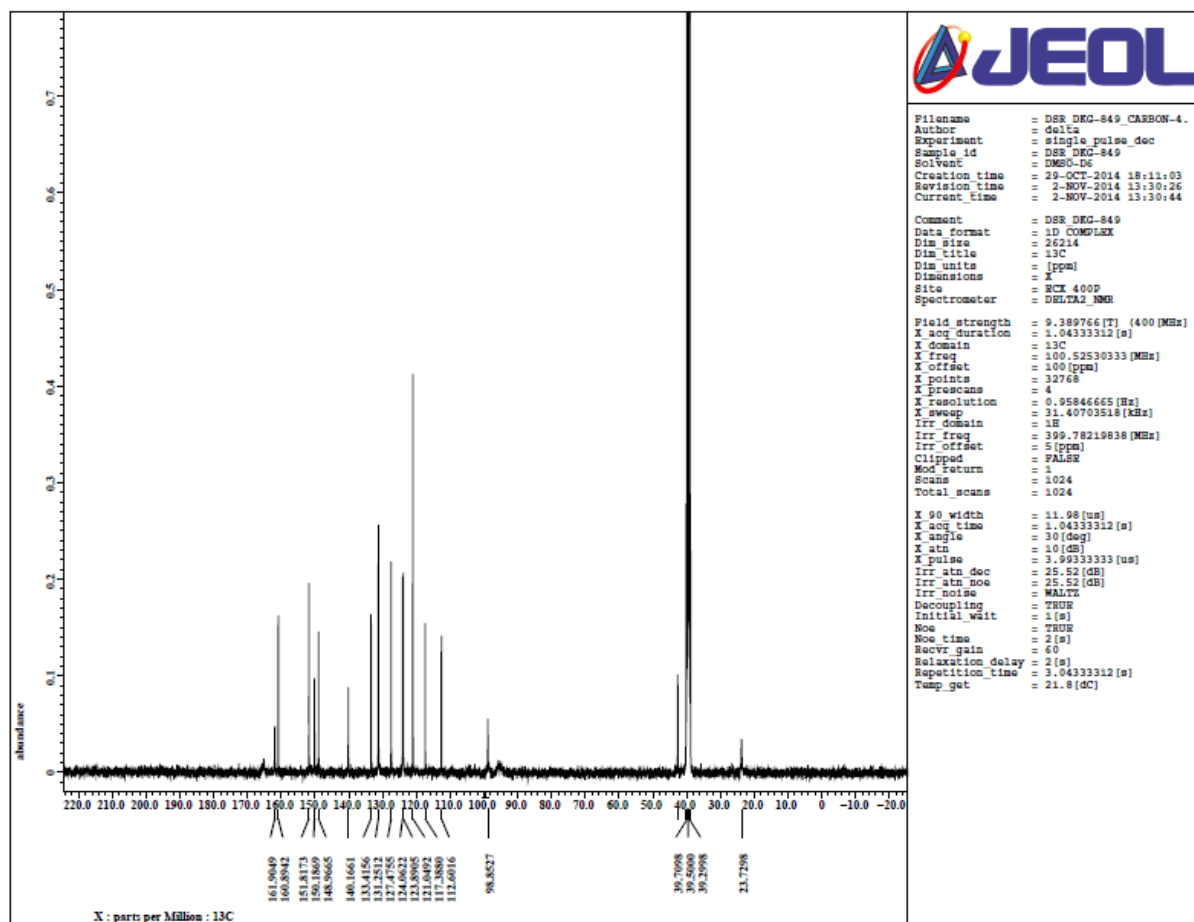
¹³C NMR of compound 7c



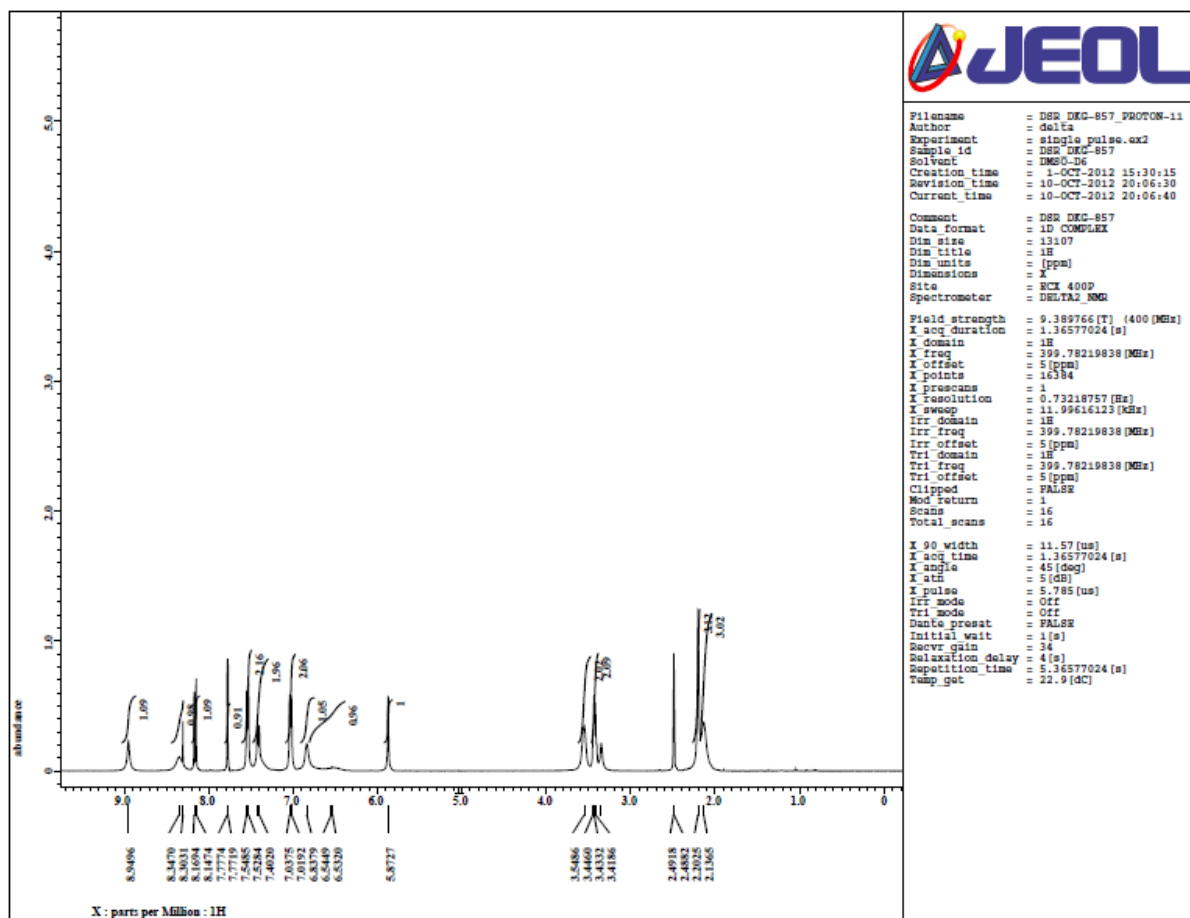
¹H NMR of compound 7d



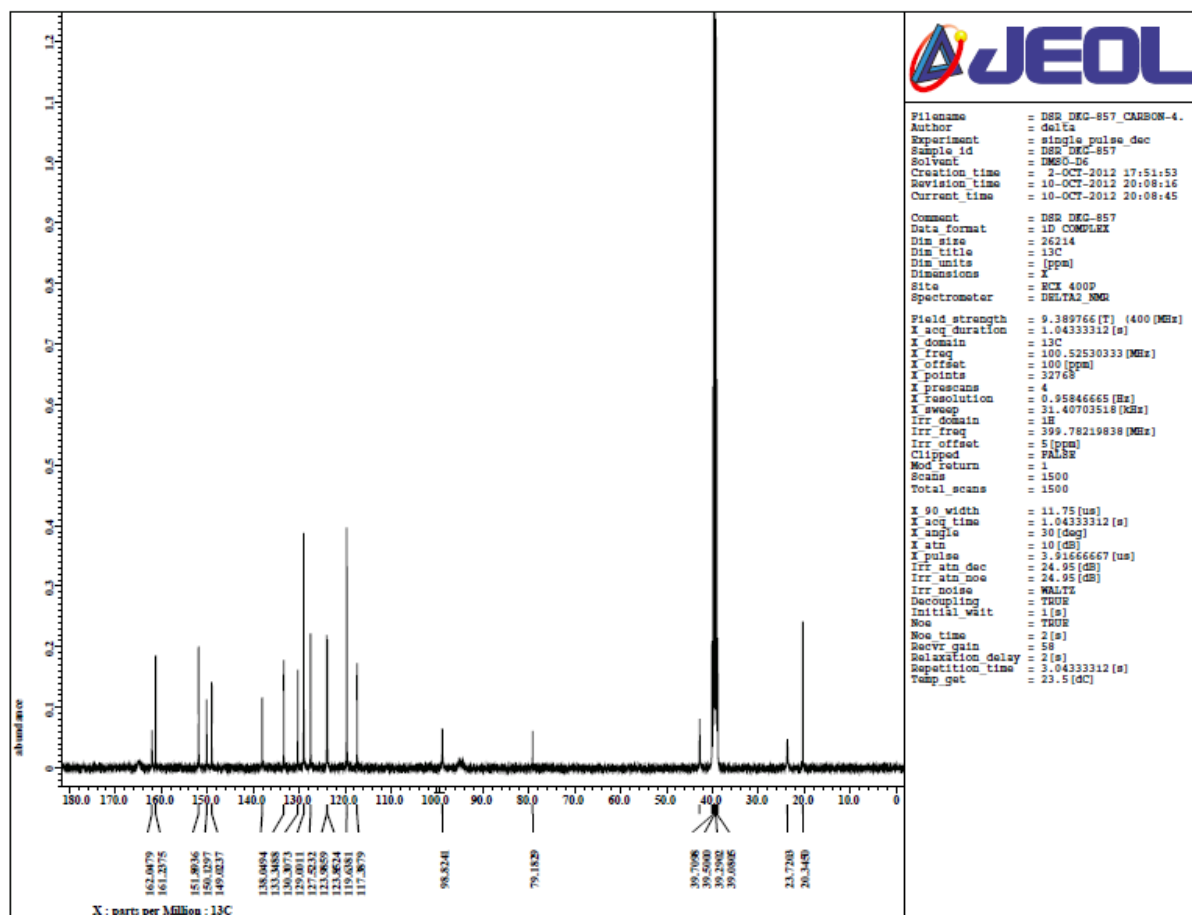
¹³C NMR of Compound 7d



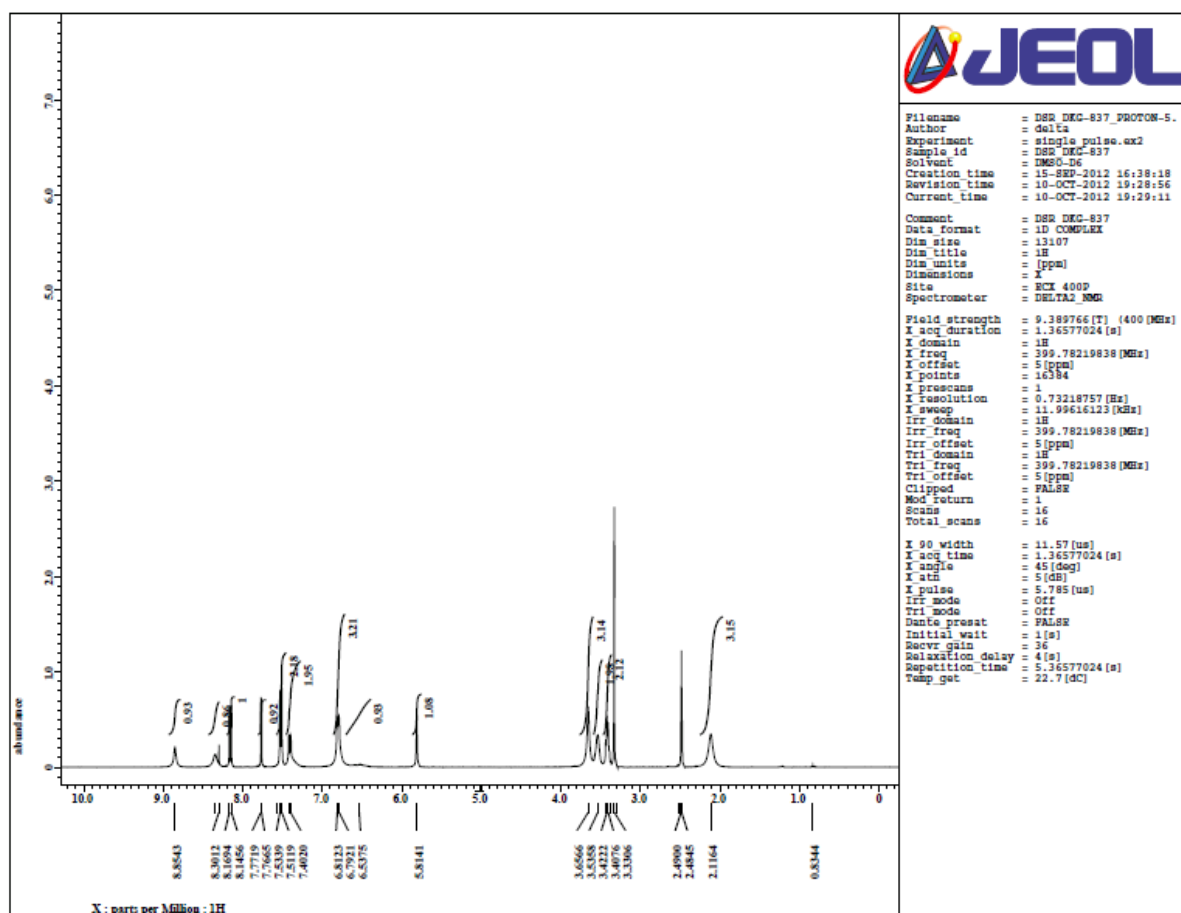
¹H NMR of Compound 7e



¹³C NMR of Compound 7e



¹H NMR of Compound 7f



Mass data of Compound 7f

Qualitative Compound Report

Data File	DKG837.d	Sample Name	DKG837
Sample Type	Sample	Position	P1A7
Instrument Name	6530 QTOF LCMS	User Name	lcmsdu-PC\admin
Acq Method	29.10.2014.m	Acquired Time	29-10-2014 16:32:34
IRM Calibration Status	Success	DA Method	Default.m
Comment			

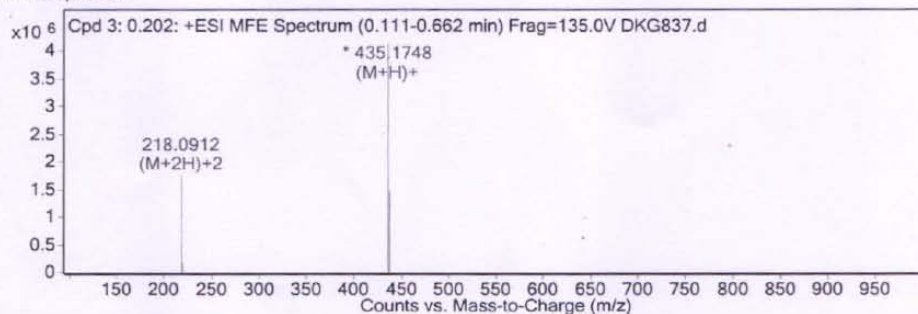
Sample Group		Info.
Acquisition SW	6200 series TOF/6500 series	
Version	Q-TOF B.05.01 (B5125)	

