SUPPLEMENTARY INFORMATION

Light-driven photoswitching of quinazoline analogues of combretastatin A-4 as an effective approach for targeting skin cancer cells

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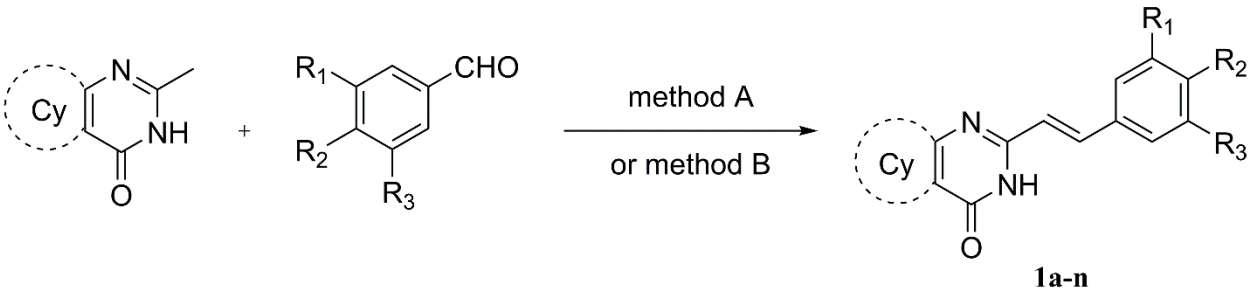
I. General information

Proton nuclear magnetic resonance spectra (^{1}H NMR) and carbon nuclear magnetic resonance spectra (^{13}C NMR) were recorded in deuterated solvents on a spectrometers working at 300 MHz or 400 MHz or 600 MHz for ^{1}H, 75 MHz or 101 MHz or 151 MHz for ^{13}C. Data are represented as follows: chemical shift, multiplicity (s, singlet; d, doublet; m, multiplet; br, broad), coupling constant in hertz (Hz), integration, and assignment. Melting points (Mp) were recorded using an apparatus and not corrected. High resolution mass spectra were obtained from a TOF mass spectrometer with an ESI source. All chemicals and solvents were purchased from commercial sources and used without further purification. Methylquinazolines were prepared according to literature procedures.[S1]

Photochemical Studies. UV−Vis spectra were recorded in 1.0 cm quartz cuvettes. The experimental measurements were performed at 293 K in the presence of air in solutions of acetonitrile and DMSO. The spectra of the studied compounds were recorded on an Agilent Cary 60 UV-Vis. Irradiation were performed in the commercial 10 ml flat-bottomed glass vessels. We have previously shown that such glass vessels are quite suitable for this process[S2]. The choice of vials from ordinary glass instead photochemical vessels is due to the desire to simplify the experiment and make it accessible to a wide range of experimenters. The irradiation was carried out by 6W Vilber Lourmat (France) UV-lamp model VL-6.LC (365 nm light).

II. Synthesis and characterization of quinazoline stilbenes

Scheme S1. Synthesis of quinazoline stilbenes



1a-n

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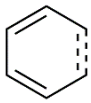
1a		-OMe	-OMe	-OMe
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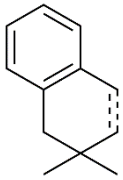
1d		-OMe	-OMe	-OMe
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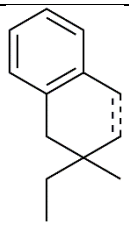
1g		-OMe	-OMe	-OMe
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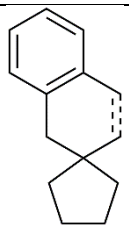
1i		-OMe	-OMe	-OMe
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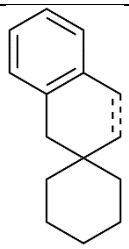
1k		-OMe	-OMe	-OMe
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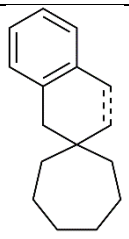
1m		-OMe	-OMe	-OMe
1n		-H	-OMe	-OH

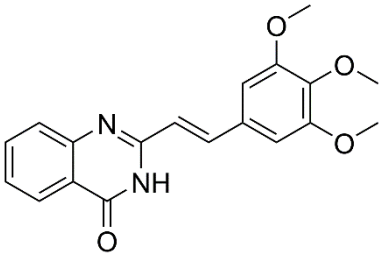
General procedure for the synthesis of quinazoline stilbenes (method A)

A mixture of 0.01 mol of a quinazoline compound, 0.01 mol of the corresponding aldehyde and 0.01 mol of zinc chloride was heated with an air refrigerator in a Wood's bath at a temperature of 200-210°C for 6 hours. The reaction mixture was cooled, 50 ml of 80% ethanol were added and thoroughly triturated. The formed precipitate is filtered off, washed with water and recrystallized from dimethylformamide. For complete purification, recrystallization must be repeated, which leads to a decrease in the yield of the final product.

General procedure for the synthesis of quinazoline stilbenes (method B)

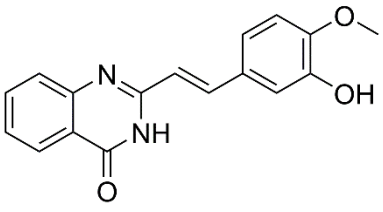
A mixture of 0.01 mol of benzo[h]quinazoline, 0.011 mol of the corresponding aldehyde, 0.04 mol of sodium acetate and 20 ml of glacial acetic acid is refluxed for 25 hours. After cooling, water is added to the reaction mixture. The formed precipitate was filtered off, washed repeatedly with water (4x15 ml) and recrystallized from a mixture of dimethylformamide-water (5:1).

(E)-2-(3,4,5-trimethoxystyryl)quinazolin-4(3H)-one[S3] **(1a, method B)**



Beige solid (2.84 g, 84%); mp > 250°C (lit.,[S3] 275-276°C); **^{1}H-NMR (300 MHz, DMSO-d_6/CCl_4 = 1/3)**, δ, ppm: 3.71 (s, 3H, O-CH_3), 3.85 (s, 6H, 2×(O-CH_3)), 6.98 (d, 1H, J=16.1 Hz, C*2*-CH=CH), 6.98 (s, 2H, H^{arom}), 7.46 (ddd, 1H, J=7.9, 7.1, 1.2 Hz, H^{arom}), 7.64 (dd, 1H, J=8.1, 1.2 Hz, H^{arom}), 7.80 (ddd, 1H, J=8.1, 7.1, 1.6 Hz, H^{arom}), 7.89 (d, 1H, J=16.1 Hz, C*2*-CH=CH), 8.10 (dd, 1H, J=7.9, 1.6 Hz, H^{arom}), 12.18 (br, 1H, NH). **^{13}C-NMR (75 MHz, DMSO-d_6/CCl_4 = 1/3)**, δ, ppm: 55.90 (2×(O-CH_3)), 60.09 (O-CH_3), 105.08 (2×CH^{arom}), 120.42 (C*2*-CH=CH), 121.01 (C^{arom}), 125.81 (CH^{arom}), 126.06 (CH^{arom}), 126.98 (CH^{arom}), 130.58 (CH^{arom}), 134.43 (CH^{arom}-OCH_3), 138.38 (C*2*-CH=CH), 139.02 (C4_a), 149.02 (C8_a), 151.49 (C*2*), 153.13 (2×(CH^{arom}-OCH_3), 161.59 (C*4*). **HRMS (ESI-TOF)** m/z $[M + H]^+$ calcd for $C_{19}H_{18}N_2O_4$ 339,1339, found 339,1327.

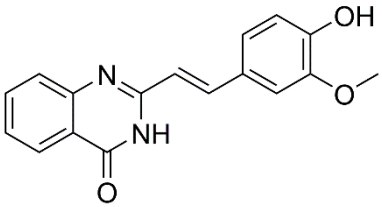
(E)-2-(3-hydroxy-4-methoxystyryl)quinazolin-4(3H)-one (1b, method B)



Beige solid (1.65 g, 56%); mp > 250°C**; ^{1}H-NMR (300 MHz, DMSO-d_6/CCl_4 = 1/3)**, δ, ppm: 3.82 (s, 3H, O-CH_3), 6.75 (d, 1H, J=16.1 Hz, C*2*-CH=CH), 6.96-7.01 (m, 1H, H^{arom}), 7.05-7.11 (m, 2H, H^{arom}), 7.45 (ddd, 1H, J=7.9, 7.1, 1.2 Hz, H^{arom}), 7.64 (dd, 1H, J=8.1, 1.2 Hz, H^{arom}), 7.78 (ddd, 1H, J=8.1, 7.1, 1.6 Hz, H^{arom}), 7.82 (d, 1H, J=16.1 Hz, C*2*-CH=CH), 8.09 (dd, 1H, J=7.9, 1.6 Hz, H^{arom}), 9.25 (s, 1H, OH), 12.21 (br, 1H, NH). **^{13}C-NMR (75 MHz, DMSO-d_6/CCl_4 = 1/3)**, δ, ppm: 55.60 (O-CH_3), 112.19 (CH^{arom}), 113.32 (CH^{arom}), 118.12 (C*2*-CH=CH), 120.57 (CH^{arom}), 120.90 (C^{arom}), 25.77 (CH^{arom}), 125.81 (CH^{arom}), 126.94 (CH^{arom}), 127.87 (CH^{arom}), 134.38 (C4_a), 138.49 (C*2*-CH=CH), 146.79 (C^{arom} -OH), 149.13

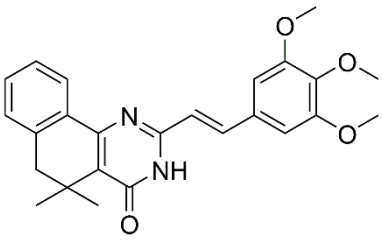
($\underline{C}^{arom}$ -OCH_3), 149.57 (C8_a), 151.67 (C*2*), 161.71 (C*4*). **HRMS (ESI-TOF)** m/z $[M + H]^+$ calcd for $C_{17}H_{14}N_2O_3$ 295,1077, found 295,1072.

(E)-2-(4-hydroxy-3-methoxystyryl)quinazolin-4(3H)-one[S4] **(1c, method B)**



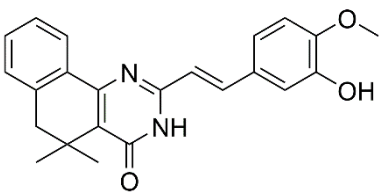
Beige solid (2.12 g, 72%); mp > 250°C; **^{1}H-NMR (300 MHz, DMSO-d_6/CCl_4 = 1/3)**, δ, ppm: 3.85 (s, 3H, O-CH_3), 6.83 (d, 1H, J=16.1 Hz, C*2*-$\underline{CH}$=CH), 6.85 (d, 1H, J=8.3 Hz, H^{arom}), 7.09 (dd, 1H, J=8.3, 1.9 Hz, H^{arom}), 7.25 (d, 1H, J=1.9 Hz, H^{arom}), 7.44 (ddd, 1H, J=7.9, 7.1, 1.2 Hz, H^{arom}), 7.63 (dd, 1H, J=8.1, 1.2 Hz, H^{arom}), 7.78 (ddd, 1H, J=8.1, 7.1, 1.6 Hz, H^{arom}), 7.87 (d, 1H, J=16.1 Hz, C*2*-CH=$\underline{CH}$), 8.09 (dd, 1H, J=7.9, 1.6 Hz, H^{arom}), 9.53 (br, 1H, OH), 12.16 (br, 1H, NH). **^{13}C-NMR (75 MHz, DMSO-d_6/CCl_4 = 1/3)**, δ, ppm: 55.59 (O-CH_3), 110.89 (CH^{arom}), 115.78 (CH^{arom}), 117.66 (C*2*-$\underline{CH}$=CH), 120.86 (C^{arom}), 121.84 (CH^{arom}), 125.76 (CH^{arom}), 125.79 (CH^{arom}), 126.56 (CH^{arom}), 126.88 (CH^{arom}), 134.37 (C4_a), 138.74 (C*2*-CH=$\underline{CH}$), 147.94 ($\underline{C}^{arom}$-OH), 148.73 (C8_a), 149.19 ($\underline{C}^{arom}$-OCH_3), 151.87 (C*2*), 161.70 (C*4*). **HRMS (ESI-TOF)** m/z $[M + H]^+$ calcd for $C_{17}H_{14}N_2O_3$ 295,1077, found 295,1070.

(E)-5,5-dimethyl-2-(3,4,5-trimethoxystyryl)-5,6-dihydrobenzo[h]quinazolin-4(3H)-one (1d, method A)



Beige solid (1.64 g, 39%); mp > 250°C; **^{1}H-NMR (300 MHz, DMSO-d_6/CCl_4 = 1/3)**, δ, ppm: 1.38 (s, 6H, C*5*-($\underline{CH_3}$)$_2$), 2.76 (s, 2H, C*6*H_2), 3.76 (s, 3H, O-CH_3), 3.90 (s, 6H, 2×(O-CH_3)), 6.82 (d, 1H, J=16.1 Hz, C*2*-$\underline{CH}$=CH), 6.85 (s, 2H, H^{arom}), 7.10-7.17 (m, 1H, H^{arom}), 7.25-7.32 (m, 2H, H^{arom}), 7.86 (d, 1H, J=16,1 Hz, C*2*-CH=$\underline{CH}$), 8.21-8.28 (m, 1H, H^{arom}), 12.09 (br, 1H, NH). **^{13}C-NMR (75 MHz, DMSO-d_6/CCl_4 = 1/3),** δ, ppm: 25.66 (C*5*-($\underline{CH_3}$)$_2$), 32.98 ($\underline{C5}$-(CH_3)$_2$), 44.21 (C*6*H_2), 55.46 (2×(O-CH_3)), 59.63 (O-CH_3), 104.83 (2×CH^{arom}), 119.62 (C*2*-$\underline{CH}$=CH), 123.79 (C^{arom}), 125.48 (CH^{arom}), 125.86 (CH^{arom}), 127.14 (CH^{arom}), 129.30 (CH^{arom}), 130.37 (C^{arom}), 132.20 (C^{arom}), 136.19 (C4_a), 137.89 (C*2*-CH=$\underline{CH}$), 139.23 ($\underline{C}^{arom}$-OCH_3), 152.93 (2×($\underline{C}^{arom}$-OCH_3)), 153.30 (C10_b), 153.32 (C*2*), 161.74 (C*4*). **HRMS (ESI-TOF)** m/z $[M + H]^+$ calcd for $C_{25}H_{26}N_2O_4$ 419,1965, found 419,1949.

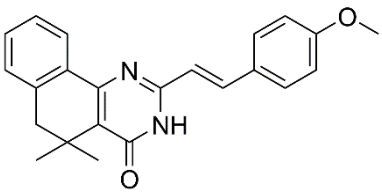
(E)-2-(3-hydroxy-4-methoxystyryl)-5,5-dimethyl-5,6-dihydrobenzo[h]quinazolin-4(3H)-one (1e, method A)



Beige solid (1.35 g, 36%); mp > 250°C**; ^{1}H-NMR (300 MHz, DMSO-d_6/CCl_4 = 1/3)**, δ, ppm: 1.36 (s, 6H, C*5*-($\underline{CH_3}$)$_2$), 2.75 (s, 2H, C*6*H_2), 3.86 (s, 3H, O-CH_3), 6.69 (d, 1H, J=16.1 Hz, C*2*-$\underline{CH}$=CH), 6.85 (d, 1H, J=8.4 Hz, H^{arom}), 6.99 (dd, 1H, J=8.4, 2.1 Hz, H^{arom}), 7.08 (d, 1H, J=2.1 Hz, H^{arom}), 7.09-7.16 (m, 1H, H^{arom}), 7.23-7.33 (m, 2H, H^{arom}),

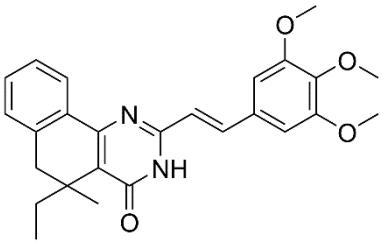
7.83 (d, 1H, J=16.1 Hz, C*2*-CH=CH), 8.18-8.25 (m, 1H, H^{arom}), 8.71 (br, 1H, OH), 12.08 (s, 1H, NH). **^{13}C-NMR (75 MHz, DMSO-d_6/CCl_4 = 1/3)**, δ, ppm: 25.67 (C*5*-(CH_3)$_2$), 32.93 (C*5*-(CH_3)$_2$), 44.28 (C*6*H_2), 55.22 (O-CH_3), 111.46 (CH^{arom}), 113.22 (CH^{arom}), 117.68 (C*2*-CH=CH), 120.05 (CH^{arom}), 123.42 (C^{arom}), 125.42 (CH^{arom}), 125.87 (CH^{arom}), 127.08 (CH^{arom}), 128.13 (C^{arom}), 129.17 (CH^{arom}), 132.33 (C^{arom}), 136.17 (C*4$_a$*), 138.13 (C*2*-CH=CH), 146.80 (C^{arom}-OH), 149.02 (C^{arom}-OCH_3), 153.14 (C*10$_b$*), 153.63 (C*2*), 161.62 (C*4*). **HRMS (ESI-TOF)** m/z [M + H]$^+$ calcd for $C_{23}H_{22}N_2O_3$ 375,1703, found 419,1698.

(E)-2-(4-methoxystyryl)-5,5-dimethyl-5,6-dihydrobenzo[h]quinazolin-4(3H)-one (1f, method B)



Beige solid (1.3 g, 36%); mp > 250°C; **^{1}H-NMR (300 MHz, DMSO-d_6/CCl_4 = 1/3)**, δ, ppm: 1.37 (s, 6H, C*5*-(CH_3)$_2$), 2.75 (s, 2H, C*6*H_2), 3.83 (s, 3H, O-CH_3), 6.75 (d, 1H, J=16.1 Hz, C*2*-CH=CH), 6.89-6.95 (m, 2H, H^{arom}), 7.09-7.16 (m, 1H, H^{arom}), 7.25-7.32 (m, 2H, H^{arom}), 7.50-7.57 (m, 2H, H^{arom}), 7.91 (d, 1H, J=16.1 Hz, C*2*-CH=CH), 8.18-8.25 (m, 1H, H^{arom}), 12.11 (s, 1H, NH). **^{13}C-NMR (75 MHz, DMSO-d_6/CCl_4 = 1/3)**, δ, ppm: 25.64 (C*5*-(CH_3)$_2$), 32.92 (C*5*-(CH_3)$_2$), 44.25 (C*6*H_2), 54.62 (O-CH_3), 113.79 (2×CH^{arom}), 117.89 (C*2*-CH=CH), 123.50 (C^{arom}), 125.39 (CH^{arom}), 125.82 (CH^{arom}), 127.07 (CH^{arom}), 127.63 (C^{arom}), 128.67 (2×CH^{arom}), 129.16 (CH^{arom}), 132.29 (C^{arom}), 136.15 (C*4$_a$*), 137.46 (C*2*-CH=CH), 153.13 (C*10$_b$*), 153.49 (C*2*), 160.15 (C^{arom}-OCH_3), 161.58 (C*4*). **HRMS (ESI-TOF)** m/z [M + H]$^+$ calcd for $C_{23}H_{22}N_2O_2$ 359,1754, found 359,1744.

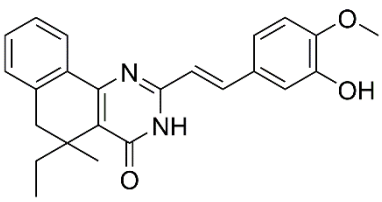
(E)-5-ethyl-5-methyl-2-(3,4,5-trimethoxystyryl)-5,6-dihydrobenzo[h]quinazolin-4(3H)-one (1g, method B)



Beige solid (1.48 g, 34%); mp = 245-246°C; **^{1}H-NMR (300 MHz, DMSO-d_6/CCl_4 = 1/3)**, δ, ppm: 0.83 (t, 3H, J=7.4 Hz, C*5*-CH_2-CH_3), 1.37 (s, 3H, C5-CH_3), 1.56 (dq, 1H, J=14.5, 7.4 Hz, C*5*-CH_2-CH_3), 2.06 (dq, 1H, J=14.5, 7.4 Hz, C*5*-CH_2-CH_3), 2.62 (d, 1H, J=15.7 Hz, C*6*H_2), 2.94 (d, 1H, J=15.7 Hz, C*6*H_2), 3.76 (s, 3H, O-CH_3), 3.89 (s, 6H, 2×(O-CH_3)), 6.83 (d, 1H, J=16.1 Hz, C*2*-CH=CH), 6.85 (s, 2H, H^{arom}), 7.09-7.16 (m, 1H, H^{arom}), 7.24-7.32 (m, 2H, H^{arom}), 7.87 (d, 1H, J=16,1 Hz, C*2*-CH=CH), 8.22-8.29 (m, 1H, H^{arom}), 12.18 (br, 1H, NH). **^{13}C-NMR (75 MHz, DMSO-d_6/CCl_4 = 1/3)**, δ, ppm: 9.12 (C*5*-CH_2-CH_3), 24.24 (C5-CH_3), 30.25 (C*5*-CH_2-CH_3), 36.47 (C5-CH_3), 40.11 (C*6*H_2), 55.45 (2×(O-CH_3)), 59.63 (O-CH_3), 104.82 (2×CH^{arom}), 119.65 (C*2*-CH=CH), 122.94 (C^{arom}), 125.50 (CH^{arom}), 125.75 (CH^{arom}), 127.07 (CH^{arom}), 129.35 (CH^{arom}), 130.40 (C^{arom}), 132.24 (C^{arom}), 136.47 (C*4$_a$*), 137.90 (C*2*-CH=CH), 139.24 (C^{arom}-

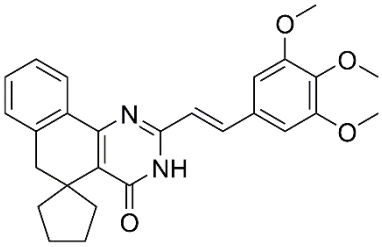
OCH_3), 152.94 (2×($\underline{C}^{arom}$-OCH_3)), 153.33 (C*10$_b$*), 154.13 (C*2*), 161.86 (C*4*). **HRMS (ESI-TOF)** m/z $[M + H]^+$ calcd for $C_{26}H_{28}N_2O_4$ 433,2122, found 433,2109.

