Supplementary Material

Monowave microwave activation: green formation of carbon-carbon bond in solvent free Tiedtke reaction

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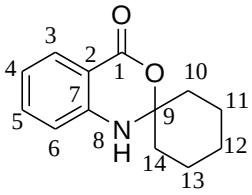
^{1}H NMR spectra

spiro[benzo[d][1,3]oxazine-2,1'-cyclohexan]-4(1H)-one (2α)



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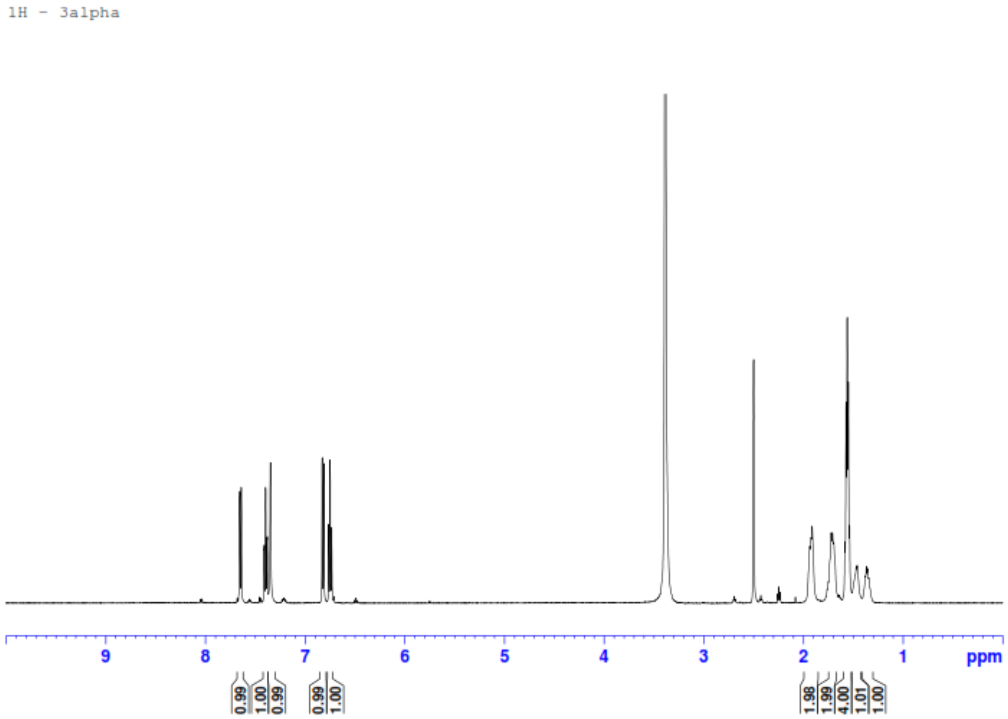
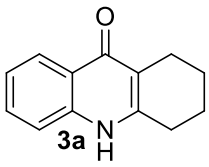
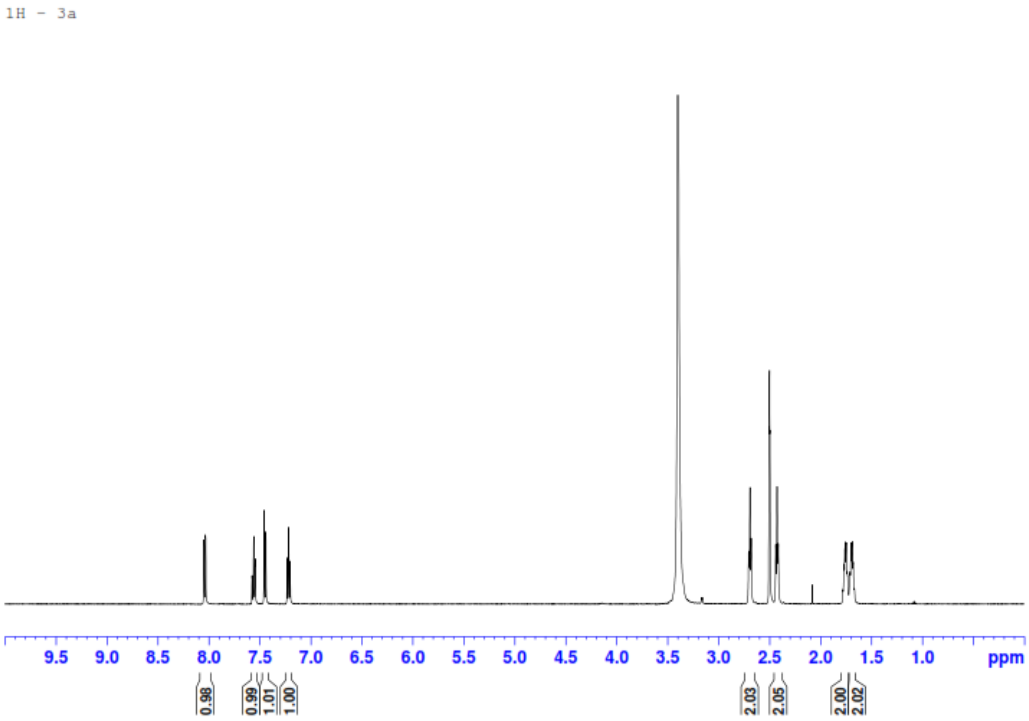


^{1}H NMR (500 MHz, DMSO-d6) δ 7.65 (d, *J*=8.0 Hz, 1H, **H3**), 7.40 (t, *J*=8.0 Hz, 1H, **H5**), 7.35 (s, 1H, **H8**), 6.82 (d, *J*=8.0 Hz, 1H, **H6**), 6.75 (t, *J*=8.0 Hz, 1H, **H4**), 1.92 (m, 2H, H**10**), 1.71 (m, 2H, H**10**), 1.56 (m, 4H, H**11**), 1.47 (m, 1H, **H12**), 1.37 (m, 1H, **H12**) ppm

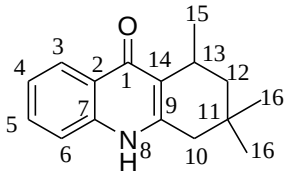
1,2,3,4-tetrahydroacridin-9(10H)-one (3a)