Compound Table

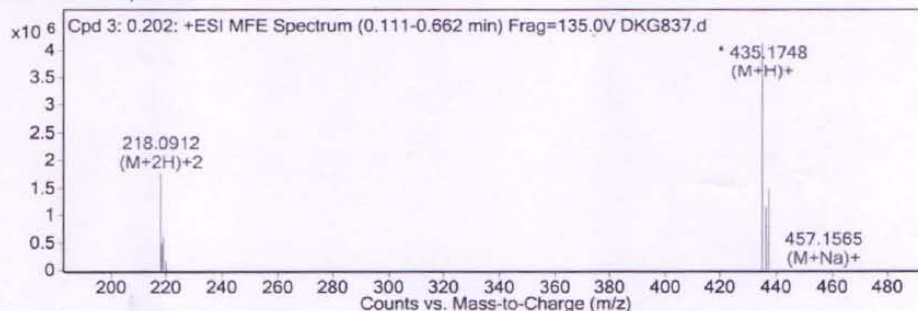
Compound Label	RT	Mass	Formula	MFG Formula	DB Formula
Cpd 3: 0.202	0.202	434.1681	C17 H23 Cl N10 O2	C17 H23 Cl N10 O2	C17 H23 Cl N10 O2

Compound Label	m/z	RT	Algorithm	Mass
Cpd 3: 0.202	435.1748	0.202	Find by Molecular Feature	434.1681

MFE MS Spectrum



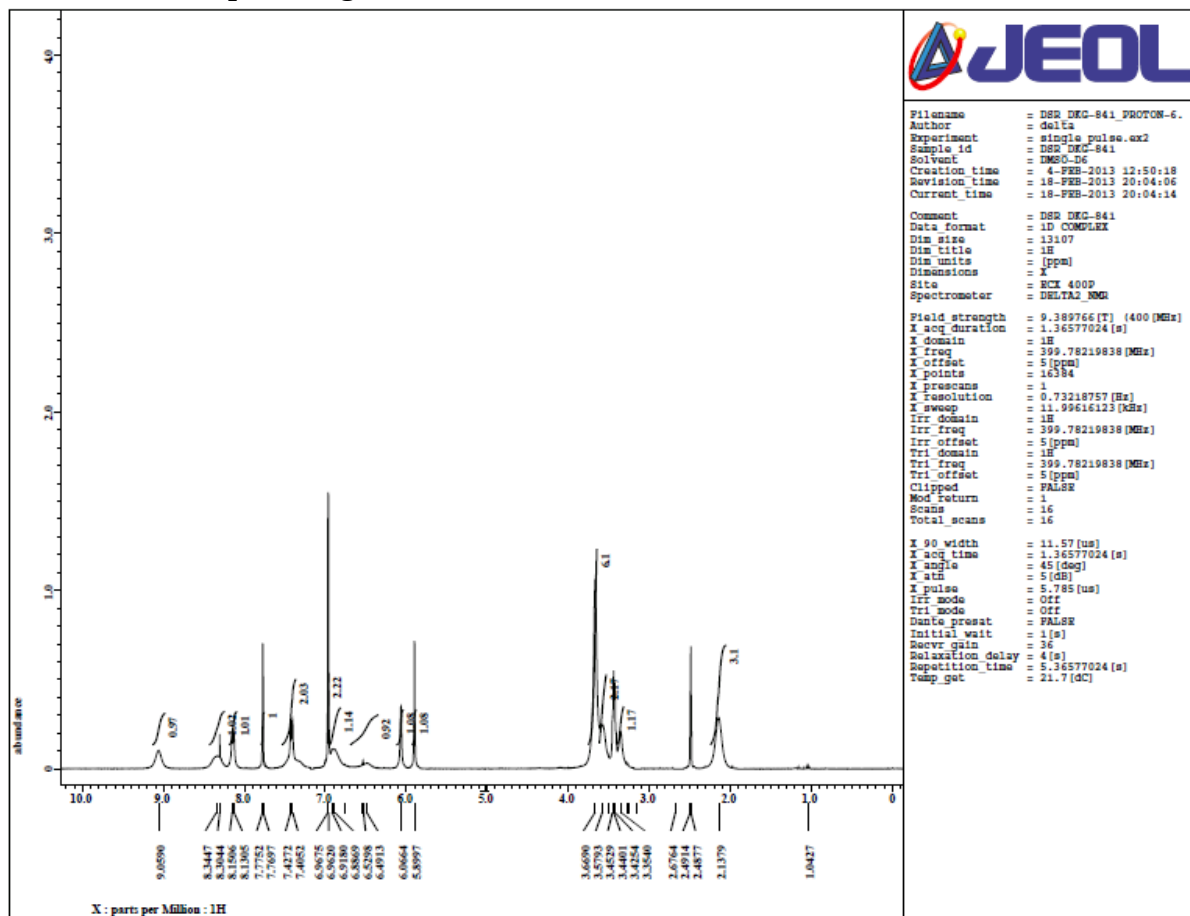
MFE MS Zoomed Spectrum



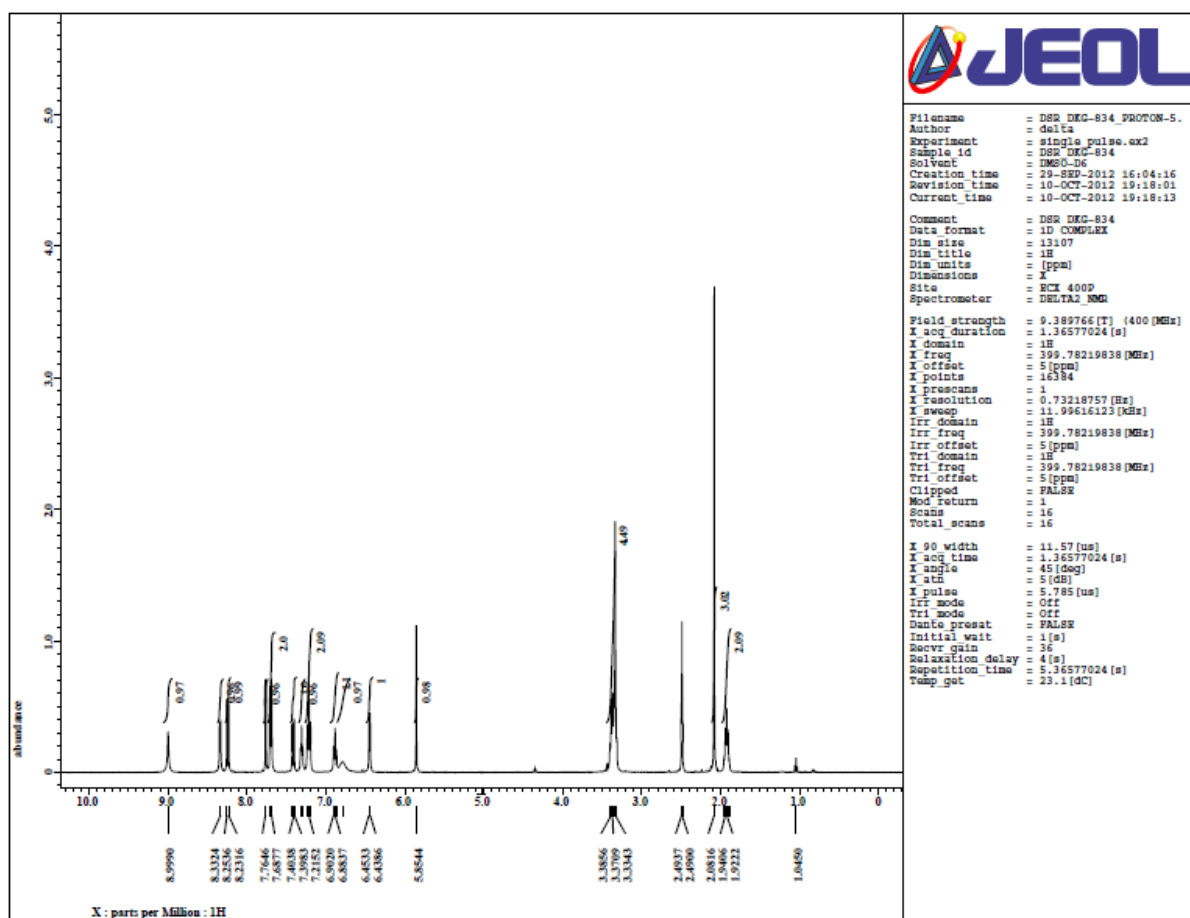
MS Spectrum Peak List

m/z	z	Abund	Ion
218.0912	2	1759881.38	(M+2H)+2
218.5928	2	483354.74	(M+2H)+2
219.0903	2	620060.36	(M+2H)+2
219.5913	2	162474.79	(M+2H)+2
220.0925	2	23920.07	(M+2H)+2
220.5957	2	2336.3	(M+2H)+2
435.1748	1	4136119.75	(M+H)+
436.178	1	1161403.8	(M+H)+
437.1731	1	1470603.83	(M+H)+
457.1565	1	6665.64	(M+Na)+

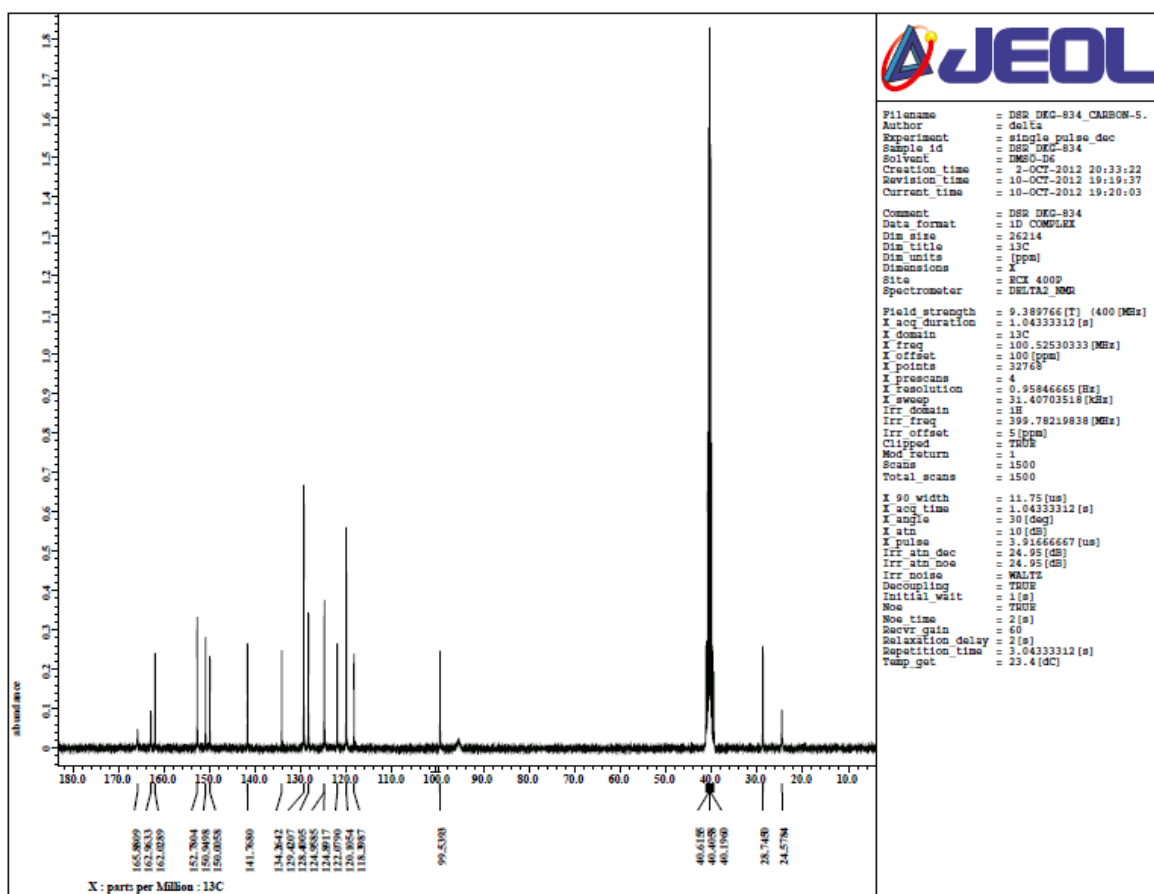
¹H NMR of Compound 7g



¹H NMR of Compound 8a



¹³C NMR of Compound 8a



Mass data of Compound 8a

Qualitative Compound Report

Data File	DKG834.d	Sample Name	DKG834
Sample Type	Sample	Position	P1A6
Instrument Name	6530 QTOF LCMS	User Name	lcmsdu-PC\admin
Acq Method	29.10.2014.m	Acquired Time	29-10-2014 16:27:05
IRM Calibration Status	Success	DA Method	Default.m
Comment			

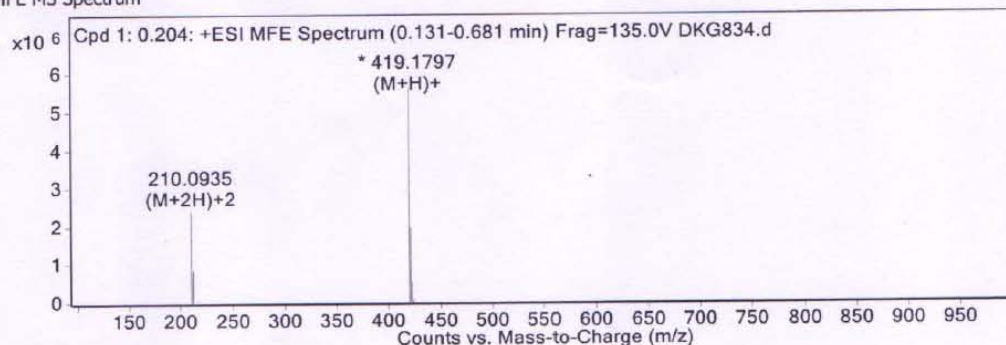
Sample Group	Info.
Acquisition SW	6200 series TOF/6500 series
Version	Q-TOF B.05.01 (B5125)

Compound Table

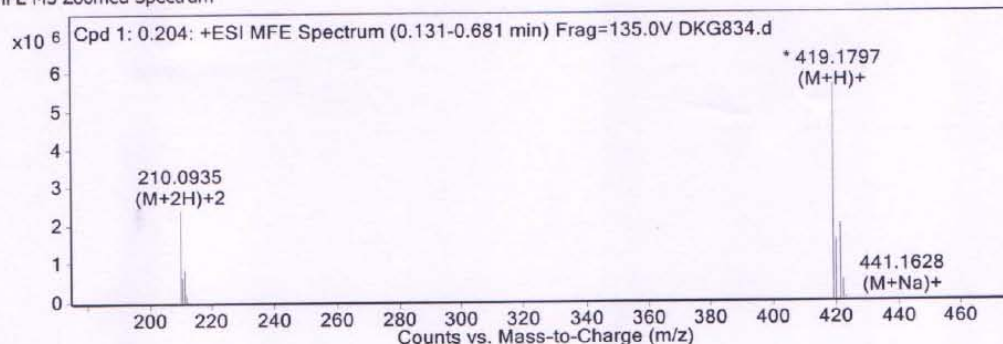
Compound Label	RT	Mass	MFG Formula
Cpd 1: 0.204	0.204	418.1724	<none>

Compound Label	m/z	RT	Algorithm	Mass
Cpd 1: 0.204	419.1797	0.204	Find by Molecular Feature	418.1724

