SUPPLEMENTARY MATERIAL

Regioselective synthesis, characterization and antimicrobial evaluation of amide-ether linked 1,4-disubstituted 1,2,3-triazoles

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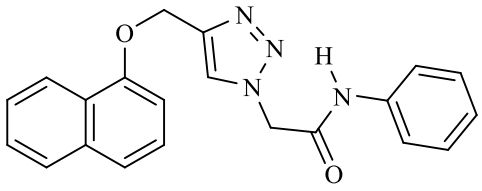
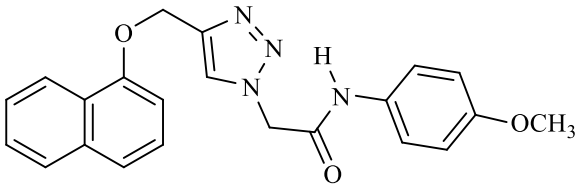
PHYSICAL & SPECTRAL DATA OF THE SYNTHESIZED COMPOUNDS



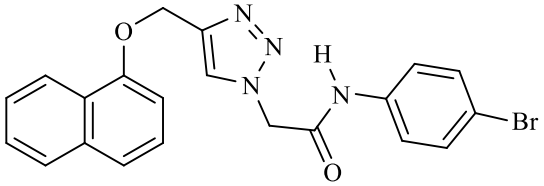
2-(4-((naphthalen-1-yloxy)methyl)-1H-1,2,3-triazol-1-yl)-N-phenylacetamide **(7a):**

White solid; Yield: 68%; m.p. 242-244 ºC; FTIR (KBr): 3296 (N-H str., amide), 3138 (C-H str., triazole ring), 3055 (C-H str., aromatic ring), 2929, 1664 (C=O str., amide), 1583, 1508, 1465 (C=C str., aromatic ring), 1267 (C-O asym. str., ether), 1101 (C-O sym. str., ether) cm^{-1}; ^{1}H NMR (400 MHz, DMSO-d_6, δ / ppm): 5.42 (*s*, 2H, OCH_2), 5.58 (*s*, 2H, NCH_2), 7.05-7.11 (*m*, 1H, Ar-H), 7.22-7.55 (*m*, 7H, Ar-H), 7.58-7.89 (*m*, 3H, Ar-H), 8.14 (*d*, 1H, J = 8.0 Hz, Ar-H), 8.43 (*s*, 1H, C-H triazole), 11.14 (*s*, 1H, N-H amide); ^{13}C NMR (100 MHz, DMSO-d_6, δ / ppm): 52.7, 62.1, 106.2, 119.7, 120.8, 122.0, 124.3, 125.4, 125.8, 126.6, 126.7 (C-5 triazole), 126.9, 128.0, 134.5, 138.9, 143.2 (C-4 triazole), 145.0, 154.0, 165.7 (C=O amide); ESI-HRMS (*m*/*z*) calculated for $[C_{21}H_{18}N_4O_2+H]^+$: 359.1430 Observed: 359.2213.



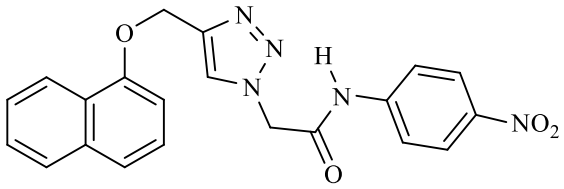
N-(4-methoxyphenyl)-2-(4-((naphthalen-1-yloxy)methyl)-1H-1,2,3-triazol-1-yl)acetamide **(7b):**

Dark brown solid; Yield: 75%; m.p. 210-212 ºC; FTIR (KBr): 3269 (N-H str., amide), 3143 (C-H str., triazole ring), 3093 (C-H str., aromatic ring), 2945, 1662 (C=O str., amide), 1606, 1558, 1474 (C=C str., aromatic ring), 1242 (C-O asym. str., ether), 1103 (C-O sym. str., ether) cm^{-1}; ^{1}H NMR (400 MHz, DMSO-d_6, δ / ppm): 3.73 (*s*, 3H, OCH_3), 5.35 (*s*, 2H, OCH_2), 5.39 (*s*, 2H, NCH_2), 6.91 (*d*, 2H, *J* = 8.0 Hz, Ar-H), 7.22 (*d*, 1H, *J* = 8.0 Hz, Ar-H), 7.44-7.55 (*m*, 6H, Ar-H), 7.88 (*d*, 1H, *J* = 8.0 Hz, Ar-H), 8.13 (*d*, 1H, *J* = 8.0 Hz, Ar-H), 8.38 (*s*, 1H, C-H triazole), 10.38 (*s*, 1H, N-H amide); ^{13}C NMR (100 MHz, DMSO-d_6, δ / ppm): 52.6, 55.6, 62.1, 106.2, 114.5, 120.8, 122.0, 125.4, 125.6, 125.8, 126.6, 126.8 (C-5 triazole), 126.9, 128.0, 132.0, 134.5, 143.2 (C-4 triazole), 154.0, 156.0, 165.8 (C=O amide); ESI-HRMS (*m*/*z*) calculated for $[C_{22}H_{20}N_4O_3+H]^+$: 389.1535 Observed: 389.0061.

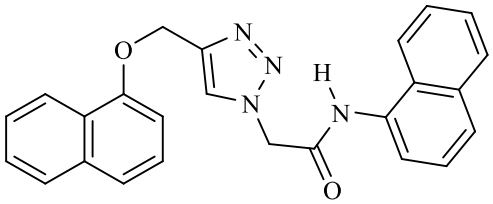


N-(4-bromophenyl)-2-(4-((naphthalen-1-yloxy)methyl)-1H-1,2,3-triazol-1-yl) acetamide **(7c):**

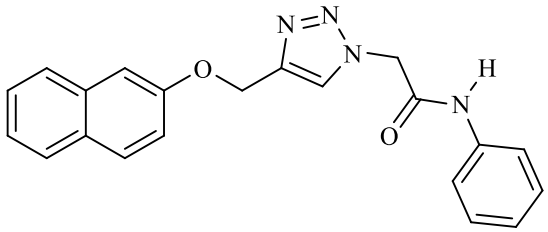
Dark brown solid; Yield: 65%; m.p. 186-188 ºC; FTIR (KBr): 3261 (N-H str., amide), 3126 (C-H str., triazole ring), 3059 (C-H str., aromatic ring), 2943, 1668 (C=O str., amide), 1585, 1550, 1489 (C=C str., aromatic ring), 1269 (C-O asym. str., ether), 1101 (C-O sym. str., ether) cm^{-1}; ^{1}H NMR (400 MHz, DMSO-d_6, δ / ppm): 5.39 (*s*, 2H, OCH_2), 5.39 (*s*, 2H, NCH_2), 7.23 (*d*, 1H, *J* = 8.0 Hz, Ar-H), 7.44-7.55 (*m*, 8H, Ar-H), 7.87 (*d*, 1H, *J* = 8.0 Hz, Ar-H), 8.13 (*d*, 1H, *J* = 8.0 Hz, Ar-H), 8.38 (*s*, 1H, C-H triazole), 10.65 (*s*, 1H, N-H amide); ^{13}C NMR (100 MHz, DMSO-d_6, δ / ppm): 52.7, 62.1, 106.2, 115.9, 120.8, 122.0, 125.4, 125.8, 126.6, 126.7 (C-5 triazole), 126.9, 128.0, 132.2, 134.5, 143.2 (C-4 triazole), 154.0, 165.8 (C=O amide); ESI-HRMS (*m*/*z*) calculated for $[C_{21}H_{17}BrN_4O_2+H]^+$: 437.0535 Observed: 436.8784.



2-(4-((naphthalen-1-yloxy)methyl)-1H-1,2,3-triazol-1-yl)-N-(4-nitrophenyl) acetamide **(7d):** Light brown solid; Yield: 95%; m.p. 204-206 ºC; FTIR (KBr): 3251 (N-H str., amide), 3157 (C-H str., triazole ring), 3055 (C-H str., aromatic ring), 2949, 1670 (C=O str., amide), 1616, 1564, 1496 (C=C str., aromatic ring), 1502 (N-O str., asym., NO_2), 1344 (N-O str., sym., NO_2), 1263 (C-O asym. str., ether), 1103 (C-O sym. str., ether) cm^{-1}; ^1H NMR (400 MHz, DMSO-d_6, δ / ppm): 5.41 (*s*, 2H, OCH_2), 5.49 (*s*, 2H, NCH_2), 7.22 (*d*, 1H, *J* = 8.0 Hz, Ar-H), 7.44-7.55 (*m*, 4H, Ar-H), 7.85 (*d*, 2H, *J* = 8.0 Hz, Ar-H), 7.88 (*d*, 1H, *J* = 8.0 Hz, Ar-H), 8.14 (*d*, 1H, *J* = 8.0 Hz, Ar-H), 8.26 (*d*, 2H, *J* = 8.0 Hz, Ar-H), 8.41 (*s*, 1H, C-H triazole), 11.14 (*s*, 1H, N-H amide); ^{13}C NMR (100 MHz, DMSO-d_6, δ / ppm): 52.8, 62.1, 106.2, 119.5, 120.8, 122.0, 125.4, 125.6, 125.8, 126.6, 126.7 (C-5 triazole), 126.9, 128.0, 134.5, 143.1, 143.2 (C-4 triazole), 145.0, 154.0, 165.9 (C=O amide); ESI-HRMS (*m*/*z*) calculated for $[C_{21}H_{17}N_5O_4+H]^+$: 404.1281 Observed: 403.9596.

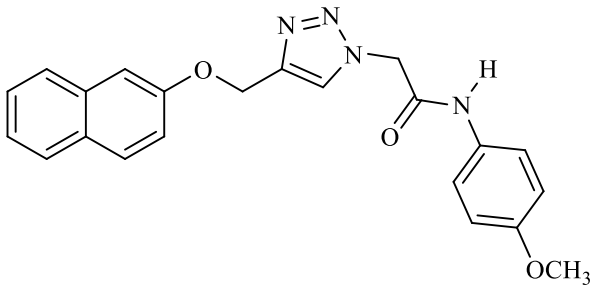


N-(naphthalen-1-yl)-2-(4-((naphthalen-1-yloxy)methyl)-1H-1,2,3-triazol-1-yl)acetamide **(7e):** Light yellow solid; Yield: 91%; m.p. 182-184 ºC; FTIR (KBr): 3255 (N-H str., amide), 3152 (C-H str., triazole ring), 3055 (C-H str., aromatic ring), 2985, 1672 (C=O str., amide), 1610, 1550, 1508 (C=C str., aromatic ring), 1267 (C-O asym. str., ether), 1101 (C-O sym. str., ether) cm^{-1}; ^1H NMR (400 MHz, DMSO-d_6, δ / ppm): 5.40 (*s*, 2H, OCH_2), 5.60 (*s*, 2H, NCH_2), 7.23 (*d*, 1H, *J* = 8.0 Hz, Ar-H), 7.46-7.54 (*m*, 7H, Ar-H), 7.59 (*d*, 1H, *J* = 8.0 H, Ar-Hz), 7.74 (*d*, 1H, *J* = 8.0 Hz, Ar-H), 7.80 (*d*, 1H, *J* = 8.0 Hz, Ar-H), 7.88 (*d*, 1H, *J* = 8.0 Hz, Ar-H), 8.14 (*d*, 2H, *J* = 8.0 Hz, Ar-H), 8.44 (*s*, 1H, C-H triazole), 10.47 (*s*, 1H, N-H amide); ^{13}C NMR (100 MHz, DMSO-d_6, δ / ppm): 52.6, 62.1, 106.2, 120.8, 122.0, 123.1, 125.4, 125.8, 126.2, 126.5, 126.8 (C-5 triazole), 126.9, 128.0, 128.7, 133.2, 134.2, 134.5, 143.2 (C-4 triazole), 154.0, 165.6 (C=O amide); ESI-HRMS (*m*/*z*) calculated for $[C_{25}H_{20}N_4O_2+H]^+$: 409.1586 Observed: 408.9689.



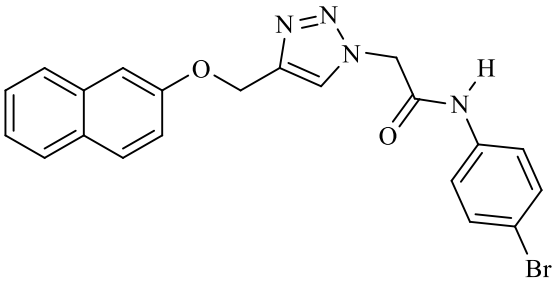
2-(4-((naphthalen-2-yloxy)methyl)-1H-1,2,3-triazol-1-yl)-N-phenylacetamide **(10a):**

White solid; Yield: 67%; m.p. 202-204 ºC; FTIR (KBr): 3267 (N-H str., amide), 3136 (C-H str., triazole ring), 3084 (C-H str., aromatic ring), 2927, 1668 (C=O str., amide), 1608, 1554, 1504 (C=C str., aromatic ring), 1261 (C-O asym. str., ether), 1178 (C-O sym. str., ether) cm^{-1}; ^{1}H NMR (400 MHz, DMSO-d_6, δ / ppm): 5.31 (*s*, 2H, OCH_2), 5.38 (*s*, 2H, NCH_2), 7.10 (*t*, 1H, *J* = 8.0 Hz, Ar-H), 7.22 (*d*, 1H, *J* = 8.0 Hz, Ar-H), 7.33-7.39 (*m*, 3H, Ar-H), 7.55-7.59 (*m*, 2H, Ar-H), 7.60 (*d*, 2H, *J* = 8.0 Hz, Ar-H), 7.85 (*d*, 3H, *J* = 8.0 Hz, Ar-H), 8.34 (*s*, 1H, C-H triazole), 10.51 (*s*, 1H, N-H amide); ^{13}C NMR (100 MHz, DMSO-d_6, δ / ppm): 52.7, 61.5, 107.6, 119.2, 119.7, 124.2, 124.3, 126.9 (C-5 triazole), 127.2, 128.0, 129.1, 129.4, 129.8, 134.7, 138.9, 142.9 (C-4 triazole), 156.4, 164.7 (C=O amide); ESI-HRMS (*m*/*z*) calculated for $[C_{21}H_{18}N_4O_2+H]^+$: 359.1430 Observed: 358.9767.

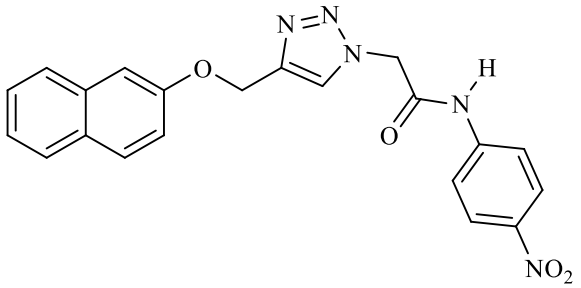


N-(4-methoxyphenyl)-2-(4-((naphthalen-2-yloxy)methyl)-1H-1,2,3-triazol-1-yl)acetamide **(10b):**

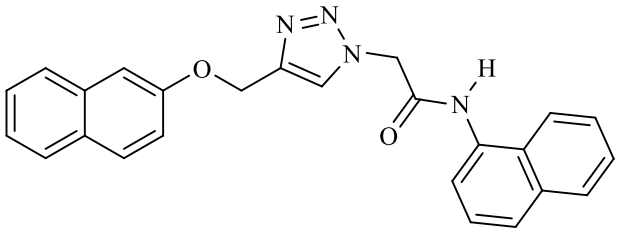
White solid; Yield: 62%; m.p. 198-200 ºC; FTIR (KBr): 3282 (N-H str., amide), 3138 (C-H str., triazole ring), 3059 (C-H str., aromatic ring), 2947, 1678 (C=O str., amide), 1600, 1546, 1514 (C=C str., aromatic ring), 1240 (C-O asym. str., ether), 1178 (C-O sym. str., ether) cm^{-1}; ^{1}H NMR (400 MHz, DMSO-d_6, δ / ppm): 3.73 (*s*, 3H, OCH_3), 5.30 (*s*, 2H, OCH_2), 5.33 (*s*, 2H, NCH_2), 6.91 (*d*, 2H, *J* = 12.0 Hz, Ar-H), 7.22 (*d*, 1H, *J* = 8.0 Hz, Ar-H), 7.37 (*d*, 1H, *J* = 8.0 Hz, Ar-H), 7.48-7.55 (*m*, 4H, Ar-H), 7.85 (*d*, 3H, *J* = 8.0 Hz, Ar-H), 8.32 (*s*, 1H, C-H triazole), 10.36 (*s*, 1H, N-H amide); ^{13}C NMR (100 MHz, DMSO-d_6, δ / ppm): 52.6, 55.6, 61.5, 107.6, 114.5, 119.2, 121.2, 124.2, 126.9 (C-5 triazole), 127.2, 128.0, 129.1, 129.8, 132.0, 134.7, 142.8 (C-4 triazole), 156.4, 164.1 (C=O amide); ESI-HRMS (*m*/*z*) calculated for $[C_{22}H_{20}N_4O_3+H]^+$: 389.1535 Observed: 388.9711.



N-(4-bromophenyl)-2-(4-((naphthalen-2-yloxy)methyl)-1H-1,2,3-triazol-1-yl)acetamide **(10c):** Light brown solid; Yield: 87%; m.p. 226-228 ºC; FTIR (KBr): 3258 (N-H str., amide), 3126 (C-H str., triazole ring), 3045 (C-H str., aromatic ring), 2918, 1664 (C=O str., amide), 1595, 1550, 1475 (C=C str., aromatic ring), 1267 (C-O asym. str., ether), 1182 (C-O sym. str., ether) cm^{-1}; ^{1}H NMR (400 MHz, DMSO-d_6, δ / ppm): 5.31 (*s*, 2H, OCH_2), 5.38 (*s*, 2H, NCH_2), 7.21 (*d*, 1H, *J* = 8.0 Hz, Ar-H), 7.38 (*d*, 1H, *J* = 8.0 Hz, Ar-H), 7.46-7.58 (*m*, 6H, Ar-H), 7.84 (*d*, 3H, *J* = 8.0 Hz, Ar-H), 8.33 (*s*, 1H, C-H triazole), 10.66 (*s*, 1H, N-H amide); ^{13}C NMR (100 MHz, DMSO-d_6, δ / ppm): 52.7, 61.5, 107.6, 115.9, 119.2, 121.6, 124.2, 126.9 (C-5 triazole), 127.2, 128.0, 129.1, 129.8, 132.2, 134.7, 138.3, 142.9 (C-4 triazole), 156.4, 164.9 (C=O amide); ESI-HRMS (*m*/*z*) calculated for $[C_{21}H_{17}BrN_4O_2+H]^+$: 437.0535 Observed: 436.9047.

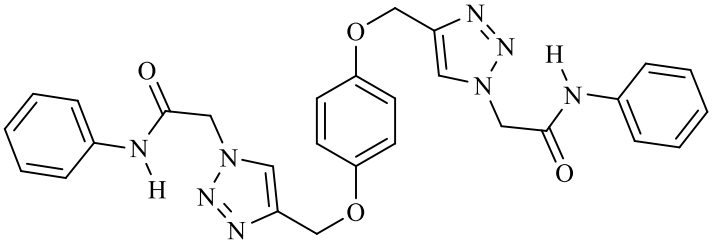


2-(4-((naphthalen-2-yloxy)methyl)-1H-1,2,3-triazol-1-yl)-N-(4-nitrophenyl) acetamide **(10d):** Brown solid; Yield: 78%; m.p. 218-220 ºC; FTIR (KBr): 3317 (N-H str., amide), 3153 (C-H str., triazole ring), 3061 (C-H str., aromatic ring), 2945, 1699 (C=O str., amide), 1610, 1583, 1478 (C=C str., aromatic ring), 1504 (N-O str., asym., NO_2), 1340 (N-O str., sym., NO_2), 1257 (C-O asym. str., ether), 1180 (C-O sym. str., ether) cm^{-1}; ^{1}H NMR (400 MHz, DMSO-d_6, δ / ppm): 5.32 (*s*, 2H, OCH_2), 5.48 (*s*, 2H, NCH_2), 7.22 (*d*, 1H, *J* = 8.0 Hz, Ar-H), 7.37 (*d*, 1H, *J* = 8.0 Hz, Ar-H), 7.48-7.54 (*m*, 2H, Ar-H), 7.84-7.85 (*m*, 5H, Ar-H), 8.26 (*d*, 2H, *J* = 8.0 Hz, Ar-H), 8.35 (*s*, 1H, C-H triazole), 11.14 (*s*, 1H, N-H amide); ^{13}C NMR (100 MHz, DMSO-d_6, δ / ppm): 52.8, 61.5, 107.6, 119.2, 119.5, 124.2, 125.6, 126.9 (C-5 triazole), 127.2, 128.0, 129.1, 129.9, 134.7, 143.0 (C-4 triazole), 143.1, 145.0, 156.4, 165.8 (C=O amide); ESI-HRMS (*m*/*z*) calculated for $[C_{21}H_{17}N_5O_4+H]^+$: 404.1281 Observed: 403.8690.



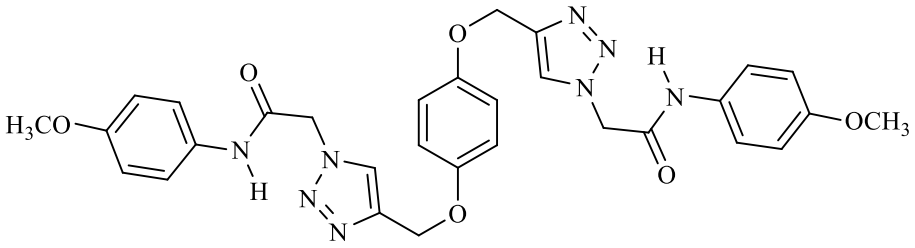
N-(naphthalen-1-yl)-2-(4-((naphthalen-2-yloxy)methyl)-1H-1,2,3-triazol-1-yl)acetamide **(10e):**

White solid; Yield: 92%; m.p. 220-222 ºC; FTIR (KBr): 3259 (N-H str., amide), 3165 (C-H str., triazole ring), 3055 (C-H str., aromatic ring), 2916, 1678 (C=O str., amide), 1601, 1544, 1462 (C=C str., aromatic ring), 1263 (C-O asym. str., ether), 1178 (C-O sym. str., ether) cm^{-1}; ^{1}H NMR (400 MHz, DMSO-d_6, δ / ppm): 5.38 (*s*, 2H, OCH_2), 5.59 (*s*, 2H, NCH_2), 7.22 (*d*, 1H, *J* = 8.0 Hz, Ar-H), 7.37 (*d*, 1H, *J* = 8.0 Hz, Ar-H), 7.48-7.59 (*m*, 5H, Ar-H), 7.73-7.98 (*m*, 6H, Ar-H), 8.18 (*d*, 1H, *J* = 8.0 Hz, Ar-H), 8.39 (*s*, 1H, C-H triazole), 10.47 (*s*, 1H, N-H amide); ^{13}C NMR (100 MHz, DMSO-d_6, δ / ppm): 52.5, 61.6, 107.6, 119.2, 122.0, 123.1, 124.2, 126.1, 126.2, 126.5, 126.7, 126.9 (C-5 triazole), 127.2, 128.0, 128.7, 129.1, 129.8, 133.2, 134.2, 134.7, 143.0 (C-4 triazole), 156.4, 165.6 (C=O amide); ESI-HRMS (*m*/*z*) calculated for $[C_{25}H_{20}N_4O_2+H]^+$: 409.1586 Observed: 408.9673.



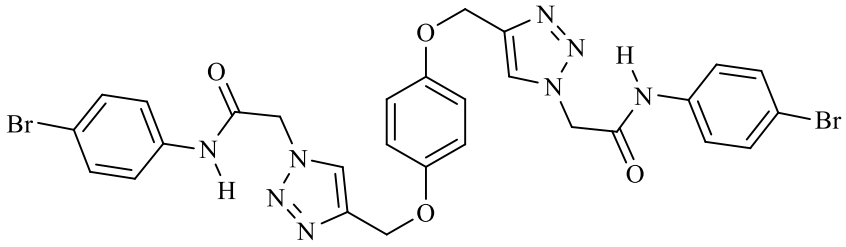
2,2'-(4,4'-(1,4-phenylenebis(oxy))bis(methylene)bis(1H-1,2,3-triazole-4,1-diyl))bis(N-phenylacetamide) **(13a):**

Dark brown solid; Yield: 83%; m.p. >250 ºC; FTIR (KBr): 3278 (N-H str., amide), 3142 (C-H str., triazole ring), 3095 (C-H str., aromatic ring), 2947, 1680 (C=O str., amide), 1604, 1556, 1508 (C=C str., aromatic ring), 1236 (C-O str., asym., ether), 1056 (C-O str., sym., ether) cm^{-1}; ^{1}H NMR (400 MHz, DMSO-d_6, δ / ppm): 5.08 (*s*, 4H, OCH_2), 5.36 (*s*, 4H, NCH_2), 7.01 (*s*, 4H, Ar-H), 7.09 (*t*, 2H, *J* = 8.0 Hz, Ar-H), 7.34 (*t*, 2H, *J* = 8.0 Hz, Ar-H), 7.59 (*d*, 4H, *J* = 8.0 Hz, Ar-H), 8.24 (*s*, 2H, C-H triazole), 10.49 (*s*, 2H, N-H amide); ^{13}C NMR (100 MHz, DMSO-d_6, δ / ppm): 52.7, 62.1, 116.0, 119.7, 124.2, 126.6 (C-5 triazole), 129.4, 138.9, 143.2 (C-4 triazole), 152.8, 164.7 (C=O amide); ESI-HRMS (*m*/*z*) calculated for $[C_{28}H_{26}N_8O_4+H]^+$: 539.2077 Observed: 539.2239.



