Detailed list of the contents of the Supporting Information:

Experimental

1,7,7-Trimethyl-2-*endo*-oxiranyl-bicyclo[2.2.1]heptan-2-ol (3a) and 1,7,7-Trimethyl-2-*exo*-oxiranyl-bicyclo[2.2.1]heptan-2-ol (3b). To a solution of crude allyl alcohol **2** (500 mg, 2.78 mmol), in dichloromethane (30 mL) was added *m*-CPBA (1.44 g, 50% by weight, 4.17 mmol) at a time. The mixture was stirred for 18 h at room temperature. Then the reaction mixture was diluted with dichloromethane (50 mL) and washed successively with saturated aqueous sodium bisulphite (2 × 20 mL), saturated aqueous sodium bicarbonate (2 × 20 mL) and finally with brine (1 × 20 mL) and then dried (Na_2SO_4). After removal of solvent under reduced pressure the crude material obtained was subjected to column chromatography over silica gel (15% ethyl acetate in light petroleum) to afford the major epoxy alcohol **3a** (270 mg, 50%) as a colorless liquid: IR (neat) ν 3502, 2954, 2935, 2873, 1732, 1456, 1388, 1371 cm^{-1}; ^{1}H NMR (300 MHz, $CDCl_3$) δ 0.86 (s, 3H), 1.12 (s, 3H), 1.02-1.98 (m, 7H), 2.70-2.76 (m, 2H), 2.99-3.03 (m, 1H); ^{13}C NMR (75 MHz, $CDCl_3$) δ 10.5, 20.0, 20.9, 26.9, 29.7, 41.9, 43.6, 44.2, 45.4, 49.7, 55.7, 77.6; HR-MS $C_{12}H_{20}O_2Na$ calcd, 219.1360 (M + Na); found, 219.1299 and the minor epoxy alcohol **3b** (195 mg, 36%**)** as a colourless liquid: IR (neat) ν 3502, 2950, 2937, 2875, 1738, 1456, 1388, 1373 cm^{-1}; ^{1}H NMR (300 MHz, $CDCl_3$) δ 0.86 (s, 3H), 0.89 (s, 3H), 1.09 (s, 3H), 1.03-1.90 (m, 7H), 2.62 (dd, *J* = 5.16, 4.2 Hz, 1H), 2.78 (dd, *J* = 5.16, 2.7 Hz, 1H), 3.17 (dd, *J*=4.16, 2.8 Hz, 1H); ^{13}C NMR (75 MHz, $CDCl_3$) δ 10.8, 20.5, 21.1, 27.1, 31.6, 41.9, 43.5, 44.8, 49.6, 52.5, 55.2, 77.4; HR-MS $C_{12}H_{20}O_2Na$ calcd, 219.1360 (M + Na); found, 219.1366.

(3'*R*)-1,7,7-trimethyl-3'-[(prop-2-ynyloxy)methyl]spiro[bicyclo[2.2.1]heptane-2,2'-oxirane] (5a). To a stirred suspension of NaH (49 mg, 60% dispersion; 2.04 mmol) in dry THF-DMSO (10:1) (3 mL) was added dropwise a solution of epoxy alcohol **3a** (200 mg, 1.02 mmol) in dry THF (5 mL) at 0°C under nitrogen. After the evolution of hydrogen ceased (approx. 25 min), a solution of propargyl bromide (145 mg, 1.22 mmol) in THF (5 mL) was added dropwise at 0°C over 20 min. The reaction mixture was then

stirred at room temperature for 8h and then carefully decomposed with ice water. After removal of most of the solvent under reduced pressure, the resulting residue was extracted with diethyl ether (4×25 mL). The combined ether extract was washed successively with water (2×10 mL) and brine (1×10 mL) and then dried (Na_2SO_4). Solvent was removed under reduced pressure, and the oil obtained was purified by column chromatography over silica gel (10% ethyl acetate in light petroleum) to furnish **5a** (186 mg, 78%) as a colorless liquid: IR (neat) ν 3305, 3265, 2952, 2873, 2116, 1741, 1475, 1452, 1388, 1371, 1319, 1265 cm^{-1}; ^1H NMR (300 MHz, $CDCl_3$) δ 0.62 (s, 3H), 0.86 (s, 3H), 0.97 (s, 3H), 1.10-1.92 (m, 7H), 2.45 (t, *J* = 2.4 Hz, 1H), 2.94-2.97 (m, 1/2H), 3.03-3.06 (m, 1/2H), 3.46 (dd, *J* = 10.8, 6.6 Hz, 1H), 3.66 (dd, *J* = 11.1, 6.7 Hz, 1H), 3.74 (dd, *J* = 10.9, 4.0 Hz, 1H), 3.87 (dd, *J*=11.2, 3.6 Hz, 1H), 4.23 (AB_q and each peak splits into doublet, *J* = 15.8, 2.6 Hz, 2H); ^{13}C NMR (75 MHz, $CDCl_3$) δ 8.75, 11.68, 19.28, 19.38, 19.55, 27.29, 27.74, 31.61, 32.17, 35.20, 40.18, 44.32, 44.56, 47.61, 47.62, 53.38, 58.08, 58.21, 59.65, 68.25, 70.11, 70.78, 74.59, 79.39; Anal. Calcd for $C_{15}H_{22}O_2$: C, 76.88; H, 9.46. Found: C, 76.68; H, 9.48.

(3'*S*)-1,7,7-trimethyl-3'-[(prop-2-ynyloxy)methyl]spiro[bicyclo[2.2.1]heptane-2,2'-oxirane] (5b): colorless oil; 78% yield; IR (neat) ν 2954, 2875, 2200, 17439, 1454, 1390, 1263 cm^{-1}; ^1H NMR (300 MHz, $CDCl_3$) δ 0.75 (s, 1H), 0.85 (s, 3H), 0.95 (s, 3H), 1.14-1.91 (m, 7H), 2.45 (t, *J* = 2.4 Hz, 1H), 3.03 (dd, *J*= 6.6, 3.3 Hz, 1H), 3.66 (dd, *J* = 11.1, 6.7 Hz, 1H), 3.87 (dd, *J*=11.1, 3.3 Hz, 1H), 4.23 (AB_q and each peak splitted into doublet, *J* = 15.7, 2.4 Hz, 2H); ^{13}C NMR (75 MHz, $CDCl_3$) δ 11.75, 19.37, 19.68, 27.81, 31.69, 40.26, 44.6, 49.3, 58.2, 59.7, 68.3, 74.6; Anal. Calcd for $C_{15}H_{22}O_2$: C, 76.88; H, 9.46. Found: C, 76.54; H, 9.37.

(1*R*)-1-(2,2-dimethyl-3-methylenebicyclo[2.2.1]hept-1-yl)-2-(prop-2-ynyloxy)ethanol (6a): A solution of Cp_2TiCl_2 (225 mg, 0.9 mmol) in THF (5 mL) (dried over Na) was stirred with activated zinc dust (195 mg, 2.99 mmol) for 1h under argon (activated zinc dust was prepared by washing 20 gm of commercially

available zinc dust with 60 mL of 4 N HCl and thorough washing with water untill the washings became neutral and finally with dry acetone and then drying in vacuo). The resulting green solution was then added dropwise to a stirred solution of the epoxide **5a** (100 mg, 0.43 mmol) in dry THF (12 mL) at room temperature under argon. It was stirred for an additional 1h and decomposed with saturated sodium dihydrogen phosphate (10 mL). After removal of most of the THF under reduced pressure, the crude material obtained was purified by column chromatography over silica gel (5% ethyl acetate in light petroleum) to furnish **6a** (72 mg, 72%) as a colourless liquid. IR (neat) ν 3463, 3307, 2931, 2873, 1739, 1654, 1456, 1388, 1369, 1261 cm^{-1}; ^{1}H NMR (300 MHz, $CDCl_3$) δ 1.03 (s, 3H), 1.08 (s, 3H), 1.21-1.89 (m, 7H), 2.45 (t, *J* = 2.4 Hz, 1H), 3.59 (dd, *J* = 9.6, 8.4 Hz, 1H), 3.83 (dd, *J* = 9.6, 2.4 Hz, 1H), 4.14-4.30 (m, 3H), 4.72 (s, 1H), 4.85 (s, 1H); ^{13}C NMR (75 MHz, $CDCl_3$) δ 24.9, 26.3, 29.7, 31.2, 38.5, 43.7, 47.1, 57.1, 58.9, 71.4, 72.2, 75.1, 80.0, 100.4, 165.4; Anal. Calcd. for $C_{15}H_{22}O_2$: C, 76.88; H, 9.46. Found: C, 76.26; H, 9.50.