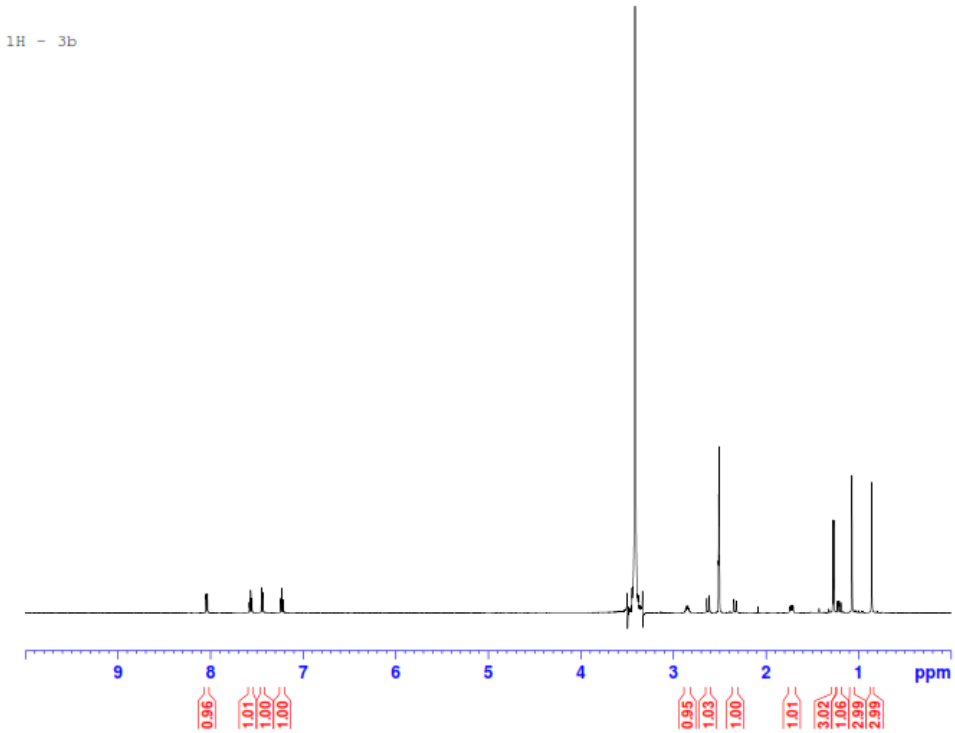




^{1}H NMR (500 MHz, DMSO-d6) δ 8.05 (d, *J*= 7.0 Hz, 1H, **H3**); 7.56 (t, *J*= 7.0 Hz, 1H, **H5**); 7.45 (d, *J*= 7.0 Hz, 1H, **H6**); 7.22 (t, *J*= 7.0 Hz, 1H, **H4**); 2.69 (t, *J*= 6.1 Hz, 2H, **H10**); 2.42 (t, *J*= 6.1 Hz, 2H, **H13**); 1.75 (m, 2H, **H11**); 1.69 (m, 2H, **H12**) ppm.

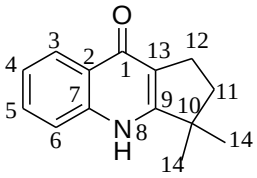
1,3,3-trimethyl-1,2,3,4-tetrahydroacridin-9(10H)-one (3b)

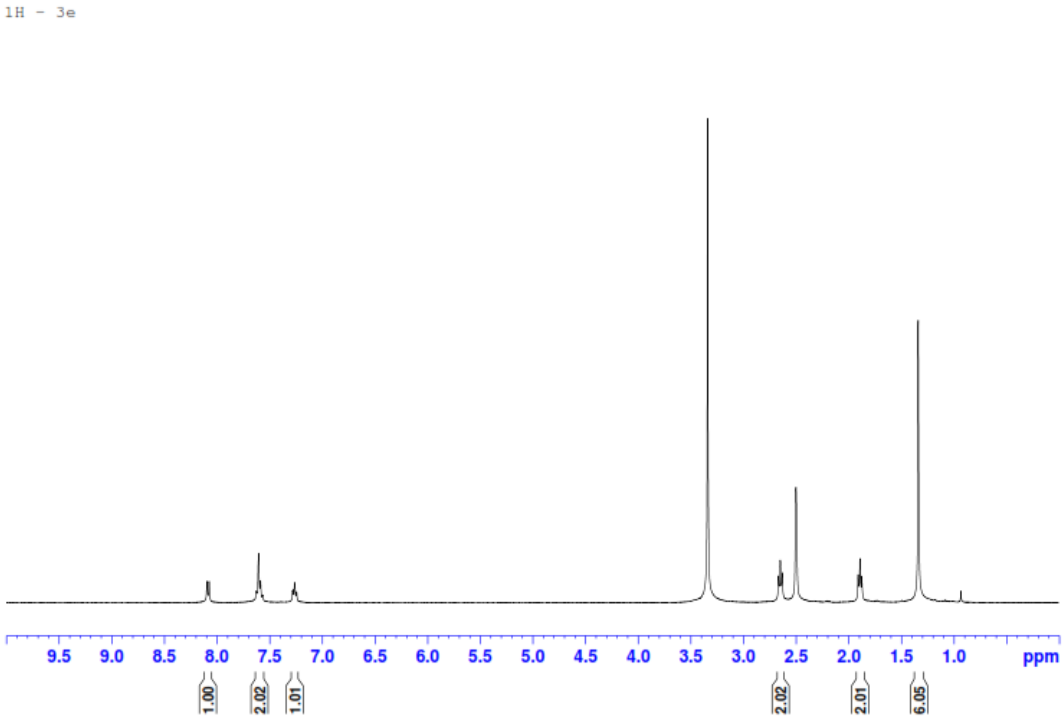




^{1}H NMR (500 MHz, DMSO-d6) δ 8.03 (dd, *J*= 8.1 and 1.3 Hz, 1H, **H3**), 7.55 (ddd, *J*= 8.0, 6.9 and 1.3 Hz, 1H, **H5**), 7.43 (d, *J*= 8.0 Hz, 1H, **H6**), 7.22 (ddd, *J*= 8.1, 6.9 and 1.0 Hz, 1H, **H4**), 2.84-2.82 (m, 1H, **H13**), 2.62 (d, *J*= 16.2 Hz, 1H, **H10**), 2.33 (dd, *J*= 16.2 and 2.5 Hz, 1H, **H10**), 1.73-1.69 (m, 1H, **H12**), 1.27 (d, *J*= 6.6 Hz, 3H, **H15**), 1.22-1.20 (m, 1H, **H12**), 1.06 (s, 3H, **H16**), 0.85 (s, 3H, **H16**).

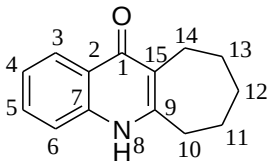
3,3-dimethyl-2,3-dihydro-1H-cyclopenta[b]quinolin-9(4H)-one (3e)

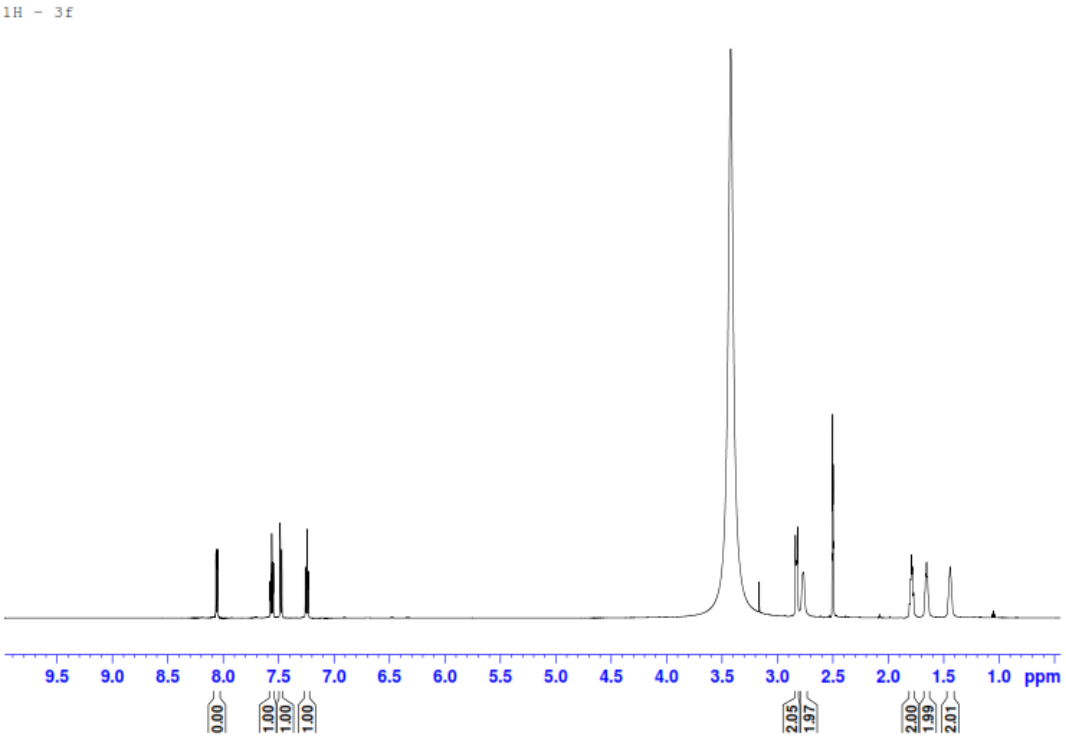




^{1}H NMR (400 MHz, DMSO-d6) δ 11.45 (s, 1H, NH); 8.09 (d, *J*= 7.9 Hz, 1H, **H3**); 7.63-7.56 (m, 2H, **H5** and **H6**); 7.26 (t, *J*= 7.9 Hz, 1H, **H4**); 2.64 (t, 2H, **H12**); 1.89 (t, 2H, **H11**); 1.34 (s, 6H, **H14**).