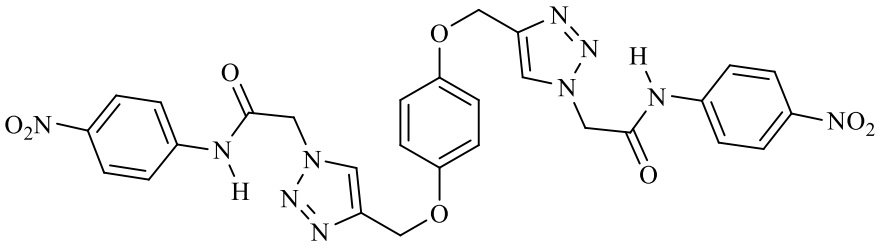
2,2'-(4,4'-(1,4-phenylenebis(oxy))bis(methylene)bis(1H-1,2,3-triazole-4,1-diyl))bis (N-(4-methoxyphenyl)acetamide) **(13b):**

Dark brown solid; Yield: 88%; m.p. >250 ºC; FTIR (KBr): 3275 (N-H str., amide), 3140 (C-H str., triazole ring), 3089 (C-H str., aromatic ring), 2951, 1674 (C=O str., amide), 1606, 1552, 1510 (C=C str., aromatic ring), 1238 (C-O str., asym., ether), 1053 (C-O str., sym., ether) cm^{-1}; ^{1}H NMR (400 MHz, DMSO-d_6, δ / ppm): 3.72 (*s*, 6H, OCH_3), 5.11 (*s*, 4H, OCH_2), 5.31 (*s*, 4H, NCH_2), 6.92 (*s*, 4H, Ar-H), 7.00 (*d*, 4H, *J* = 8.0 Hz, Ar-H), 7.49 (*d*, 4H, *J* = 8.0 Hz, Ar-H), 8.24 (*s*, 2H, C-H triazole), 10.36 (*s*, 2H, N-H amide); ^{13}C NMR (100 MHz, DMSO-d_6, δ / ppm): 52.6, 55.6, 61.9, 114.5, 116.2, 121.2, 126.6 (C-5 triazole), 132.0, 143.2 (C-4 triazole), 152.8, 156.0, 164.1 (C=O amide); ESI-HRMS (*m*/*z*) calculated for $[C_{30}H_{30}N_8O_6+H]^+$: 599.2425 Observed: 599.2288.



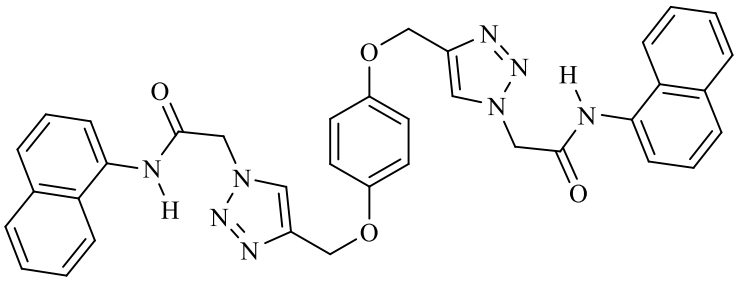
2,2'-(4,4'-(1,4-phenylenebis(oxy))bis(methylene)bis(1H-1,2,3-triazole-4,1-diyl))bis (N-(4-bromophenyl)acetamide) **(13c):**

Dark brown solid; Yield: 86%; m.p. >250 ºC; FTIR (KBr): 3273 (N-H str., amide), 3124 (C-H str., triazole ring), 3070 (C-H str., aromatic ring), 2947, 1680 (C=O str., amide), 1604, 1544, 1508 (C=C str., aromatic ring), 1236 (C-O str., asym., ether), 1074, 1055 (C-O str., sym., ether) cm^{-1}; ^{1}H NMR (400 MHz, DMSO-d_6, δ / ppm): 5.12 (*s*, 4H, OCH_2), 5.36 (*s*, 4H, NCH_2), 6.99 (*s*, 4H, Ar-H), 7.52 (*d*, 4H, *J* = 12.0 Hz, Ar-H), 7.56 (*d*, 4H, *J* = 12.0 Hz, Ar-H), 8.24 (*s*, 2H, C-H triazole), 10.64 (*s*, 2H, N-H amide); ^{13}C NMR (100 MHz, DMSO-d_6, δ / ppm): 52.7, 61.9, 115.9, 116.0, 121.6, 126.6 (C-5 triazole), 132.2, 138.3, 143.2 (C-4 triazole), 152.8, 164.9 (C=O amide); ESI-HRMS (*m*/*z*) calculated for $[C_{28}H_{24}Br_2N_8O_4+H]^+$: 697.3494 Observed: 697.3443 and (*m*/*z*) calculated for $[C_{28}H_{24}Br_2N_8O_4+2]^+$: 698.3494 Observed: 698.3538.



2,2'-(4,4'-(1,4-phenylenebis(oxy))bis(methylene)bis(1H-1,2,3-triazole-4,1-diyl))bis(N-(4-nitrophenyl)acetamide) **(13d):**

Dark brown solid; Yield: 82%; m.p. >250 ºC; FTIR (KBr): 3253 (N-H str., amide), 3155 (C-H str., triazole ring), 3089 (C-H str., aromatic ring), 2954, 1705 (C=O str., amide), 1597, 1552, 1510 (C=C str., aromatic ring), 1506 (N-O str., asym., NO_2), 1342 (N-O str., sym., NO_2), 1261 (C-O str., asym., ether), 1060 (C-O str., sym., ether) cm^{-1}; ^1H NMR (400 MHz, DMSO-d_6, δ / ppm): 5.13 (*s*, 4H, OCH_2), 5.45 (*s*, 4H, NCH_2), 7.00 (*s*, 4H, Ar-H), 7.84 (*d*, 4H, *J* = 8.0 Hz, Ar-H), 8.25 (*s*, 2H, C-H triazole), 8.26 (*d*, 4H, *J* = 8.0 Hz, Ar-H), 11.12 (*s*, 2H, N-H amide); ^{13}C NMR (100 MHz, DMSO-d_6, δ / ppm): 52.7, 61.9, 116.1, 119.5, 125.6, 126.6 (C-5 triazole), 143.2 (C-4 triazole), 145.0, 152.8, 164.8 (C=O amide); ESI-HRMS (*m*/*z*) calculated for $[C_{28}H_{24}N_{10}O_8+H]^+$: 629.1779 Observed: 629.4429.



2,2'-(4,4'-(1,4-phenylenebis(oxy))bis(methylene)bis(1H-1,2,3-triazole-4,1-diyl))bis(N-(naphthalen-1-yl)acetamide) **(13e):**

Dark brown solid; Yield: 85%; m.p. >250 ºC; FTIR (KBr): 3261 (N-H str., amide), 3138 (C-H str., triazole ring), 3088 (C-H str., aromatic ring), 2947, 1678 (C=O str., amide), 1597, 1543, 1508 (C=C str., aromatic ring), 1236 (C-O str., asym., ether), 1055 (C-O str., sym., ether) cm^{-1}; ^1H NMR (400 MHz, DMSO-d_6, δ / ppm): 5.13 (*s*, 4H, OCH_2), 5.56 (*s*, 4H, NCH_2), 7.00 (*s*, 4H, Ar-H), 7.49-7.82 (*m*, 10H, Ar-H), 7.97 (*d*, 2H, *J* = 8.0 Hz, Ar-H), 8.17 (*d*, 2H, *J* = 8.0 Hz, Ar-H), 8.27 (*s*, 2H, C-H triazole), 10.46 (*s*, 2H, N-H amide); ^{13}C NMR (100 MHz, DMSO-d_6, δ / ppm): 52.7, 62.1, 116.0, 122.0, 123.1, 126.1, 126.2, 126.5, 126.6 (C-5 triazole), 126.8, 128.0, 128.7, 133.2, 134.2, 143.2 (C-4 triazole), 152.8, 164.7 (C=O amide); ESI-HRMS (*m*/*z*) calculated for $[C_{36}H_{30}N_8O_4+H]^+$: 639.2390 Observed: 639.2136.