MFE MS Spectrum



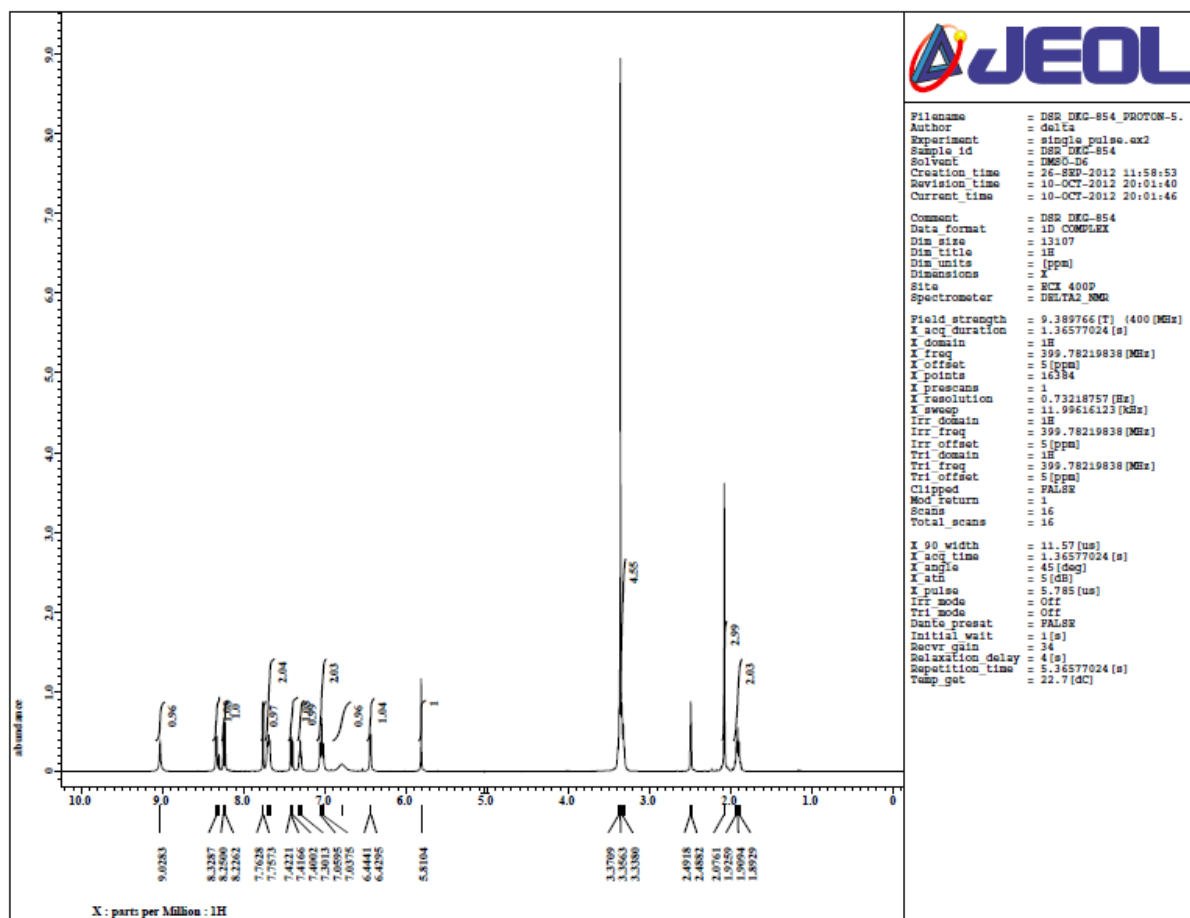
MFE MS Zoomed Spectrum



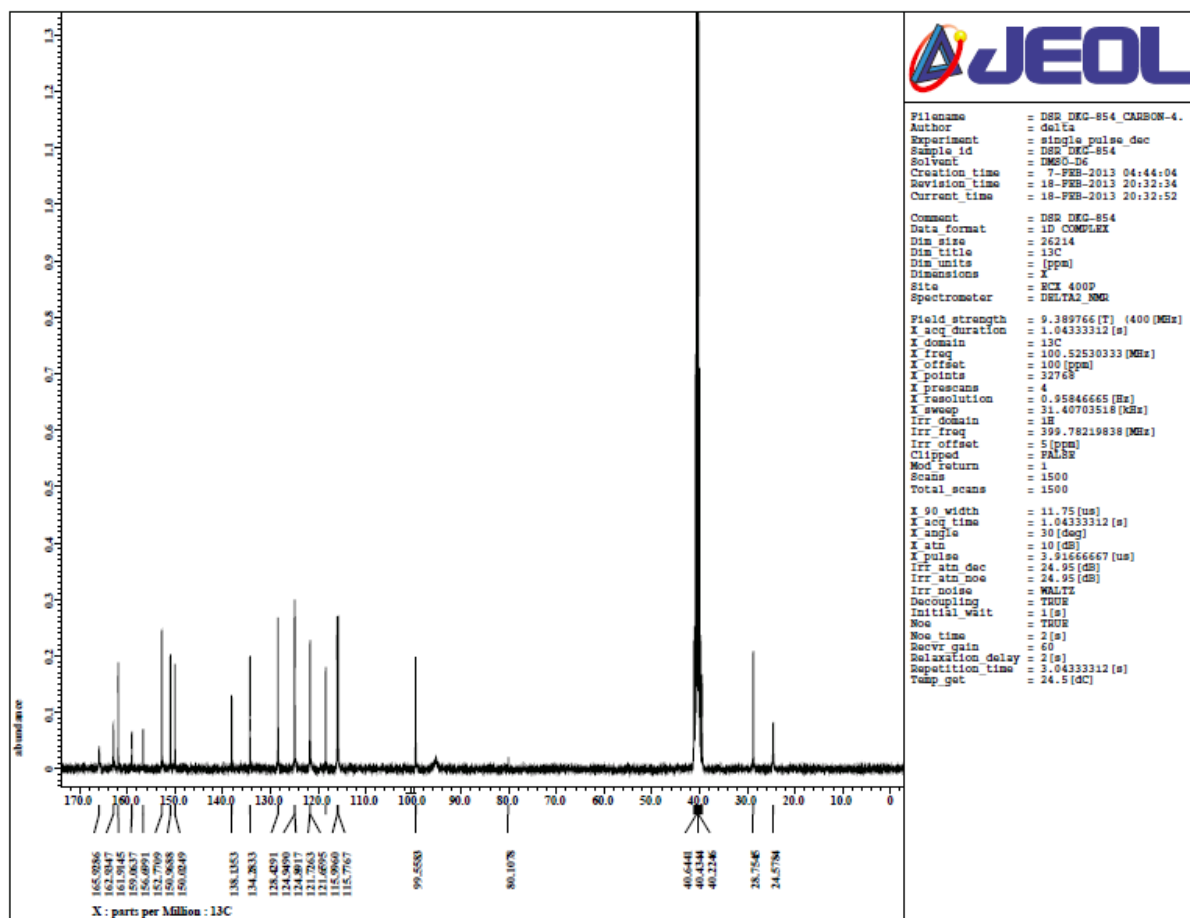
MS Spectrum Peak List

m/z	z	Abund	Ion
210.0935	2	2388992.5	(M+2H)+2
210.5951	2	651927.31	(M+2H)+2
211.0927	2	843453.3	(M+2H)+2
211.5938	2	215523.85	(M+2H)+2
212.095	2	29877.19	(M+2H)+2