(1*S*)-1-(2,2-dimethyl-3-methylenebicyclo[2.2.1]hept-1-yl)-2-(prop-2-ynyloxy)ethanol (6b) was prepared from **5b** by following the same procedure as described for **6a**: colorless oil; 75% yield, IR (neat) ν 3477, 3307, 2958, 2875, 2115, 1652, 1461, 1361 cm^{-1}; ^{1}H NMR (300 MHz, $CDCl_3$) δ 0.99 (s, 3H), 1.07 (s, 3H), 1.09-2.00 (m, 7H), 2.44 (t, *J* = 2.4 Hz, 1H), 3.46 (t, *J* = 9.0 Hz, 1H), 3.78 (dd, *J* = 9.3, 2.6 Hz, 1H), 4.16 (dd, J=8.7, 2.5 Hz, 1H), 4.19 (d, J= 2.4 Hz, 2H), 4.65 (s, 1H), 4.74 (s, 1H); ^{13}C NMR (75 MHz, $CDCl_3$) δ 23.94, 25.8, 29.1, 29.8, 37.2, 43.1, 46.9, 55.7, 58.3, 70.4, 72.0, 74.5, 79.4, 99.3, 165.7; Anal. Calcd. for $C_{15}H_{22}O_2$: C, 76.88; H, 9.46. Found: C, 76.16; H, 9.26.

(3'*R*)-3'-[(benzyloxy)methyl]-1,7,7-trimethylspiro[bicyclo[2.2.1]heptane-2,2'-oxirane] (9a): To a stirred suspension of NaH (49 mg, 60% dispersion; 2.04 mmol) in dry THF-DMSO (10:1) (3 mL) was added dropwise a solution of epoxy alcohol **3a** (200 mg, 1.02 mmol) in dry THF (5 mL) at 0°C under nitrogen. After the evolution of hydrogen ceased (approx. 25 min), a solution of benzyl bromide (192

mg, 1.12 mmol) in THF (5 mL) was added dropwise at 0 °C over 20 min. The reaction mixture was then stirred at room temperature for 8 h and carefully decomposed with ice-water (10 mL). After removal of most of the volatiles under reduced pressure, the resulting residue was extracted with diethyl ether (4 × 25 mL). The combined ether extract was washed successively with water (2 × 10 mL), brine (1 × 10 mL) and then dried (Na_2SO_4). Solvent was removed under reduced pressure and the oil obtained was purified by column chromatography over silica gel (5% ethyl acetate in light petroleum) to furnish **9a** (222 mg, 76%) as a colourless liquid: IR (neat) ν 3485, 3030, 2952, 2871, 1741, 1496, 1454, 1388, 1361, 1319, 1274, 1203 cm^{-1}; ^1H NMR (300 MHz, $CDCl_3$) δ 0.641 (s, 3H), 0.87 (s, 3H), 0.98 (s, 3H), 0.70-1.89 (m, 7H), 2.99-3.02 (m, 1H), 3.45 (dd, *J* = 10.9, 6.5Hz, 1H), 3.66 (dd, *J* = 10.9, 4.1 Hz, 1H), 4.5 (ABq, *J* = 11.8 Hz, 2H), 7.25-7.36 (m, 5H, ArH); ^{13}C NMR (75 MHz, $CDCl_3$) δ 9.28, 20.07, 27.82, 30.33, 32.71, 35.74, 40.74, 43.71, 44.85, 48.12, 54.31, 60.67, 69.18, 71.08, 73.42, 100.34, 120.02, 128.84, 138.54; Anal. Calcd for $C_{19}H_{26}O_2$: C, 79.68; H, 9.15. Found: C, 79.58; H, 9.16.

(1*R*)-2-(benzyloxy)-1-(2,2-dimethyl-3-methylenebicyclo[2.2.1]hept-1-yl)ethanol (10a): A solution of Cp_2TiCl_2 (183 mg, 0.73 mmol) in dry THF (5 mL) was stirred with activated zinc dust (160 mg, 2.45 mmol) for 1h under argon. The resulting green solution was then added dropwise to a stirred solution of the epoxide **9a** (100 mg, 0.35 mmol) in dry THF (5 mL) at room temperature under argon during 30 min. After additional stirring for 1h, the reaction mixture was decomposed with saturated di-sodium hydrogen phosphate (10 mL). After removal of most of the THF under reduced pressure, the resulting residue was extracted with diethyl ether (4 × 25 mL). The combined ether extract was washed successively with saturated $NaHCO_3$ (2 × 10 mL), brine (1 × 10 mL) and then dried (Na_2SO_4). Solvent was removed under reduced pressure and the brown gummy residue obtained was purified by column chromatography over silica gel (5% ethyl acetate in light petroleum) to furnish **10a** (74 mg, 74%) as a colorless liquid: IR (neat) ν 3444, 3064, 3030, 2950, 2871, 1722, 1651, 1494, 1454, 1386, 1361, 1315, 1274, 1201 cm^{-1}: ^1H NMR

(300 MHz, $CDCl_3$) δ 1.02 (s, 3H), 1.07 (s, 3H), 1.20-1.85 (m, 7H), 3.57 (dd, *J* = 9.4, 8.4 Hz, 1H), 3.73 (dd, *J* = 9.6, 2.7 Hz, 1H), 4.18 (dd, *J* = 8.4, 2.5 Hz, 1H), 4.60 (d, *J* = 2.9 Hz, 2H), 4.69 (s ,1H), 4.82 (s, 1H), 7.25-7.48 (m, 5H, ArH); ^{13}C NMR (75 MHz, $CDCl_3$) δ 24.9, 26.3, 29.7, 31.1, 38.5, 43.7, 47.1, 57.0, 71.5, 72.5, 73.7, 100.3, 128.1, 128.5, 130.0, 130.1, 133.5, 138.5, 165.5; Anal. Calcd. for $C_{19}H_{26}O_2$: C, 79.68; H, 9.15. Found C, 79.58; H, 9.16.

(1*R*)-2-(benzyloxy)-1-(2,2-dimethyl-3-methylenebicyclo[2.2.1]hept-1-yl)-1-(3,5-dinitrophenyl)ethyl acetate (13): To a stirred solution of 3,5-dinitrobenzoic acid (100 mg, 0.47 mmol), DCC (180 mg, 0.87 mmol) and DMAP (20 mg, 0.16 mmol) in CH_2Cl_2 (2 mL) at 0 °C was added a solution of the alcohol **10a** (120 mg, 0.419 mmol) in CH_2Cl_2 (3 mL). The reaction mixture was allowed to stir for another 6h. It was then diluted with ether (20 mL), filtered and the filtrate obtained was washed successively with saturated aqueous solution of sodium bicarbonate (2 x 10 mL), water (2 x 10 mL) and brine (1 x 10 mL) and then dried (Na_2SO_4). After removal of solvent under reduced pressure, the crude mass obtained was purified by column chromatography over silica gel (10% ethyl acetate in petroleum ether) to furnish the ester **13** (200 mg, 99%) as a crystalline solid, m. p. 104-106 ^{0}C; IR (KBr) ν 3103, 2949, 2877, 1735, 1627, 1548, 1450, 1344, 1280, 1174, 1093, 1072 cm^{-1}; ^{1}HNMR (300MHz, $CDCl_3$) δ 1.03(s, 3H), 1.07 (s, 3H), 1.26-1.35 (m, 1H), 1.40 (d, *J* = 9.7 Hz, 1H), 1.53-1.59 (m, 1H), 1.69-1.93 (m, 4H), 3.88 (d, *J* = 6.2 Hz, 2H), 4.55 (ABq, *J* = 12.1, 36.2 Hz, 2H), 4.67 (s, 1H), 4.83 (s, 1H), 5.85 (dd, *J* = 6.4, 4.6 Hz, 1H), 7.22 (s, 5H), 9.09 (s, 2H), 9.2 (s, 1H); ^{13}CNMR (75MHz, $CDCl_3$); δ 24.2, 25.8, 29.3, 31.3, 39.3, 43.4, 46.6, 55.5, 69.6, 72.8, 76.3, 100.3, 122.1, 127.3, 127.4, 128.3, 129.3, 134.2, 137.7, 148.5, 162.1, 163.6.

(3'*R*)-3'-(ethoxymethyl)-1,7,7-trimethylspiro[bicyclo[2.2.1]heptane-2,2'-oxirane] Preparation (11a): To a stirred suspension of NaH (49 mg, 60% dispersion; 2.04 mmol) in dry THF-DMSO (10:1) (3 mL) was added dropwise a solution of epoxy alcohol **3a** (200 mg, 1.02 mmol) in dry THF (5 mL) at 0°C under nitrogen. After the evolution of hydrogen ceased (approx. 25 min), a solution of MeI (580 mg, 4.08

mmol) in THF (5 mL) was added dropwise at 0°C over 20 min. The reaction mixture was then stirred at room temperature for 8 h and carefully decomposed with ice-water (10 mL). After removal of most of the volatiles under reduced pressure, the resulting residue was extracted with diethyl ether (4 × 25 mL). The combined ether extract was washed successively with water (2 × 10 mL), brine (1 × 10 mL) and then dried (Na_2SO_4). Solvent was removed under reduced pressure and the oil obtained was purified by column chromatography over silica gel (5% ethyl acetate in light petroleum) to furnish **11a** (158 mg, 74%) as a colorless liquid: IR (neat) ν 2954, 2875, 1732, 1454, 1388, 1371, 1261, 1195, 1124 cm^{-1}; ^1H NMR (300 MHz, $CDCl_3$) δ 0.63 (s, 3H), 0.87 (s, 3H), 0.98 (s, 3H), 1.00-1.91 (m, 7H), 2.94 (dd, *J* = 6.5, 3.9 Hz., 1H), 3.33 (dd, *J* = 11.1, 6.5 Hz., 1H), 3.41 (s, 3H), 3.60 (dd, *J* = 11.2, 3.9 Hz., 1H); ^{13}C NMR (75 MHz, $CDCl_3$) δ 9.2, 19.5, 19.7, 27.8, 32.6, 35.7, 40.7, 44.7, 48.1, 54.1, 59.4, 72.1; Anal. Calcd for $C_{13}H_{22}O_2$: C, 74.24; H, 10.54. Found: C, 74.03; H, 10.41.