(E)-5-ethyl-2-(3-hydroxy-4-methoxystyryl)-5-methyl-5,6-dihydrobenzo[h]quinazolin-4(3H)-one (1h, method B)



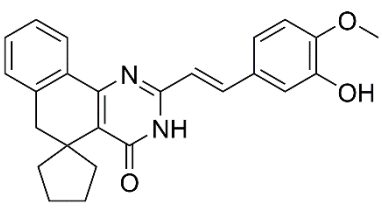
Beige solid (0.82 g, 21%); mp > 250°C; **^{1}H-NMR (300 MHz, DMSO-d$_6$/CCl$_4$ = 1/3)**, δ, ppm: 0.81 (t, 3H, J=7.4 Hz, C*5*-CH_2-$\underline{CH_3}$), 1.35 (s, 3H, C5-$\underline{CH_3}$), 1.54 (dq, 1H, J=14.5, 7.4 Hz, C*5*-$\underline{CH_2}$-CH_3), 2.04 (dq, 1H, J=14.5, 7.4 Hz, C*5*-$\underline{CH_2}$-CH_3), 2.60 (d, 1H, J=15.7 Hz, C*6*H_2), 2.92 (d, 1H, J=15.7 Hz, C*6*H_2), 3.86 (s, 3H, O-CH_3), 6.69 (d, 1H, J=16.1 Hz, C*2*-$\underline{CH}$=CH), 6.85 (d, 1H, J=8.4 Hz, H^{arom}), 6.98 (dd, 1H, J=8.4, 2.1 Hz, H^{arom}), 7.08 (d, 1H, J=2.1 Hz, H^{arom}), 7.08-7.14 (m, 1H, H^{arom}), 7.23-7.32 (m, 2H, H^{arom}), 7.83 (d, 1H, J=16.1 Hz, C*2*-CH=$\underline{CH}$), 8.18-8.25 (m, 1H, H^{arom}), 8.74 (br, 1H, OH), 12.04 (s, 1H, NH). **^{13}C-NMR (75 MHz, DMSO-d$_6$/CCl$_4$ = 1/3)**, δ, ppm: 9.14 (C*5*-CH_2-$\underline{CH_3}$), 24.28 (C5-$\underline{CH_3}$), 30.25 (C*5*-$\underline{CH_2}$-CH_3), 36.45 ($\underline{C5}$-CH_3), 40.19 (C*6*H_2), 55.26 (O-CH_3), 111.50 (CH^{arom}), 113.25 (CH^{arom}), 117.74 (C*2*-$\underline{CH}$=CH), 120.10 (CH^{arom}), 123.58 (C^{arom}), 125.48 (CH^{arom}), 125.81 (CH^{arom}), 127.06 (CH^{arom}), 128.18 (C^{arom}), 129.27 (CH^{arom}), 132.39 (C^{arom}), 136.49 (C*4$_a$*), 38.19 (C*2*-CH=$\underline{CH}$), 146.84 ($\underline{C}^{arom}$-OH), 149.07 ($\underline{C}^{arom}$-OCH_3), 153.70 (C*10$_b$*), 154.03 (C*2*), 161.83 (C*4*). **HRMS (ESI-TOF)** m/z $[M + H]^+$ calcd for $C_{24}H_{24}N_2O_3$ 389,1860, found 389,1867.

(E)-2-(3,4,5-trimethoxystyryl)-3H-spiro[benzo[h]quinazoline-5,1'-cyclopentan]-4(6H)-one (1i, method A)



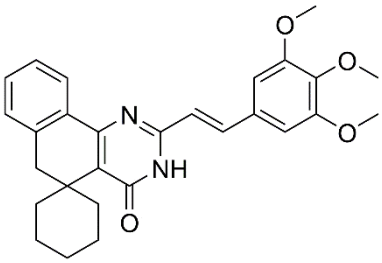
Beige solid (1.38 g, 31%); mp > 250°C; **^{1}H-NMR (300 MHz, DMSO-d$_6$/CCl$_4$ = 1/3)**, δ, ppm: 1.38-1.50 (m, 2H, cyclopentane), 1.63-1.79 (m, 2H, cyclopentane), 1.80-1.96 (m, 2H, cyclopentane), 2.27-2.39 (m, 2H, cyclopentane), 2.80 (s, 2H, C*6*H_2), 3.76 (s, 3H, O-CH_3), 3.90 (s, 6H, 2×(O-CH_3)), 6.83 (d, 1H, J=16.1 Hz, C*2*-$\underline{CH}$=CH), 6.85 (s, 2H, H^{arom}), 7.08-7.15 (m, 1H, H^{arom}), 7.23-7.32 (m, 2H, H^{arom}), 7.86 (d, 1H, J=16,1 Hz, C*2*-CH=$\underline{CH}$), 8.20-8.27 (m, 1H, H^{arom}), 12.07 (br, 1H, NH). **^{13}C-NMR (75 MHz, DMSO-d$_6$/CCl$_4$ = 1/3)**, δ, ppm: 25.13 (2×$CH_{2\ cyclopentane}$), 35.20 (2×$CH_{2\ cyclopentane}$), 41.75 (C*5*), 43.30 (C*6*H_2), 55.43 (2×(O-CH_3)), 59.59 (O-CH_3), 104.81 (2×CH^{arom}), 119.67 (C*2*-$\underline{CH}$=CH), 124.30 (C^{arom}), 125.39 (CH^{arom}), 125.85 (CH^{arom}), 127.08 (CH^{arom}), 129.03 (CH^{arom}), 130.41 (C^{arom}), 132.71 (C^{arom}), 136.29 (C*4$_a$*), 137.69 (C*2*-CH=$\underline{CH}$), 139.16 ($\underline{C}^{arom}$-OCH_3), 152.90 (2×($\underline{C}^{arom}$-OCH_3)), 153.02 (C*10$_b$*), 153.41 (C*2*), 161.24 (C*4*). **HRMS (ESI-TOF)** m/z $[M + H]^+$ calcd for $C_{27}H_{28}N_2O_4$ 445,2122, found 445,2123.

(E)-2-(3-hydroxy-4-methoxystyryl)-3H-spiro[benzo[h]quinazoline-5,1'-cyclopentan]-4(6H)-one (1j, method A)



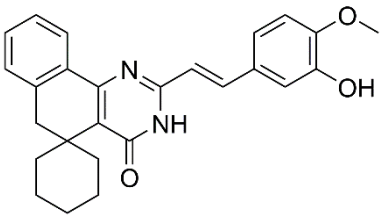
Beige solid (2.21 g, 55%); mp > 250°C; **^{1}H-NMR (300 MHz, DMSO-d_6/CCl_4 = 1/3)**, δ, ppm: 1.38-1.50 (m, 2H, cyclopentane), 1.63-1.79 (m, 2H, cyclopentane), 1.80-1.96 (m, 2H, cyclopentane), 2.27-2.39 (m, 2H, cyclopentane), 2.79 (s, 2H, C*6*H_2), 3.86 (s, 3H, O-CH_3), 6.69 (d, 1H, J=16.1 Hz, C*2*-CH=CH), 6.85 (d, 1H, J=8.4 Hz, H^{arom}), 6.99 (dd, 1H, J=8.4, 2.1 Hz, H^{arom}), 7.08 (d, 1H, J=2.1 Hz, H^{arom}), 7.08-7.13 (m, 1H, H^{arom}), 7.23-7.32 (m, 2H, H^{arom}), 7.82 (d, 1H, J=16.1 Hz, C*2*-CH=CH), 8.16-8.23 (m, 1H, H^{arom}), 8.71 (br, 1H, OH), 12.08 (s, 1H, NH). **^{13}C-NMR (75 MHz, DMSO-d_6/CCl_4 = 1/3)**, δ, ppm: 25.13 (2×CH_2 cyclopentane), 35,28 (2×CH_2 cyclopentane), 41.30 (C*5*), 43.37 (C*6*H_2), 55.61 (O-CH_3), 112.14 (CH^{arom}), 113.23 (CH^{arom}), 117.49 (C*2*-CH=CH), 120.72 (CH^{arom}), 123.94 (C^{arom}), 125.36 (CH^{arom}), 126.57 (CH^{arom}), 127.85 (CH^{arom}), 127.85 (C^{arom}), 129.93 (CH^{arom}), 132.60 (C^{arom}), 136.78 (C4_a), 138.51 (C*2*-CH=CH), 146.78 (C^{arom}-OH), 149.55 (C^{arom}-OCH_3), 153.53 (C10_b), 153.73 (C*2*), 161.44 (C*4*). **HRMS (ESI-TOF)** m/z $[M + H]^+$ calcd for $C_{25}H_{24}N_2O_3$ 401,1860, found 401,1850.

(E)-2-(3,4,5-trimethoxystyryl)-3H-spiro[benzo[h]quinazoline-5,1'-cyclohexan]-4(6H)-one (1k, method A)



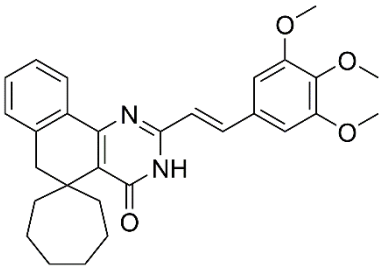
Beige solid (1.01 g, 22%); mp > 250°C; **^{1}H-NMR (300 MHz, DMSO-d_6/CCl_4 = 1/3)**, δ, ppm: 1.24-1.44 (m, 3H, cyclohexane), 1.46-1.66 (m, 4H, cyclohexane), 1.68-1.80 (m, 1H, cyclohexane), 2.56-2.70 (m, 2H, cyclohexane), 2.99 (s, 2H, C*6*H_2), 3.75 (s, 3H, O-CH_3), 3.89 (s, 6H, 2×(O-CH_3)), 6.81 (d, 1H, J=16.00 Hz, C2-CH=CH-), 6.84 (s, 2H, 2×CH^{arom}), 7.10-7.19 (m, 1H, CH^{arom}), 7.23-7.32 (m, 2H, 2×CH^{arom}), 7.85 (d, 1H, J=16.00 Hz, C2-CH=CH-), 8.18-8.25 (m, 1H, CH^{arom}), 12.02 (s, 1H, NH). **^{13}C-NMR (75 MHz, DMSO-d_6/CCl_4 = 1/3)**, δ, ppm: 21.12 (2×CH_2 cyclohexane), 25.12 (CH_2 cyclohexane), 30.29 (2×CH_2 cyclohexane), 35.58 (C*6*H_2), 36.77 (C*5*), 55.47 (2×(O-CH_3)), 59.64 (O-CH_3), 104.87 (2×CH^{arom}), 119.59 (C2-CH=CH-), 124.25 (C4_a), 125.46 (CH^{arom}), 125.86 (CH^{arom}), 127.19 (CH^{arom}), 129.24 (CH^{arom}), 130.43 (C^{arom}), 132.51 (C^{arom}), 135.66 (C^{arom}), 137.88 (C2-CH=CH-), 139.22 (C^{arom}), 152.94 (2×(C^{arom}), 153.24 (C*10b*), 153.96 (C*2*), 161.66 (C*4*). **HRMS (ESI-TOF)** m/z $[M + H]^+$ calcd for $C_{28}H_{30}N_2O_4$ 459,2278, found 459,2275.

(E)-2-(3-hydroxy-4-methoxystyryl)-3H-spiro[benzo[h]quinazoline-5,1'-cyclohexan]-4(6H)-one (1l, method A)



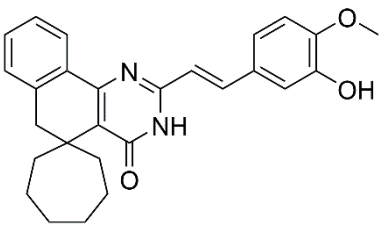
Beige solid (0.5 g, 12%); mp > 250°C; **^{1}H-NMR (300 MHz, DMSO-d_6/CCl_4 = 1/3)**, δ, ppm: 1.24-1.44 (m, 3H, cyclohexane), 1.46-1.66 (m, 4H, cyclohexane), 1.68-1.80 (m, 1H, cyclohexane), 2.56-2.70 (m, 2H, cyclohexane), 2.98 (s, 2H, C*6*H_2), 3.86 (s, 3H, O-CH_3), 6.68 (d, 1H, J=16.02, C2-CH=CH-), 6.82-6.89 (m, 1H, CH^{arom}), 6.95-7.01 (m, 1H, CH^{arom}), 7.05-7.09 (m, 1H, CH^{arom}), 7.11-7.18 (m, 1H, CH^{arom}), 7.24-7.32 (m, 2H, 2×CH^{arom}), 7.82 (dd, 1H, J=16.02 Hz, C2-CH=CH-), 8.15-8.23 (m, 1H, CH^{arom}), 8.71 (s, 1H, OH), 12.06 (s, 1H, NH). **^{13}C-NMR (75 MHz, DMSO-d_6/CCl_4 = 1/3)**, δ, ppm: 21.13 (2×$CH_{2\ cyclohexane}$), 25.08 ($CH_{2\ cyclohexane}$), 30.26 (2×$CH_{2\ cyclohexane}$), 35.57 (C*6*H_2), 36.68 (C*5*), 55.19 (O-CH_3), 111.45 (CH^{arom}), 113.20 (CH^{arom}), 117.56 (C2-CH=CH-), 120.00 (CH^{arom}), 123.77 (C4_a), 125.38 (CH^{arom}), 125.85 (CH^{arom}), 127.10 (C^{arom}), 128.11 (CH^{arom}), 129.11 (CH^{arom}), 132.57 (C^{arom}), 135.60 (C^{arom}), 138.10 (C2-CH=CH-), 146.78 (C^{arom}), 148.99 (C^{arom}), 153.53 (C*10b*), 153.88 (C*2*), 161.71 (C*4*). **HRMS (ESI-TOF)** m/z $[M + H]^+$ calcd for $C_{26}H_{26}N_2O_3$ 415,2016, found 415,2016.

(E)-2-(3,4,5-trimethoxystyryl)-3H-spiro[benzo[h]quinazoline-5,1'-cycloheptan]-4(6H)-one (1m, method A)



Beige solid (1.99 g, 42%); mp > 250°C; **^{1}H-NMR (300 MHz, DMSO-d_6/CCl_4 = 1/3)**, δ, ppm: 1.37-1.88 (m, 10H, cycloheptane), 2.34-2.46 (m, 2H, cycloheptane), 2.89 (s, 2H, C*6*H_2), 3.76 (s, 3H, O-CH_3), 3.90 (s, 6H, 2×(O-CH_3)), 6.82 (d, 1H, J=16.1 Hz, C*2*-CH=CH), 6.84 (s, 2H, H^{arom}), 7.11-7.18 (m, 1H, H^{arom}), 7.24-7.32 (m, 2H, H^{arom}), 7.85 (d, 1H, J=16,1 Hz, C*2*-CH=CH), 8.18-8.25 (m, 1H, H^{arom}), 11.99 (br, 1H, NH). **^{13}C-NMR (75 MHz, DMSO-d_6/CCl_4 = 1/3)**, δ, ppm: 23.78 (2×$CH_{2\ cycloheptane}$), 29,45 (2×$CH_{2\ cycloheptane}$), 35,61 (2×$CH_{2\ cycloheptane}$), 39,65 (C*5*), 39.90 (C*6*H_2), 55.42 (2×(O-CH_3)), 59.59 (O-CH_3), 104.79 (2×CH^{arom}), 119.61 (C*2*-CH=CH), 125.39 (CH^{arom}), 125.79 (CH^{arom}), 126.36 (C^{arom}), 127.04 (CH^{arom}), 129.17 (CH^{arom}), 130.41 (C^{arom}), 132.56 (C^{arom}), 136.12 (C4_a), 137.72 (C*2*-CH=CH), 139.15 (C^{arom}-OCH_3), 152.90 (2×(C^{arom}-OCH_3)), 153.03 (C10_b), 153.07 (C*2*), 161.46 (C*4*). **HRMS (ESI-TOF)** m/z $[M + H]^+$ calcd for $C_{29}H_{32}N_2O_4$ 473,2435, found 473,2439.

(E)-2-(3-hydroxy-4-methoxystyryl)-3H-spiro[benzo[h]quinazoline-5,1'-cycloheptan]-4(6H)-one (1n, method A)

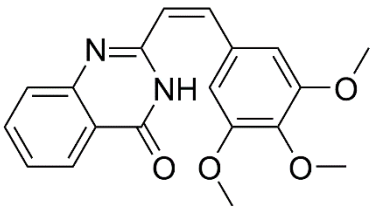


Beige solid (0.99 g, 23%); mp > 250°C; **^{1}H-NMR (300 MHz, DMSO-d_6/CCl_4 = 1/3)**, δ, ppm: 1.36-1.87 (m, 10H, cycloheptane), 2.34-2.46 (m, 2H, cycloheptane), 2.87 (s, 2H, C*6*H_2), 3.85 (s, 3H, O-CH_3), 6.69 (d, 1H, J=16.1 Hz, C*2*-CH=CH), 6.84 (d, 1H, J=8.4 Hz, H^{arom}), 6.98 (dd, 1H, J=8.4, 2.1 Hz, H^{arom}), 7.07 (d, 1H, J=2.1 Hz, H^{arom}), 7.10-7.17 (m, 1H, H^{arom}), 7.24-7.32 (m, 2H, H^{arom}), 7.82 (d, 1H, J=16.1 Hz, C*2*-CH=CH), 8.15-8.23 (m, 1H, H^{arom}), 8.69 (br, 1H, OH), 12.08 (s, 1H, NH). **^{13}C-NMR (75 MHz, DMSO-d_6/CCl_4 = 1/3)**, δ, ppm: 22.83 (2×CH_2 cycloheptane), 29,49 (2×CH_2 cycloheptane), 35,69 (2×CH_2 cycloheptane), 39,65 (C*5*), 40.00 (C*6*H_2), 55.22 (O-CH_3), 111.46 (CH^{arom}), 113.27 (CH^{arom}), 117.65 (C*2*-CH=CH), 120.02 (CH^{arom}), 125.43 (CH^{arom}), 125.88 (CH^{arom}), 125.95 (C^{arom}), 127.06 (CH^{arom}), 128.18 (C^{arom}), 129.17 (CH^{arom}), 132.69 (C^{arom}), 136.17 (C4_a), 138.12 (C*2*-CH=CH), 146.81 (C^{arom}-OH), 149.01 (C^{arom}-OCH_3), 153.18 (C10_b), 156.41 (C*2*), 161.70 (C*4*). **HRMS (ESI-TOF)** m/z $[M + H]^+$ calcd for $C_{27}H_{28}N_2O_3$ 429,2173, found 429,2175.

Procedure for obtaining 1a-Z100

A solution of 0.5 mmol of stilbene **1a** in 50 ml of DMSO was being irradiated by UV-light with wavelength of 365 nm for 12 h. Then the reaction mixture was poured into 500 ml of water, the formed precipitate was filtered off, washed with water and dried in a vacuum. The pure *Z*-isomer of stilbene **1a** was isolated by column chromatography on silica gel ($CHCl_3$:CH_3CN = 15:1) using a column wrapped in black paper.

(Z)-2-(3,4,5-trimethoxystyryl)quinazolin-4(3H)-one (1a-Z100)



Beige solid (6 mg, 3.6%); **^{1}H-NMR (300 MHz, DMSO-d_6)**, δ, ppm: 3.68 (s, 9H, 3×(O-CH_3)), 6.33 (d, 1H, J=13.1 Hz, C*2*-CH=CH), 6.88 (d, 1H, J=13.1 Hz, C*2*-CH=CH), 7.23 (s, 2H, H^{arom}), 7.52 (ddd, 1H, J=8.2, 7.1, 1.2 Hz, H^{arom}), 7.63 (d, 1H, J=8.1 Hz, H^{arom}), 7.82 (ddd, 1H, J=8.6, 7.1, 1.6 Hz, H^{arom}), 8.13 (dd, 1H, J=7.9, 1.6 Hz, H^{arom}), 12.28 (br, 1H, NH). **^{13}C-NMR (75 MHz, DMSO-d_6)**, δ, ppm: 56.20 (2×(O-CH_3)), 60.55 (O-CH_3), 108.52 (2×CH^{arom}), 121.36 (C*2*-CH=CH), 121.60 (C^{arom}), 126.28 (CH^{arom}), 127.13 (CH^{arom}), 127.42 (CH^{arom}), 130.98 (CH^{arom}), 135.03 (CH^{arom}-OCH_3), 138.80 (C*2*-CH=CH), 138.88 (C4_a), 149.02 (C8_a), 151.77 (C*2*), 152.73 (2×(CH^{arom}-OCH_3), 162.10 (C*4*).

III. UV/Vis monitorings of quinazoline stilbenes

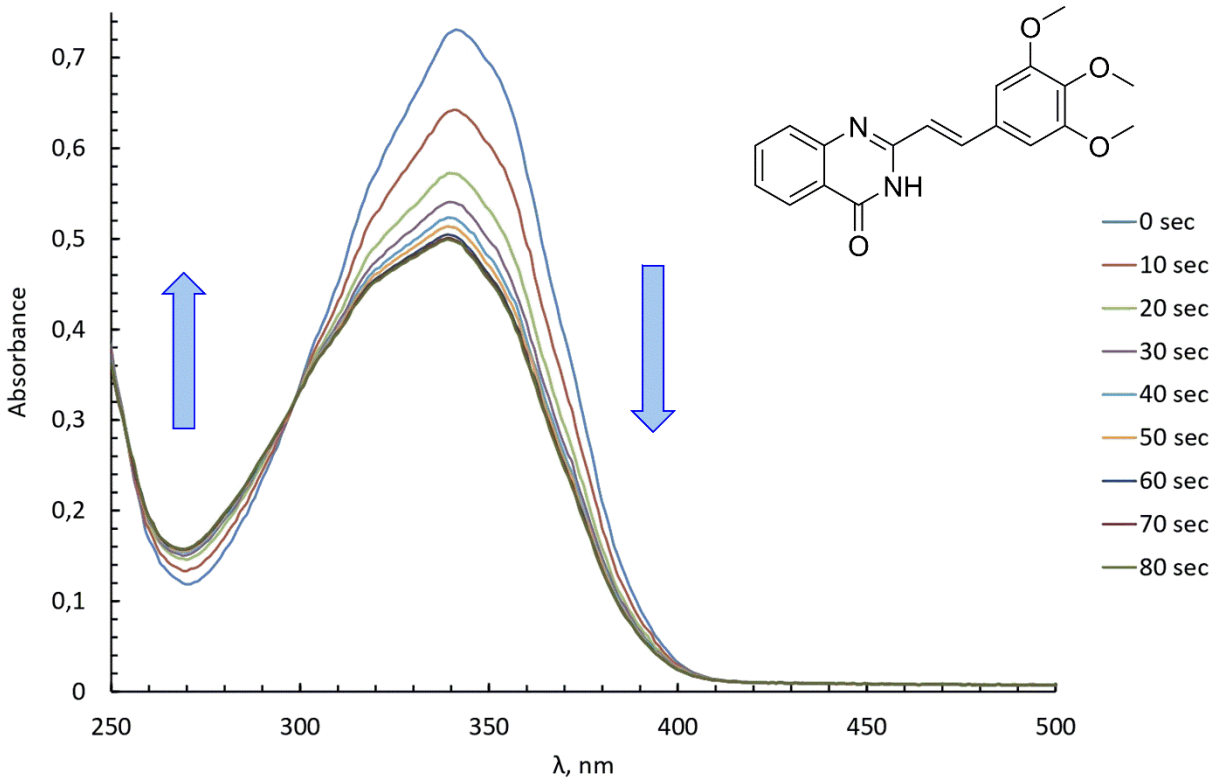


Figure S1. UV/Vis-monitoring of stilbene **1a** in CH_3CN (C = $3 \cdot 10^{-5}$ M)