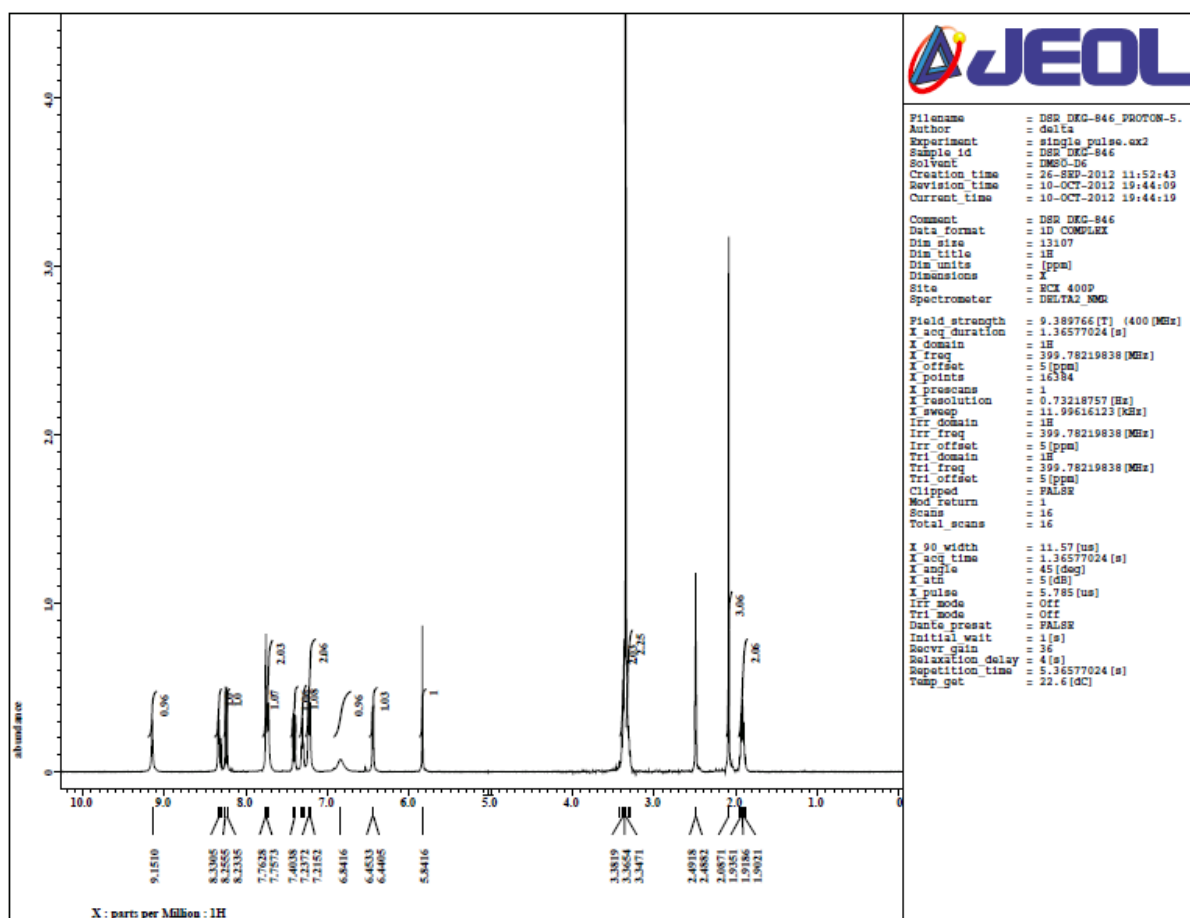
¹H NMR of Compound 8b



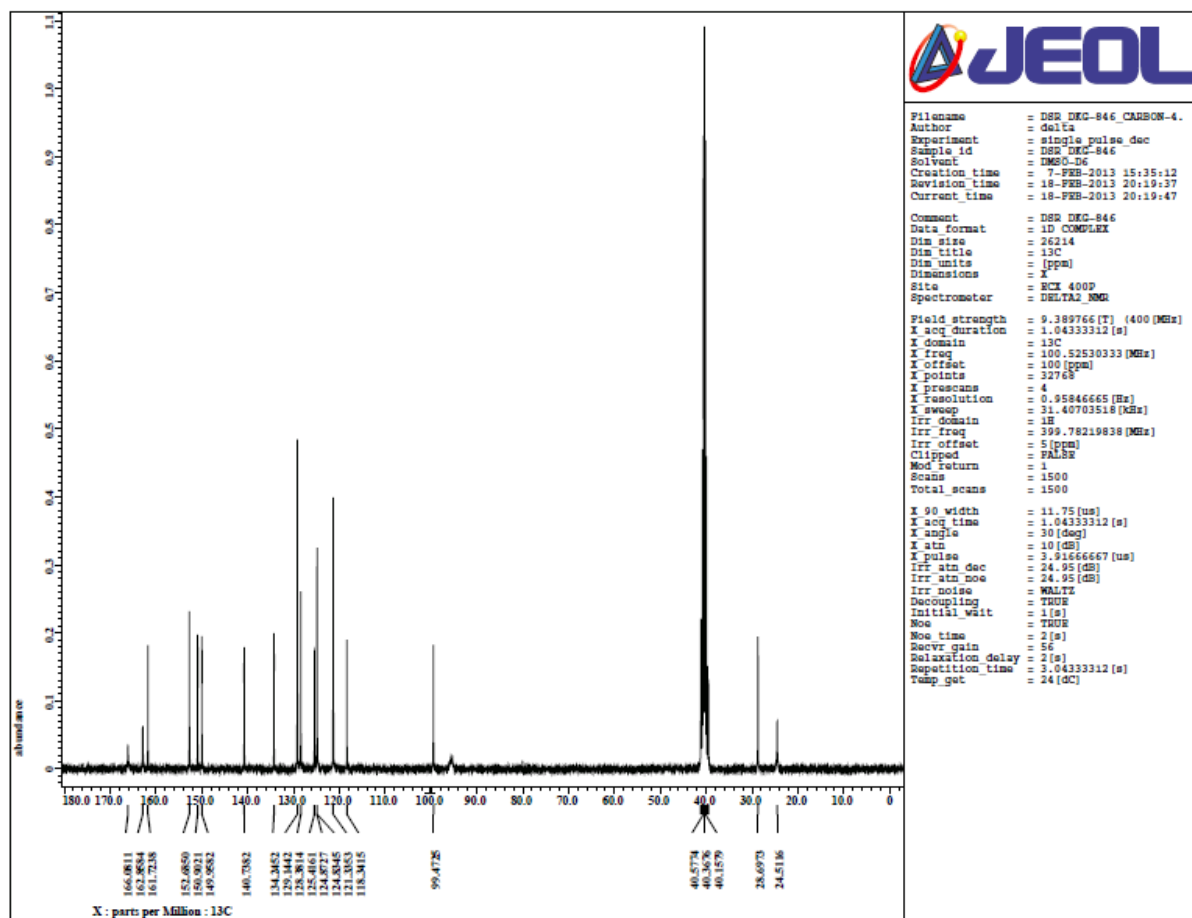
¹³C NMR of Compound 8b



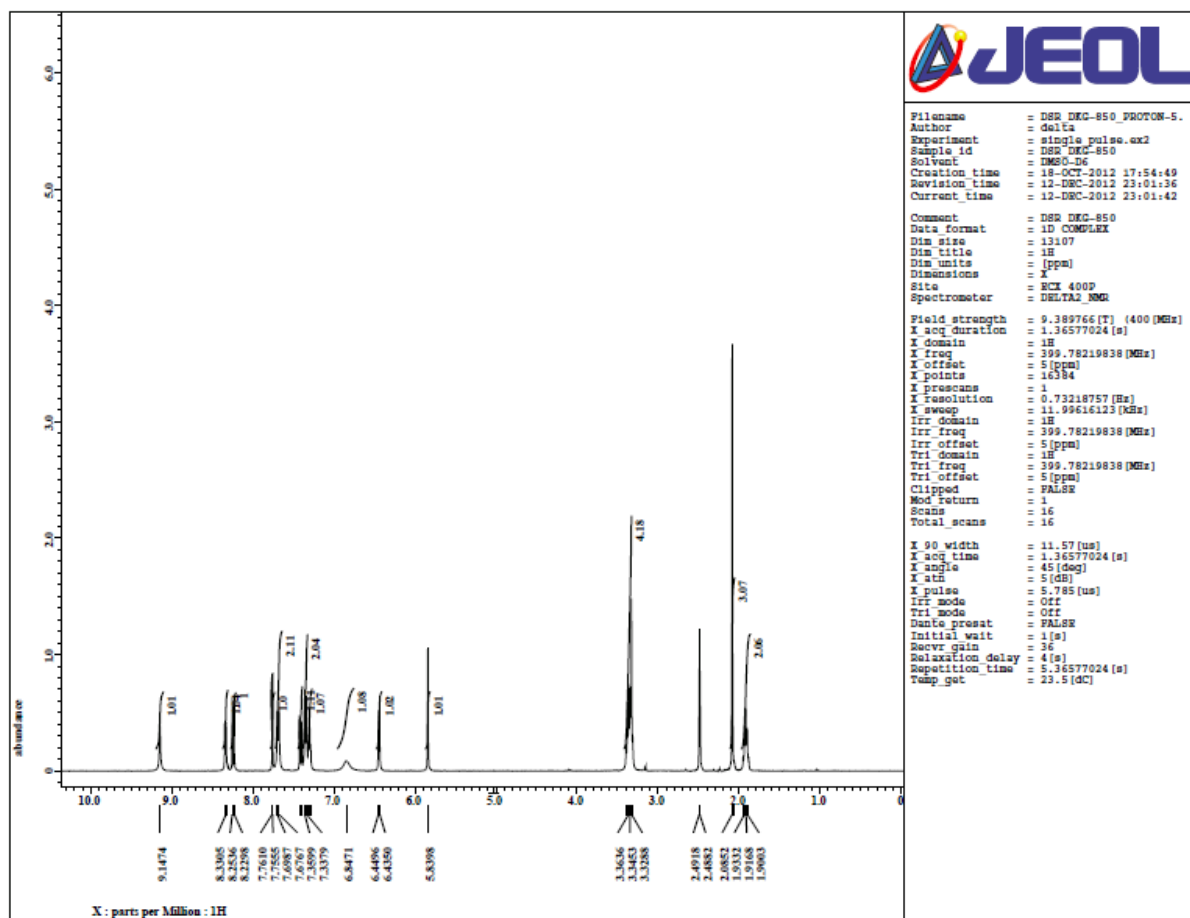
¹H NMR of Compound 8c



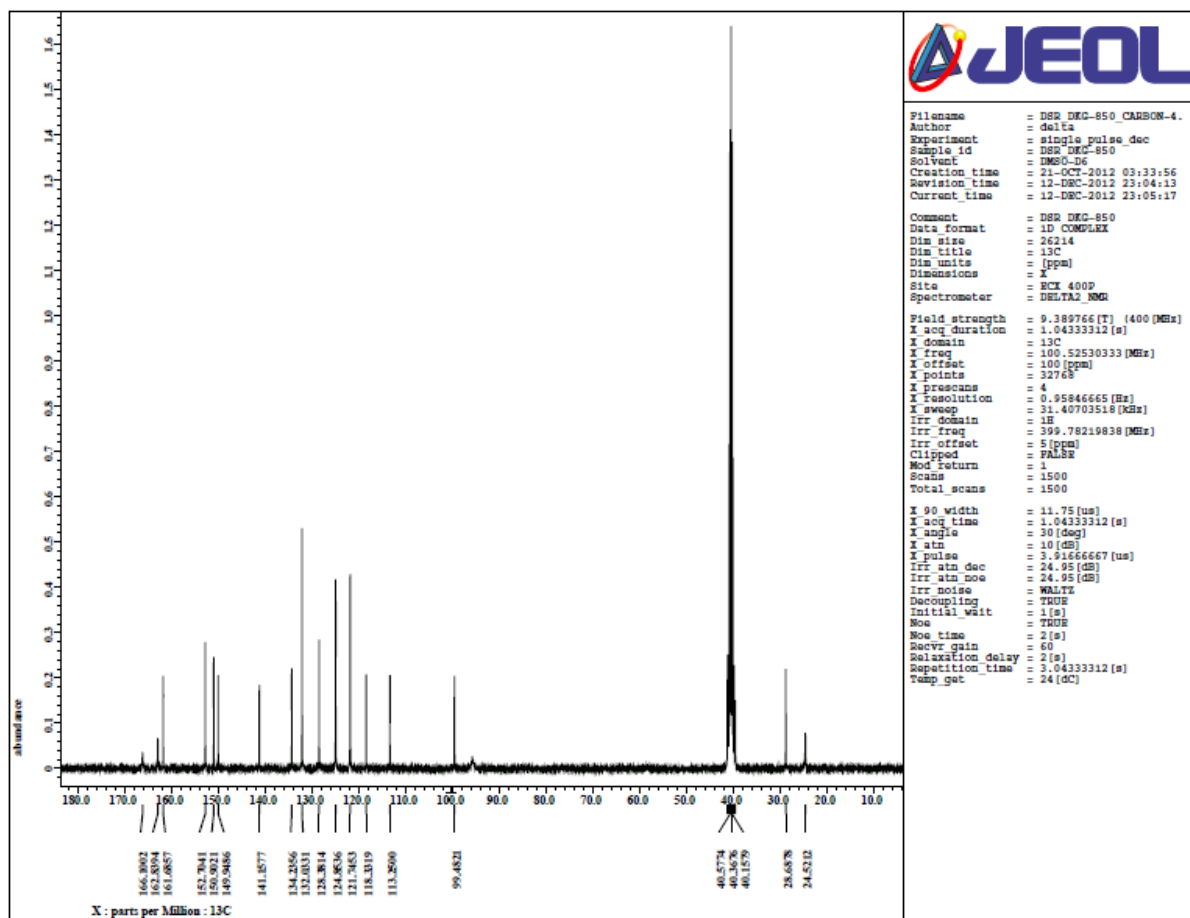
¹³C NMR of Compound 8c



¹H NMR of Compound 8d



¹³C NMR of Compound 8d



Mass data of Compound 8d

Qualitative Compound Report

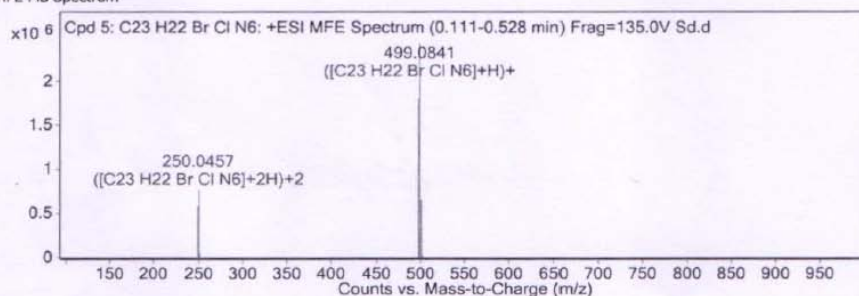
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Sample Type	Unavailable	Position	Unavailable
Instrument Name	Unavailable	User Name	Unavailable
Acq Method		Acquired Time	Unavailable
IRM Calibration Status	Success	DA Method	Default.m
Comment	Sample information is unavailable		

Compound Table

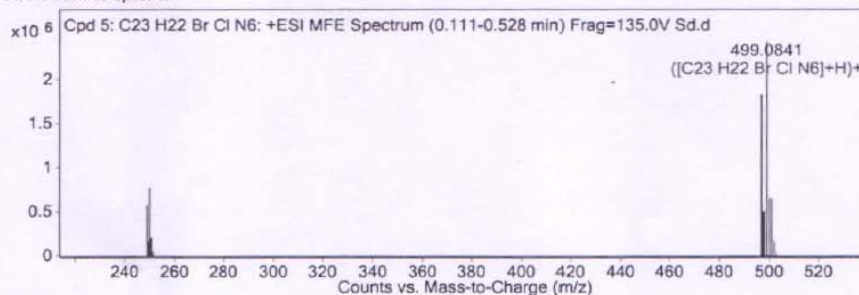
Compound Label	RT	Mass	Formula	MFG Formula	MFG Diff (ppm)	DB Formula
Cpd 5: C23 H22 Br Cl N6	0.204	496.0788	C23 H22 Br Cl N6	C23 H22 Br Cl N6	-2.11	C23 H22 Br Cl N6

Compound Label	m/z	RT	Algorithm	Mass
Cpd 5: C23 H22 Br Cl N6	497.0862	0.204	Find by Molecular Feature	496.0788

MFE MS Spectrum



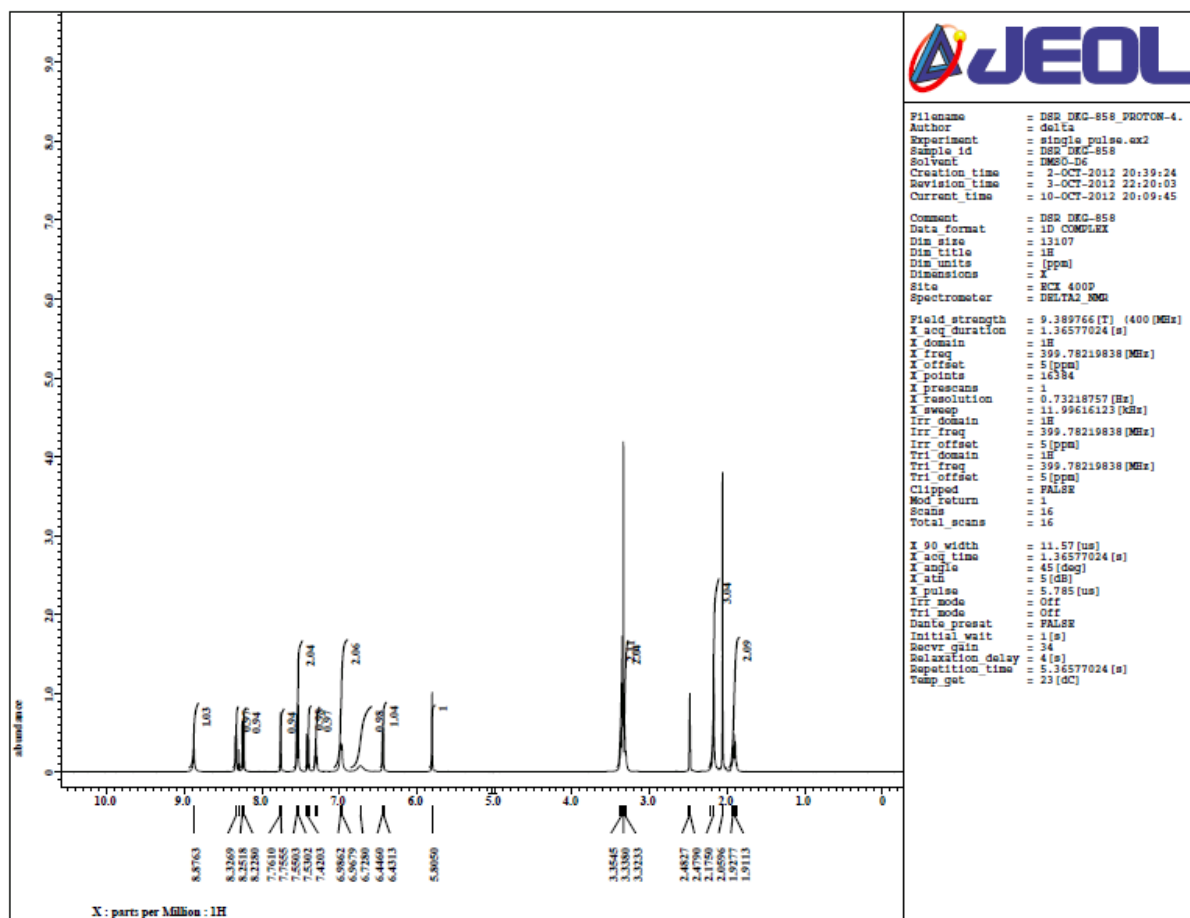
MFE MS Zoomed Spectrum



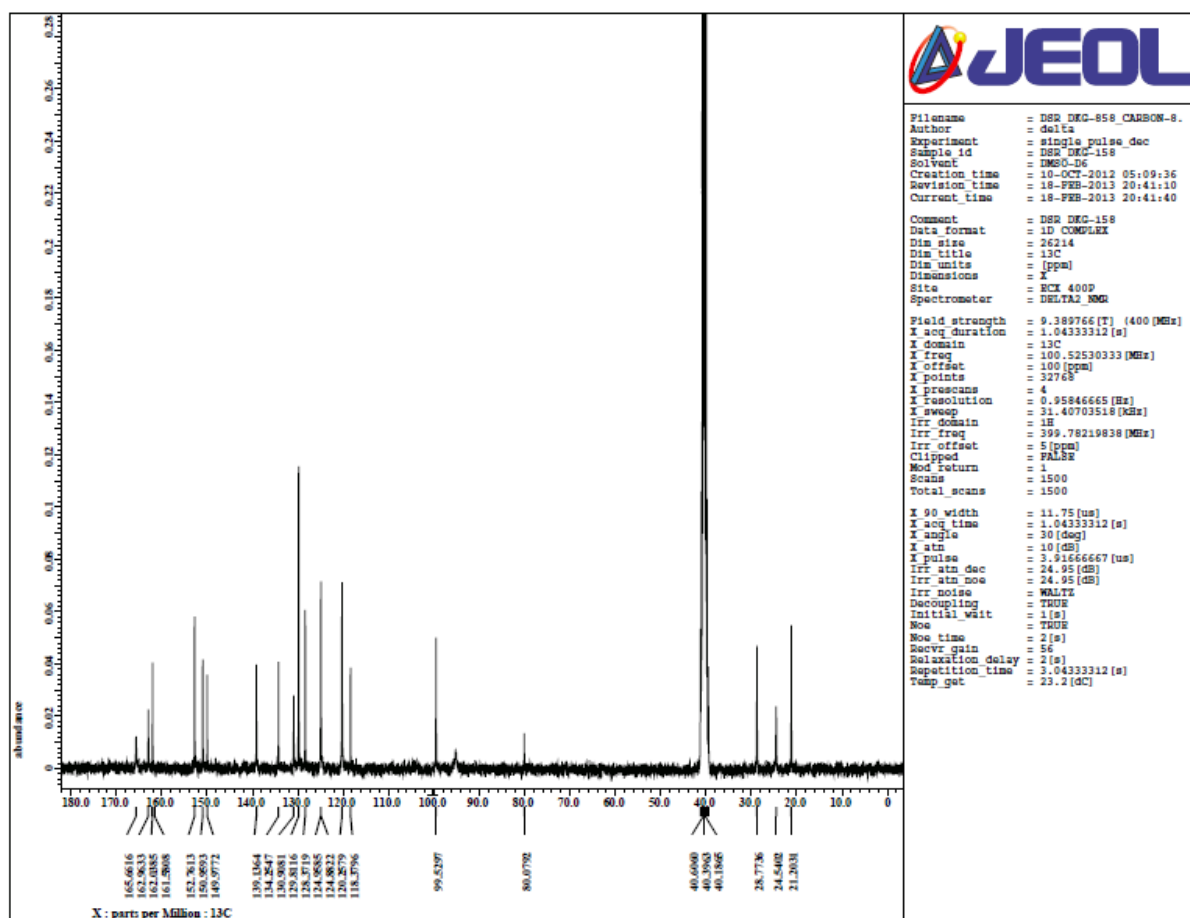
MS Spectrum Peak List

m/z	z	Abund	Formula	Ion
249.0467	2	570737.48	C23 H22 Br Cl N6	(M+2H)+2
249.548	2	158919.45	C23 H22 Br Cl N6	(M+2H)+2
250.0457	2	766548.75	C23 H22 Br Cl N6	(M+2H)+2
250.547	2	207652.89	C23 H22 Br Cl N6	(M+2H)+2
251.0447	2	209814.61	C23 H22 Br Cl N6	(M+2H)+2
497.0862	1	1800731.27	C23 H22 Br Cl N6	(M+H)+
498.0891	1	494372.18	C23 H22 Br Cl N6	(M+H)+
499.0841	1	2419459	C23 H22 Br Cl N6	(M+H)+
500.0869	1	658894.86	C23 H22 Br Cl N6	(M+H)+
501.0823	1	649167.25	C23 H22 Br Cl N6	(M+H)+