(1*R*)-1-(2,2-dimethyl-3-methylenebicyclo[2.2.1]hept-1-yl)-2-methoxyethanol (12a): A solution of Cp_2TiCl_2 (250 mg, 1.004 mmol) in dry THF (12.5 mL) was stirred with activated zinc dust (218 mg, 3.33 mmol) for 1h under argon. The resulting green solution was then added dropwise to a stirred solution of the epoxide **11a** (100 mg, 0.476 mmol) in dry THF (12 mL) at room temperature under argon. It was stirred for an additional 1h and decomposed with saturated sodium dihydrogen phosphate (10 mL). After removal of most of the THF under reduced pressure, the resulting residue was extracted with diethyl ether (4 × 25 mL). The combined ether extract was washed successively with water (2 × 10 mL), brine (1 × 10 mL) and then dried (Na_2SO_4). Solvent was removed under reduced pressure and the crude material obtained was purified by column chromatography over silica gel (10% ethyl acetate in light petroleum) to furnish **12a** (72 mg, 71%): IR (neat) ν 3465, 2956, 2927, 2879, 1651, 1458, 1361, 1195, 1124 cm^{-1}; ^1H NMR (300 MHz, $CDCl_3$) δ 1.03 (s, 3H), 1.08 (s, 3H), 1.16-1.88 (m, 7H), 2.35 (brs, OH), 3.42(s, 3H), 3.47 (dd, *J* = 9.6, 8.6 Hz, 1H), 3.63 (dd, *J* = 9.7, 2.6 Hz, 1H), 4.14 (dd, *J* = 8.5, 2.5Hz., 1H), 4.71 (s, 1H),

4.85 (s, 1H); ^{13}C NMR (75 MHz, $CDCl_3$) δ 24.9, 26.3, 29.6, 31.1, 38.4, 43.7, 47.1, 57.0, 59.4, 71.3, 74.8, 100.3, 165.4; Anal. Calcd. for $C_{13}H_{22}O_2$: C, 74.24; H, 10.54. Found: C, 74.18; H, 10.55.

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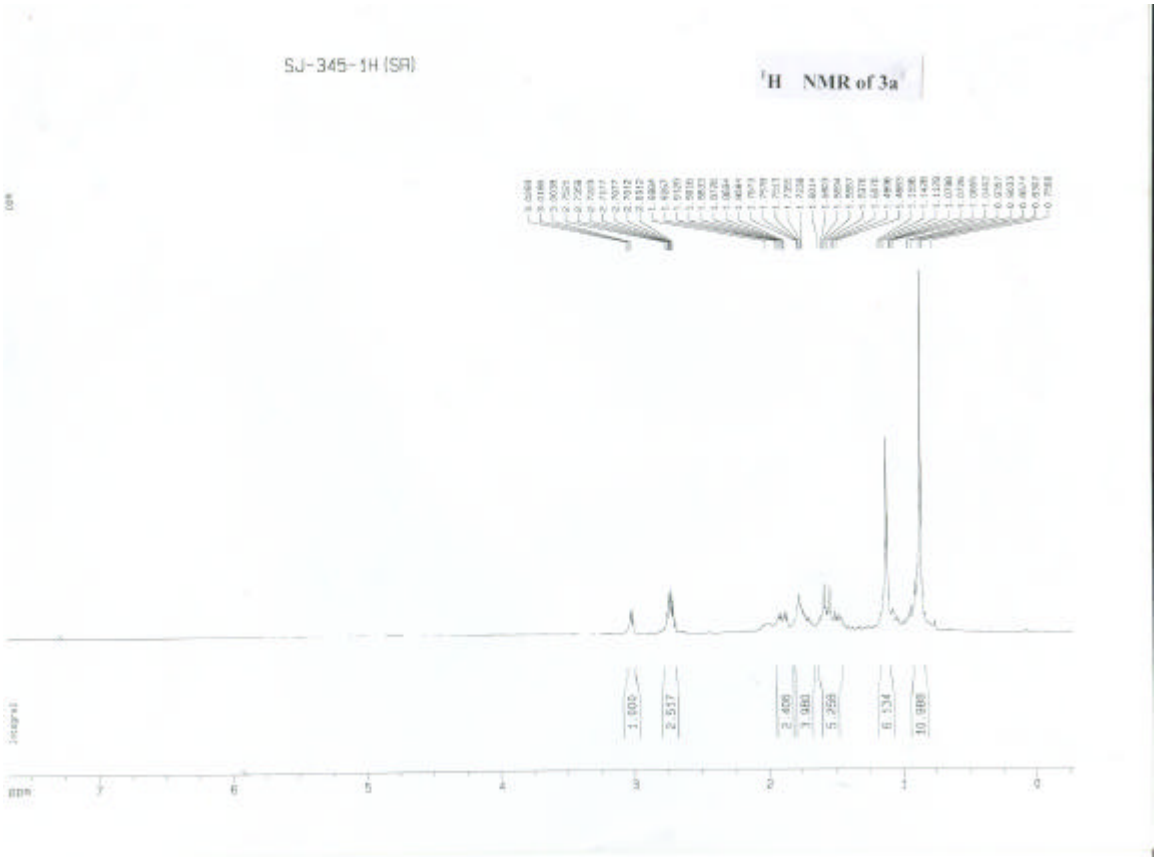

