Supporting Information

Facile and expedient access to bis-coumarin-iminothiazole hybrids by molecular hybridization approach: synthesis, molecular modelling and assessment of alkaline phosphatase inhibition, anticancer and antileishmanial potential

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Table S1 Drug likeness of synthesized imino-thiazole hybrids (**5c-m**)

Entry	b_1rotN	Weight	lip_acc	lip_don	logP(o/w)
	(NoR)	(MW)	HBA	HBD	Log P
5c	4.0000	541.9710	8.0000	1.0000	7.1250
5d	5.0000	537.5520	9.0000	1.0000	6.4870
5e	5.0000	537.5520	9.0000	1.0000	6.5260
5f	4.0000	521.5530	8.0000	1.0000	6.8290
5g	4.0000	521.5530	8.0000	1.0000	6.8680
5h	4.0000	521.5530	8.0000	1.0000	6.8310
5i	4.0000	535.5800	8.0000	1.0000	7.1250
5j	4.0000	535.5800	8.0000	1.0000	7.1250
5k	4.0000	535.5800	8.0000	1.0000	7.1250
5l	4.0000	535.5800	8.0000	1.0000	7.1250
5m	4.0000	535.5800	8.0000	1.0000	7.2400

Abbreviations used:

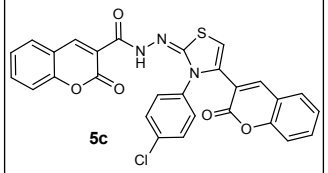
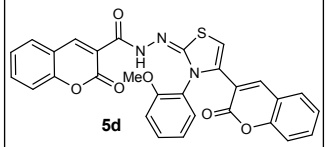
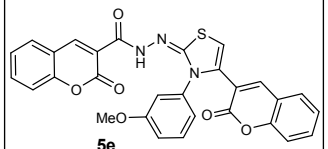
NoR= Number of rotatable bonds

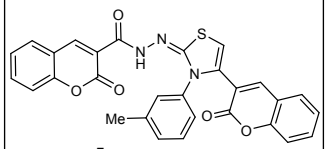
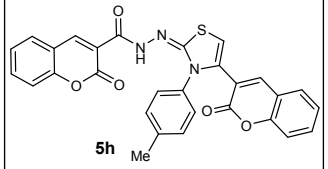
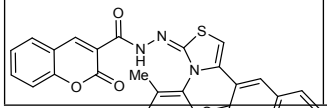
HBA=Hydrogen Bond Acceptor

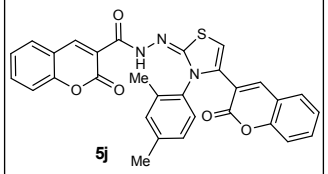
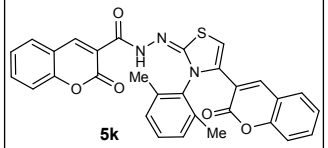
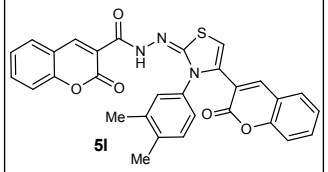
HBD= Hydrogen Bond Donor

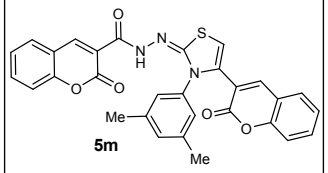
Log P (o/w)= logarithm of the (octanol/water) partition coefficient