^{1}H NMR, ^{13}C NMR and HRMS of Compounds

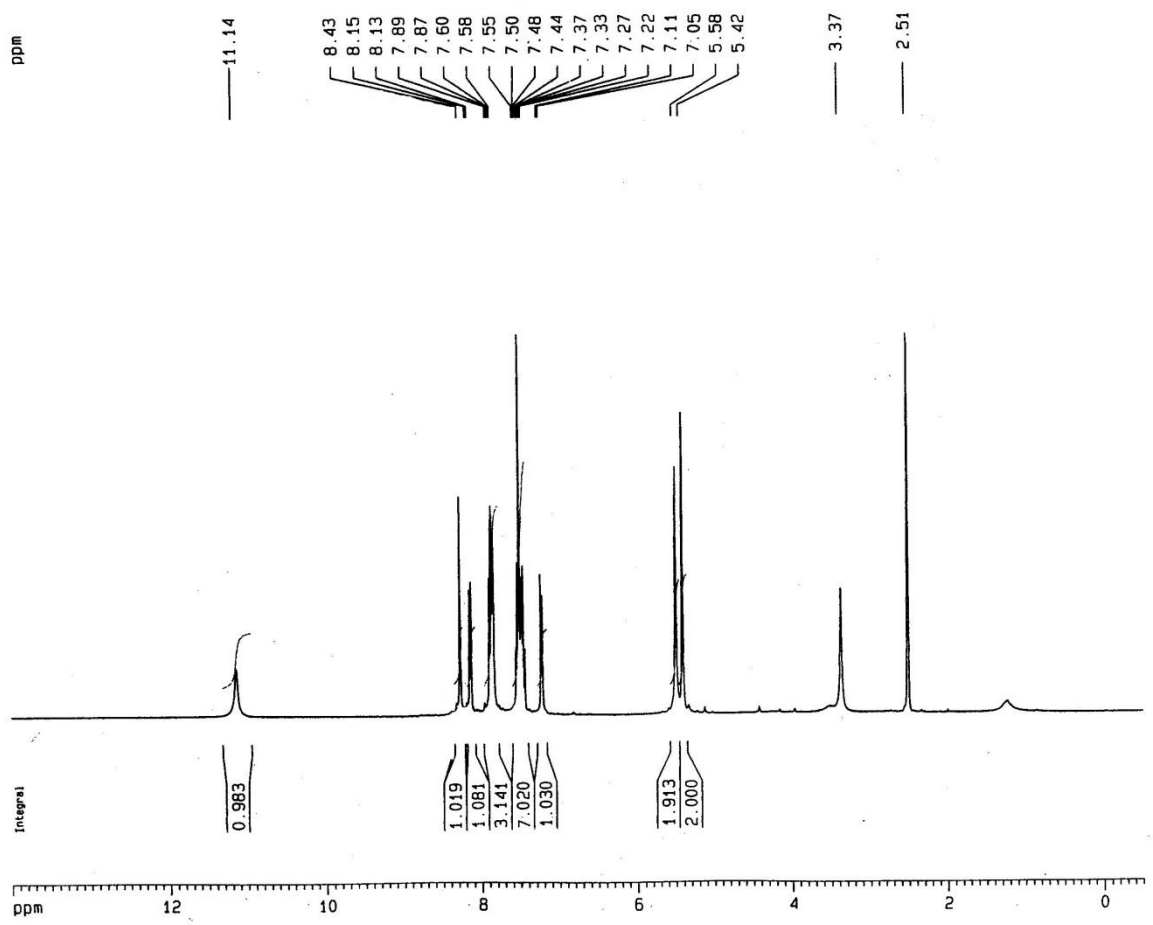


Figure S1. ^{1}H NMR spectrum (DMSO-d_6, 400 MHz) of compound **7a**

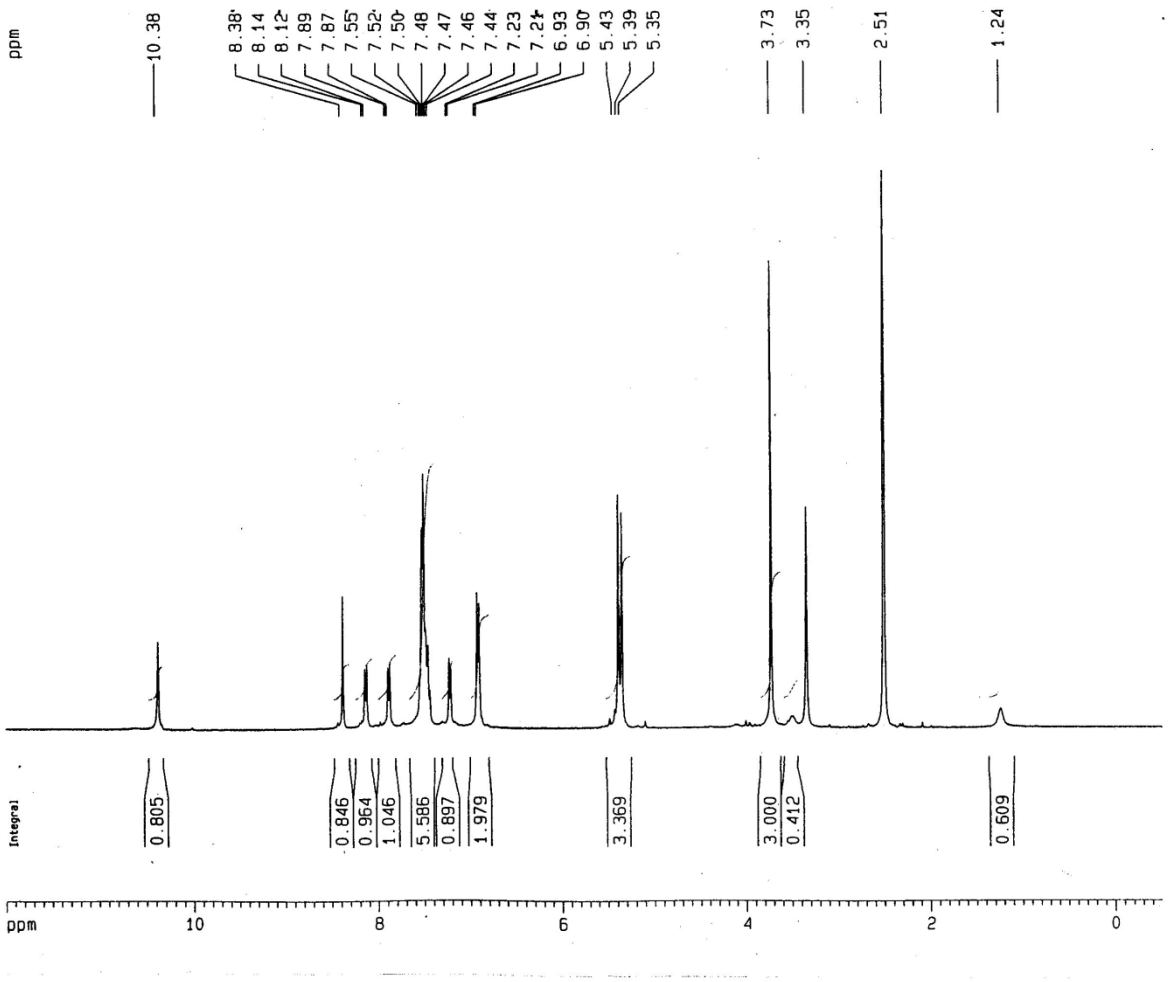


Figure S2. ^{1}H NMR spectrum (DMSO-d_6, 400 MHz) of compound **7b**

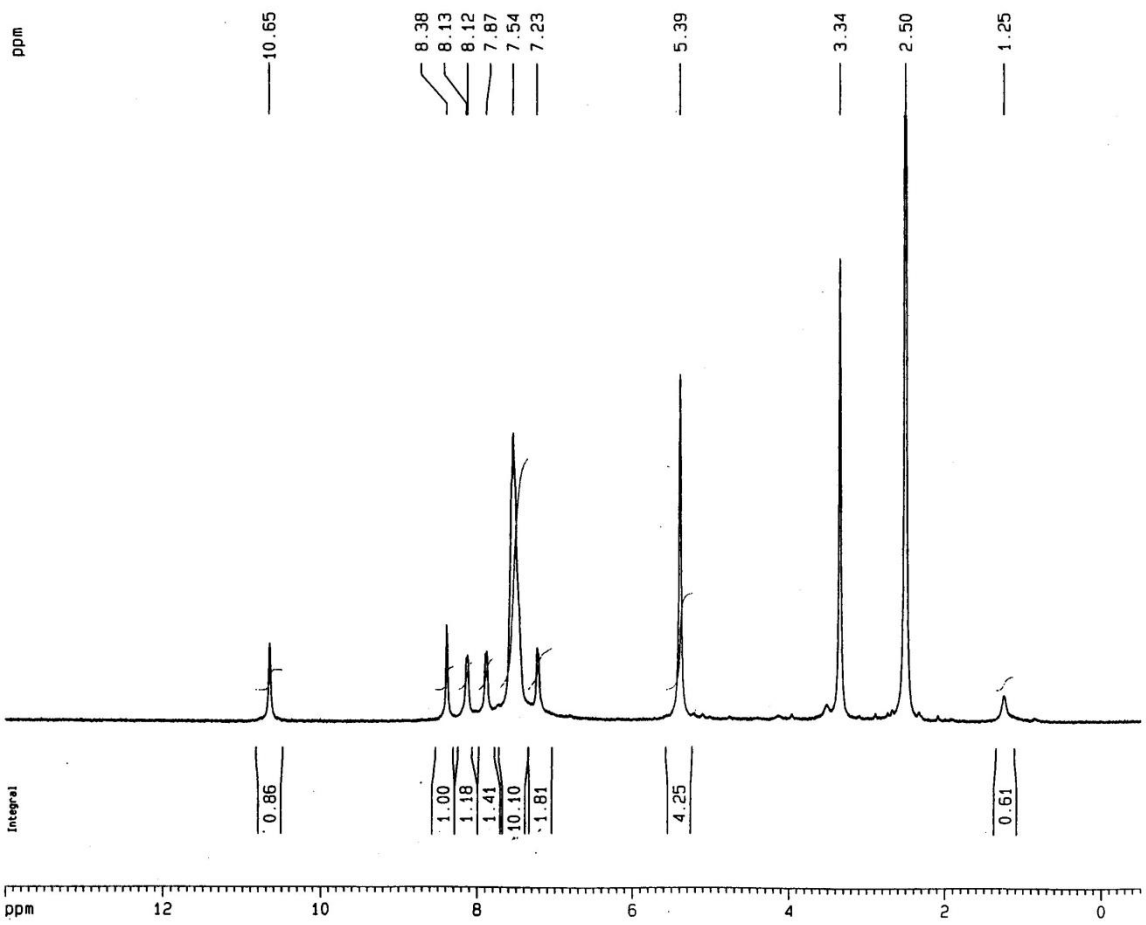


Figure S3. ^{1}H NMR spectrum (DMSO-d_6, 400 MHz) of compound **7c**

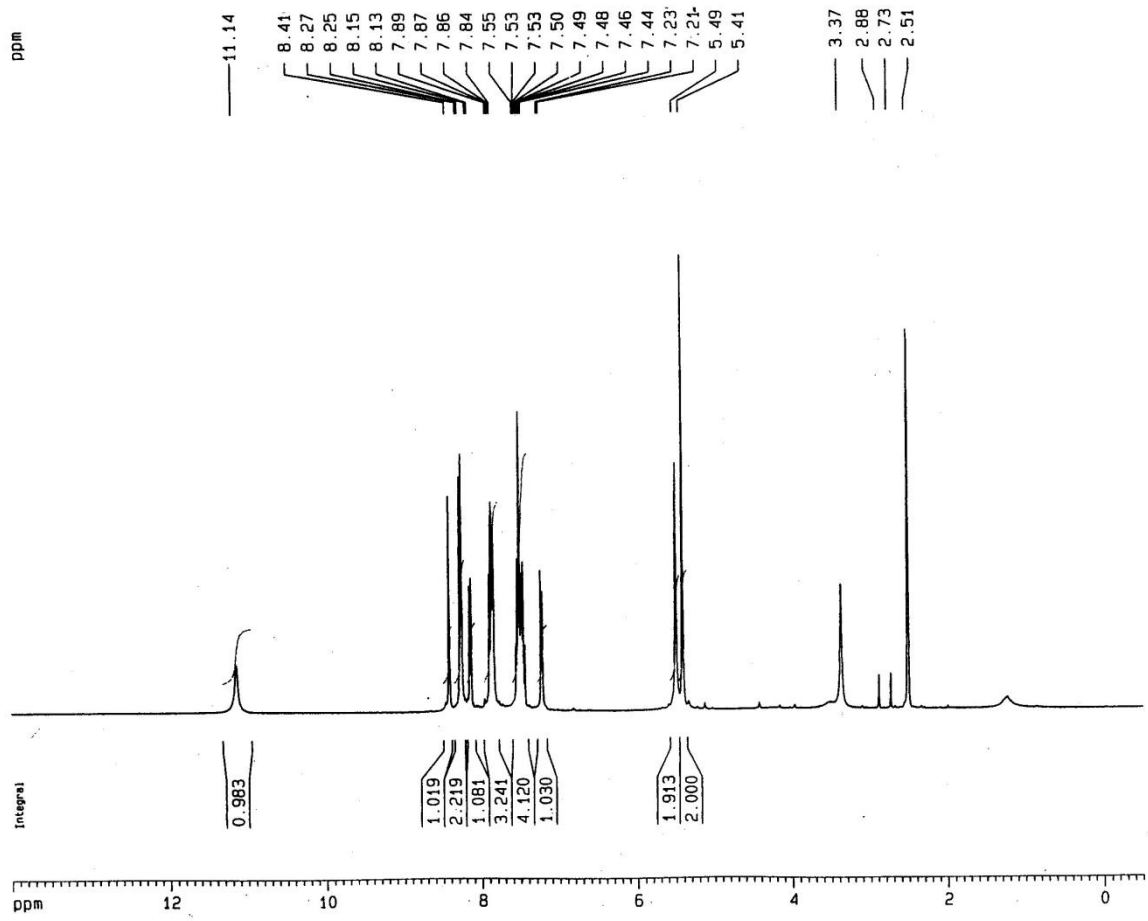


Figure S4. ^{1}H NMR spectrum (DMSO-d_6, 400 MHz) of compound **7d**

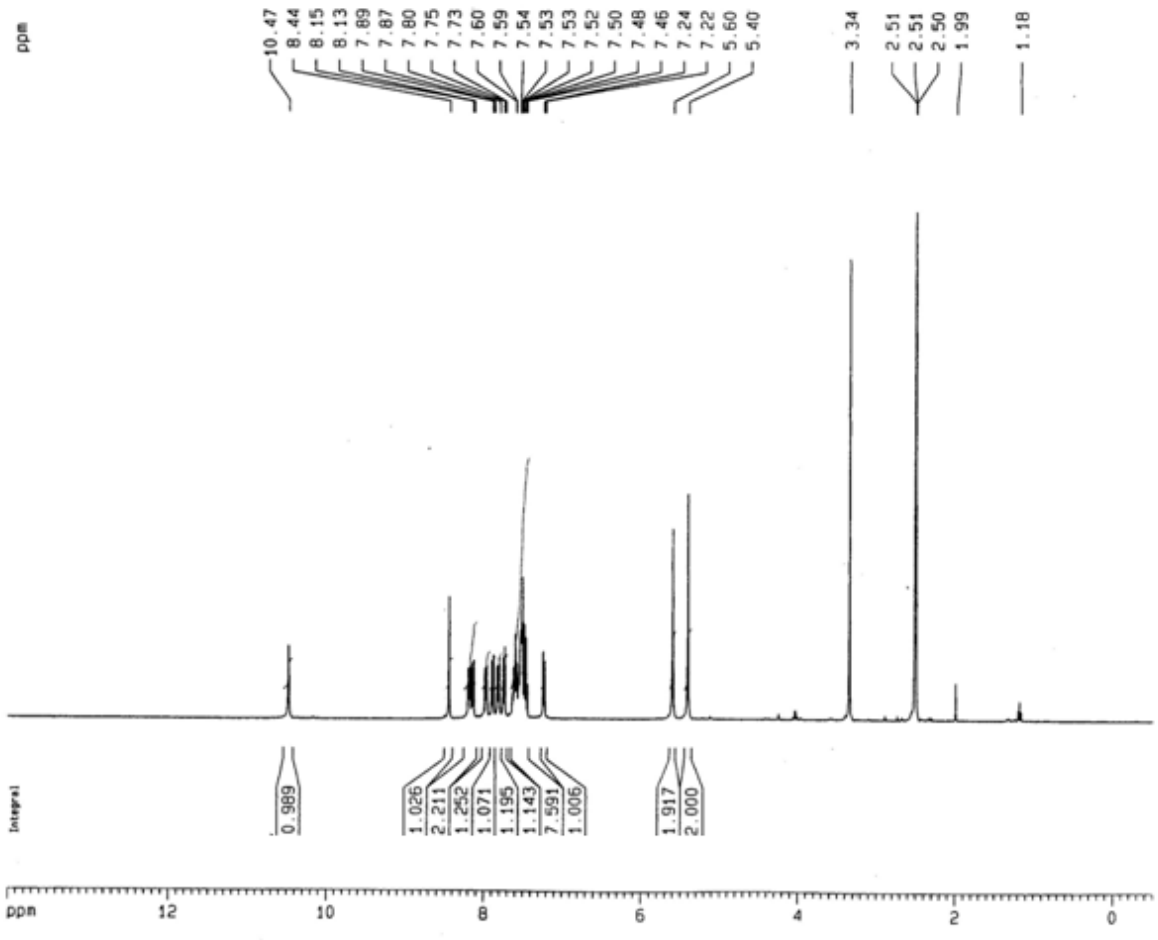


Figure S5. ^{1}H NMR spectrum (DMSO-d_6, 400 MHz) of compound **7e**

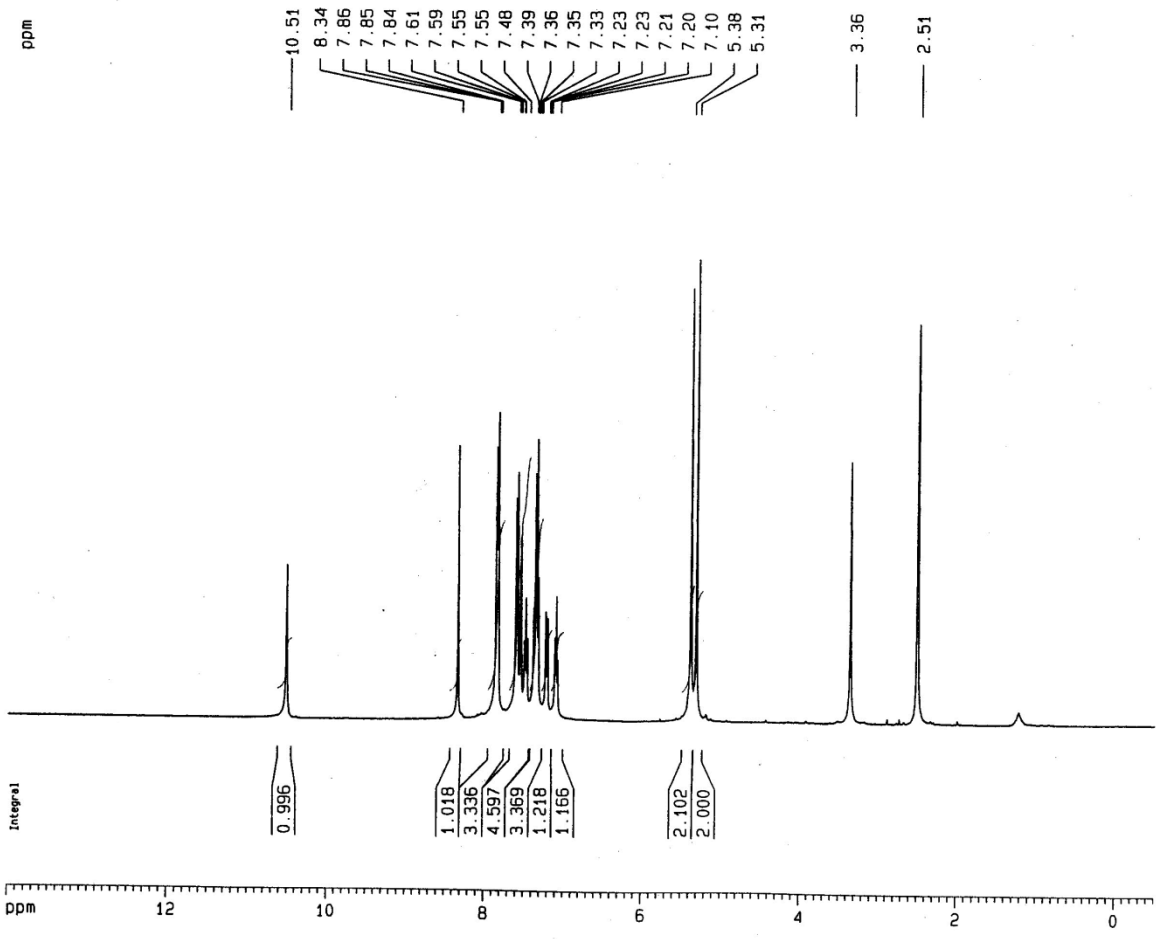
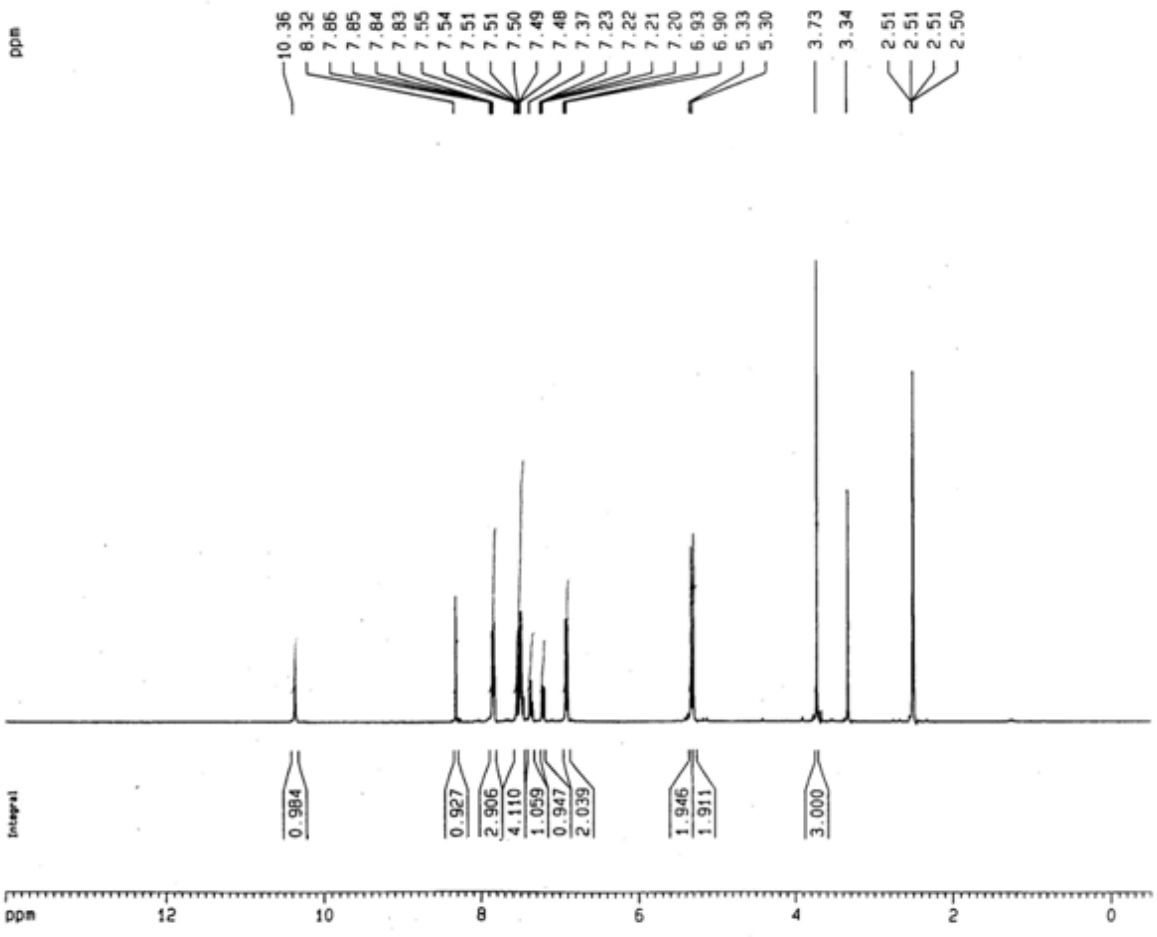