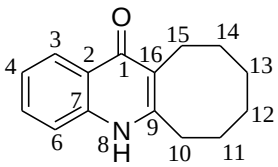
7,8,9,10-tetrahydro-5H-cyclohepta[b] quinolin-11(6H)-one (3f)

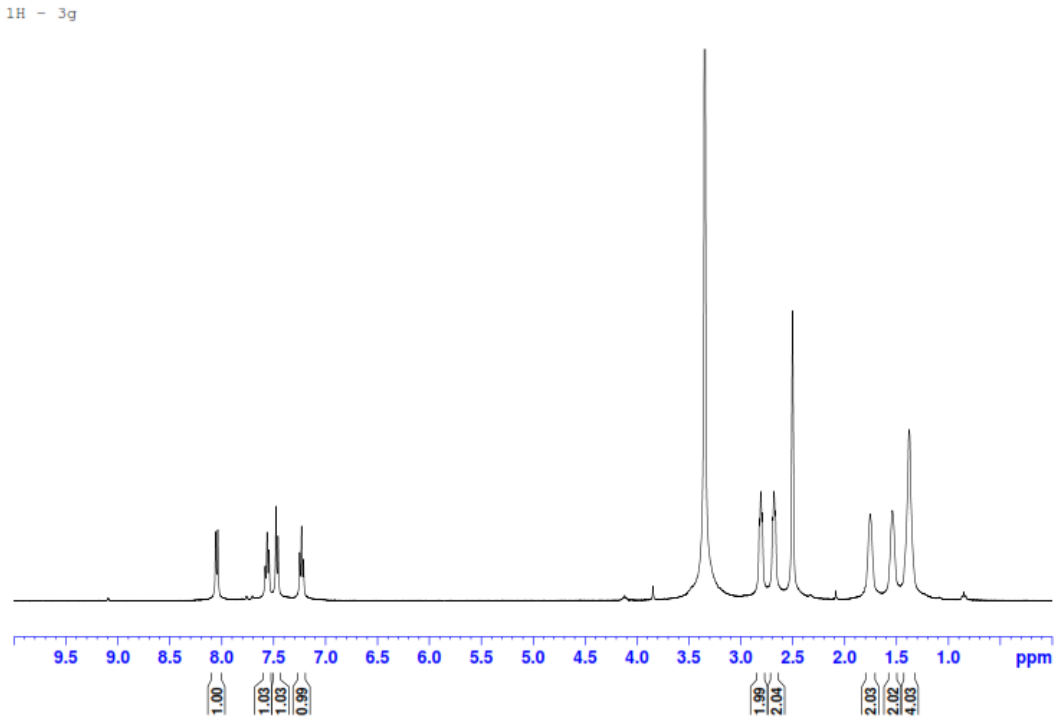




^{1}H NMR (500 MHz, DMSO-d6) δ 8.06 (dd, *J*=8.1 and 1.4 Hz, 1H, **H3**), 7.56 (ddd, *J*=8.1, 6.9 and 1.4 Hz, 1H, **H5**), 7.48 (dd, *J*= 8.1 and 1.0 Hz, 1H, **H6**), 7.25 (ddd, *J*=8.1, 6.9 and 1.0 Hz, 1H, **H4**), 2.82 (m, 2H, **H14**), 2.77 (m, 2H, **H10**), 1.79 (m, 2H, **H12**), 1.65 (m, 2H, **H13**), 1.44 (m, 2H, **H11**).

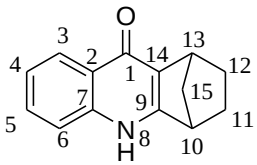
6,7,8,9,10,11-hexahydrocycloocta[b]quinolin-12(5H)-one (3g)

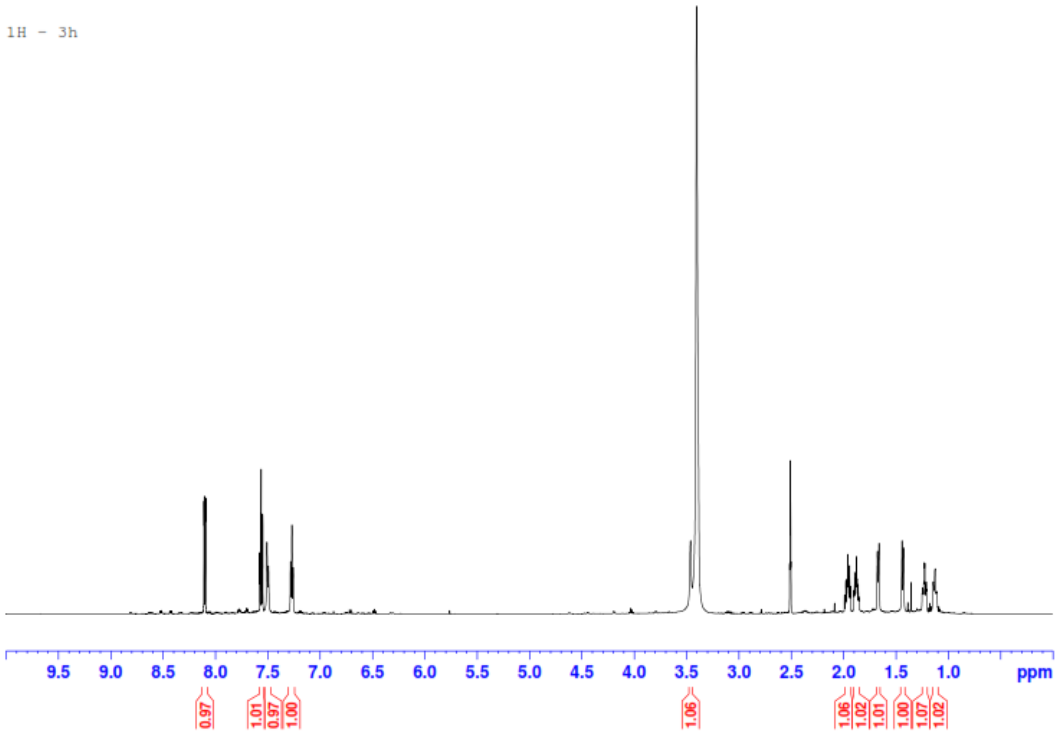




^{1}H NMR (400 MHz, DMSO-d6) δ 11.38 (s, 1H, NH), 8.04 (d, *J*=8.0 Hz, 1H, **H3**), 7.56 (t, *J*=7.6 Hz, 1H, **H5**), 7.47 (d, *J*=8.1 Hz, 1H, **H6**), 7.23 (t, *J*=7.6 Hz, 1H, **H4**), 2.81 (m, 2H, H**10**), 2.68 (m, 2H, H**15**), 1.75 (m, 2H, H**11**), 1.54 (m, 2H, H**14**), 1.42-1.33 (m, 4H, H**12** and H**13**).