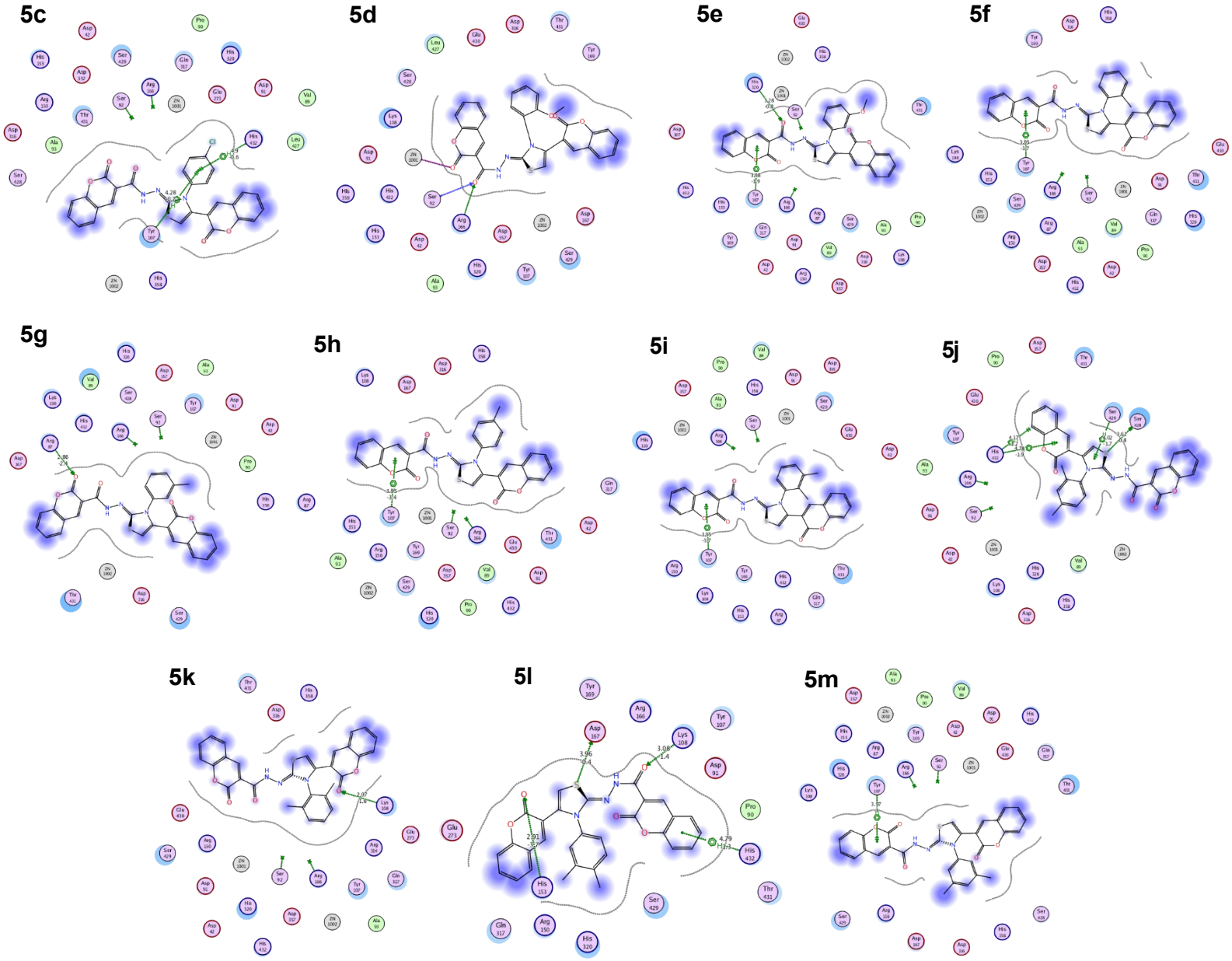
TableS2 Molecular docking studies of synthesized bis-coumarin-iminothiazole hybrids against ALP (PDB ID: 4KJG)

Compounds	IC_{50} (µM)	Binding Energy (kcal/mol)		H-Bonding		Pi-H interactions		Hydrophobic interactions	Polar interactions
		S	London dG	Interacting residues	Distance (Å)	Interacting residues	Distance (Å)		
 5c	5.78	-6.3456	-9.9581			Tyr107 His432	4.28 4.9		Thr431 His320 Ser429 Gln317 Tyr107 His153 Arg166 Lys108
 5d	3.92	-6.4269	-11.4376	Arg166 Ser92				Leu 427	Thr431 Tyr107 Ser429 His 320 Lys108 Arg166 Gln317
 5e	4.36	-6.8090	-10.6833	His 320	3.28	Tyr107	3.98	Val89	Thr431 Tyr107 Ser428 His 320 Gln317
									Thr431 His320 Ser429 Tyr107

							3.95		Tyr169 Arg166 Gln317 His155 Ser429 Arg150 His153 Lys108
 **5g**	4.38	-6.5504	-9.4669	Gln317	3.16	Thr431 Ser429		Val89	Thr431 His320 Ser429 Tyr107 His432 Lys108
 **5h**	3.47	-6.5368	-11.0972			Tyr107	3.95	Val89	Thr431 His320 Ser429 Tyr107 His153 Lys108 Gln317 Arg187 Arg166 Tyr169
	2.59	-6.4065	-9.9169			Tyr107	3.95	Val89	Ser429 His320 Thr431 Ser429 His320

									Arg166 Tyr169 His153 Arg150 Gln317
 **5j**	1.38	-6.3487	-10.1112	Ser428	3.62	Ser429 His432 His432	4.02 4.87 4.17	Leu427	Thr431 His320 Lys108 Ser429 Gln317 Tyr107 Lys108 His153
 **5k**	1.79	-6.4156	-10.4100	Lys108	2.97				Thr431 His320 Lys108 Arg166 Ser429 Gln317 Tyr107 His432
 **5l**	1.39	-6.7520	-11.1619	His153 Lys108 Asp167	2.91 3.08 3.96	His432- Phenyl- Lactone	4.79		Thr431 His320 Lys108 Ser429 Gln317 Tyr107 Arg166 Ser429

									Arg150
 **5m**	1.41	-6.6342	-9.8275			Tyr107	3.97	Val89	Thr431 His320 Ser429 Gln317 His153 Lys108 Arg87 Tyr169 Arg166