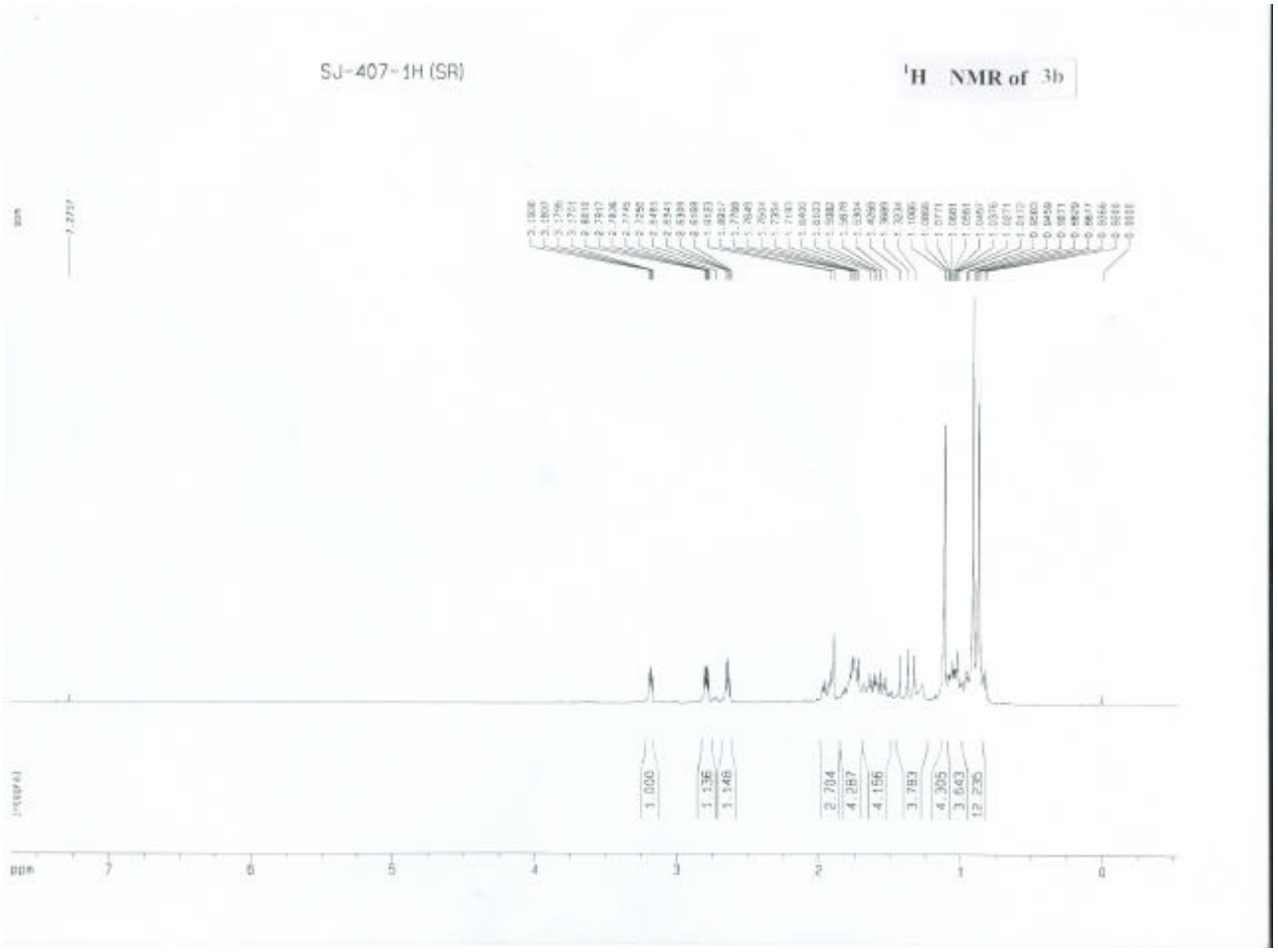
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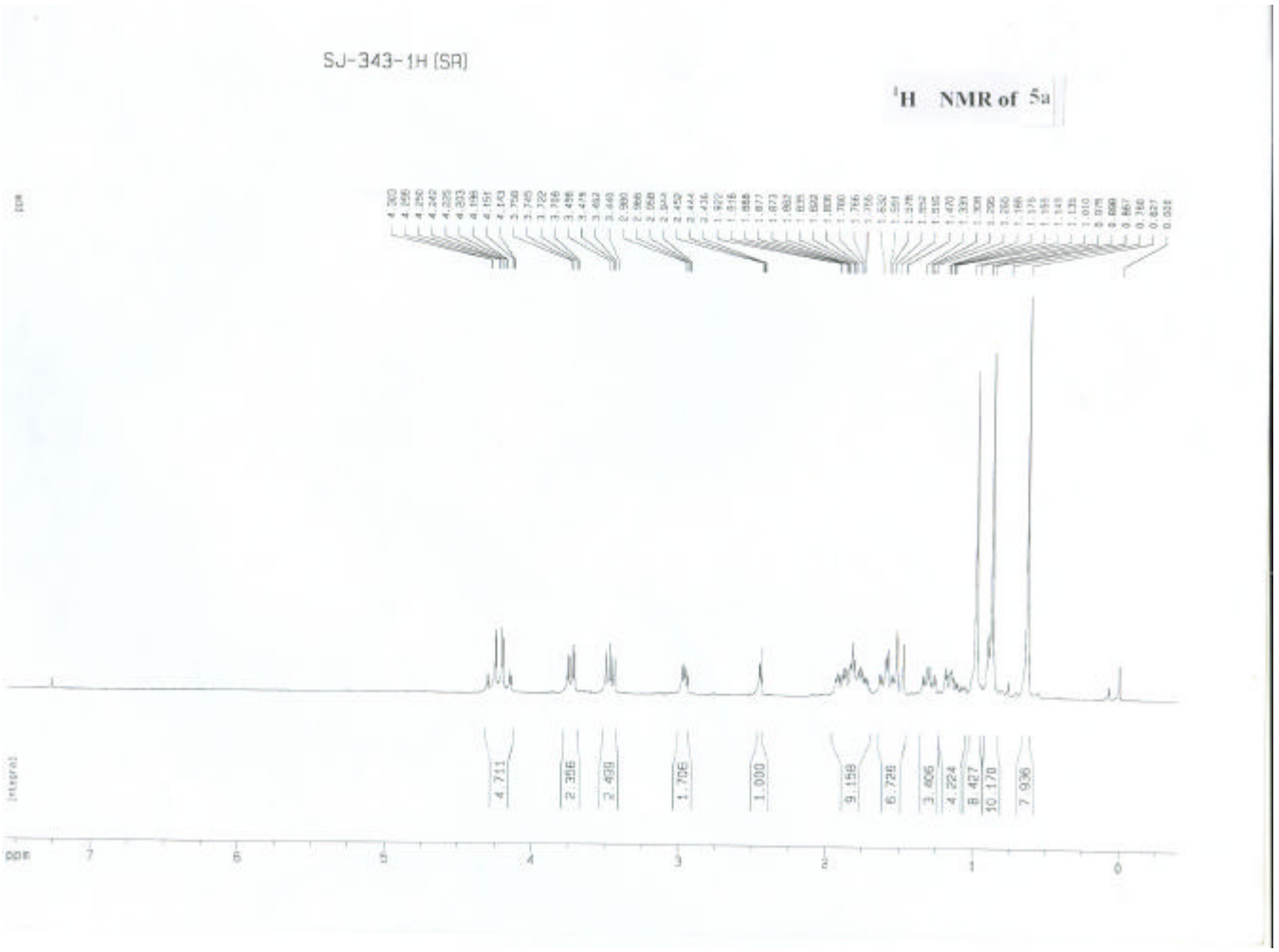
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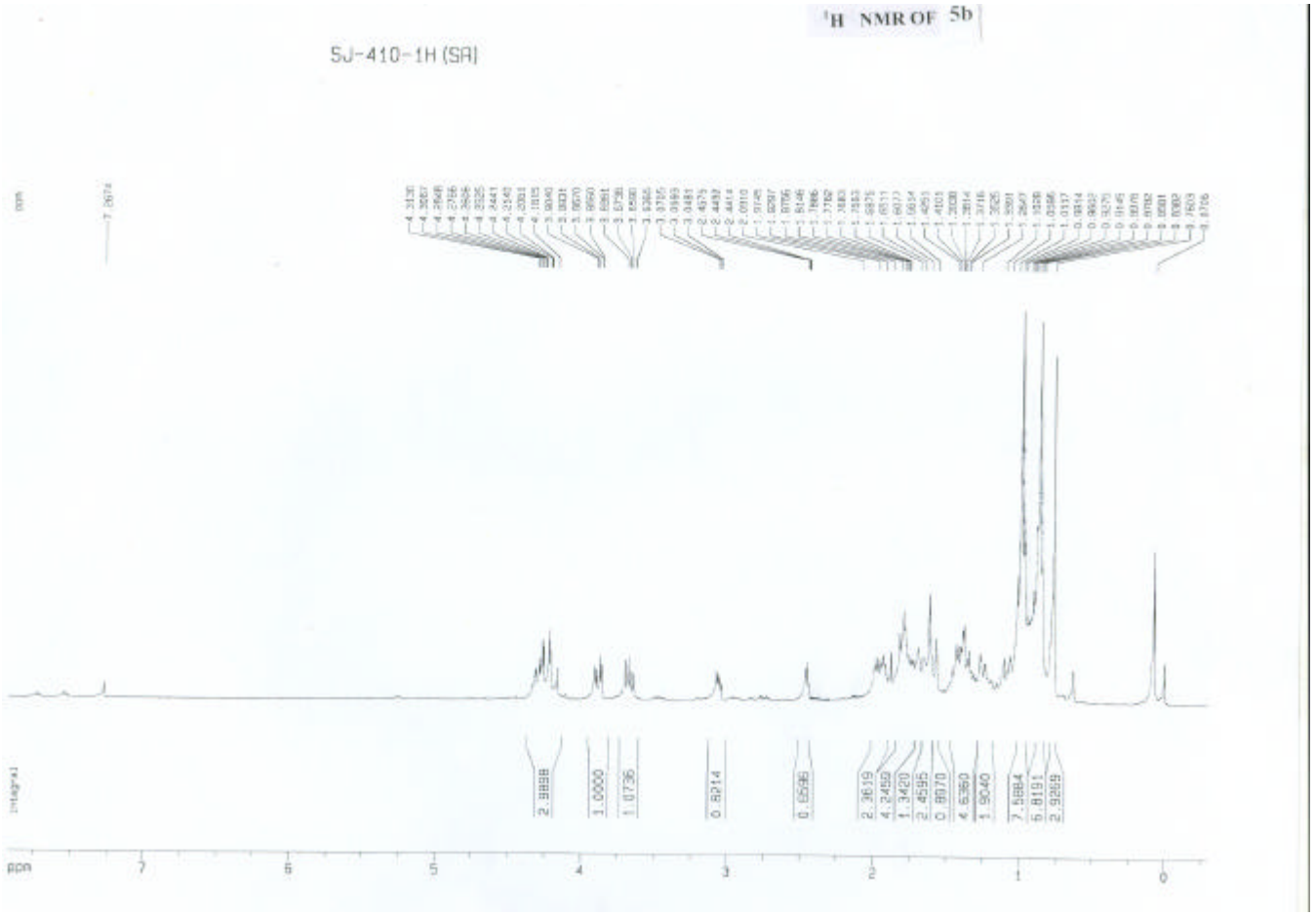
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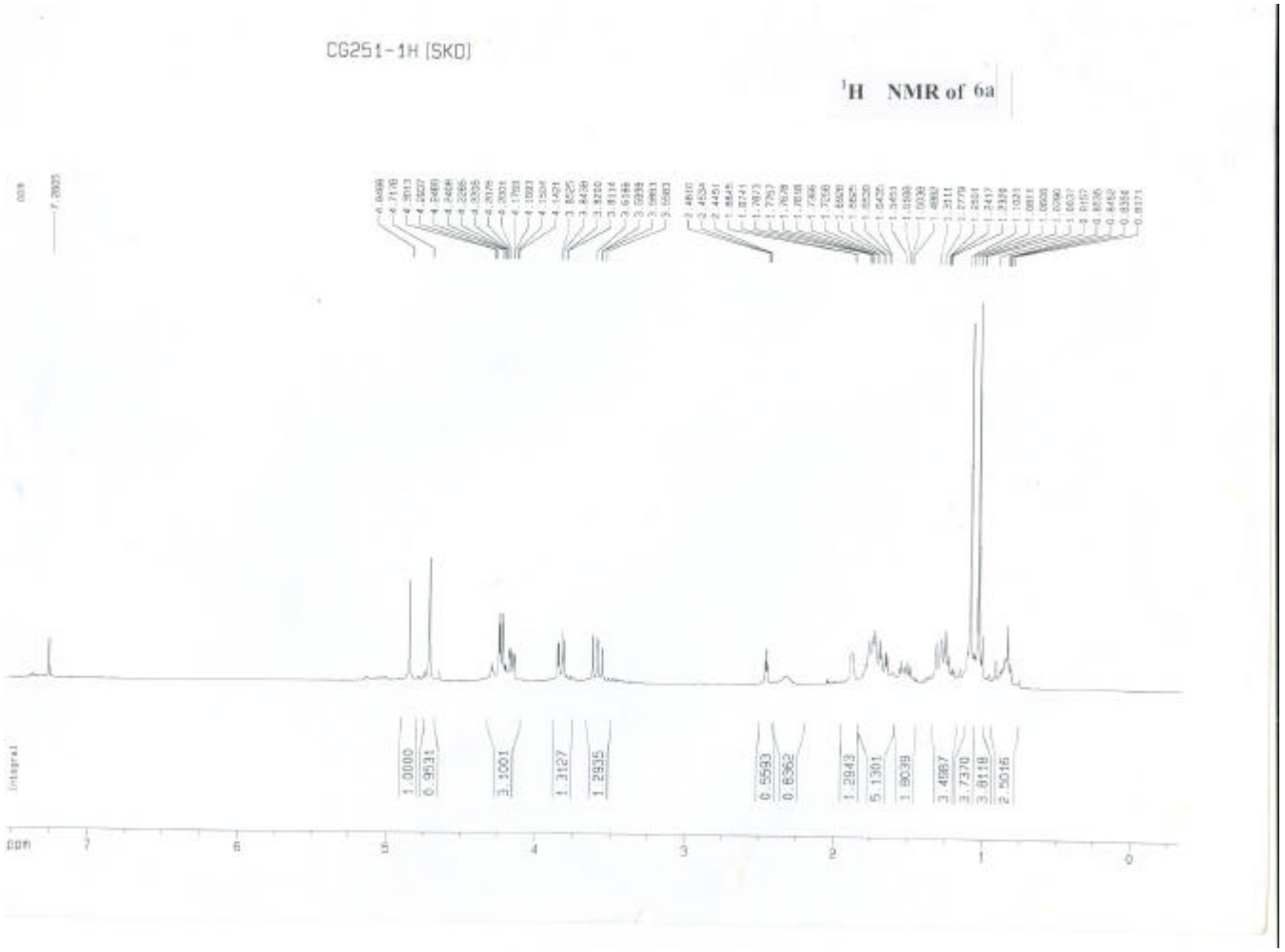
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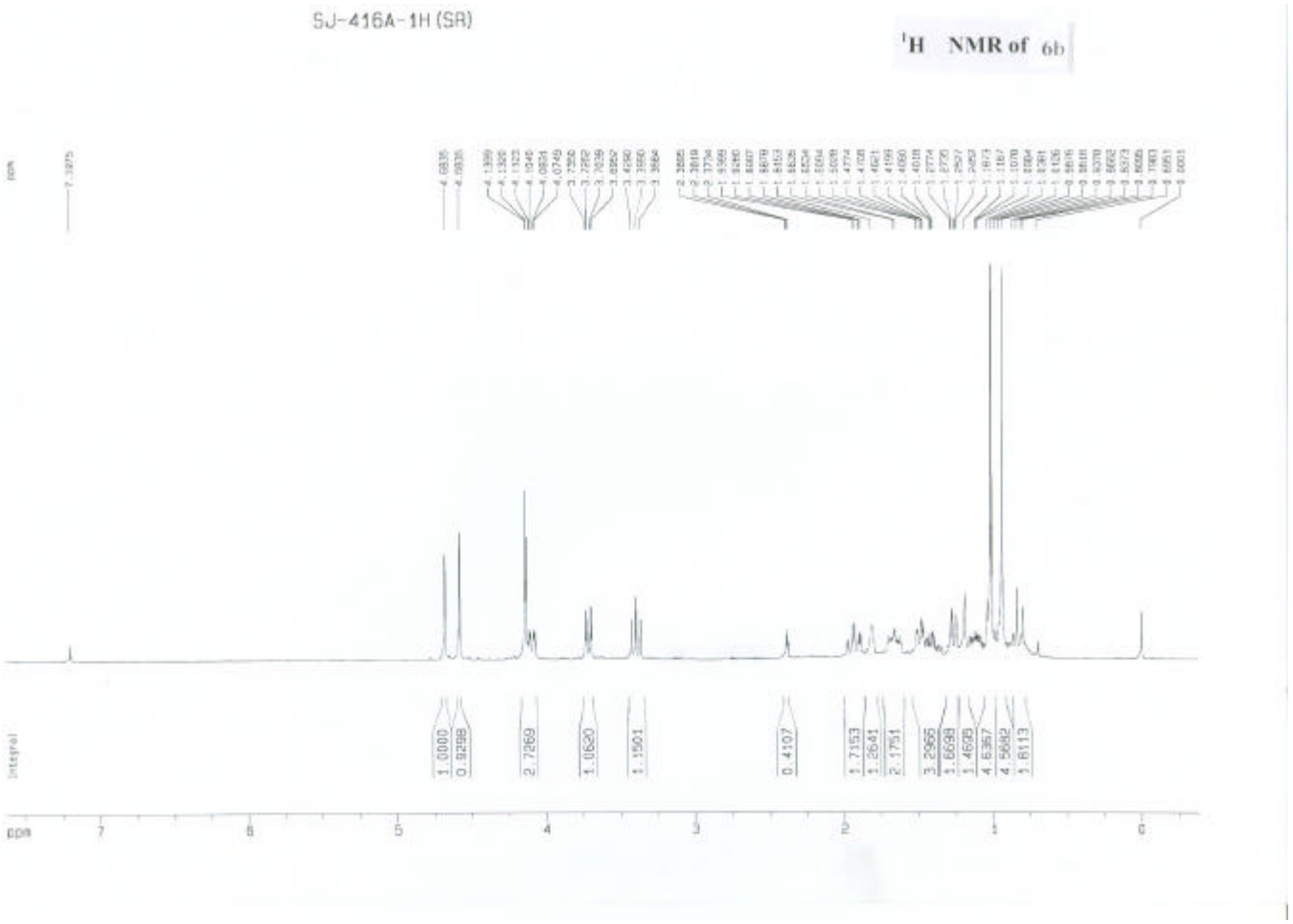
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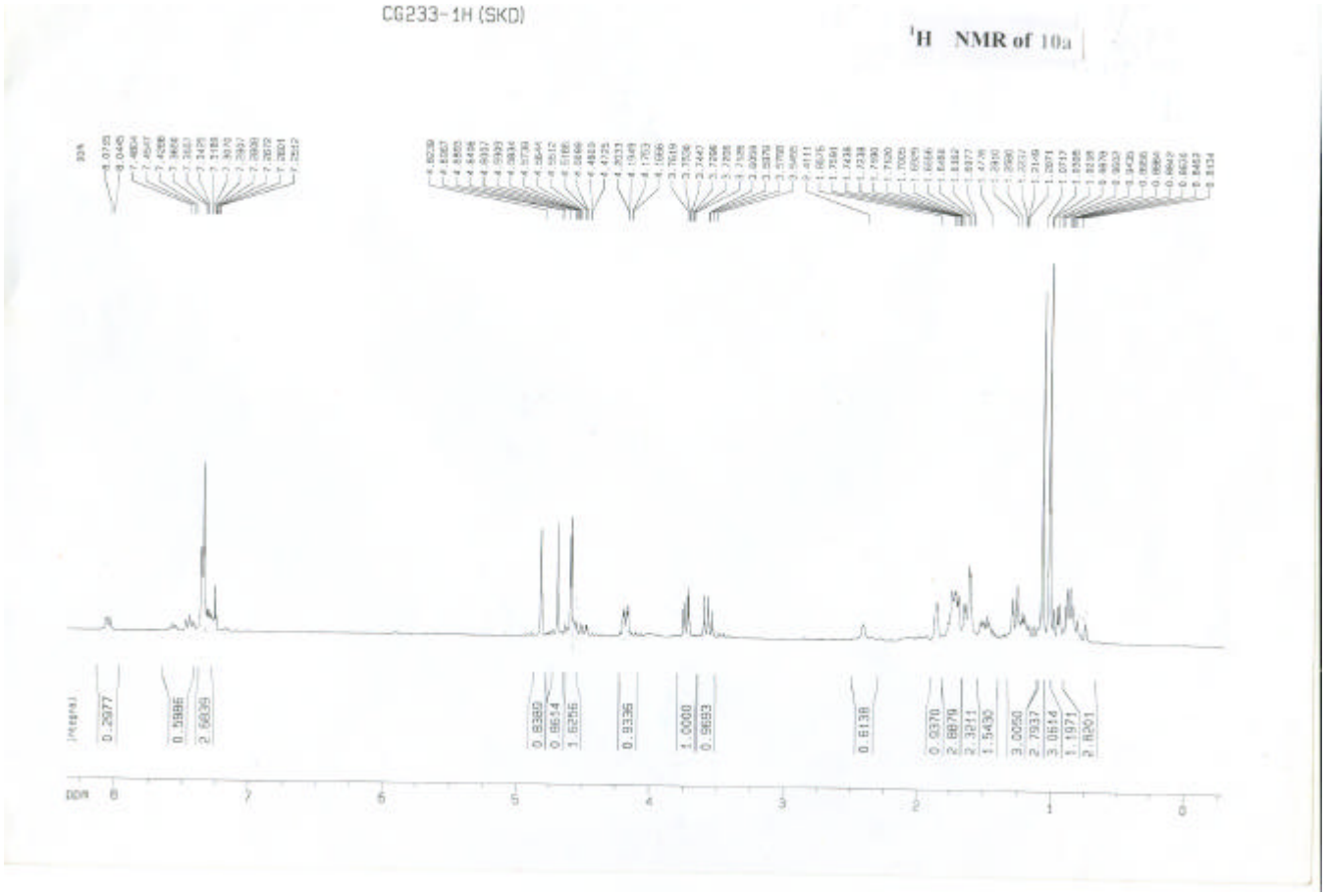
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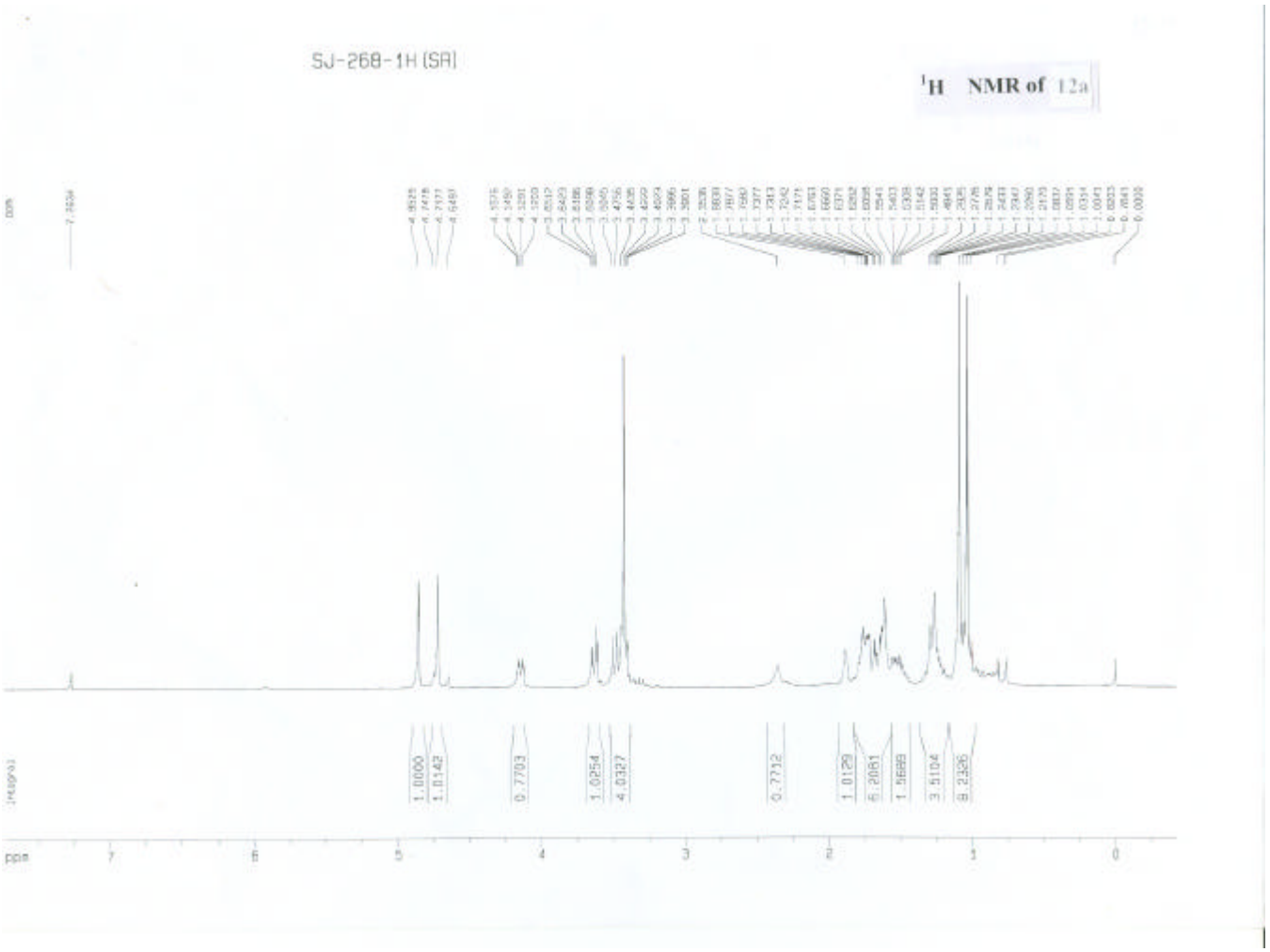
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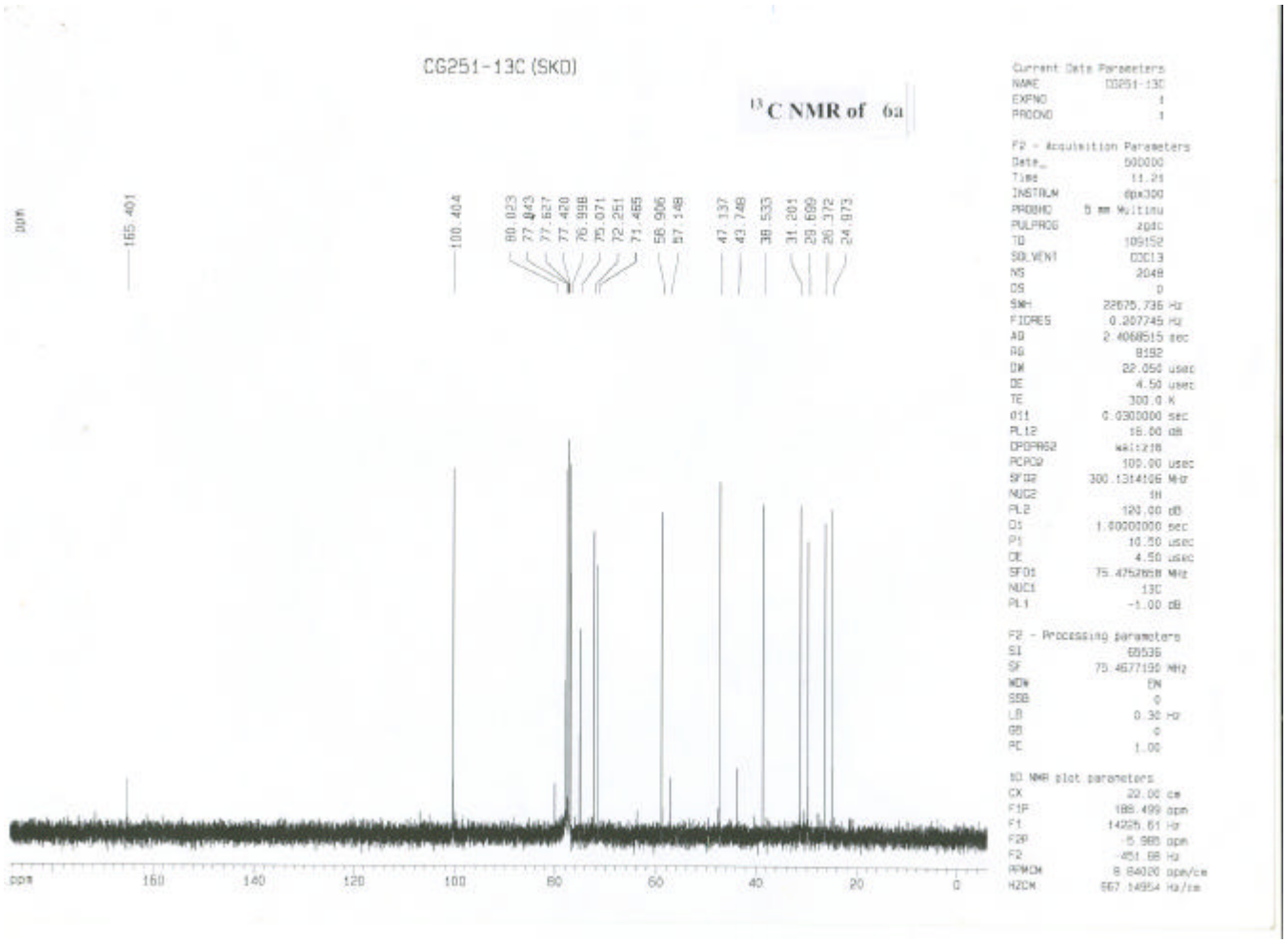
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ppm
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100.404
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77.627
77.420
76.998
75.071
72.251
71.465
56.996
47.137
43.748
38.533
31.201
29.699
26.372
24.973
160
140