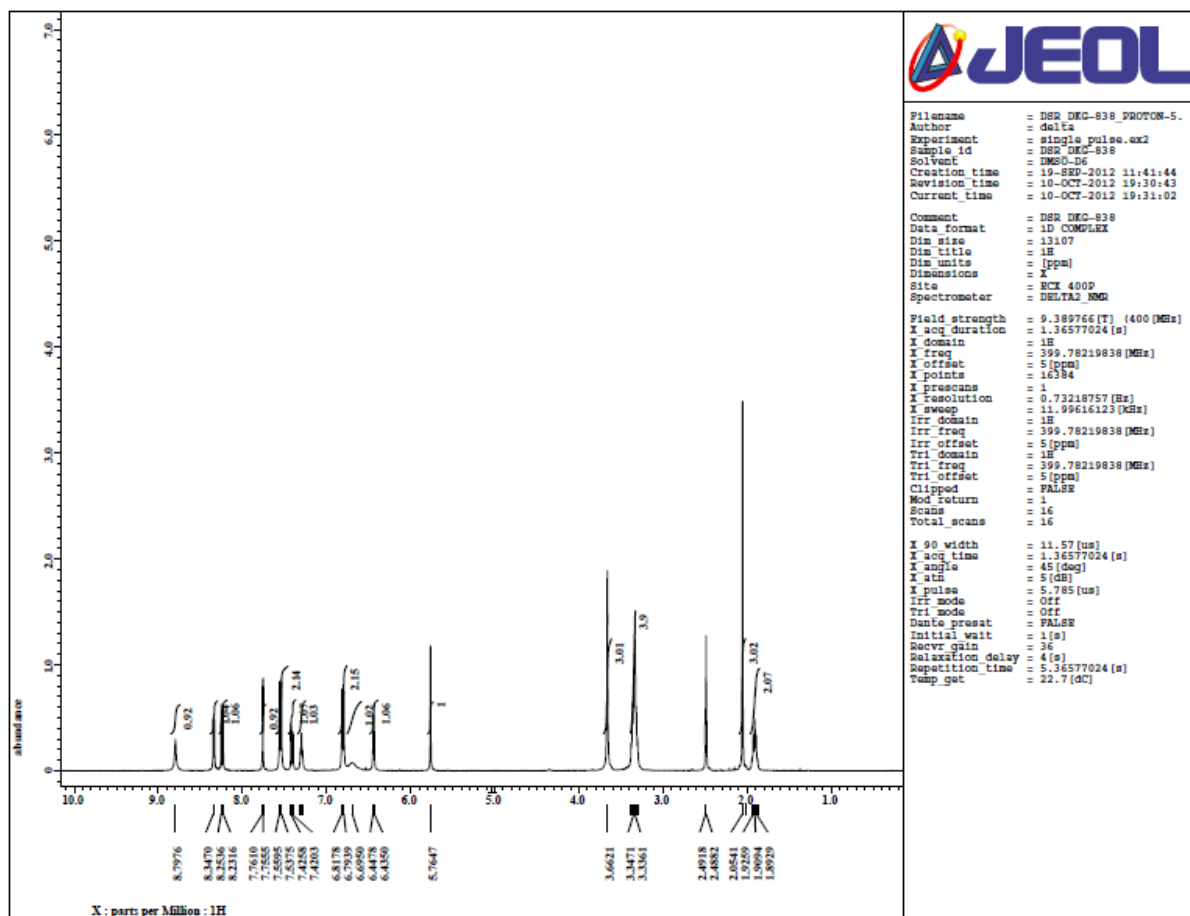
¹H NMR of Compound 8e



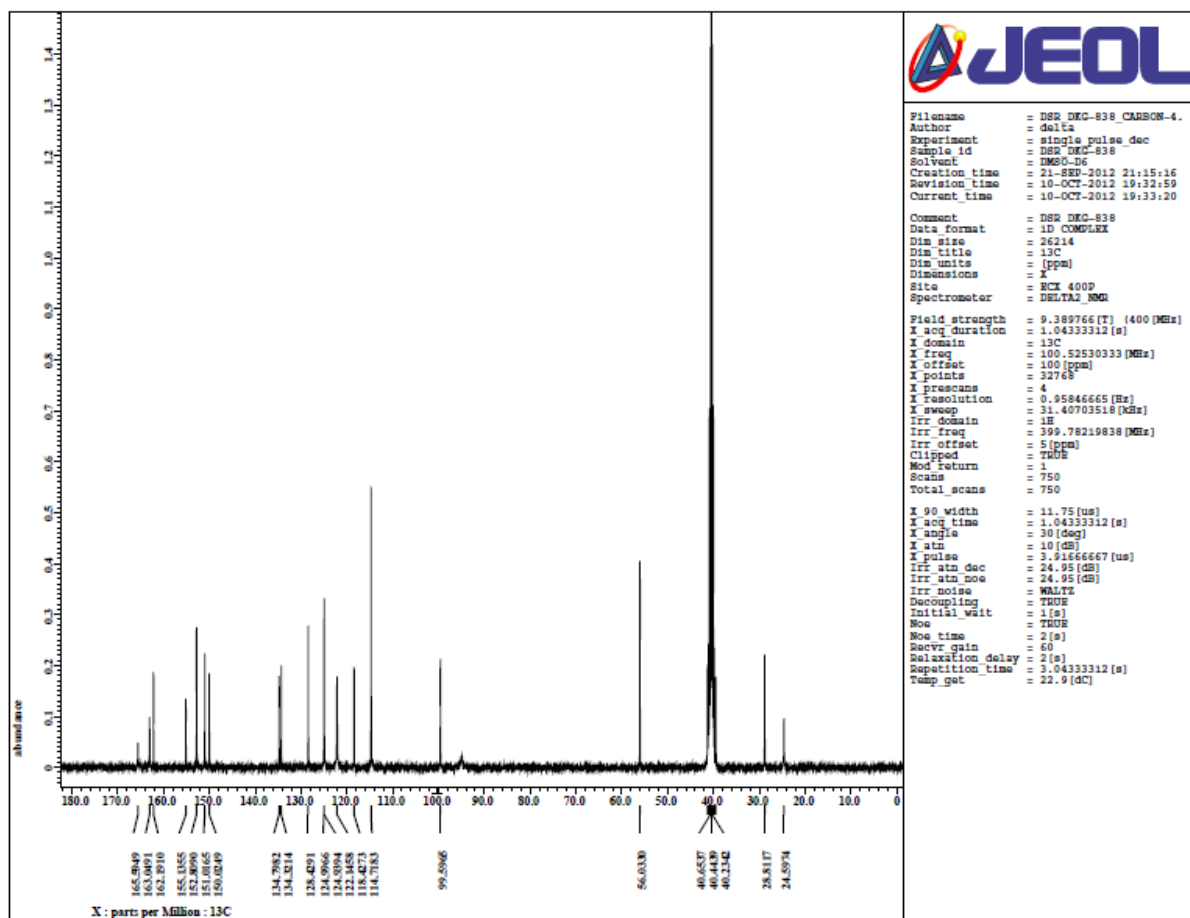
¹³C NMR of Compound 8e



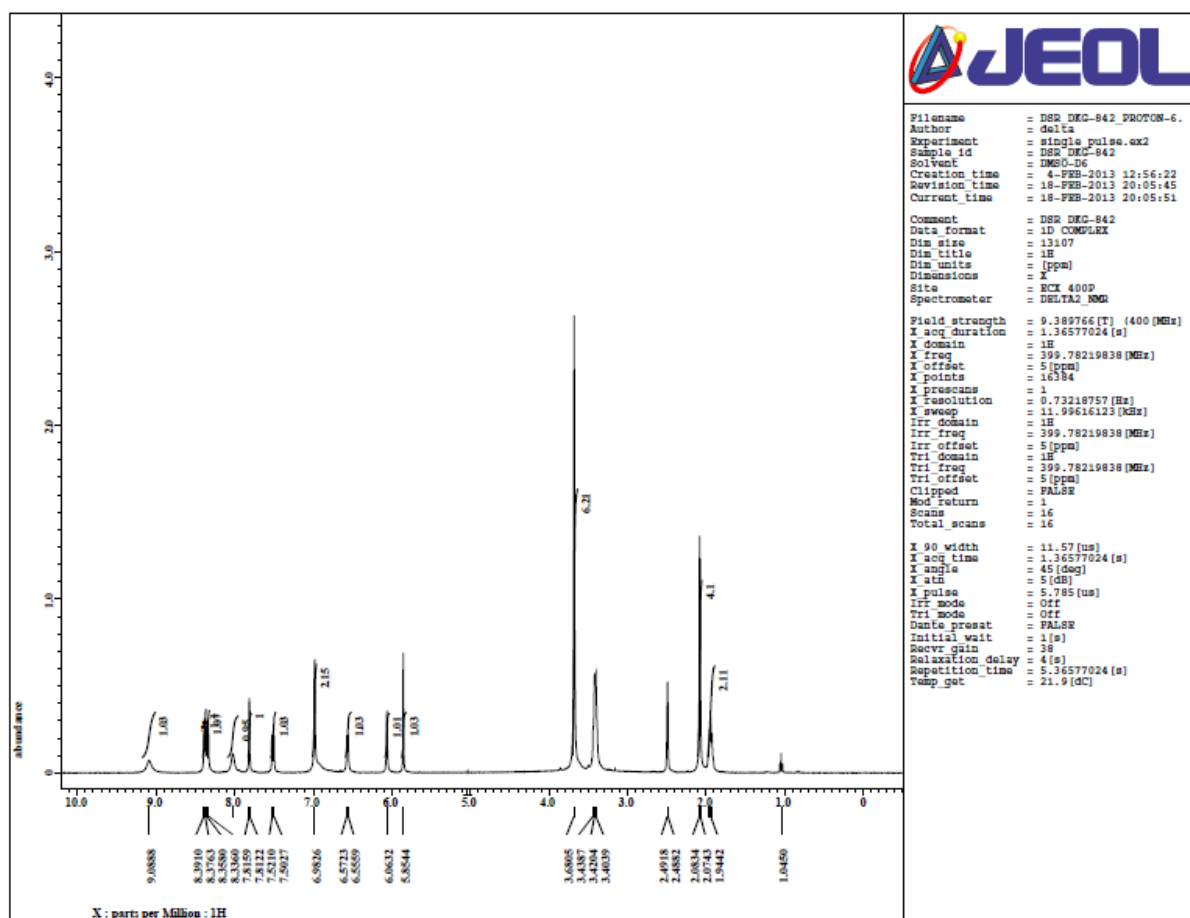
¹H NMR of Compound 8f



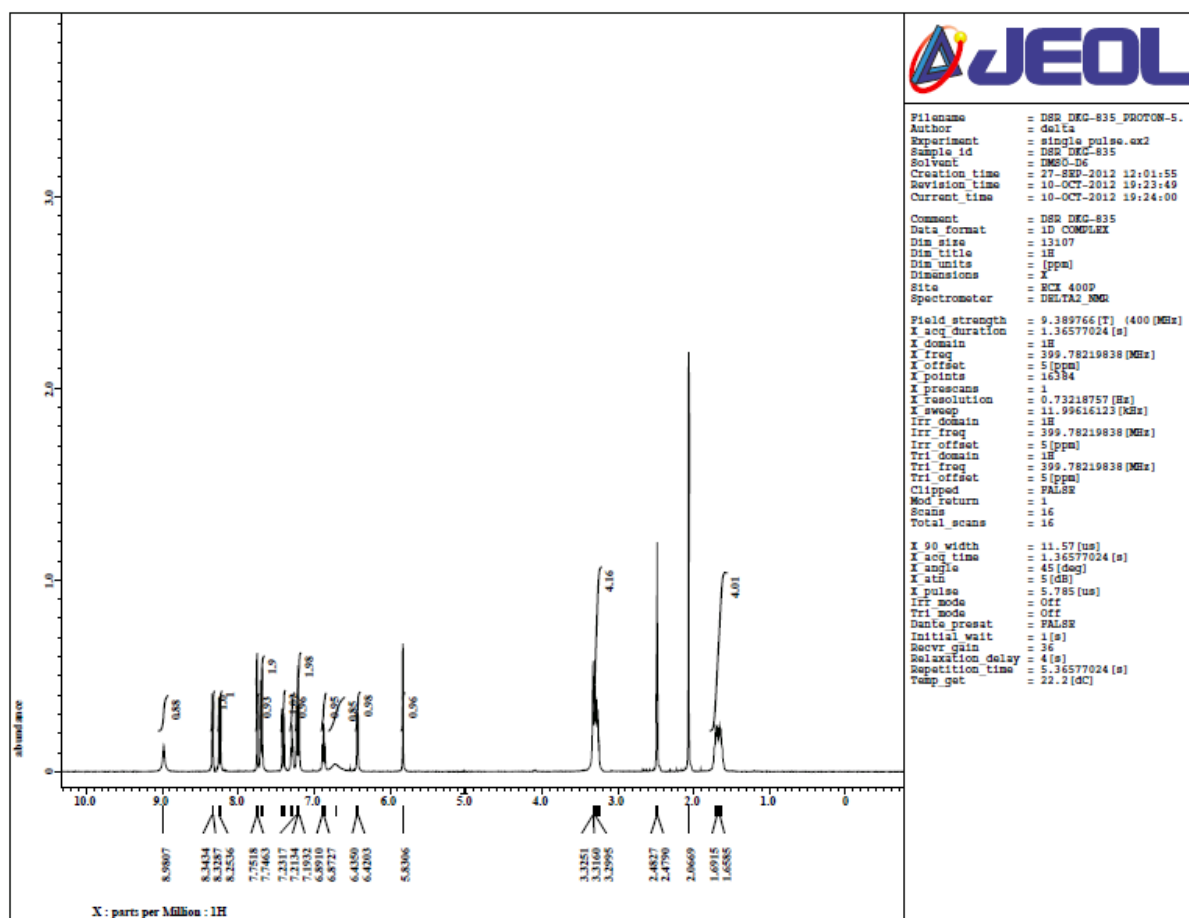
¹³C NMR of Compound 8f



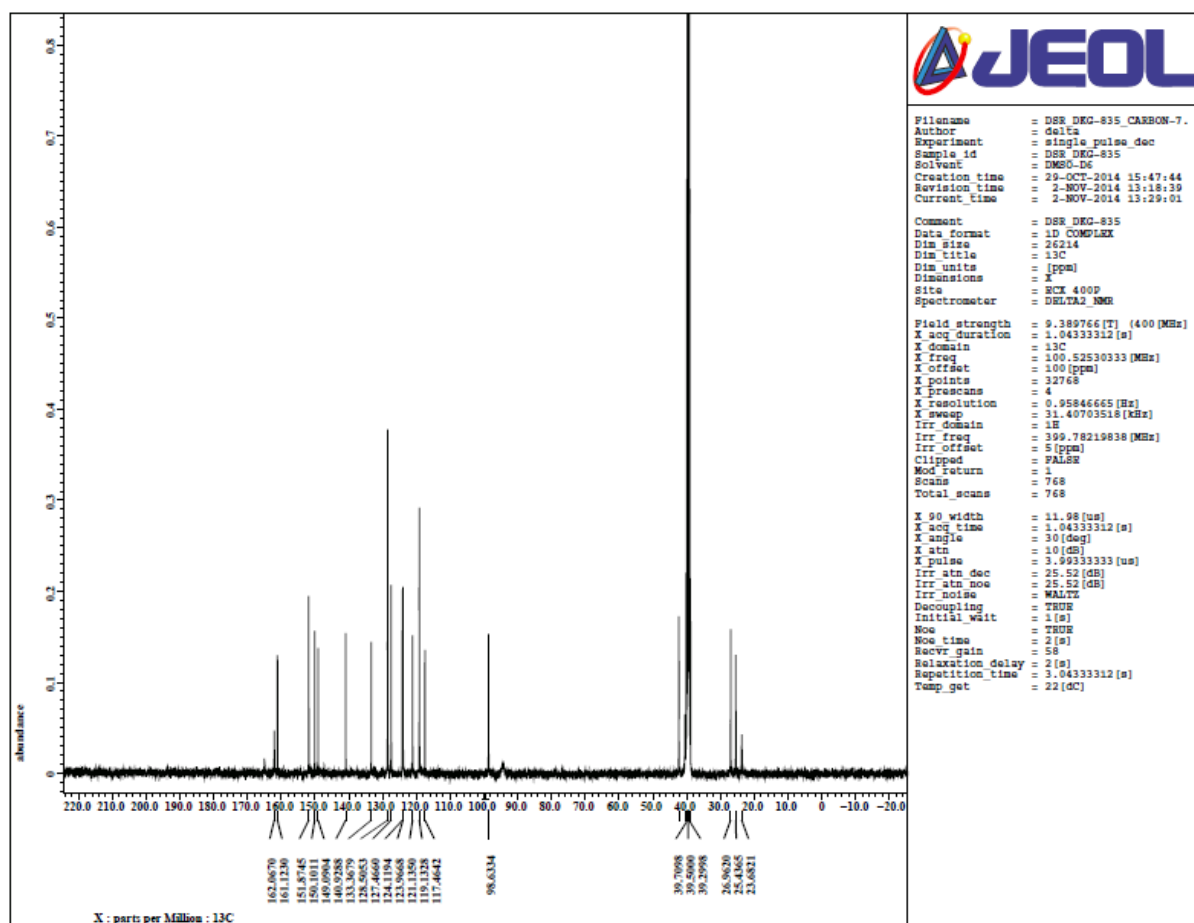
¹H NMR of Compound 8g



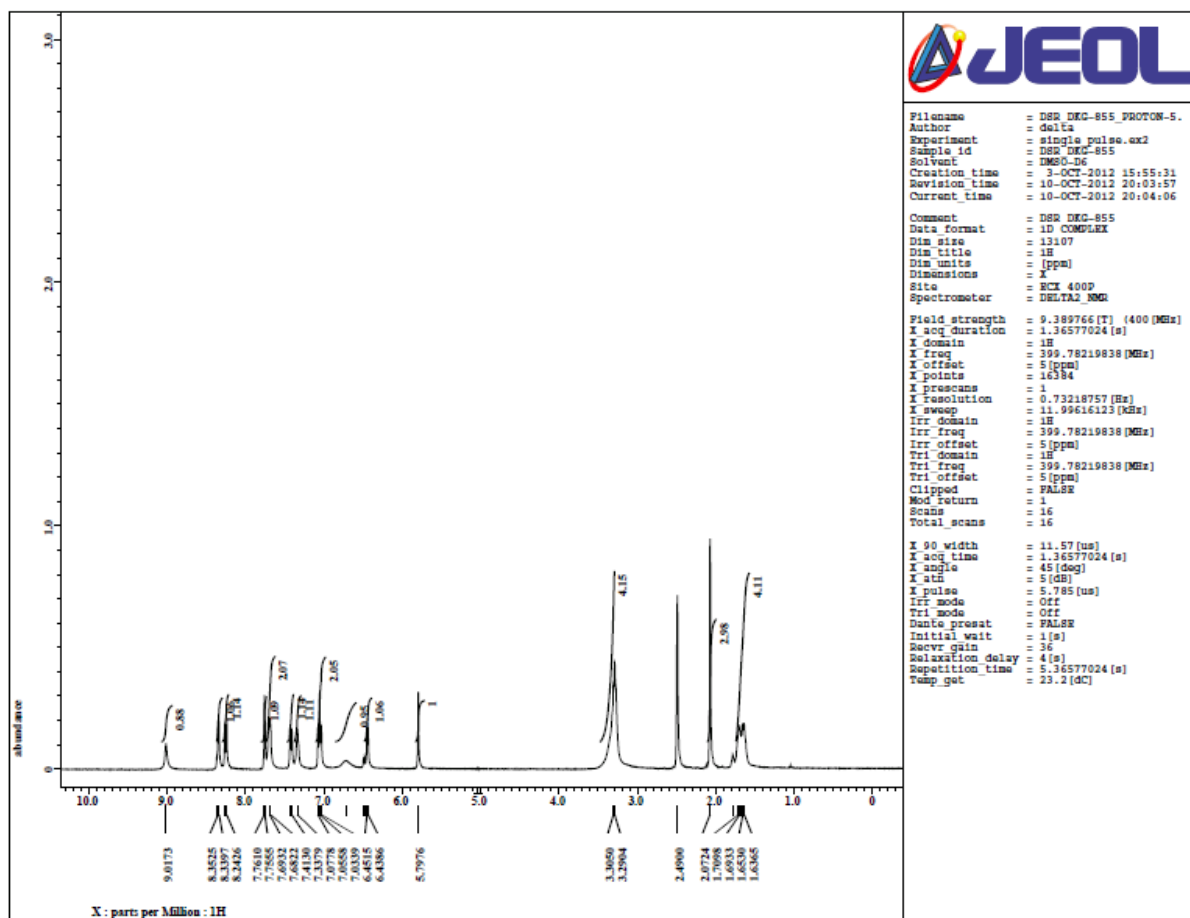
¹H NMR of Compound 9a



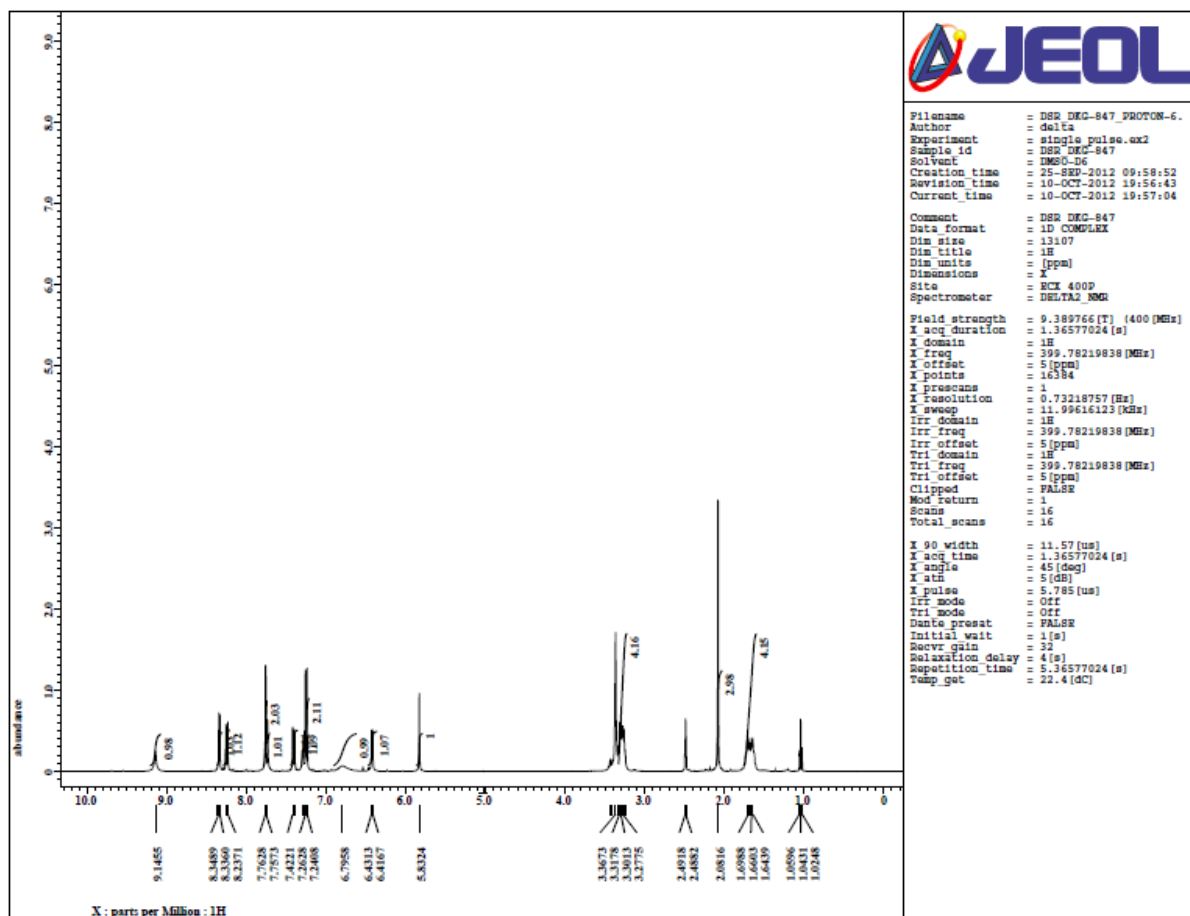
¹³C NMR of Compound 9a



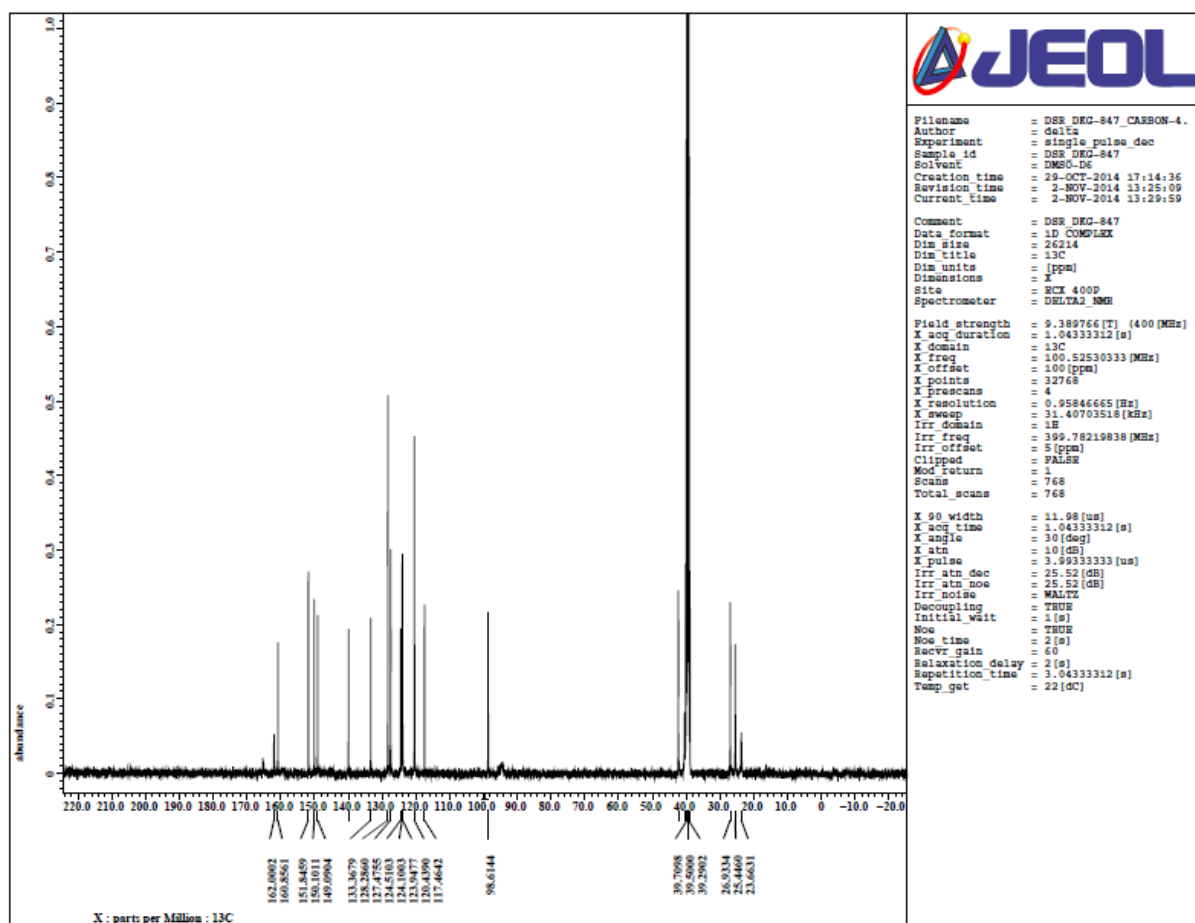
¹H NMR of Compound 9b



¹H NMR of Compound 9c



¹³C NMR of Compound 9c



Mass data of Compound 9c

Qualitative Compound Report