5c
5d
5e
5f
5g
5h
5i
5j
5k
5l
5m

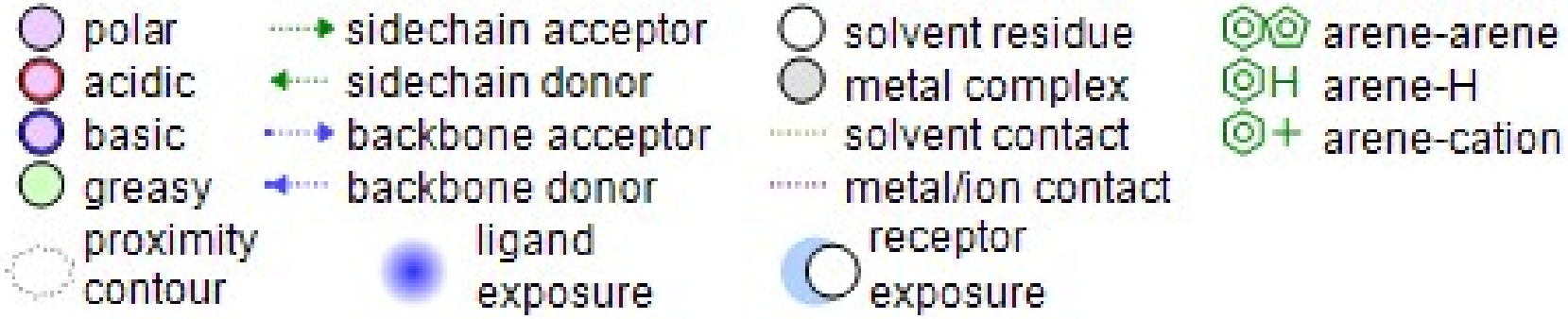
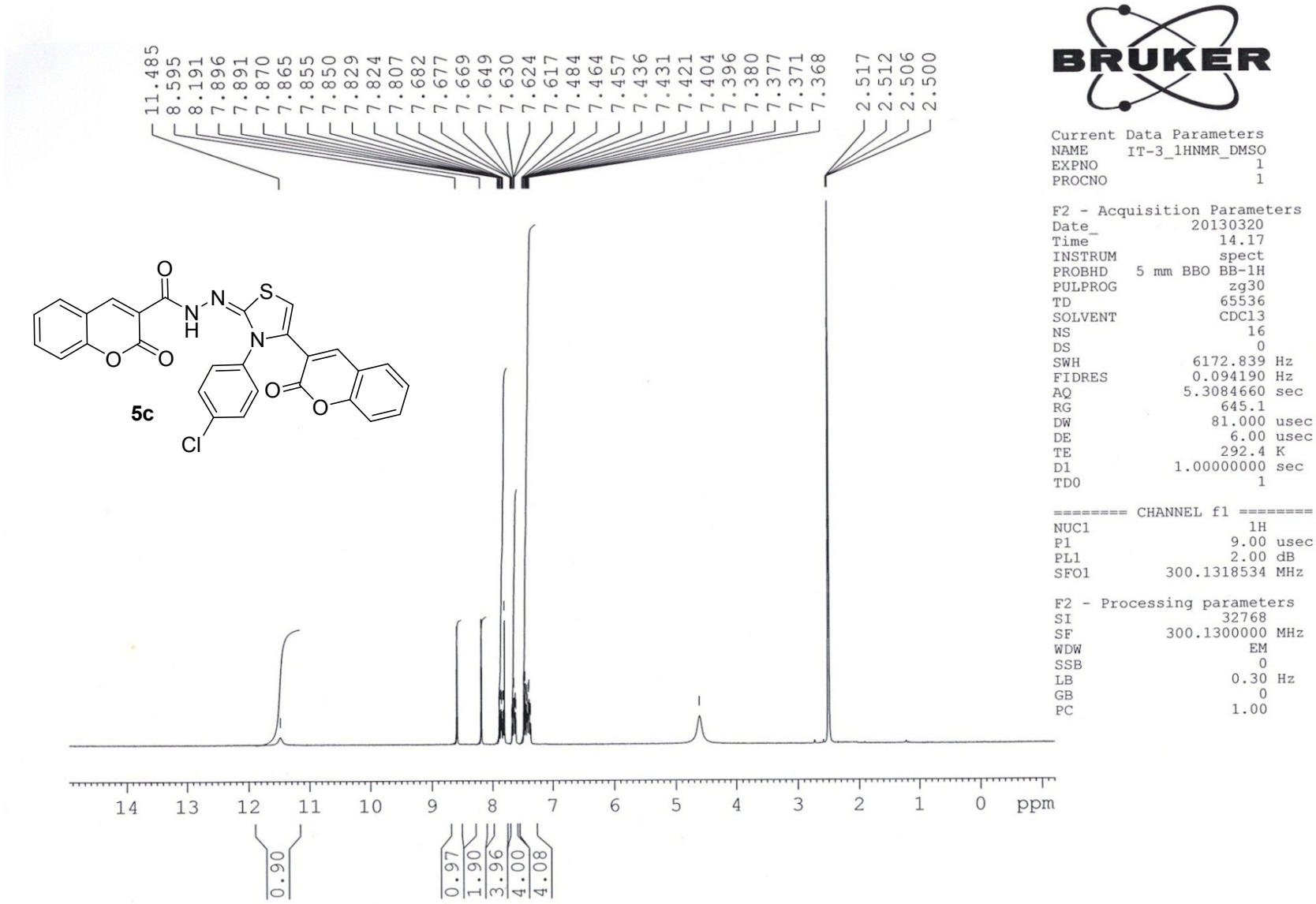


Fig. S1 2D interaction of compounds **5c-m** with ALP (color and pattern details are given in Legend).