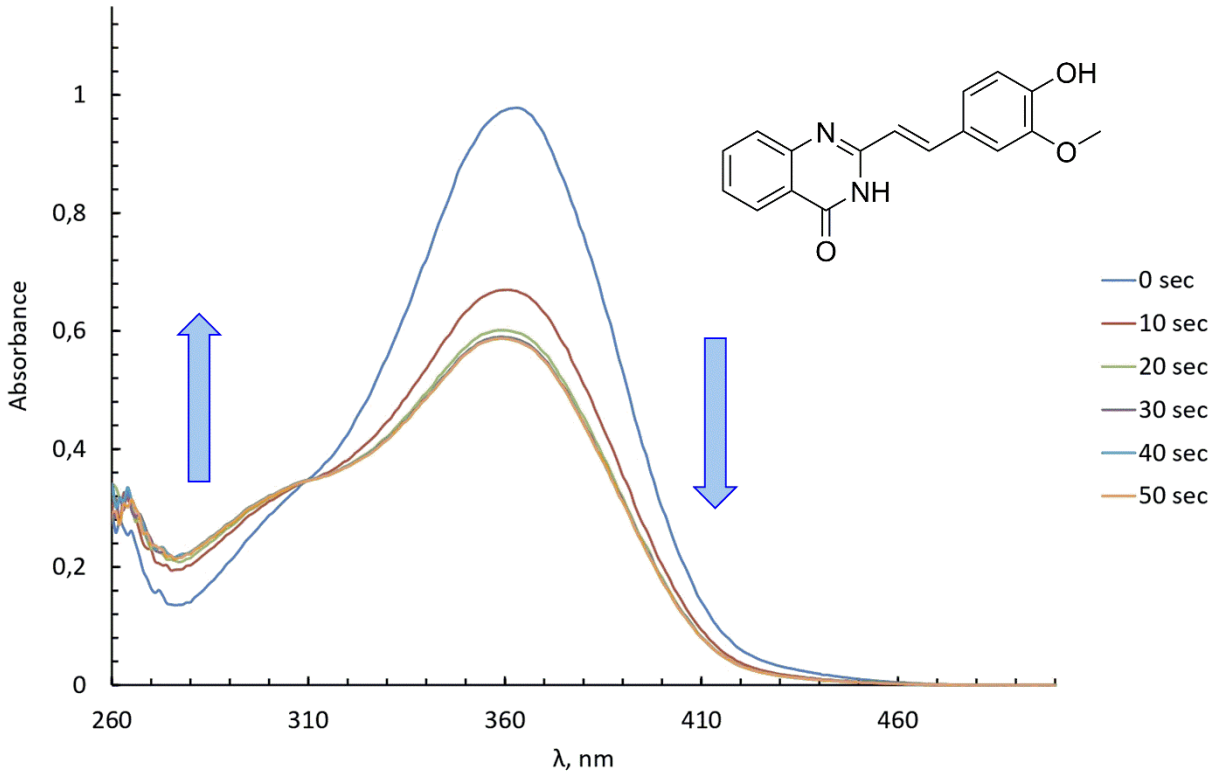


Figure S2. UV/Vis-monitoring of stilbene **1b** in DMSO (C = $3{,}4 \cdot 10^{-5}$ M)

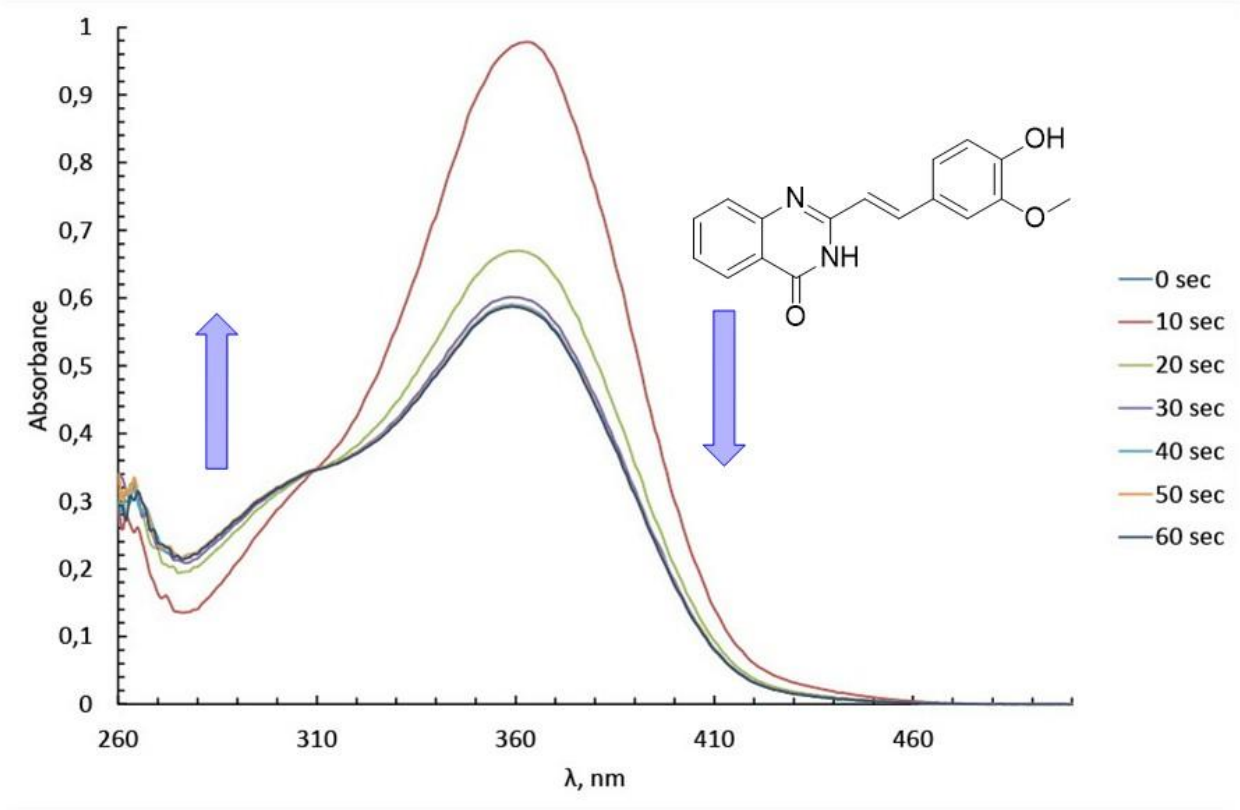


Figure S3. UV/Vis-monitoring of stilbene **1c** in DMSO (C = $3{,}4 \cdot 10^{-5}$ M)

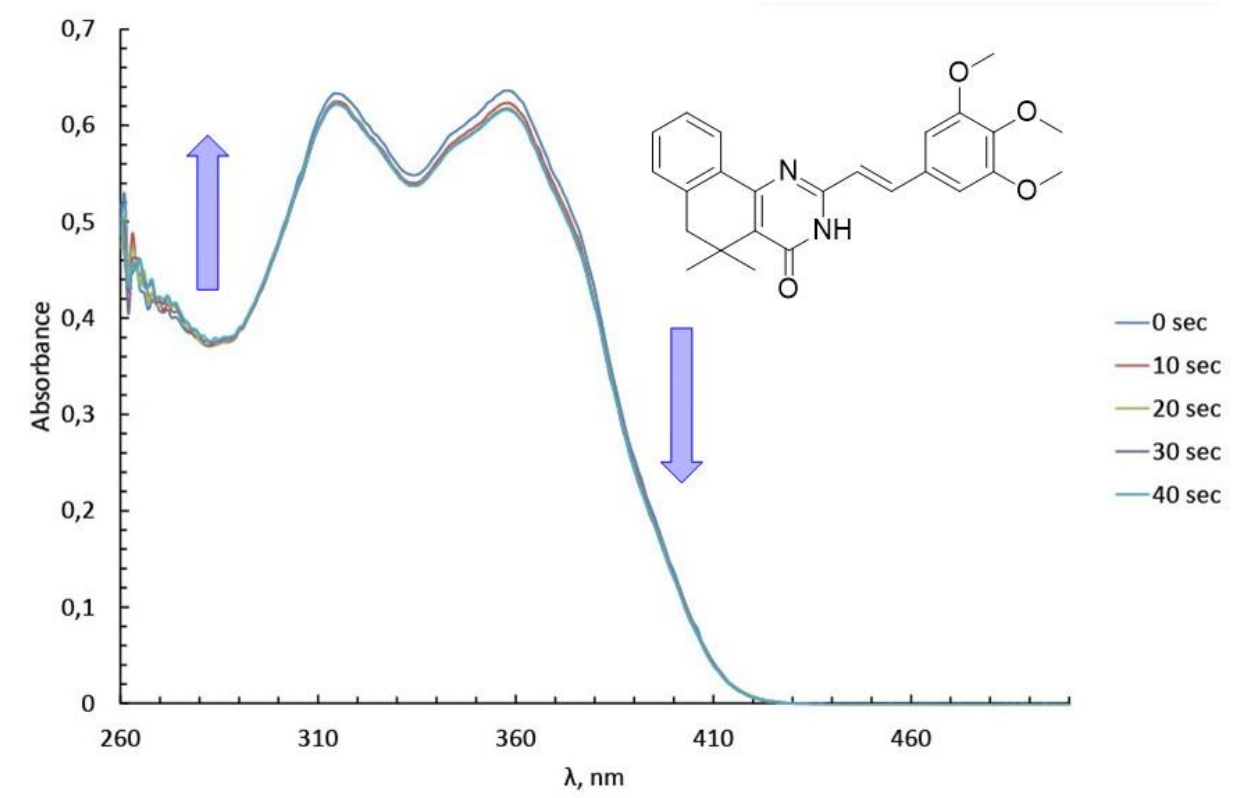


Figure S4. UV/Vis-monitoring of stilbene **1d** in DMSO (C = $2{,}4 \cdot 10^{-5}$ M)

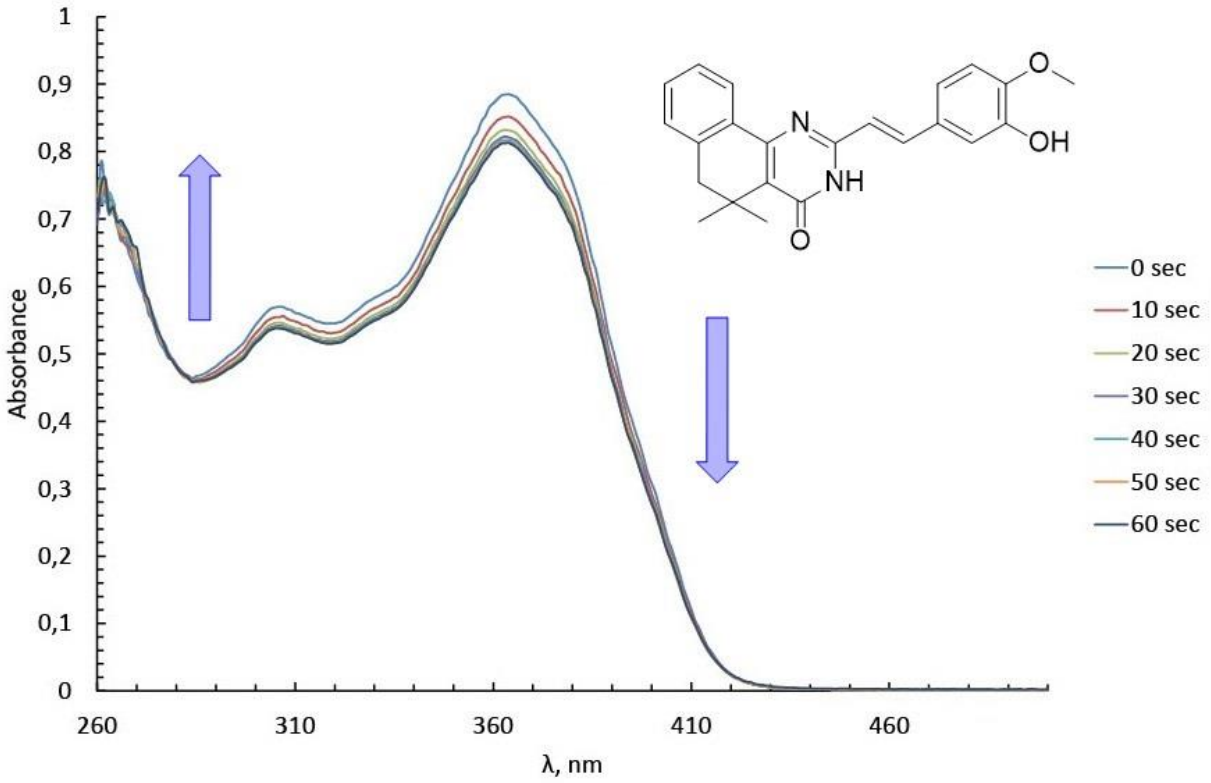


Figure S5. UV/Vis-monitoring of stilbene **1e** in DMSO (C = $2{,}7 \cdot 10^{-5}$ M)

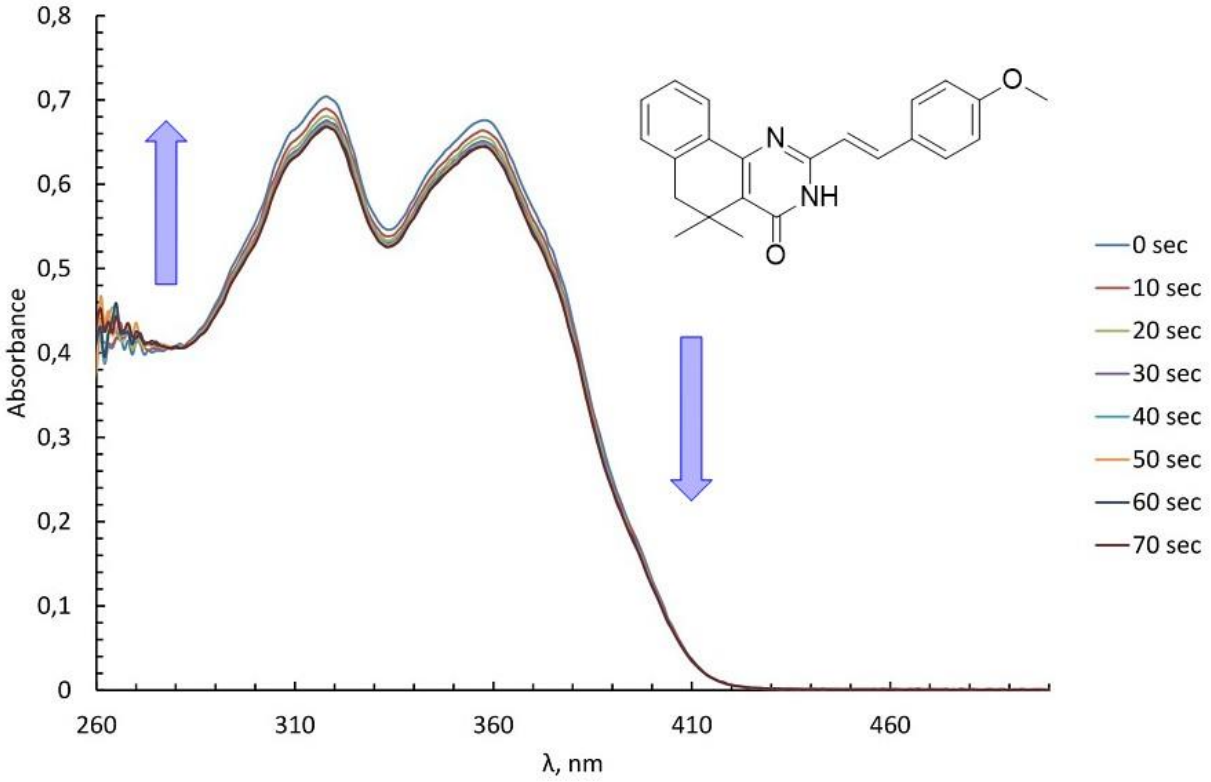


Figure S6. UV/Vis-monitoring of stilbene **1f** in DMSO (C = $2{,}8 \cdot 10^{-5}$ M)

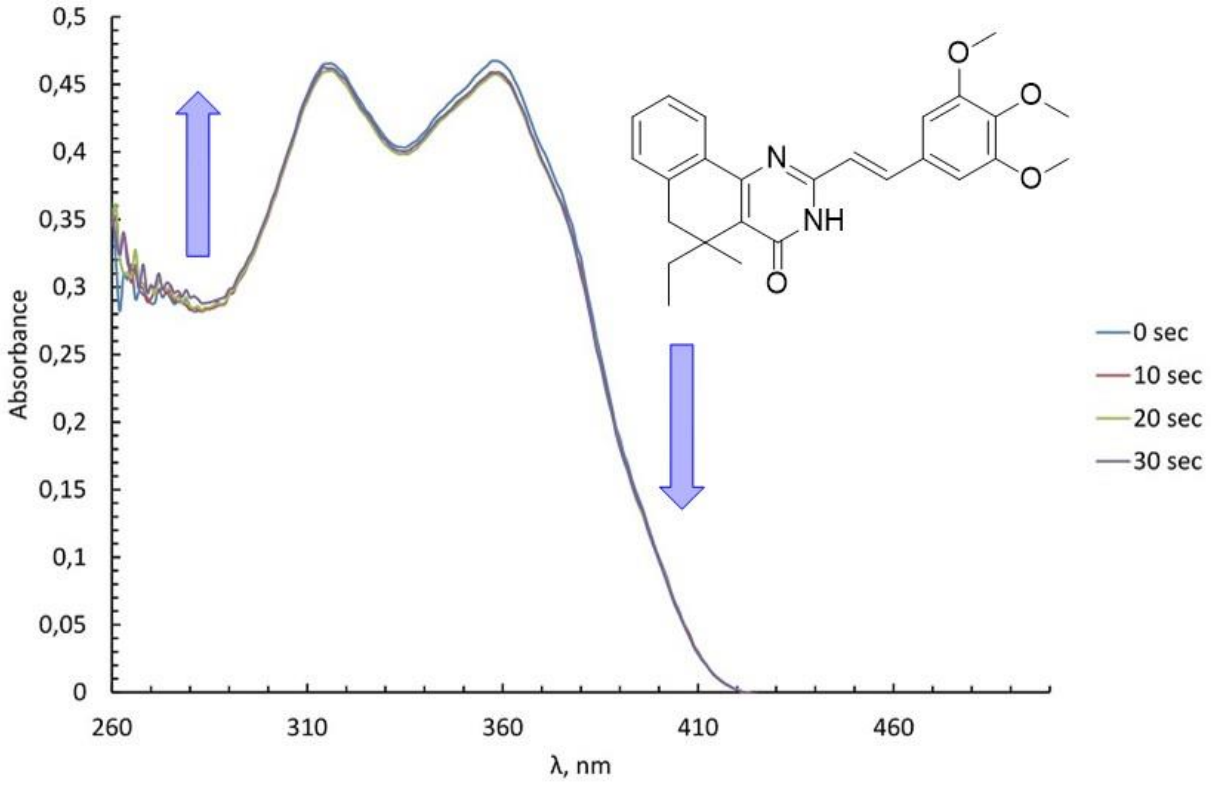


Figure S7. UV/Vis-monitoring of stilbene **1g** in DMSO (C = $2{,}3 \cdot 10^{-5}$ M)

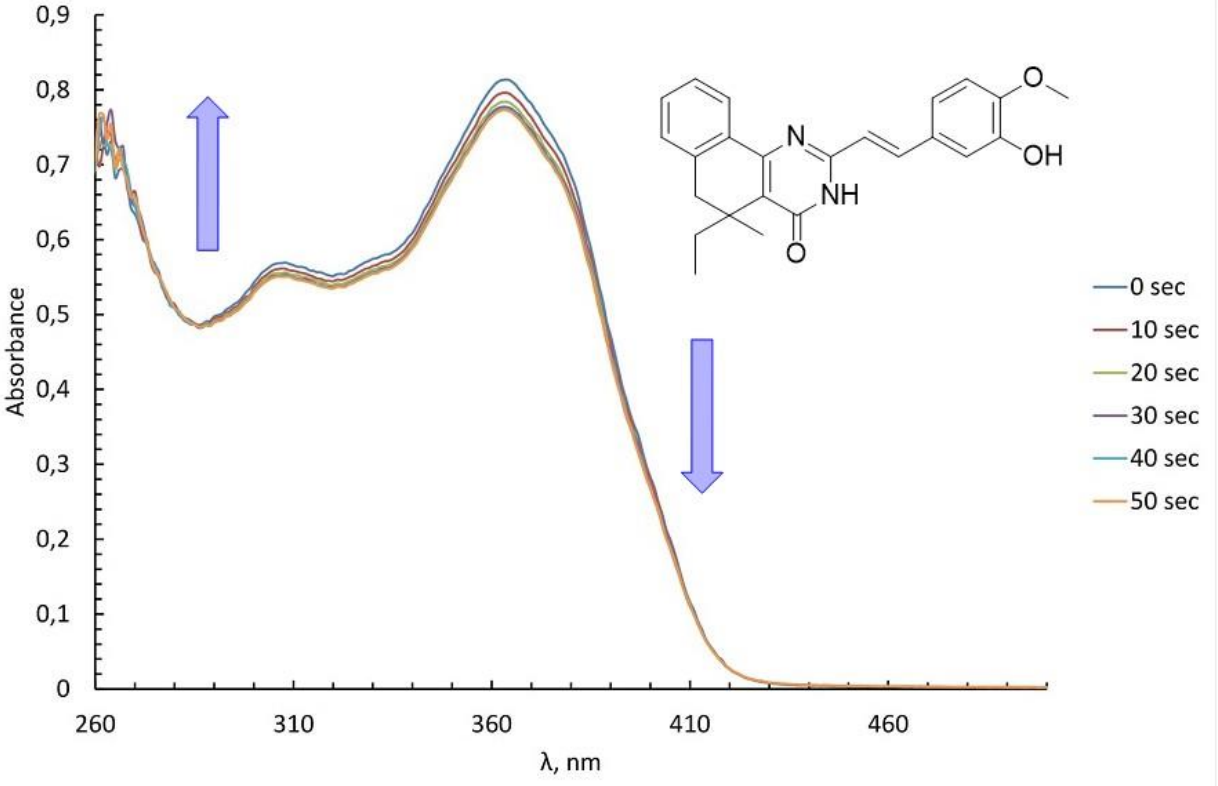


Figure S8. UV/Vis-monitoring of stilbene **1h** in DMSO (C = $2{,}6 \cdot 10^{-5}$ M)

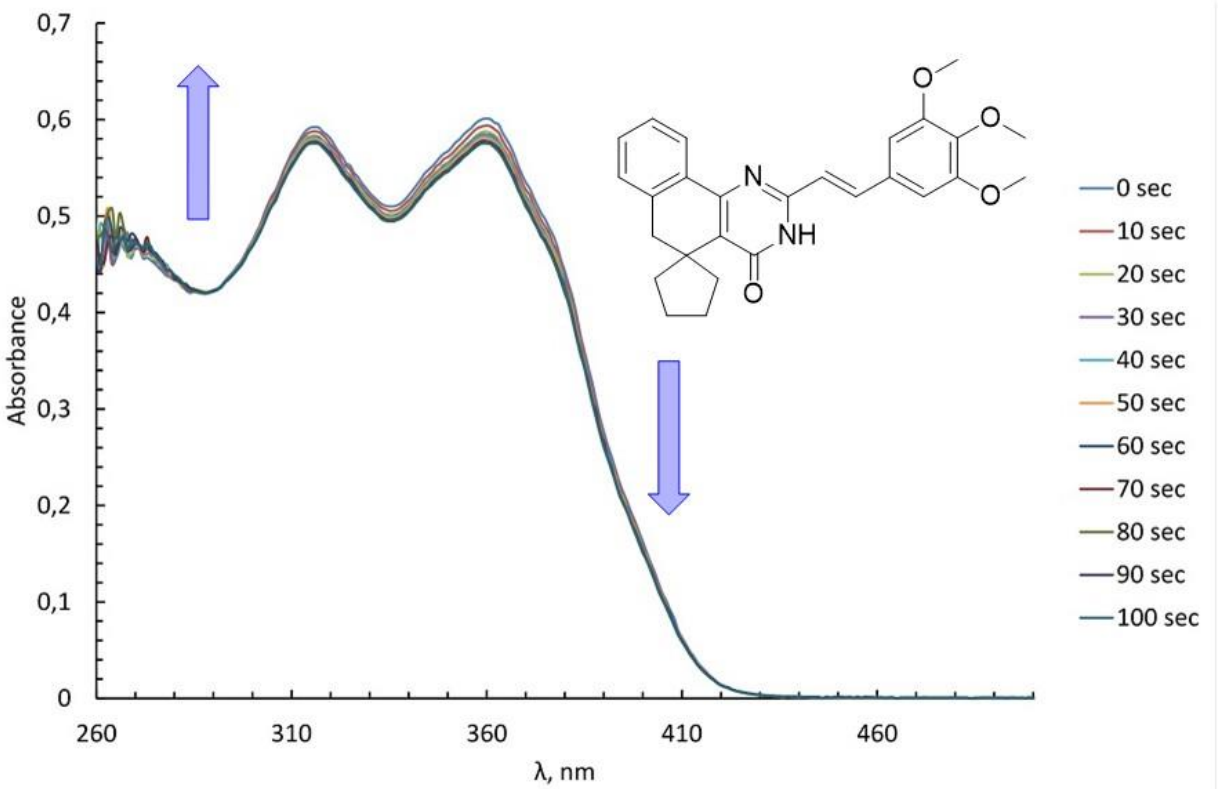


Figure S9. UV/Vis-monitoring of stilbene **1i** in DMSO (C = $2{,}3 \cdot 10^{-5}$ M)