120
100
80
60
40
20
0
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EXPNO 1
PROCNO 1
F2 - Acquisition Parameters
Date_ 000000
Time 11.21
INSTRUM spx300
PROBHD 5 mm Multinu
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TD 109152
SOLVENT CDCl3
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DS 0
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FIDRES 0.207745 Hz
AQ 2.4068515 sec
RG 8192
DW 22.050 usec
DE 4.50 usec
TE 300.0 K
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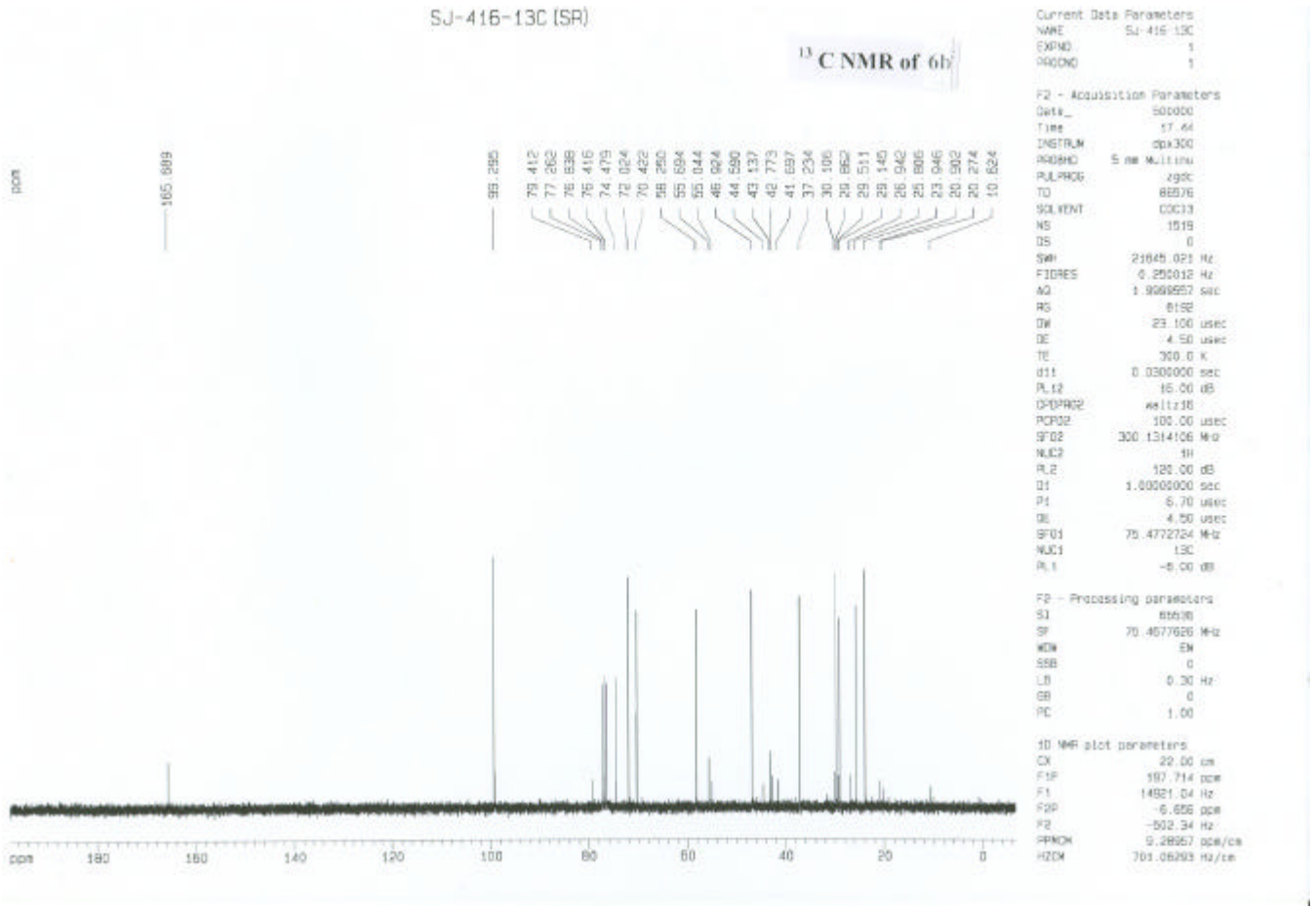
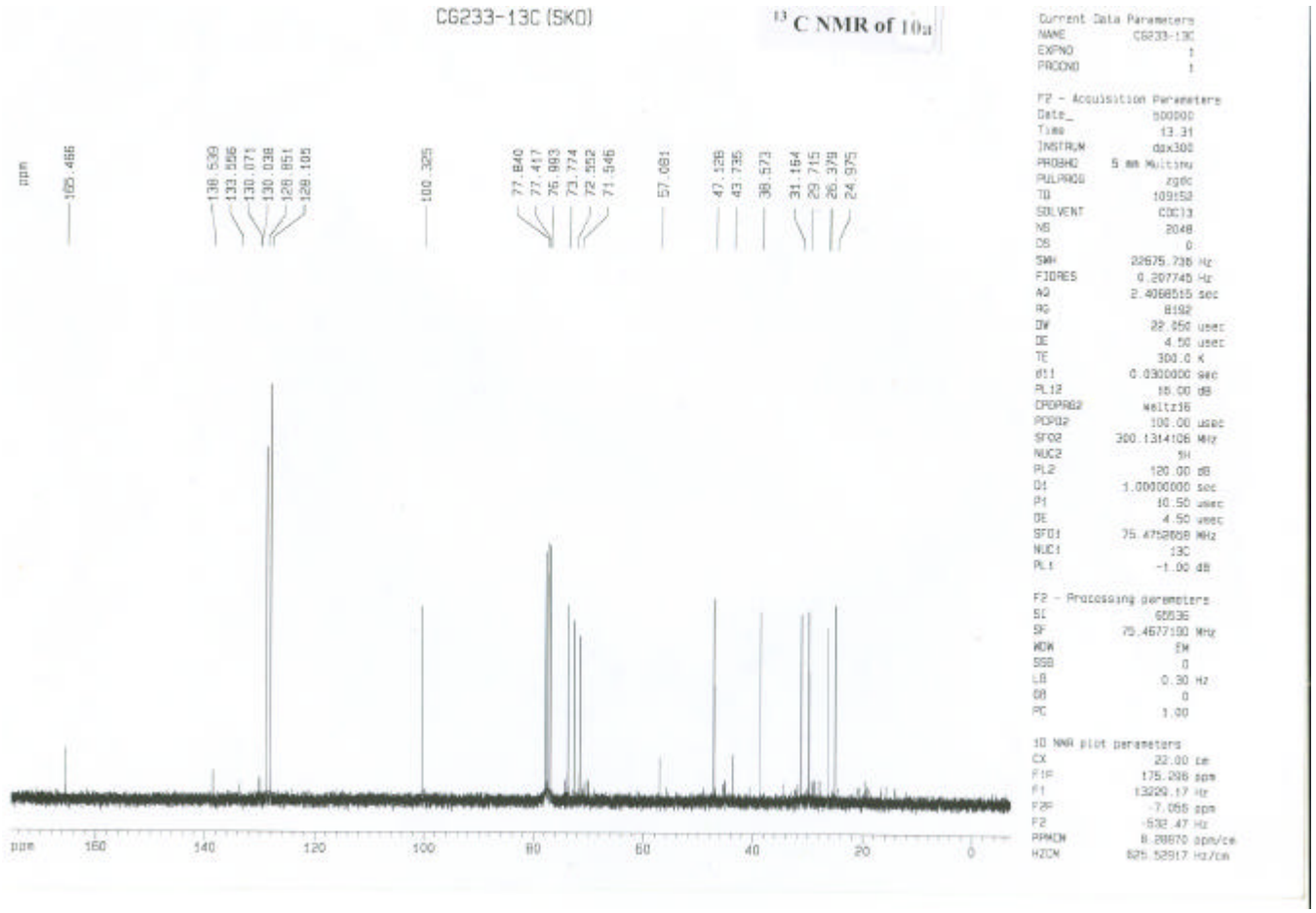
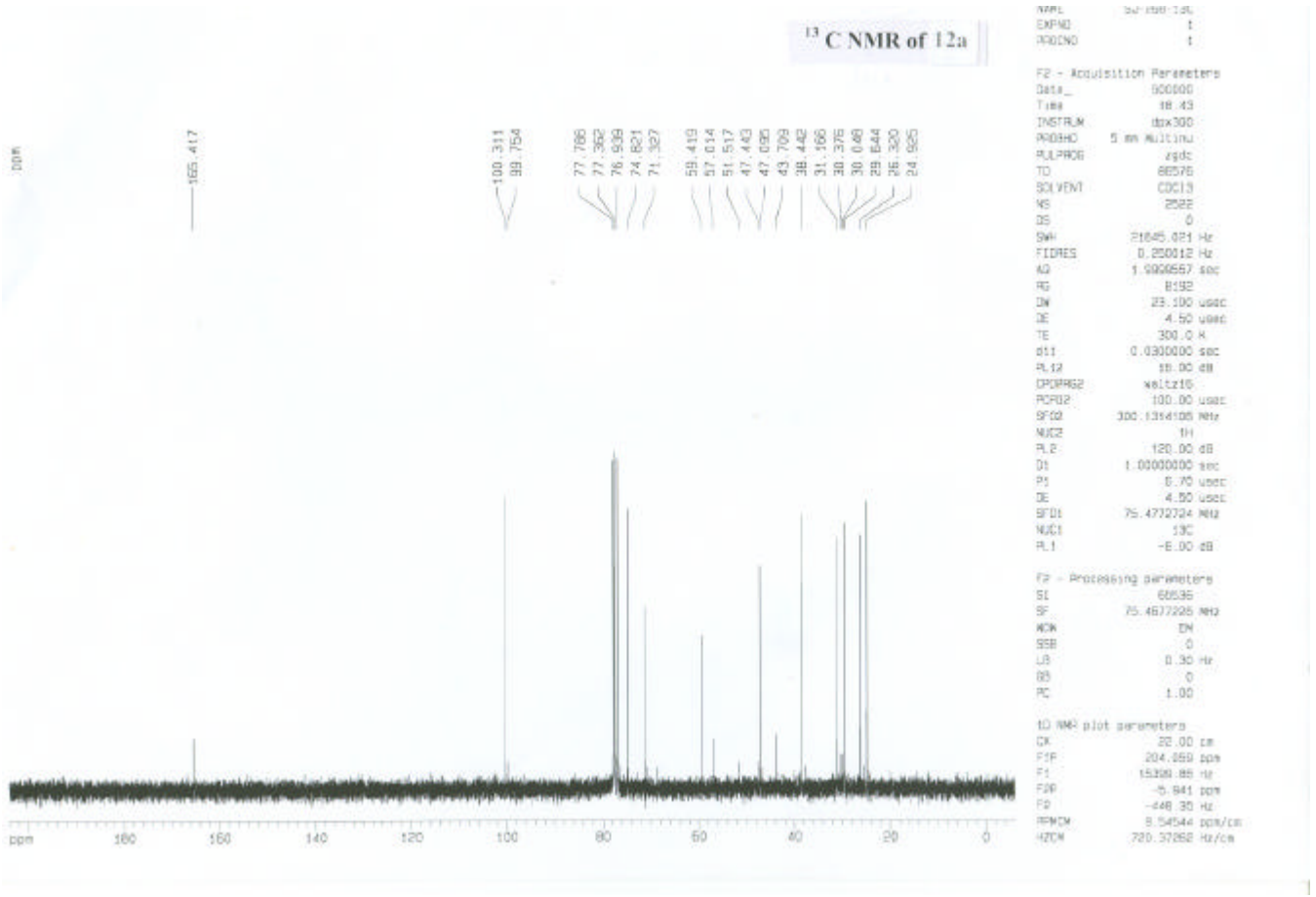
NUC2 1H
PL2 120.00 dB
D1 1.00000000 sec
P1 10.50 usec
DE 4.50 usec
SFO1 75.4752858 MHz
NUC1 13C
PL1 -1.00 dB
F2 - Processing parameters
SI 65536
SF 75.4677190 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
1D NMR plot parameters
CX 22.00 cm
F1P 188.499 ppm
F1 14225.61 Hz
F2P -5.985 ppm
F2 -451.68 Hz
PPMCM 8.84020 ppm/cm
HZCM 667.14954 Hz/cm