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Sample Type	Sample	Position	P1A3
Instrument Name	6530 QTOF LCMS	User Name	lcmsdu-PC\admin
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IRM Calibration Status	Success	DA Method	Default.m
Comment			

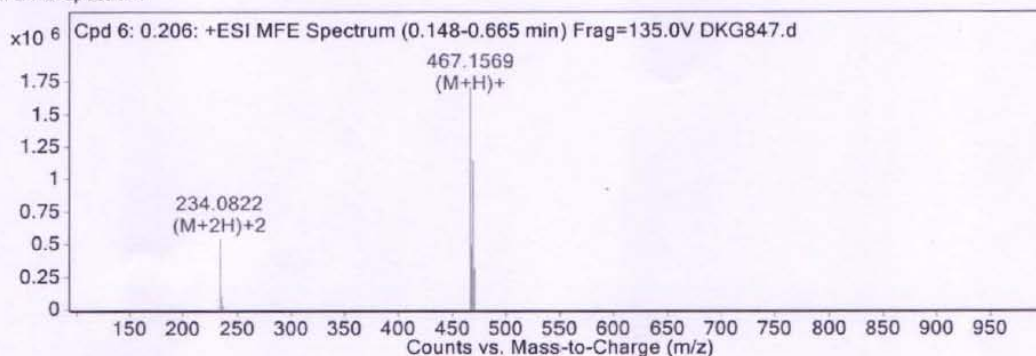
Sample Group	Info.
Acquisition SW	6200 series TOF/6500 series
Version	Q-TOF B.05.01 (B5125)

Compound Table

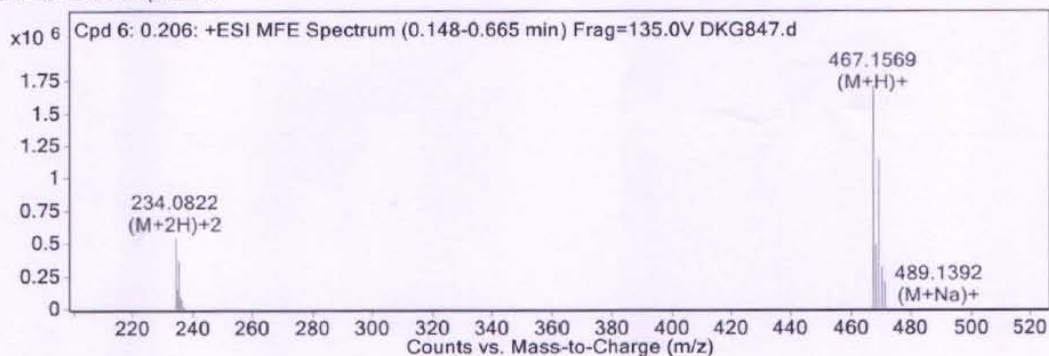
Compound Label	RT	Mass	MFG Formula
Cpd 6: 0.206	0.206	466.1497	<none>

Compound Label	m/z	RT	Algorithm	Mass
Cpd 6: 0.206	467.1569	0.206	Find by Molecular Feature	466.1497