1,2,3,4-tetrahydro-1,4-methanoacridin-9(10H)-one (3h)

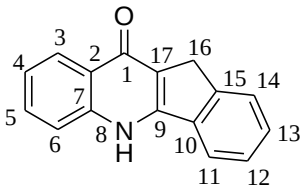


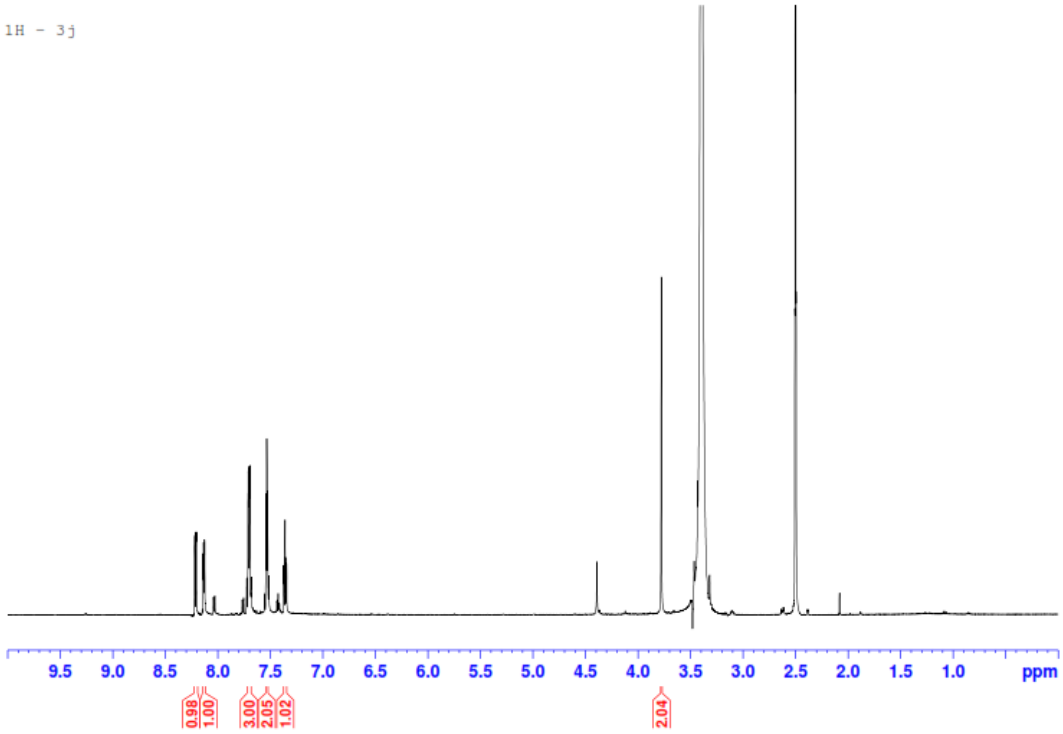


H NMR (600 MHz, DMSO-d6) δ 12.19 (s, 1H); 8.09 (dd, *J*= 8.1 and 1.3 Hz, 1H, **H3**); 7.55 (ddd, *J*= 8.3, 6.9 and 1.5 Hz, 1H, **H5**); 7.49 (d, *J*= 8.2 Hz, 1H, **H6**); 7.26 (ddd, *J*= 8.1, 6.9 Hz and 1.2, 1H, **H4**); 3.45 (s, 1H, **H13**); 3.38 (s, 1H, **H10**); 1.97-1.92 (m, 1H, H**11**); 1.89-1.84 (m, 1H, H**12**); 1.66 (d, *J*=8.6 Hz, 1H, **H15**); 1.42 (d, *J*= 8.6 Hz, 1H, **H15'**); 1.24-1.20 (m, 1H, H**11'**); 1.14-1.10 (m, 1H, H**12'**).

^{13}C NMR (150 MHz, DMSO-d6) δ 171.3 (Cq, **C1**); 159.4 (Cq, **C9**); 139.8 (Cq, **C7**); 130.8 (CH, **C5**); 126.9 (Cq, **C2**); 125.6 (CH, **C3**); 123.2 (Cq, **C14**); 123.0 (CH, **C4**); 118.7 (CH, **C6**); 47.9 (CH, **C15**); 43.8 (CH, **C10**); 38.4 (CH, **C13**); 27.4 (CH_2, **C12**); 26.2 (CH_2, **C11**).

5H-indeno[2,1-b]quinolin-11(6H)-one (3j)





^{1}H NMR (500 MHz, DMSO-d6) δ 8.21 (d, *J*= 8.1 Hz, 1H, **H3**), 8.13 (m, 1H, **Harom**), 7.72-7.68 (m, 3H, **Harom**), 7.54-7.52 (m, 2H, **Harom**), 7.35 (ddd, *J*= 8.1, 6.5 and 1.6 Hz, 1H, **H4**), 3.78 (s, 2H, **H16**).

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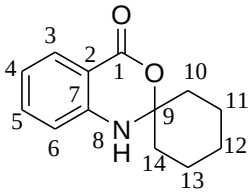
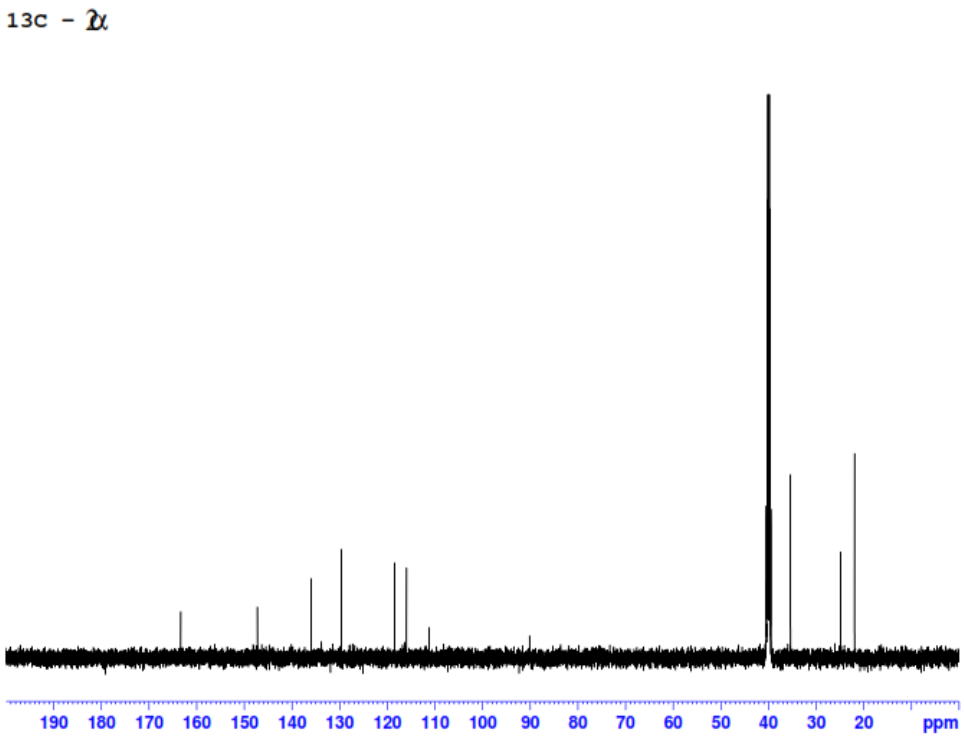
^{13}C NMR spectra :

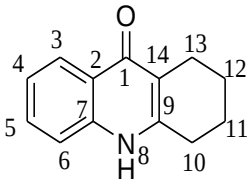
spiro[benzo[d][1,3]oxazine-2,1'-cyclohexan]-4(1H)-one (2α)