SJ-416-13C (SR)
^{13}C NMR of 6b
ppm
165.689
99.295
79.412
77.262
76.838
76.416
74.479
72.024
70.422
58.260
55.694
55.044
46.824
44.590
43.137
42.773
41.697
37.234
30.106
29.862
29.511
29.145
28.942
25.806
23.946
20.902
20.274
10.824
Current Data Parameters
NAME SJ-416-13C
EXPNO 1
PROCNO 1
F2 - Acquisition Parameters
Date_ 50000
Time 17.44
INSTRUM dpx300
PROBHD 5 mm Multinu
PULPROG zgpg
TD 88576
SOLVENT CDCl3
NS 1519
DS 0
SWH 21645.021 Hz
FIDRES 0.250012 Hz
AQ 1.9988552 sec
RG 8192
DW 23.100 usec
DE 4.50 usec
TE 300.0 K
d11 0.0300000 sec
PL12 16.00 dB
CPDPRG2 waltz16
PCPD2 100.00 usec
SFO2 300.1314106 MHz
NUC2 1H
PL2 120.00 dB
D1 1.00000000 sec
P1 6.70 usec
DL 4.50 usec
SFO1 75.4772724 MHz
NUC1 13C
PL1 -6.00 dB
F2 - Processing parameters
SI 65536
SF 75.4577626 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
1D NMR plot parameters
CX 22.00 cm
F1P 197.714 ppm
F1 14921.04 Hz
F2P -6.656 ppm
F2 -502.34 Hz
PPMCM 9.28057 ppm/cm
HZCM 701.06293 Hz/cm
ppm
180
160
140
120
100
80
60
40
20
0


