Supporting Information

Synthesis of 1,4-Dihydroquinoline Derivatives Under Transition-Metal-Free Conditions and Their Diversity Applications

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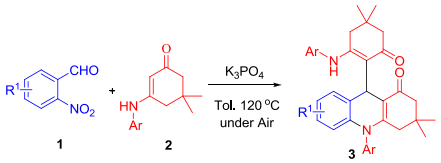
Experimental Section:

General

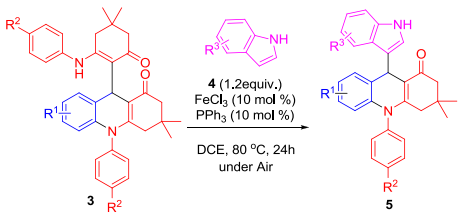
Unless otherwise stated, all reagents were purchased from commercial suppliers and used without further purification. All reactions were carried out in air and using undistilled solvent, without any precautions to exclude air and moisture unless otherwise noted. Melting points were recorded on an Electrothermal digital melting point apparatus. IR spectra were recorded on a FT-IR spectrophotometer using KBr optics. ^{1}H and ^{13}C NMR spectra were recorded in $CDCl_3$ or DMSO-d_6 on 300 MHz, 400 MHz or 600 MHz spectometers. Tetramethylsilane (TMS) served as internal standard for ^{1}H NMR and $CDCl_3$ or DMSO-d_6 was used as internal standard for ^{13}C NMR. High resolution mass spectra were obtained using a commercial apparatus (ESI Source).

General Procedure for Intermolecular Cascade Cyclization Of Aldehydes with Enaminones



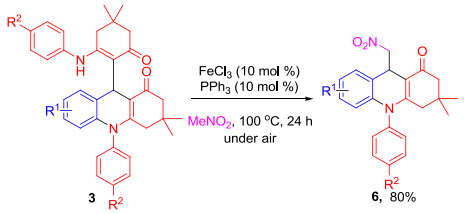
o-nitrobenzaldehyde **1** (0.3 mmol), enaminone **2** (0.5 mmol) and K_3PO_4 (0.6 mmol) in 2 mL toluene was stirred at 120°C under air for the stipulated time mentioned in Table 2. Upon completion of the reaction (indicated by TLC), the residue was directly purified by flash column chromatography by using ethyl acetate and petroleum ether as eluents to afford pure product **3**.

General Procedure for Reaction of 1,4-Dihydroquinoline Derivatives 3 with Indoles



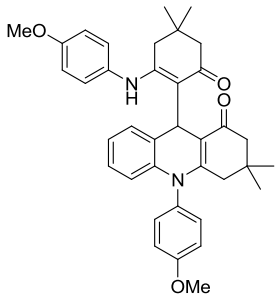
1,4-dihydroquinoline derivative **3** (0.3 mmol), indole **4** (0.36 mmol), $FeCl_3$ (0.03 mmol) and PPh_3 (0.03 mmol) in 2 mL DCE (1,2-Dichloroethane) was stirred at 80°C under air for the stipulated time mentioned in Table 3. Upon completion of the reaction (indicated by TLC), the residue was directly purified by flash column chromatography by using ethyl acetate and petroleum ether as eluents to afford pure product **5**.

General Procedure for Reaction of 1,4-Dihydroquinoline Derivatives 3 with Nitromethane

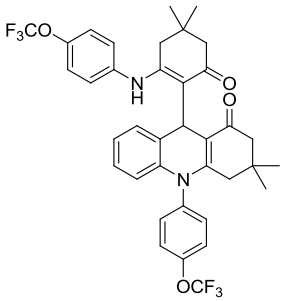


1,4-dihydroquinoline derivative **3** (0.3 mmol), $FeCl_3$ (0.03 mmol) and PPh_3 (0.03 mmol) in 2 mL nitromethane was stirred at 80°C under air for 24h. Upon completion of the reaction (indicated by TLC), the residue was directly purified by flash column chromatography by using ethyl acetate and petroleum ether as eluents to afford pure product **6**.

Analytical and spectral data for compounds

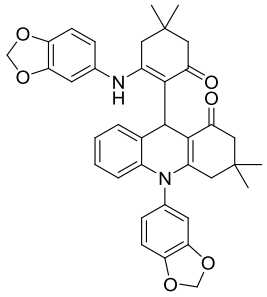


10-(4-methoxyphenyl)-9-(2-(4-methoxyphenylamino)-4,4-dimethyl-6-oxocyclohex-1-enyl)-3,3-dimethyl-3,4,9,10-tetrahydroacridin-1(2*H*)-one (3aa): Yellow solid. Mp = 218-220 ℃. IR (KBr) ν = 3218, 3063, 2955, 2871, 1613, 1589, 1512, 1458, 1389, 833, 756 cm^{-1}. ^{1}H NMR (400MHz, $CDCl_3$): δ = 0.88 (d, *J* = 8.1 Hz, 6H), 0.98 (s, 6H, $2CH_3$), 2.00-2.31 (m, 7H), 2.69 (d, *J* = 16.5 Hz, 1H), 3.84 (s, 3H), 3.90 (s, 3H), 5.10 (s, 1H), 6.14-6.17 (m, 1H), 6.85-6.87 (m, 2H), 6.92 (d, *J* = 8.6 Hz, 2H), 6.99-7.17 (m, 6H), 7.82 (d, *J* = 8.5, 1H), 10.01 (s, 1H) ppm. ^{13}C NMR (100 MHz, $CDCl_3$): δ = 196.7, 195.1, 159.5, 157.0, 156.4, 156.1, 141.2, 133.9, 133.1, 131.9, 131.3, 128.7, 127.7, 126.2, 124.8, 123.1, 119.6, 116.0, 115.7, 114.6, 114.5, 107.4, 55.7, 51.8, 49.9, 42.5, 40.5, 32.7, 32.3, 32.1, 30.1, 29.9, 28.3, 28.1, 26.7 ppm. HRMS m/z: calcd for $C_{37}H_{40}N_2O_4$ $[M]^+$ 576.2988, found: 576.3008.

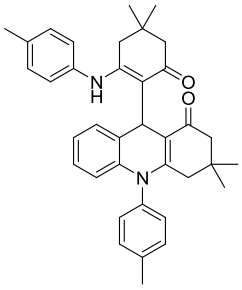


9-(4,4-dimethyl-6-oxo-2-(4-(trifluoromethoxy)phenylamino)cyclohex-1-enyl)-3,3-dimethyl-10-(4-(trifluoromethoxy)phenyl)-3,4,9,10-tetrahydroacridin-1(2H)-one (3ab): Yellow solid. Mp = 125.5-126.5 ºC. IR (KBr) *ν* = 2959, 2870, 1591, 1558, 1507, 1490, 1392, 1253, 1200, 1156, 1017, 747, 631 cm^{-1}. ^{1}H NMR (400 MHz, $CDCl_3$): δ = 0.89 (s, 6H), 1.01 (d, *J* = 7.2 Hz, 6H), 2.34-1.92 (m, 7H), 2.80 (d, *J* = 16.3 Hz, 1H), 5.09 (s, 1H), 6.12-6.04 (m, 1H), 6.93-6.85 (m, 2H), 6.98 (dd, *J* = 9.3, 4.5 Hz, 1H), 7.24-7.16 (m, 4H), 7.33 (d, *J* = 7.1 Hz, 1H), 7.46-7.38 (m, 2H), 8.03 (d, *J* = 7.0 Hz, 1H), 10.30 (s, 1H) ppm. ^{13}C NMR (75 MHz, $CDCl_3$): δ = 197.0, 195.6, 155.3,

155.2, 149.1, 144.6, 140.7, 139.8, 138.7, 132.7, 131.9, 128.7, 127.2, 126.3, 123.4, 122.9, 122.1, 121.9 121.7, 121.3, 119.3, 119.2, 115.5, 107.6, 51.9, 49.8, 42.5, 40.5, 33.1, 32.3, 32.0, 29.9, 28.5, 27.4, 26.4 ppm. HRMS m/z: calcd for $C_{37}H_{35}F_6N_2O_4$ $[M+H]^+$ 685.2501, Found 685.2498.

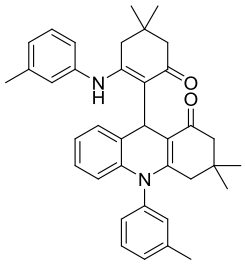


10-(benzo[*d*][1,3]dioxol-5-yl)-9-(2-(benzo[*d*][1,3]dioxol-5-ylamino)-4,4-dimethyl-6-oxocyclohex-1-enyl)-3,3-dimethyl-3,4,9,10-tetrahydroacridin-1(2*H*)-one (3ac):. Yellow solid.. Mp = 215.9-217.5 ºC. IR (KBr) ν = 2953, 2868, 1616, 1587, 1482, 1457, 1390, 1270, 1229, 929, 808, 756, 746, 669 cm^{-1}. ^1H NMR (600 MHz, $CDCl_3$): δ = 0.89 (d, *J* = 14.0 Hz, 6H), 0.99 (d, *J* = 11.8 Hz, 6H), 2.10-2.30 (m, 7H), 2.70 (d, *J* = 16.5 Hz, 1H), 5.06 (s, 1H), 6.01-5.98 (m, 2H), 6.06-6.12 (m, 2H), 6.24 (t, *J* = 6.4 Hz, 1H), 6.69 (d, *J* = 7.9 Hz, 1H), 6.76 – 6.71 (m, 2H), 6.81 (d, *J* = 8.1 Hz, 1H), 7.00 – 6.86 (m, 4H), 7.44 (d, *J* = 10.1 Hz, 1H), 10.02 (s, 1H). ^{13}C NMR (150 MHz, $CDCl_3$): δ = 196.9, 195.2, 156.9, 156.0, 149.7, 148.3, 148.0, 144.4, 141.2, 135.3, 134.2, 128.8, 127.7, 126.3, 124.5, 123.7, 123.2, 120.0, 116.5, 115.7, 111.6, 111.0, 110.1, 108.5, 107.6, 105.4, 102.1, 101.5, 51.8, 50.0, 42.5, 40.7, 32.8, 32.3, 32.2, 30.1, 30.0, 28.3, 28.2, 26.9 ppm. HRMS m/z: calcd for $C_{37}H_{37}N_2O_6$ $[M+H]^+$ 605.2652, found 605.2663.

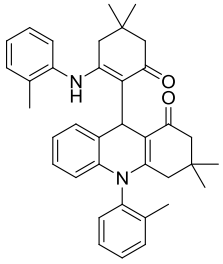


9-(4,4-dimethyl-6-oxo-2-(*p*-tolylamino)cyclohex-1-enyl)-3,3-dimethyl-10-*p*-tolyl-3,4,9,10-tetrahydroacridin-1(2*H*)-one (3ad): Yellow solid. Mp = 246-248 ℃. IR (KBr) ν = 3147, 3029, 2954, 2871, 1634, 1589, 1512, 1458, 1389, 810, 756 cm^{-1}. ^1H NMR (400MHz, $CDCl_3$): δ = 0.88 (d, *J* = 5.7 Hz, 6H, $2CH_3$), 0.99 (d, *J* = 8.4 Hz, 6H, $2CH_3$), 1.98-2.32 (m, 7H), 2.36 (s, 3H, CH_3), 2.46 (s,

3H, CH_3), 2.80 (d, *J* = 16.6 Hz, 1H), 5.11 (s, 1H, CH), 6.10-6.14 (m, 1H, ArH), 6.84-7.19 (m, 8H, ArH), 7.32 (d, *J* = 7.8 Hz, 1H, ArH), 7.38 (d, *J* = 8.0 Hz, 1H, ArH), 7.77 (d, *J* = 7.3 Hz, 1H, ArH), 10.15 (s, 1H, NH) ppm. ^{13}C NMR (100 MHz, $CDCl_3$): δ = 196.7, 195.4, 156.4, 155.9, 141.1, 138.7, 138.5, 137.8, 133.0, 131.8, 130.6, 130.1, 130.0, 129.9, 128.8, 127.6, 126.2, 123.1, 122.8, 120.5, 115.8, 107.4, 52.0, 50.0, 42.6, 40.7, 33.0, 32.5, 32.2, 30.1, 28.5, 27.9 ,26.8, 21.5, 21.1 ppm. HRMS *m/z*: calcd for $C_{37}H_{40}N_2O_2$ $[M]^+$ 544.3090, found: 544.3078.

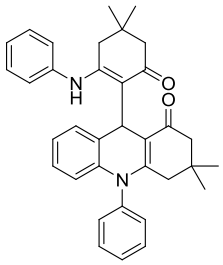


9-(4,4-dimethyl-6-oxo-2-(*m*-tolylamino)cyclohex-1-enyl)-3,3-dimethyl-10-*m*-tolyl-3,4,9,10-tetrahydroacridin-1(2*H*)-one (3ae): Yellow solid. Mp = 242-244 ℃. IR(KBr) ν = 3129, 3063, 3013, 2954, 2867, 1636, 1584, 1558, 1495, 1457, 1394, 889, 750,727 cm^{-1}. ^{1}H NMR (400MHz, $CDCl_3$): δ = 0.90 (d, *J* = 6.4 Hz, 6H, $2CH_3$), 1.00 (d, *J* = 12.3 Hz, 6H, $2CH_3$), 2.00-2.33 (m, 7H), 2.39 (s, 3H, CH_3), 2.46 (s, 3H, CH_3), 2.86 (d, *J* = 15.2 Hz, 1H), 5.12 (s, 1H, CH), 6.08-6.13 (m, 1H, ArH), 6.85-6.87 (m, 2H, ArH), 6.92 (d, *J* = 7.6 Hz, 1H, ArH), 6.98-7.24 (m, 5H, ArH), 7.27-7.31 (m, 1H, ArH), 7.40-7.50 (m, 1H, ArH), 7.68-7.72 (m, 1H, ArH), 10.21 (s, 1H, NH) ppm. ^{13}C NMR (100 MHz, $CDCl_3$): δ = 196.9, 195.8, 156.2, 155.9, 141.5, 141.1, 140.4, 140.3, 139.6, 139.4, 131.1, 129.8, 129.4, 129.1, 128.8, 127.6, 127.4, 126.3, 124.0, 123.3, 121.2, 119.5, 115.8, 107.3, 52.1, 50.1, 42.6, 40.8, 33.2, 32.6, 32.3, 32.2, 30.2, 28.6, 27.8, 26.9, 21.7 ppm. HRMS *m/z*: calcd for $C_{37}H_{40}N_2O_2$ $[M]^+$ 544.3090, found: 544.3099.

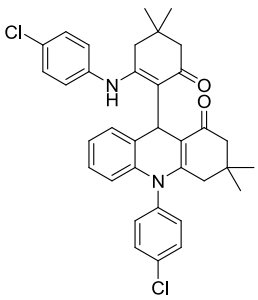


9-(4,4-dimethyl-6-oxo-2-(*o*-tolylamino)cyclohex-1-enyl)-3,3-dimethyl-10-*o*-tolyl-3,4,9,10-tetrahydroacridin-1(2*H*)-one (3af): Yellow solid. Mp = 236-238 ℃. IR(KBr) ν = 3142, 3014, 2957,

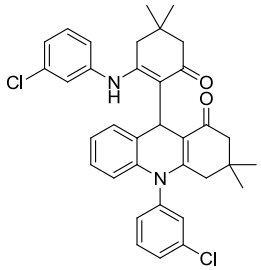
2867, 1640, 1592, 1559, 1486, 1393, 750, 709 cm^{-1}. ^1H NMR (400MHz, $CDCl_3$): δ = 0.91 (d, J = 10.1 Hz, 6H, $2CH_3$), 0.98 (d, J = 3.0 Hz, 6H, $2CH_3$), 2.03-2.12 (m, 4H), 2.19 (s, 3H, CH_3), 2.26 (s, 3H, CH_3), 2.53~2.62 (m, 4H), 5.20 (s, 1H, CH), 5.99-6.01 (m, 1H, ArH), 6.86-6.88 (m, 2H, ArH), 7.01-7.10 (m, 1H, ArH), 7.13 (d, J = 7.1 Hz, 2H, ArH), 7.23 (d, J = 7.3 Hz, 1H, ArH), 7.28 (d, J = 7.3 Hz, 1H, ArH), 7.34-7.43 (m, 3H, ArH), 7.85-7.87 (m, 1H, ArH), 9.63 (s, 1H, NH) ppm. ^{13}C NMR (100 MHz, $CDCl_3$): δ = 196.5, 195.5, 157.2, 155.4, 139.7, 139.6, 139.4, 137.6, 132.7, 131.9, 131.1, 130.2, 129.1, 128.9, 128.8, 127.6, 126.7, 126.6, 124.8, 124.6, 123.1, 121.2, 114.9, 107.4, 51.8, 50.2, 41.4, 40.9, 32.6, 32.5, 32.2, 32.0, 29.3, 27.8, 27.3, 18.6, 17.7 ppm. HRMS *m/z*: calcd for $C_{37}H_{40}N_2O_2$ $[M]^+$ 544.3090, found: 544.3089.



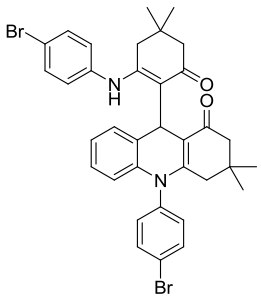
9-(4,4-dimethyl-6-oxo-2-(phenylamino)cyclohex-1-enyl)-3,3-dimethyl-10-phenyl-3,4,9,10-tetrahydroacridin-1(2*H*)-one (3ag): Yellow solid. Mp = 152-154 ℃. IR (KBr) ν = 3148, 3033, 2955, 2871, 1736, 1589, 1559, 1489, 1458, 1389, 748, 702cm^{-1}. ^1H NMR (400MHz, $CDCl_3$): δ = 0.89 (s, 6H, $2CH_3$), 0.98 (s, 3H, CH_3), 1.02 (s, 3H, CH_3), 1.96-2.33 (m, 7H), 2.85 (d, J = 16.4 Hz, 1H), 5.14 (s, 1H, CH), 6.09-6.11 (m, 1H, ArH), 6.85-7.00 (m, 3H, ArH), 7.10 (t, J = 7.0 Hz, 1H, ArH), 7.20-7.62 (m, 8H, ArH), 7.93 (d, J = 7.3 Hz, 1H, ArH), 10.26 (s, 1H, NH) ppm. ^{13}C NMR (100 MHz, $CDCl_3$): δ = 196.8, 195.6, 155.9, 155.7, 141.1, 140.4, 131.2 ,130.9, 130.4, 129.4, 129.3, 128.8, 127.4, 126.3, 123.2, 123.0, 122.3, 121.1, 115.7, 107.3, 60.54, 52.0, 49.9, 42.6, 40.6, 33.1, 32.5, 32.1, 30.0, 27.8, 26.5 ppm. HRMS *m/z*: calcd for $C_{35}H_{36}N_2O_2$ $[M]^+$ 516.2777, found: 516.2752.



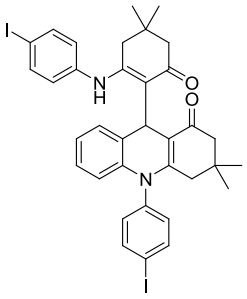
10-(4-chlorophenyl)-9-(2-(4-chlorophenylamino)-4,4-dimethyl-6-oxocyclohex-1-enyl)-3,3-dimethyl-3,4,9,10-tetrahydroacridin-1(2*H*)-one (3ah): Yellow solid. Mp = 234-236 ℃. IR (KBr) ν = 3156, 3040, 2955, 2871, 1620, 1589, 1559, 1489, 1389, 825, 756 cm^{-1}. ^{1}H NMR (400MHz, $CDCl_3$): δ = 0.88 (s, 6H, $2CH_3$), 1.00 (d, J = 5.4 Hz, 6H, $2CH_3$), 1.94-2.33 (m, 7H), 2.78 (d, J = 16.3 Hz, 1H), 5.09 (s, 1H, CH), 6.09-6.12 (m, 1H, ArH), 6.87-7.24(m, 6H, ArH), 7.33 (d, J = 8.5 Hz, 2H, ArH), 7.52-7.58 (m, 2H, ArH), 7.90 (d, J = 6.4 Hz, 1H, ArH), 10.27 (s, 1H, NH) ppm. ^{13}C NMR (100 MHz, $CDCl_3$): δ = 197.3, 196.0, 155.8, 155.7, 141.0, 140.0, 139.2, 135.1, 132.7, 132.1, 131.8, 130.1, 129.6, 129.1, 128.5, 127.6, 126.7, 123.7, 121.5, 115.9, 107.9, 52.3, 50.2, 42.9, 40.9, 33.5, 32.7, 32.4, 30.4, 29.0, 27.8, 26.7 ppm. HRMS m/z: calcd for $C_{35}H_{34}Cl_2N_2O_2$ $[M]^+$ 584.1997, found: 584.1967.



10-(3-chlorophenyl)-9-(2-(3-chlorophenylamino)-4,4-dimethyl-6-oxocyclohex-1-enyl)-3,3-dimethyl-3,4,9,10-tetrahydroacridin-1(2*H*)-one (3ai): Yellow solid. Mp = 202-204 ℃. IR (KBr) ν = 3156, 3063, 2955, 2871, 1628, 1582, 1489, 1389, 887, 748, 725 cm^{-1}. ^{1}H NMR (400MHz, $CDCl_3$): δ = 0.89 (s, 6H, $2CH_3$), 1.02 (d, J = 8.3 Hz, 6H, $2CH_3$), 1.94-2.34 (m, 7H), 2.84 (d, J = 16.4 Hz, 1H), 5.08 (s, 1H, CH), 6.01 (s, 1H, ArH), 6.89-7.07 (m, 5H, ArH), 7.19-7.98 (m, 6H, ArH), 10.33 (s, 1H, NH) ppm. ^{13}C NMR (100 MHz, $CDCl_3$): δ = 197.1, 195.9, 155.3, 155.0, 142.6, 141.7, 140.6, 136.7, 135.0, 132.2, 131.2, 130.7, 130.3, 129.5, 129.4, 128.9, 127.2, 126.5, 123.5, 122.8, 121.8, 120.0, 115.6, 107.7, 52.2, 50.0, 42.6, 40.8, 33.4, 32.6, 32.2, 30.2, 28.9, 27.5, 26.5 ppm. HRMS m/z: calcd for $C_{35}H_{34}Cl_2N_2O_2$ $[M]^+$ 584.1997, found: 584.1968.