NMR Spectra



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PROCNO                  1

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PULPROG              zg30
TD                  65536
SOLVENT             CDCl3
NS                     16
DS                      0
SWH              6172.839 Hz
FIDRES           0.094190 Hz
AQ               5.3084660 sec
RG                  645.1
DW                 81.000 usec
DE                  6.00 usec
TE                 292.4 K
D1             1.00000000 sec
TD0                     1

======== CHANNEL f1 ========
NUC1                   1H
P1                  9.00 usec
PL1                 2.00 dB
SFO1         300.1318534 MHz

F2 - Processing parameters
SI                  32768
SF           300.1300000 MHz
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SSB                     0
LB                   0.30 Hz
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PC                   1.00
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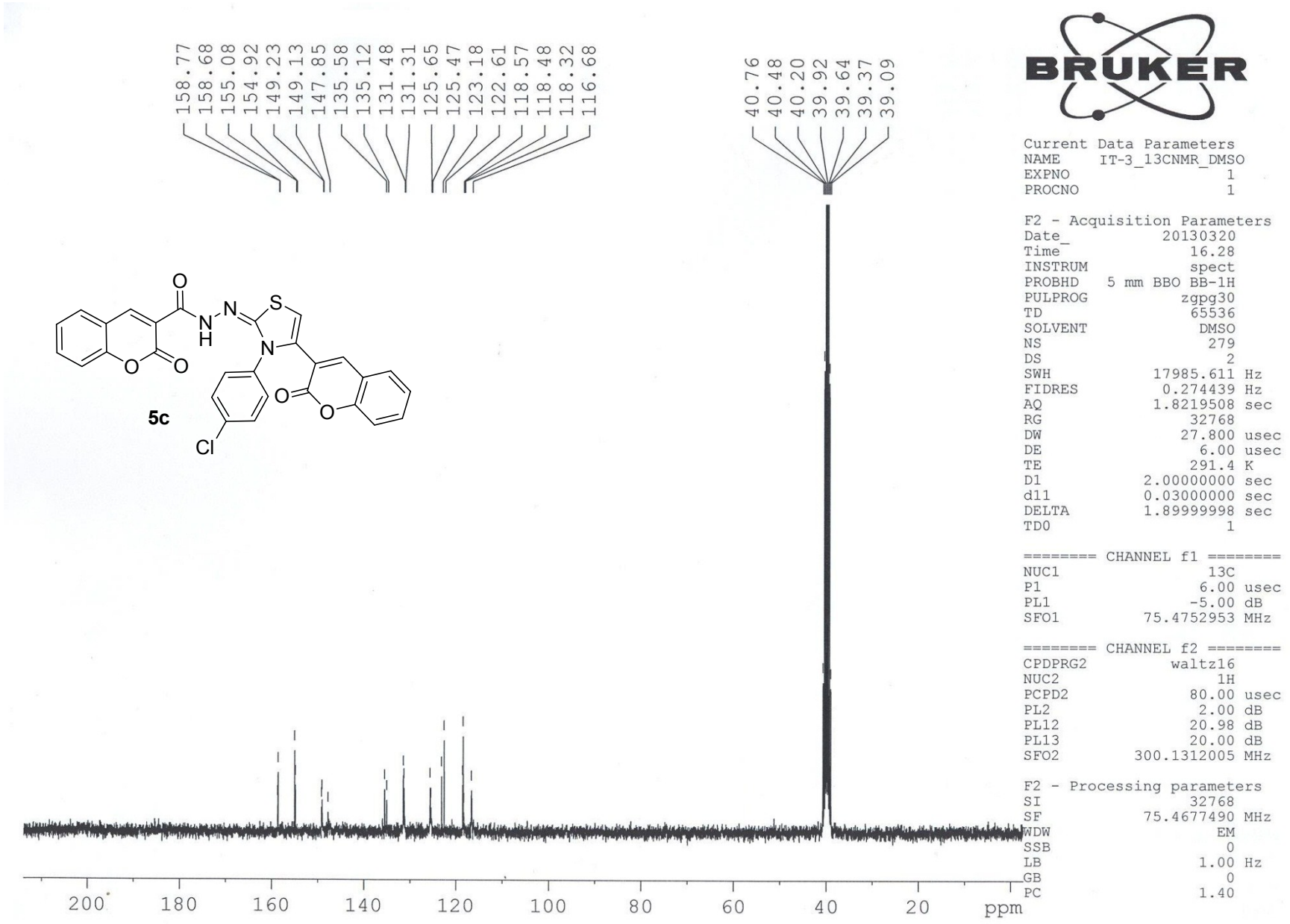


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EXPNO                   1
PROCNO                  1

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PULPROG          zgpg30
TD                65536
SOLVENT             DMSO
NS                   279
DS                     2
SWH           17985.611 Hz
FIDRES         0.274439 Hz
AQ             1.8219508 sec
RG                 32768
DW                27.800 usec
DE                 6.00 usec
TE                291.4 K
D1            2.00000000 sec
d11           0.03000000 sec
DELTA         1.89999998 sec
TD0                    1