MFE MS Spectrum



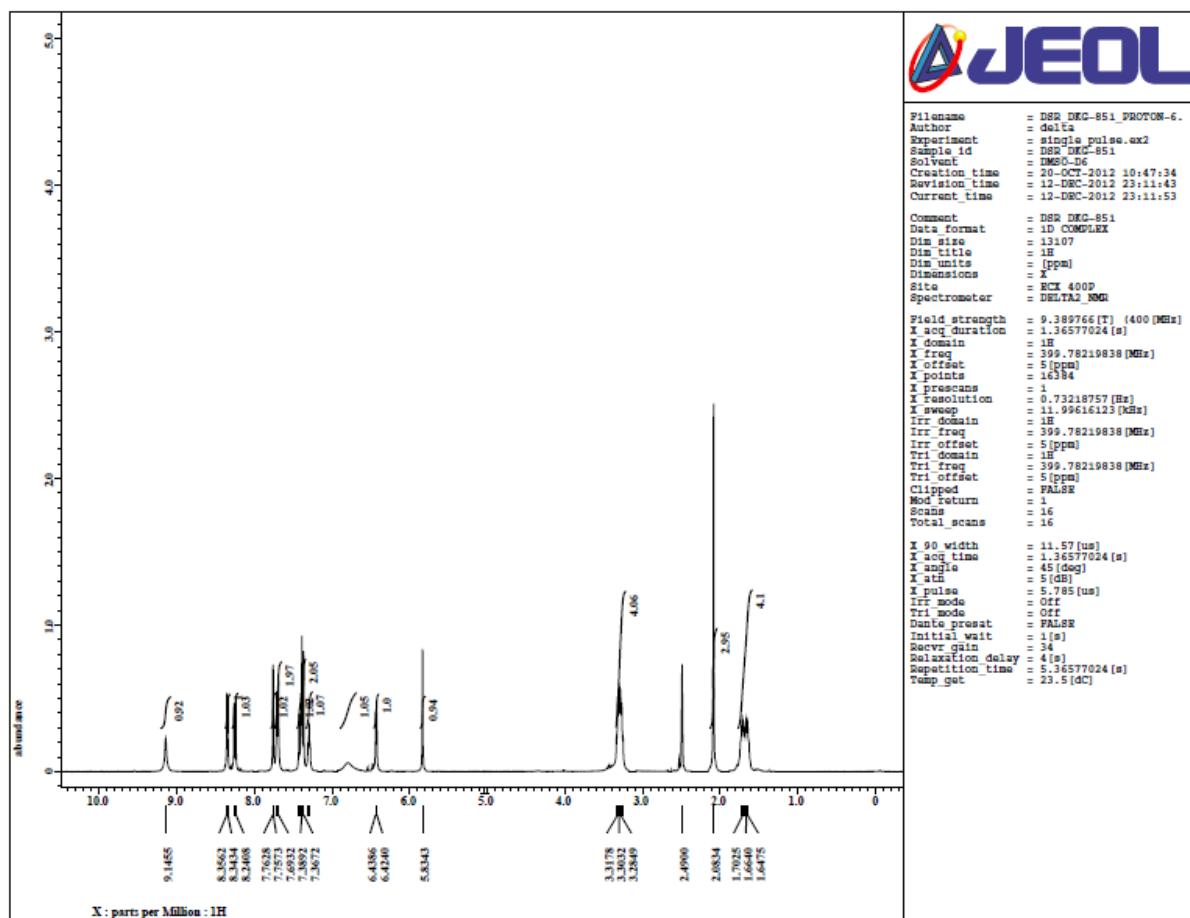
MFE MS Zoomed Spectrum



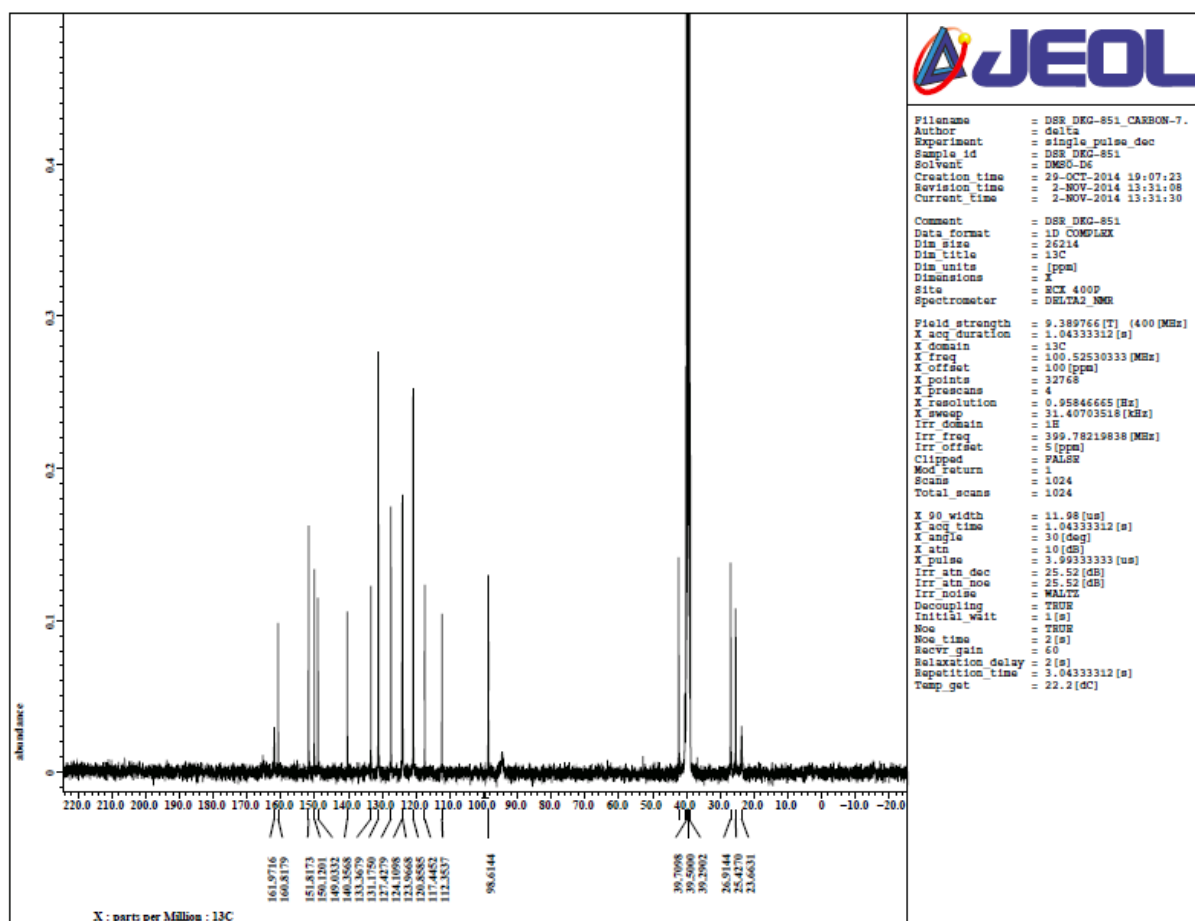
MS Spectrum Peak List

m/z	z	Abund	Ion
234.0822	2	545763.38	(M+2H)+2
234.5836	2	157776.9	(M+2H)+2
235.0809	2	370747.24	(M+2H)+2
235.5822	2	100607.89	(M+2H)+2
236.0798	2	71737.49	(M+2H)+2

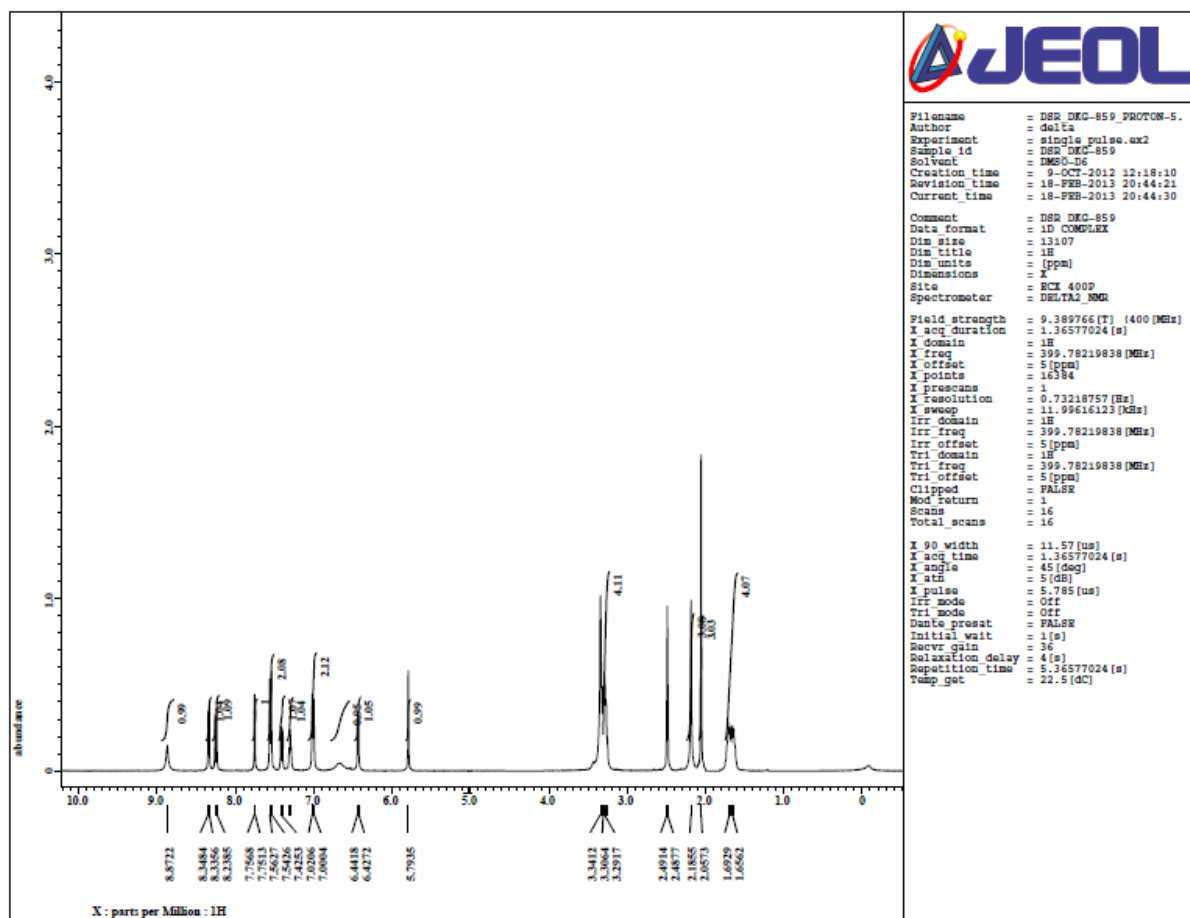
¹H NMR of Compound 9d



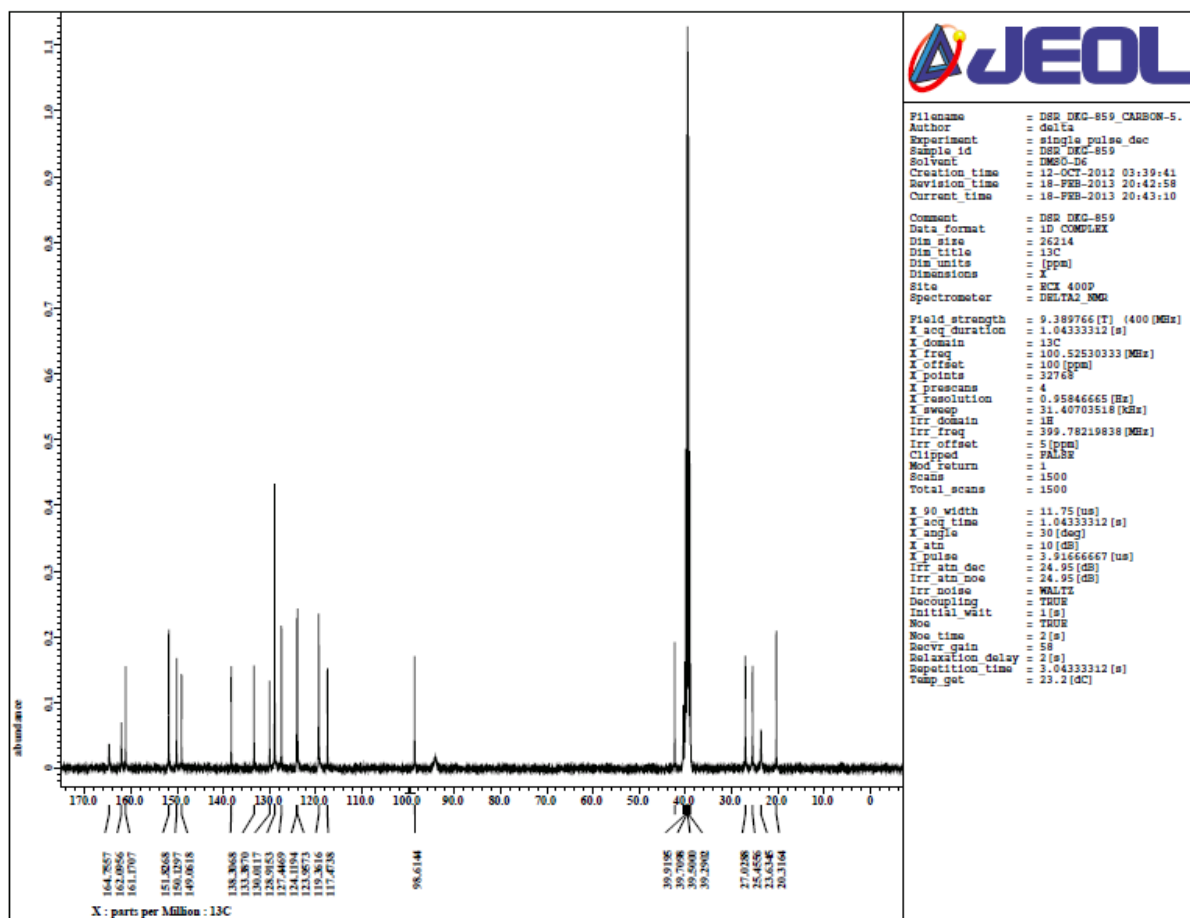
¹³C NMR of Compound 9d



¹H NMR of Compound 9e



¹³C NMR of Compound 9e



Mass data of Compound 9e

Qualitative Compound Report

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Sample Type	Sample	Position	P1A5
Instrument Name	6530 QTOF LCMS	User Name	lcmsdu-PC\admin
Acq Method	29.10.2014.m	Acquired Time	29-10-2014 16:24:27
IRM Calibration Status	Success	DA Method	Default.m
Comment			

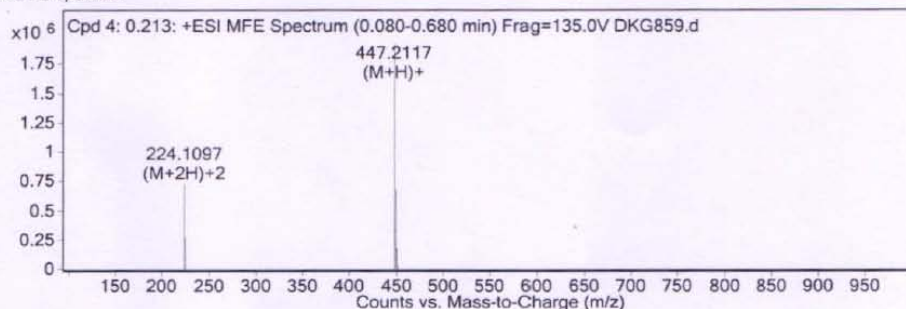
Sample Group		Info.
Acquisition SW	6200 series TOF/6500 series	
Version	Q-TOF B.05.01 (85125)	