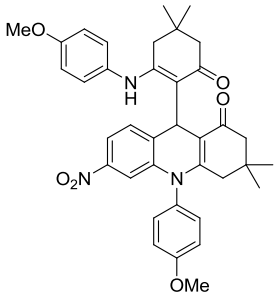


10-(4-bromophenyl)-9-(2-(4-bromophenylamino)-4,4-dimethyl-6-oxocyclohex-1-enyl)-3,3-di methyl-3,4,9,10-tetrahydroacridin-1(2*H*)-one (3aj): Yellow solid. Mp = 241-243 ℃. IR (KBr) ν = 3156, 3056, 2955, 2871, 1613, 1589, 1566, 1489, 1389, 825, 756 cm^{-1}. ^1H NMR (400MHz, $CDCl_3$): δ = 0.88 (s, 6H, $2CH_3$), 1.00 (d, J = 5.2 Hz, 6H, $2CH_3$), 1.94~2.33 (m, 7H), 2.79 (d, J = 16.3 Hz, 1H), 5.08 (s, 1H, CH), 6.09-6.11 (m, 1H, ArH), 6.87-6.98 (m, 3H, ArH), 7.07 (d, J = 8.4 Hz, 2H, ArH), 7.17 (d, J = 6.6 Hz, 1H, ArH), 7.47 (d, J = 8.5 Hz, 2H, ArH), 7.71-7.85 (m, 3H, ArH), 10.27 (s, 1H, NH) ppm. ^{13}C NMR (100 MHz, $CDCl_3$): δ = 197.0, 195.7, 155.3, 140.6, 140.4, 140.2, 139.5, 134.4, 133.5, 132.8, 132.3, 129.0, 128.8, 127.3, 126.8, 126.4, 123.9, 123.7, 123.4, 122.9, 121.4, 115.7, 111.6, 107.6, 60.5, 52.0, 49.9, 42.6, 41.7, 40.6, 36.5, 33.2, 32.1, 28.7, 27.5 ppm. HRMS m/z: calcd for $C_{35}H_{34}Br_2N_2O_2$ $[M]^+$ 674.0967, found: 674.0970.

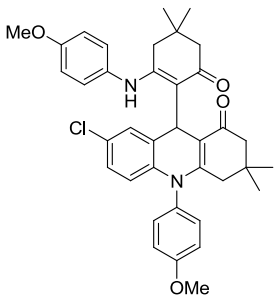


10-(4-iodophenyl)-9-(2-(4-iodophenylamino)-4,4-dimethyl-6-oxocyclohex-1-enyl)-3,3-dimethy l-3,4,9,10-tetrahydroacridin-1(2*H*)-one (3ak): Yellow solid. Mp = 264-266 ℃. IR (KBr) ν = 3143, 3058, 2953, 2864, 1609, 1583, 1566, 1483, 1389, 824, 750 cm^{-1}. ^1H NMR (400MHz, $CDCl_3$): δ = 0.87 (s, 6H, $2CH_3$), 1.00 (d, J = 4.8 Hz, 6H, $2CH_3$), 1.94-2.32 (m, 7H), 2.80 (d, J = 16.7 Hz, 1H), 5.07 (s, 1H, CH), 6.09-6.11 (m, 1H, ArH), 6.87-6.89 (m, 2H, ArH), 6.95 (d, J = 7.6 Hz, 4H, ArH), 7.02-7.04 (m, 1H, ArH), 7.75 (d, J = 7.7 Hz, 2H, ArH), 7.89-7.93(m, 2H, ArH), 10.29 (s, 1H, NH) ppm. ^{13}C NMR (100 MHz, $CDCl_3$): δ = 197.1, 195.9, 155.4, 155.2, 143.5, 141.1, 140.8, 140.7, 140.3, 138.9, 138.3, 133.1, 132.5, 128.9, 128.5, 127.7, 127.5, 127.3, 126.5, 124.0,

123.6, 121.7, 115.8, 107.7, 52.2, 50.0, 42.8, 41.9, 40.8, 40.3, 33.4, 32.2, 30.2, 28.9, 26.6 ppm. HRMS m/z: calcd for $C_{35}H_{34}I_2N_2O_2$ $[M]^+$ 768.0710, found: 768.0721.

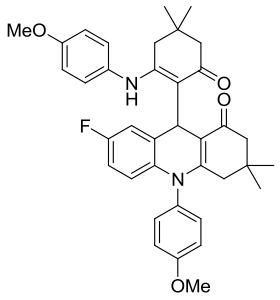


10-(4-methoxyphenyl)-9-(2-(4-methoxyphenylamino)-4,4-dimethyl-6-oxocyclohex-1-enyl)-3,3-dimethyl-6-nitro-3,4,9,10-tetrahydroacridin-1(2*H*)-one (3ba): Yellow solid. Mp = 231.2-232.6 ^oC. IR (KBr) ν = 2960, 2929, 1608, 1578, 1509, 1387, 1324, 1262, 1241, 1179, 1033, 830, 802, 761, 735 cm^{-1}. ^1H NMR (600 MHz, $CDCl_3$): δ =. 0.89 (d, *J* = 12.1 Hz, 6H), 0.99 (d, *J* = 12.5 Hz, 6H), 2.00-2.32 (m, 7H), 2.67 (d, *J* = 16.6 Hz, 1H), 3.85 (s, 3H), 3.93 (s, 3H), 5.08 (s, 1H), 6.94 (d, *J* = 8.6 Hz, 2H), 7.03 (d, *J* = 1.8 Hz, 1H), 7.13-7.07 (m, 3H), 7.16-7.22 (m, 3H), 7.69-7.72 (m, 1H), 7.80 (d, *J* = 7.8 Hz, 1H), 10.02 (s, 1H) ppm. ^{13}C NMR (150 MHz, $CDCl_3$): δ = 197.4, 194.9, 158.3, 156.9 ,155.8, 146.6, 142.3, 135.2, 133.3, 131.0, 129.2, 125.3, 118.6, 117.8, 116.6, 115.3, 114.7, 110.5, 107.7, 55.8, 51.6, 49.9, 42.5, 40.7, 32.7, 32.5, 32.1, 30.1, 28.3, 28.1, 26.7 ppm. HRMS m/z: calcd for $C_{37}H_{40}N_3O_6$ $[M+H]^+$ 622.2917, found 622.2912.

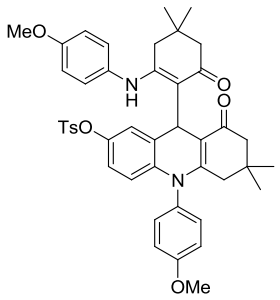


7-chloro-10-(4-methoxyphenyl)-9-(2-(4-methoxyphenylamino)-4,4-dimethyl-6-oxocyclohex-1-enyl)-3,3-dimethyl-3,4,9,10-tetrahydroacridin-1(2*H*)-one (3ca): Yellow solid. Mp = 216.1-217.9 ^oC. IR (KBr) ν = 2953, 1598, 1581, 1555, 1481, 1386, 1365, 1270, 1241, 1184, 1027, 833, 811, 607 cm^{-1}. ^1H NMR (600 MHz, $CDCl_3$): δ = 0.88 (d, *J* = 9.3 Hz, 6H), 0.99 (d, *J* = 11.9 Hz, 6H), 2.05-1.98 (m, 2H), 2.13 (t, *J* = 16.6 Hz, 3H), 2.25 (dd, *J* = 37.4, 16.3 Hz, 2H), 2.70 (d, *J* =

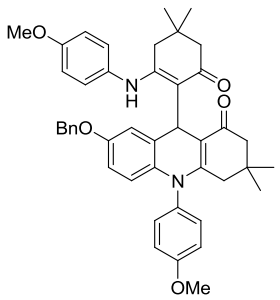
16.4 Hz, 1H), 3.84 (s, 3H), 3.90 (s, 3H), 5.02 (s, 1H), 6.07 (d, *J* = 8.8 Hz, 1H), 6.78-6.82 (m, 1H), 6.91-6.96 (m, 3H), 7.03 (dd, *J* = 8.5, 2.8 Hz, 1H), 7.08 (dd, *J* = 8.6, 2.6 Hz, 1H), 7.20-7.13 (m, 3H), 7.80 (d, *J* = 8.5, 1H), 10.04 (s, 1H) ppm. ^{13}C NMR (150 MHz, $CDCl_3$): δ = 196.8, 195.1, 159.7, 157.7, 156.6, 155.8, 140.2, 133.7, 132.8, 131.9, 131.1, 129.6, 128.3, 127.9, 126.1, 125.0, 118.9, 116.9, 116.2, 114.8, 114.6, 107.4, 55.8, 55.7, 51.8, 49.9, 42.5, 40.8, 32.9, 32.3, 32.1, 30.2, 28.6, 27.9, 26.7 ppm. HRMS m/z: calcd for $C_{37}H_{40}ClN_2O_4$ $[M+H]^+$ 611.2677, found 611.2671.



7-fluoro-10-(4-methoxyphenyl)-9-(2-(4-methoxyphenylamino)-4,4-dimethyl-6-oxocyclohex-1-enyl)-3,3-dimethyl-3,4,9,10-tetrahydroacridin-1(2*H*)-one (3da): Yellow solid. Mp = 219.9-221.8 ^{o}C. IR (KBr) ν = 2956, 2866, 1608, 1569, 1508, 1490, 1386, 1366, 1243, 1231, 1149, 1032, 825, 808, 779, 605 cm^{-1}. ^{1}H NMR (400 MHz, $CDCl_3$): δ = 0.88 (d, *J* = 5.2 Hz, 6H), 0.99 (d, *J* = 6.2 Hz, 6H), 2.05-2.00 (m, 2H), 2.17-2.07 (m, 3H), 2.18-2.32 (m, 2H), 2.68 (d, *J* = 16.5 Hz, 1H), 3.84 (s, 3H), 3.90 (s, 3H), 5.06 (s, 1H), 6.10 (dd, *J* = 9.0, 4.9 Hz, 1H), 6.55 (td, *J* = 8.6, 2.9 Hz, 1H), 6.71 (dd, *J* = 8.8, 2.5 Hz, 1H), 6.93 (d, *J* = 8.8 Hz, 2H), 7.03 (dd, *J* = 8.6, 2.7 Hz, 1H), 7.08 (dd, *J* = 8.6, 2.5 Hz, 1H), 7.17 (d, *J* = 8.6 Hz, 3H), 7.80 (d, *J* = 7.3 Hz, 1H), 10.03 (s, 1H) ppm. ^{13}C NMR (100 MHz, $CDCl_3$): δ = 196.7, 195.1, 159.7, 157.6, 156.6, 156.0, 137.9, 133.8, 133.1, 132.0, 131.2, 130.0, 125.0, 119.0, 116.9, 116.8, 116.2, 114.8, 114.6, 112.8, 112.6, 106.6, 55.8, 55.7, 51.8, 50.0, 42.6, 40.1, 32.8, 32.6, 32.1, 30.1, 28.5, 28.1, 26.7 ppm. HRMS m/z: calcd for $C_{37}H_{40}FN_2O_4$ $[M+H]^+$ 595.2972, Found 595.2960.

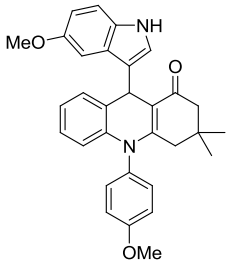


10-(4-methoxyphenyl)-9-(2-(4-methoxyphenylamino)-4,4-dimethyl-6-oxocyclohex-1-enyl)-6,6-dimethyl-8-oxo-5,6,7,8,9,10-hexahydroacridin-2-yl 4-methylbenzenesulfonate (3ea): Yellow solid. Mp = 144.8-146.4 ^{o}C. IR (KBr) ν = 2953, 2868, 1569, 1559, 1508, 1488, 1374, 1242, 1177, 1146, 1032, 827, 813, 745, 705, 661 cm^{-1}. ^{1}H NMR (400 MHz, $CDCl_3$): δ = 0.84 (s, 6H), 0.98 (d, *J* = 2.1 Hz, 6H), 2.04-1.95 (m, 3H), 2.06-2.13 (m, 2H), 2.26-2.18 (m, 2H), 2.32 (s, 3H), 2.62 (d, *J* = 16.3 Hz, 1H), 3.86 (s, 3H), 3.88 (s, 3H), 4.91 (s, 1H), 6.01 (d, *J* = 9.0 Hz, 1H), 6.39 (dd, *J* = 9.0, 2.6 Hz, 1H), 6.58 (d, *J* = 2.6 Hz, 1H), 6.94 (d, *J* = 8.8 Hz, 2H), 7.01 (dd, *J* = 8.5, 2.8 Hz, 1H), 7.06 (dd, *J* = 8.6, 2.7 Hz, 1H), 7.10-7.15 (m, 3H), 7.23-7.26 (m, 2H), 7.66 (d, *J* = 8.3 Hz, 2H), 7.77-7.73 (m, 1H), 9.87 (s, 1H) ppm. ^{13}C NMR (75 MHz, $CDCl_3$): δ = 196.9, 195.0, 159.8, 157.7, 156.7, 155.9, 145.3, 145.2, 140.3, 133.6, 132.8, 131.9, 131.1, 129.8, 129.2 ,128.8, 125.0, 122.3, 119.8, 118.8, 116.3, 116.2, 114.8, 114.7, 107.1, 55.8, 55.7 ,51.8, 49.9, 42.5, 40.8, 32.8, 32.4, 32.1, 30.1, 28.7, 27.8, 26.7, 21.8 ppm. HRMS m/z: calcd for $C_{44}H_{46}N_2NaO_7S$ $[M+Na]^+$ 769.2923, Found 769.2931.

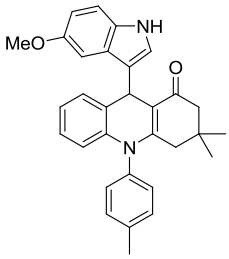


7-(benzyloxy)-10-(4-methoxyphenyl)-9-(2-(4-methoxyphenylamino)-4,4-dimethyl-6-oxocyclohex-1-enyl)-3,3-dimethyl-3,4,9,10-tetrahydroacridin-1(2*H*)-one (2fa): Yellow solid. Mp = 194.9-196.7 ^{o}C. IR (KBr) ν = 2951, 2866, 1574, 1560, 1509, 1492, 1388, 1242, 1219, 1032, 1010, 831, 805, 755 cm^{-1}. ^{1}H NMR (400 MHz, $CDCl_3$): δ = 0.87 (d, *J* = 10.0 Hz, 6H), 0.97 (s, 6H), 2.06-2.00 (m, 3H), 2.08-2.14 (m, 2H), 2.17-2.31 (m, 2H), 2.61 (d, *J* = 16.3 Hz, 1H), 3.84 (s, 3H),

3.89 (s, 3H), 4.99 – 4.91 (m, 2H), 5.05 (s, 1H), 6.08 (d, *J* = 8.9 Hz, 1H), 6.50 (dd, *J* = 8.9, 2.9 Hz, 1H), 6.61 (d, *J* = 2.4 Hz, 1H), 6.92 (d, *J* = 8.8 Hz, 2H), 7.00-7.18 (m, 5H), 7.38-7.27 (m, 5H), 7.80 (d, *J* = 7.3 Hz, 1H), 10.07 (s, 1H) ppm. ^{13}C NMR (100 MHz, $CDCl_3$): δ = 196.4, 195.1, 159.6, 157.2, 156.4, 156.0, 155.0, 137.6, 135.8, 134.1, 133.4, 132.1, 131.2, 129.5, 128.8, 128.0, 127.6, 124.8, 119.3, 116.7, 116.1 ,115.3, 114.6, 112.3, 106.5, 70.4, 55.8, 55.7, 51.9, 50.0, 42.6, 40.7, 32.9, 32.7, 32.1, 30.1, 27.9, 26.8 ppm. HRMS m/z: calcd for $C_{44}H_{47}N_2O_5$ $[M+H]^+$ 683.3485, Found 683.3479.

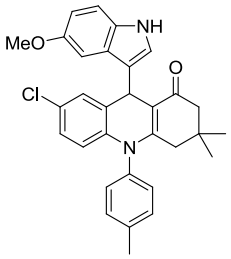


9-(5-methoxy-1*H*-indol-3-yl)-10-(4-methoxyphenyl)-3,3-dimethyl-3,4,9,10-tetrahydroacridin-1(2*H*)-one (5a): Yellow soild. Mp = 225.1-227.8 ^{o}C. IR (KBr) ν = 3283, 2962, 2923, 2867, 1596, 1558, 1509, 1484, 1456, 1391, 1268, 1241, 1182, 1023, 850, 749, 634 cm^{-1}. ^{1}H NMR (400 MHz, $CDCl_3$): δ = 0.78 (s, 3H), 0.95 (s, 3H), 2.05-1.94 (m, 1H), 2.13-2.27 (m, 3H), 3.78 (s, 3H), 3.91 (s, 3H), 5.70 (s, 1H), 6.32 (d, *J* = 7.5 Hz, 1H), 6.75 (d, *J* = 7.0 Hz, 1H), 6.98-6.90 (m, 3H), 7.07 (d, *J* = 8.5 Hz, 2H), 7.18-7.11 (m, 2H), 7.22-7.28 (m, 3H), 7.95 (s, 1H) ppm. ^{13}C NMR (100 MHz, $CDCl_3$): δ = 195.6, 159.6, 153.7, 152.4, 140.4, 132.4, 131.8, 131.3, 130.0, 126.9 ,126.5, 126.4, 123.8, 122.9, 122.6, 115.6, 115.4, 111.5, 110.1, 102.4, 56.1, 55.6, 50.3, 42.3, 32.1, 31.4, 29.9, 26.9 ppm. HRMS m/z: calcd for $C_{31}H_{31}N_2O_3$ $[M+H]^+$ 479.2335, Found 479.2329.

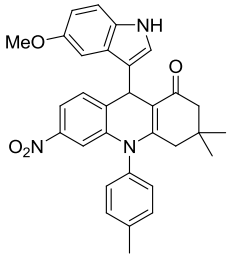


9-(5-methoxy-1*H*-indol-3-yl)-3,3-dimethyl-10-p-tolyl-3,4,9,10-tetrahydroacridin-1(2*H*)-one (5b): Yellow soild. Mp = 234.9-236.7 ^{o}C. IR (KBr) ν = 3312, 2956, 2832, 1597, 1559, 1508, 1487,

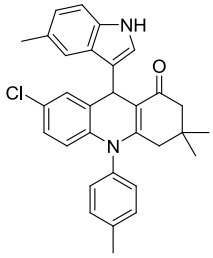
1457, 1383, 1362, 1266, 1244, 1171, 1061, 1032, 791, 758, 631, 611 cm^{-1}. ^1H NMR (400 MHz, $CDCl_3$): δ = 0.77 (s, 3H), 0.94 (s, 3H), 2.04 –1.92 (m, 2H), 2.28–2.13 (m, 3H), 2.48 (s, 3H), 3.78 (s, 3H), 5.70 (s, 1H), 6.32– 6.26 (m, 1H), 6.74 (dd, *J* = 8.7, 2.1 Hz, 1H), 6.95–6.89 (m, 3H), 7.11 (d, *J* = 8.7 Hz, 1H), 7.21–7.17 (m, 3H), 7.28–7.25 (m, 1H), 7.37 (d, *J* = 7.9 Hz, 2H), 8.05 (s, 1H) ppm. ^{13}C NMR (100 MHz, $CDCl_3$): δ = 195.6, 153.6, 152.2, 140.2, 138.9, 137.1, 131.8, 131.0, 130.0, 130.0, 126.9, 126.4, 126.4, 123.8, 122.9, 122.5, 115.7, 111.6, 111.5, 110.0, 102.4, 56.1, 50.3, 42.3, 32.2, 31.5, 29.9, 26.9, 21.3 ppm. HRMS m/z: calcd for $C_{31}H_{31}N_2O_2$ $[M+H]^+$ 463.2386, Found 463.2374.



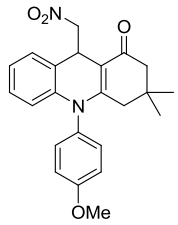
7-chloro-9-(5-methoxy-1*H*-indol-3-yl)-3,3-dimethyl-10-p-tolyl-3,4,9,10-tetrahydroacridin-1(2*H*)-one (5c): Yellow soild. Mp = 232.3-235.1 ºC. IR (KBr) ν = 3323, 2956, 2867, 2828, 1622, 1559, 1508, 1477, 1417, 1381, 1264, 1172, 1105, 1059, 1032, 828, 816, 656 cm^{-1}. ^1H NMR (400 MHz, $CDCl_3$): δ = 0.77 (s, 3H), 0.94 (s, 3H), 1.95 (d, *J* = 17.2 Hz, 1H), 2.26–2.11 (m, 3H), 2.48 (s, 3H), 3.81 (s, 3H), 5.63 (s, 1H), 6.20 (d, *J* = 8.8 Hz, 1H), 6.77 (dd, *J* = 8.8, 2.4 Hz, 1H), 6.87 (dd, *J* = 8.8, 2.4 Hz, 1H), 6.96 (s, 1H), 7.15 (d, *J* = 8.8 Hz, 1H), 7.19 (d, *J* = 2.3 Hz, 2H), 7.21 (d, *J* = 3.1 Hz, 2H), 7.38 (d, *J* = 8.0 Hz, 2H), 8.03 (s, 1H) ppm. ^{13}C NMR (100 MHz, $CDCl_3$): δ = 195.7, 153.9, 152.0, 139.4, 139.0, 137.0, 132.0, 131.4, 130.0,129.9, 128.8, 128.6, 126.5, 126.5, 123.1, 122.2, 117.2, 111.8, 111.7, 109.8, 102.6, 56.4, 50.4, 42.4, 32.4, 31.8, 30.0, 27.0, 21.5 ppm. HRMS m/z: calcd for $C_{31}H_{29}ClN_2NaO_2$ $[M+Na]^+$ 519.1815, Found 519.1781.



9-(5-methoxy-1*H*-indol-3-yl)-3,3-dimethyl-6-nitro-10-p-tolyl-3,4,9,10-tetrahydroacridin-1(2*H*)-one (5d): Yellow soild. Mp = 222.5-223.8 °C. IR (KBr) ν = 3417, 2952, 2869, 1623, 1579, 1520, 1485, 1421, 1376, 1320, 1254, 1219, 1057, 1040, 885, 821, 800, 743, 676, 623 cm^{-1}. ^1H NMR (400 MHz, $CDCl_3$): δ = 0.80 (s, 3H), 0.96 (s, 3H), 1.99 (d, *J* = 17.3 Hz, 1H), 2.29–2.14 (m, 3H), 2.52 (s, 3H), 3.83 (s, 3H), 5.72 (s, 1H), 6.78 (dd, *J* = 8.8, 2.4 Hz, 1H), 6.92 (d, *J* = 2.4 Hz, 1H), 7.16 (dd, *J* = 5.5, 3.3 Hz, 2H), 7.22 (d, *J* = 8.3 Hz, 3H), 7.38 (d, *J* = 8.4 Hz, 1H), 7.44 (d, *J* = 8.1 Hz, 2H), 7.74 (dd, *J* = 8.3, 2.2 Hz, 1H), 8.08 (s, 1H) ppm. ^{13}C NMR (100 MHz, $CDCl_3$): δ = 195.9, 154.1, 152.0, 146.9, 140.9, 140.1, 136.2, 134.0, 132.0, 131.8, 130.9, 129.7, 126.2, 123.1, 121.6, 118.5, 112.0, 111.9, 110.8, 110.1, 102.4, 56.4, 50.4, 42.3, 32.4, 31.9, 30.0, 27.0, 21.6 ppm. HRMS m/z: calcd for $C_{31}H_{29}N_3NaO_4$ $[M+Na]^+$ 530.2056, Found 530.2031.