======== CHANNEL f1 ========
NUC1                  13C
P1                 6.00 usec
PL1               -5.00 dB
SFO1         75.4752953 MHz

======== CHANNEL f2 ========
CPDPRG2          waltz16
NUC2                  1H
PCPD2             80.00 usec
PL2                2.00 dB
PL12              20.98 dB
PL13              20.00 dB
SFO2        300.1312005 MHz

F2 - Processing parameters
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SF           75.4677490 MHz
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LB                1.00 Hz
GB                     0
PC                 1.40
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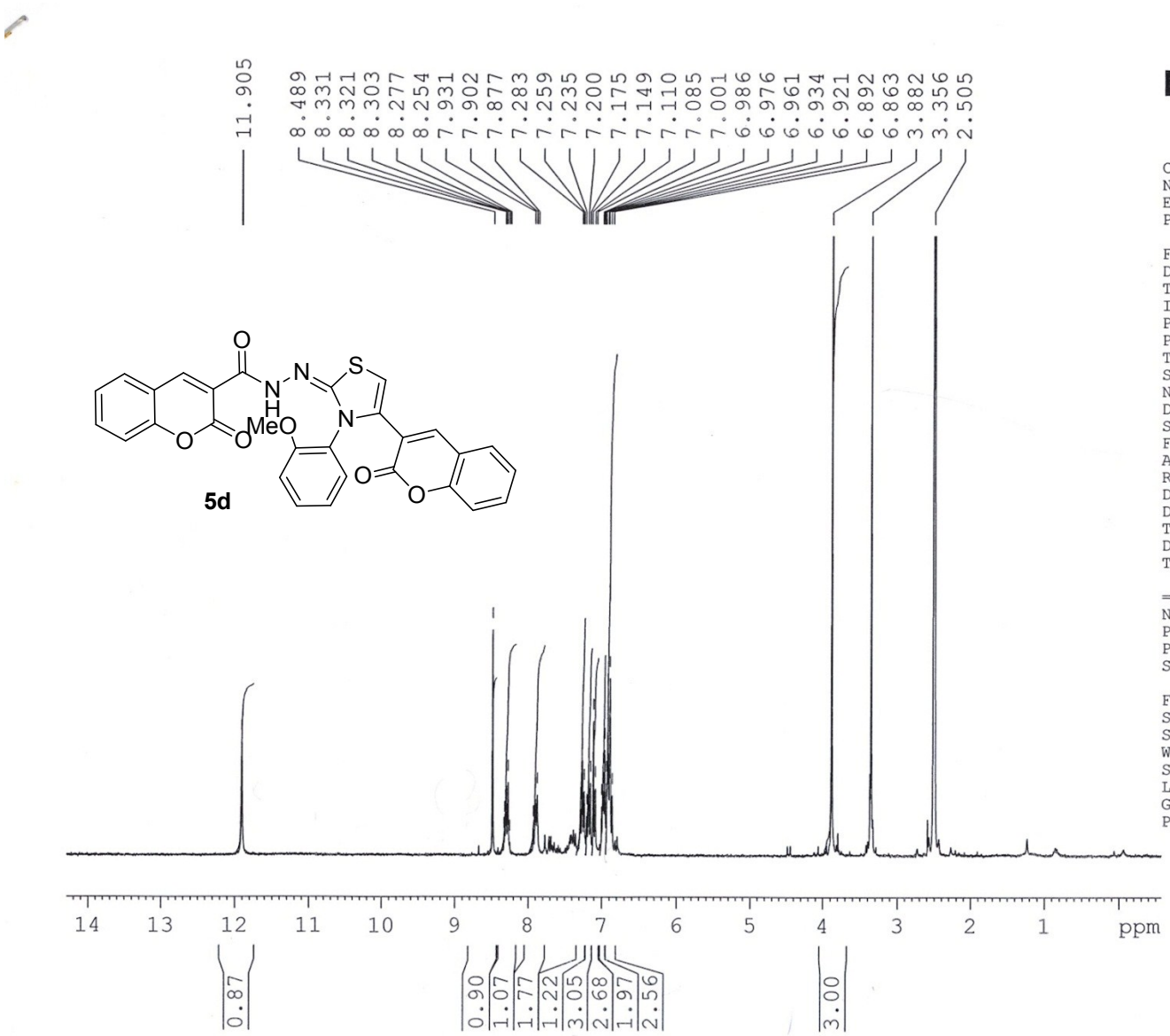

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Current Data Parameters
NAME      IT-1_1HNMR_DMSO
EXPNO                   1
PROCNO                  1

F2 - Acquisition Parameters
Date_            20120201
Time                11.15
INSTRUM             spect
PROBHD   5 mm BBO BB-1H
PULPROG              zg30
TD                  65536
SOLVENT              DMSO
NS                      8
DS                      0
SWH              6172.839 Hz
FIDRES           0.094190 Hz
AQ               5.3084660 sec
RG                  574.7
DW                 81.000 usec
DE                  6.00 usec
TE                 291.4 K
D1              1.00000000 sec
TD0                     1