Compound Table

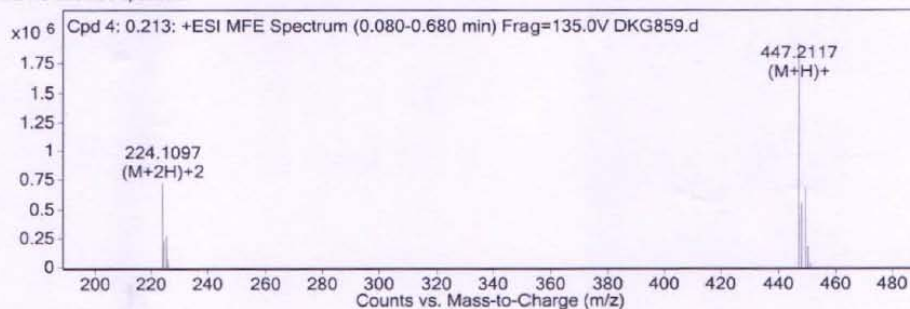
Compound Label	RT	Mass	Formula	MFG Formula	DB Formula
Cpd 4: 0.213	0.213	446.2049	C ₂₄ H ₃₂ Cl ₂ N ₄	C ₂₄ H ₃₂ Cl ₂ N ₄	C ₂₄ H ₃₂ Cl ₂ N ₄

Compound Label	m/z	RT	Algorithm	Mass
Cpd 4: 0.213	447.2117	0.213	Find by Molecular Feature	446.2049

MFE MS Spectrum



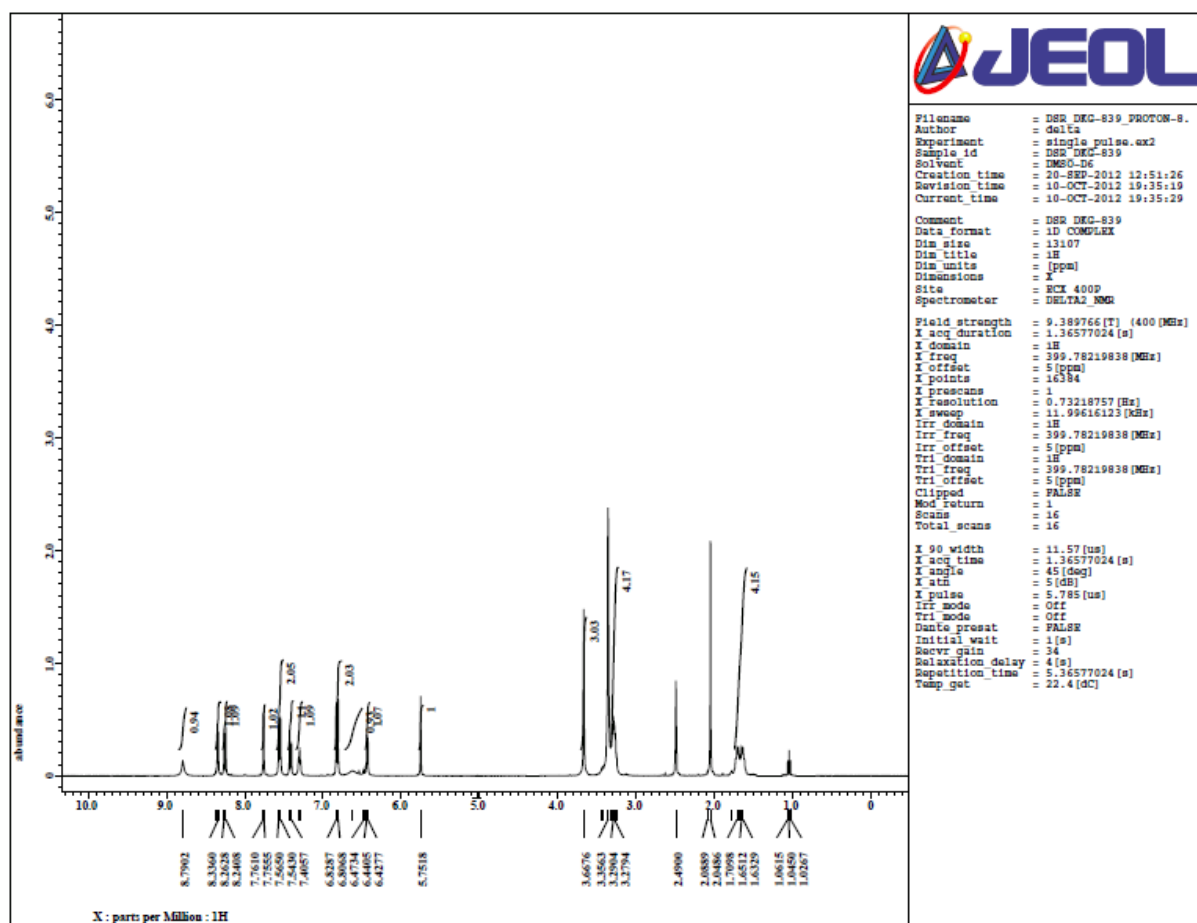
MFE MS Zoomed Spectrum



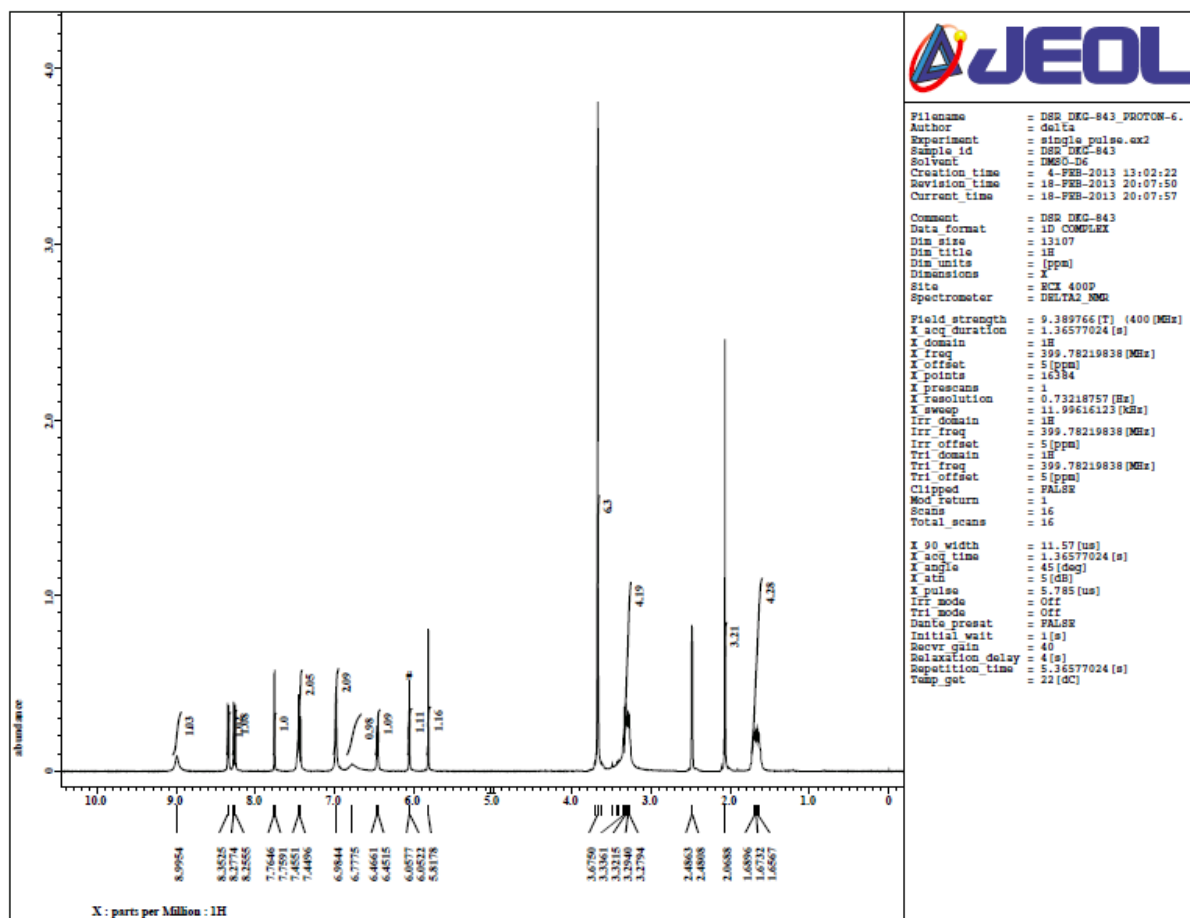
MS Spectrum Peak List

m/z	z	Abund	Ion
224.1097	2	725330.88	(M+2H)+2
224.611	2	223216.44	(M+2H)+2
225.1087	2	264634.71	(M+2H)+2
225.6098	2	73335.92	(M+2H)+2
226.1123	2	10149.53	(M+2H)+2
447.2117	1	1922274.75	(M+H)+
448.2149	1	554887.91	(M+H)+
449.2099	1	681289.96	(M+H)+
450.212	1	183282.32	(M+H)+
451.2149	1	27292.79	(M+H)+

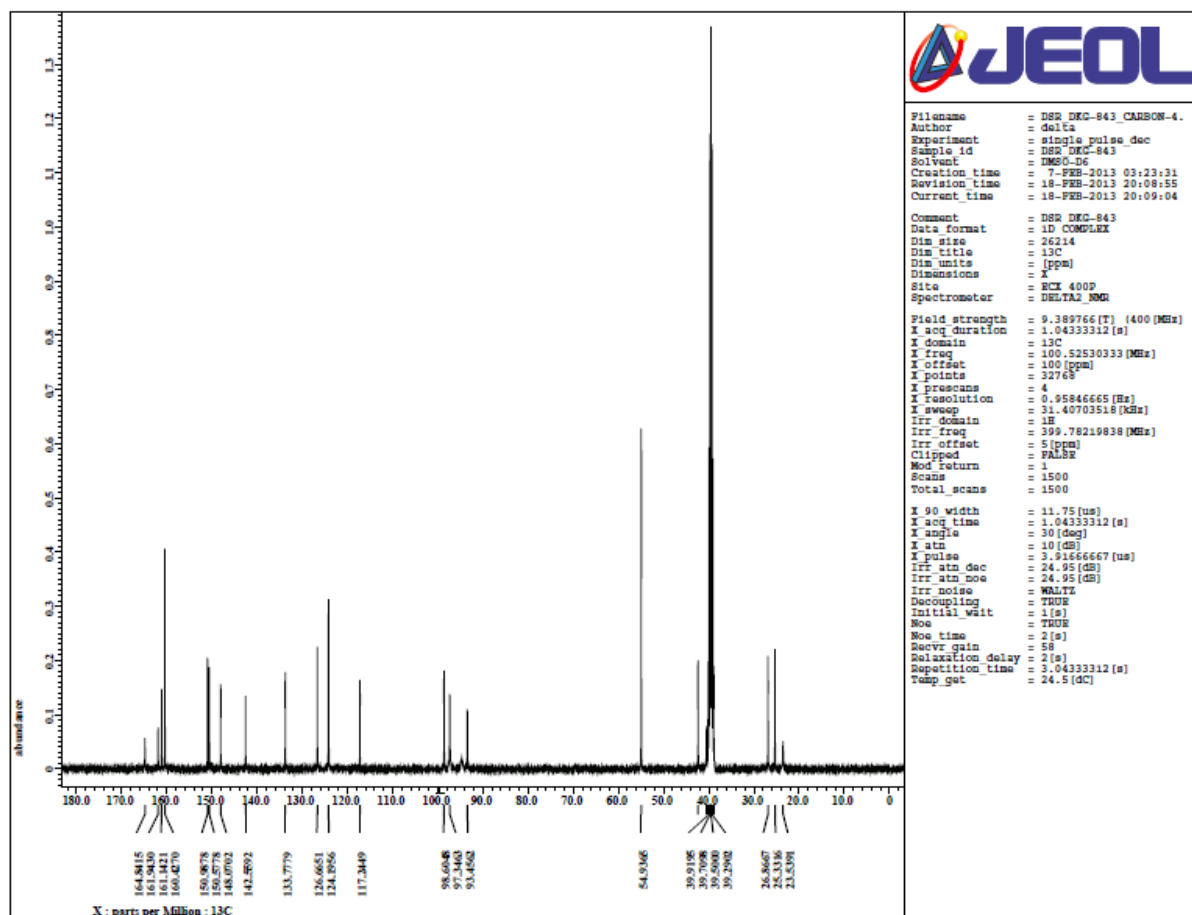
¹H NMR of Compound 9f



¹H NMR of Compound 9g



¹³C NMR of Compound 9g



Mass data of Compound 9g

Qualitative Compound Report

Data File	DKG843.d	Sample Name	DKG843
Sample Type	Sample	Position	P1A4
Instrument Name	6530 QTOF LCMS	User Name	lcmsdu-PC\admin
Acq Method	29.10.2014.m	Acquired Time	29-10-2014 16:30:30
IRM Calibration Status	Success	DA Method	Default.m
Comment			

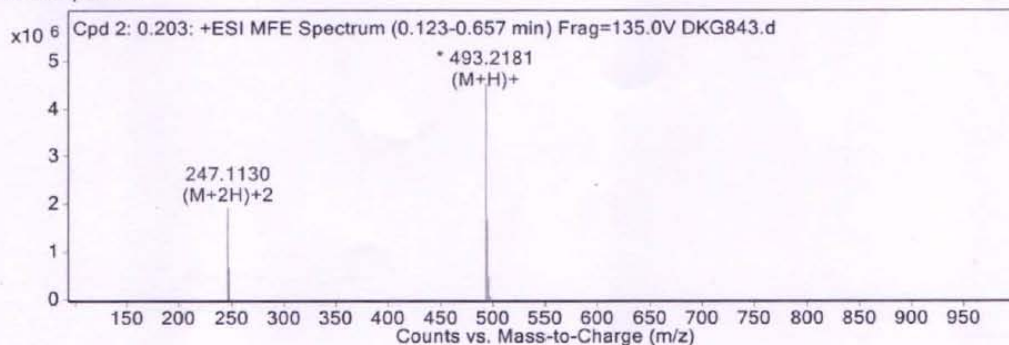
Sample Group		Info.
Acquisition SW	6200 series TOF/6500 series	
Version	Q-TOF B.05.01 (B5125)	

Compound Table

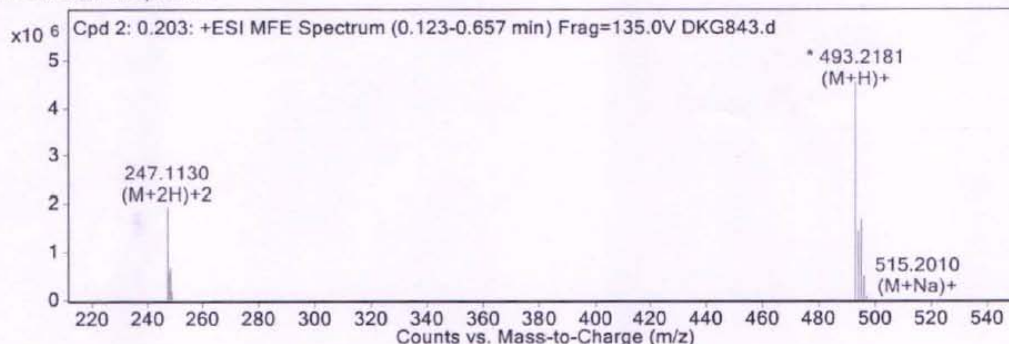
Compound Label	RT	Mass	MFG Formula
Cpd 2: 0.203	0.203	492.211	<none>

Compound Label	m/z	RT	Algorithm	Mass
Cpd 2: 0.203	493.2181	0.203	Find by Molecular Feature	492.211

MFE MS Spectrum



MFE MS Zoomed Spectrum



MS Spectrum Peak List

m/z	z	Abund	Ion
247.113	2	1924700.63	(M+2H)+2
247.6145	2	586486	(M+2H)+2
248.1122	2	688503.87	(M+2H)+2
248.6133	2	200685.9	(M+2H)+2
249.1145	2	33842.79	(M+2H)+2