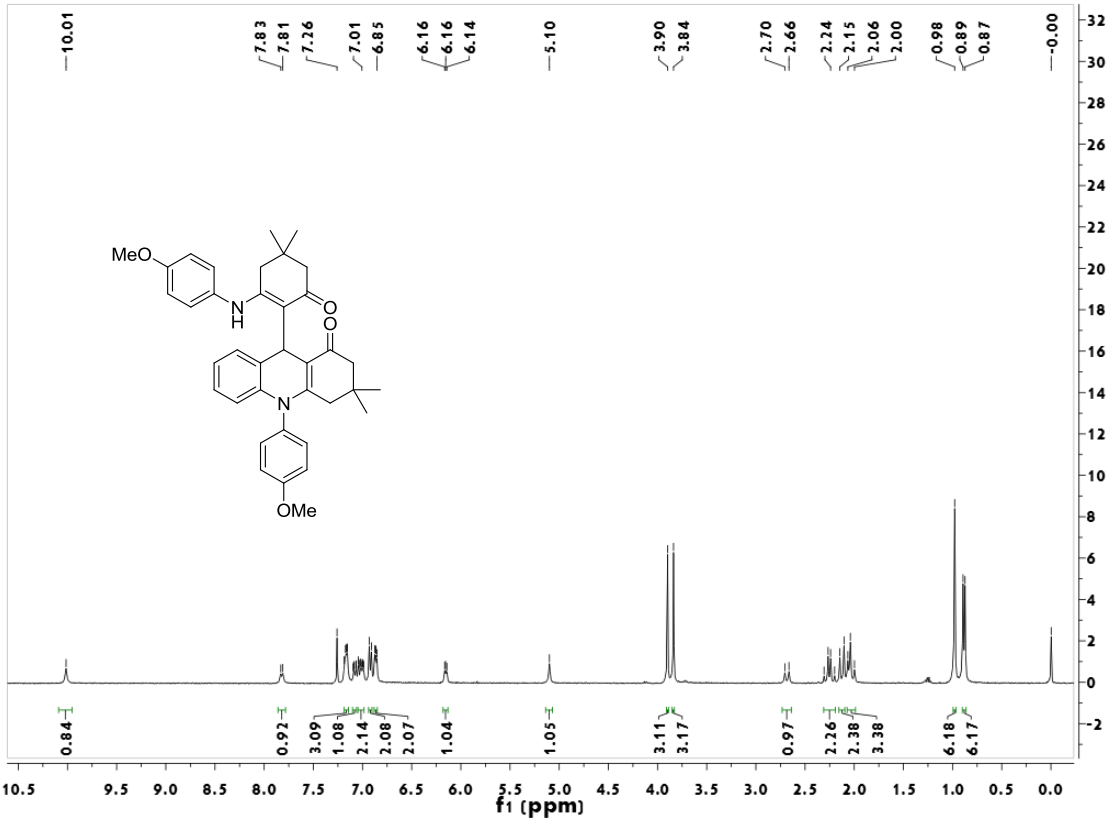
7-chloro-3,3-dimethyl-9-(5-methyl-1*H*-indol-3-yl)-10-p-tolyl-3,4,9,10-tetrahydroacridin-1(2*H*)-one (5e): Yellow soild. Mp = 257.2-260.9 °C. IR (KBr) ν = 3299, 2950, 2922, 2863, 1598, 1559, 1476, 1383, 1360, 1322, 1265, 1178, 1106, 1036, 811, 796, 654, 617 cm^{-1}. ^1H NMR (400 MHz, $CDCl_3$): δ = 0.76 (s, 3H), 0.94 (s, 3H), 2.02–1.95 (m, 1H), 2.25–2.08 (m, 3H), 2.43 (s, 3H), 2.50 (s, 3H), 5.60 (s, 1H), 6.15 (d, *J* = 8.9 Hz, 1H), 6.83 (dd, *J* = 8.8, 2.4 Hz, 1H), 6.92 (dd, *J* = 8.3, 1.0 Hz, 1H), 7.05 (d, *J* = 2.3 Hz, 1H), 7.17 (d, *J* = 7.9 Hz, 2H), 7.25 (d, *J* = 2.8 Hz, 2H), 7.41 (d, *J* = 8.0 Hz, 2H), 7.49 (s, 1H), 8.10 (s, 1H) ppm. ^{13}C NMR (100 MHz, $CDCl_3$): δ = 195.7, 151.9, 139.4, 138.7, 137.1, 135.2, 131.4, 130.1, 130.0, 128.8, 128.7, 128.1, 126.5, 126.3, 123.2, 122.3, 122.0, 119.5, 117.3, 111.1, 109.5, 50.3, 42.5, 32.4, 32.2, 30.1, 26.9, 21.9, 21.5 ppm. HRMS m/z: calcd for $C_{31}H_{29}ClN_2NaO$ $[M+H]^+$ 503.1866, Found 503.1846.

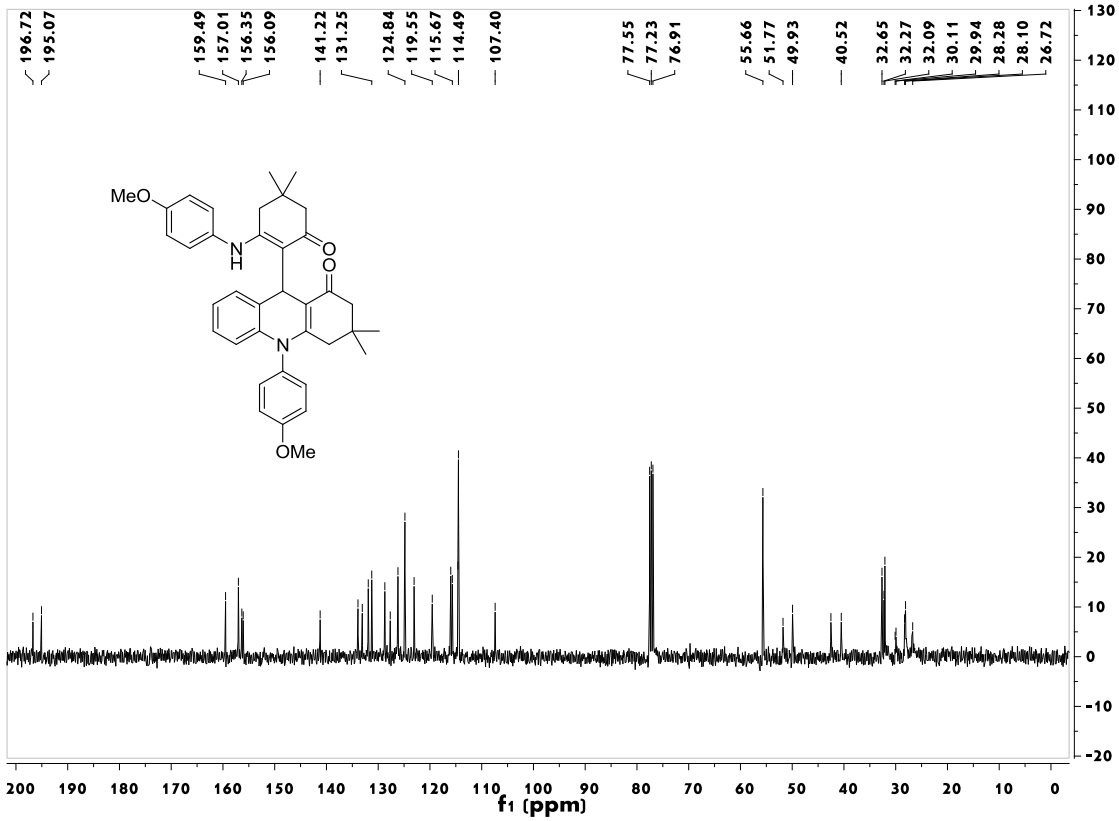


3,3-dimethyl-9-(nitromethyl)-10-(4-nitrophenyl)-3,4,9,10-tetrahydroacridin-1(2*H*)-one (6): Yellow soild. Mp = 240.2-242.9 °C. ^{1}H NMR (400 MHz, $CDCl_3$): δ = 7.25 (dd, *J* = 6.1, 3.0 Hz, 1H), 7.14 (d, *J* = 8.2 Hz, 2H), 7.08–7.03 (m, 4H), 6.30–6.25 (m, 1H), 4.91 (t, *J* = 4.3 Hz, 1H), 4.74 (dd, *J* = 11.0, 5.0 Hz, 1H), 4.52 (dd, *J* = 11.0, 3.9 Hz, 1H), 3.90 (s, 3H), 2.29 (s, 2H), 2.16–1.95 (m, 2H), 1.03 (s, 3H), 1.00 (s, 3H) ppm. ^{13}C NMR (100 MHz, $CDCl_3$): *δ* = 195.4, 159.9, 155.7, 140.9, 131.7, 130.9, 128.9, 128.1, 124.5, 121.9, 116.8, 115.7, 104.0, 81.1, 55.8, 50.2, 42.4, 35.1, 32.4, 30.1, 27.1 ppm. HRMS m/z: calcd for $C_{23}H_{25}N_2O_4$ $[M+H]^+$ 393.1814, Found 393.1814.

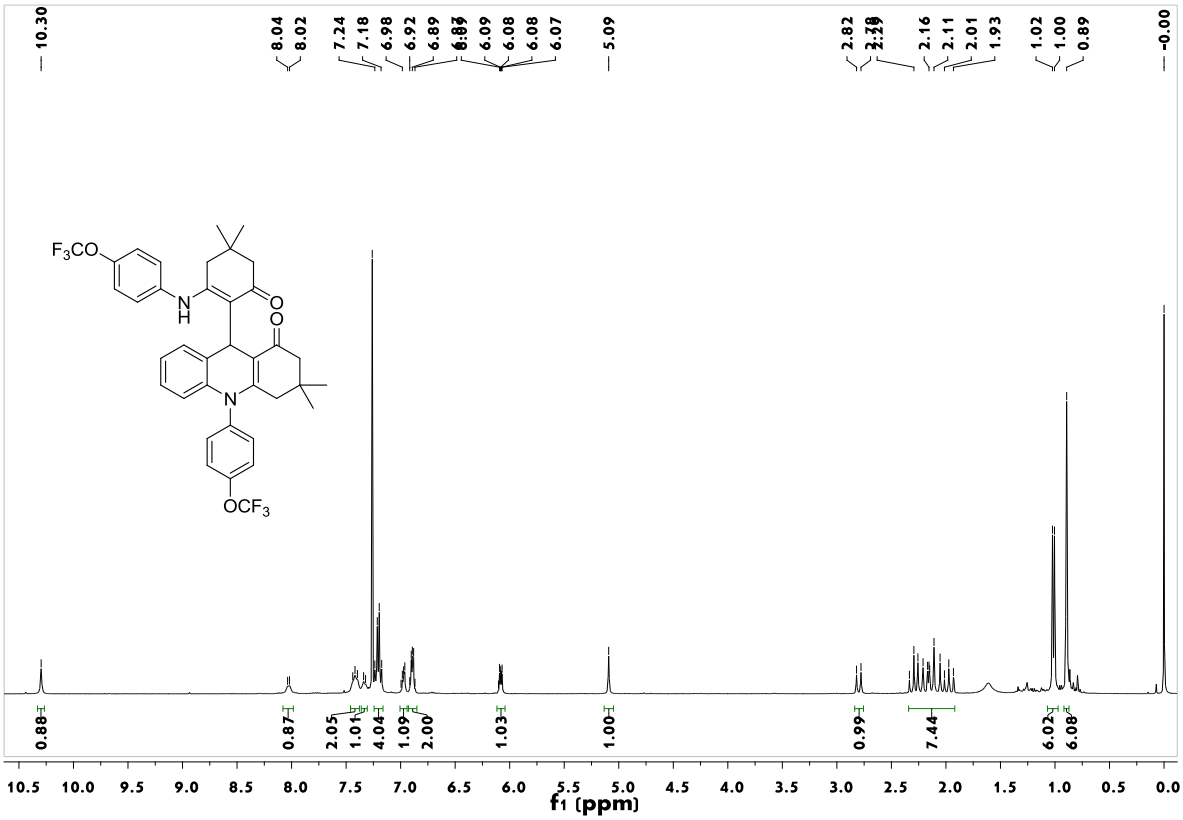
The ^{1}H and ^{13}C NMR spectra of compounds:

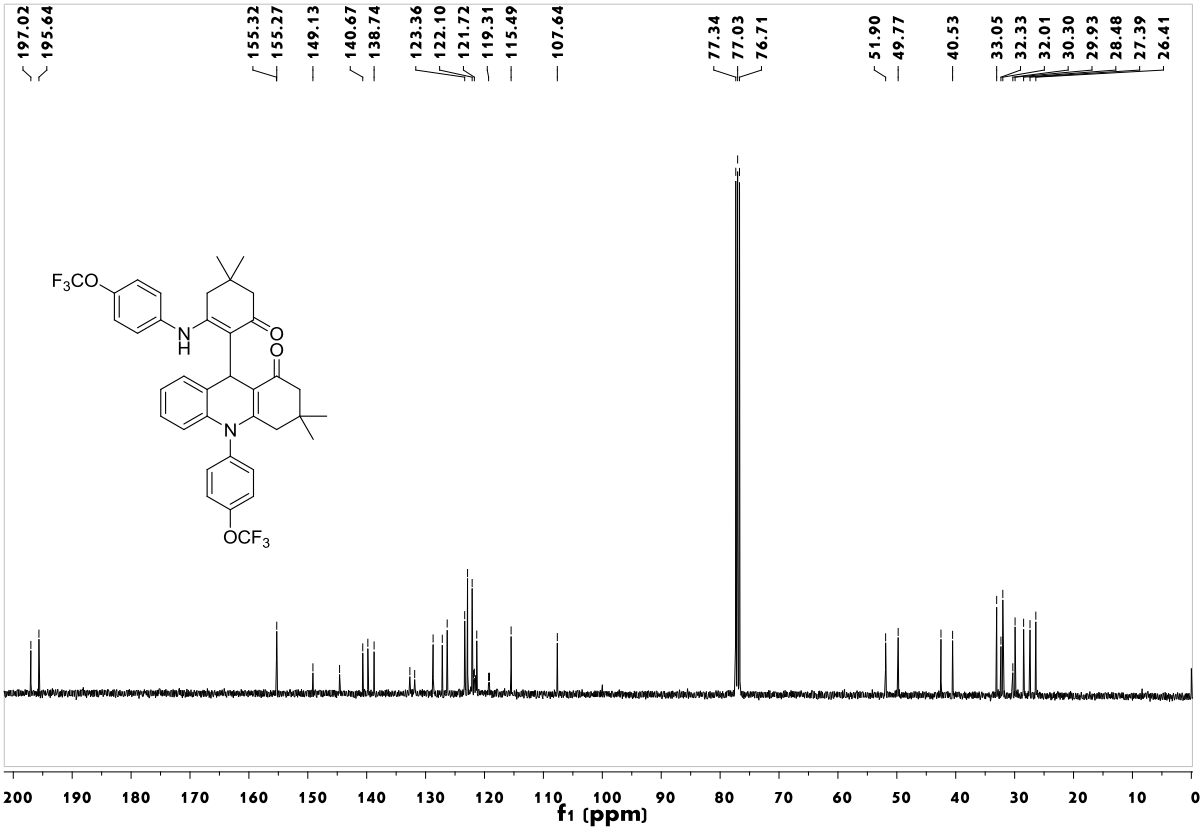
10-(4-methoxyphenyl)-9-(2-(4-methoxyphenylamino)-4,4-dimethyl-6-oxocyclohex-1-enyl)-3,3-dimethyl-3,4,9,10-tetrahydroacridin-1(2*H*)-one (3aa):



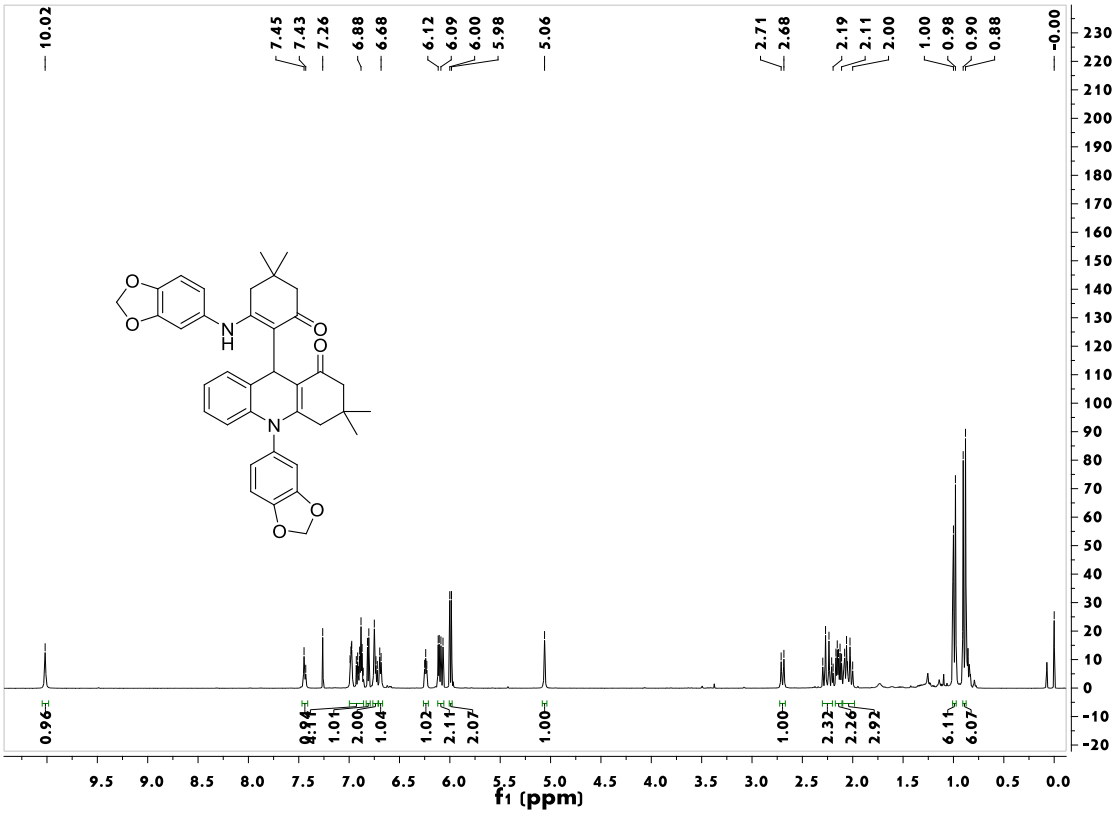


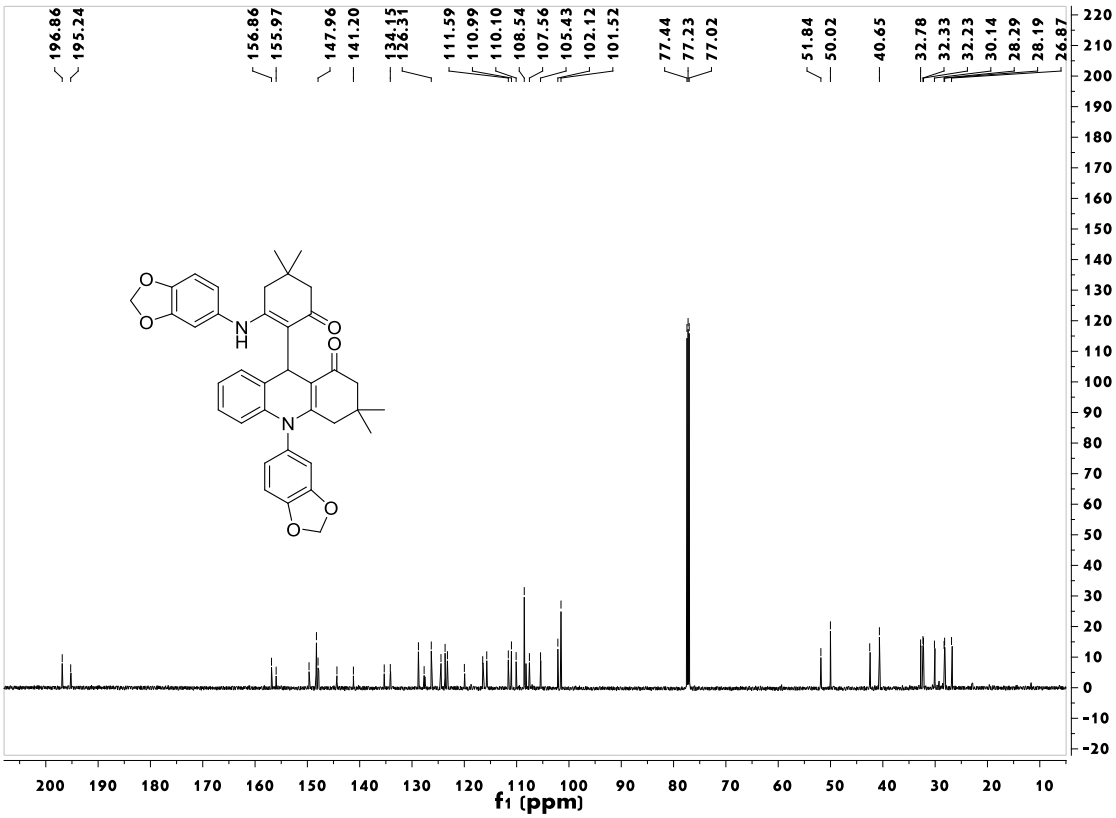
9-(4,4-dimethyl-6-oxo-2-(4-(trifluoromethoxy)phenylamino)cyclohex-1-enyl)-3,3-dimethyl-10 -(4-(trifluoromethoxy)phenyl)-3,4,9,10-tetrahydroacridin-1(2H)-one (3ab):