======== CHANNEL f1 ========
NUC1                   1H
P1                  9.00 usec
PL1                 2.00 dB
SFO1         300.1318534 MHz

F2 - Processing parameters
SI                  32768
SF           300.1300000 MHz
WDW                    EM
SSB                     0
LB                   0.30 Hz
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PC                   1.00
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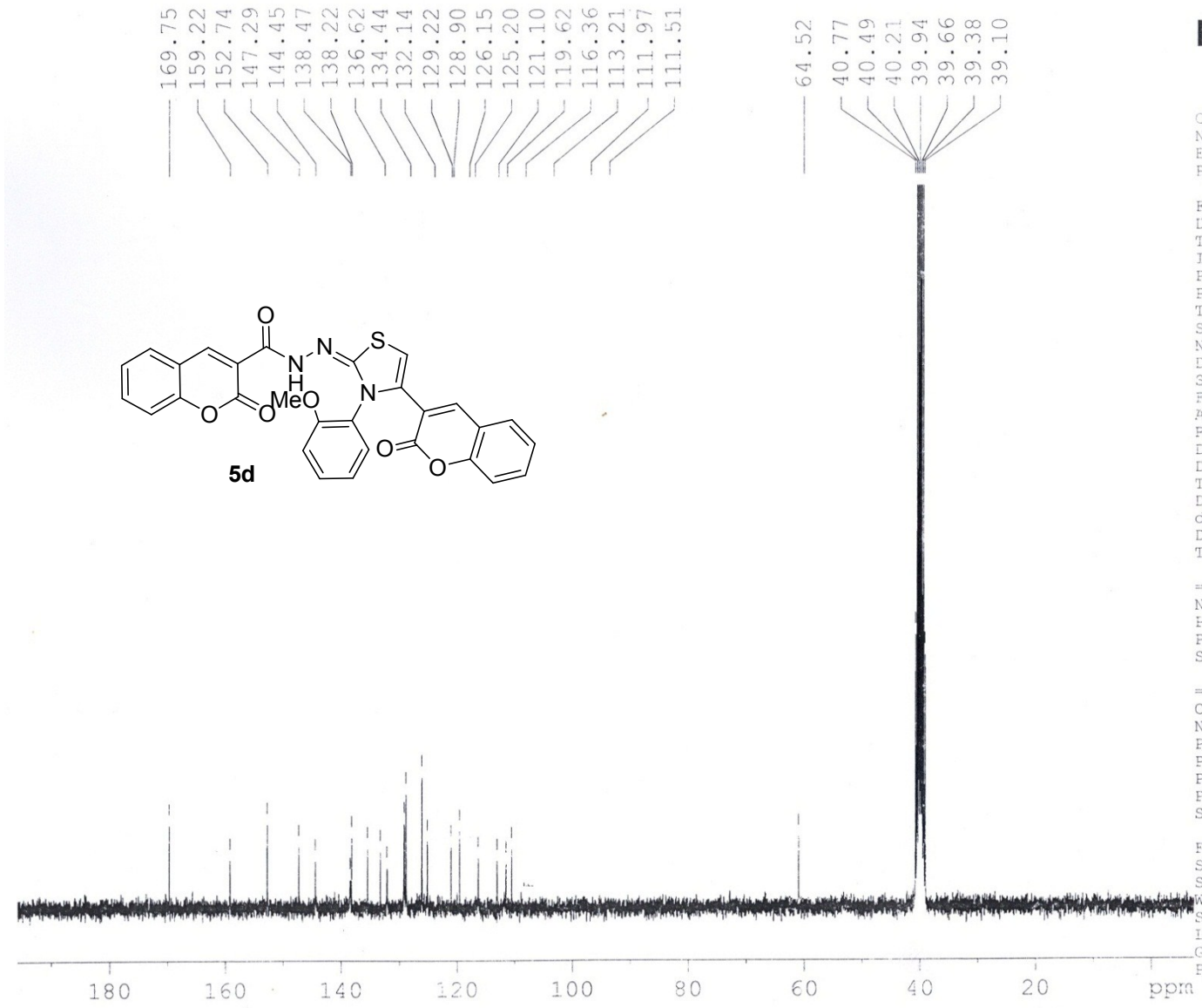

5d

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Current Data Parameters
NAME      IT-1_13CNMR_dmso
EXPNO                    1
PROCNO                   1

F2 - Acquisition Parameters
Date_             20120223
Time                 13.55
INSTRUM              spect
PROBHD   5 mm BBO BB-1H
PULPROG            zgpg30
TD                  65536
SOLVENT              DMSO
NS                     539
DS                       0
SWH              17985.611 Hz
FIDRES           0.274439 Hz
AQ               1.8219508 sec
RG                  2580.3
DW                  27.800 usec
DE                   6.00 usec
TE                  294.0 K
D1               2.00000000 sec
d11              0.03000000 sec
DELTA            1.89999998 sec
TD0                      1

======== CHANNEL f1 ========
NUC1                   13C
P1                   6.00 usec
PL1                 -5.00 dB
SFO1           75.4752953 MHz