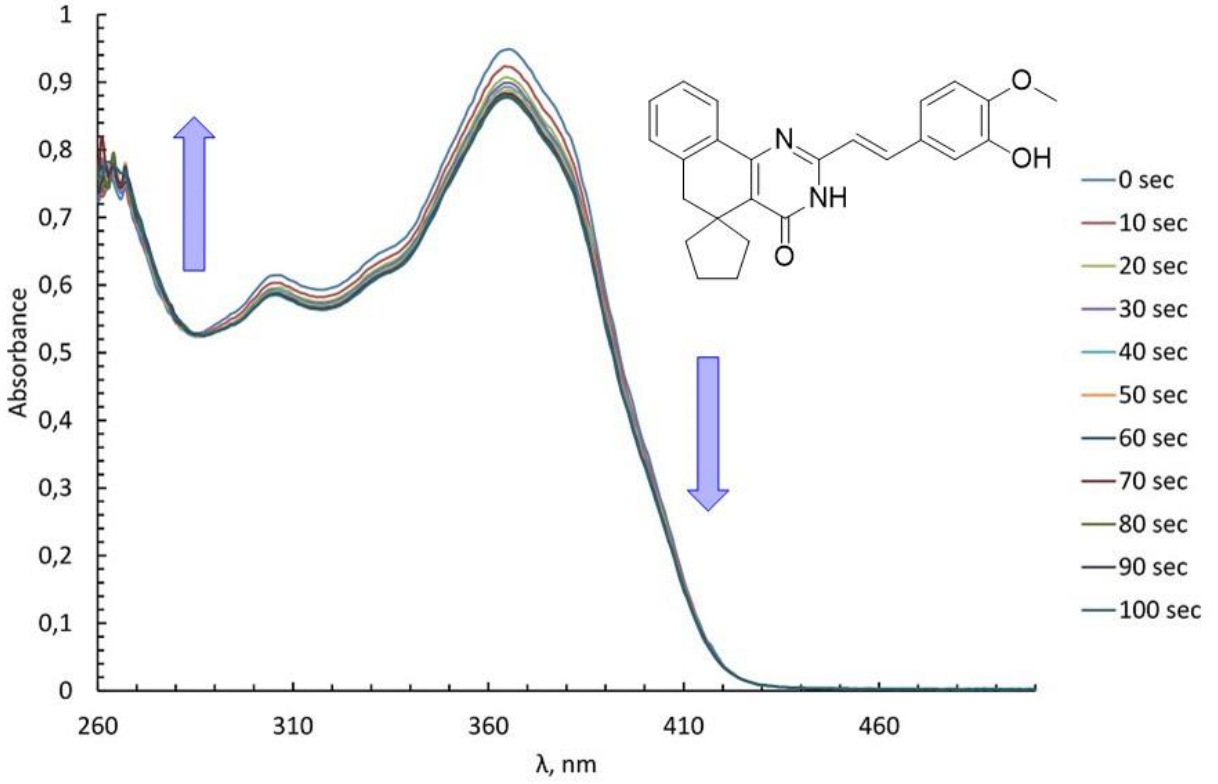


Figure S10. UV/Vis-monitoring of stilbene **1j** in DMSO (C = $2{,}5 \cdot 10^{-5}$ M)

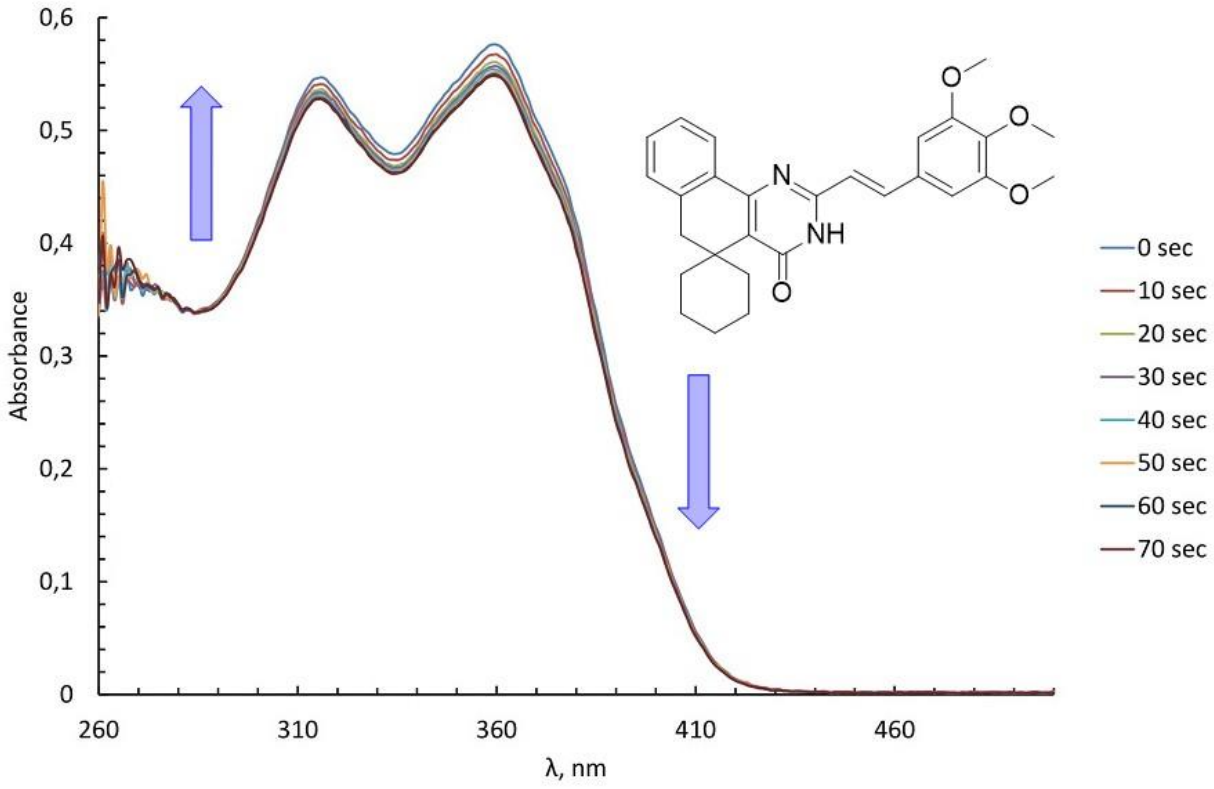


Figure S11. UV/Vis-monitoring of stilbene **1k** in DMSO (C = $2{,}2 \cdot 10^{-5}$ M)

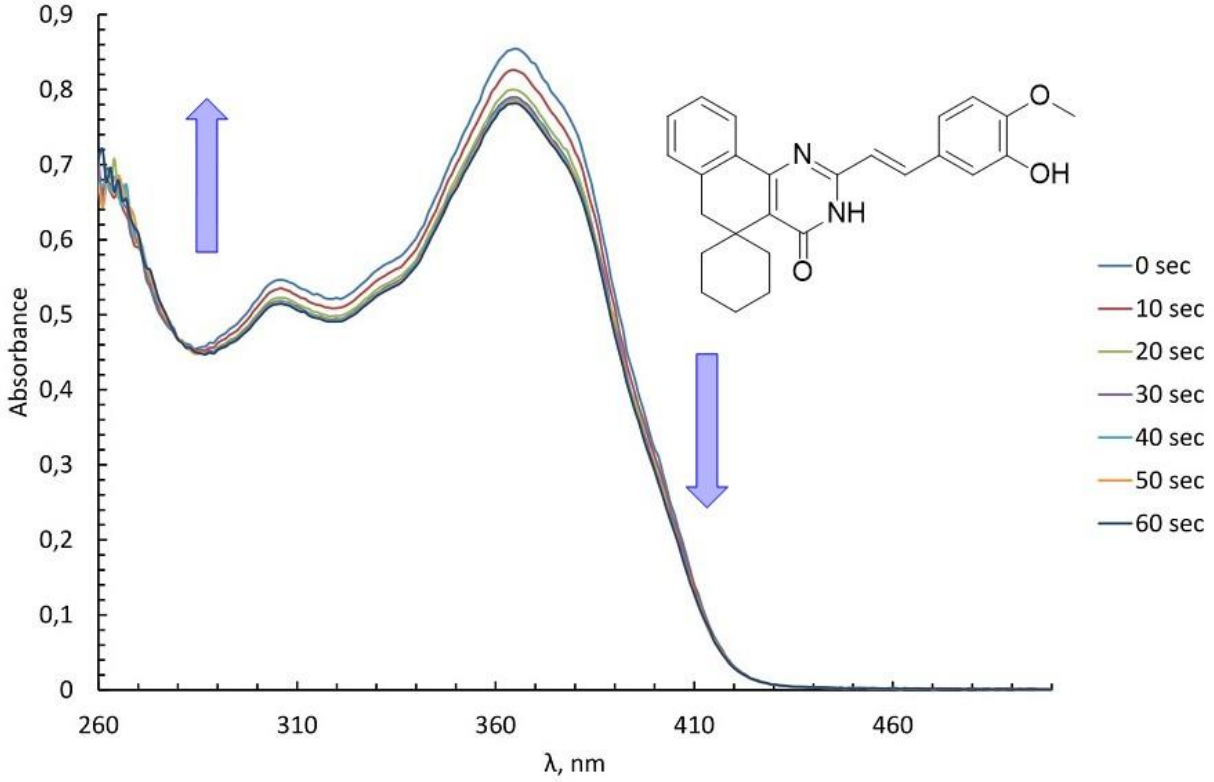


Figure S12. UV/Vis-monitoring of stilbene **1l** in DMSO (C = $2{,}4 \cdot 10^{-5}$ M)

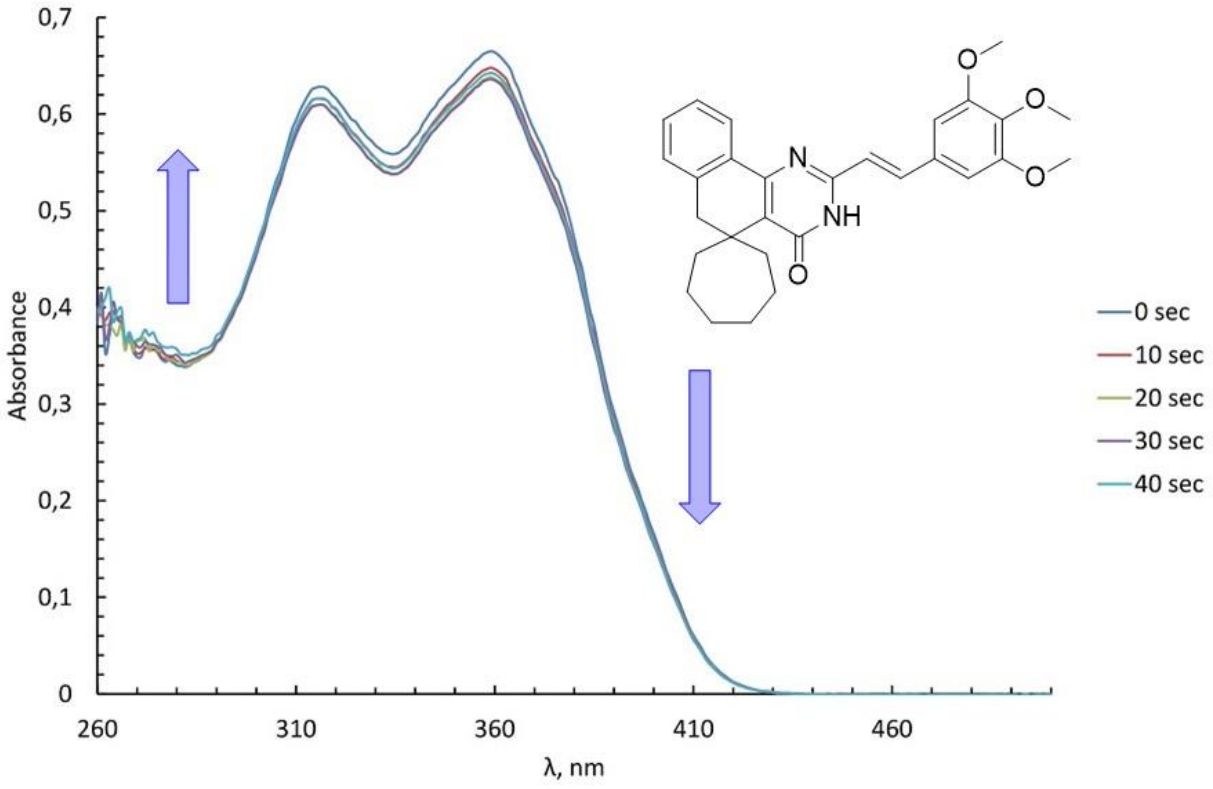


Figure S13. UV/Vis-monitoring of stilbene **1m** in DMSO (C = $2{,}1 \cdot 10^{-5}$ M)

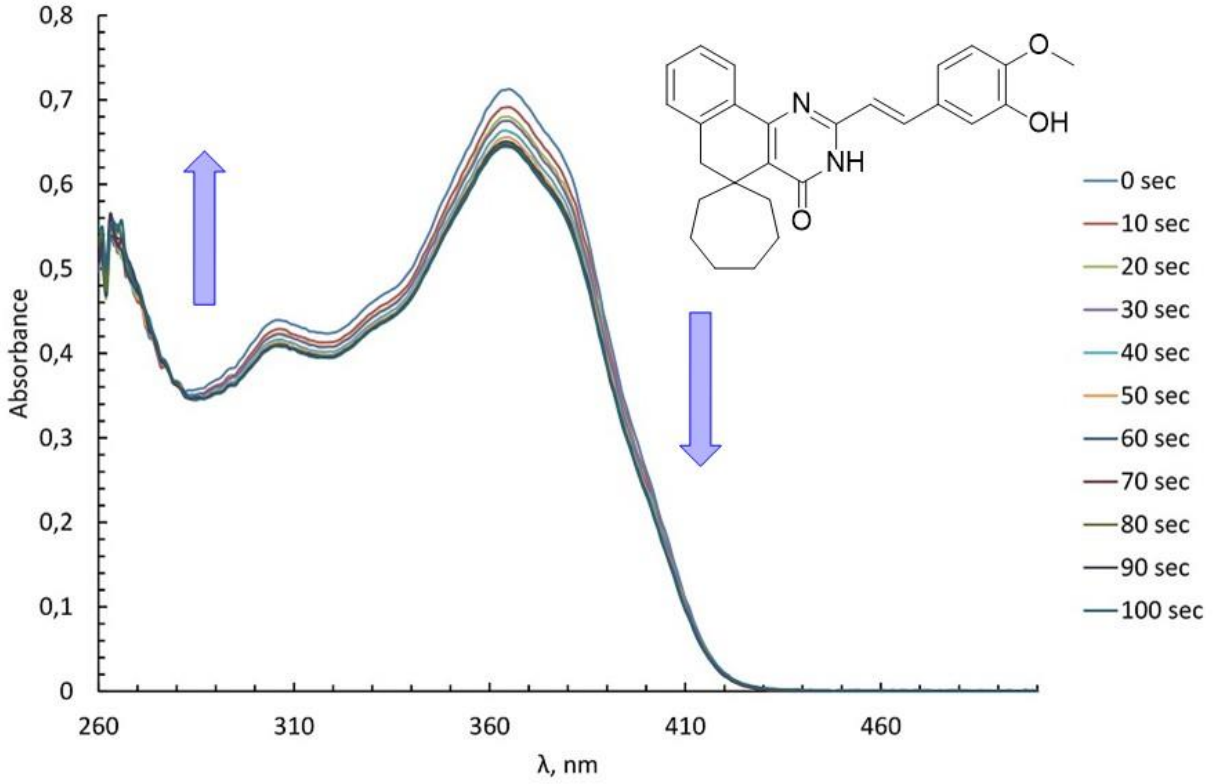


Figure S14. UV/Vis-monitoring of stilbene **1n** in DMSO (C = $2{,}3 \cdot 10^{-5}$ M)

IV. ^{1}H NMR monitorings of quinazoline stilbenes

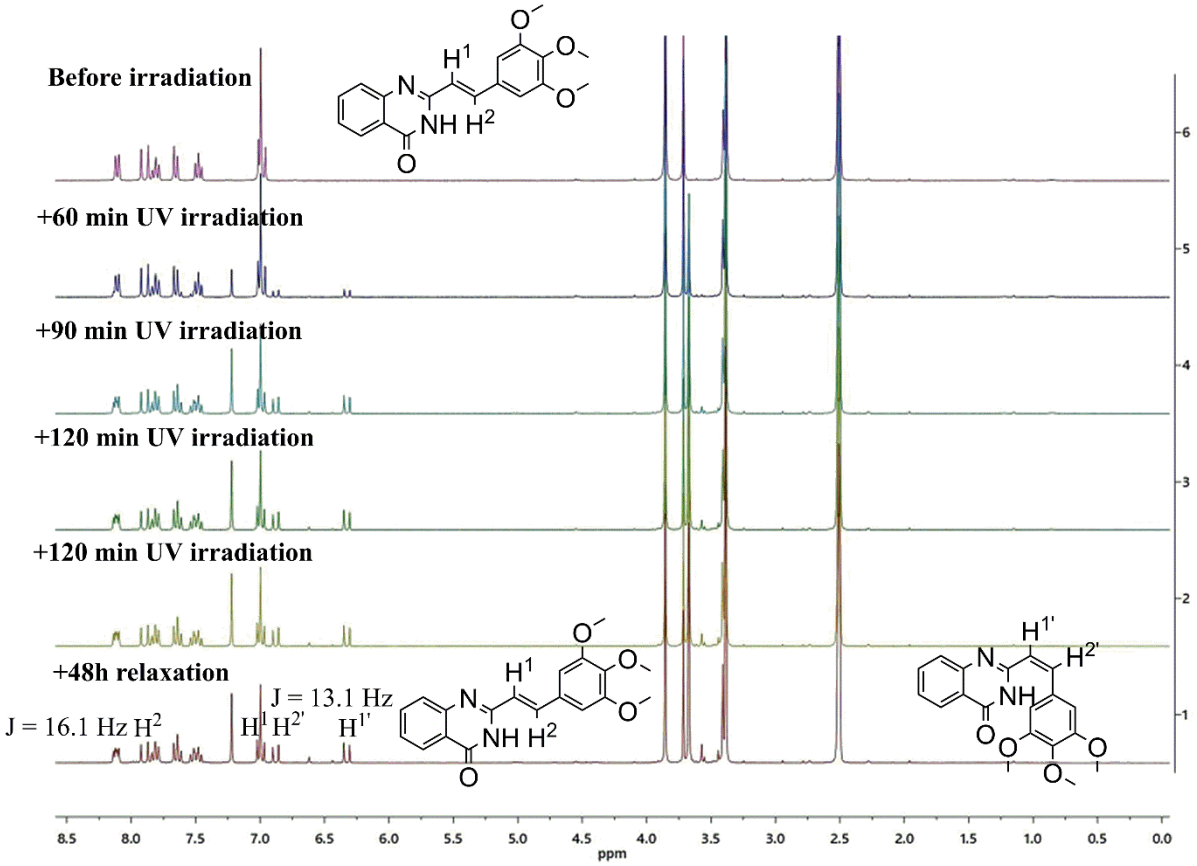


Figure S15. ^{1}H NMR monitoring of stilbene **1a** in DMSO-d_6 (E/Z = 1.25:1, C = 3,6·10^{-2} M)

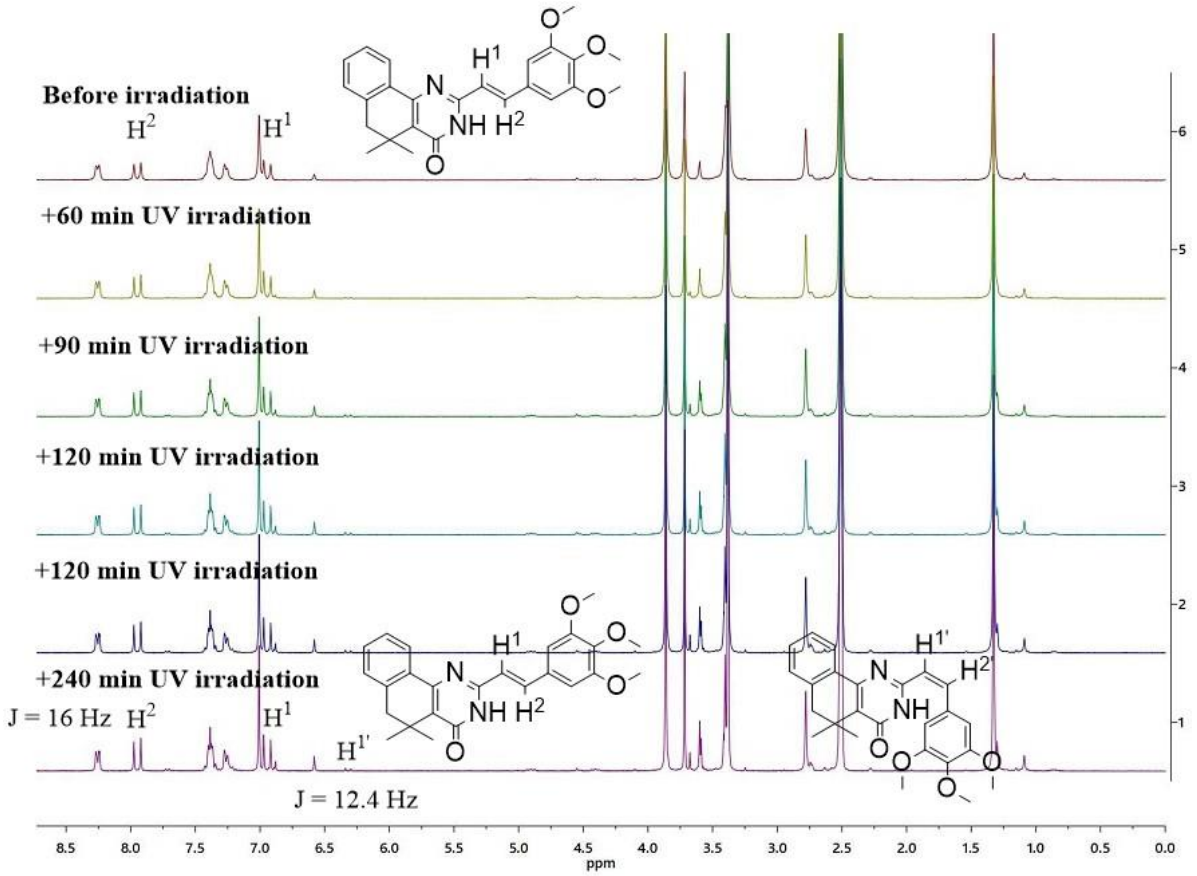


Figure S16. ^{1}H NMR monitoring of stilbene **1d** in DMSO-d_6 (E/Z = 8.93:1, C = 2,9·10^{-2} M)