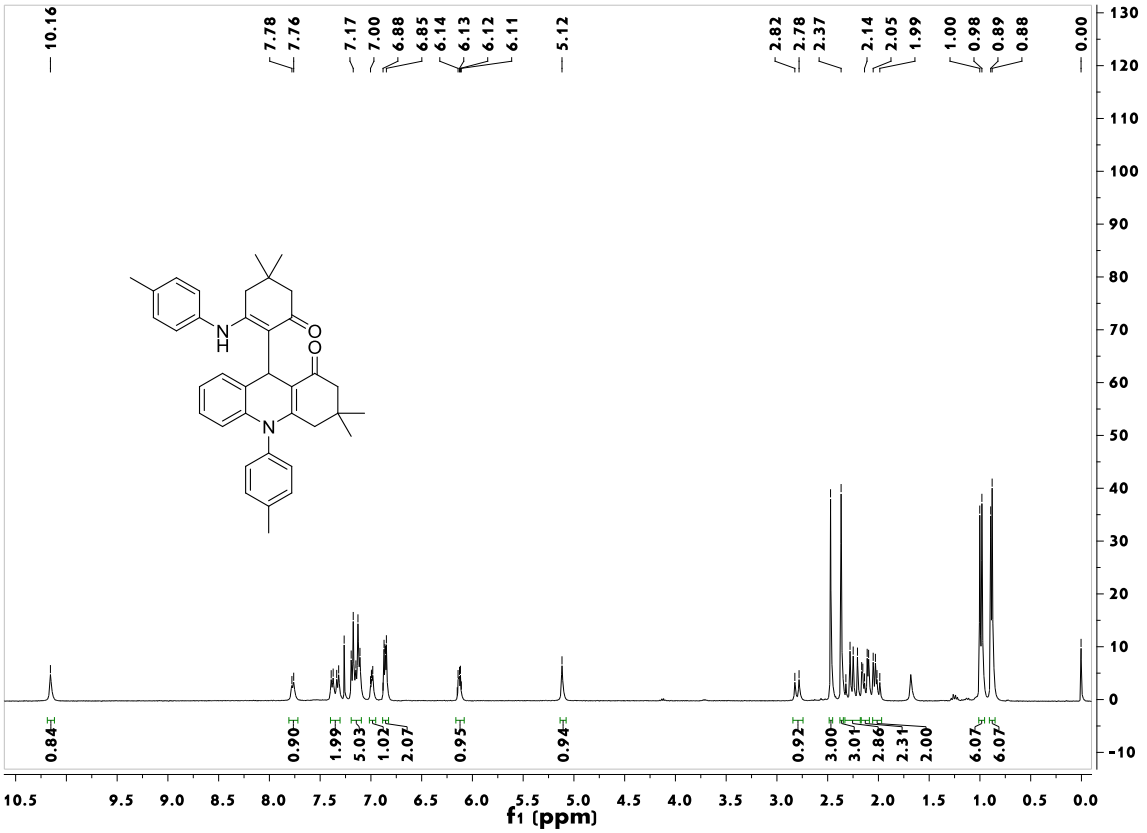


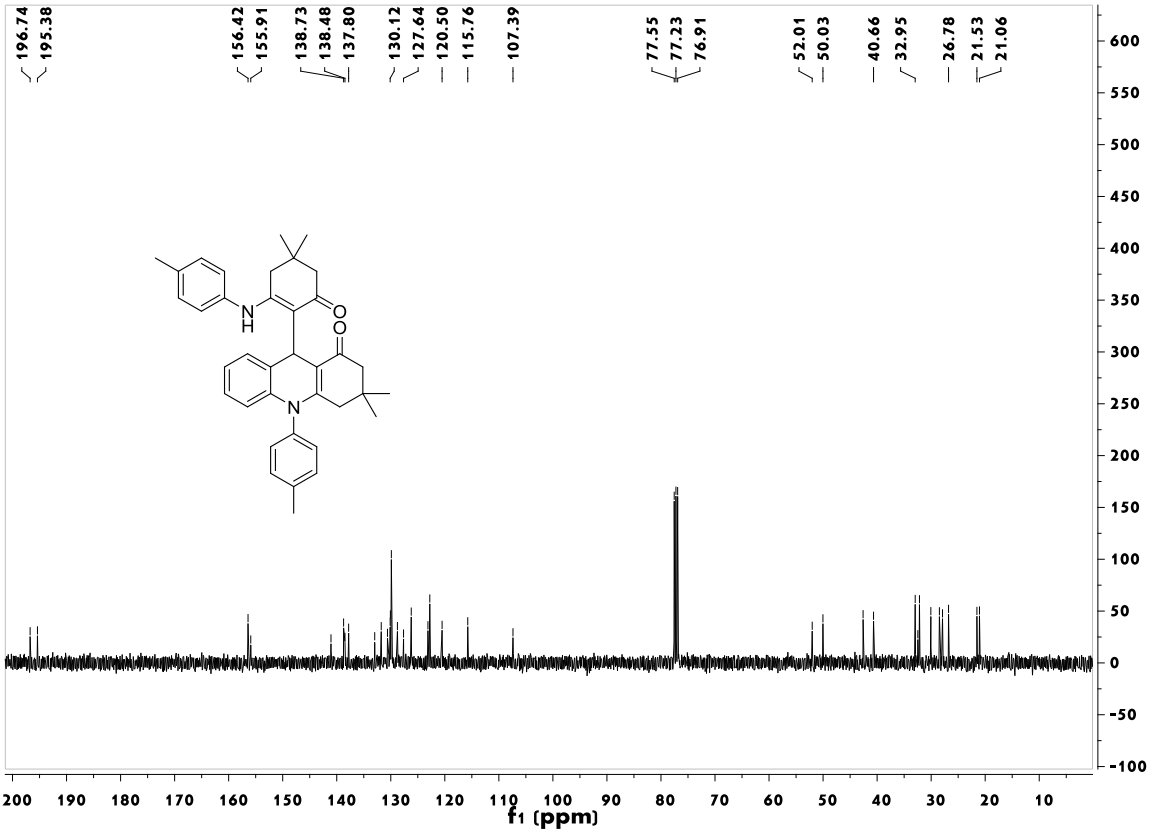
10-(benzo[*d*][1,3]dioxol-5-yl)-9-(2-(benzo[*d*][1,3]dioxol-5-ylamino)-4,4-dimethyl-6-oxocyclohe x-1-enyl)-3,3-dimethyl-3,4,9,10-tetrahydroacridin-1(2*H*)-one (3ac):.



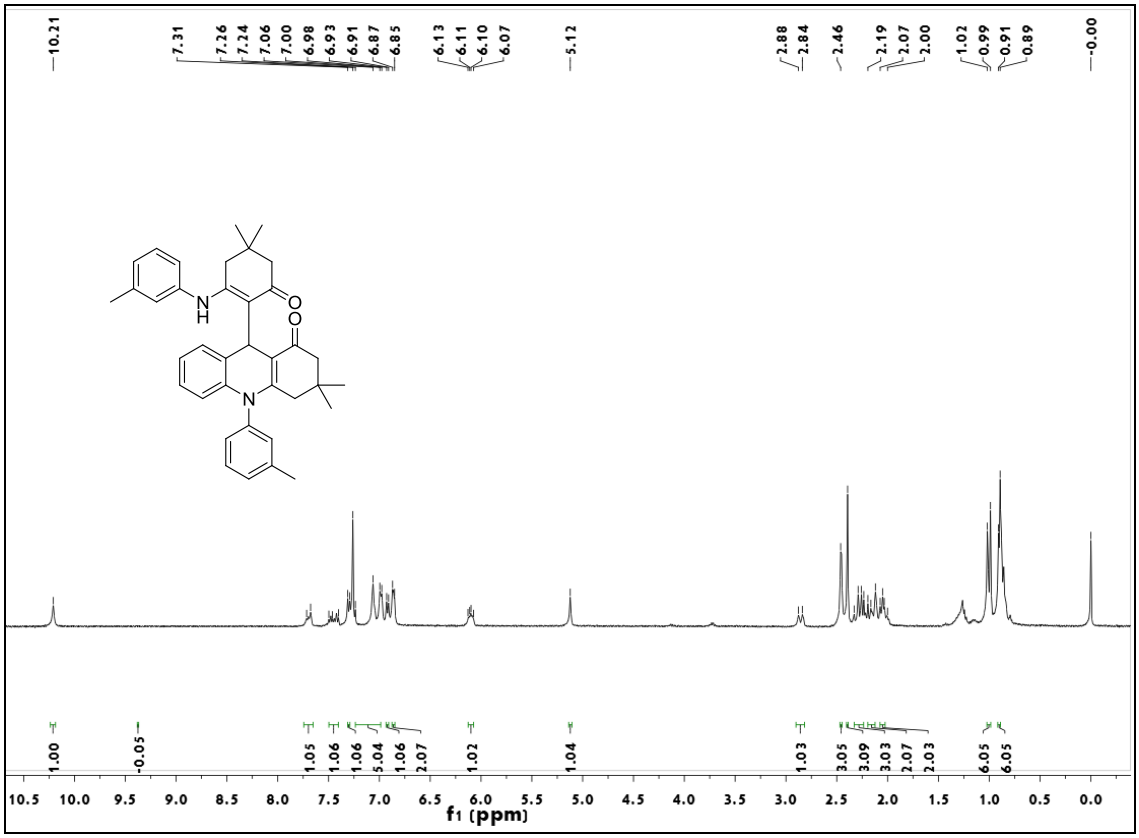


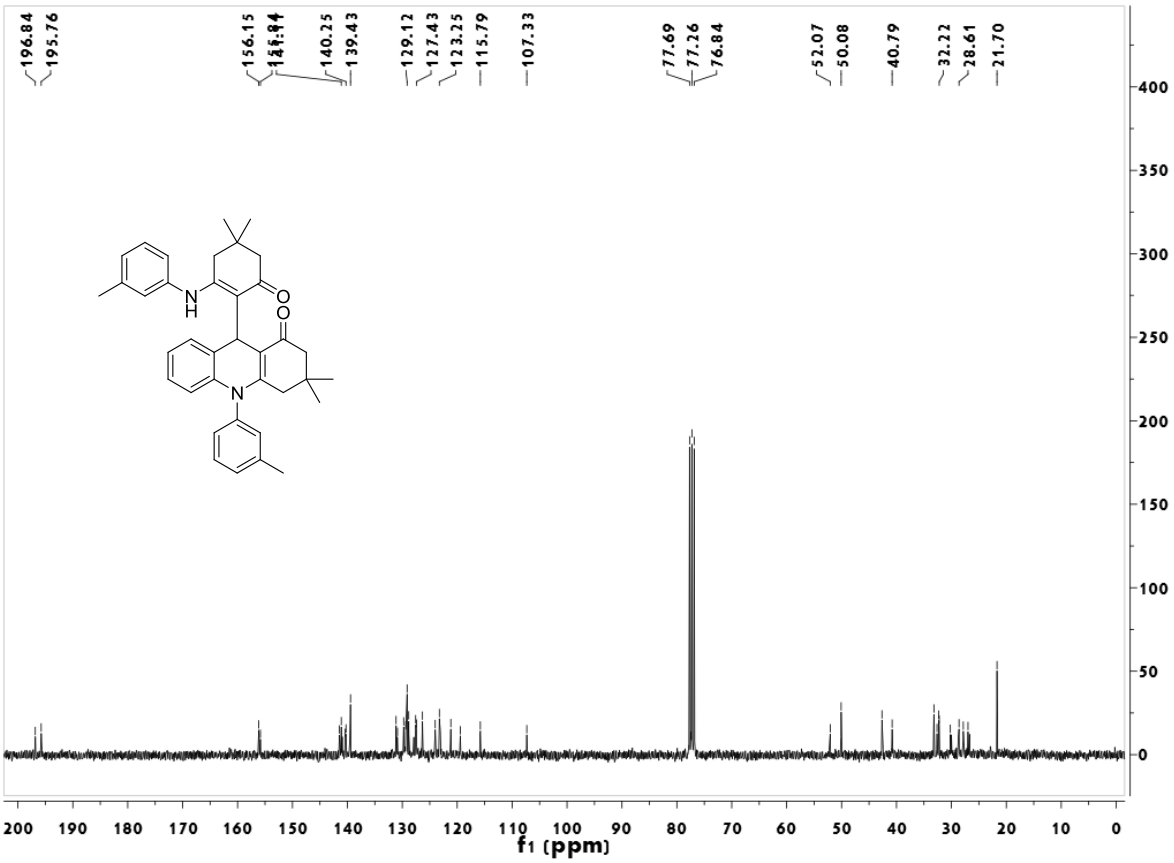
9-(4,4-dimethyl-6-oxo-2-(*p*-tolylamino)cyclohex-1-enyl)-3,3-dimethyl-10-*p*-tolyl-3,4,9,10-tetra hydroacridin-1(2*H*)-one (3ad):



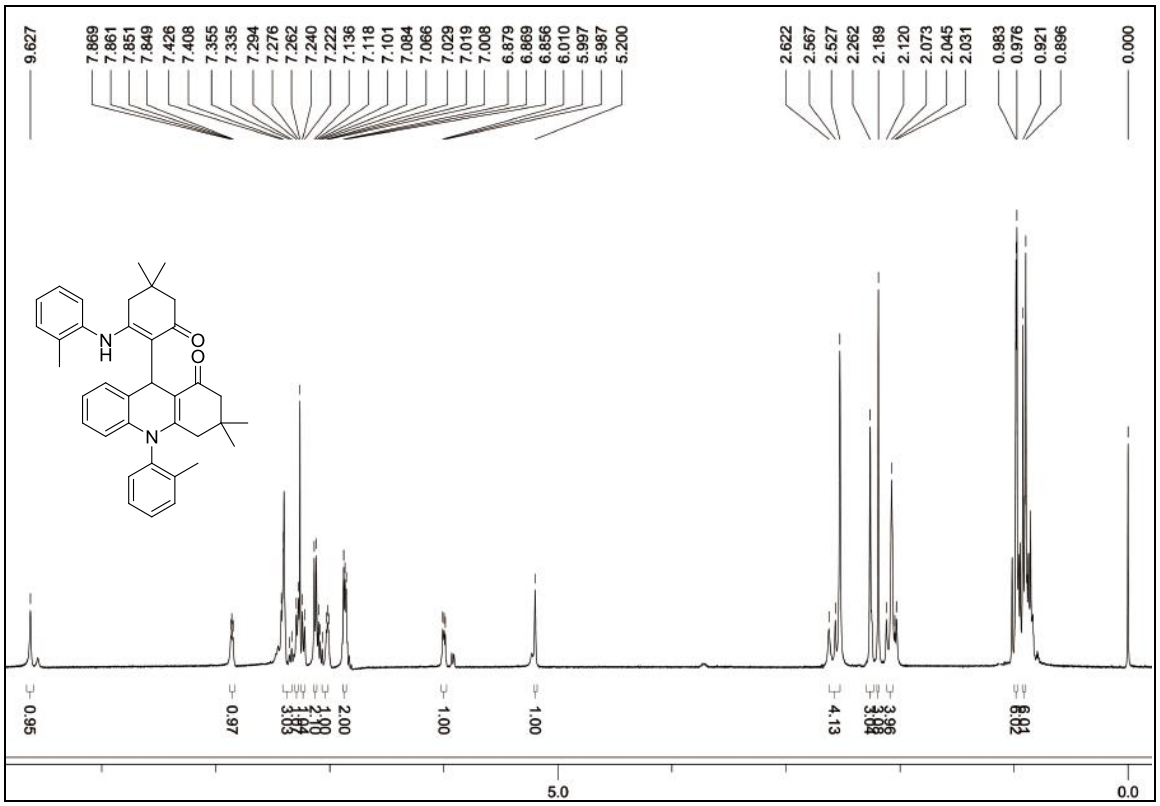


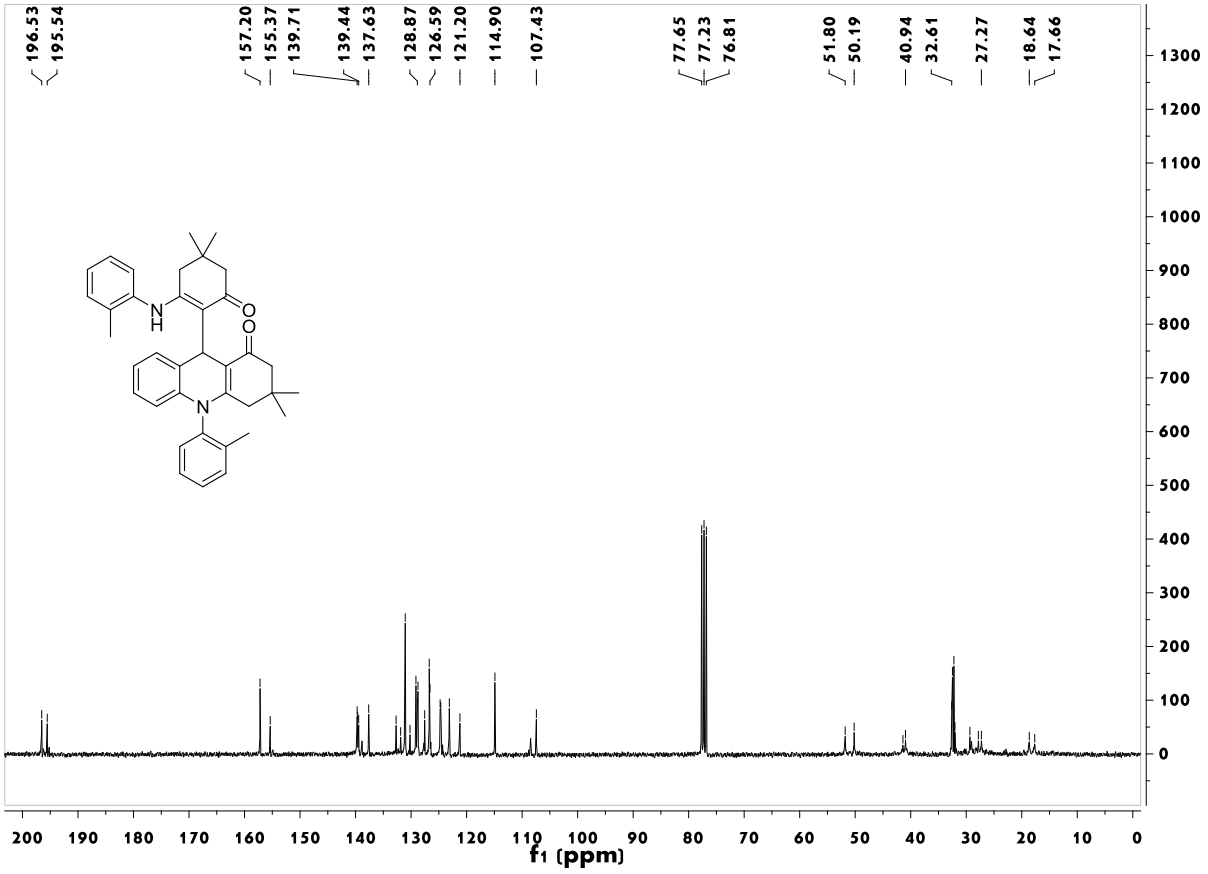
9-(4,4-dimethyl-6-oxo-2-(*m*-tolylamino)cyclohex-1-enyl)-3,3-dimethyl-10-*m*-tolyl-3,4,9,10-tetr ahydroacridin-1(2*H*)-one (3ae):





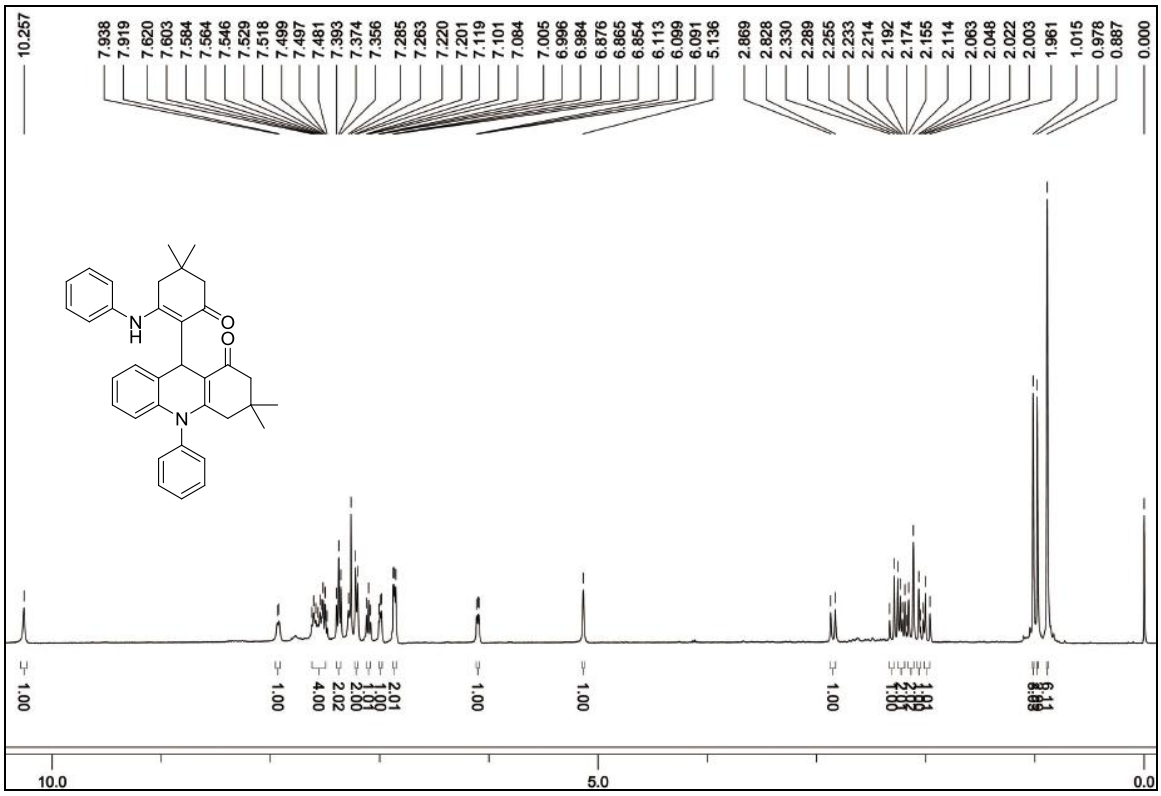
9-(4,4-dimethyl-6-oxo-2-(*o*-tolylamino)cyclohex-1-enyl)-3,3-dimethyl-10-*o*-tolyl-3,4,9,10-tetra hydroacridin-1(2*H*)-one (3af):