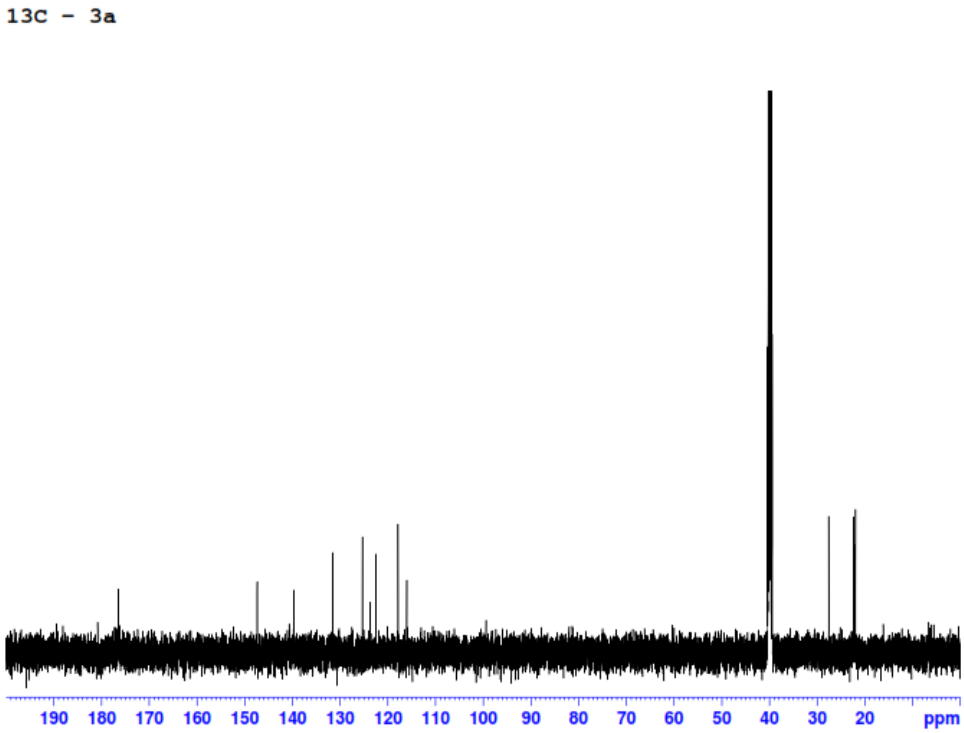




^{13}C NMR (125 MHz, DMSO-d6) δ 163.3 (Cq, **C1**) ; 147.2 (Cq, **C7**); 135.9 (CH, **C5**); 129.6 (CH, **C3**); 118.4 (CH, **C4**); 115.9 (CH, **C6**); 111.2 (Cq, **C2**); 90.1 (Cq, **C9**); 35.3 (CH_2, **C10**); 24.8 (CH2, **C12**); 21.9 (CH_2, **C11**) ppm

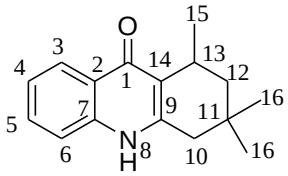
1,2,3,4-tetrahydroacridin-9(10H)-one (3a)

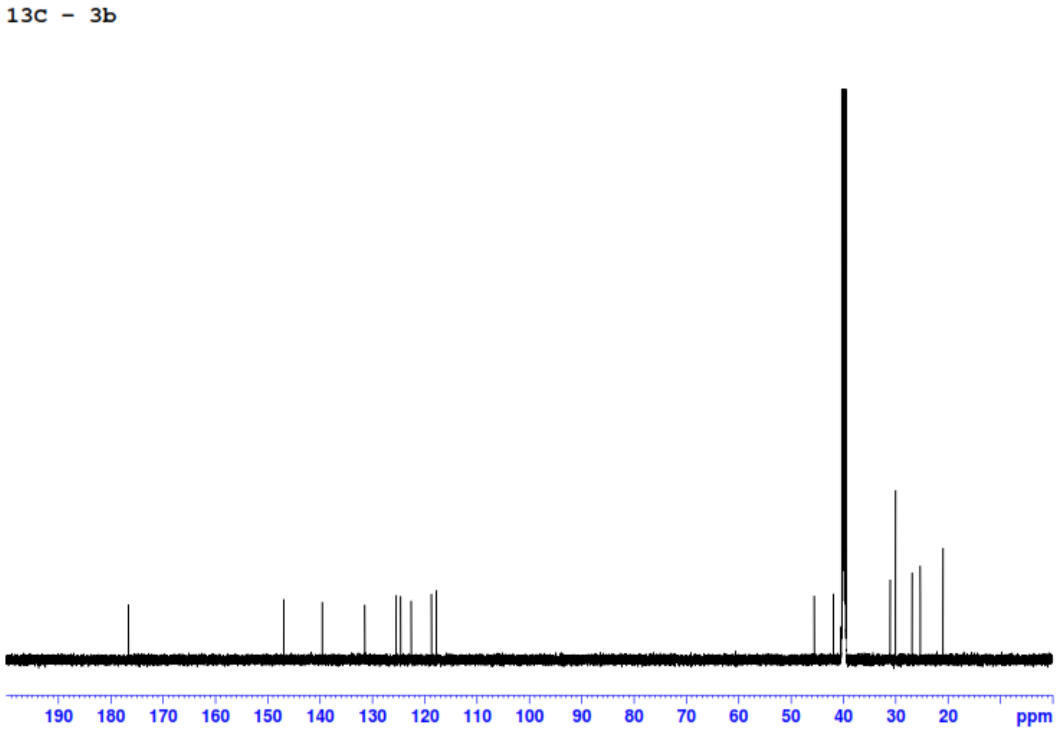




^{13}C NMR (125 MHz, DMSO-d6) δ 176.5 (Cq, **C1**); 147.4 (Cq, **C9**); 139.7 (Cq, **C7**); 131.5 (CH, **C5**); 125.3 (CH, **C3**); 123.6 (Cq, **C2**); 122.5 (CH, **C4**); 117.8 (CH, **C6**); 116.0 (Cq, **C14**); 27.6 (CH_2, **C10**); 22.3 (CH_2, **C13**); 22.2 (CH_2, **C12**); 22.0 (CH_2, **C11**) ppm

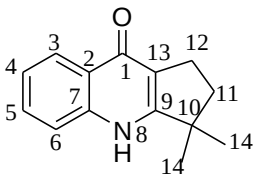
1,3,3-trimethyl-1,2,3,4-tetrahydroacridin-9(10H)-one (3b)