======== CHANNEL f2 ========
CPDPRG2            waltz16
NUC2                   1H
PCPD2               80.00 usec
PL2                  2.00 dB
PL12                20.98 dB
PL13                20.00 dB
SFO2          300.1312005 MHz

F2 - Processing parameters
SI                   32768
SF             75.4677490 MHz
WDW                     EM
SSB                      0
LB                    1.00 Hz
GB                       0
PC                    1.40
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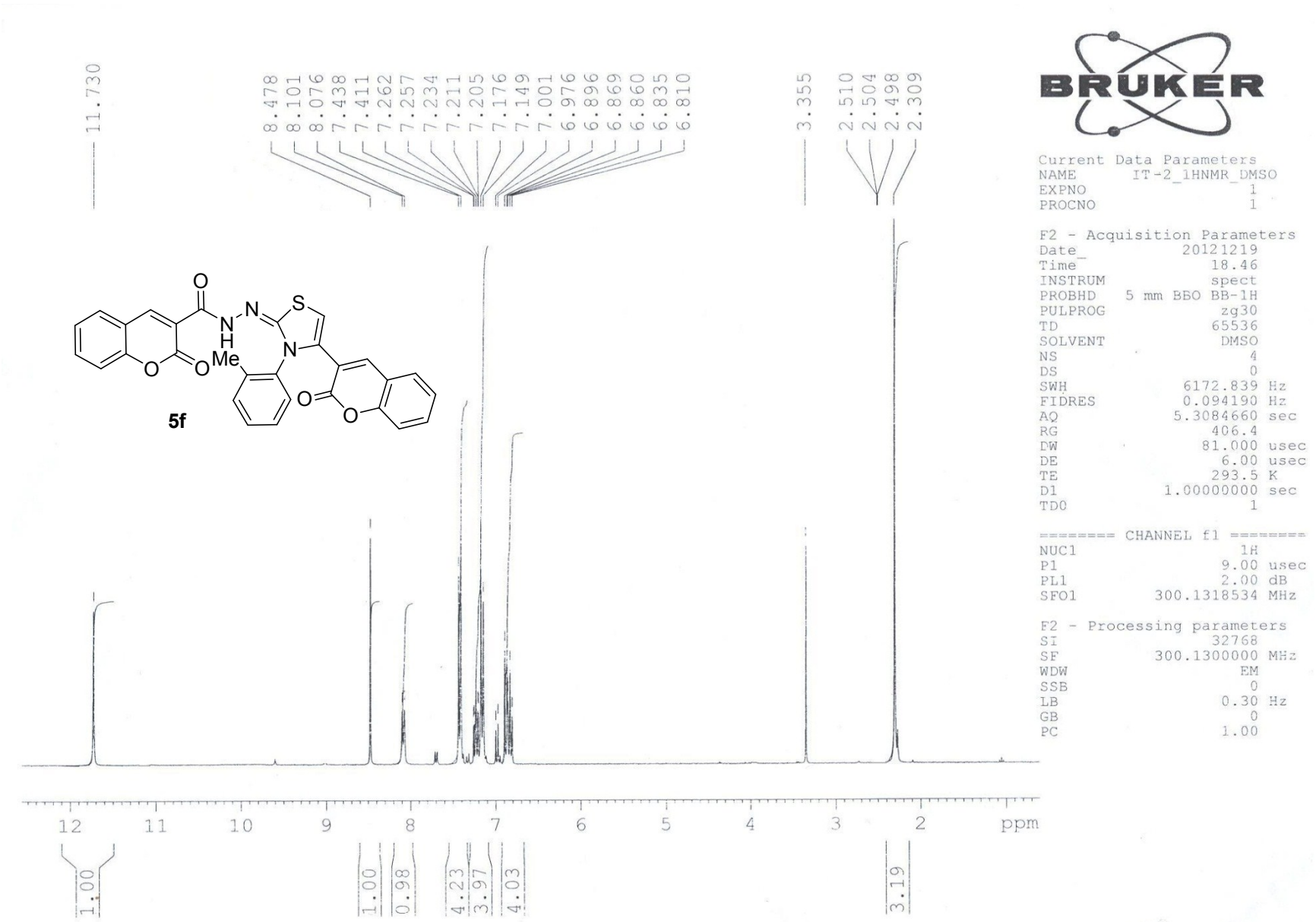

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EXPNO                     1
PROCNO                    1

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INSTRUM               spect
PROBHD    5 mm BBO BB-1H
PULPROG               zg30
TD                   65536
SOLVENT               DMSO
NS                       4
DS                       0
SWH               6172.839 Hz
FIDRES               0.094190 Hz
AQ                5.3084660 sec
RG                   406.4
DW                  81.000 usec
DE                   6.00 usec
TE                  293.5 K
D1             1.00000000 sec
TD0                      1

======== CHANNEL f1 ========
NUC1                    1H
P1                   9.00 usec
PL1                  2.00 dB
SFO1          300.1318534 MHz