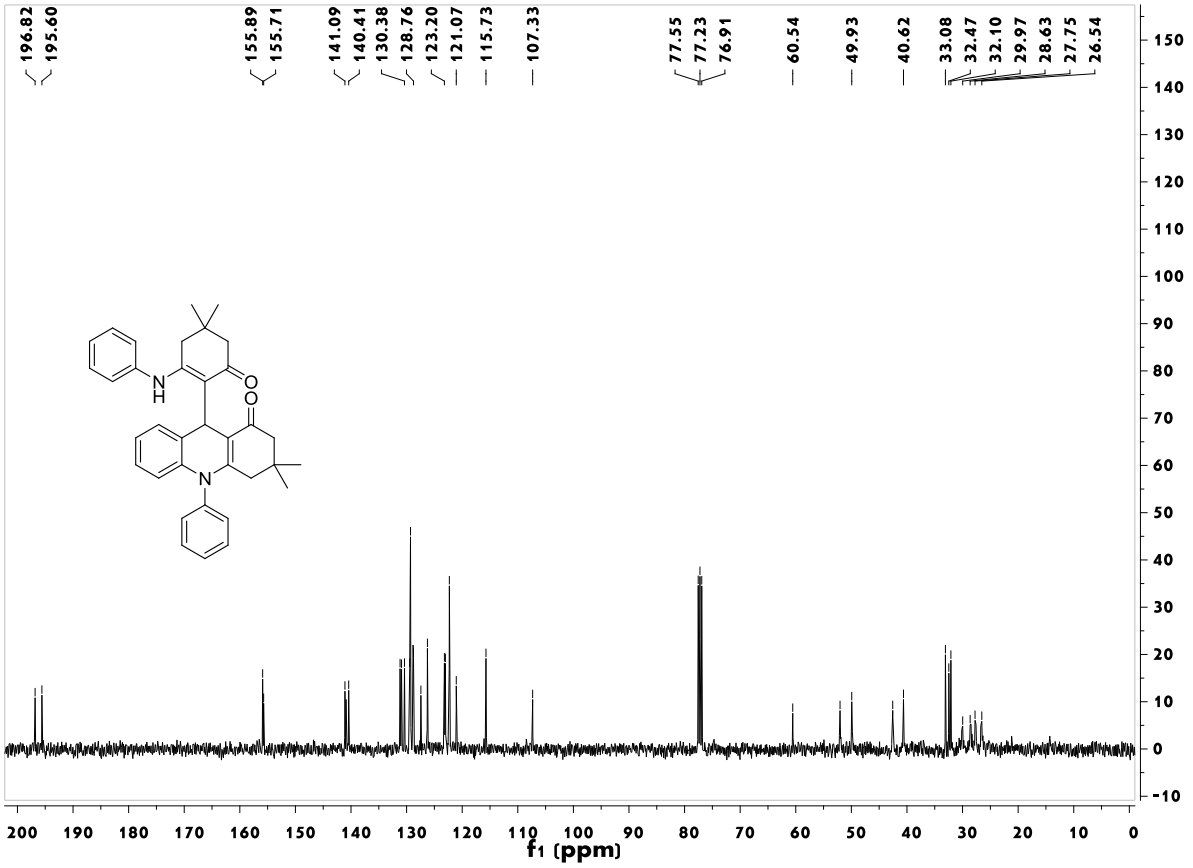




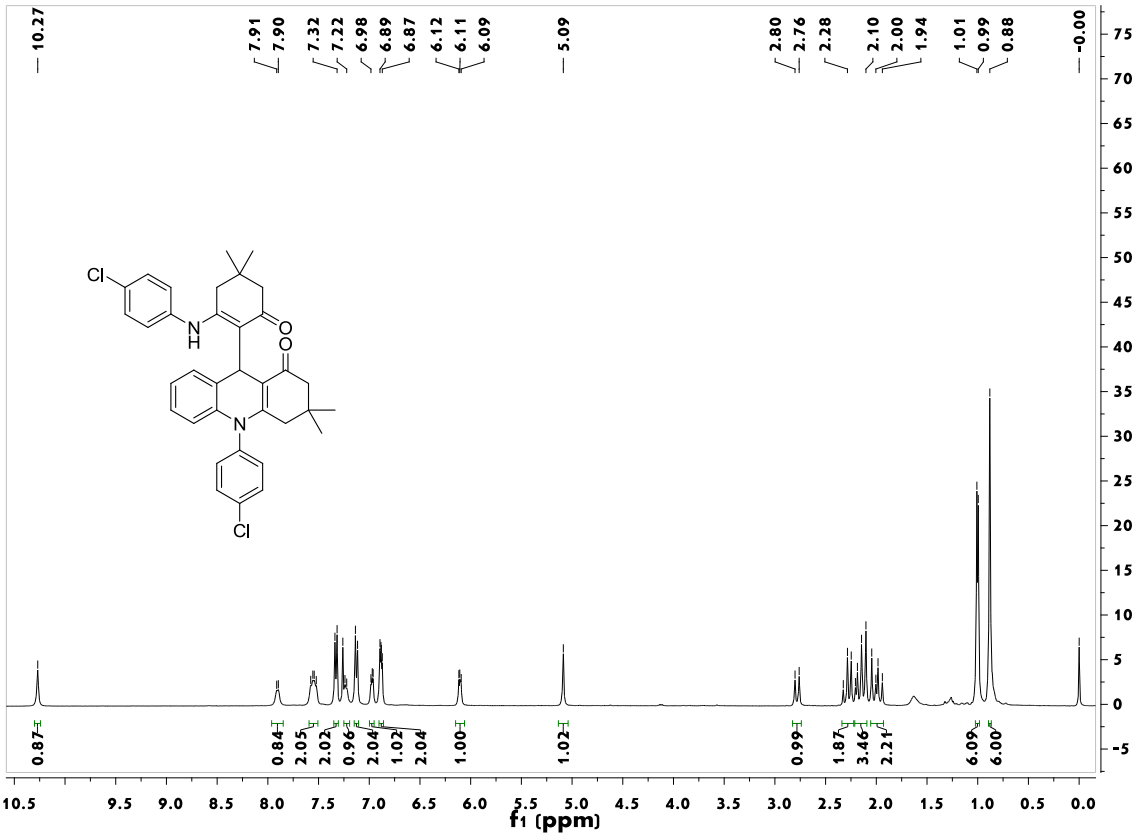
9-(4,4-dimethyl-6-oxo-2-(phenylamino)cyclohex-1-enyl)-3,3-dimethyl-10-phenyl-3,4,9,10-tetr

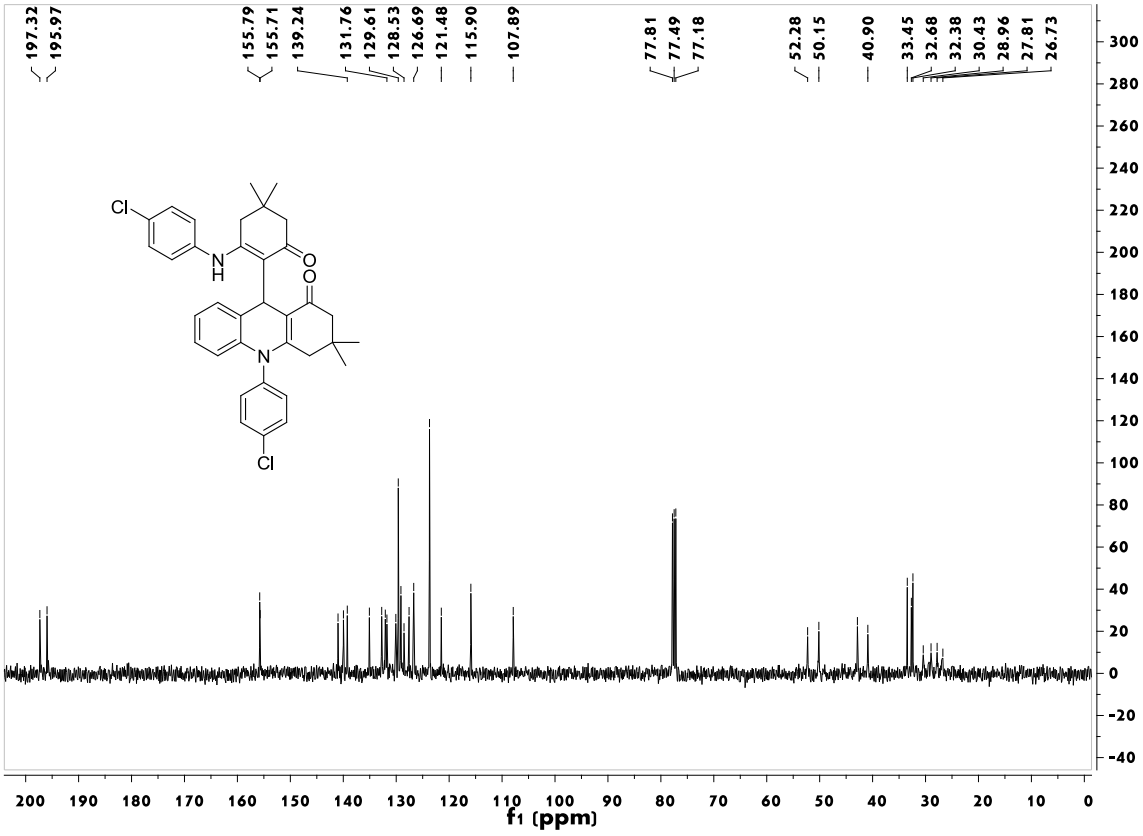
ahydroacridin-1(2*H*)-one (3ag):



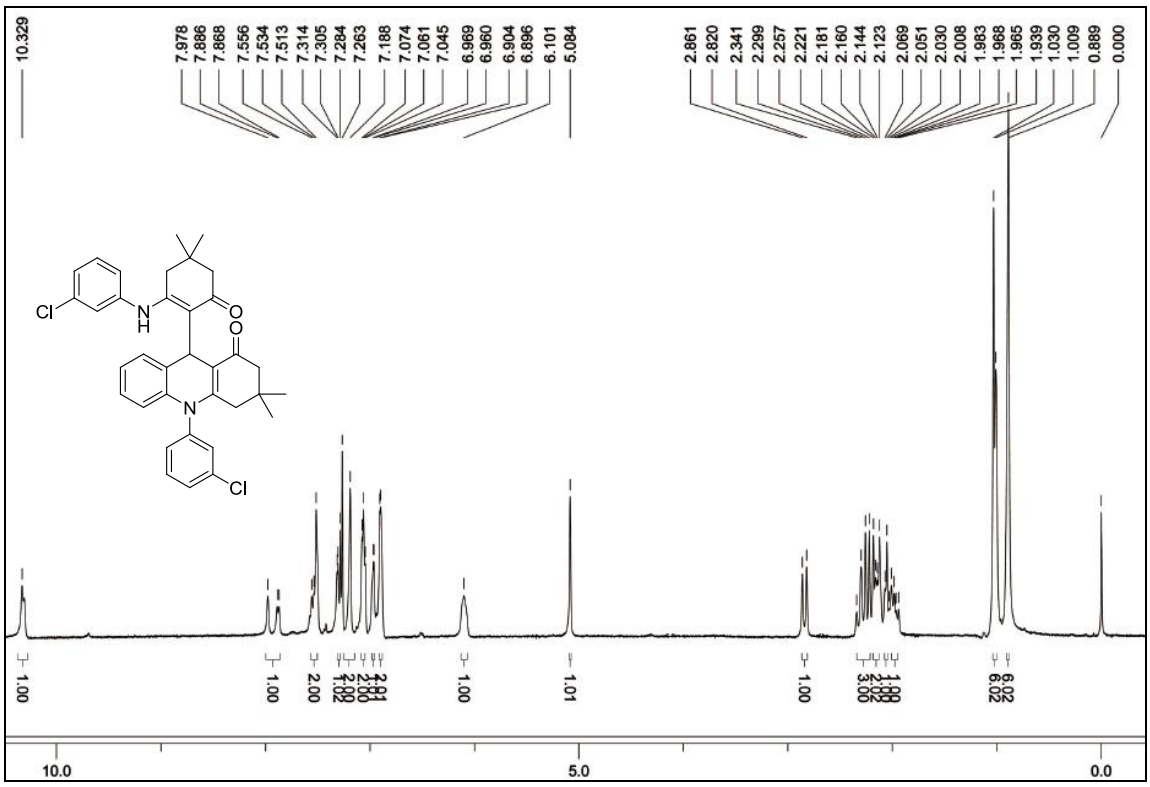


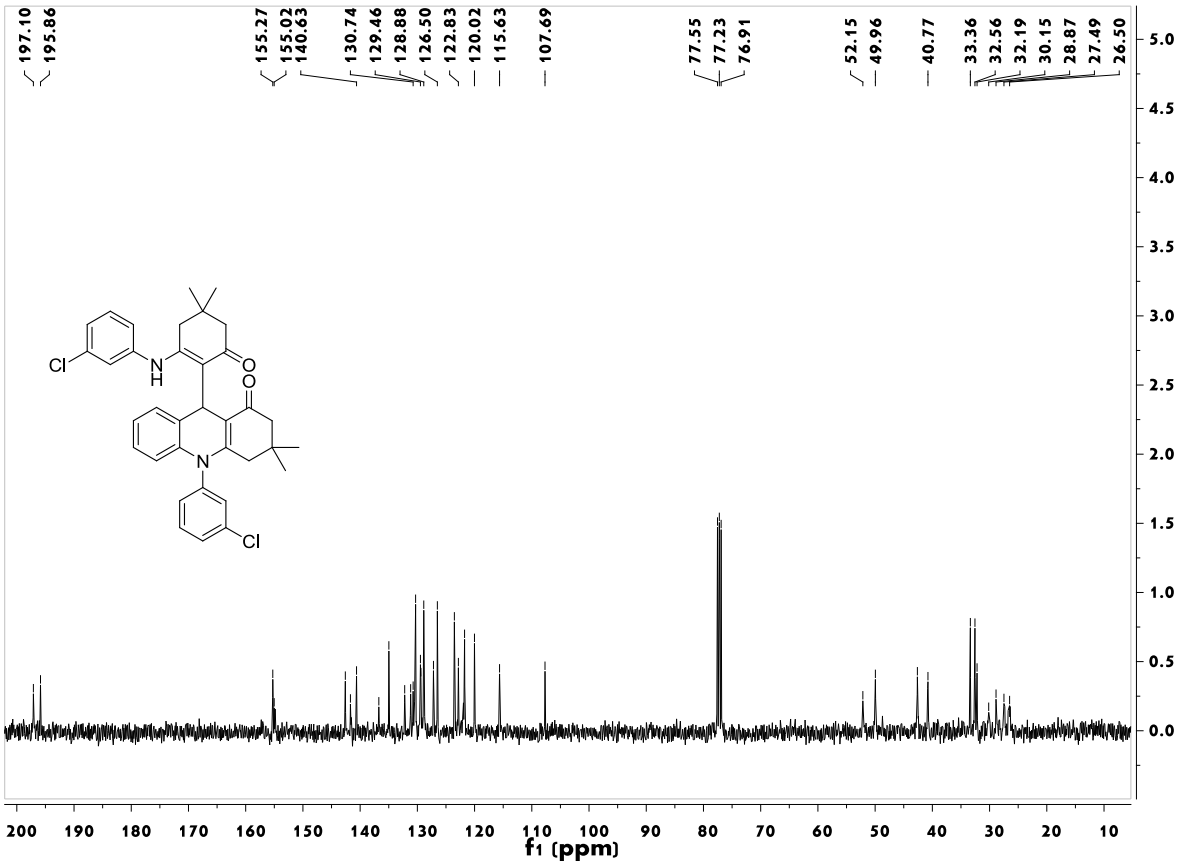
10-(4-chlorophenyl)-9-(2-(4-chlorophenylamino)-4,4-dimethyl-6-oxocyclohex-1-enyl)-3,3-dimethyl-3,4,9,10-tetrahydroacridin-1(2*H*)-one (3ah):



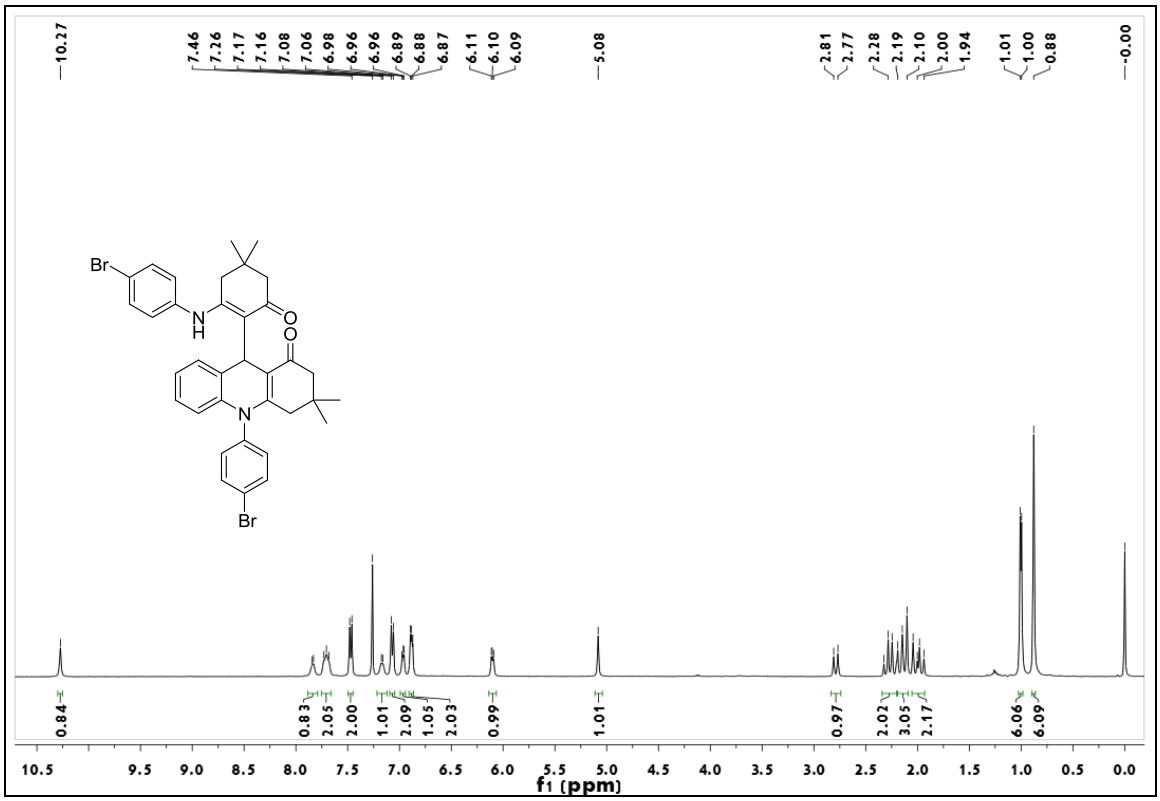


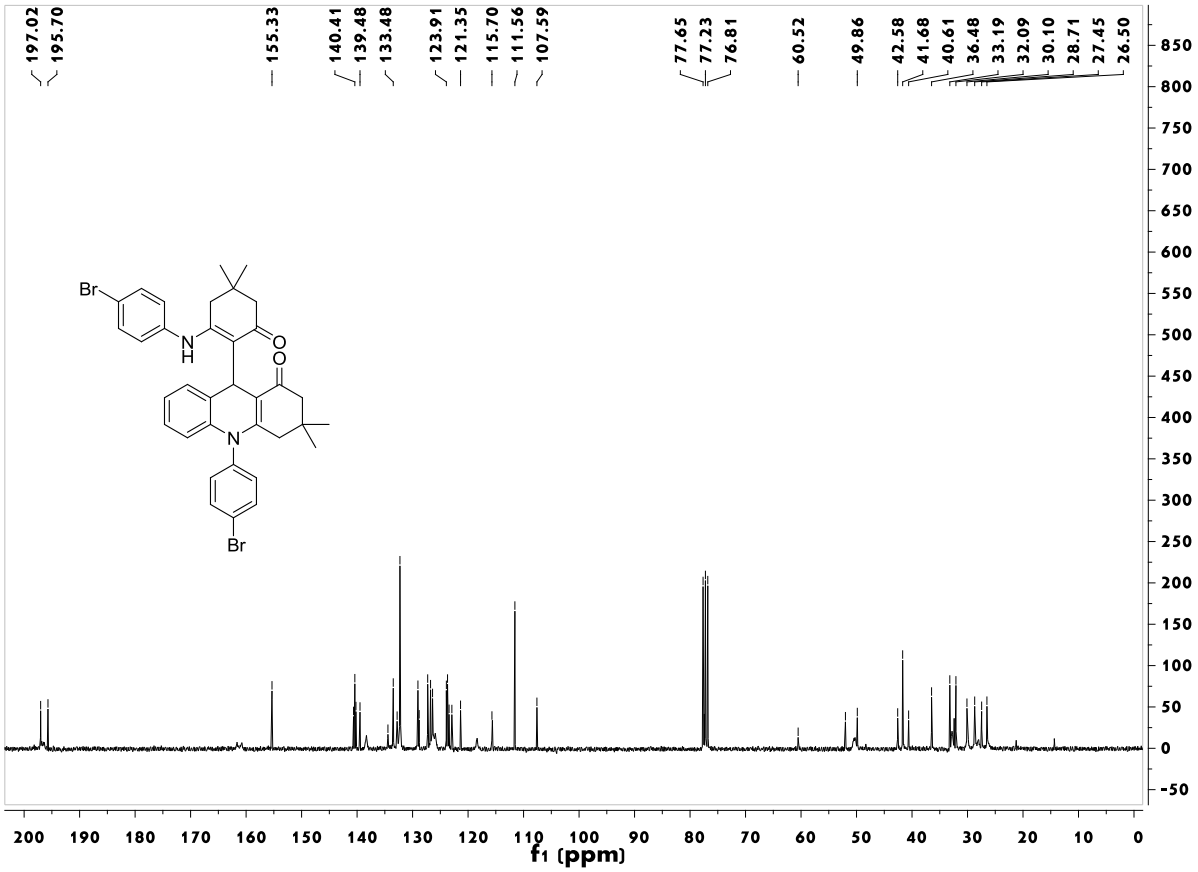
10-(3-chlorophenyl)-9-(2-(3-chlorophenylamino)-4,4-dimethyl-6-oxocyclohex-1-enyl)-3,3-dim ethyl-3,4,9,10-tetrahydroacridin-1(2*H*)-one (3ai):