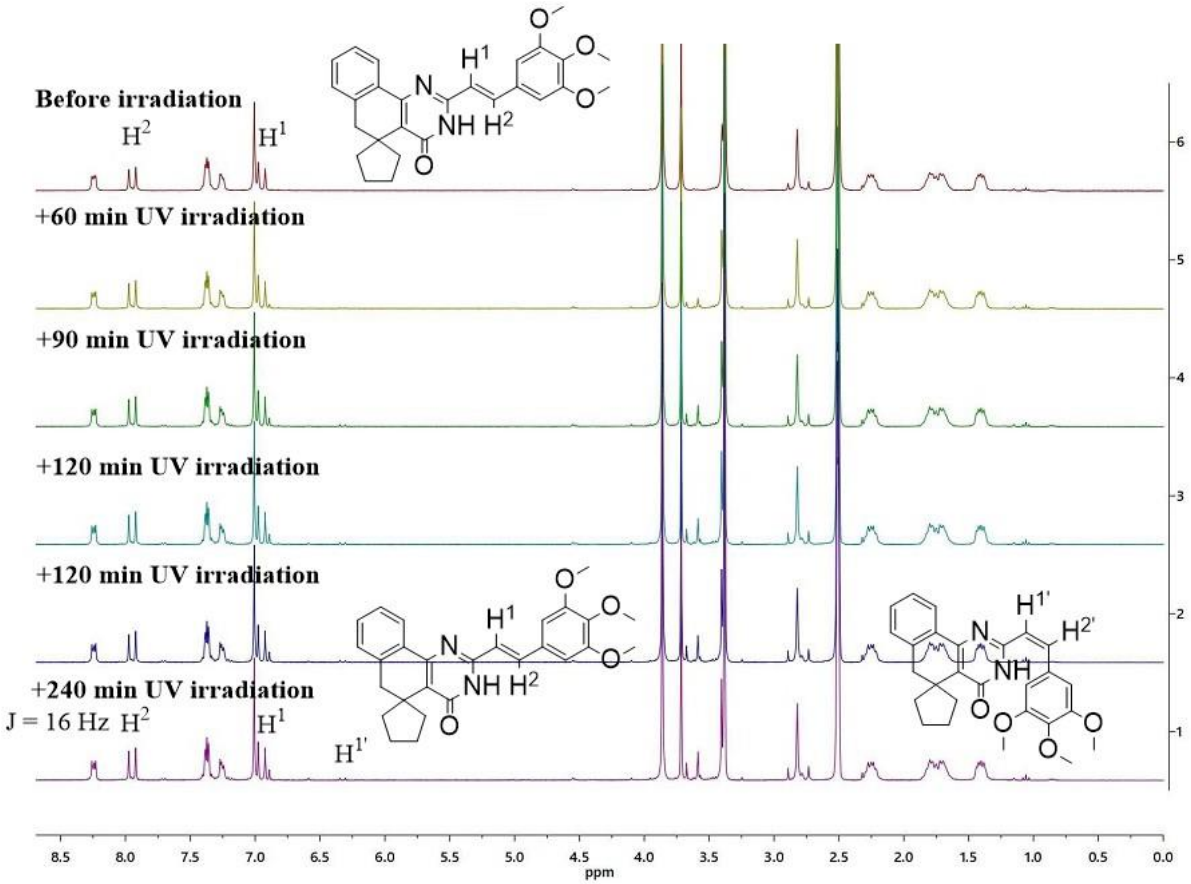


Figure S17. ^{1}H NMR monitoring of stilbene **1i** in DMSO-d_6 (E/Z = 10:1, C = 2,7·10^{-2} M)

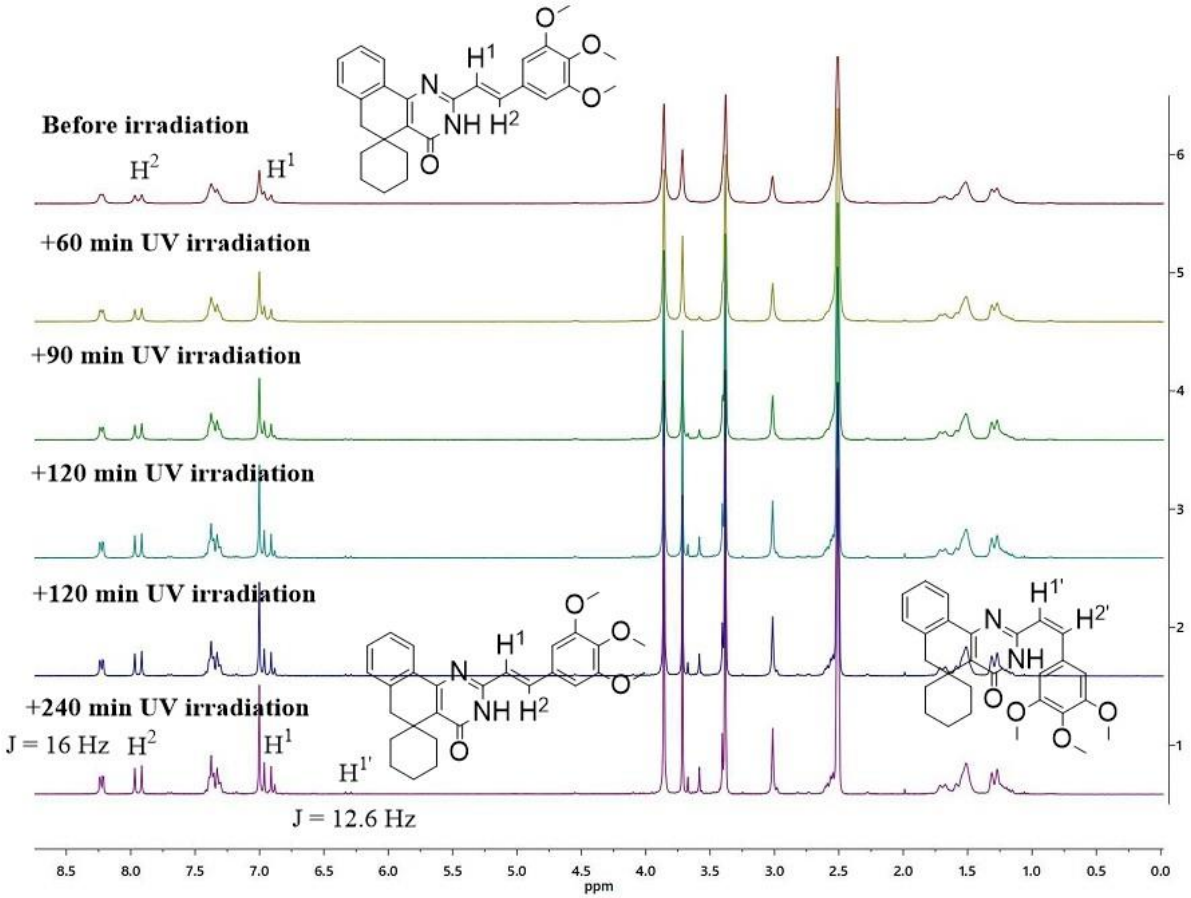


Figure S18. ^{1}H NMR monitoring of stilbene **1k** in DMSO-d_6 (E/Z = 10.3:1, C = 2,6·10^{-2} M)

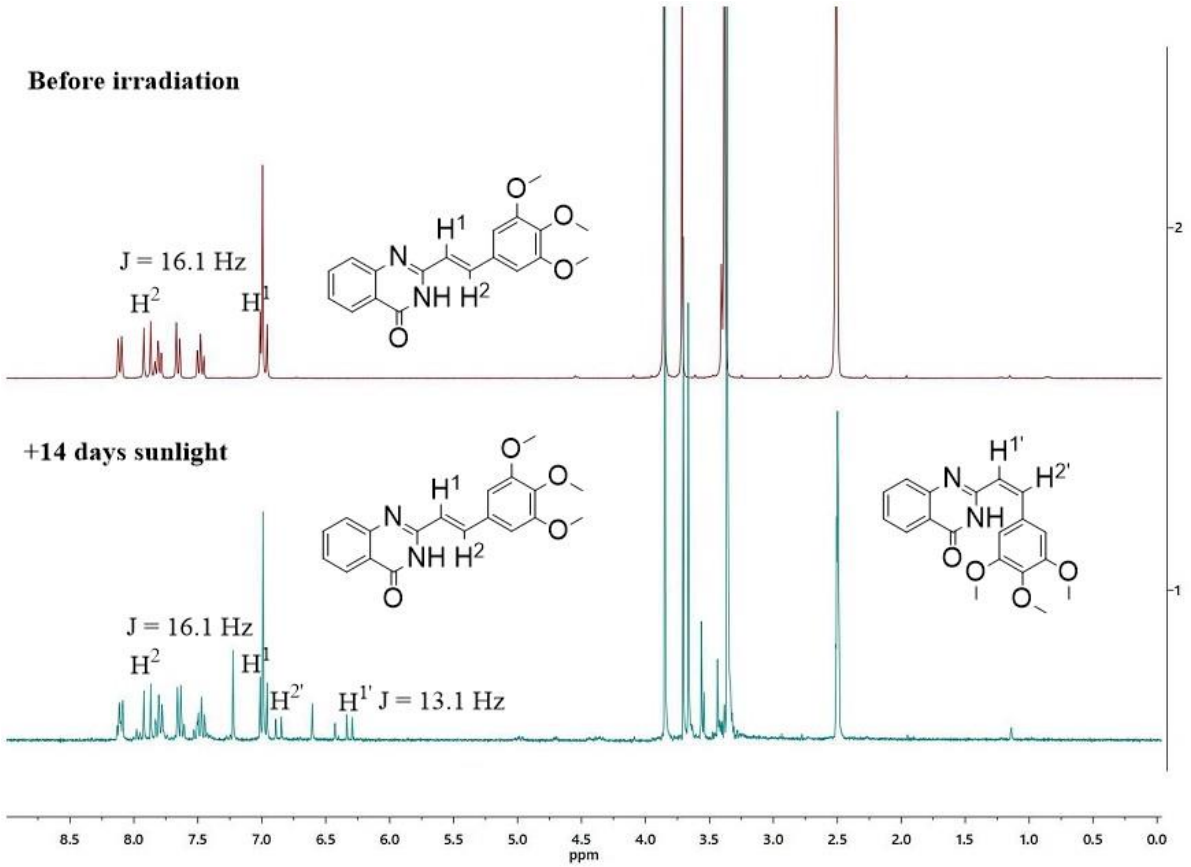


Figure S19. Sunlight ^{1}H NMR monitoring of stilbene **1a** in DMSO-d_6 (E/Z = 2.24:1, C = 3,6·10^{-2} M)

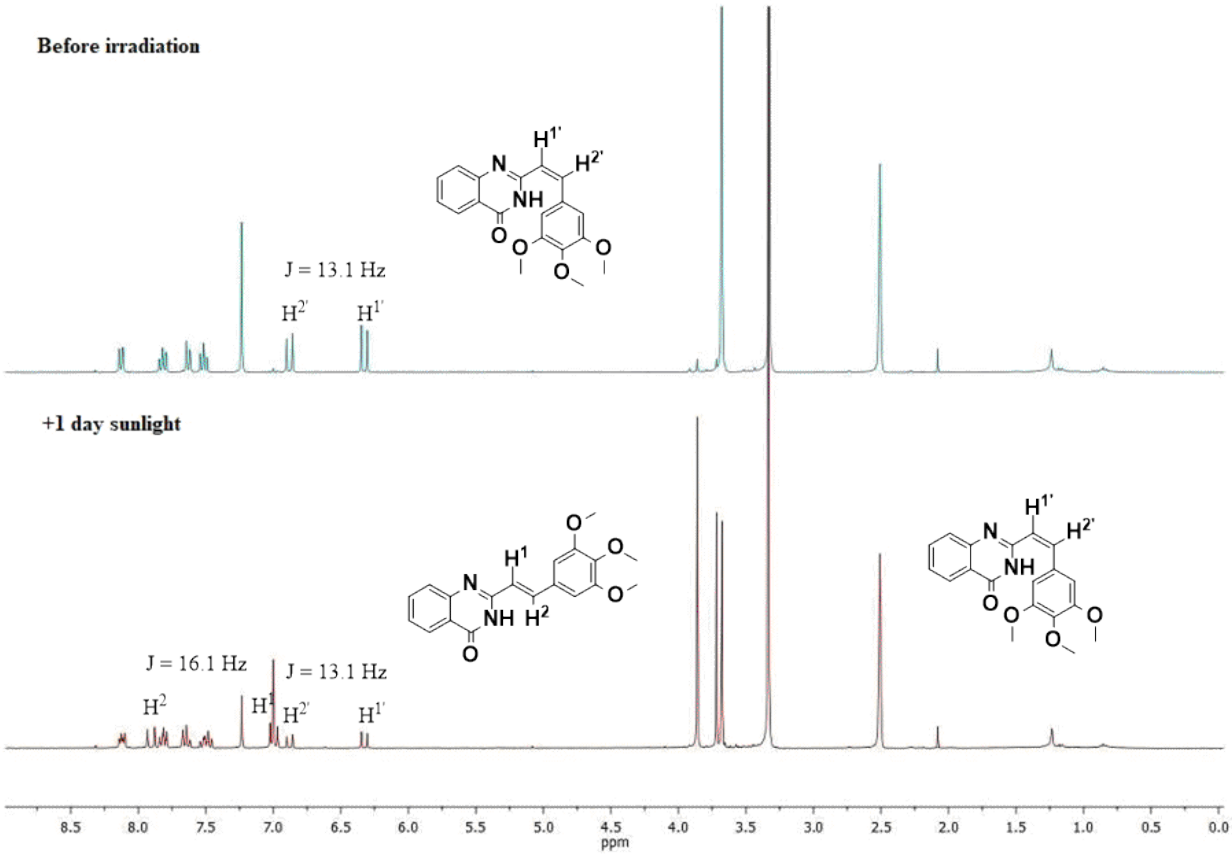
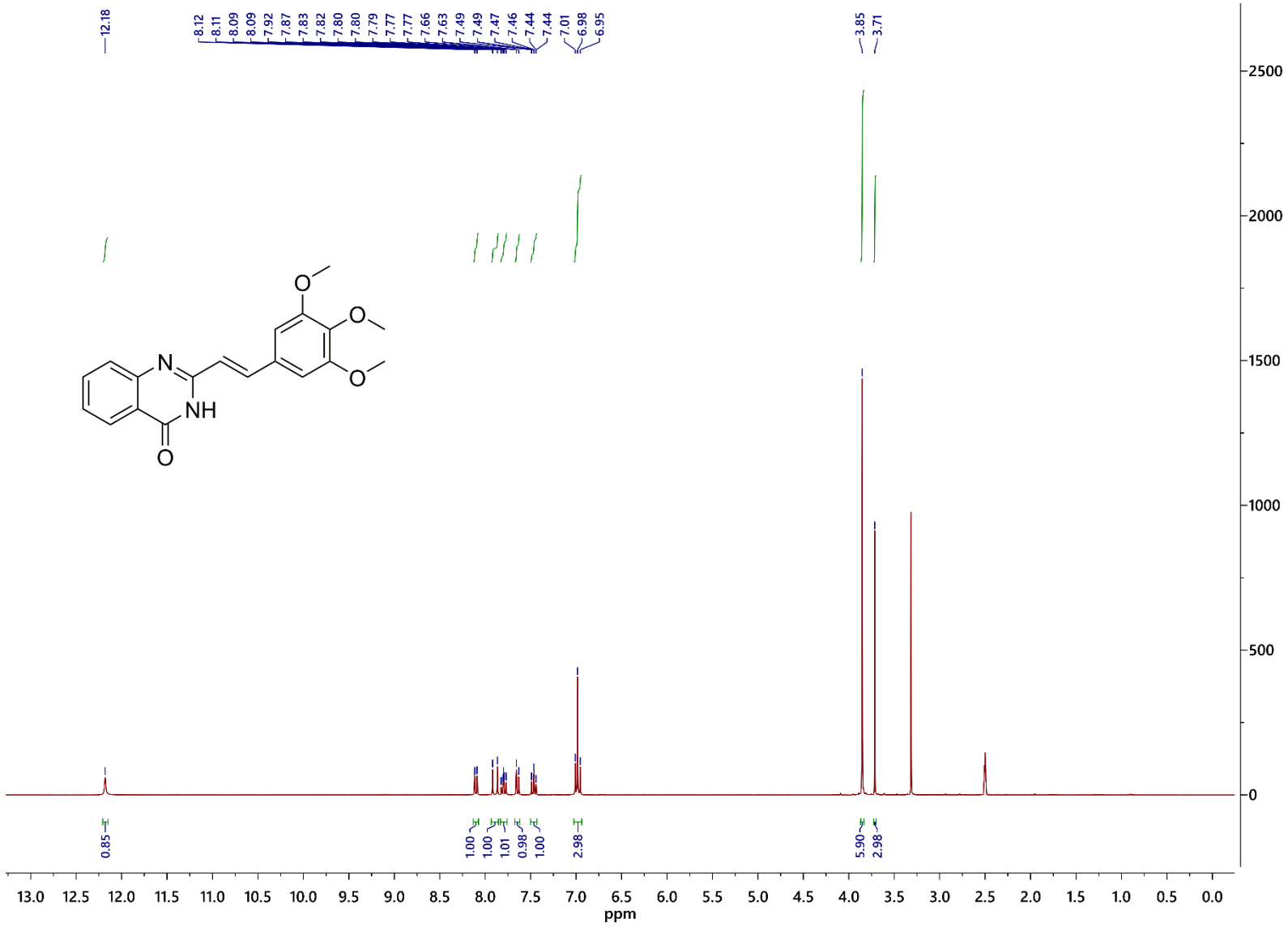
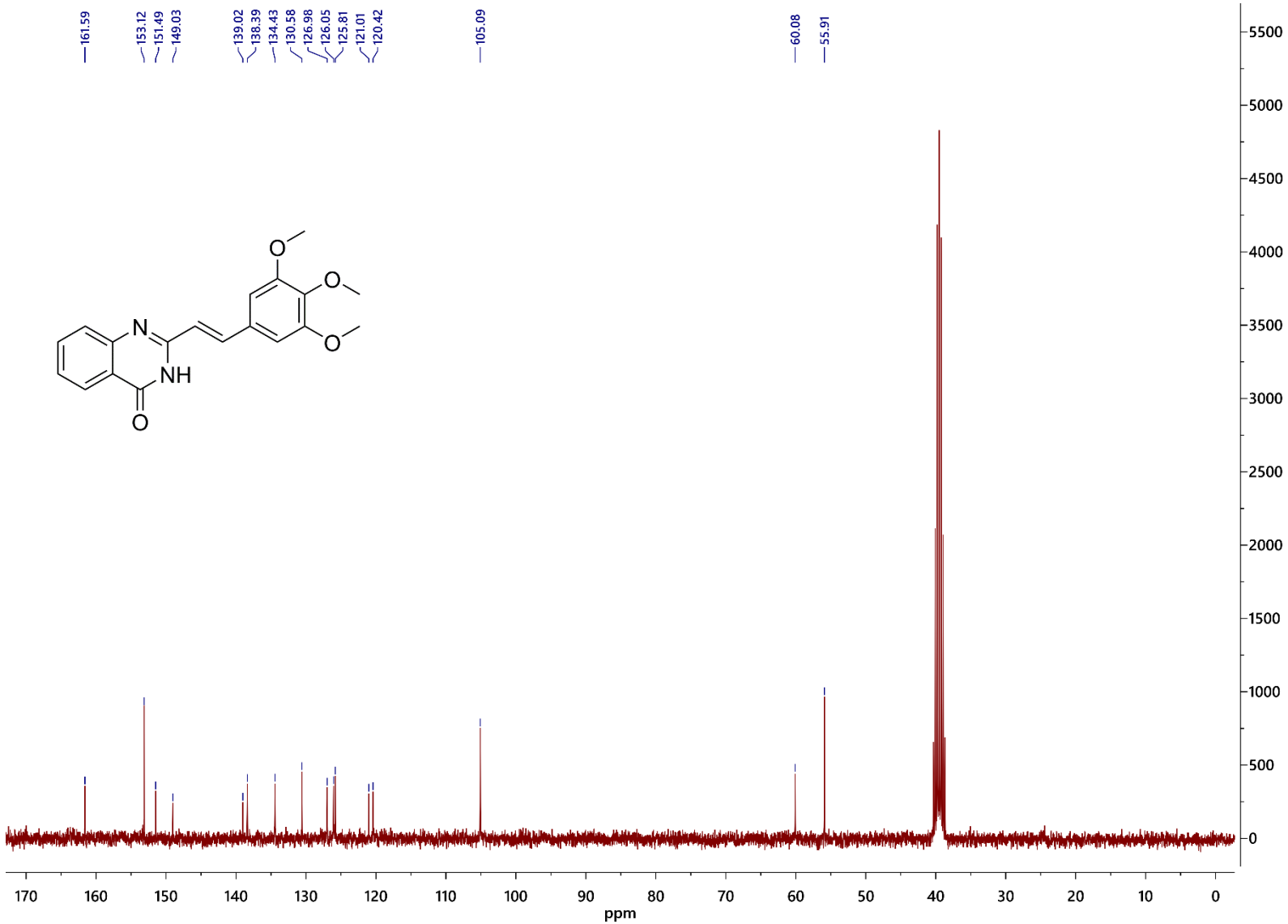


Figure S20. Sunlight ^{1}H NMR monitoring of stilbene **1a**-Z100 in DMSO-d_6 (E/Z = 1.7:1, C = 3,6·10^{-2} M)