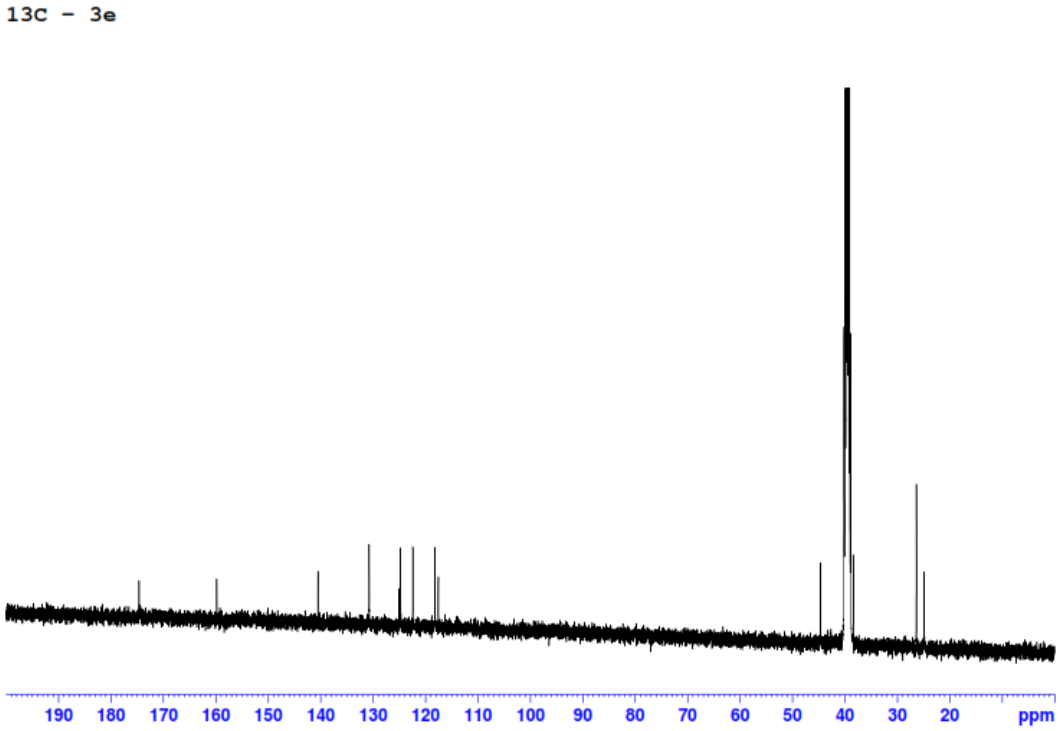




^{13}C NMR (125 MHz, DMSO-d6) δ 176.6 (Cq, **C1**), 147.0 (Cq, **C9**), 139.6 (Cq, **C7**), 131.4 (CH, **C5**), 125.4 (CH, **C3**), 124.6 (Cq, **C2**), 122.6 (CH, **C4**), 118.7 (Cq, **C14**), 117.7 (CH, **C6**), 45.6 (CH_2, **C12**), 41.9 (CH_2, **C10**), 31.0 (CH, **C13**), 30.0 (Cq, **C11**), 26.9 (CH_3, **C16**), 25.3 (CH_3, **C16**), 20.9 (CH_3, **C15**)

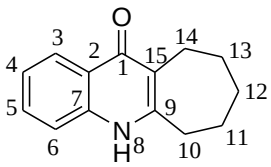
3,3-dimethyl-2,3-dihydro-1H-cyclopenta[b]quinolin-9(4H)-one (3e)

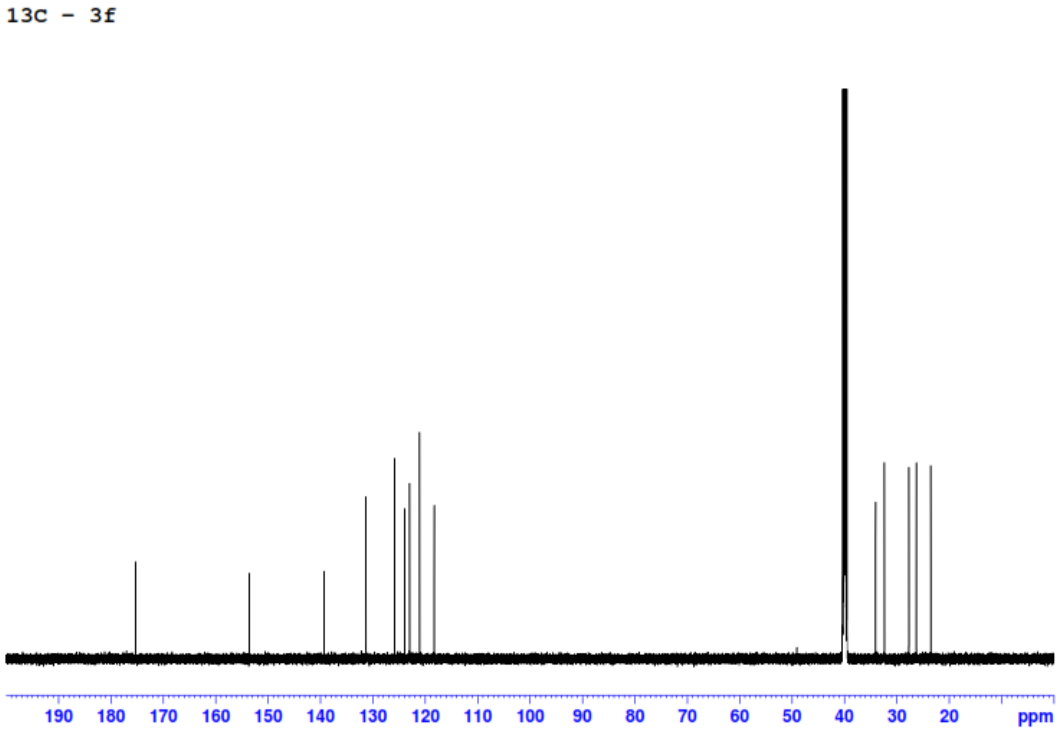




^{13}C NMR (100 MHz, DMSO-d6) δ 174.6 (Cq, **C1**); 159.8 (Cq, **C9**); 140.5 (Cq, **C7**); 130.7 (CH, **C5**); 125.1 (Cq, **C2**); 124.7 (CH, **C3**); 122.4 (CH, **C4**); 118.2 (CH, **C6**); 117.6 (Cq, **C13**); 44.6 (Cq, **C10**); 38.4 (CH2, **C11**); 26.3 (CH_3, **C14**); 24.8 (CH_2, **C12**).

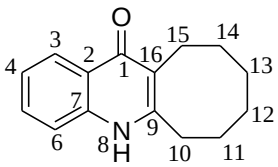
7,8,9,10-tetrahydro-5H-cyclohepta[b] quinolin-11(6H)-one (3f)

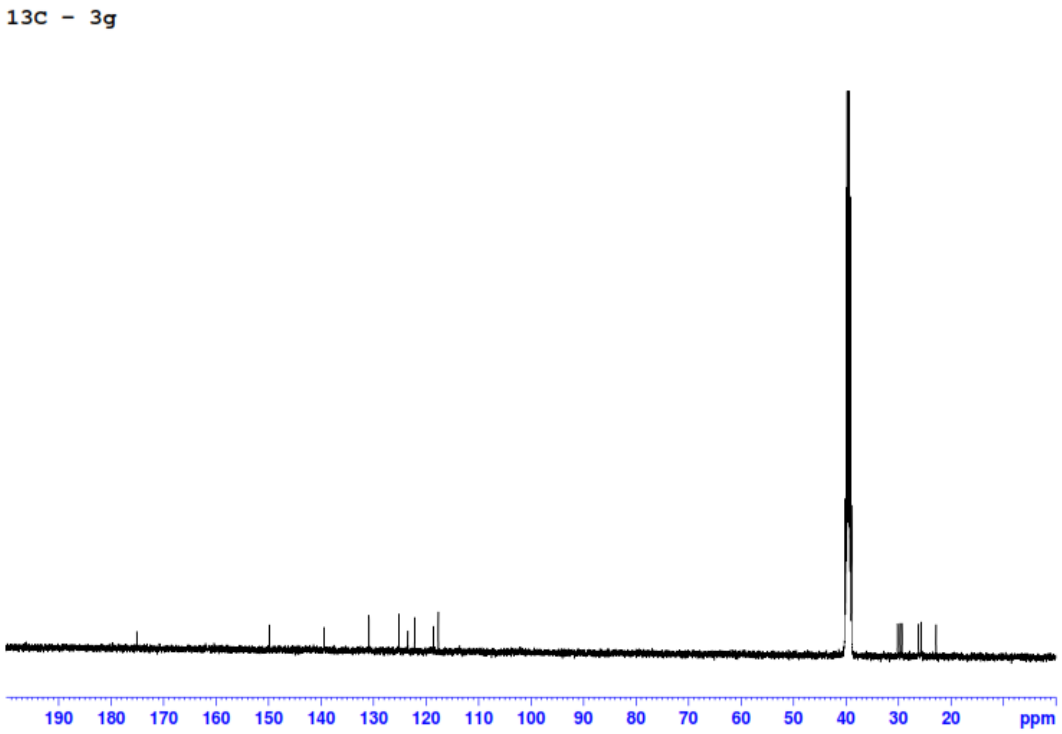




^{13}C NMR (125 MHz, DMSO-d6) δ 175.3 (Cq, **C1**), 153.6 (Cq, **C9**), 139.3 (Cq, **C7**), 131.3 (CH, **C5**), 125.8 (CH, **C3**), 123.9 (Cq, **C2**), 123.0 (CH, **C4**), 121.0 (Cq, **C15**), 118.3 (CH, **C6**), 34.0 (CH_2, **C14**), 32.3 (CH2, **C12**), 27.7 (CH_2, **C11**), 26.3 (CH_2, **C13**), 23.5 (CH_2, **C10**).