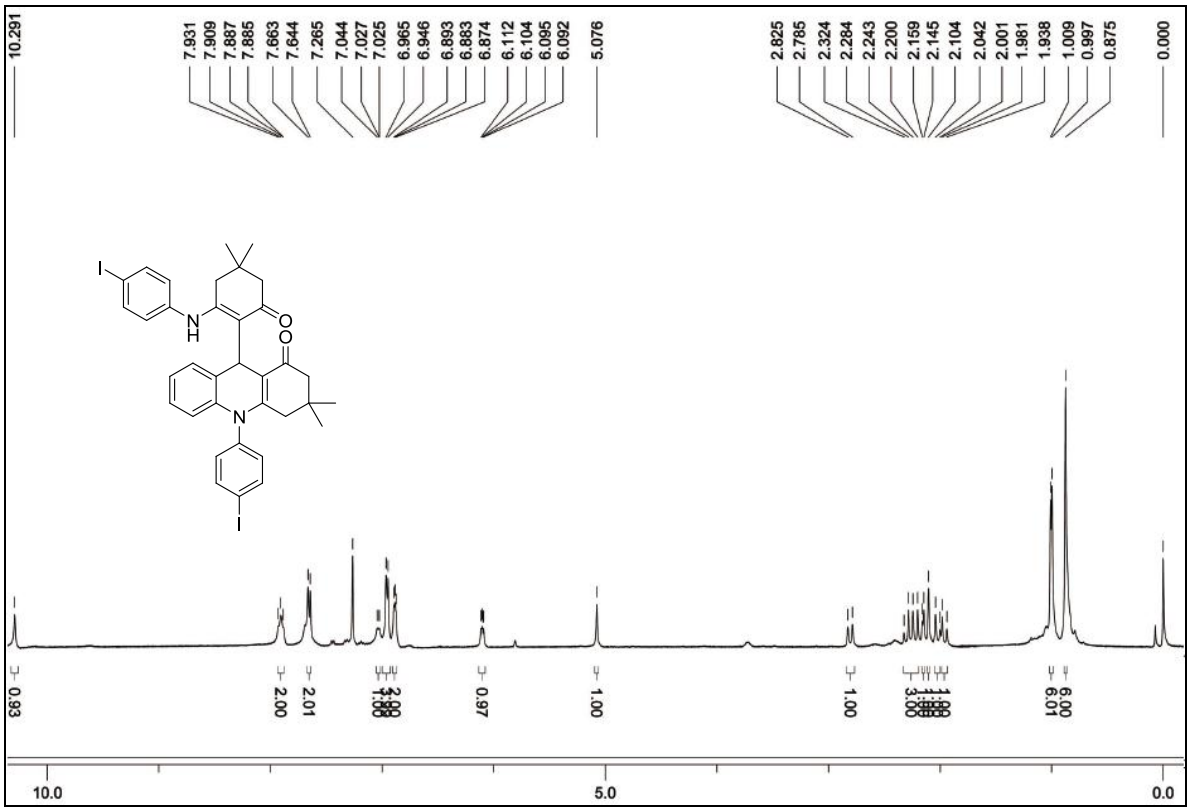


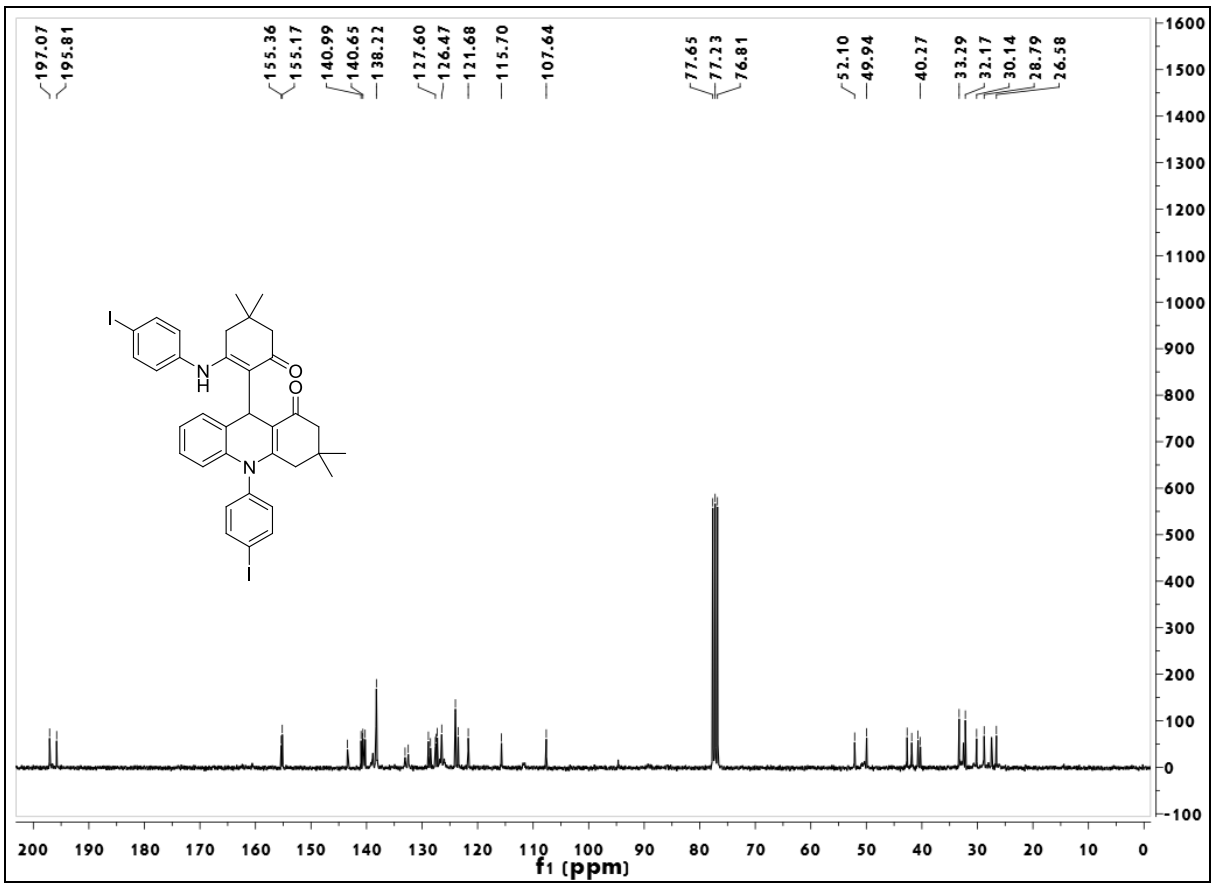
10-(4-bromophenyl)-9-(2-(4-bromophenylamino)-4,4-dimethyl-6-oxocyclohex-1-enyl)-3,3-di methyl-3,4,9,10-tetrahydroacridin-1(2*H*)-one (3aj):



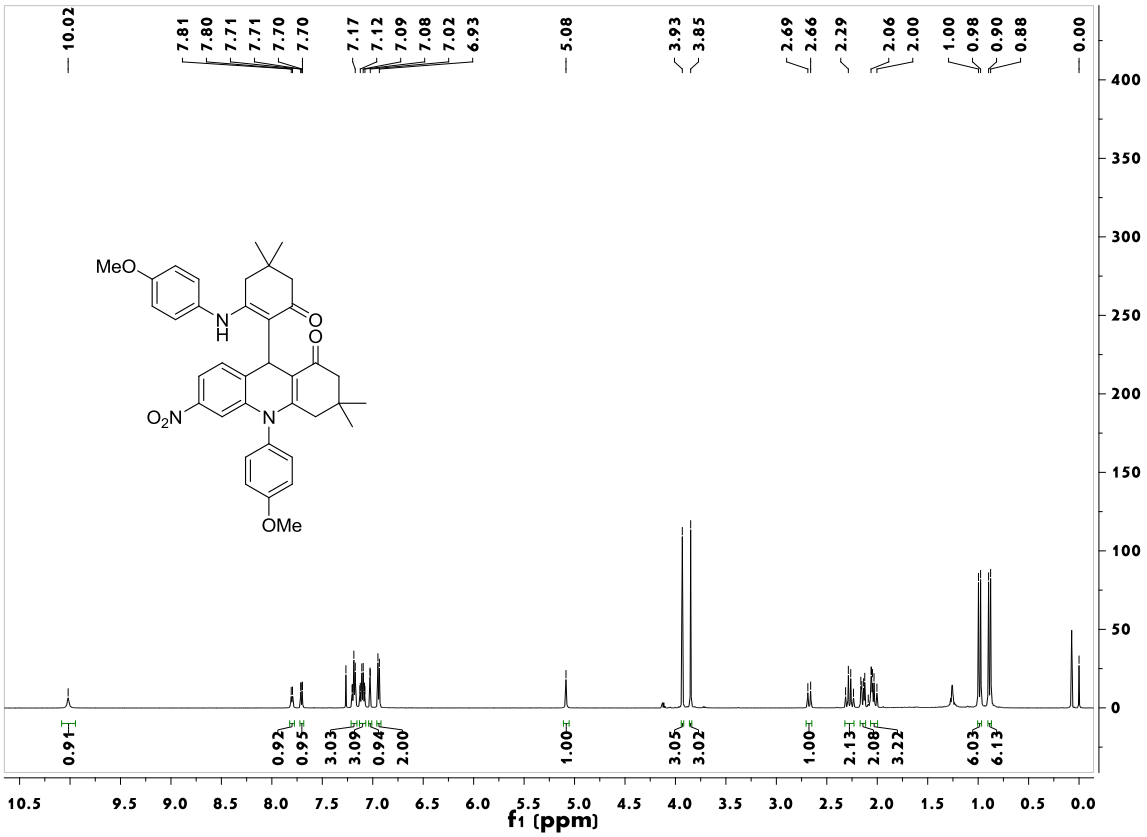


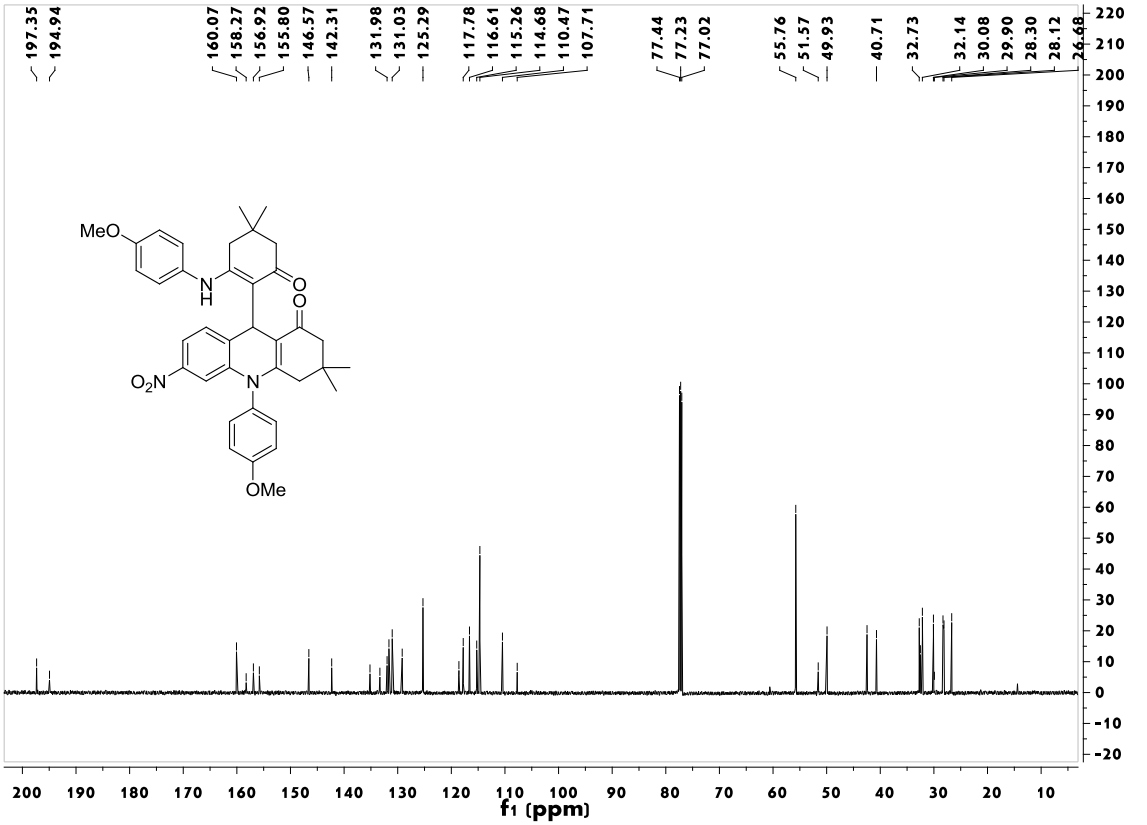
10-(4-iodophenyl)-9-(2-(4-iodophenylamino)-4,4-dimethyl-6-oxocyclohex-1-enyl)-3,3-dimethyl-3,4,9,10-tetrahydroacridin-1(2*H*)-one (3ak):



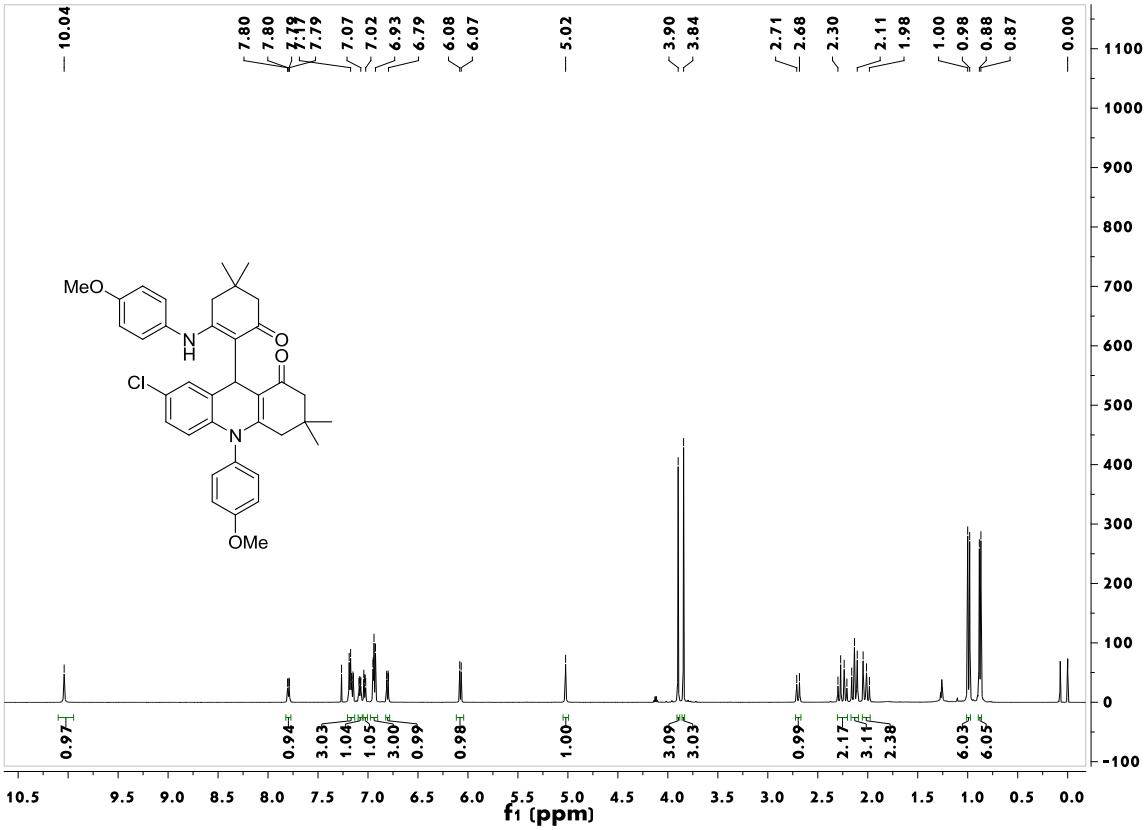


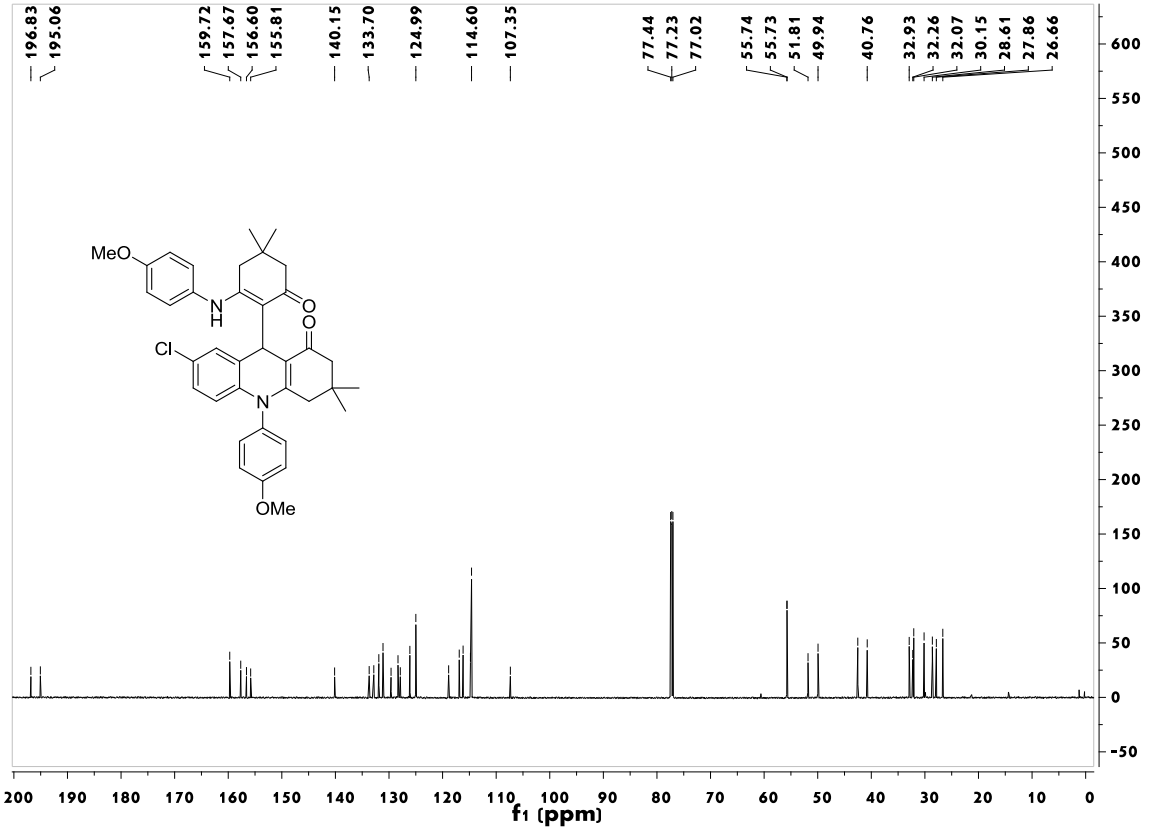
10-(4-methoxyphenyl)-9-(2-(4-methoxyphenylamino)-4,4-dimethyl-6-oxocyclohex-1-enyl)-3,3-dimethyl-6-nitro-3,4,9,10-tetrahydroacridin-1(2*H*)-one (3ba):



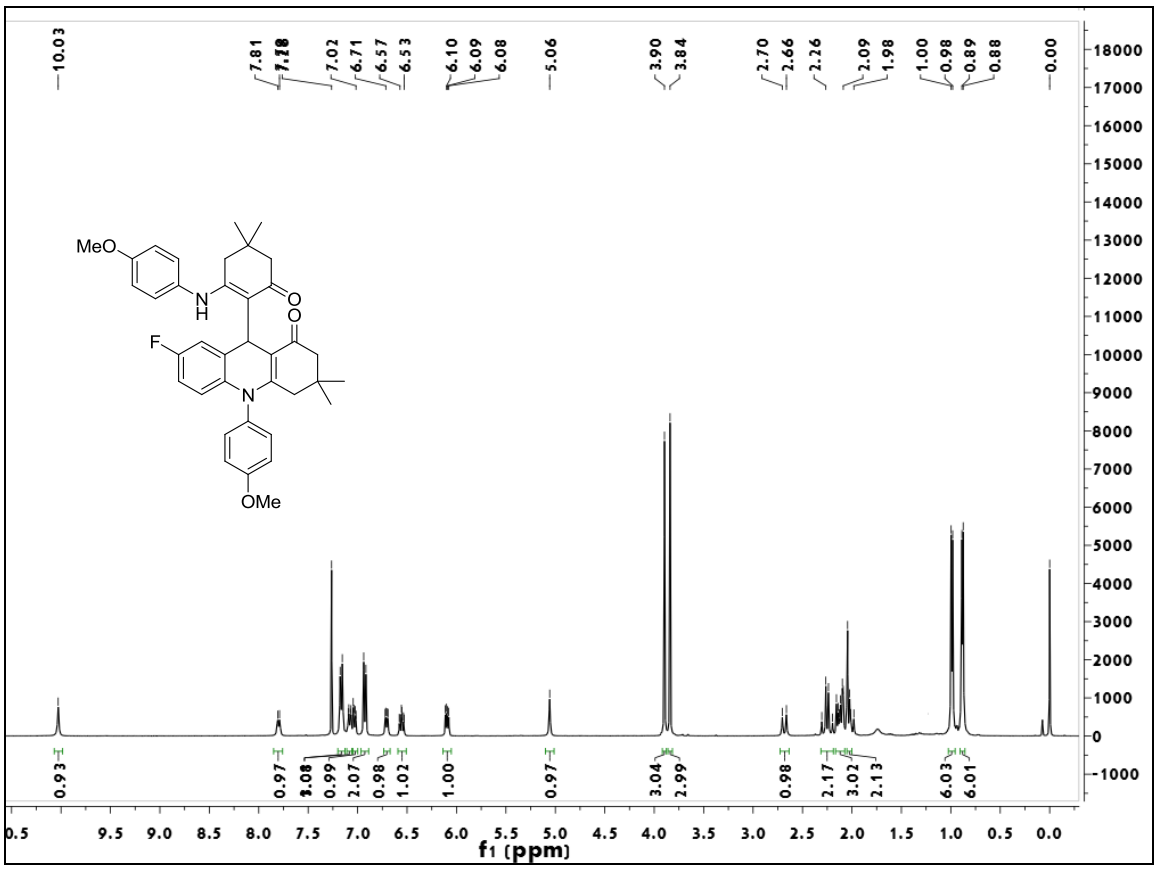


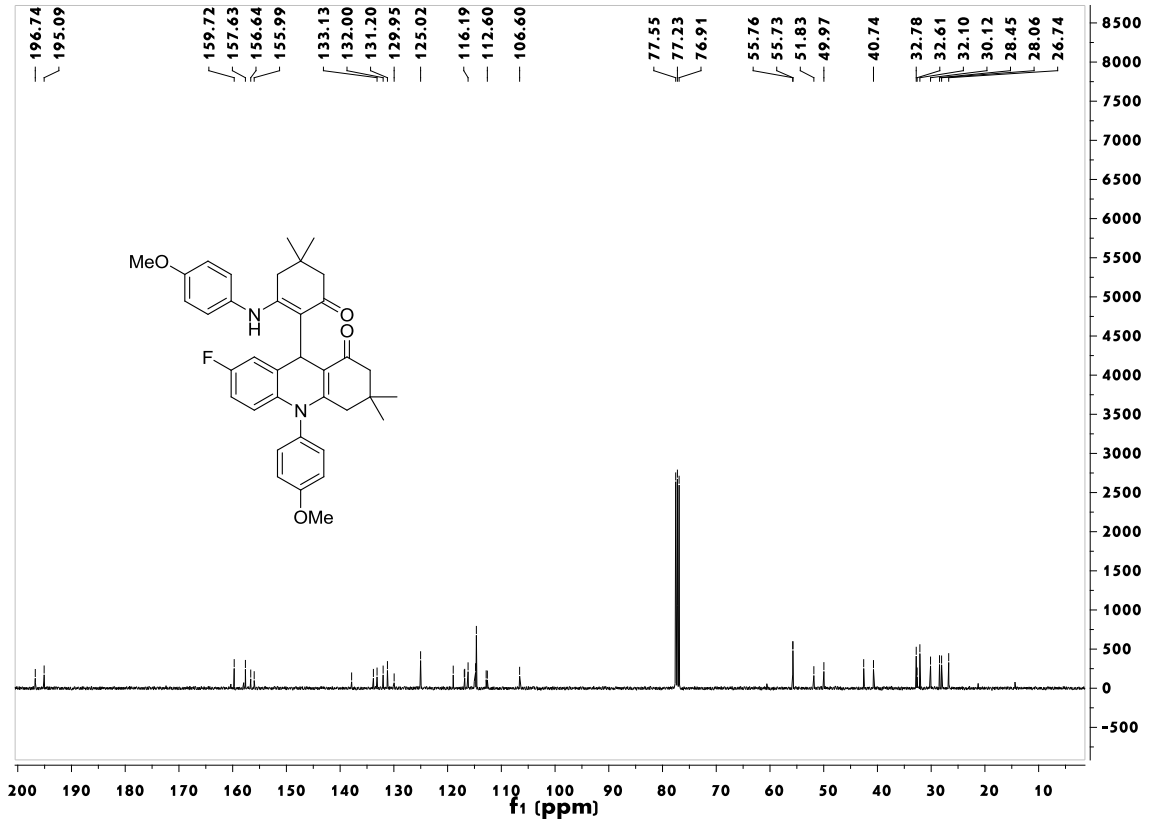
7-chloro-10-(4-methoxyphenyl)-9-(2-(4-methoxyphenylamino)-4,4-dimethyl-6-oxocyclohex-1-enyl)-3,3-dimethyl-3,4,9,10-tetrahydroacridin-1(2*H*)-one (3ca):