F2 - Processing parameters
SI                   32768
SF            300.1300000 MHz
WDW                     EM
SSB                      0
LB                   0.30 Hz
GB                       0
PC                    1.00
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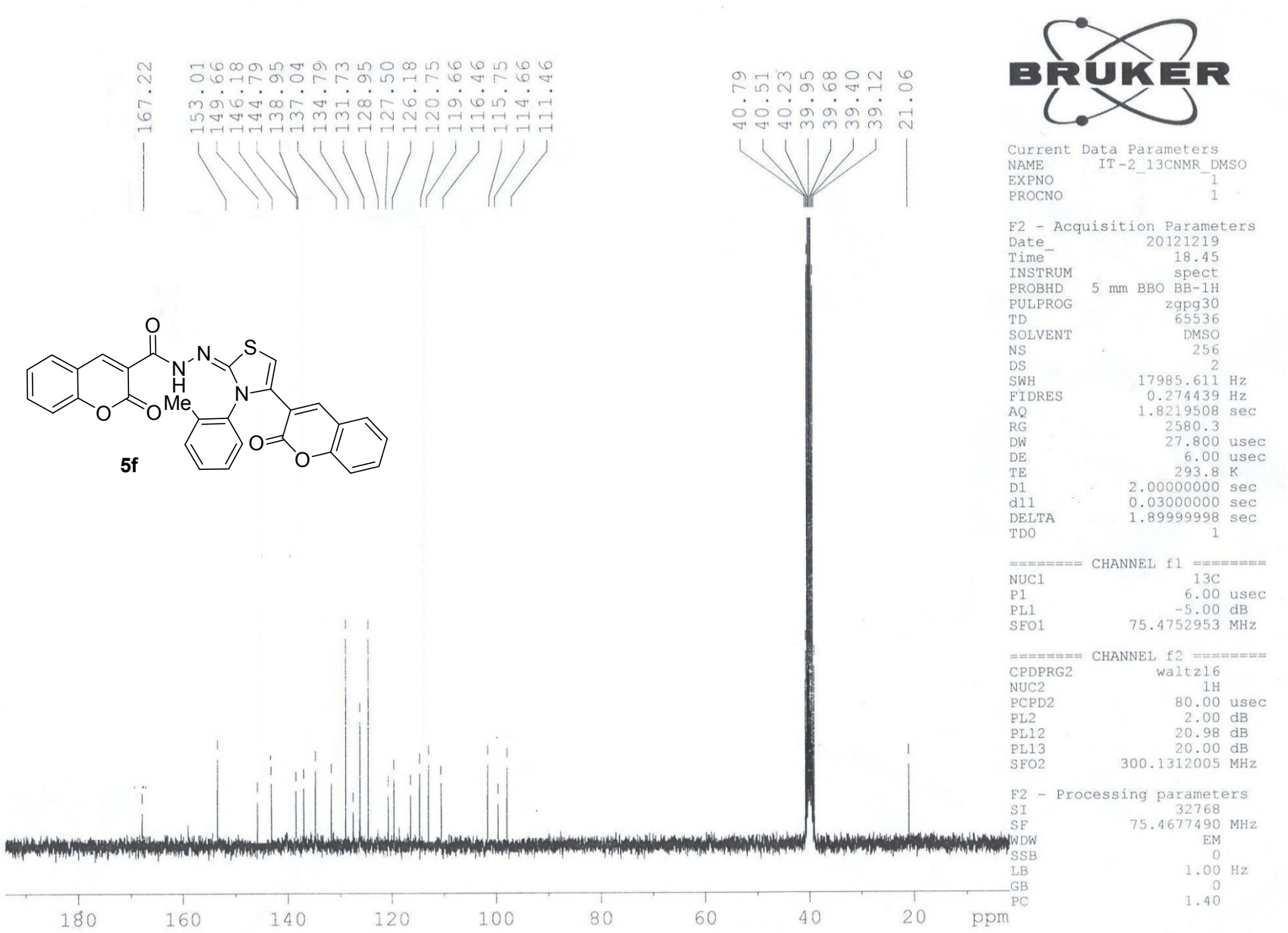

5f

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Current Data Parameters
NAME IT-2_13CNMR_DMSO
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PROCNO 1

F2 - Acquisition Parameters
Date_ 20121219
Time 18.45
INSTRUM spect
PROBHD 5 mm BBO BB-1H
PULPROG zgpg30
TD 65536
SOLVENT DMSO
NS 256
DS 2
SWH 17985.611 Hz
FIDRES 0.274439 Hz
AQ 1.8219508 sec
RG 2580.3
DW 27.800 usec
DE 6.00 usec
TE 293.8 K
D1 2.00000000 sec
d11 0.03000000 sec
DELTA 1.89999998 sec
TD0 1

======== CHANNEL f1 ========
NUC1 13C
P1 6.00 usec
PL1 -5.00 dB
SFO1 75.4752953 MHz

======== CHANNEL f2 ========
CPDPRG2 waltz16
NUC2 1H
PCPD2 80.00 usec
PL2 2.00 dB
PL12 20.98 dB
PL13 20.00 dB
SFO2 300.1312005 MHz

F2 - Processing parameters
SI 32768
SF 75.4677490 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40