Figure S6. ^{1}H NMR spectrum (DMSO-d_6, 400 MHz) of compound **10a**



228

229 **Figure S7.** ^{1}H NMR spectrum (DMSO-d_6, 400 MHz) of compound **10b**

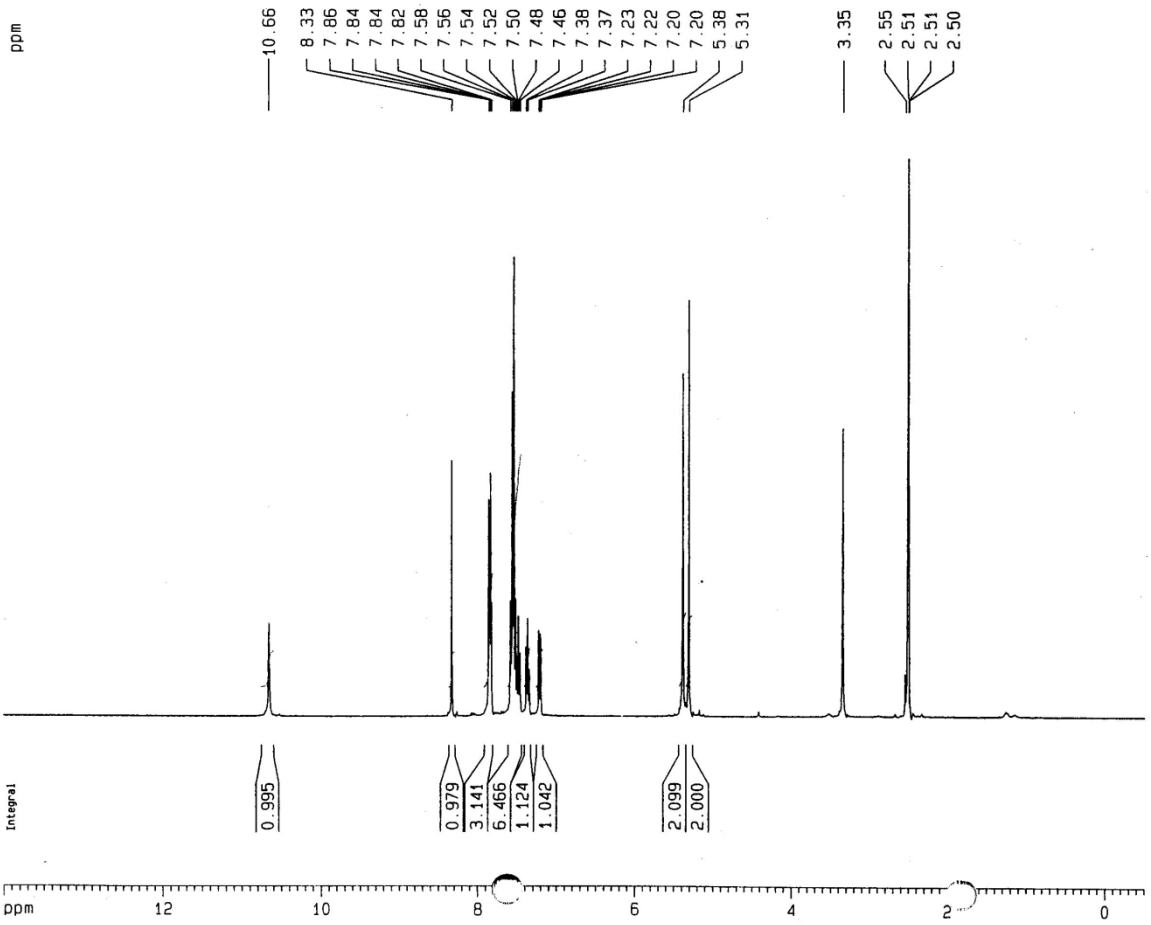


Figure S8. ^{1}H NMR spectrum (DMSO-d_6, 400 MHz) of compound **10c**

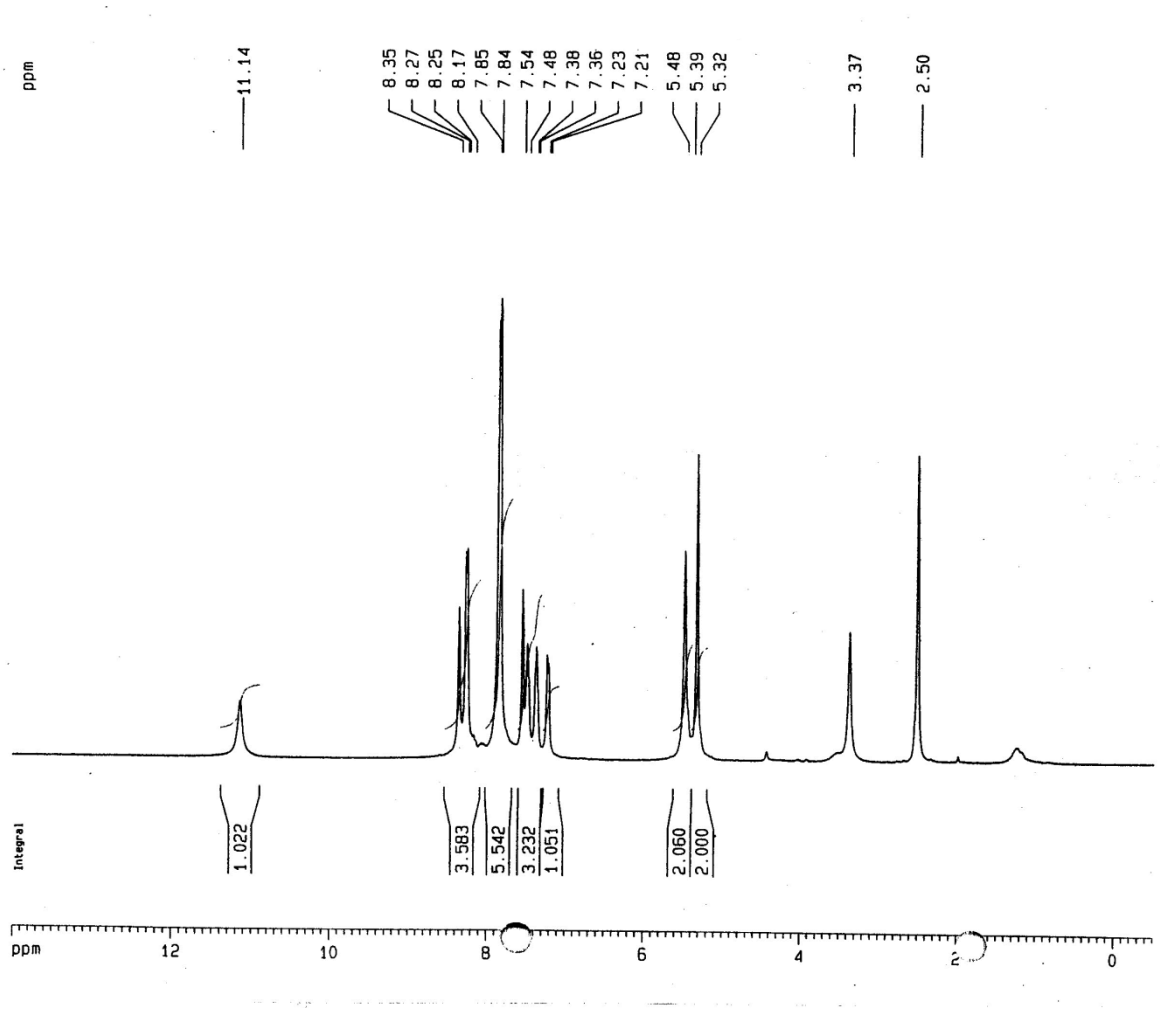


Figure S9. ^{1}H NMR spectrum (DMSO-d_6, 400 MHz) of compound **10d**

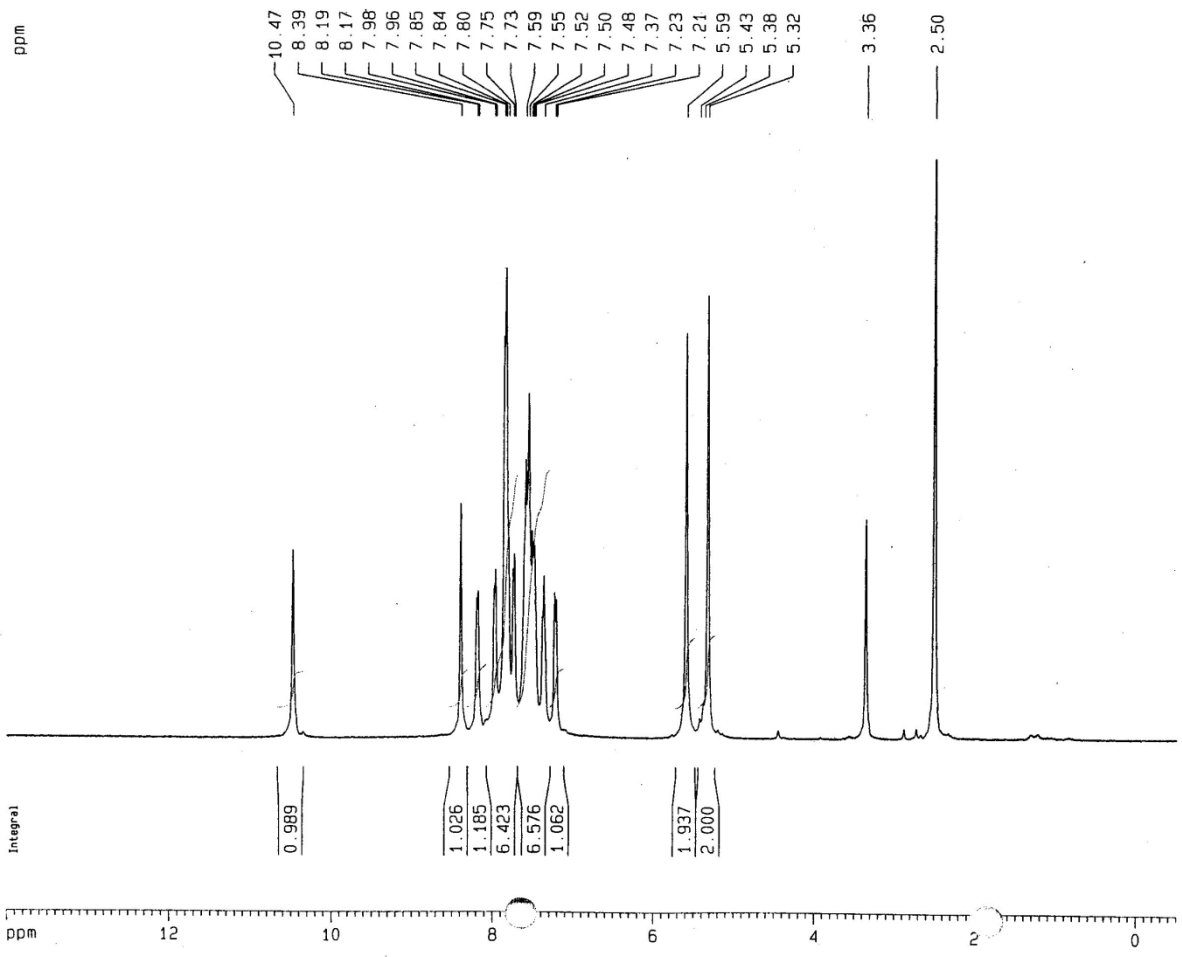


Figure S10. ^{1}H NMR spectrum (DMSO-d_6, 400 MHz) of compound **10e**

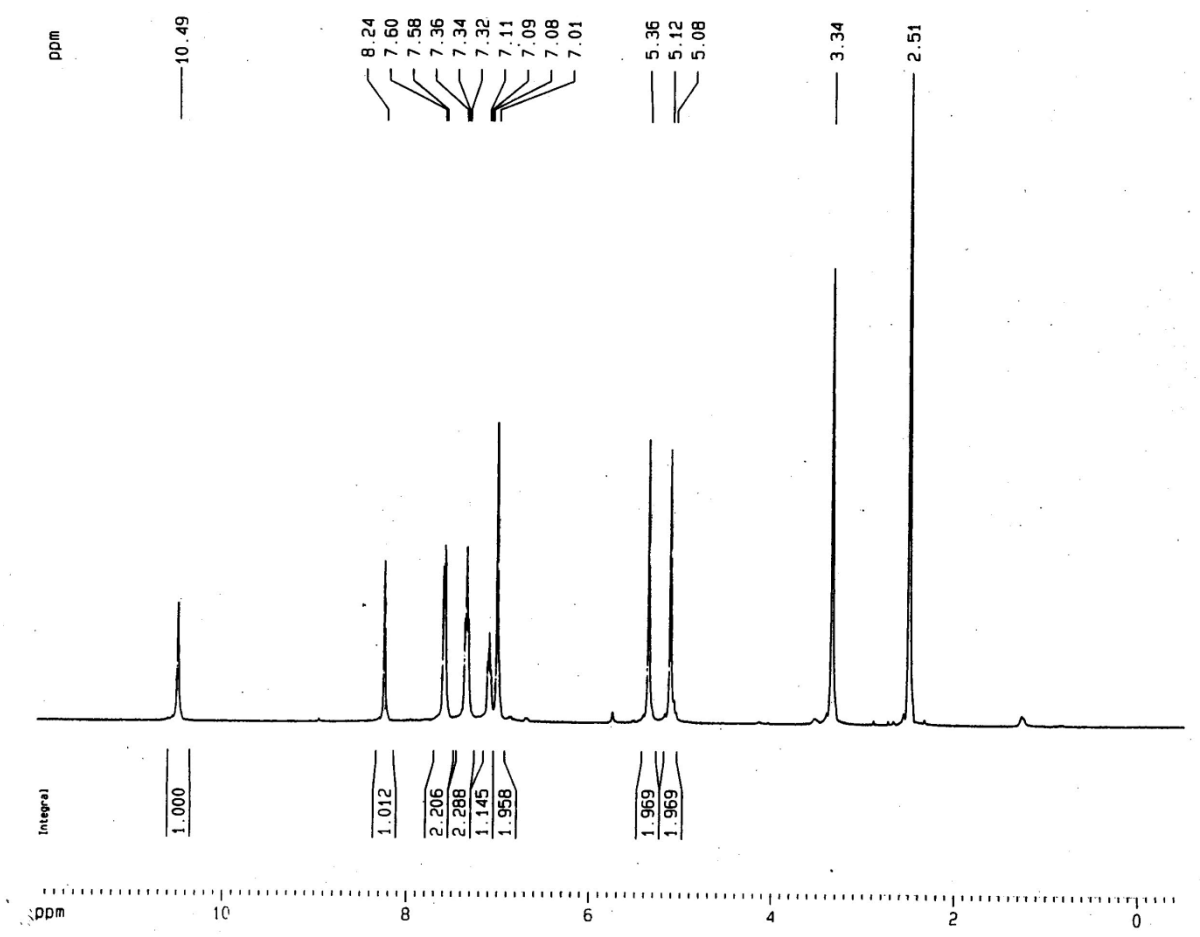


Figure S11. ^{1}H NMR spectrum (DMSO-d_6, 400 MHz) of compound **13a**

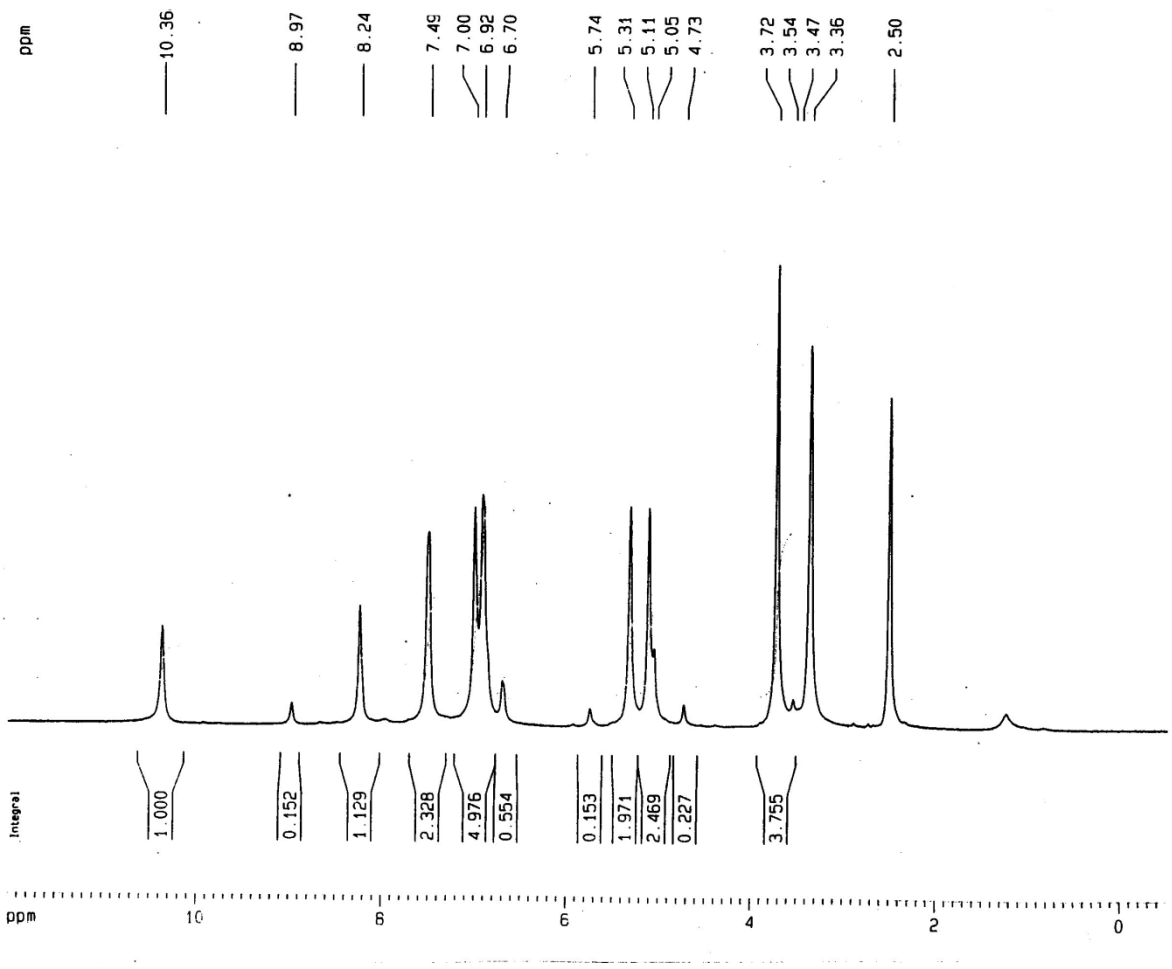
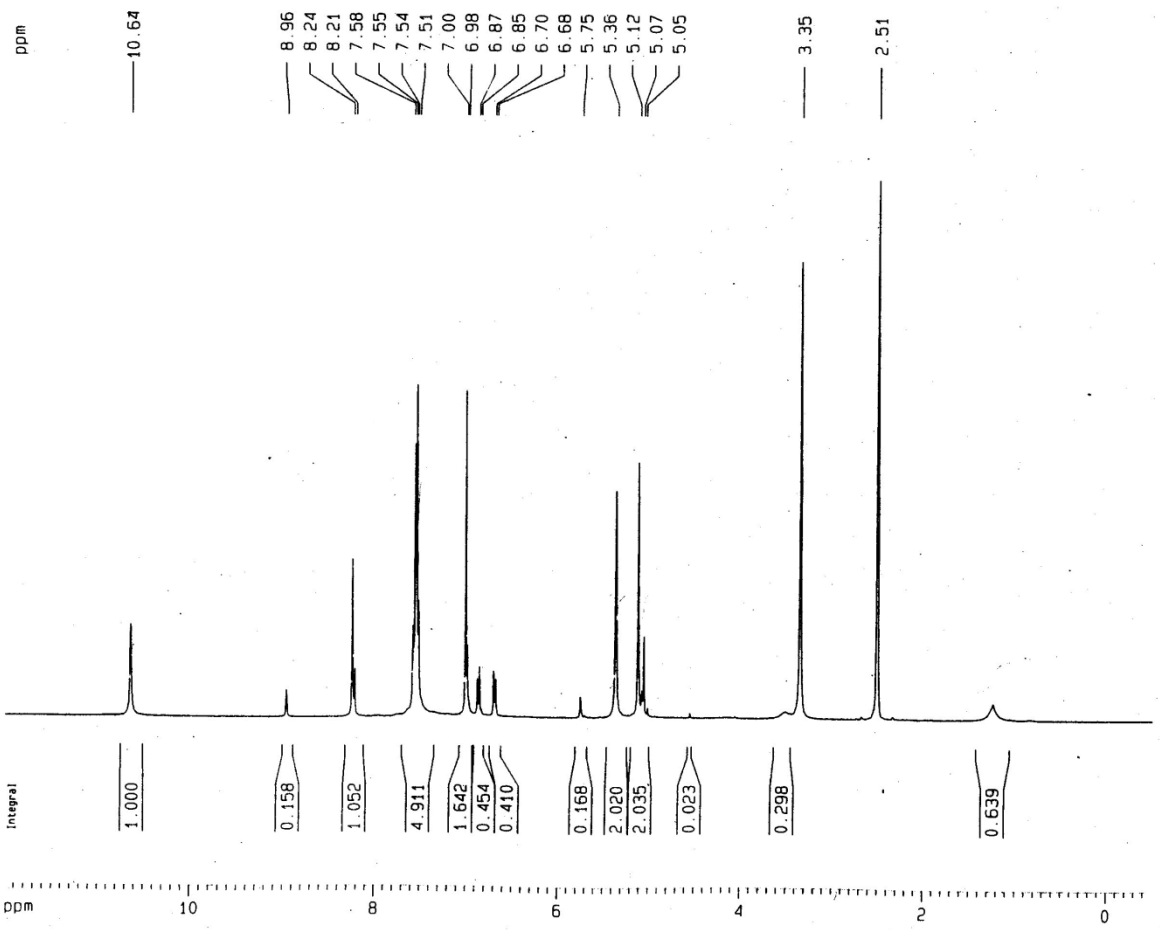