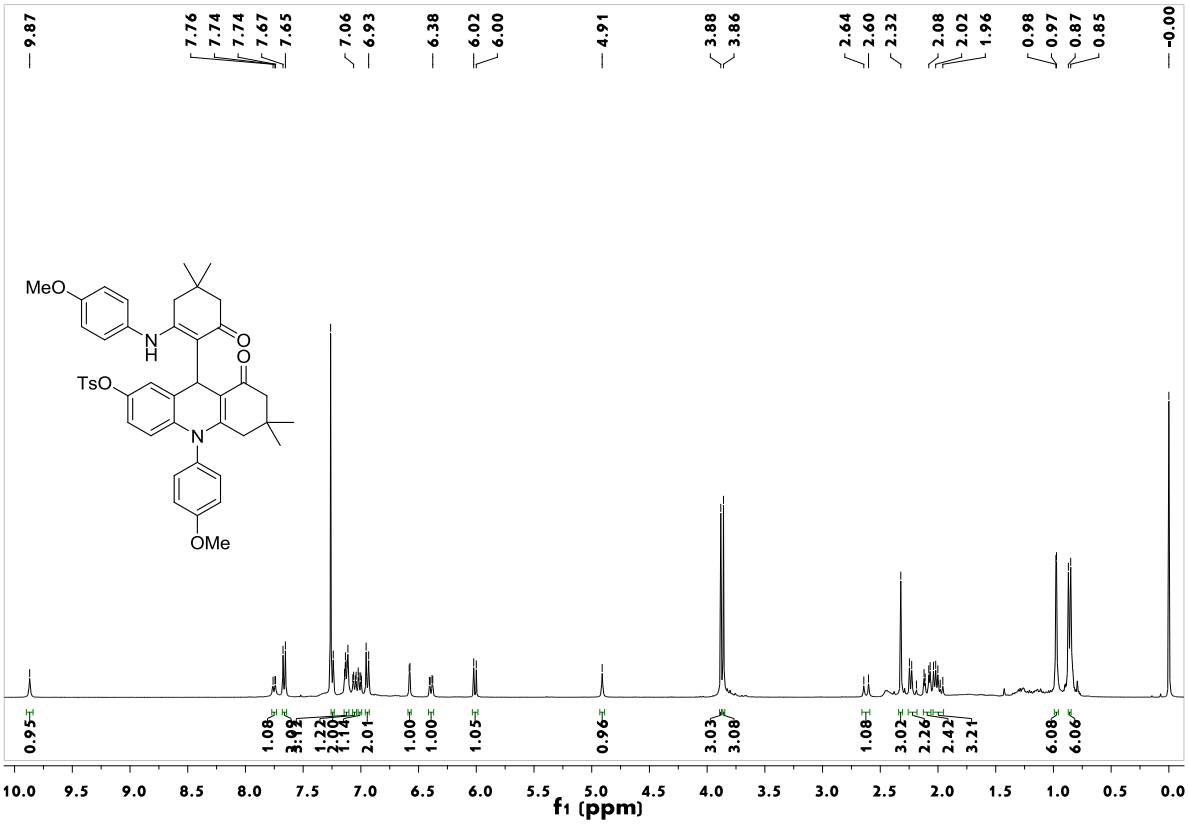


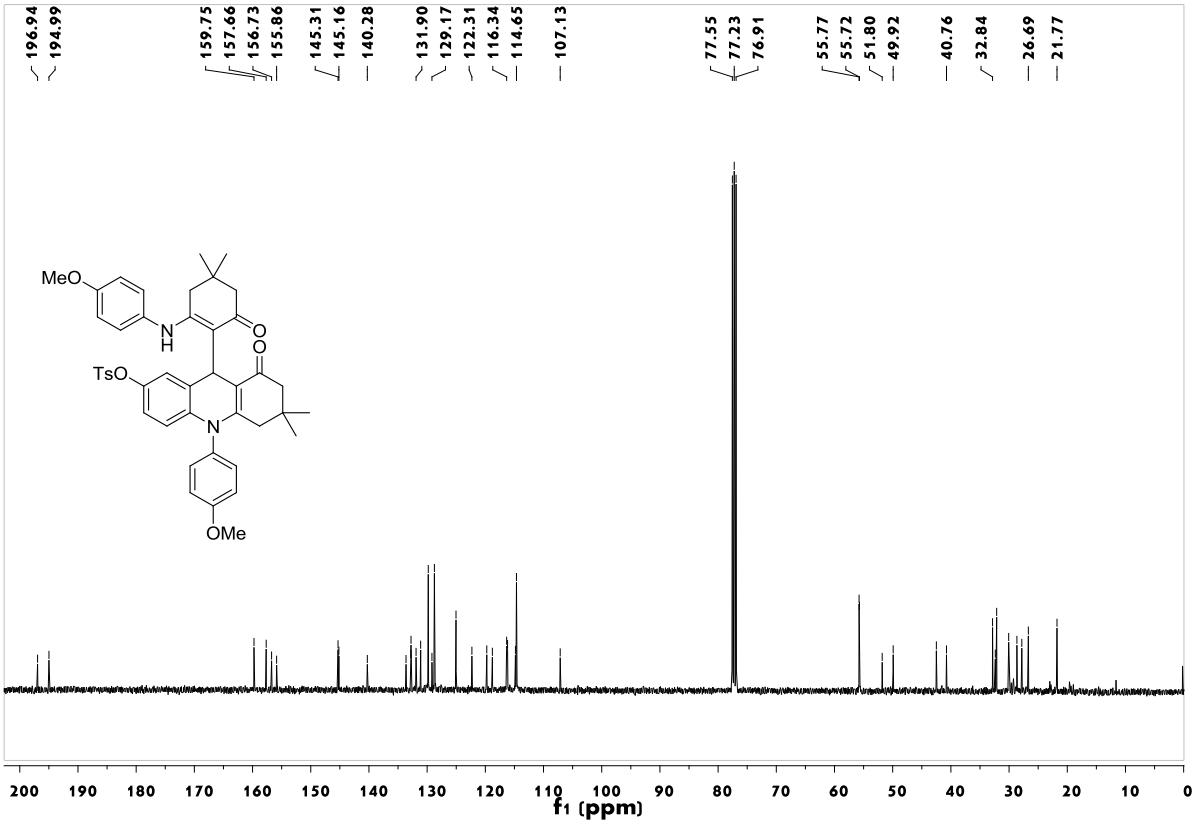
7-fluoro-10-(4-methoxyphenyl)-9-(2-(4-methoxyphenylamino)-4,4-dimethyl-6-oxocyclohex-1-enyl)-3,3-dimethyl-3,4,9,10-tetrahydroacridin-1(2*H*)-one (3da):



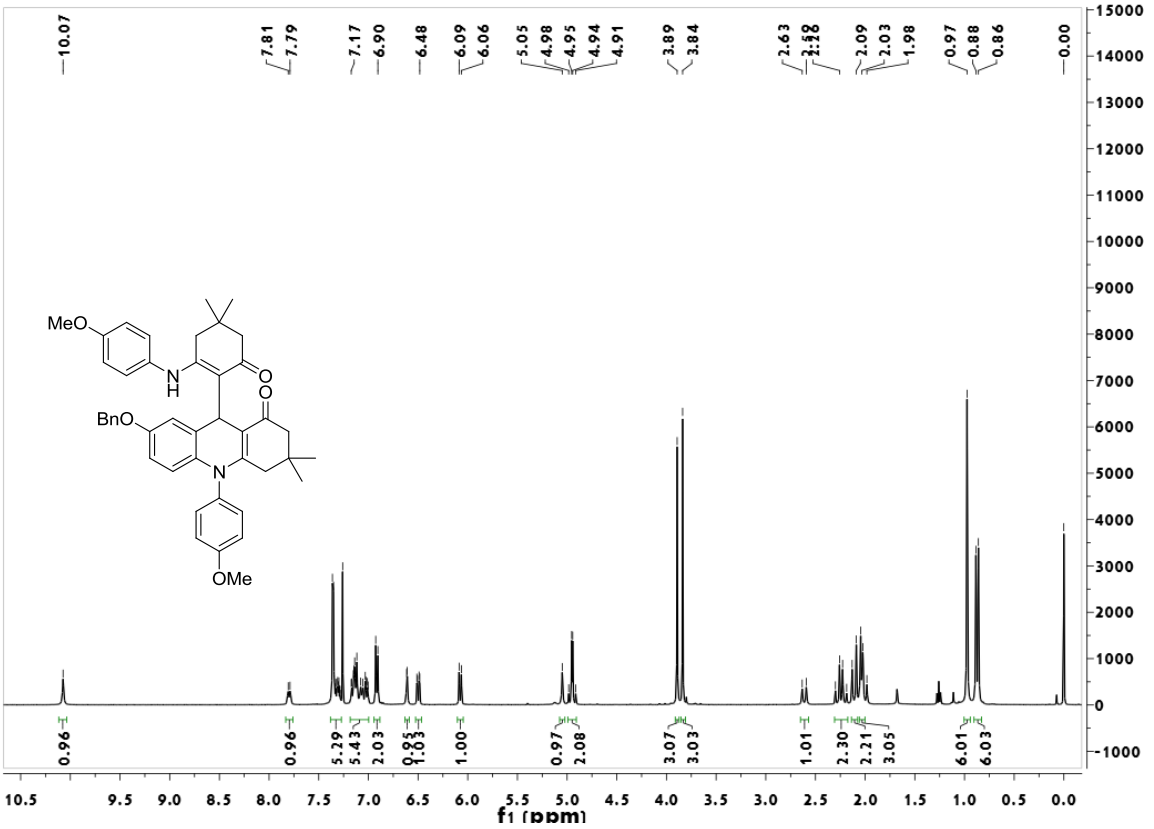


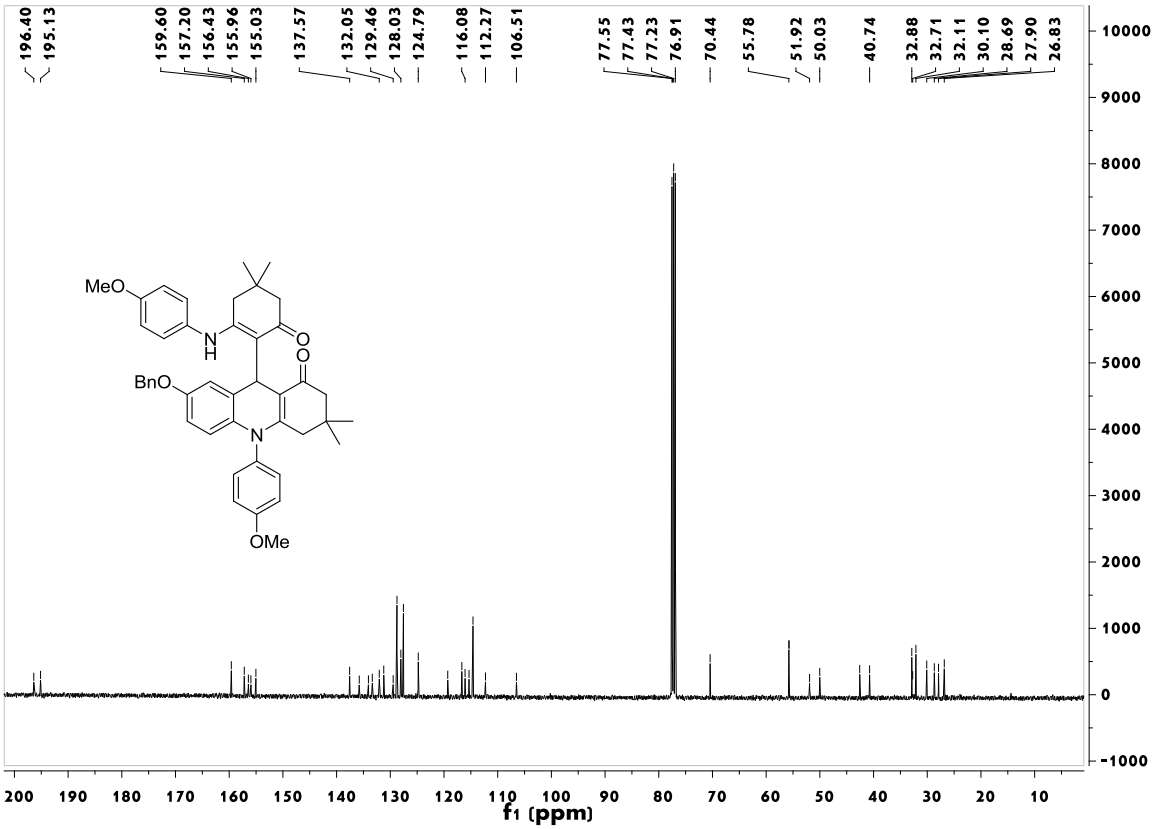
10-(4-methoxyphenyl)-9-(2-(4-methoxyphenylamino)-4,4-dimethyl-6-oxocyclohex-1-enyl)-6,6-dimethyl-8-oxo-5,6,7,8,9,10-hexahydroacridin-2-yl 4-methylbenzenesulfonate (3ea):



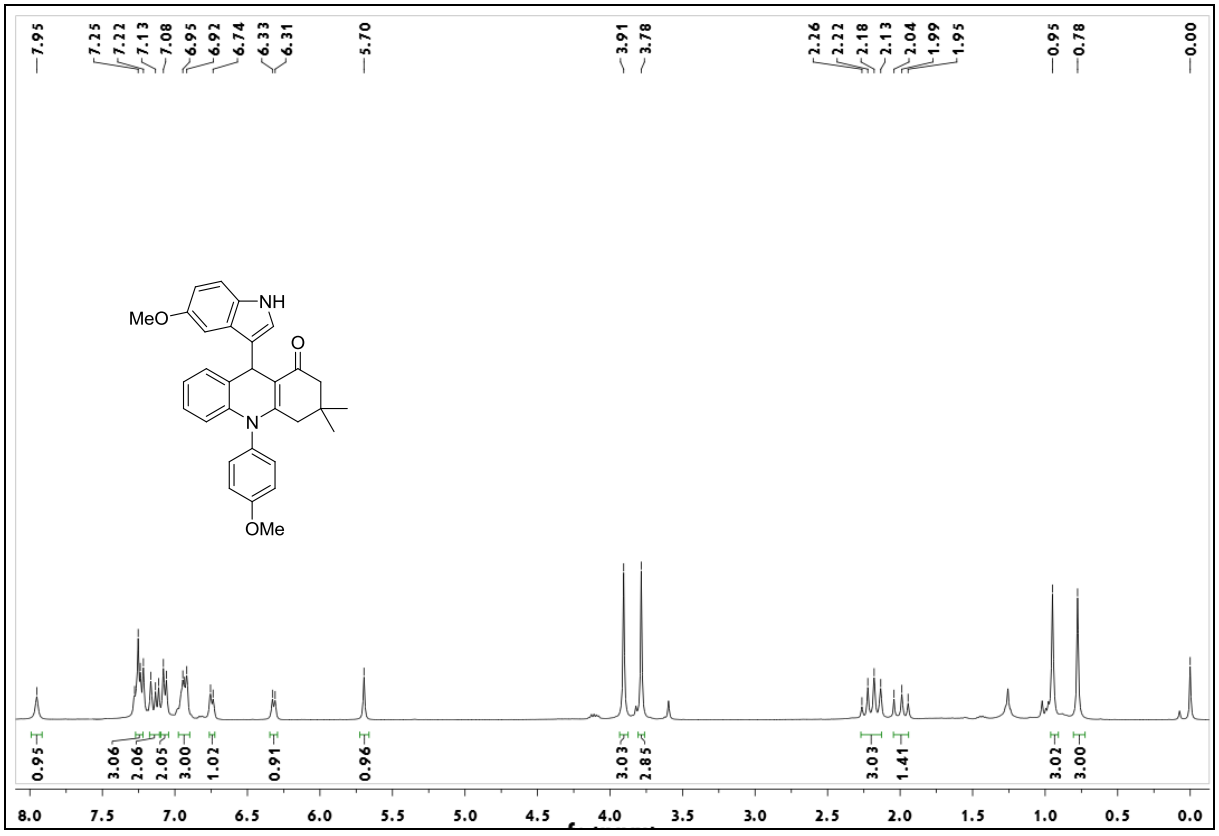


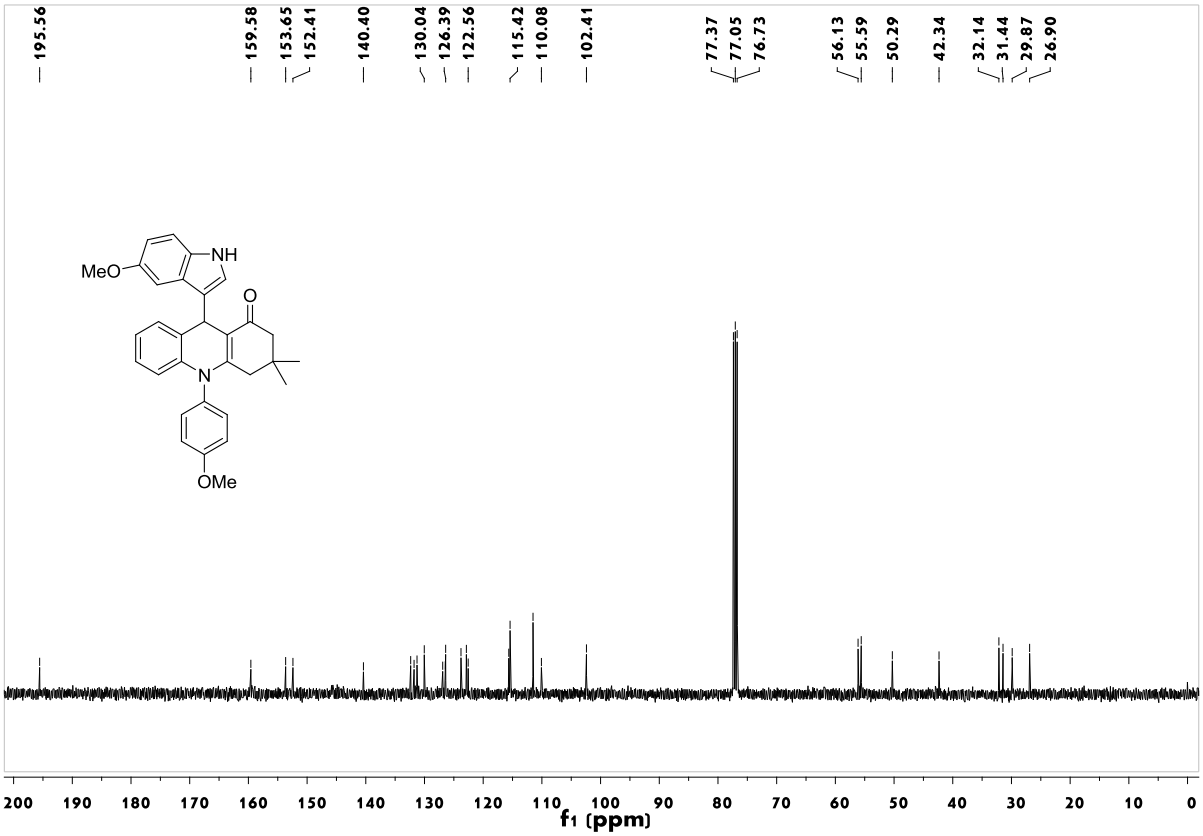
7-(benzyloxy)-10-(4-methoxyphenyl)-9-(2-(4-methoxyphenylamino)-4,4-dimethyl-6-oxocyclo hex-1-enyl)-3,3-dimethyl-3,4,9,10-tetrahydroacridin-1(2*H*)-one (2fa):



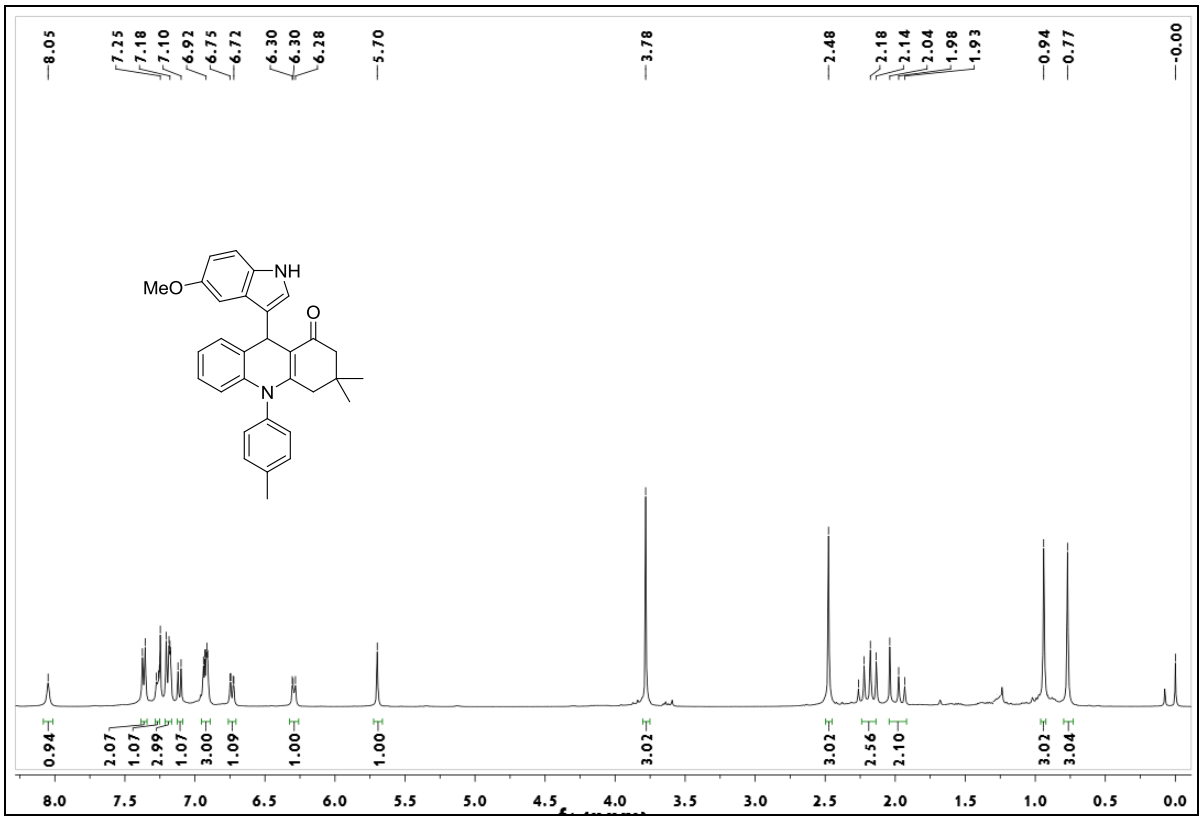


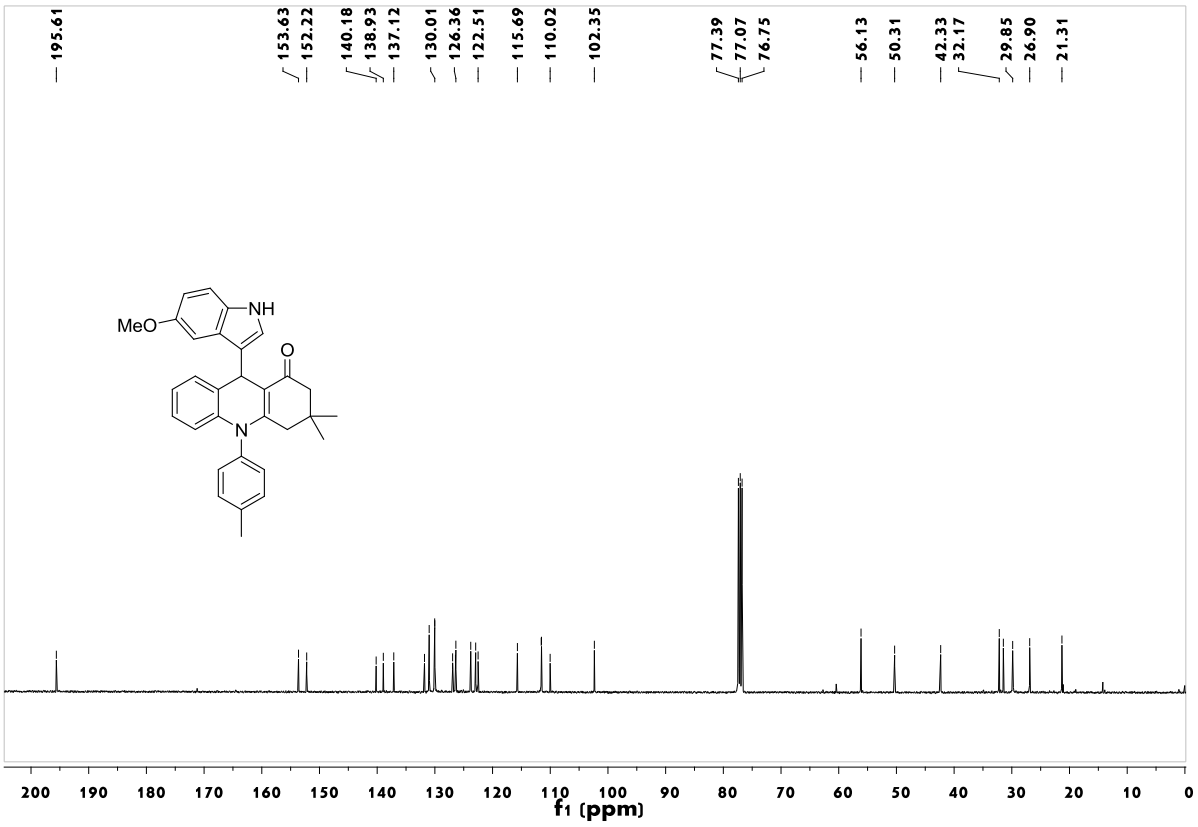
9-(5-methoxy-1*H*-indol-3-yl)-10-(4-methoxyphenyl)-3,3-dimethyl-3,4,9,10-tetrahydroacridin-1(2*H*)-one(5a):