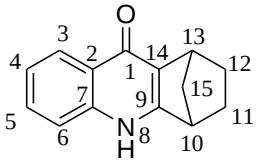
6,7,8,9,10,11-hexahydrocycloocta[b]quinolin-12(5H)-one (3g)

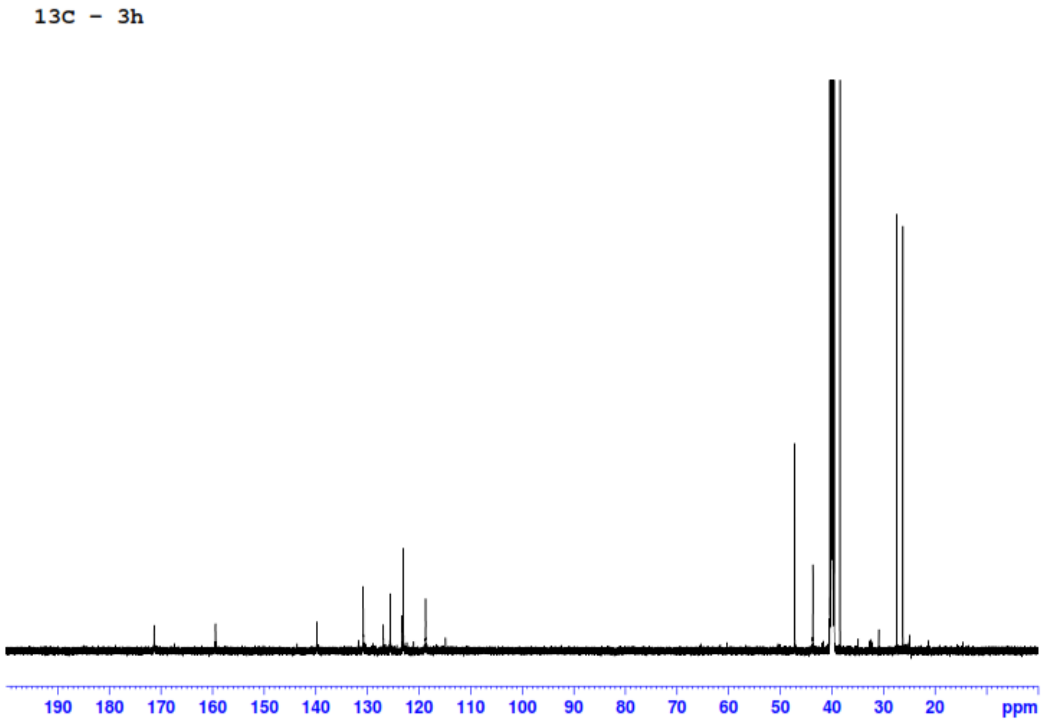




^{13}C NMR (100 MHz, DMSO-d6) δ 175.1 (Cq, **C1**), 149.9 (Cq, **C9**), 139.4 (Cq, **C7**), 130.8 (CH, **C5**), 125.2 (CH, **C3**), 123.4 (Cq, **C2**), 122.2 (CH, **C4**), 118.5 (Cq, **C16**), 117.6 (CH, **C6**), 30.1 (CH2, **C10**), 29.6 (CH2, **C11**), 29.3 (CH_2, **C14**), 26.1 (CH_2, **C13**), 25.6 (CH_2, **C12**), 22.8 (CH_2, **C15**).

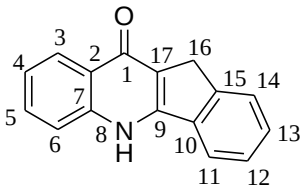
1,2,3,4-tetrahydro-1,4-methanoacridin-9(10H)-one (3h)

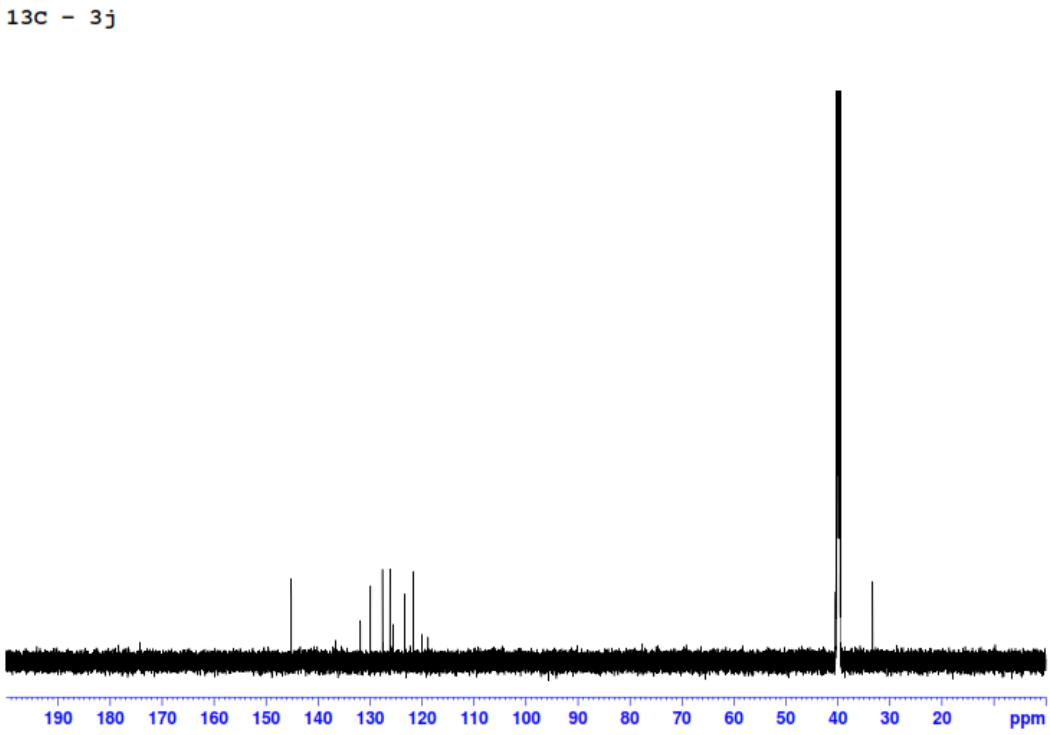




^{13}C NMR (150 MHz, DMSO-d6) δ 171.3 (Cq, **C1**); 159.4 (Cq, **C9**); 139.8 (Cq, **C7**); 130.8 (CH, **C5**); 126.9 (Cq, **C2**); 125.6 (CH, **C3**); 123.2 (Cq, **C14**); 123.0 (CH, **C4**); 118.7 (CH, **C6**); 47.9 (CH, **C15**); 43.8 (CH, **C10**); 38.4 (CH, **C13**); 27.4 (CH_2, **C12**); 26.2 (CH_2, **C11**).