CG233-13C (SKO)
^{13}C NMR of 10a
ppm
165.466
136.539
133.556
130.071
130.038
128.851
128.105
100.325
77.840
77.417
76.993
73.774
72.552
71.546
57.081
47.126
43.735
38.573
31.164
29.715
26.379
24.975
ppm
160
140
120
100
80
60
40
20
0
Current Data Parameters
NAME CG233-13C
EXPNO 1
PROCNO 1
F2 - Acquisition Parameters
Date_ 500000
Time 13.31
INSTRUM dpx300
PROBHD 5 mm Multinu
PULPROG zgdc
TD 103152
SOLVENT CDCl3
NS 2048
DS 0
SWH 22675.736 Hz
FIDRES 0.207745 Hz
AQ 2.4066515 sec
RG 8192
DW 22.050 usec
DE 4.50 usec
TE 300.0 K
d11 0.0300000 sec
PL12 15.00 dB
CPDPRG2 waltz16
PCPD2 100.00 usec
SFO2 300.1314106 MHz
NUC2 1H
PL2 120.00 dB
D1 1.00000000 sec
P1 10.50 usec
DE 4.50 usec
SFO1 75.4752858 MHz
NUC1 13C
PL1 -1.00 dB
F2 - Processing parameters
SI 65536
SF 75.4677190 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
1D NMR plot parameters
CX 22.00 cm
F1P 175.298 ppm
F1 13229.17 Hz
F2P -7.055 ppm
F2 -532.47 Hz
PPMCM 8.28670 ppm/cm
HZCM 625.52917 Hz/cm