V. Copies of ^{1}H and ^{13}C NMR spectra

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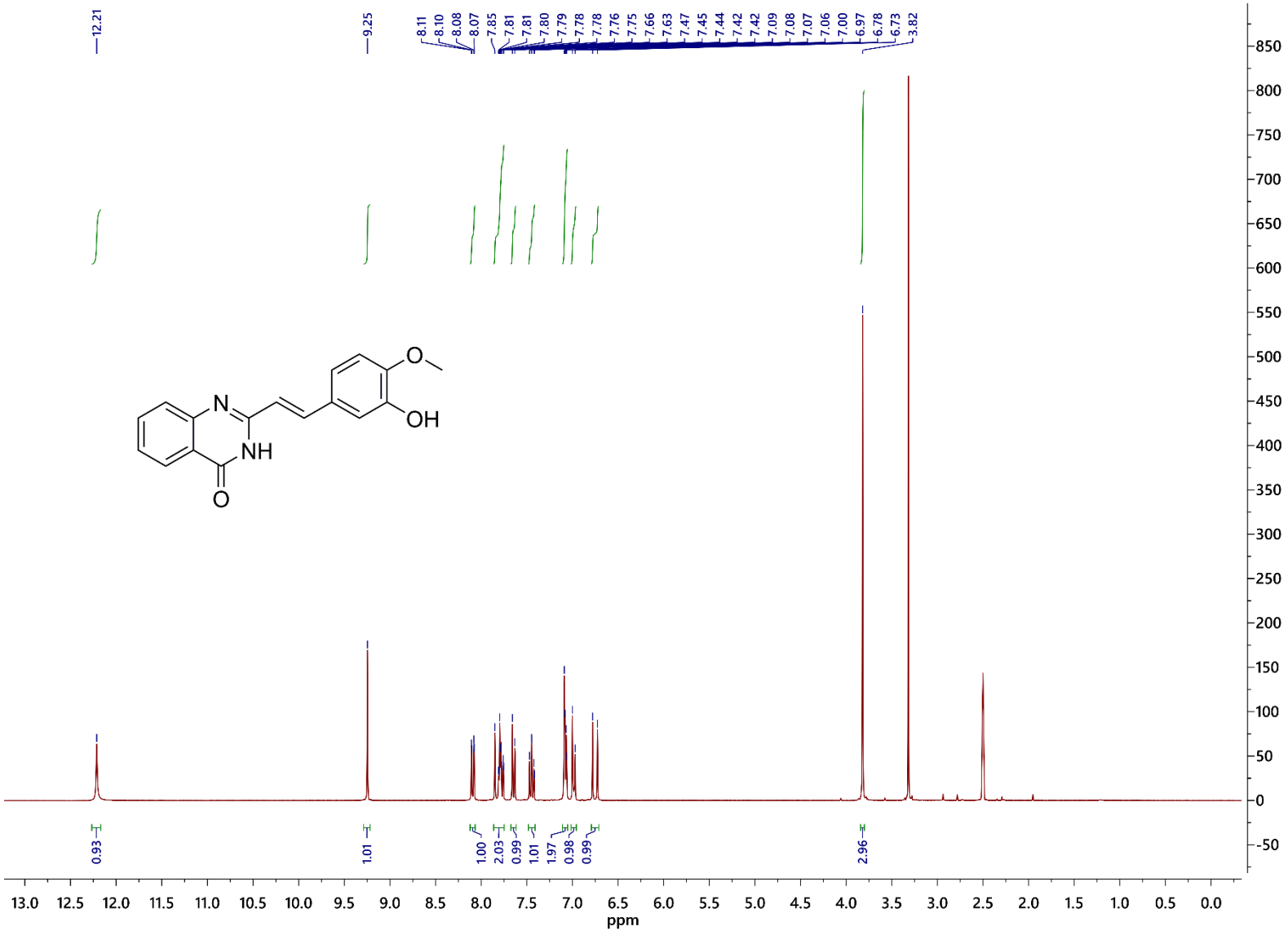
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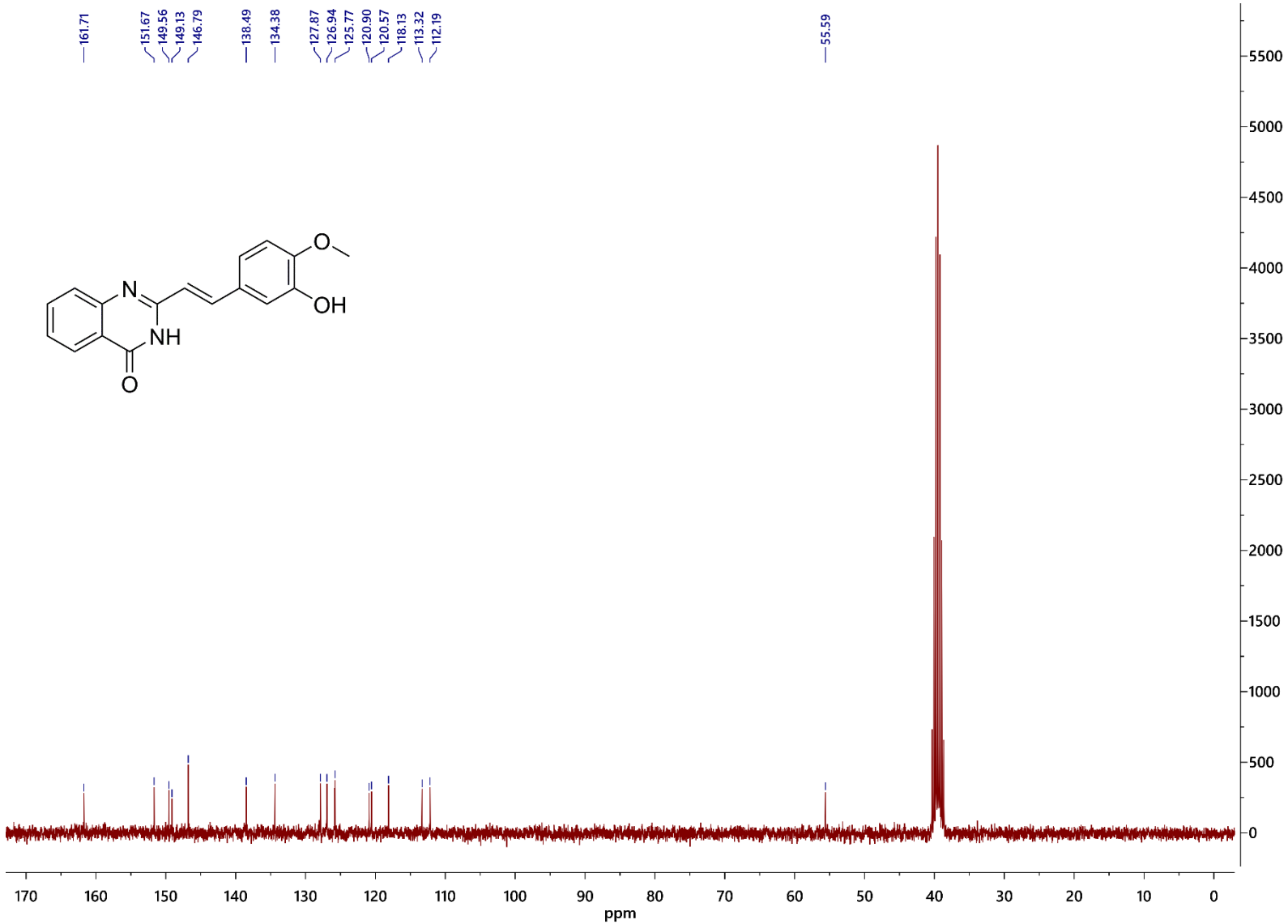
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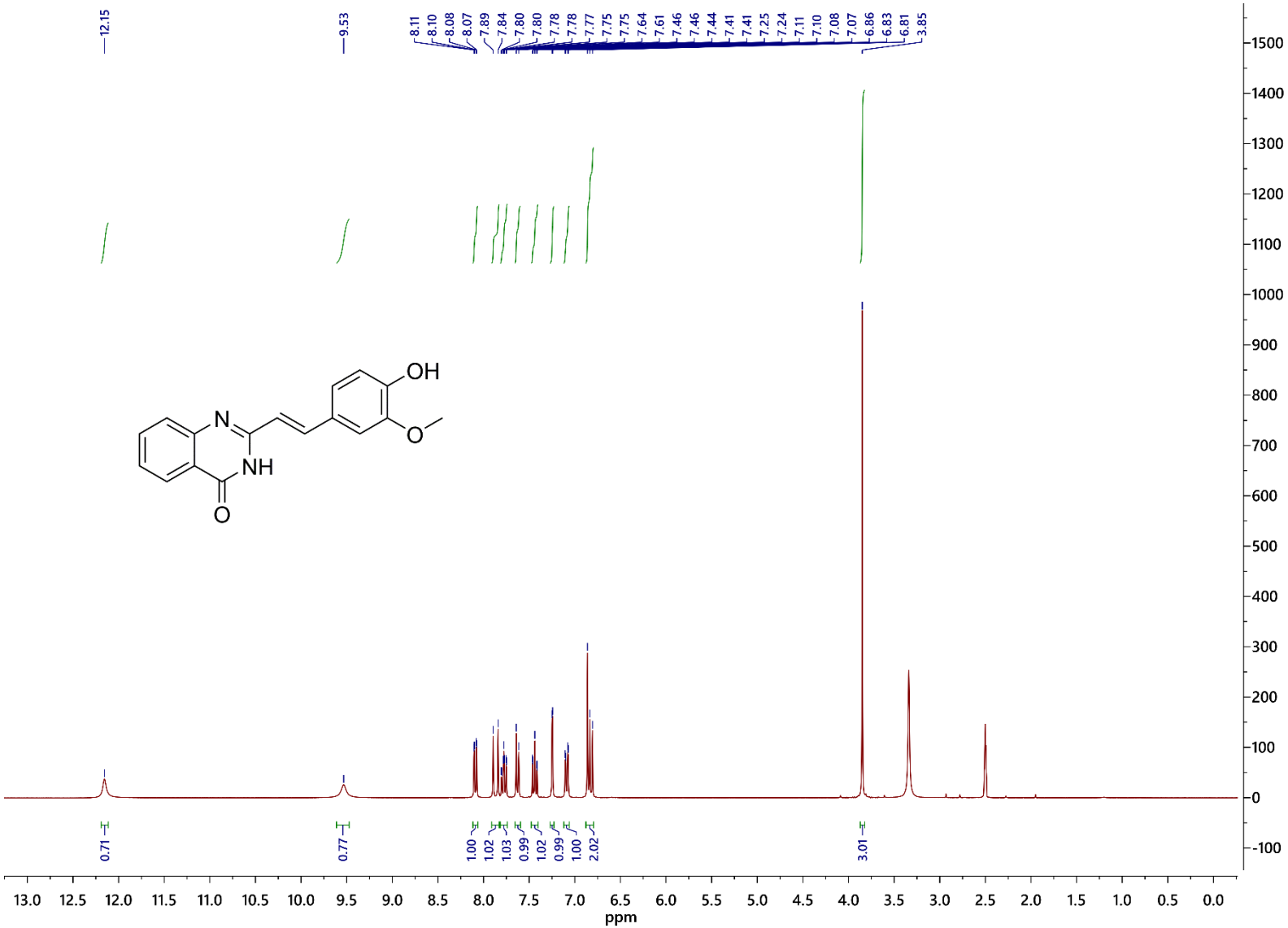
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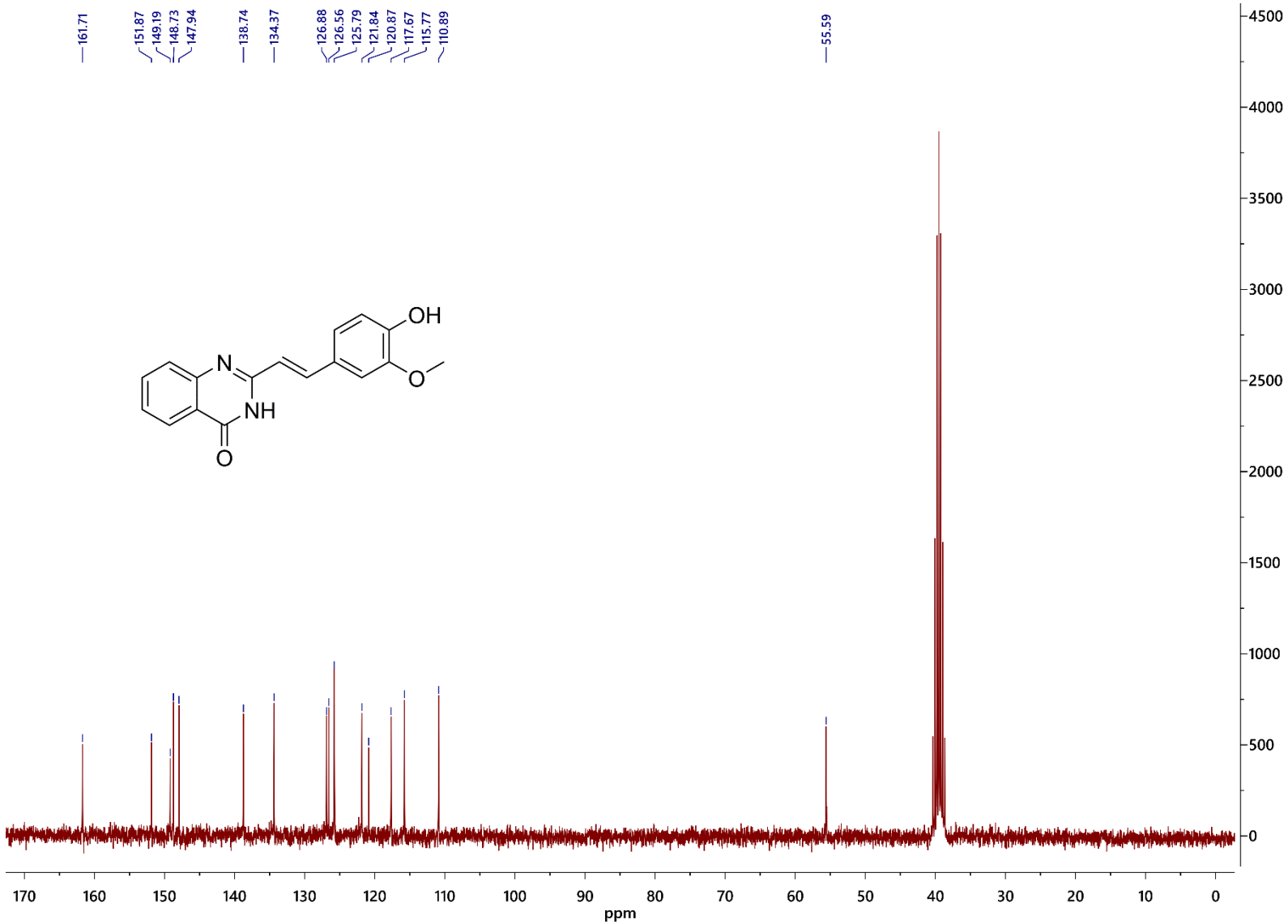
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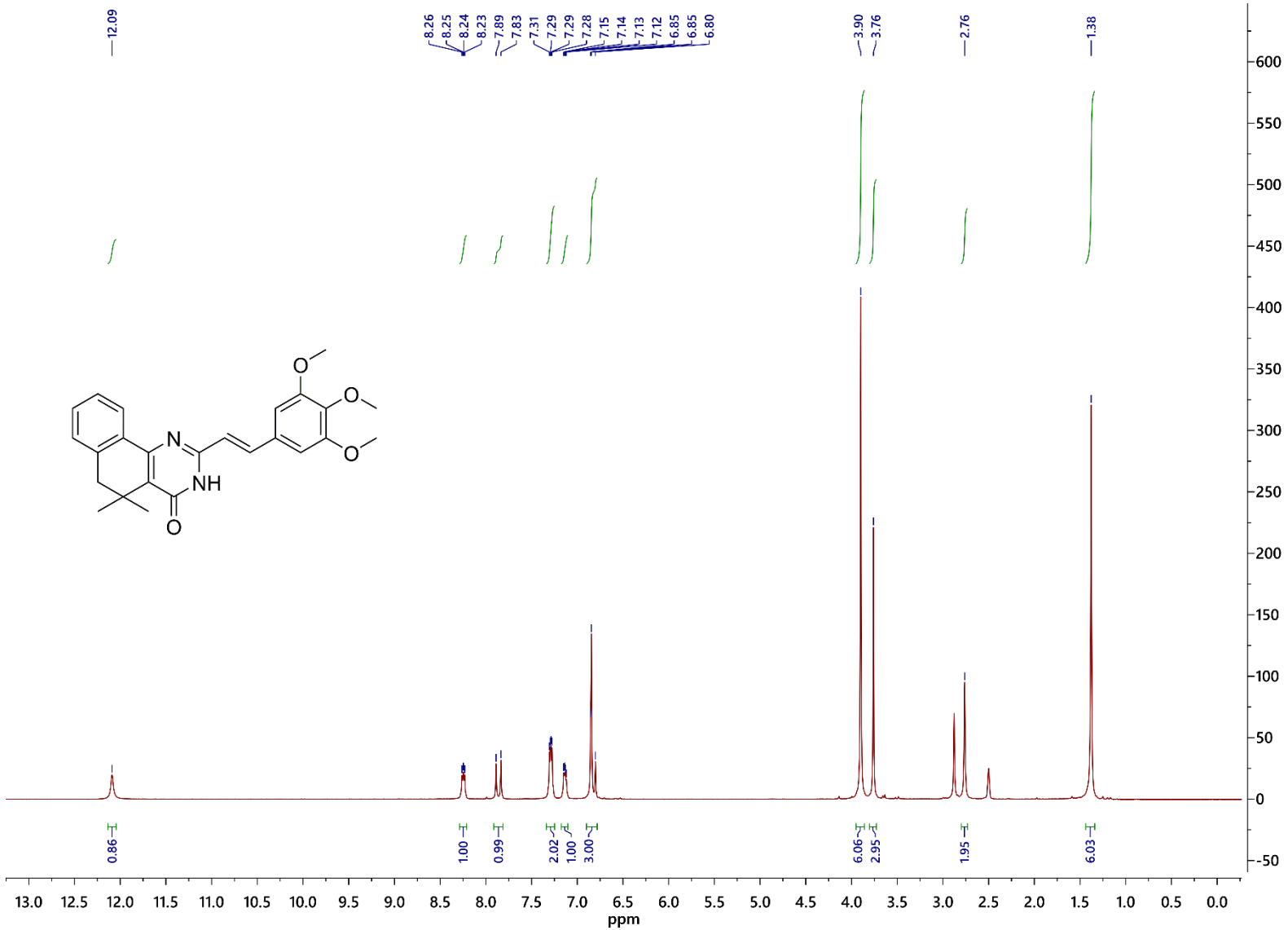
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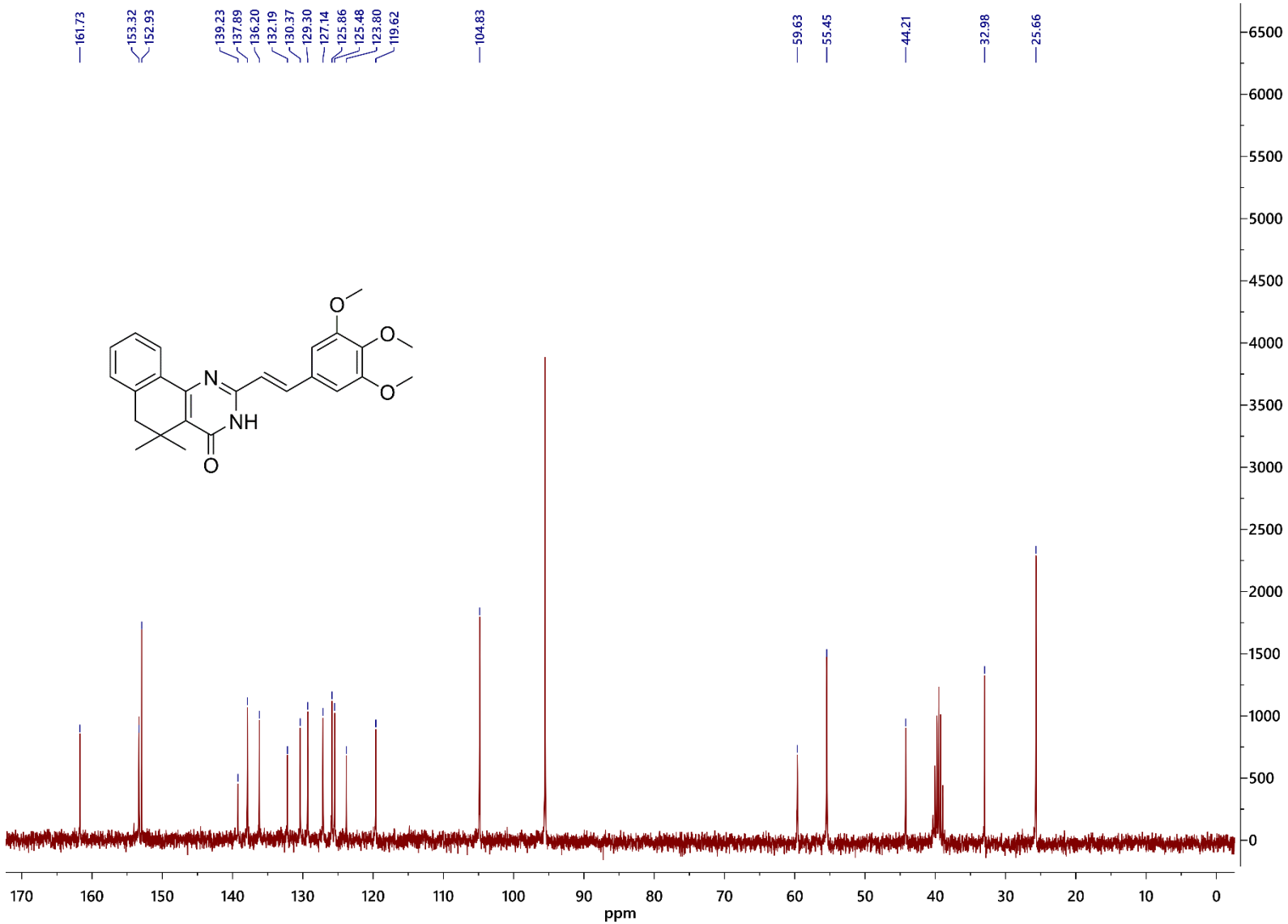