5H-indeno[2,1-b]quinolin-11(6H)-one (3j)

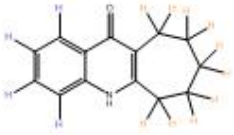




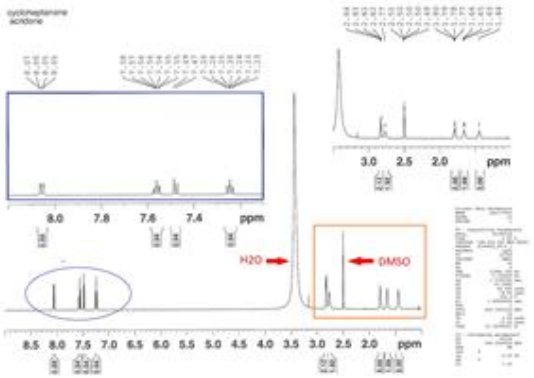
^{13}C NMR (125 MHz, DMSO-d6) δ 174.3 (Cq, **C1**), 149.6 (Cq, **C9**), 145.1 (Cq, **C10**); 140.6 (Cq, **C7**), 136.5 (Cq, **C15**), 131.9 (CH, **Carom**), 129.9 (CH, **Carom**), 127.5 (CH, **Carom**), 126.2 (CH, **Carom**), 126.0 (Cq, **C2**), 125.5 (CH, **C3**), 123.3 (CH, **C4**), 121.6 (CH, **Carom**), 120.0 (Cq, **C17**), 118.8 (CH, **Carom**), 33.3 (CH_2, **C16**).

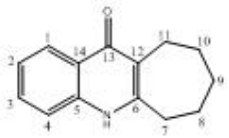
Example of correlations

7,8,9,10-tetrahydro-5H-cyclohepta[b]quinolin-11(6H)-one (3b)

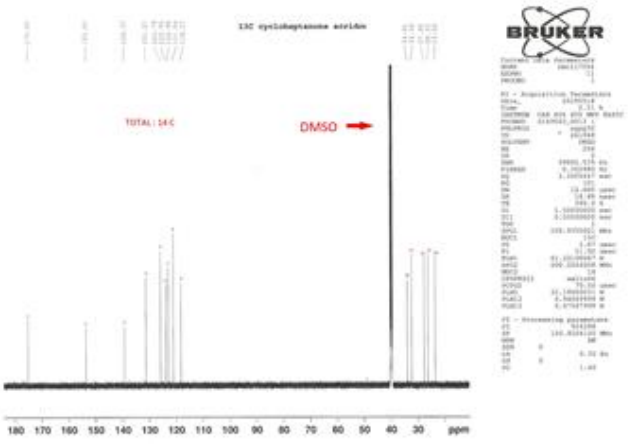


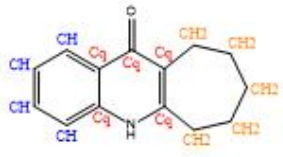
NMR ^{1}H



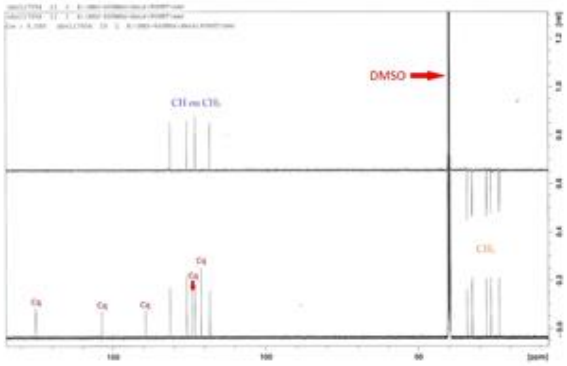


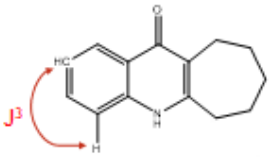
NMR ^{13}C



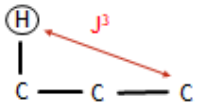


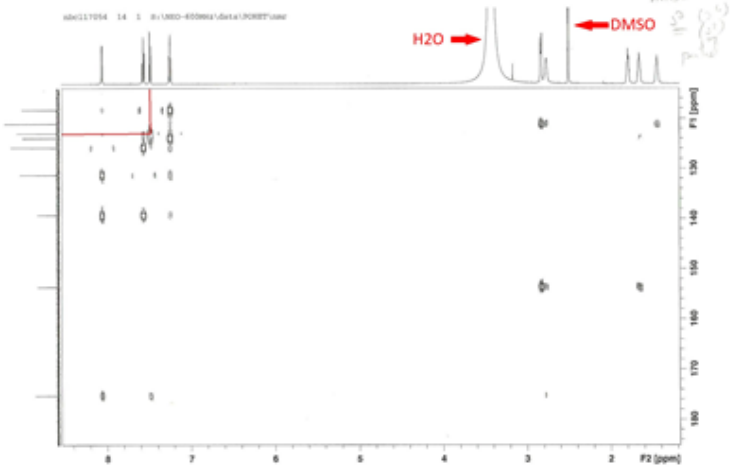
DEPT + ^{13}C

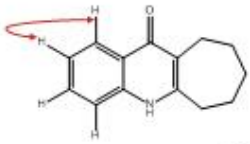


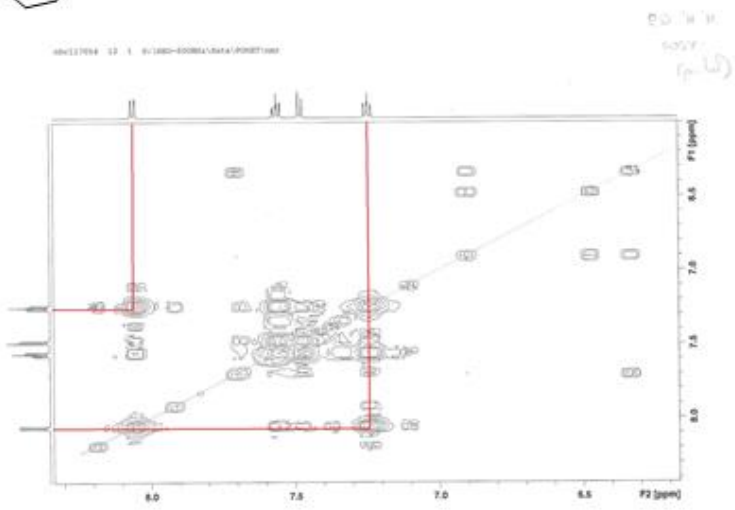


HMBC









^{1}H NMR (600 MHz, DMSO-d6) δ 8.06 (dd, *J*=8.1 and 1.4 Hz, 1H, **H3**), 7.56 (ddd, *J*=8.1, 6.9 and 1.4 Hz, 1H, **H5**), 7.48 (dd, *J*= 8.1 and 1.0 Hz, 1H, **H6**), 7.25 (ddd, *J*=8.1, 6.9 and 1.0 Hz, 1H, **H4**), 2.82 (m, 2H, **H14**), 2.77 (m, 2H, **H10**), 1.79 (m, 2H, **H12**), 1.65 (m, 2H, **H13**), 1.44 (m, 2H, **H11**) ppm.

^{13}C NMR (150 MHz, DMSO-d6) δ 175.3 (Cq, **C1**), 153.6 (Cq, **C15**), 139.3 (Cq, **C7**), 131.3 (CH, **C5**), 125.8 (CH, **C3**), 123.9 (Cq, **C2**), 123.0 (CH, **C4**), 121.0 (Cq, **C9**), 118.3 (CH, **C6**), 34.0 (CH_2, **C14**), 32.3 (CH2, **C12**), 27.7 (CH_2, **C11**), 26.3 (CH2, **C13**), 23.5 (CH2, **C10**) ppm.