Figure S12. ^{1}H NMR spectrum (DMSO-d_6, 400 MHz) of compound **13b**



241

242 **Figure S13.** ^{1}H NMR spectrum (DMSO-d_6, 400 MHz) of compound **13c**

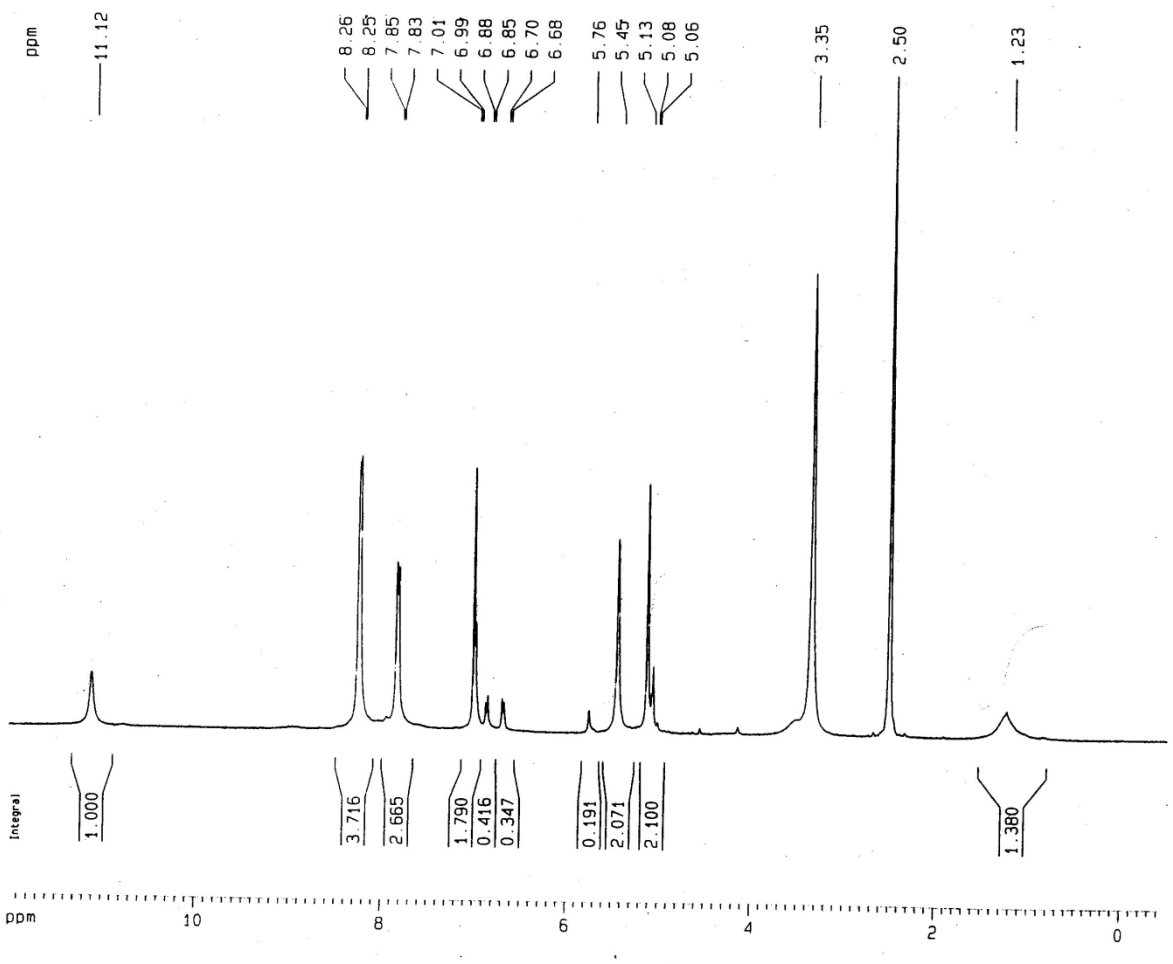


Figure S14. ^{1}H NMR spectrum (DMSO-d_6, 400 MHz) of compound **13d**

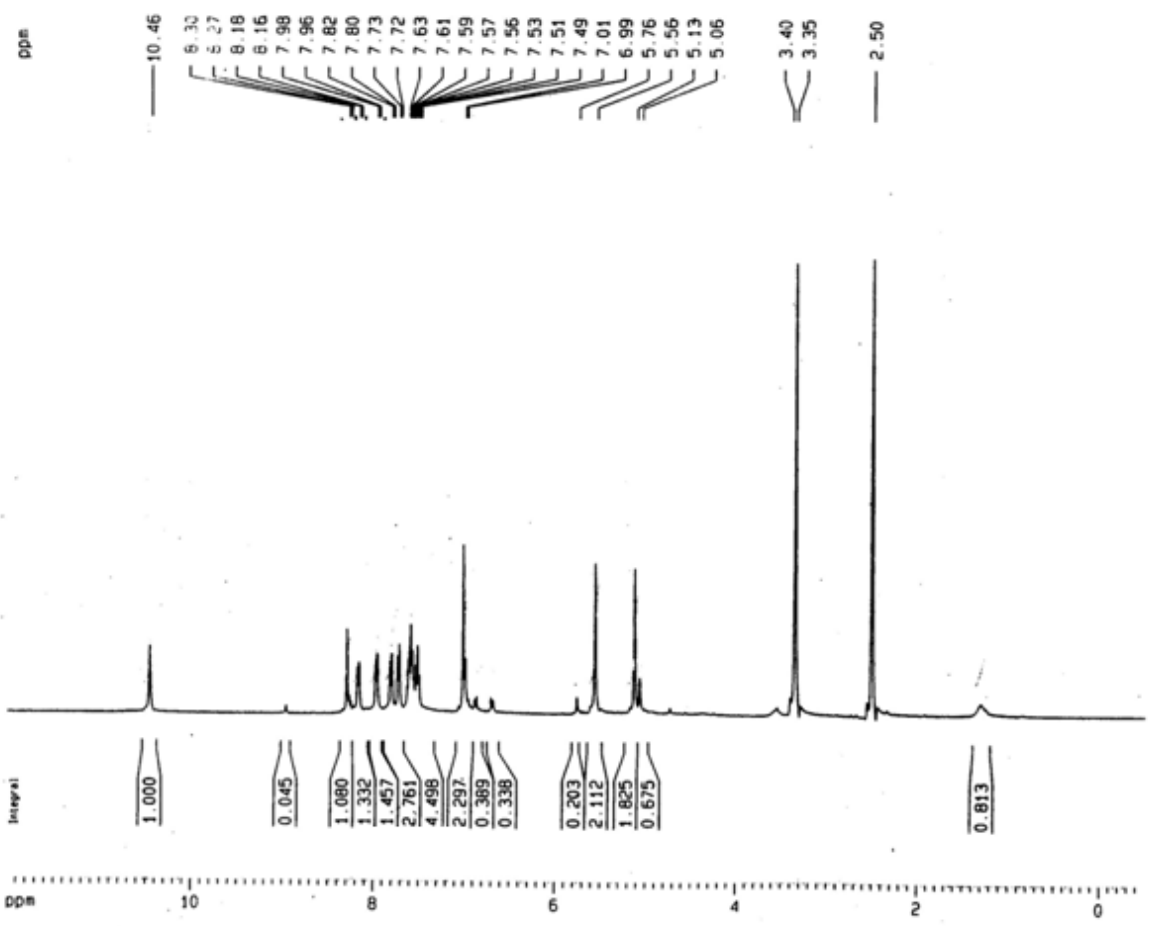


Figure S15. ^{1}H NMR spectrum (DMSO-d_6, 400 MHz) of compound **13e**

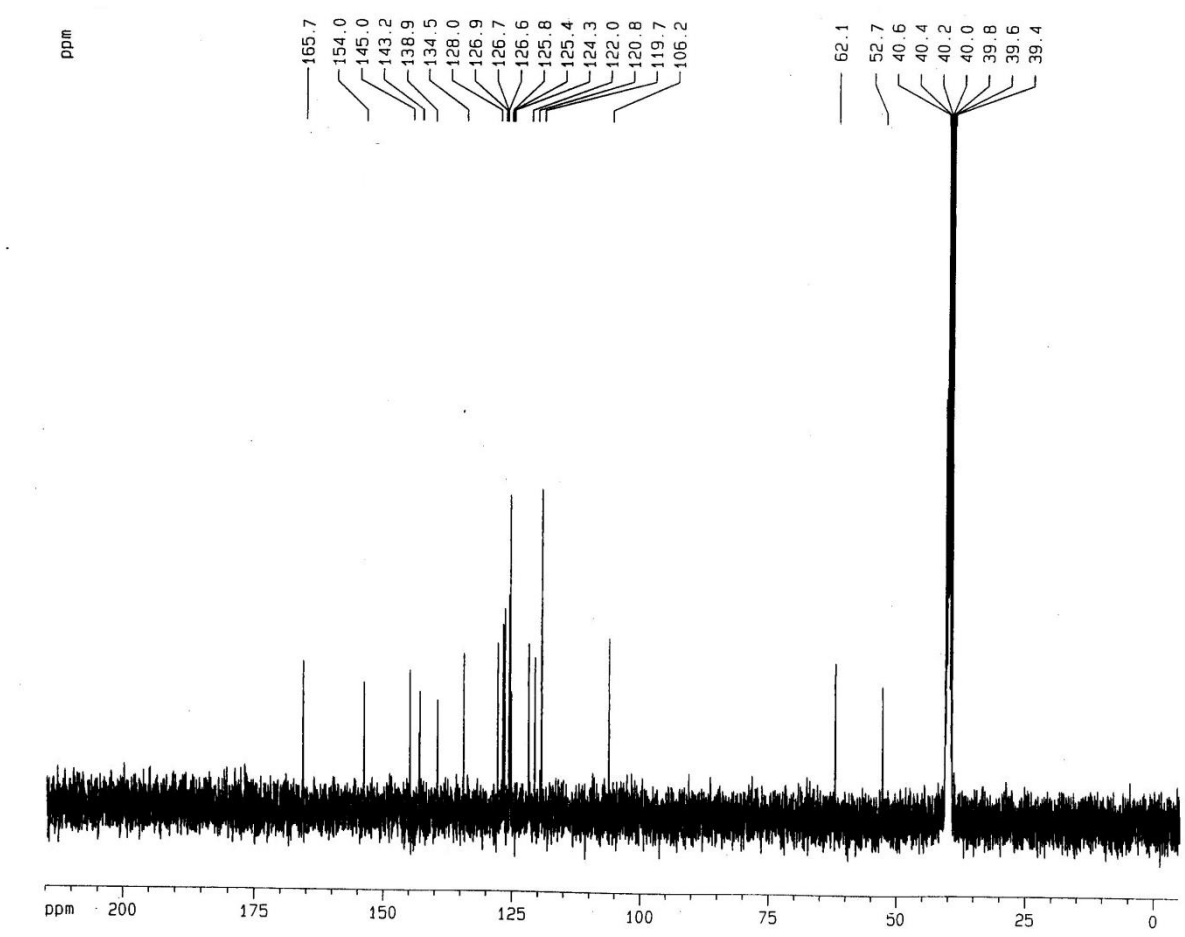


Figure S16. ^{13}C NMR spectrum (DMSO-d_6, 100 MHz) of compound **7a**

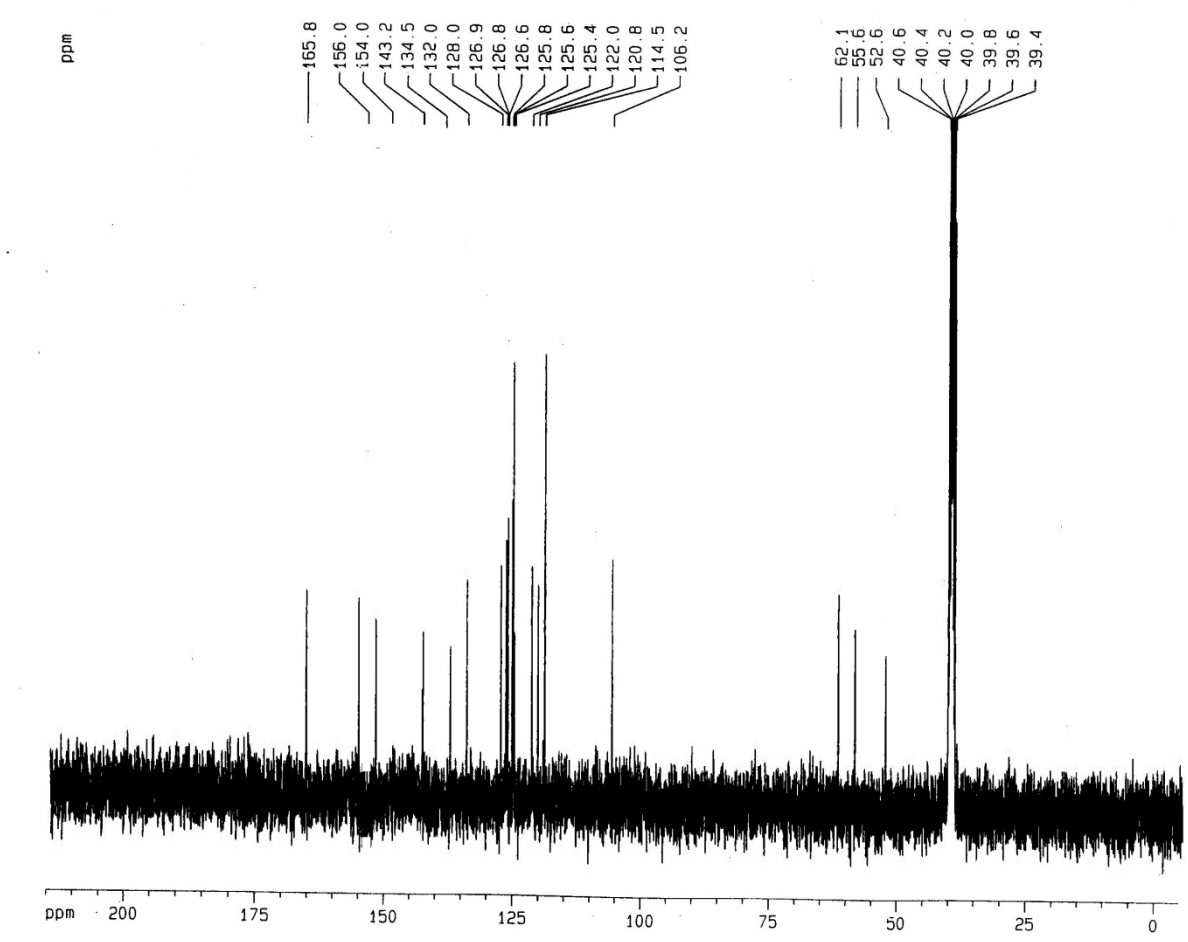


Figure S17. ^{13}C NMR spectrum (DMSO-d_6, 100 MHz) of compound **7b**

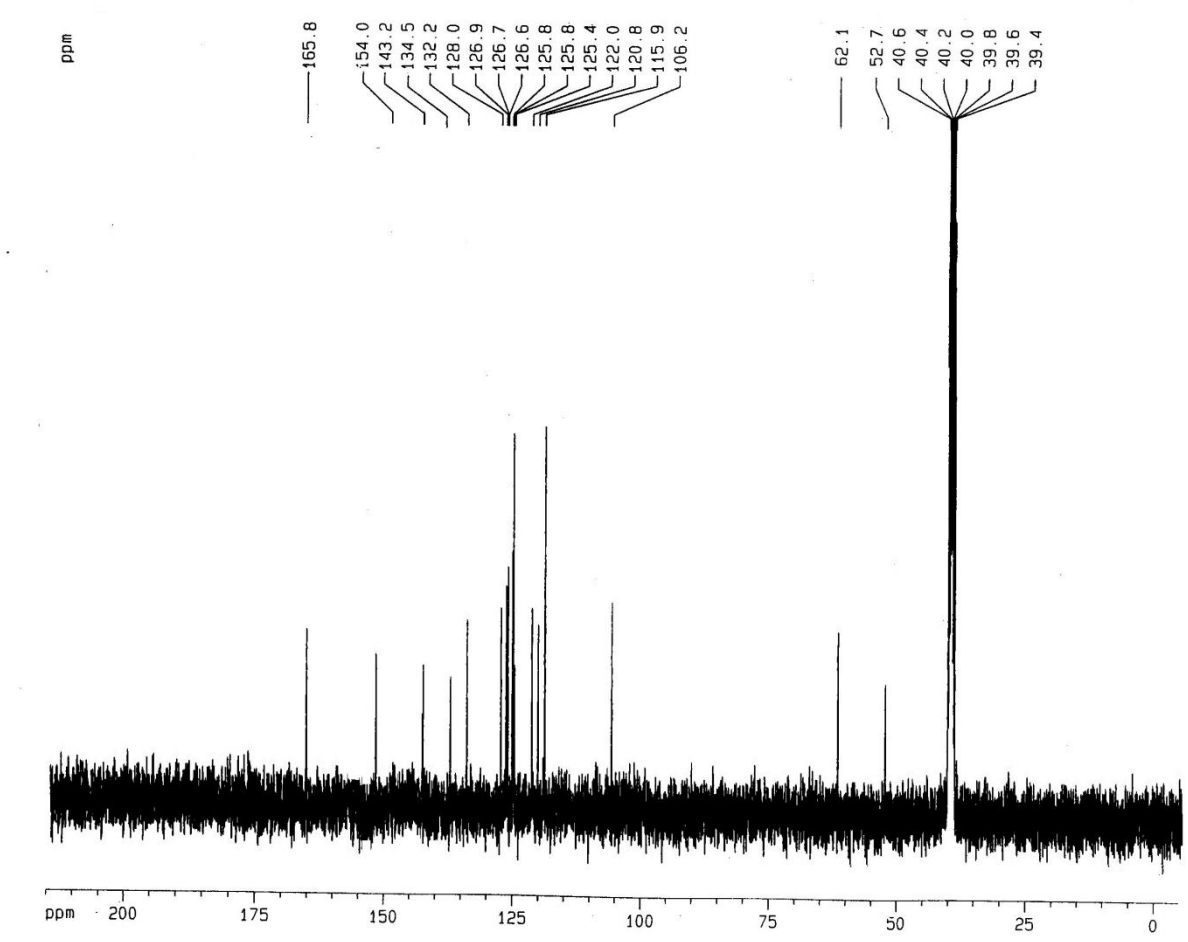


Figure S18. ^{13}C NMR spectrum (DMSO-d_6, 100 MHz) of compound **7c**

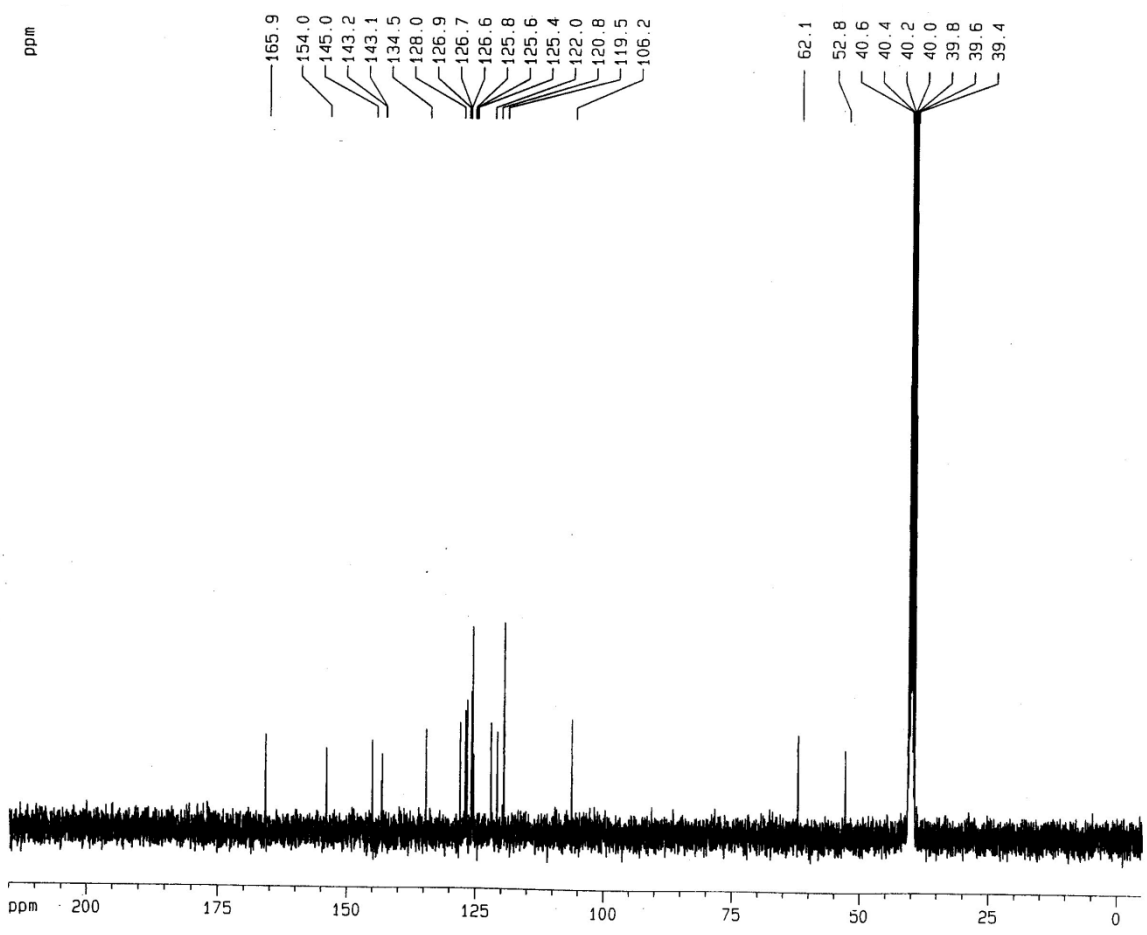
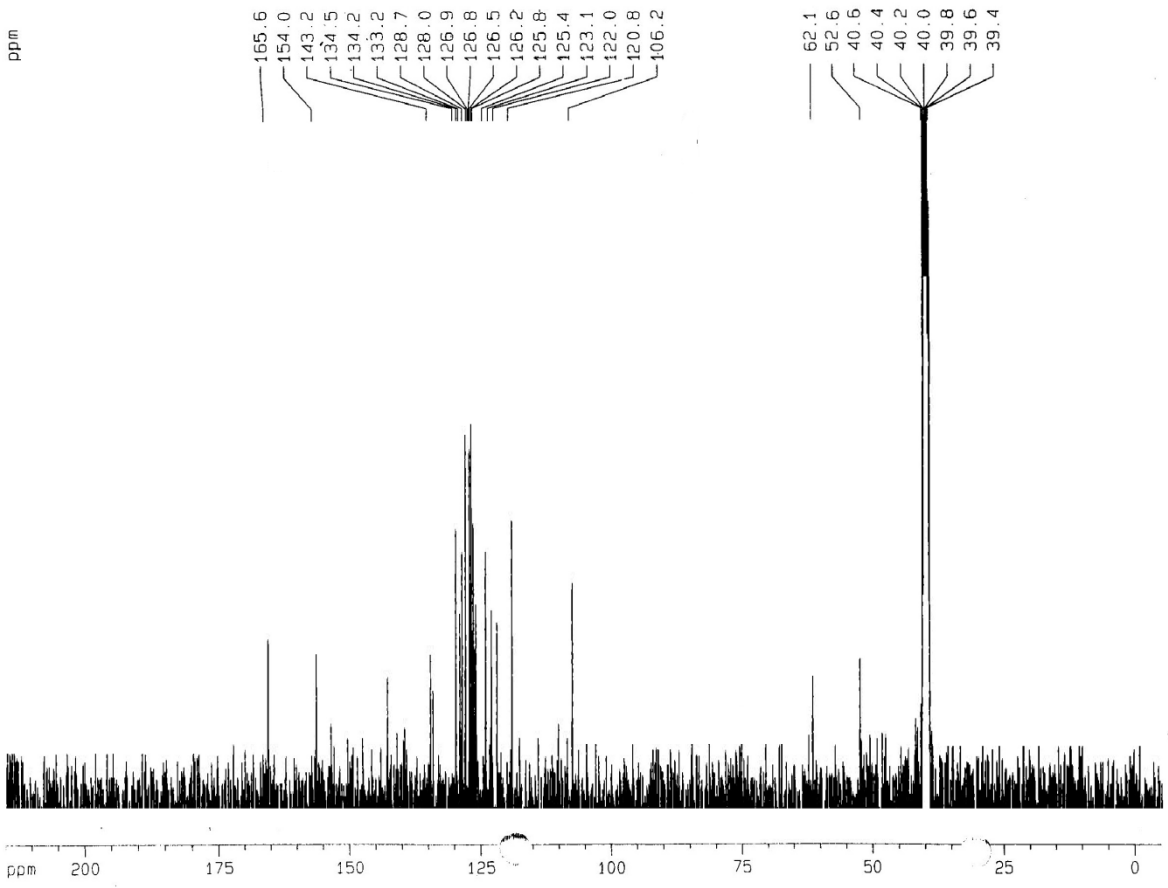