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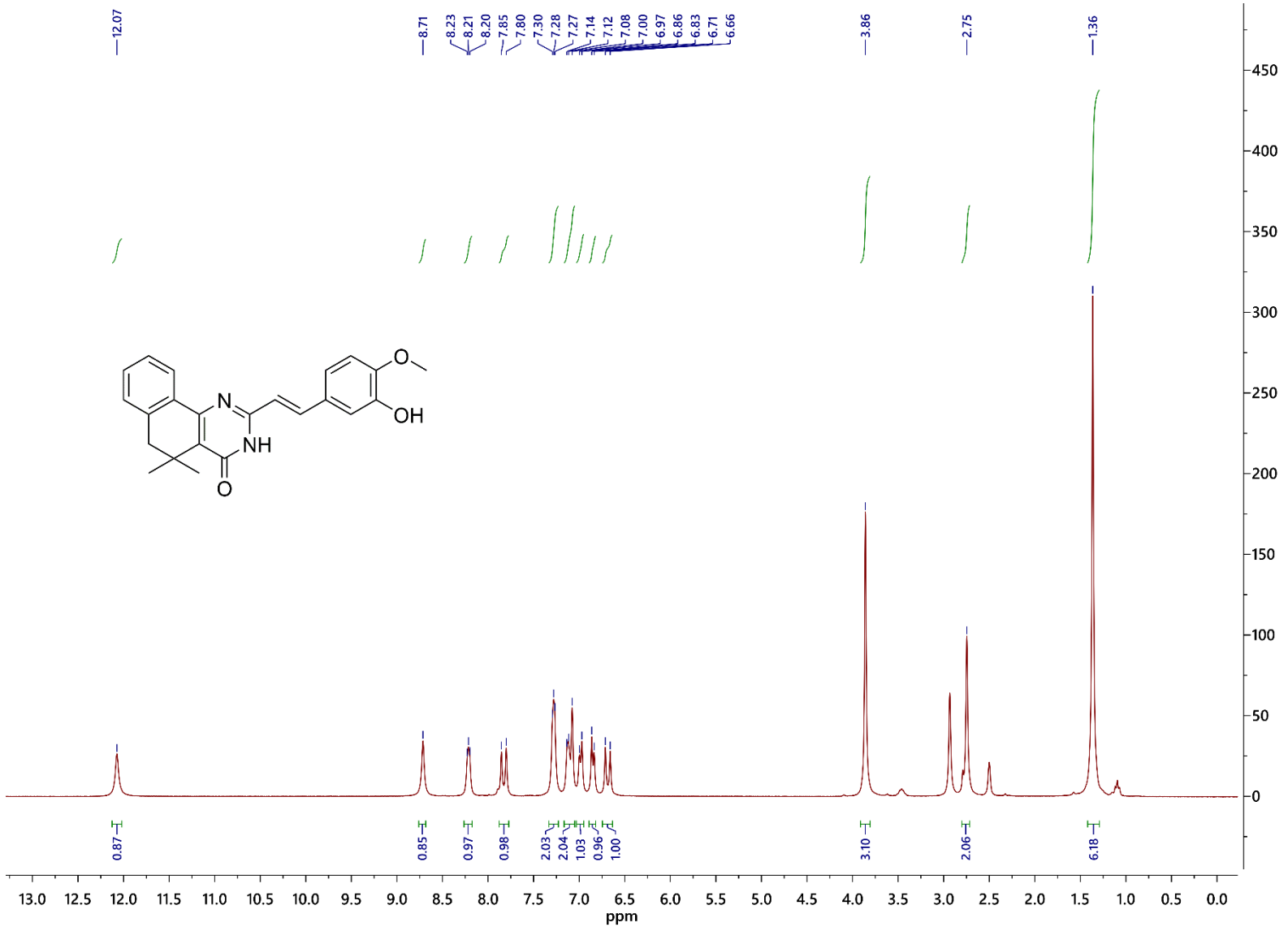
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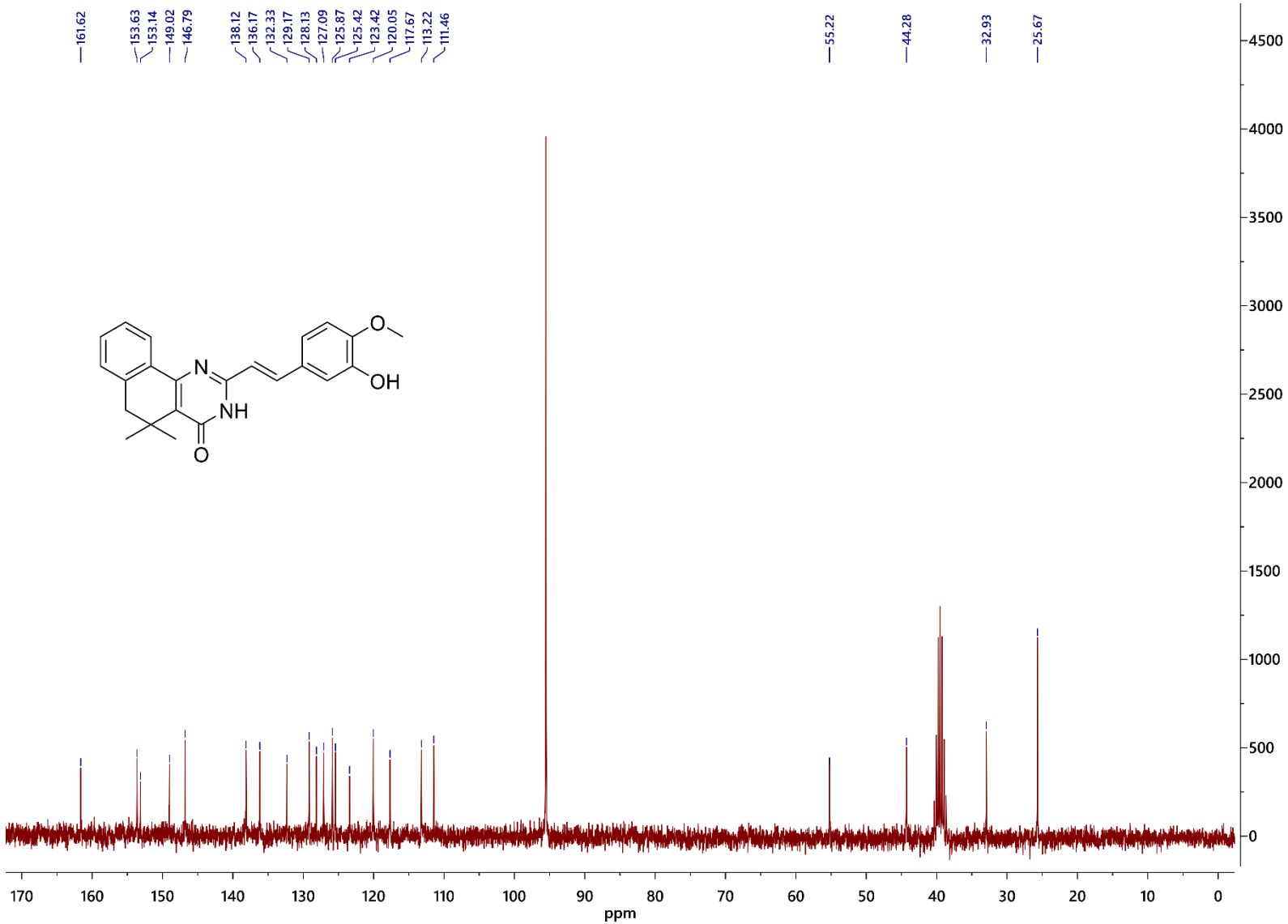
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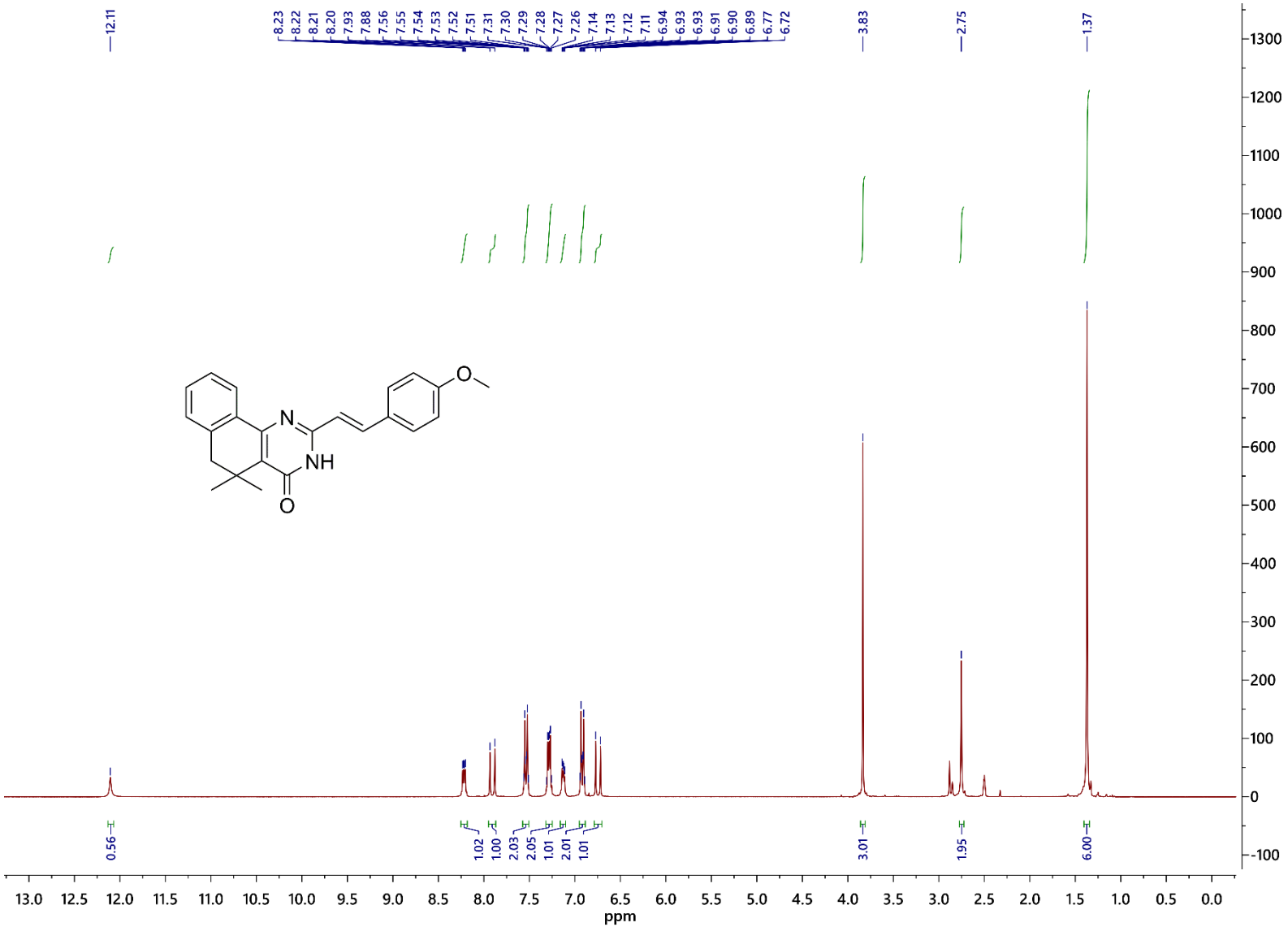
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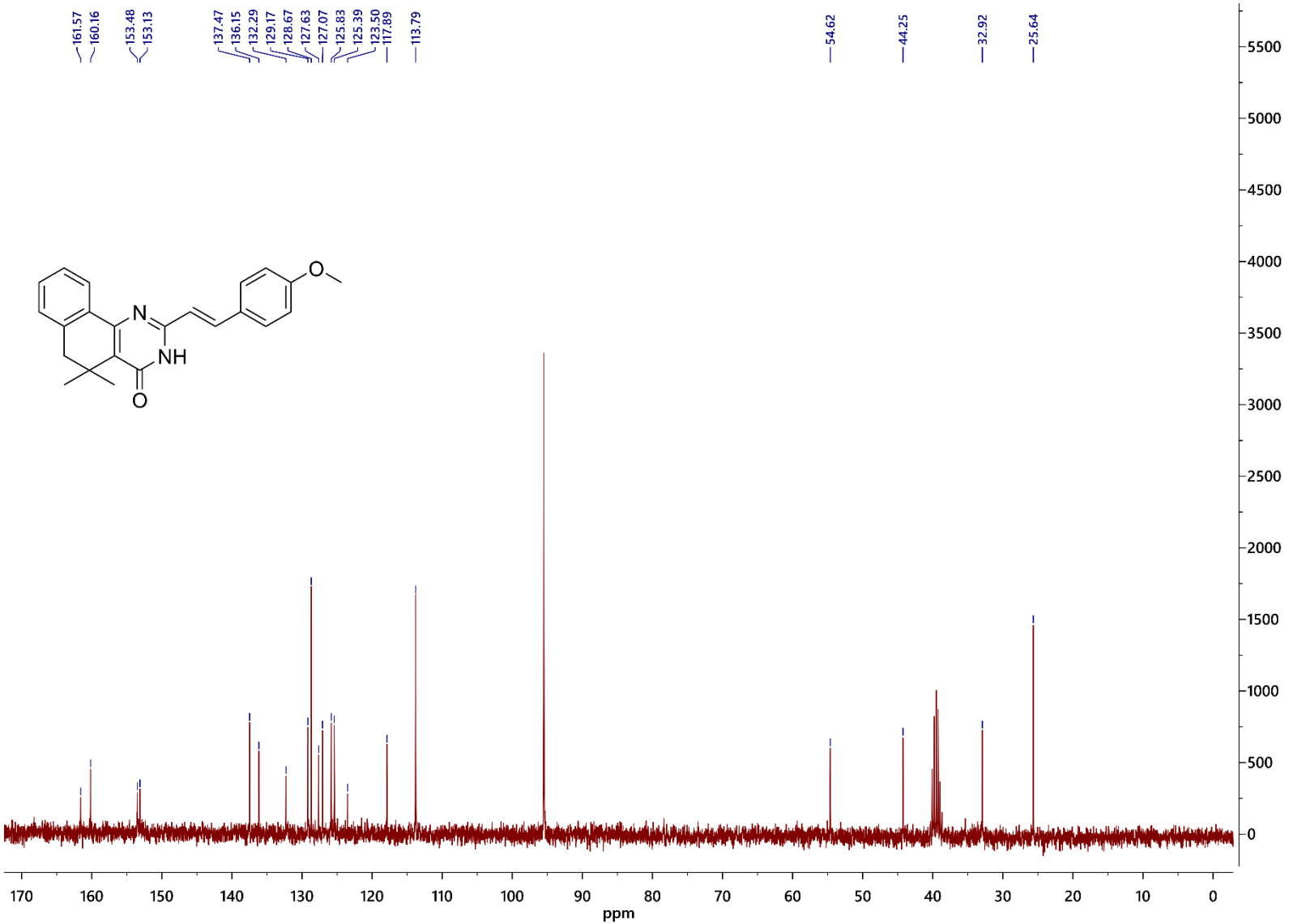
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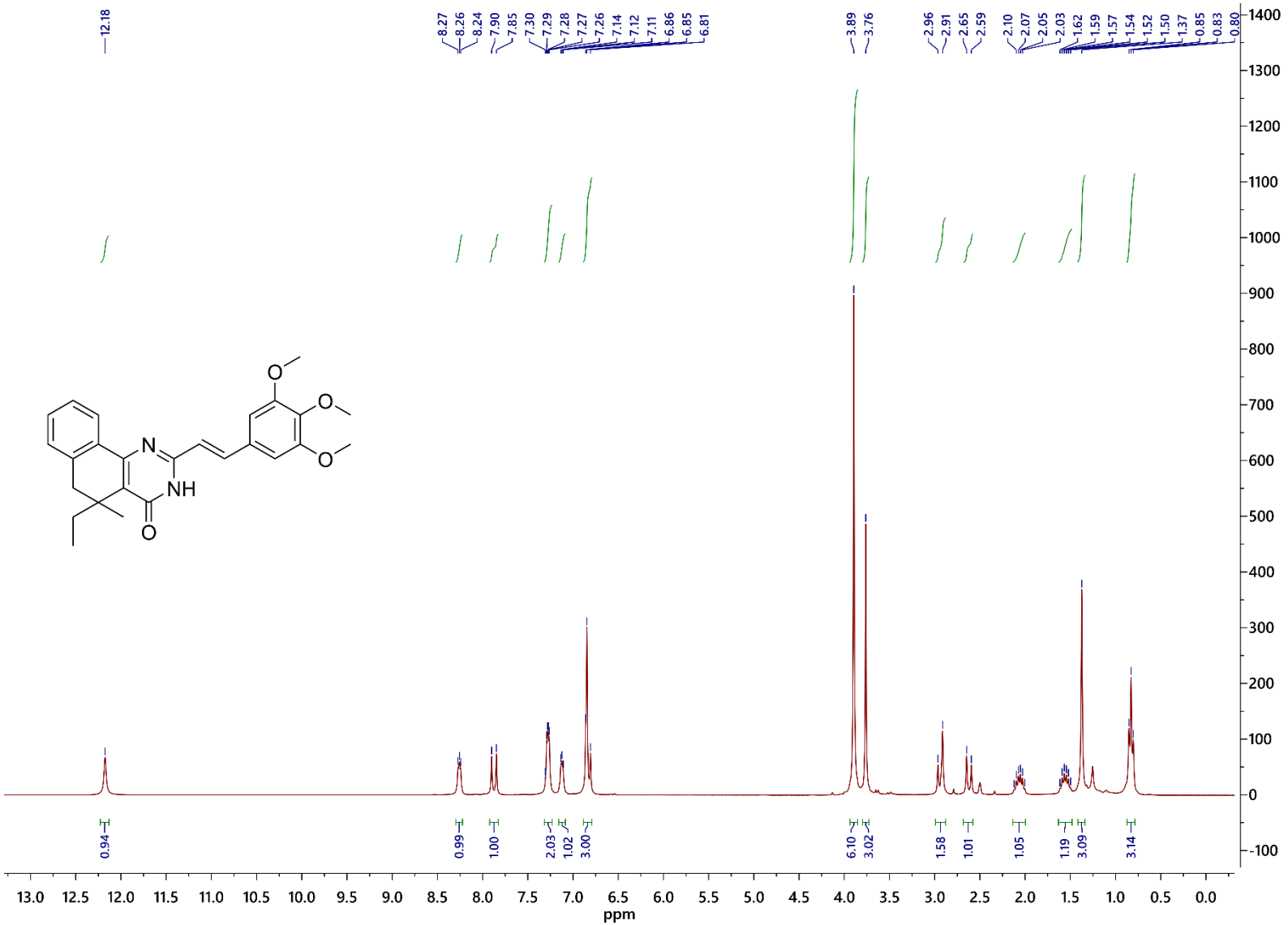
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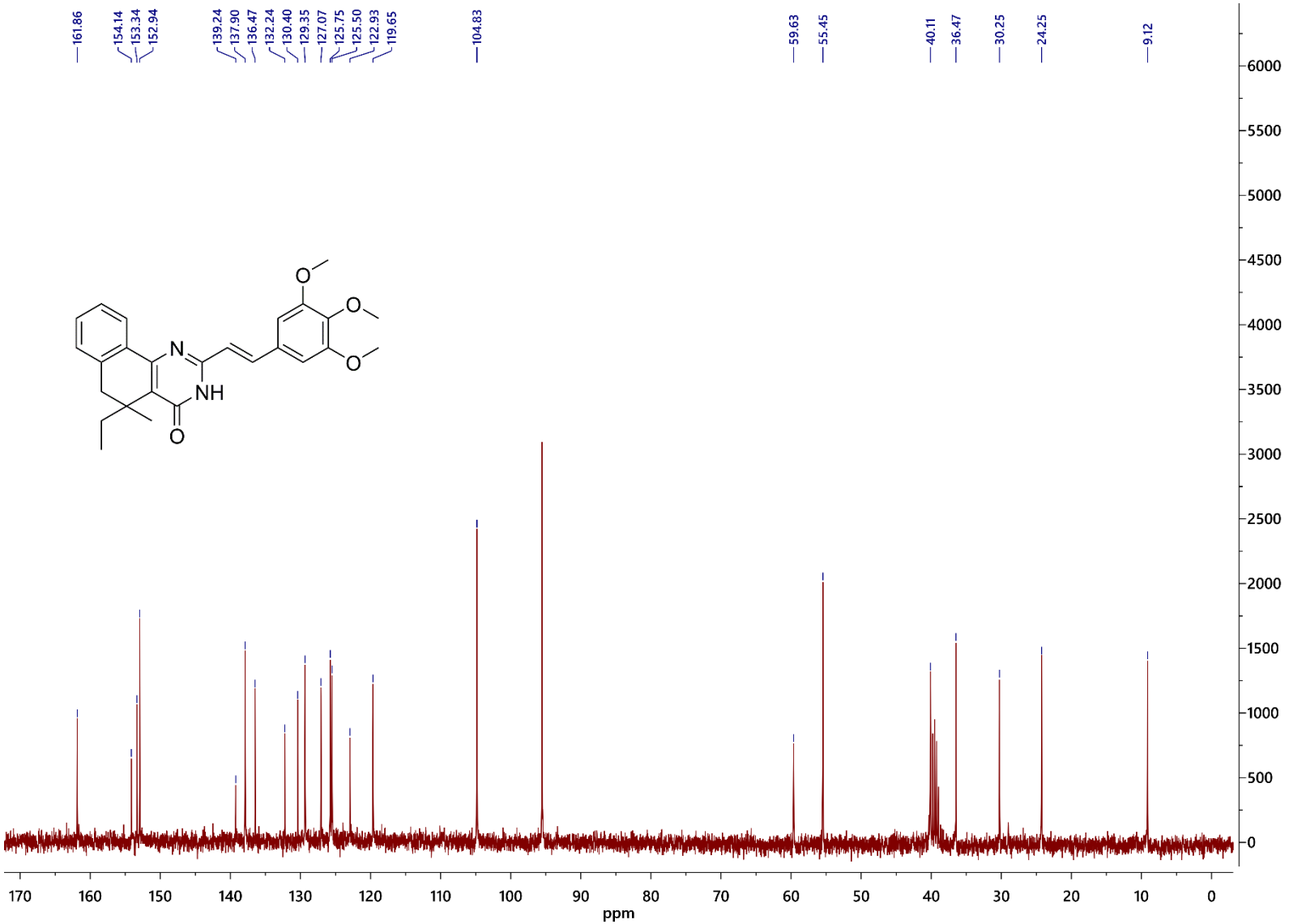
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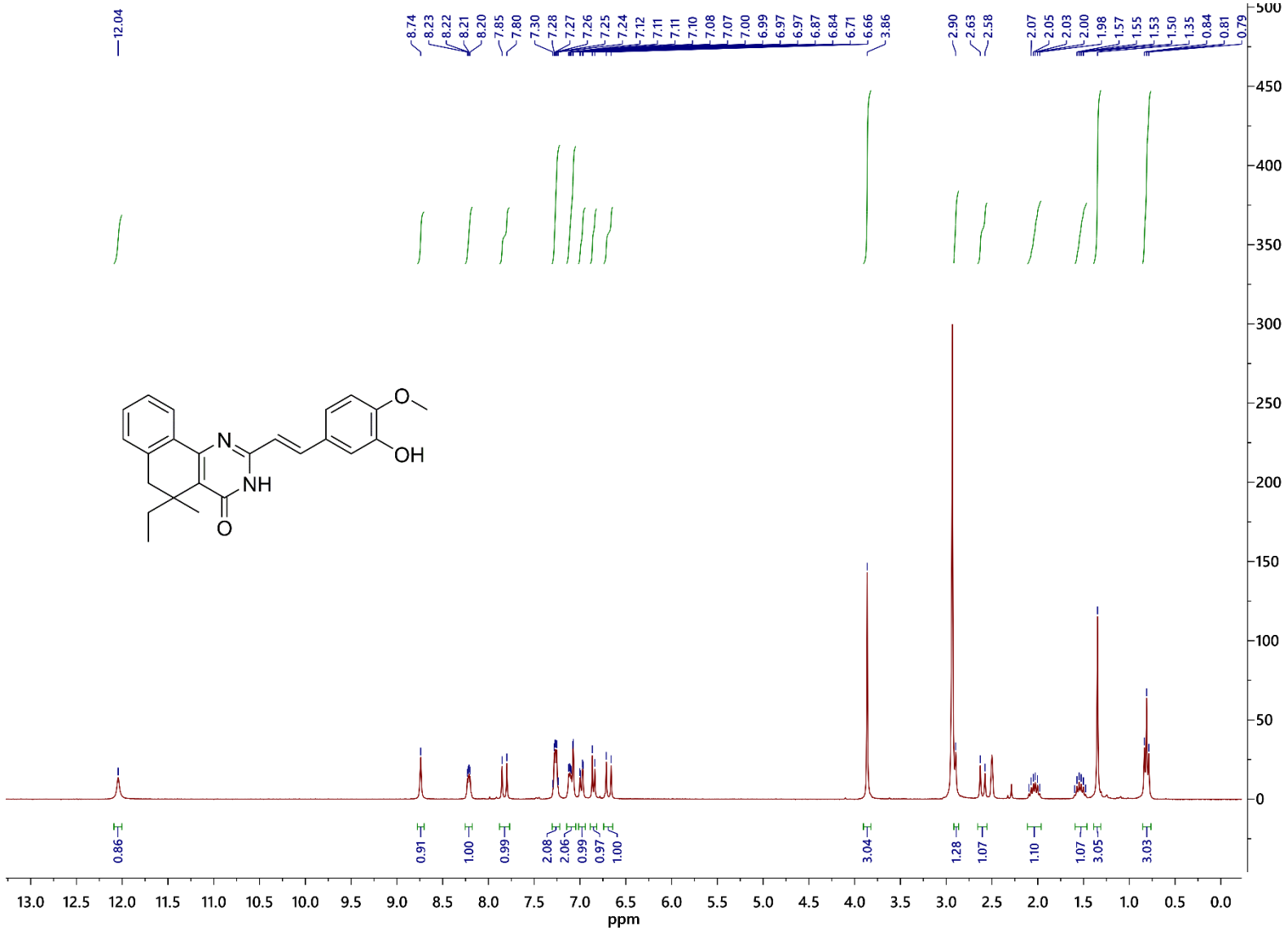