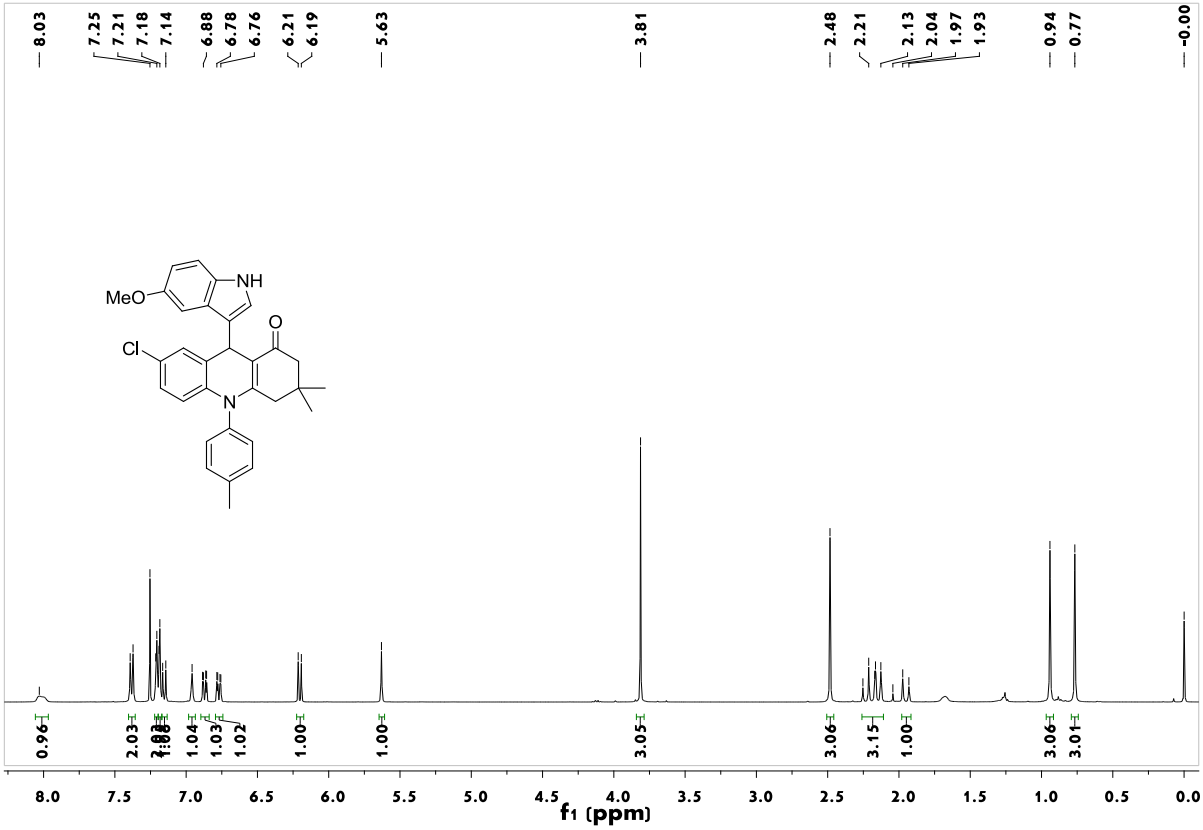


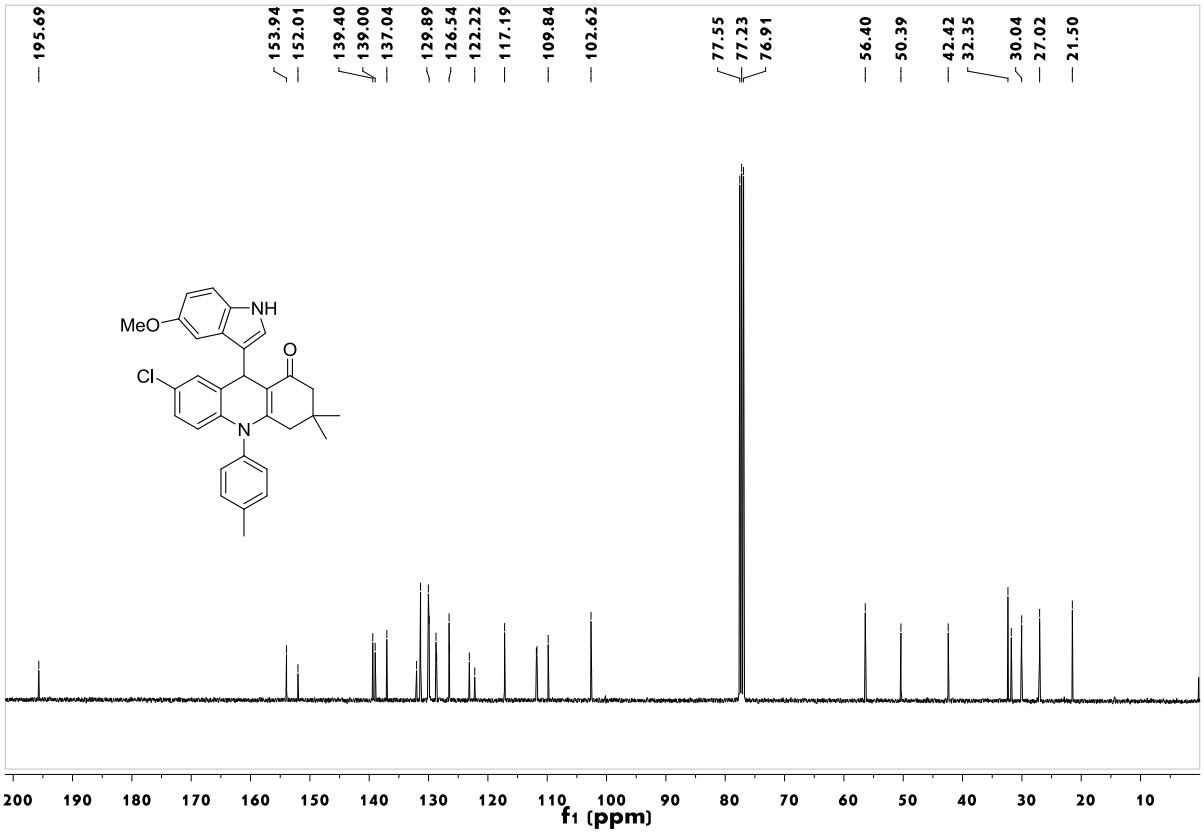
9-(5-methoxy-1*H*-indol-3-yl)-3,3-dimethyl-10-p-tolyl-3,4,9,10-tetrahydroacridin-1(2*H*)-one (5b):



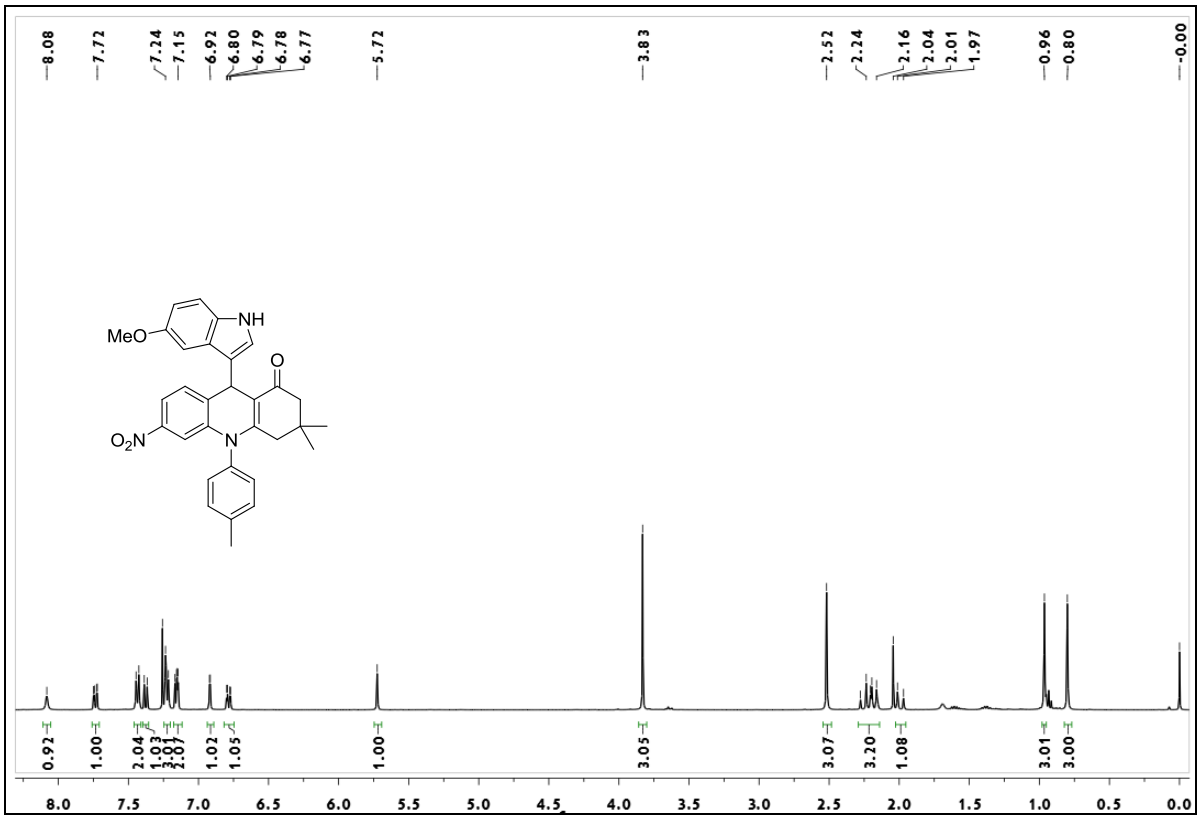


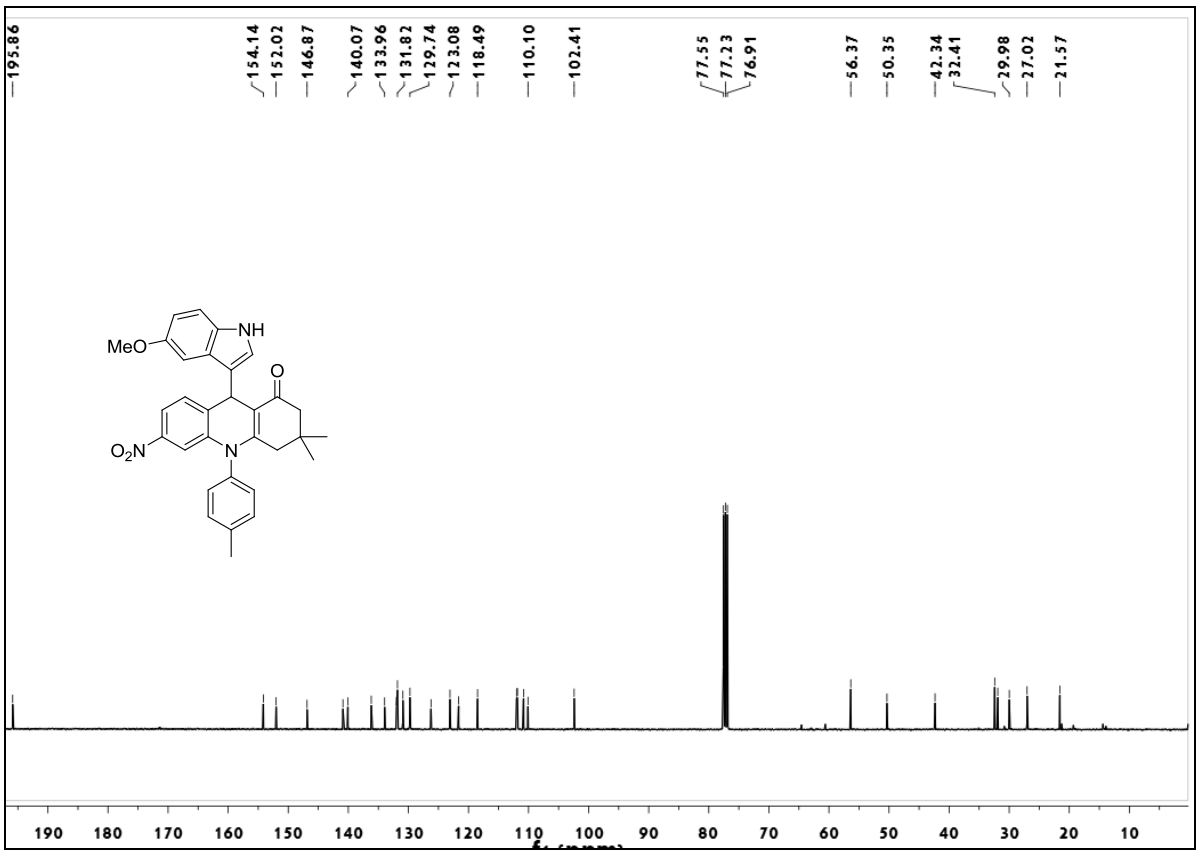
7-chloro-9-(5-methoxy-1*H*-indol-3-yl)-3,3-dimethyl-10-p-tolyl-3,4,9,10-tetrahydroacridin-1(2*H*)-one (5c):



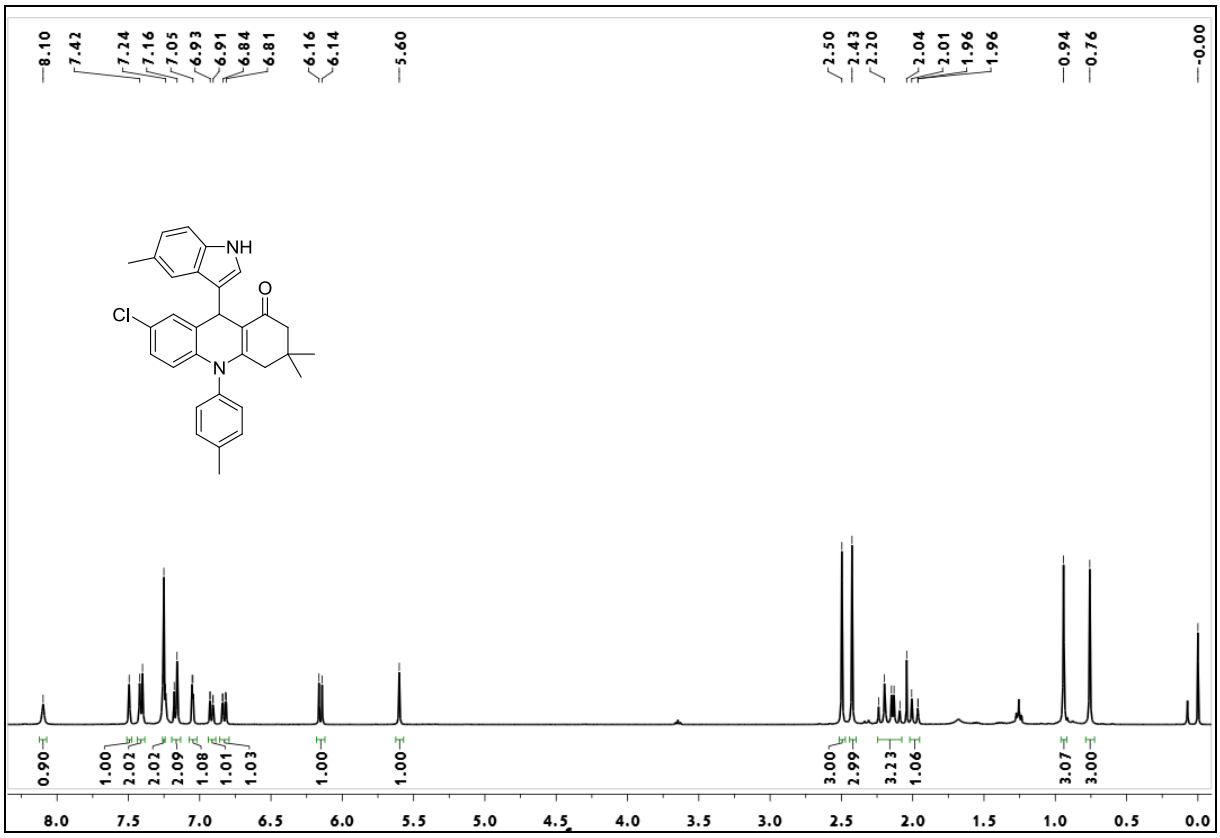


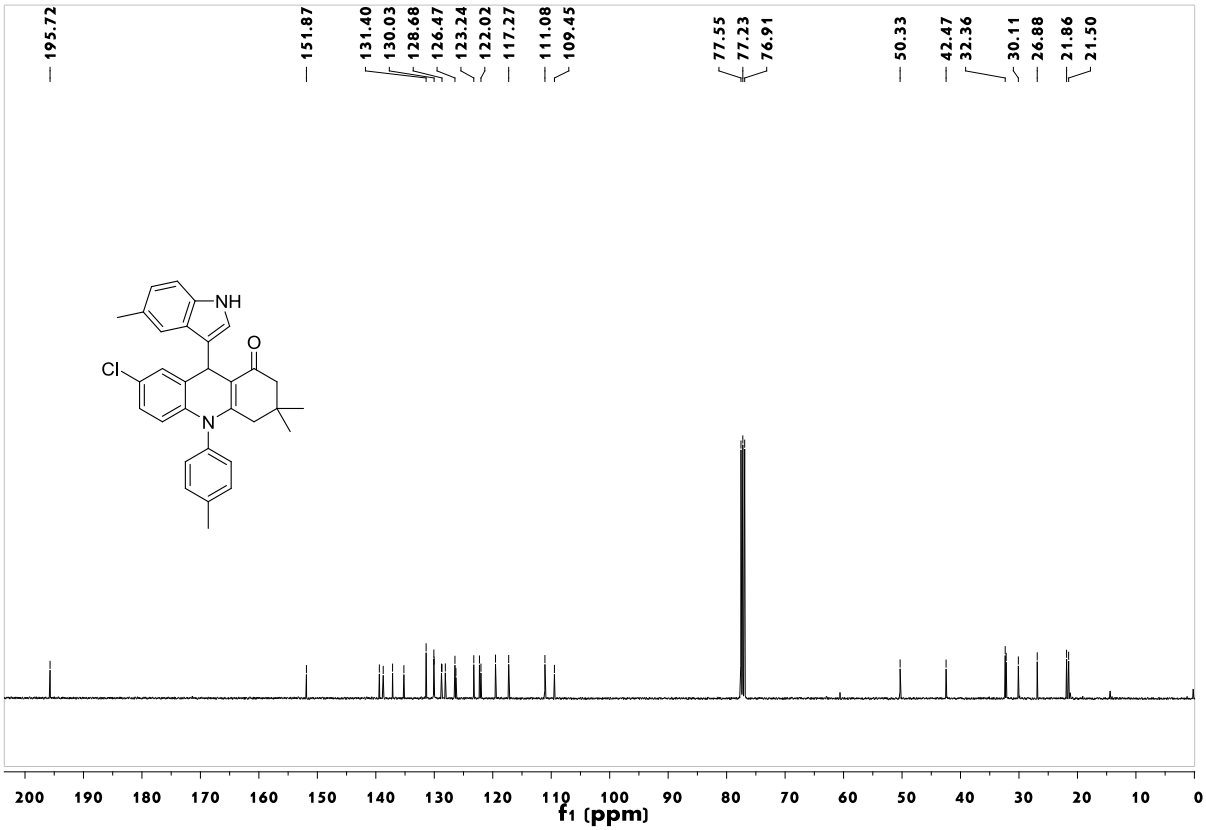
9-(5-methoxy-1*H*-indol-3-yl)-3,3-dimethyl-6-nitro-10-p-tolyl-3,4,9,10-tetrahydroacridin-1(2*H*)-one (5d):





7-chloro-3,3-dimethyl-9-(5-methyl-1*H*-indol-3-yl)-10-p-tolyl-3,4,9,10-tetrahydroacridin-1(2*H*)-one (5e):





3,3-dimethyl-9-(nitromethyl)-10-(4-nitrophenyl)-3,4,9,10-tetrahydroacridin-1(2*H*)-one (6):