Figure S19. ^{13}C NMR spectrum (DMSO-d_6, 100 MHz) of compound **7d**



257

258 **Figure S20.** ^{13}C NMR spectrum (DMSO-d_6, 100 MHz) of compound **7e**

259

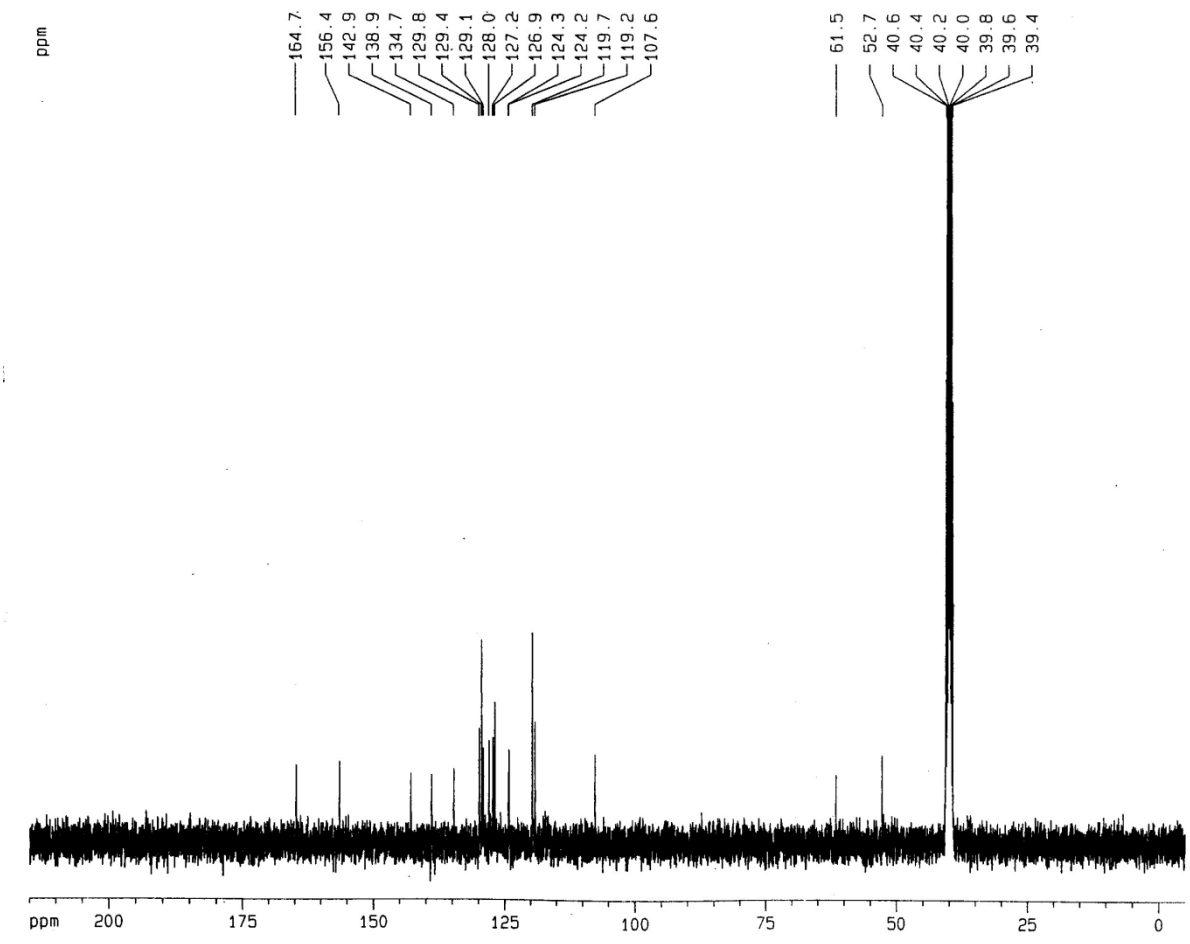


Figure S21. ^{13}C NMR spectrum (DMSO-d_6, 100 MHz) of compound **10a**

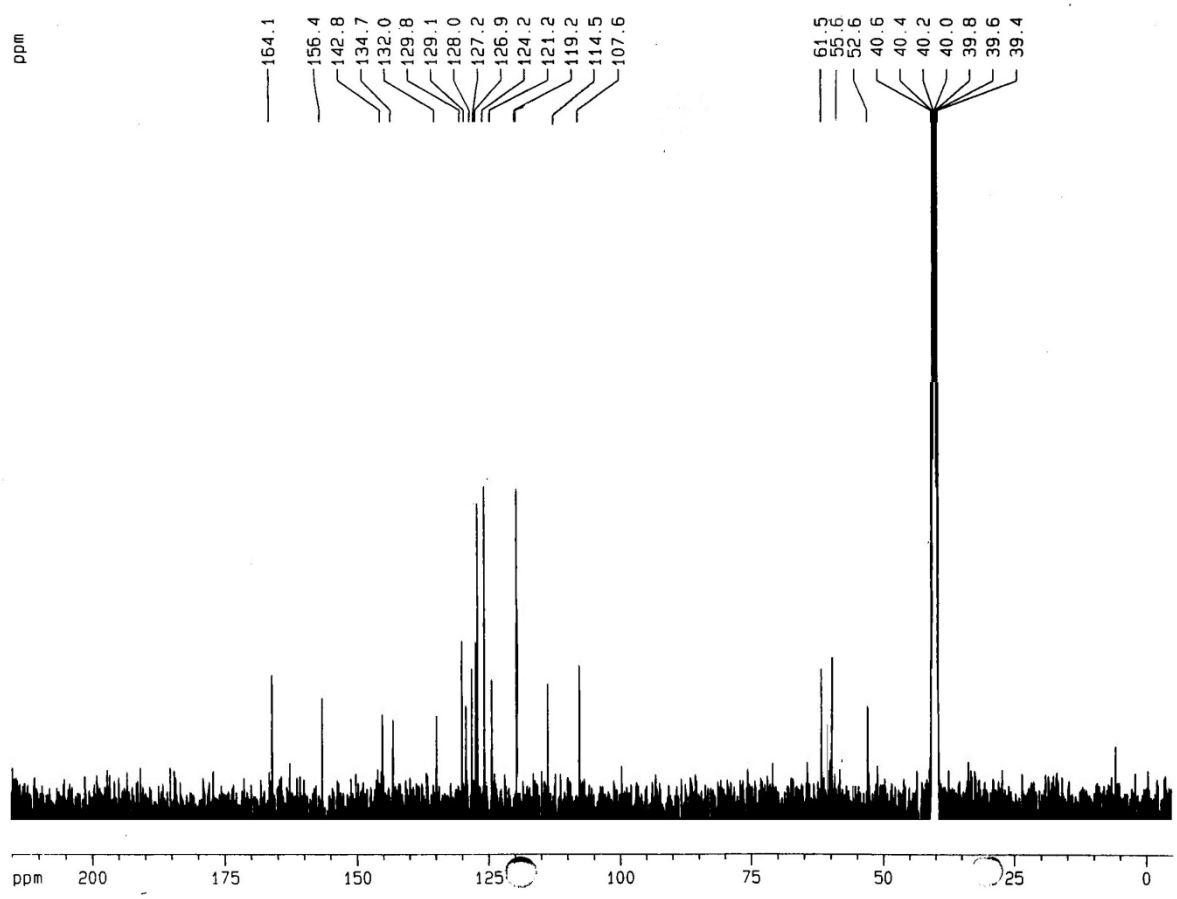


Figure S22. ^{13}C NMR spectrum (DMSO-d_6, 100 MHz) of compound **10b**

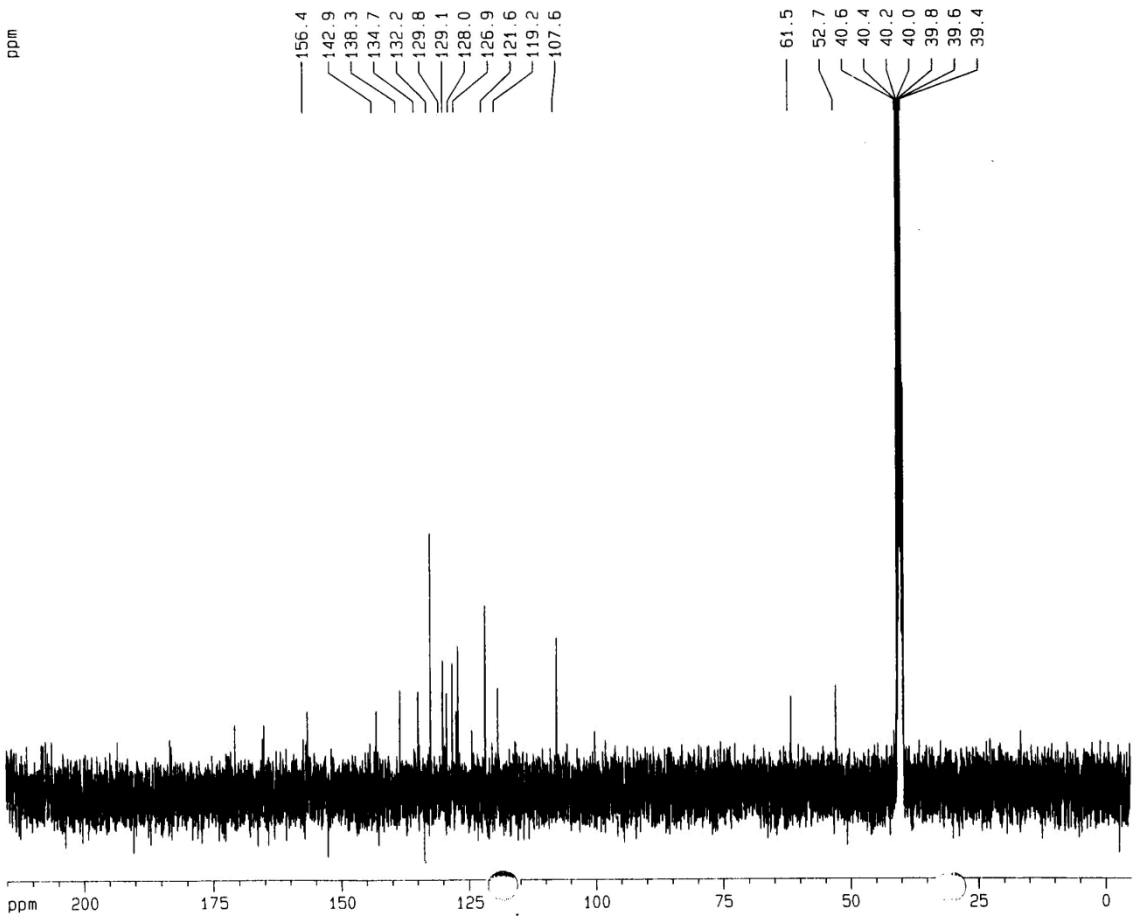


Figure S23. ^{13}C NMR spectrum (DMSO-d_6, 100 MHz) of compound **10c**

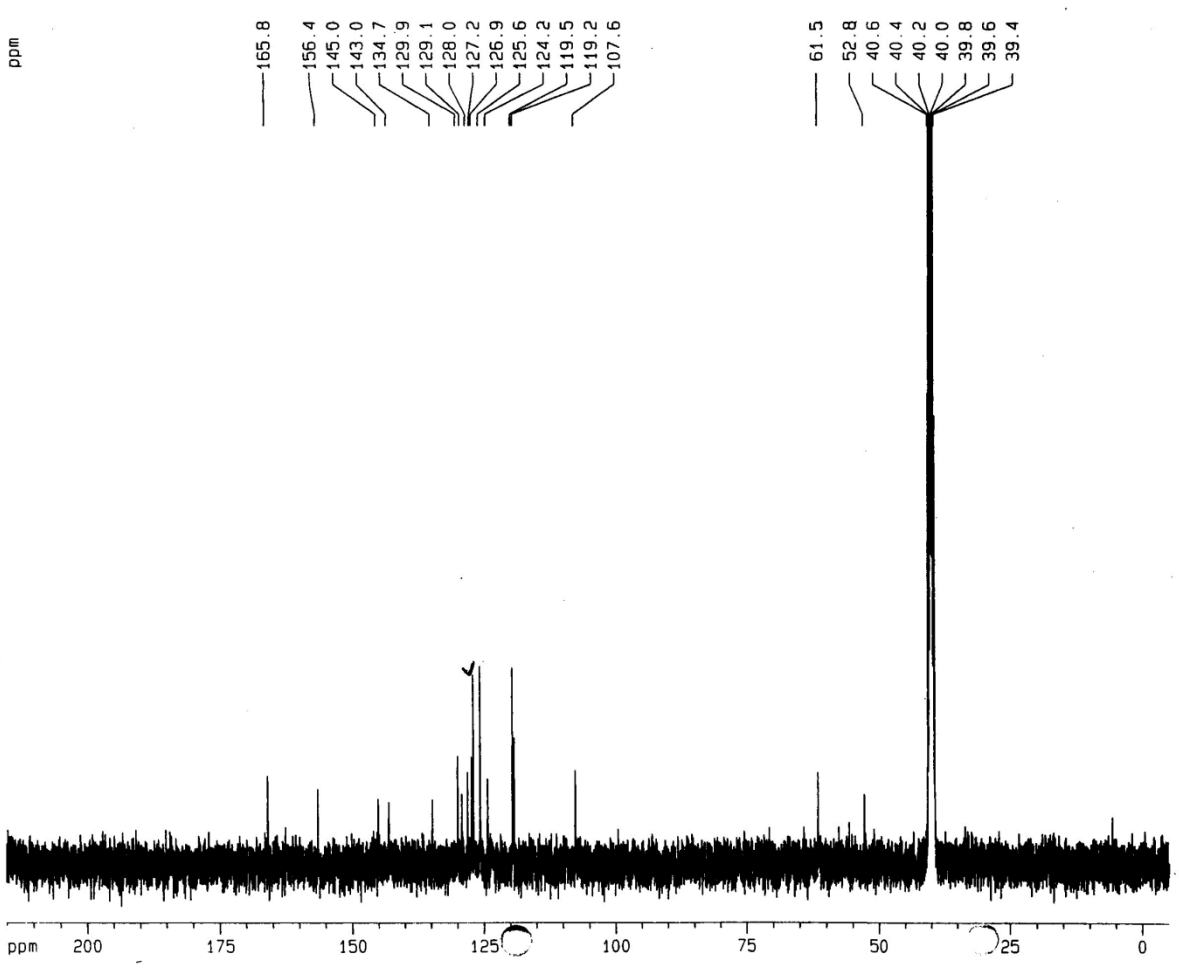


Figure S24. ^{13}C NMR spectrum (DMSO-d_6, 100 MHz) of compound **10d**

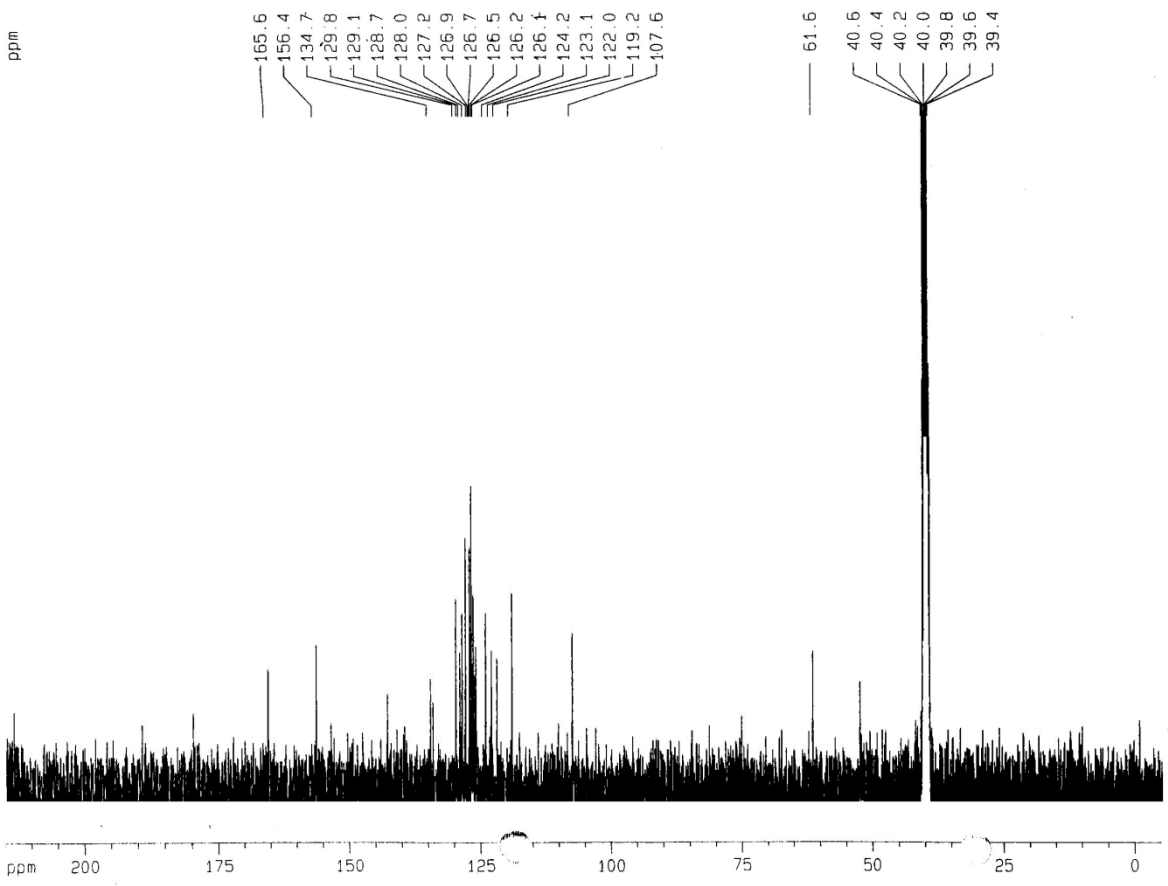


Figure S25. ^{13}C NMR spectrum (DMSO-d_6, 100 MHz) of compound **10e**

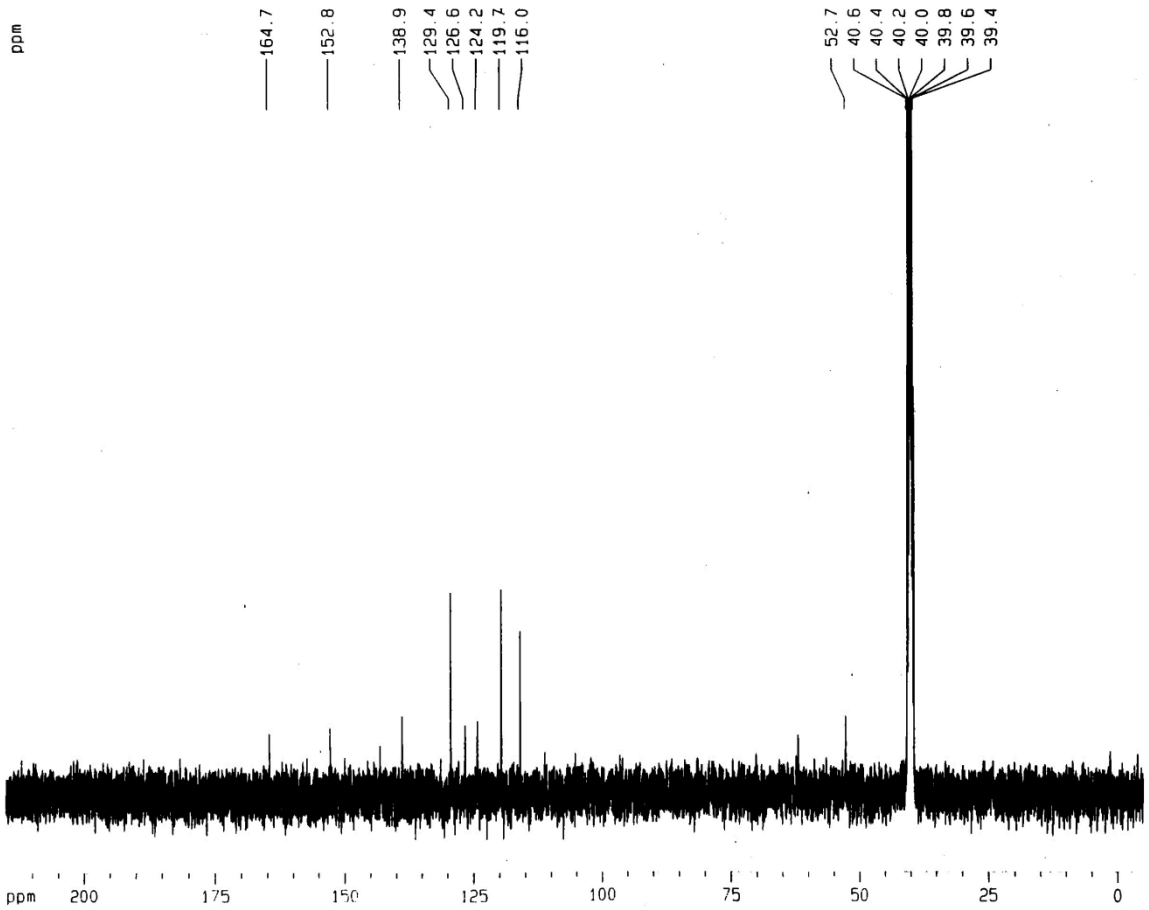


Figure S26. ^{13}C NMR spectrum (DMSO-d_6, 100 MHz) of compound **13a**

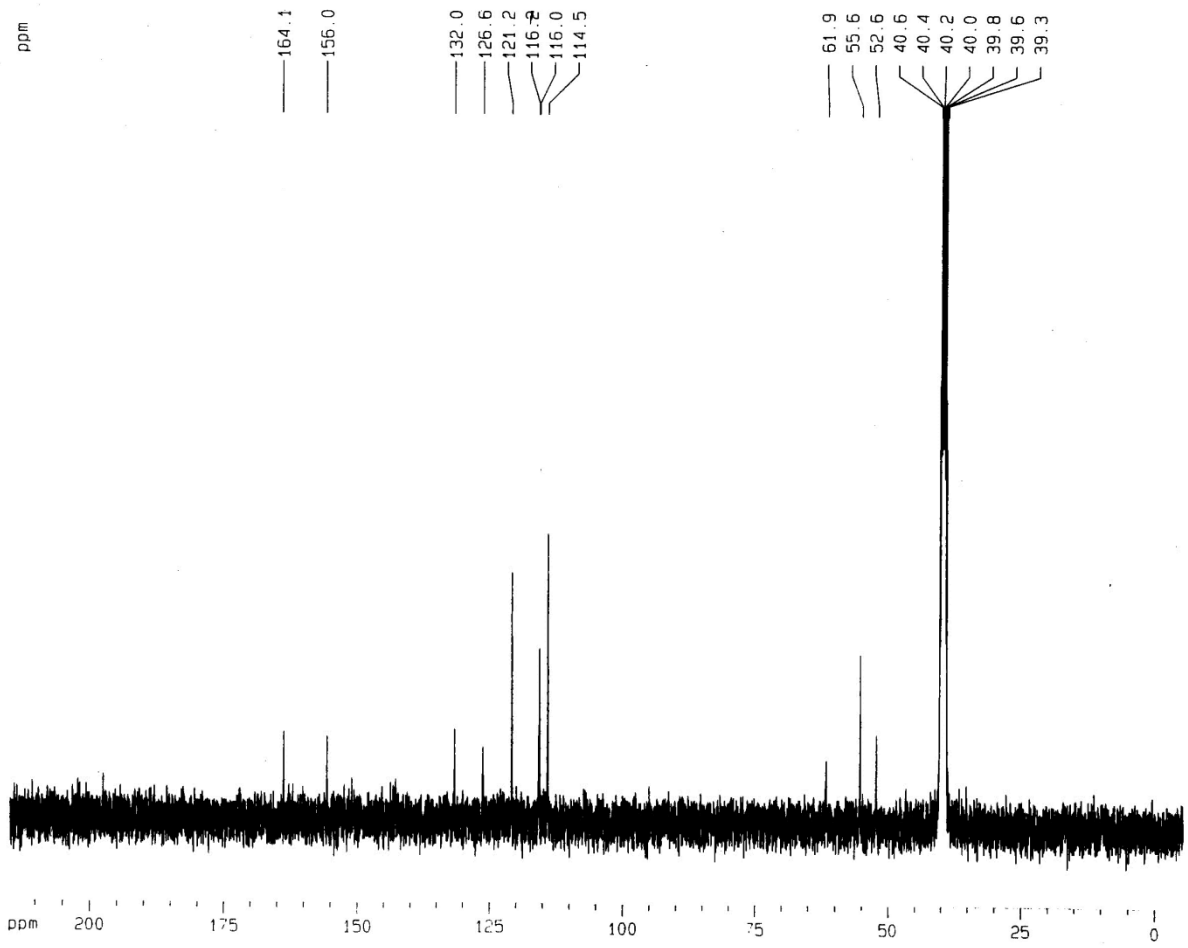


Figure S27. ^{13}C NMR spectrum (DMSO-d_6, 100 MHz) of compound **13b**

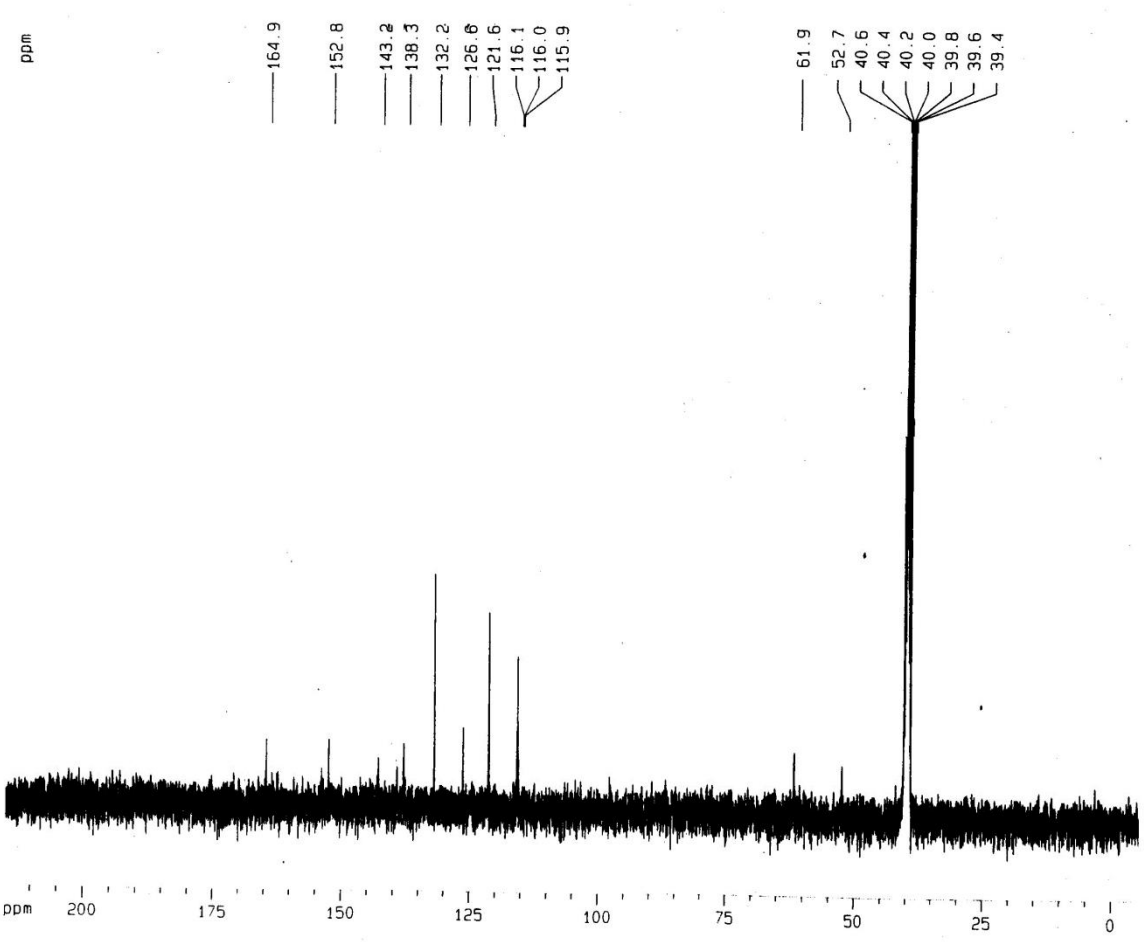
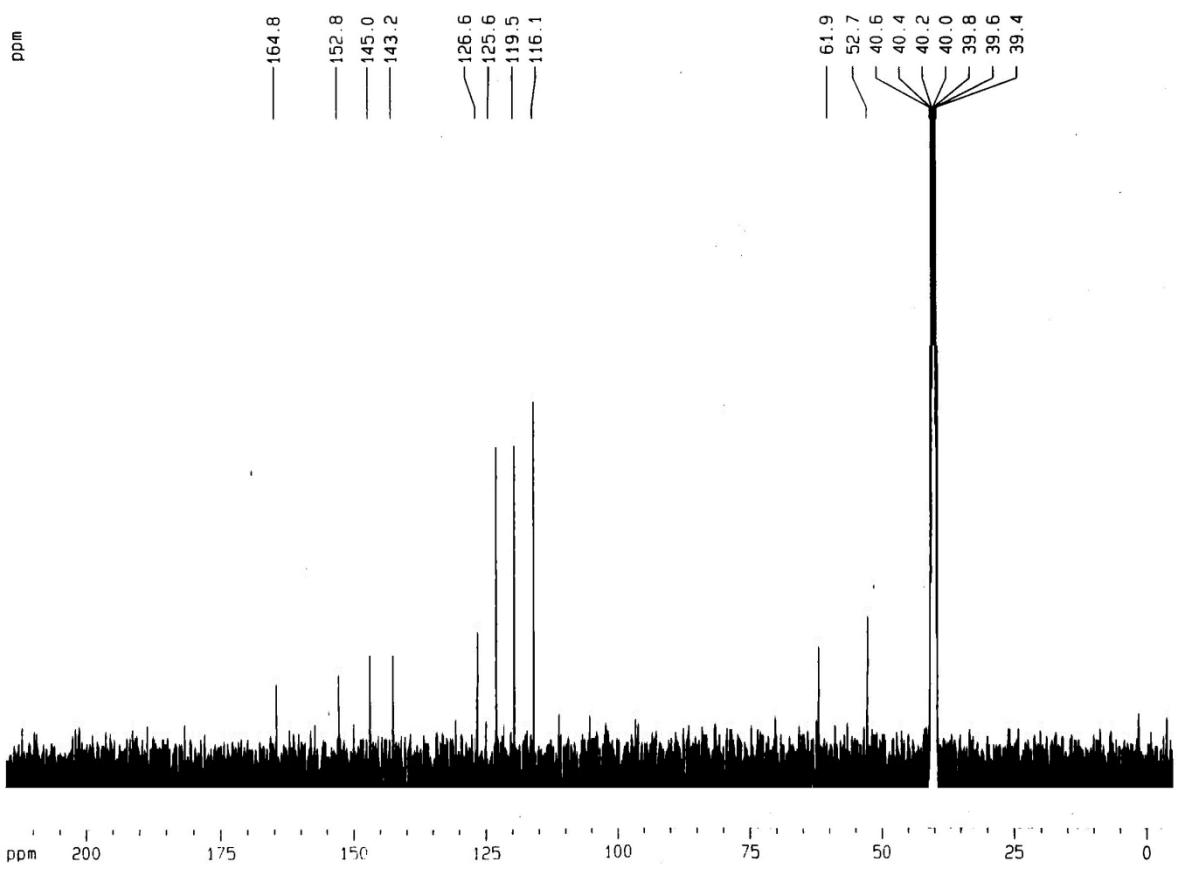


Figure S28. ^{13}C NMR spectrum (DMSO-d_6, 100 MHz) of compound **13c**



277

278 **Figure S29.** ^{13}C NMR spectrum (DMSO-d_6, 100 MHz) of compound **13d**

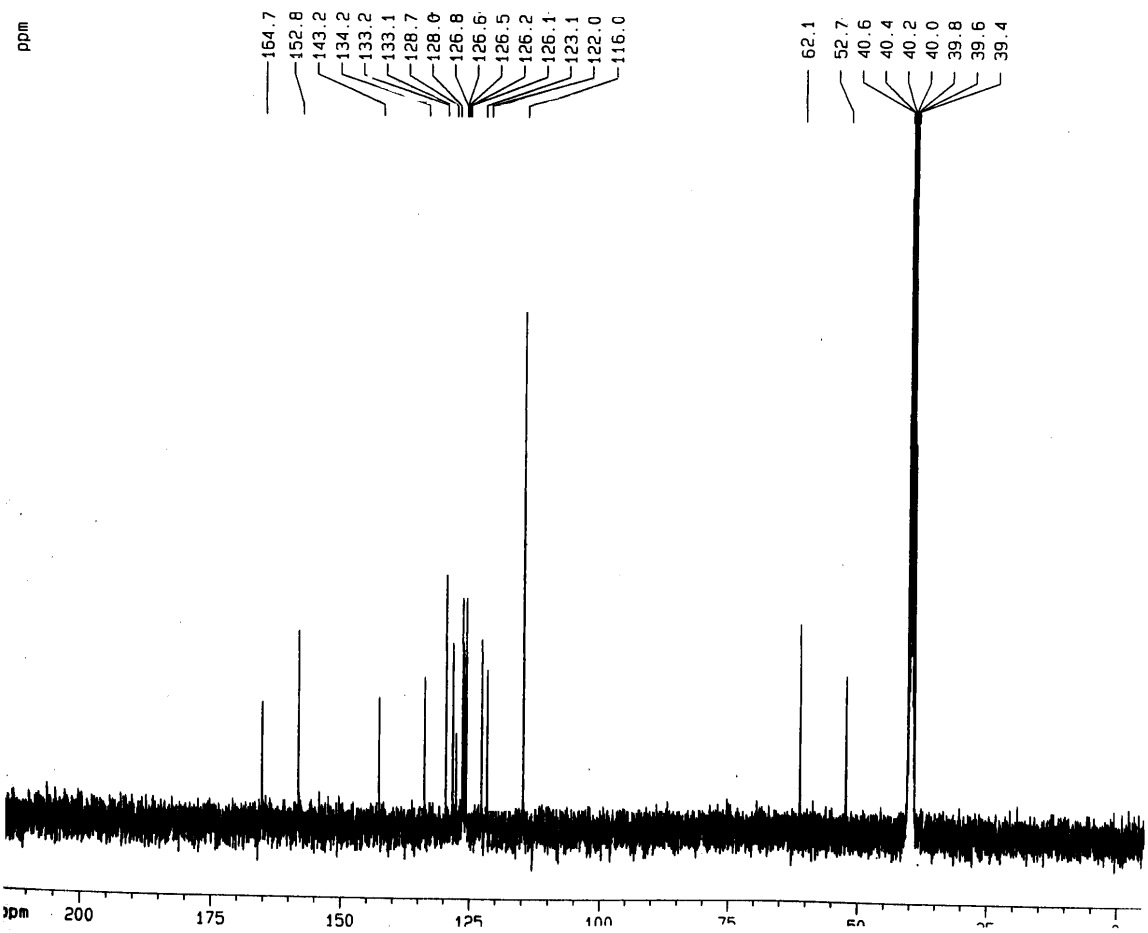


Figure S30. ^{13}C NMR spectrum (DMSO-d_6, 100 MHz) of compound **13e**

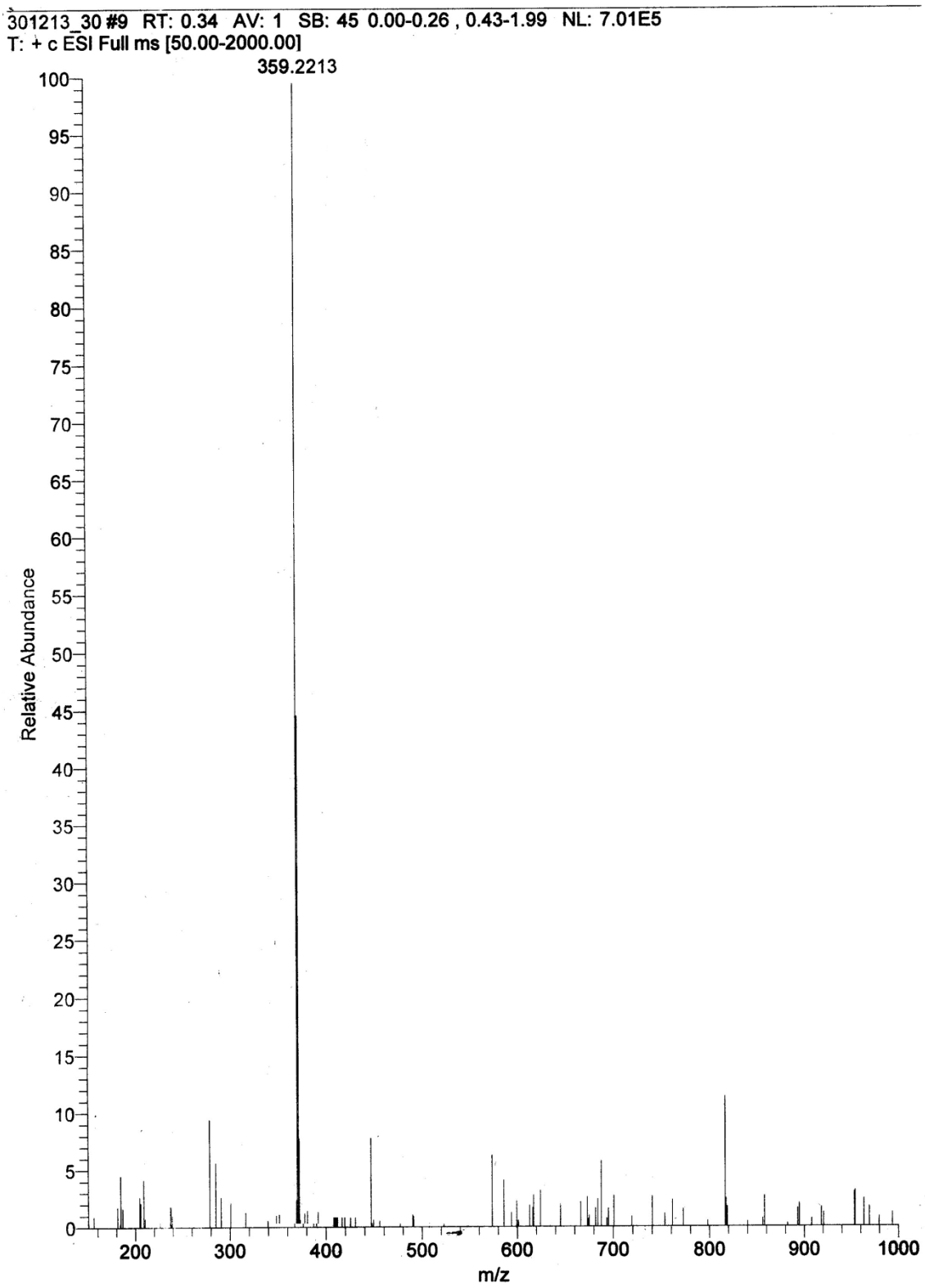


Figure S31. HRMS of compound **7a**

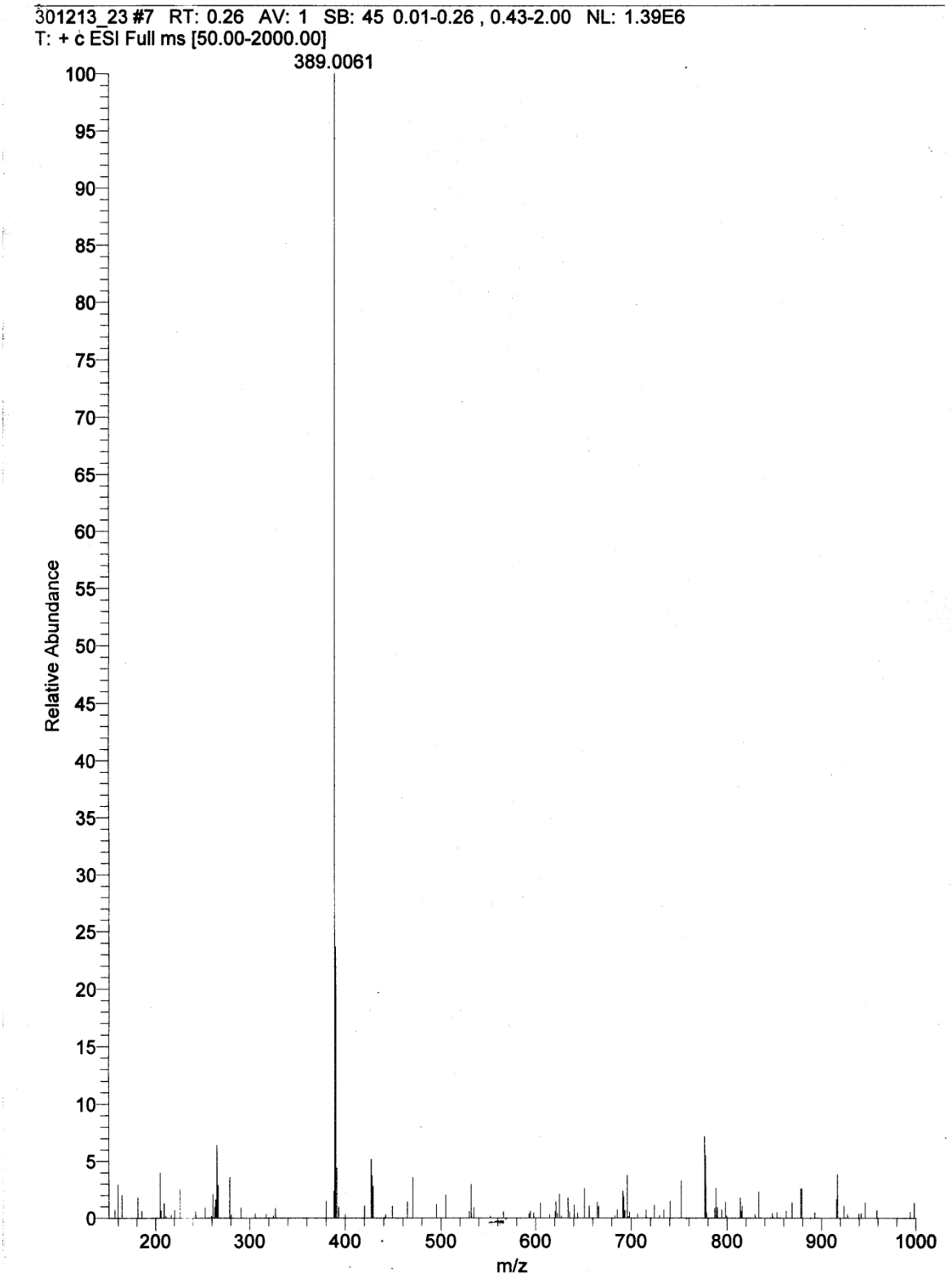
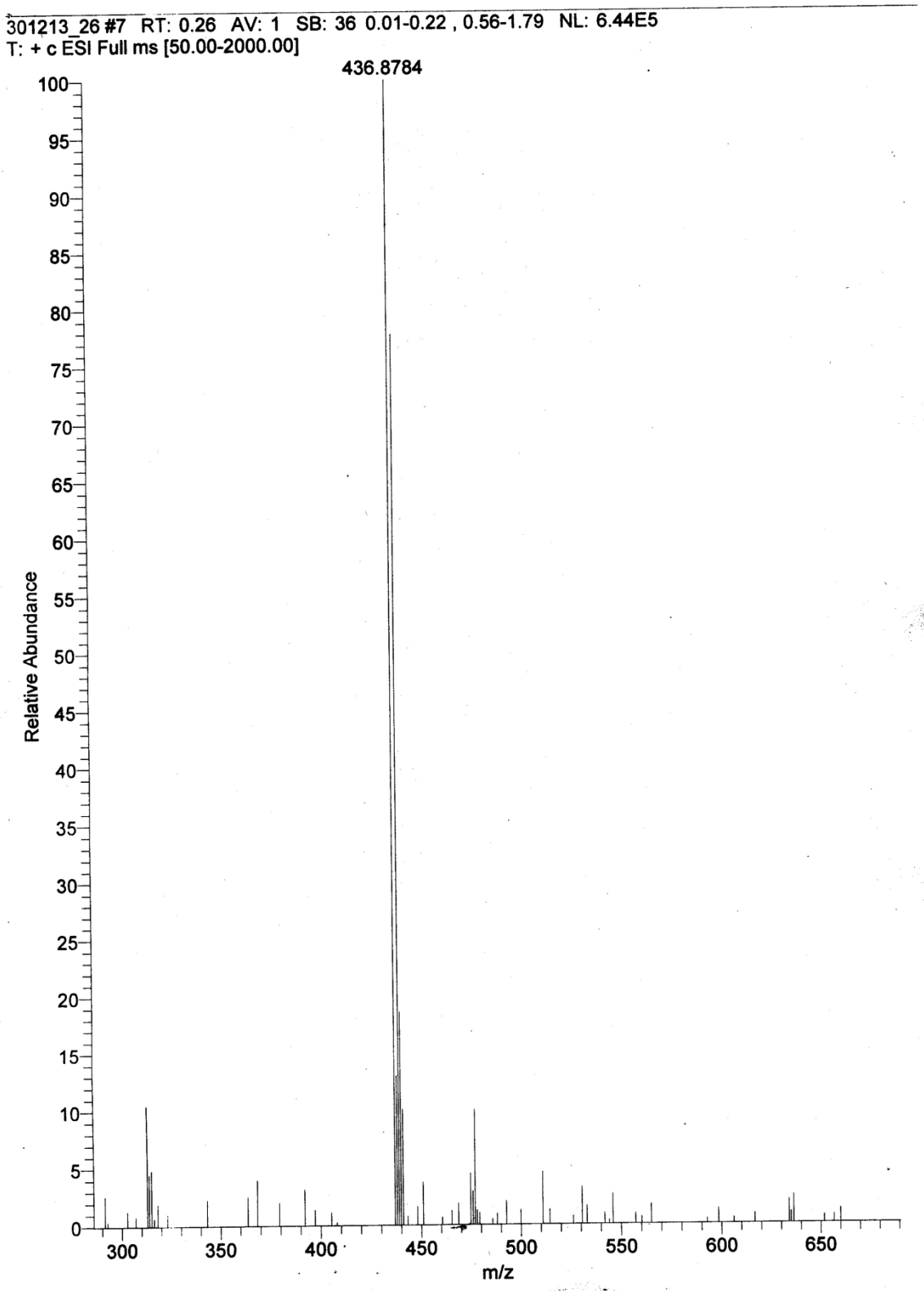