^{13}C NMR of 12a
ppm
165.417
100.311
99.754
77.786
77.362
76.939
74.821
71.327
59.419
57.014
51.517
47.443
47.095
43.709
38.442
31.166
30.376
30.060
29.644
26.320
24.995
ppm
180
160
140
120
100
80
60
40
20
0
EXPNO 1
PROCNO 1
F2 - Acquisition Parameters
Date_ 600000
Time 18.43
INSTRUM dpx300
PROBHD 5 mm Multinu
PULPROG zgdc
TD 86576
SOLVENT CDCl3
NS 2522
DS 0
SWH 21645.021 Hz
FIDRES 0.250012 Hz
AQ 1.9996557 sec
RG 8192
DW 23.100 usec
DE 4.50 usec
TE 300.0 K
d11 0.0300000 sec
PL12 18.00 dB
CPDPRG2 waltz16
PCPD2 100.00 usec
SFO2 300.1314105 MHz
NUC2 1H
PL2 120.00 dB
D1 1.0000000 sec
P1 8.75 usec
DE 4.50 usec
SFO1 75.4772724 MHz
NUC1 13C
PL1 -6.00 dB
F2 - Processing parameters
SI 65536
SF 75.4677225 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
1D NMR plot parameters
CX 22.00 cm
F1P 204.059 ppm
F1 15398.88 Hz
F2P -5.941 ppm
F2 -448.30 Hz
PPMCM 9.54544 ppm/cm
HZCM 720.37262 Hz/cm

X-Ray picture of 13