Figure S32. HRMS of compound **7b**



288

289 **Figure S33.** HRMS of compound **7c**

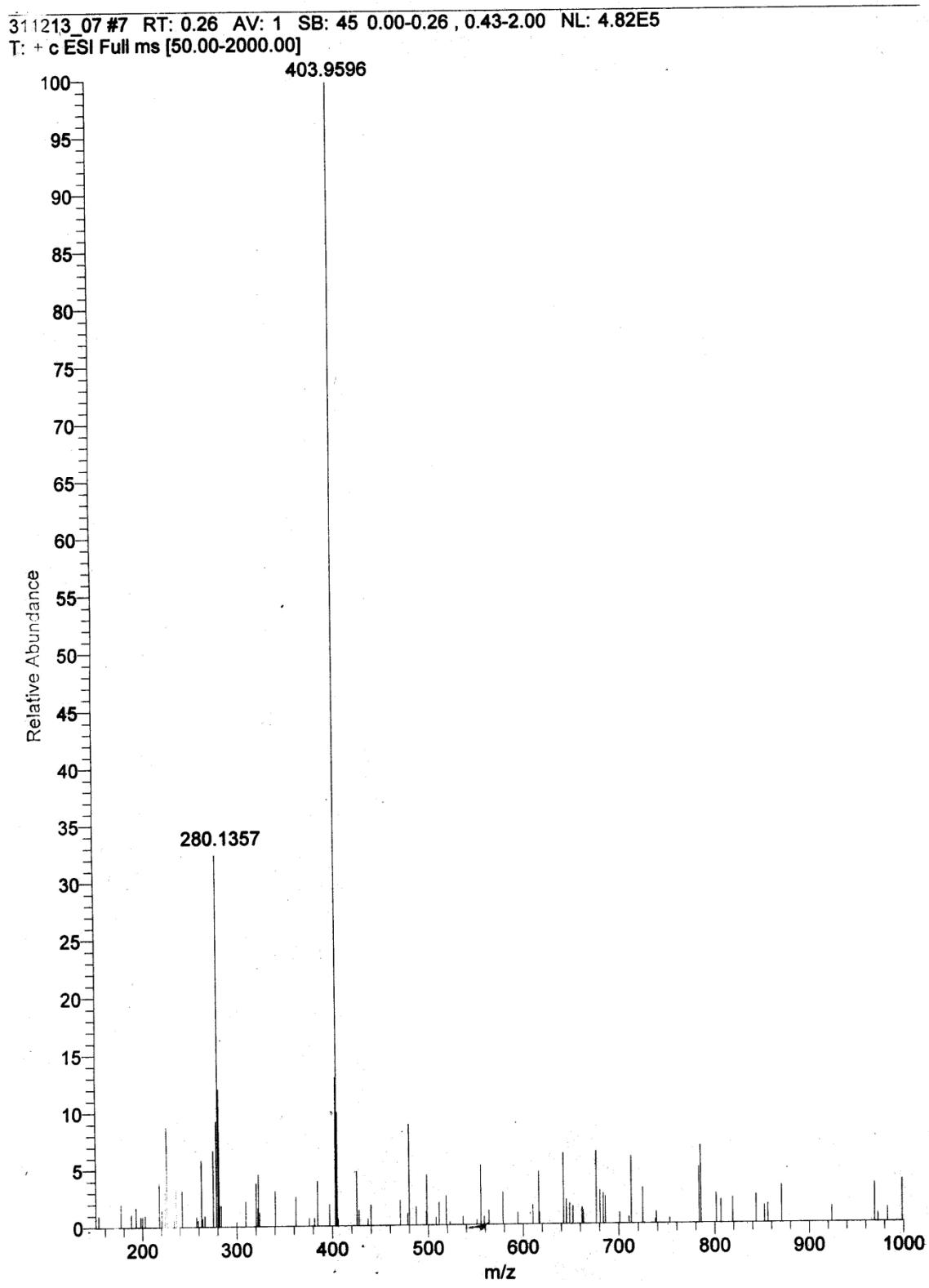


Figure S34. HRMS of compound **7d**

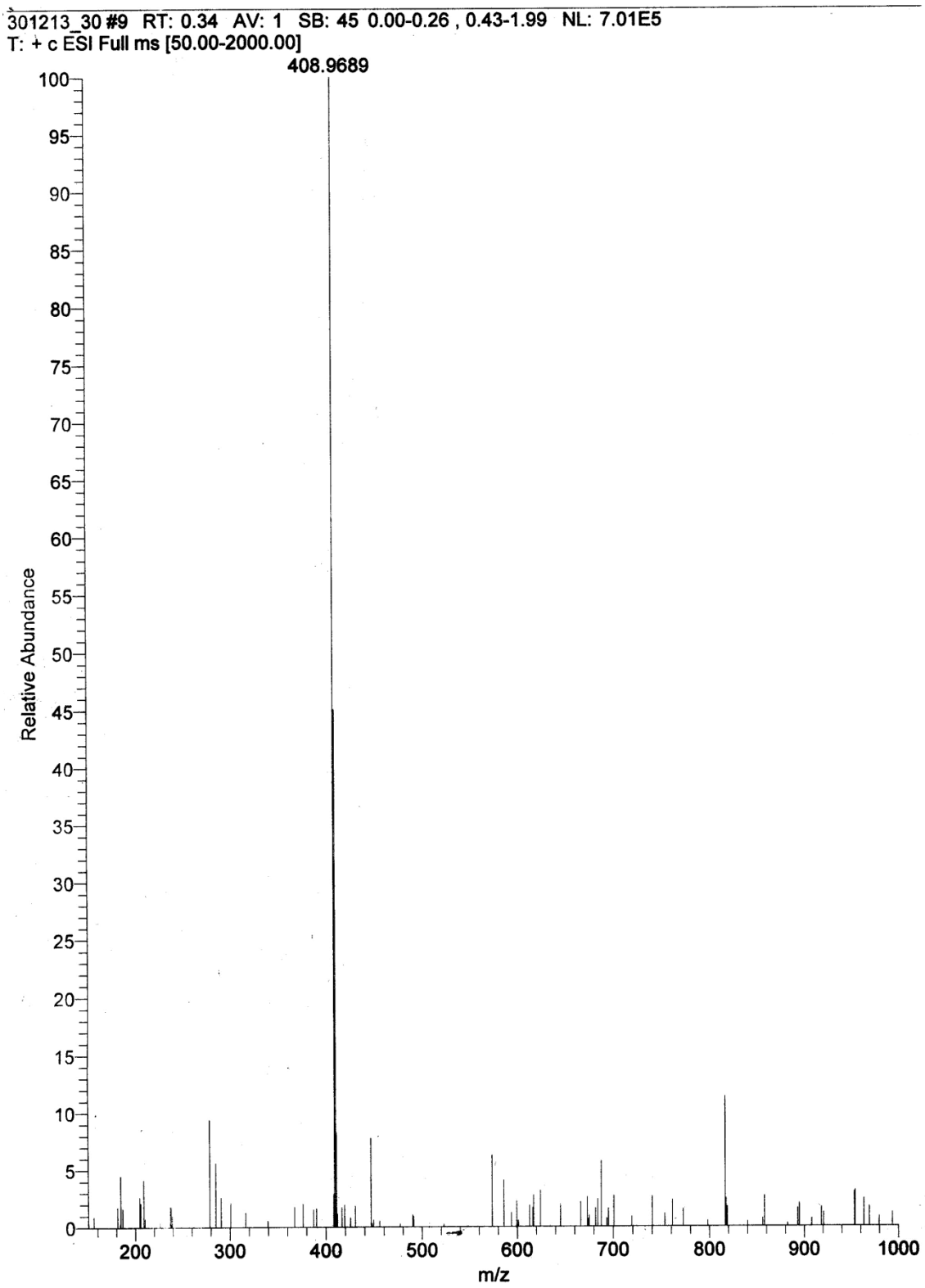
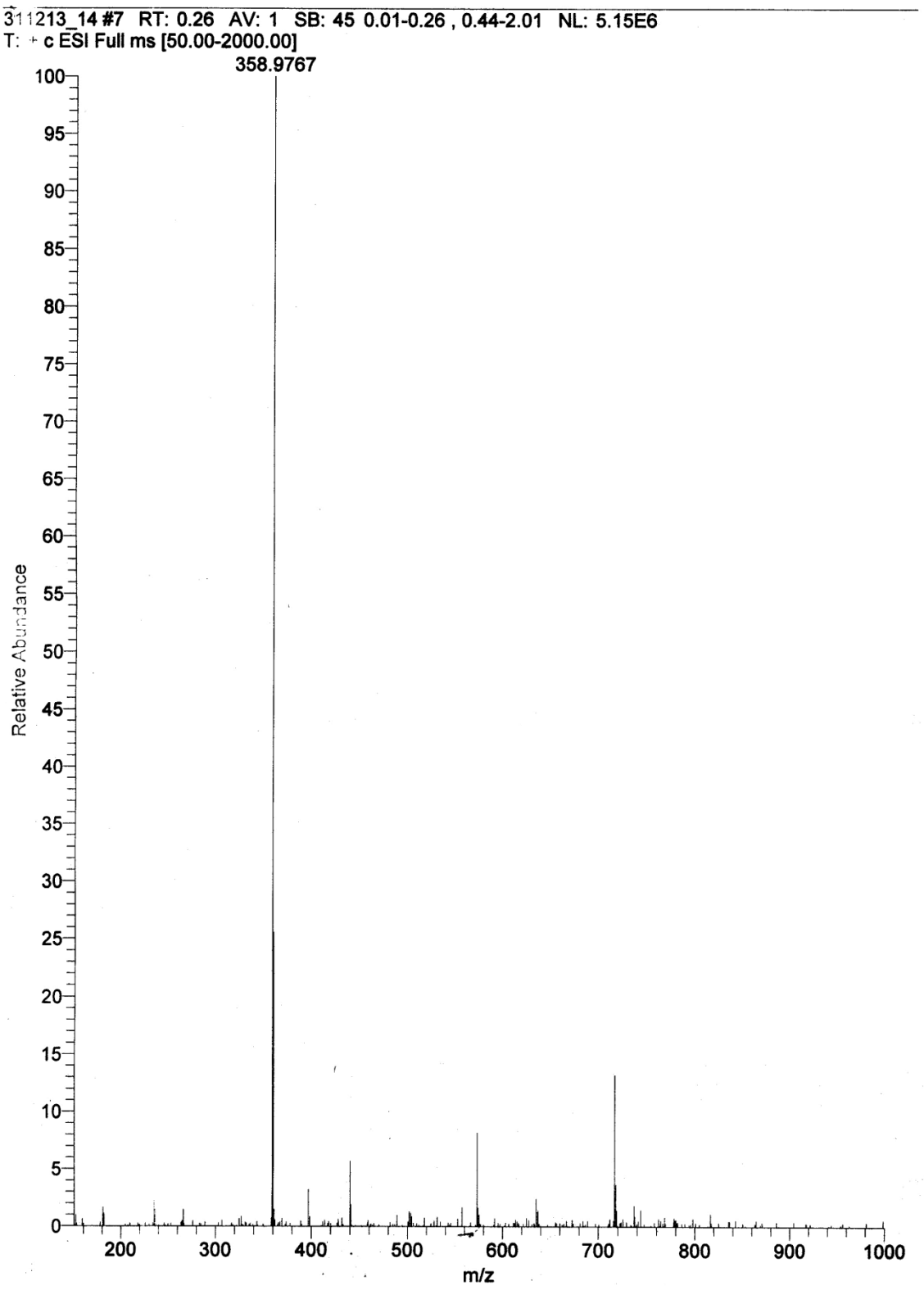


Figure S35. HRMS of compound **7e**



294

295 **Figure S36.** HRMS of compound **10a**

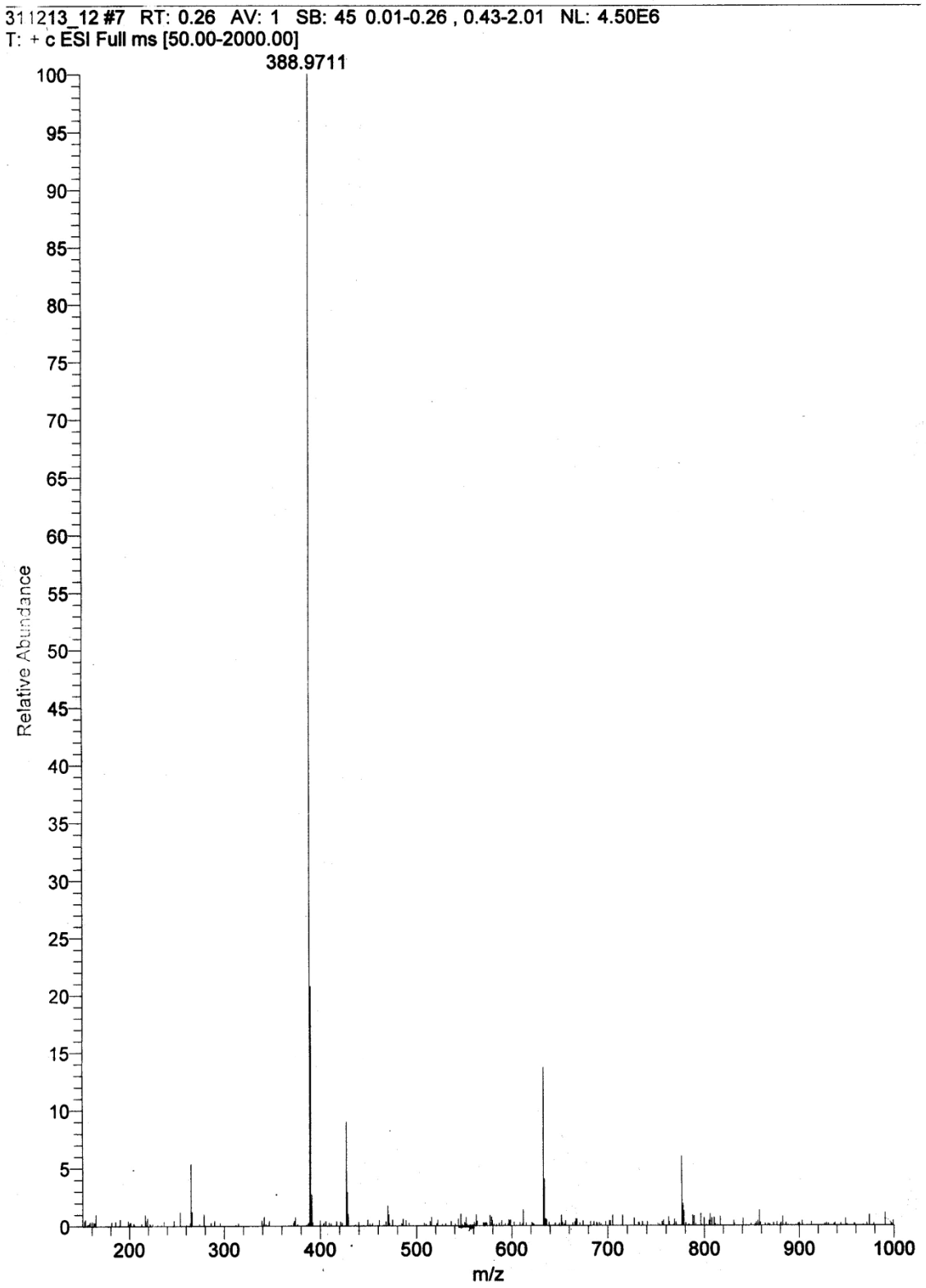


Figure S37. HRMS of compound **10b**

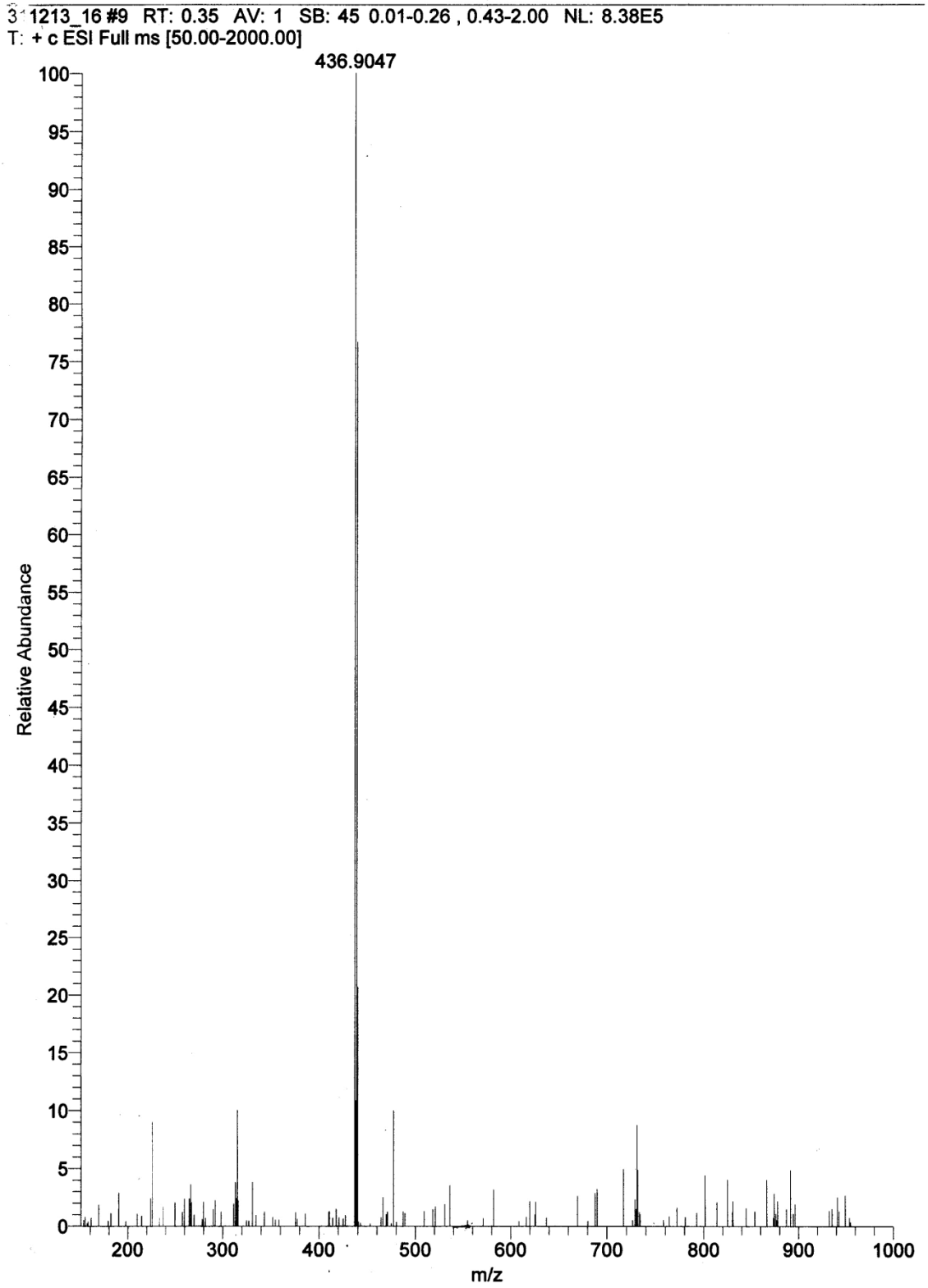
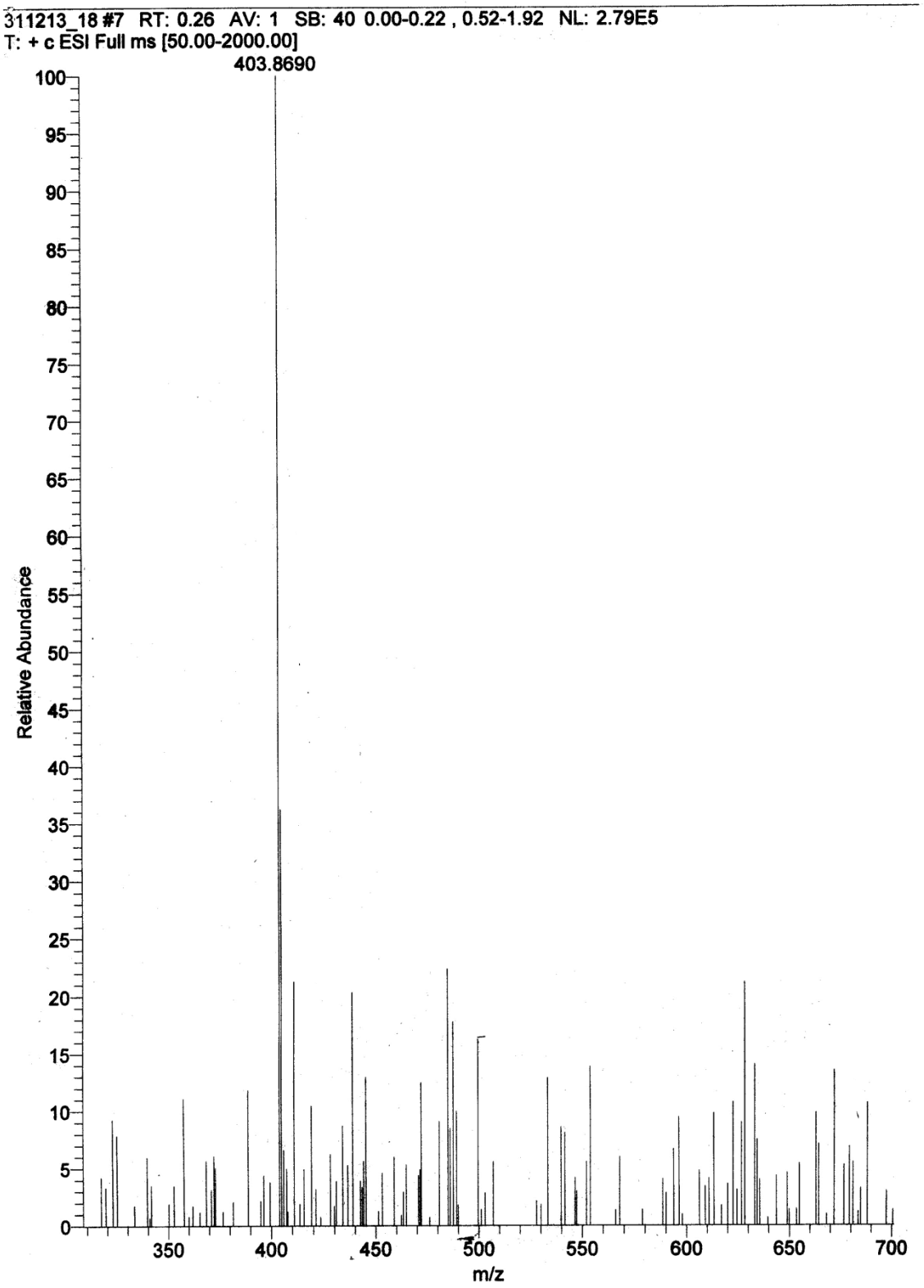


Figure S38. HRMS of compound **10c**



300

301 **Figure S39.** HRMS of compound **10d**

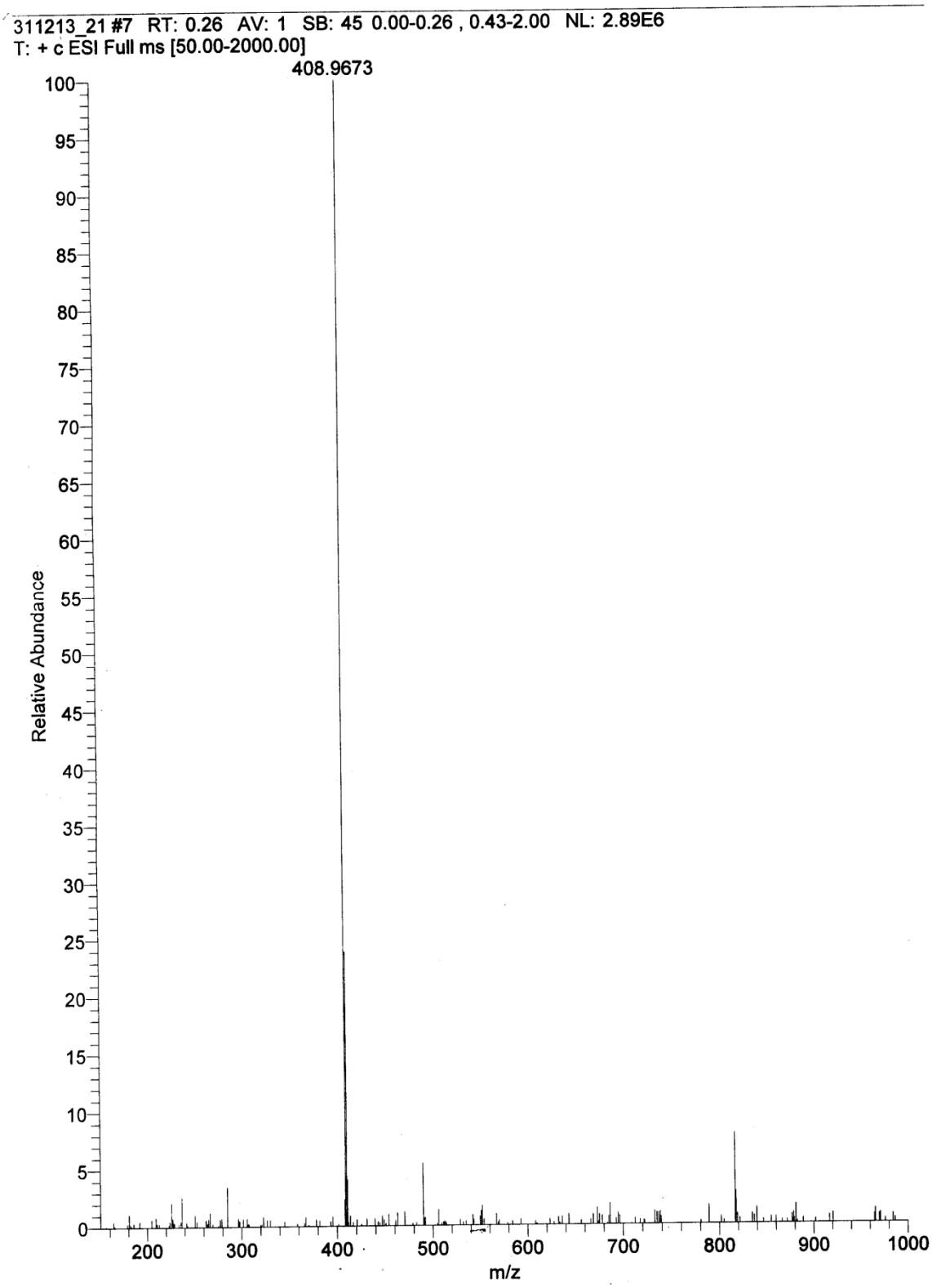


Figure S40. HRMS of compound **10e**

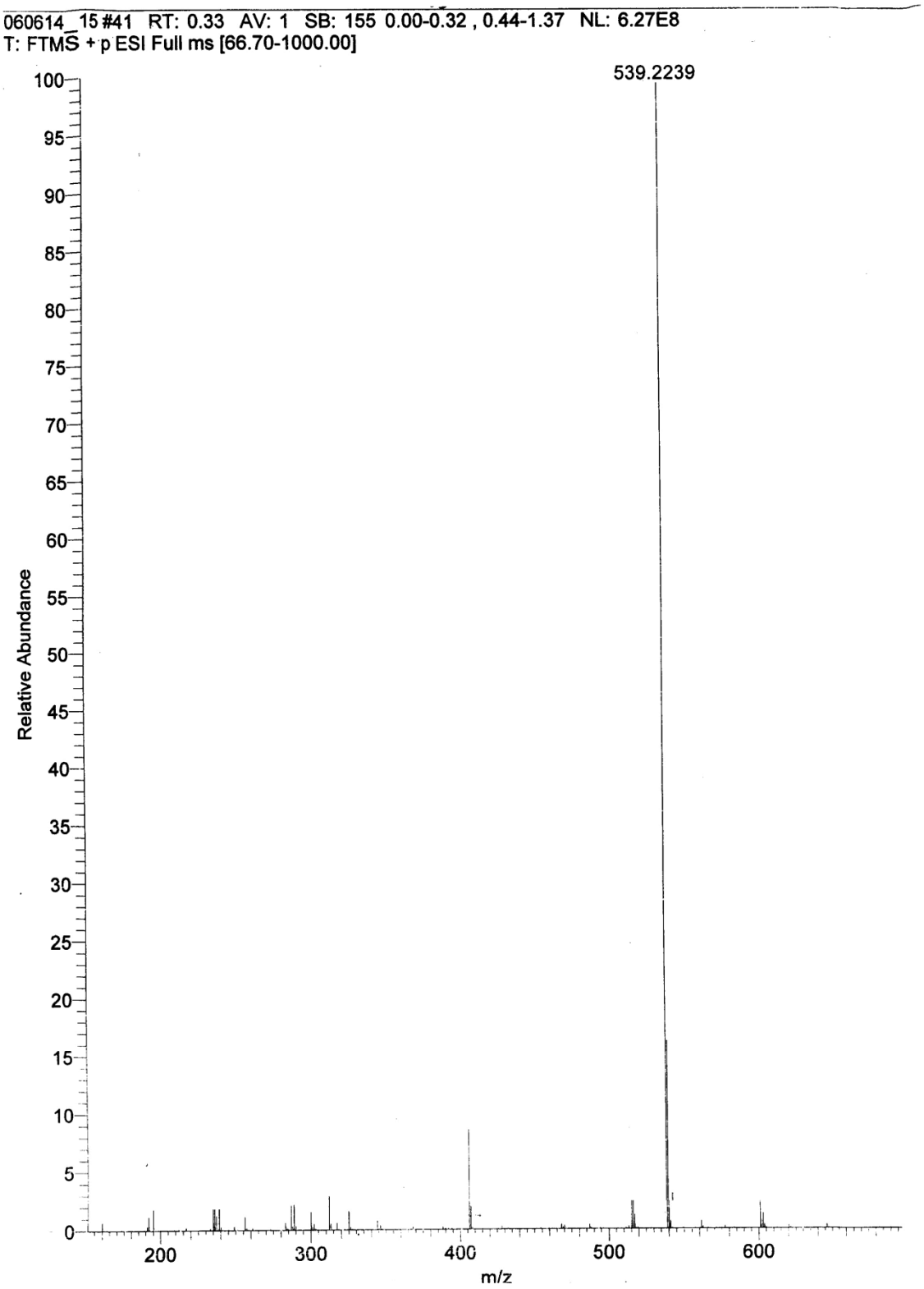
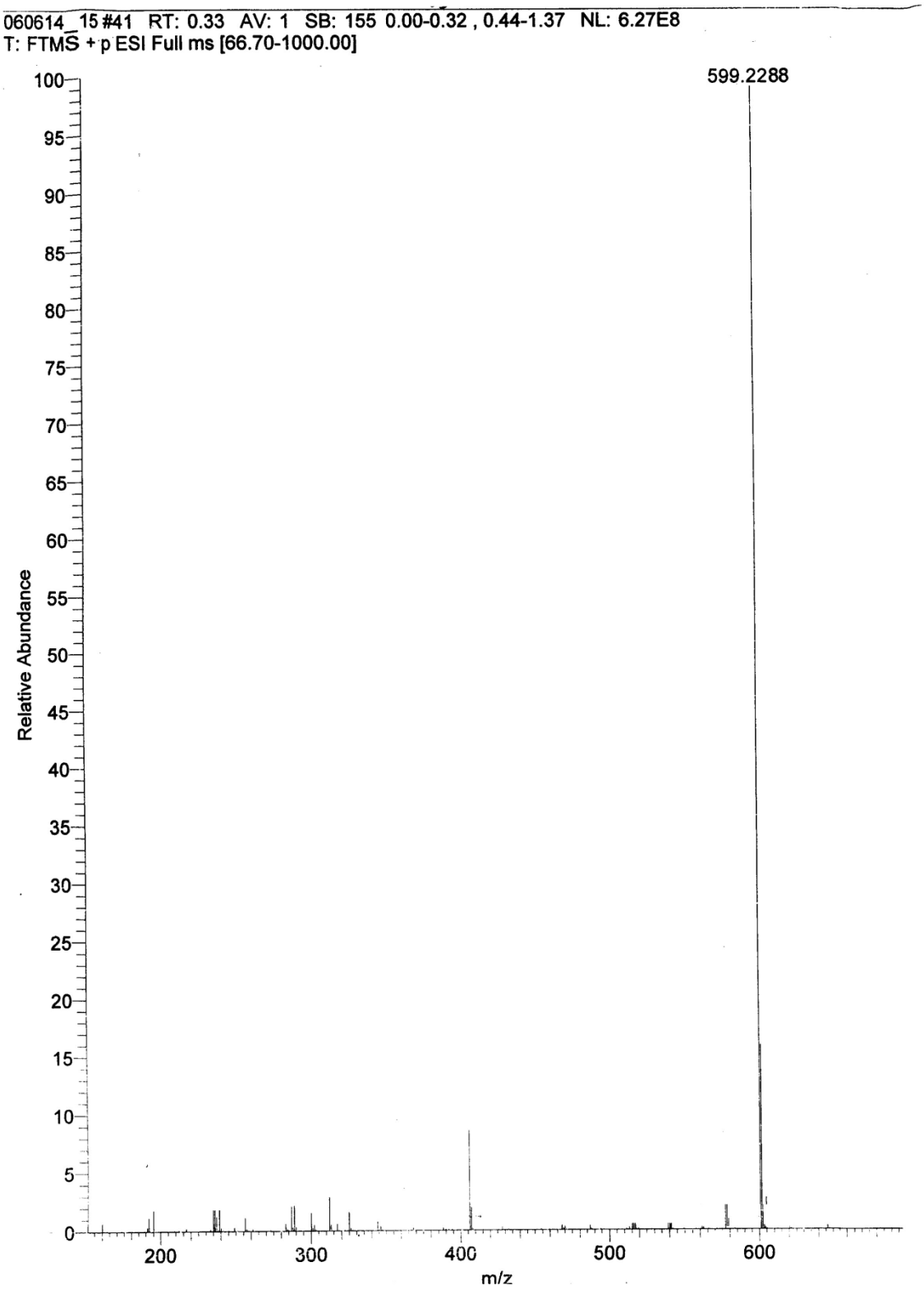


Figure S41. HRMS of compound **13a**



306

307 **Figure S42.** HRMS of compound **13b**

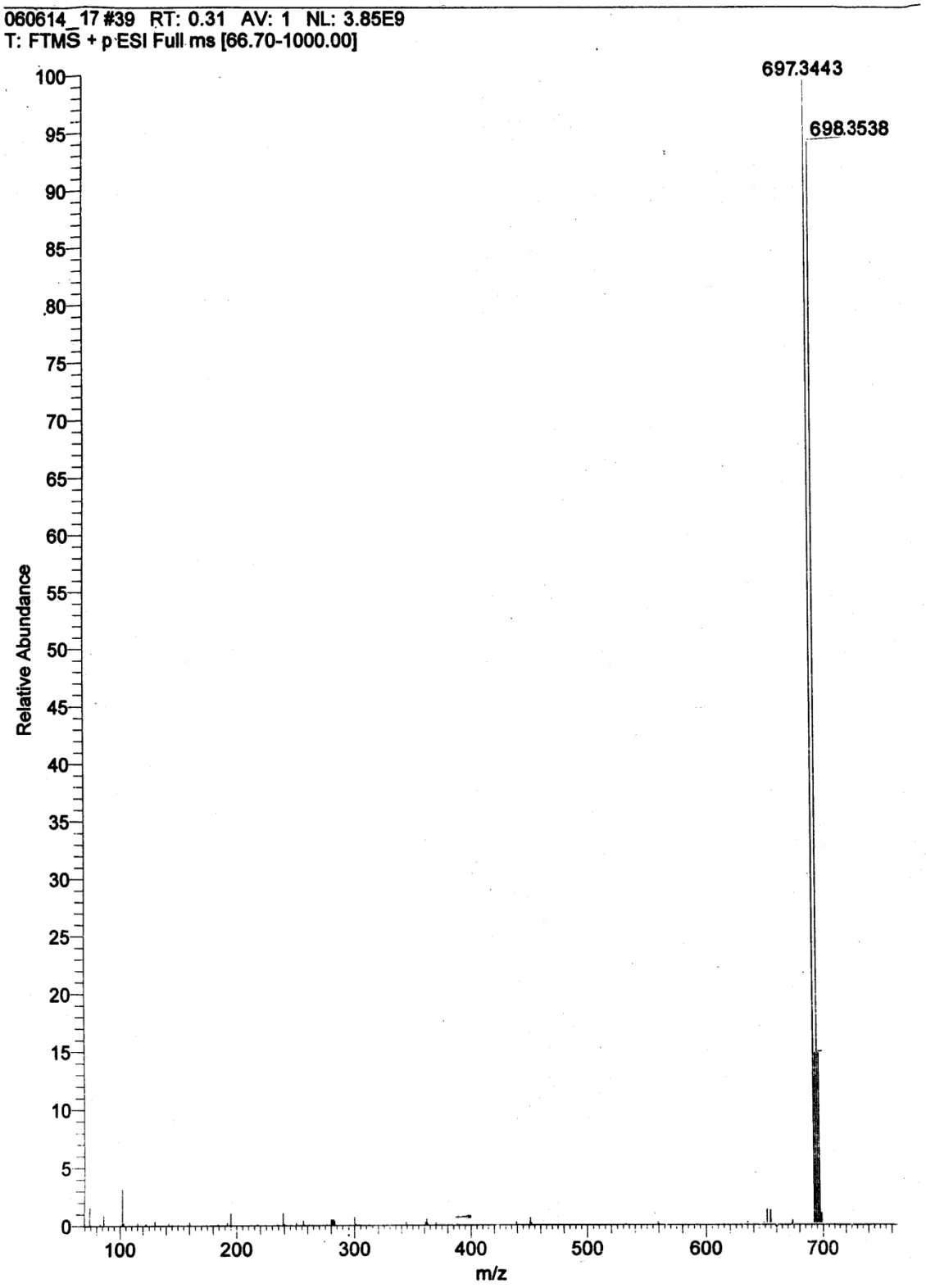


Figure S43. HRMS of compound **13c**

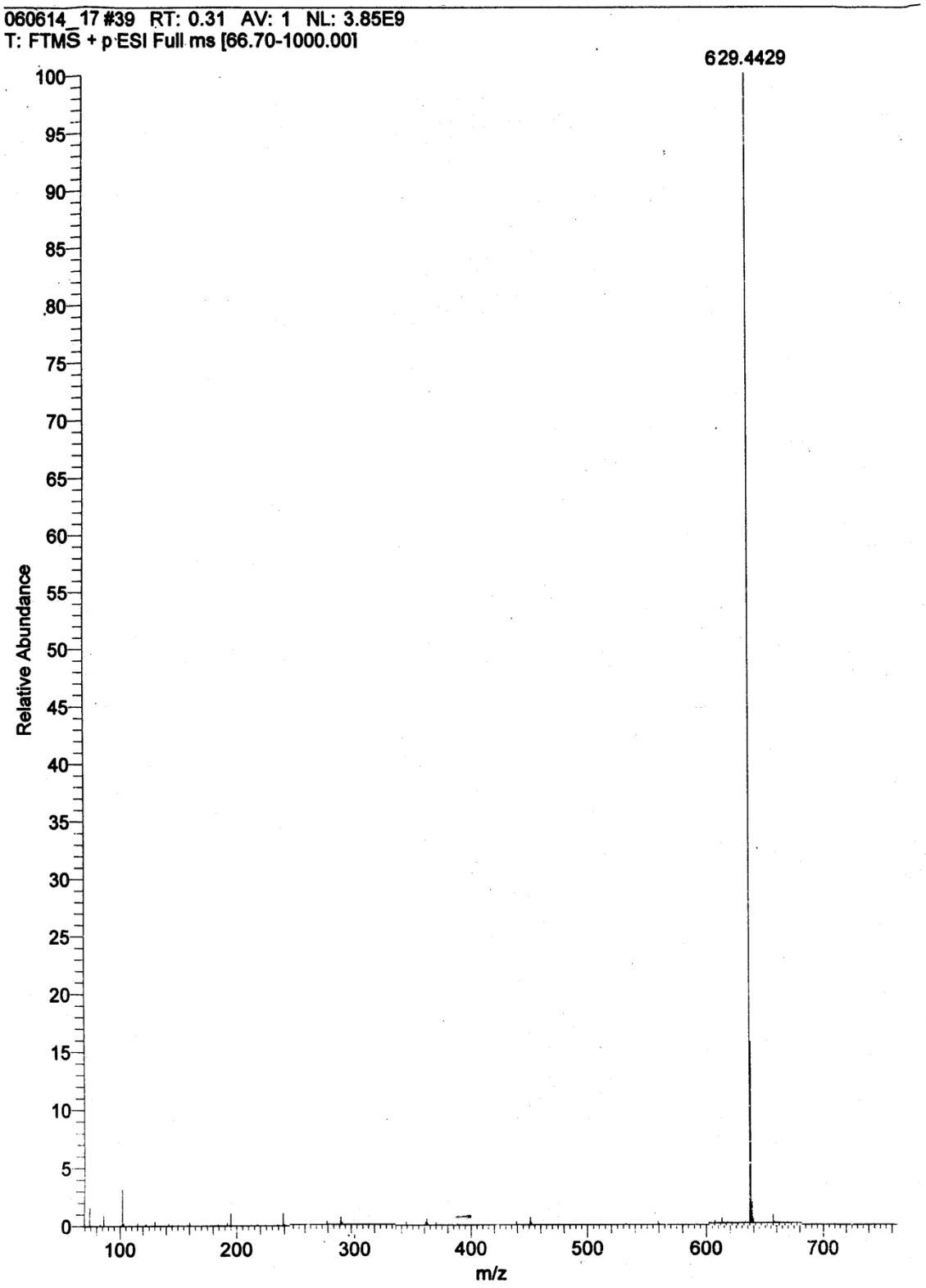


Figure S44. HRMS of compound **13d**

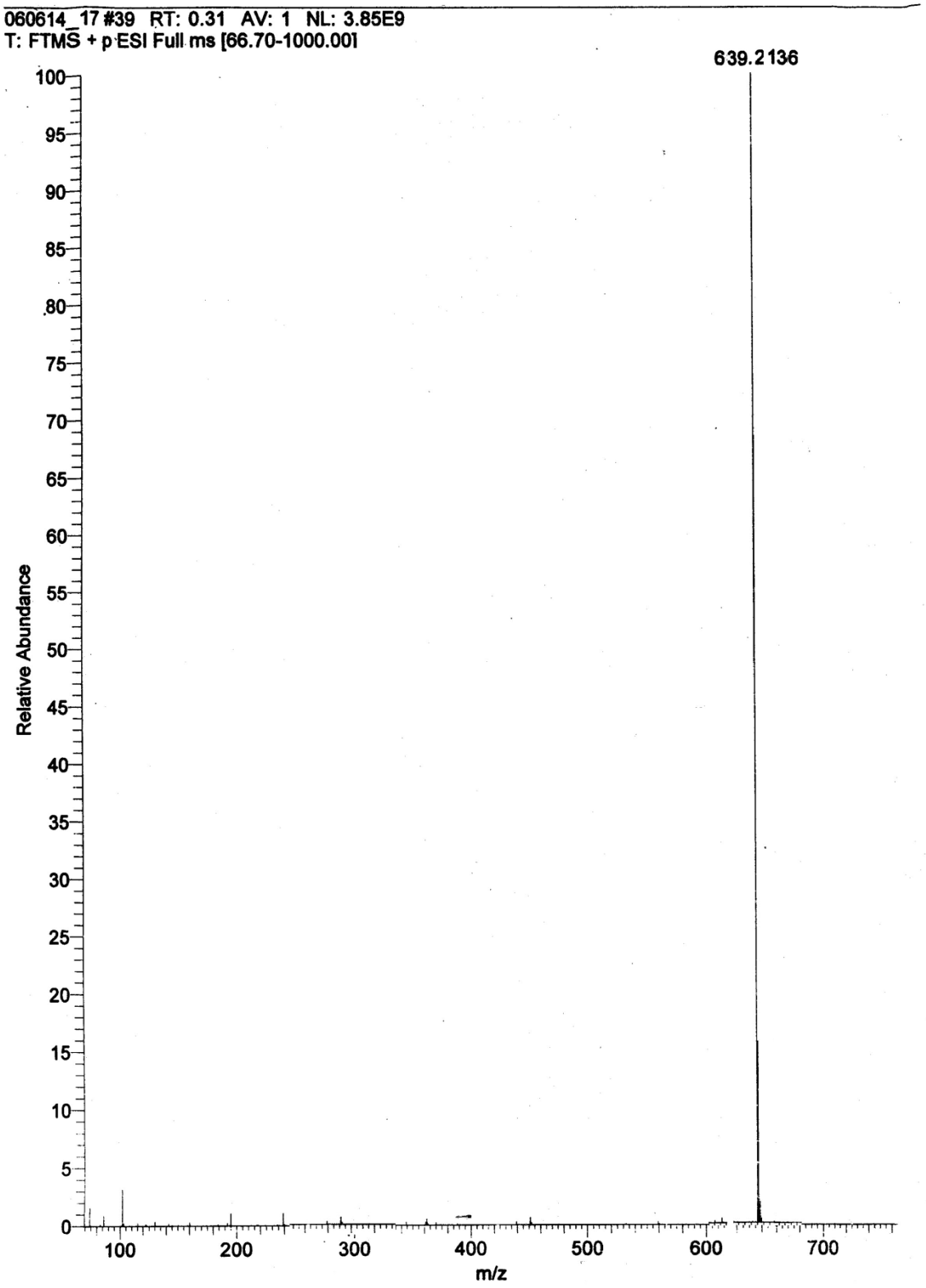


Figure S45. HRMS of compound **13e**