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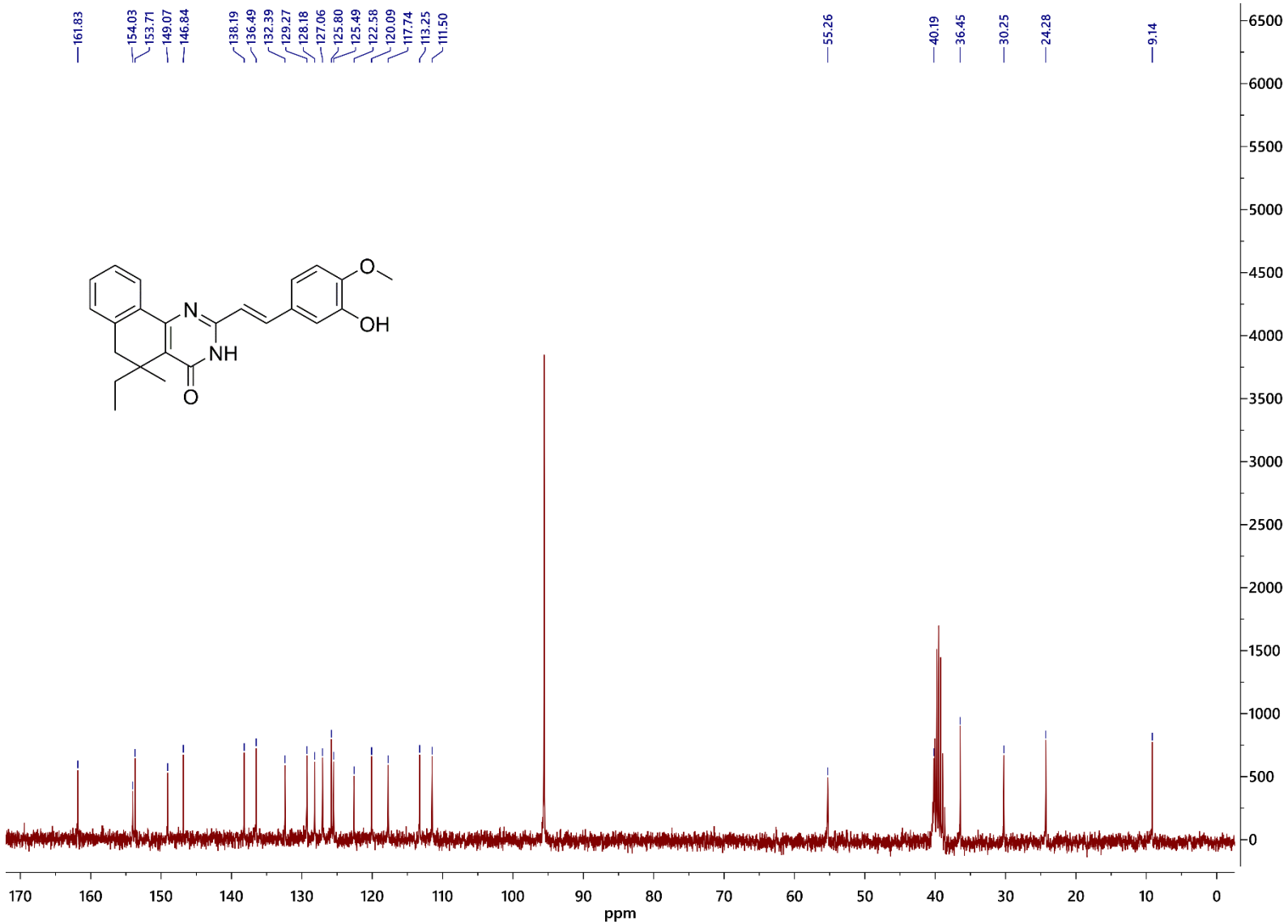
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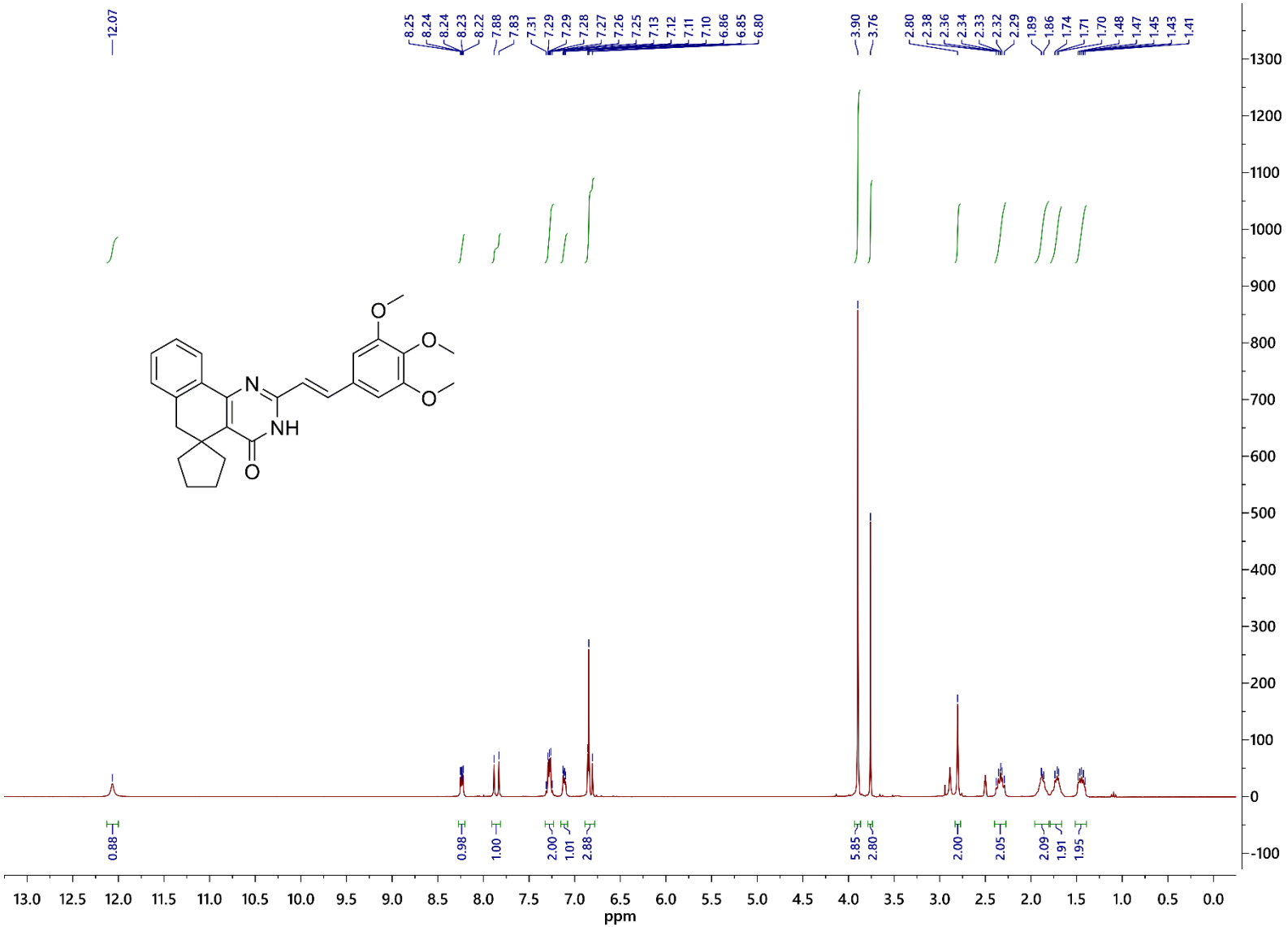
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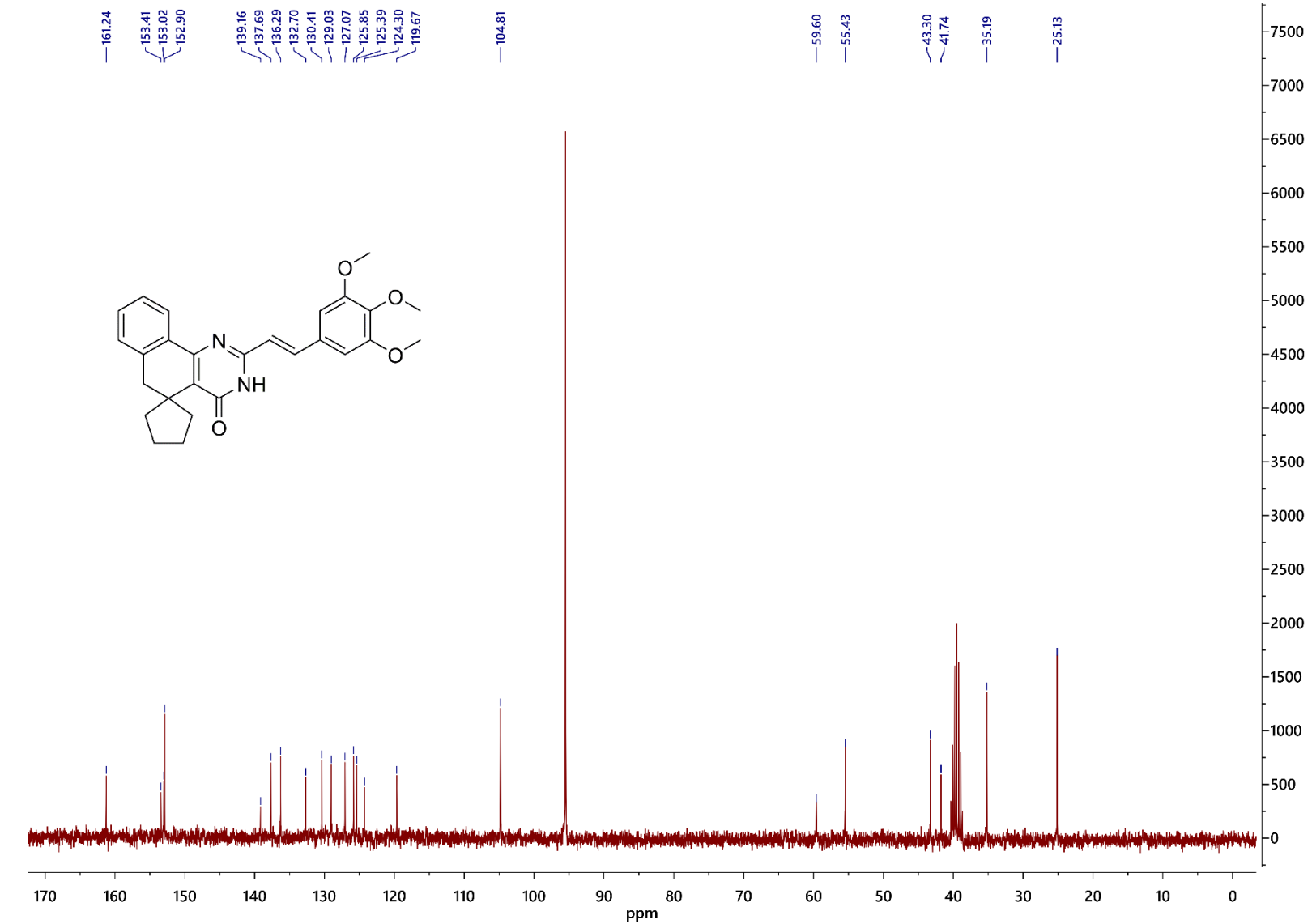
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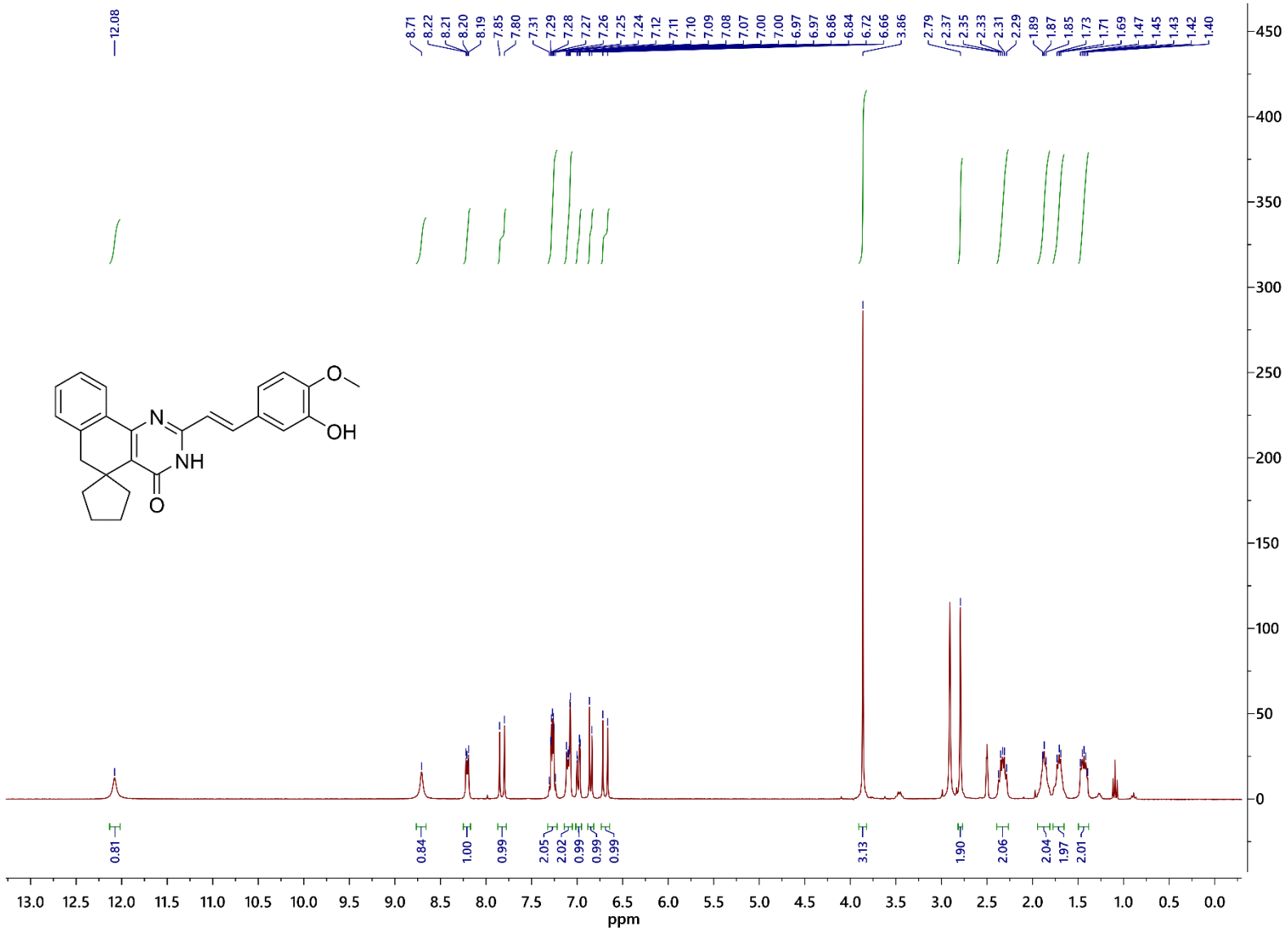
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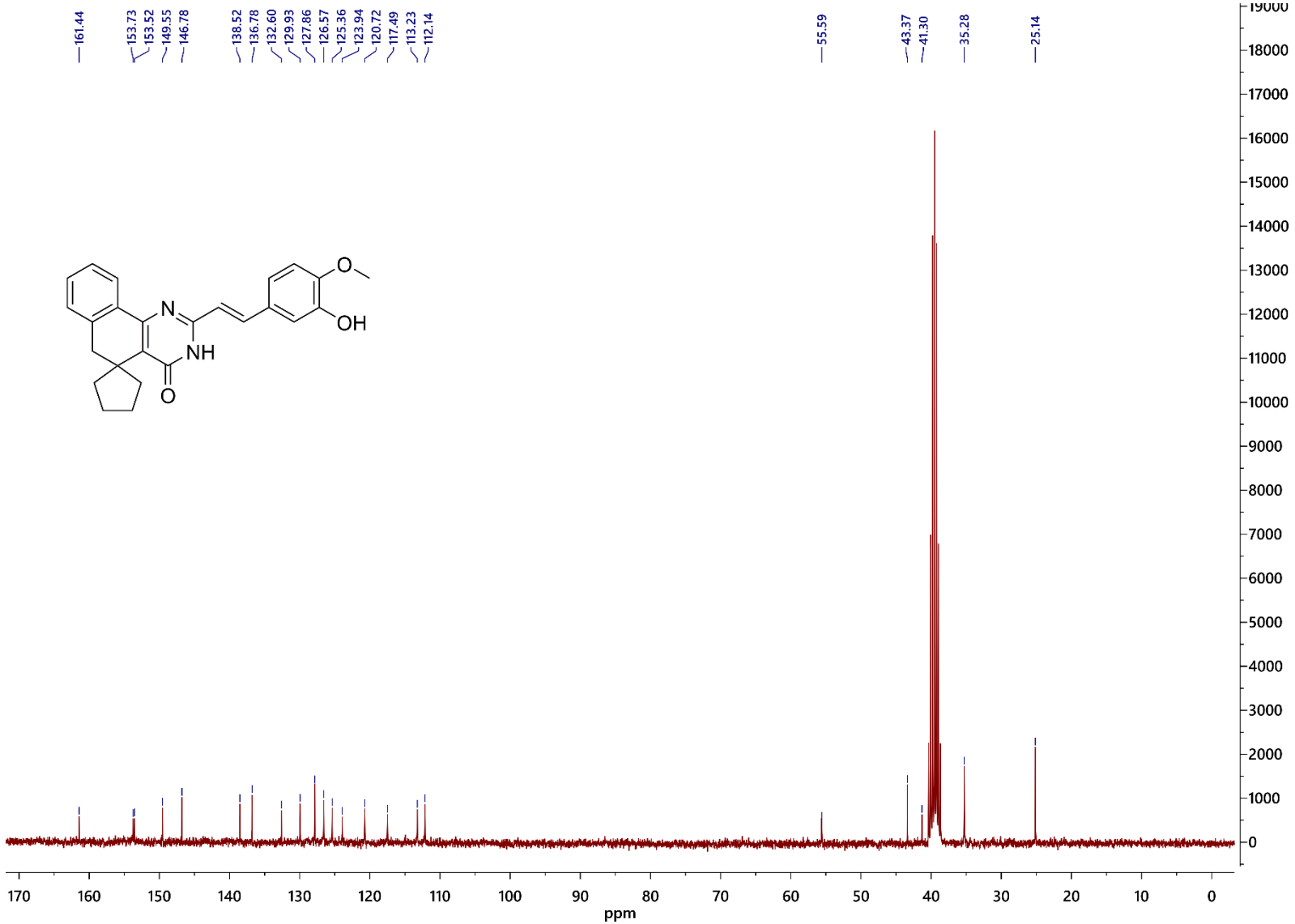
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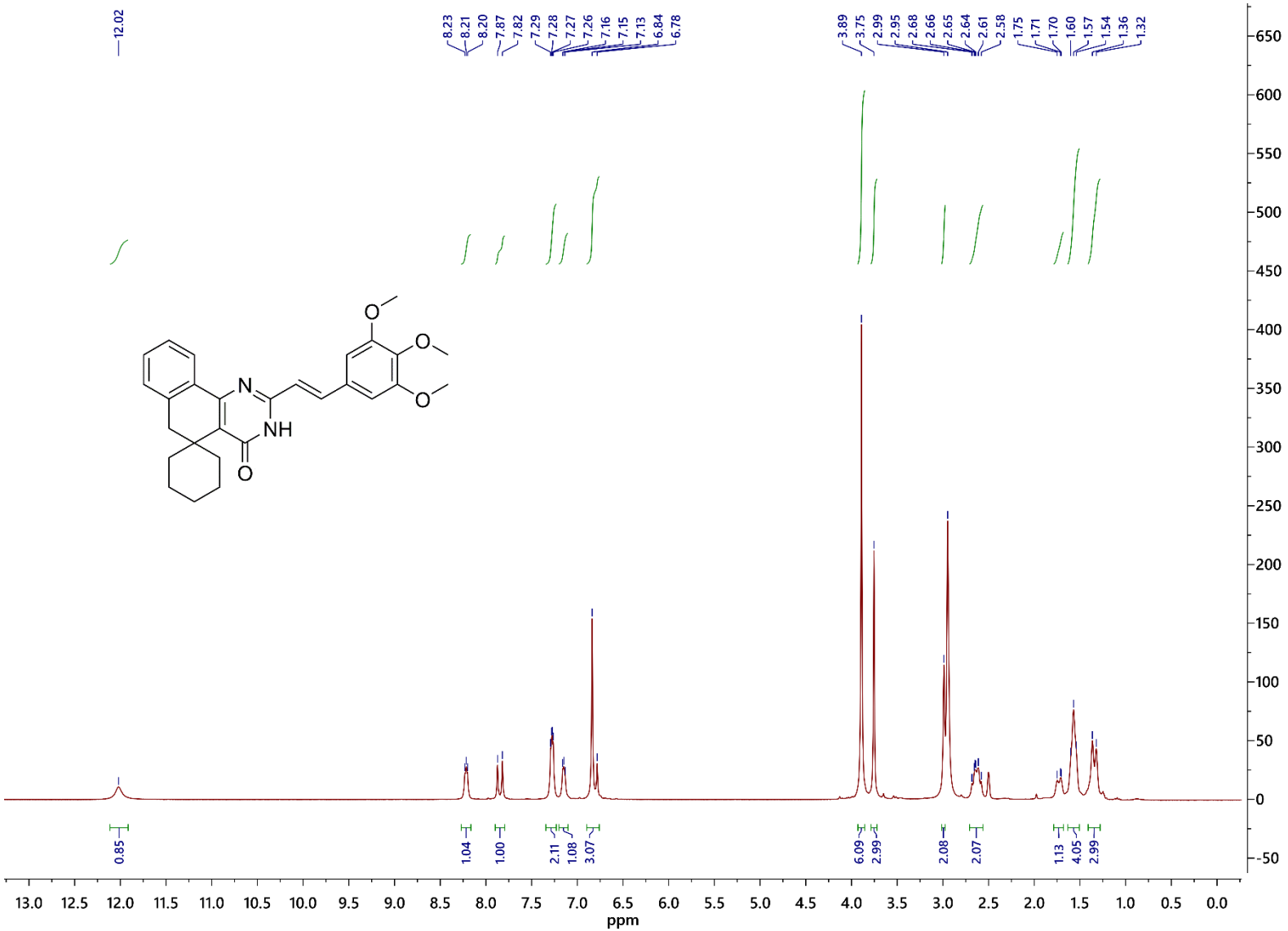
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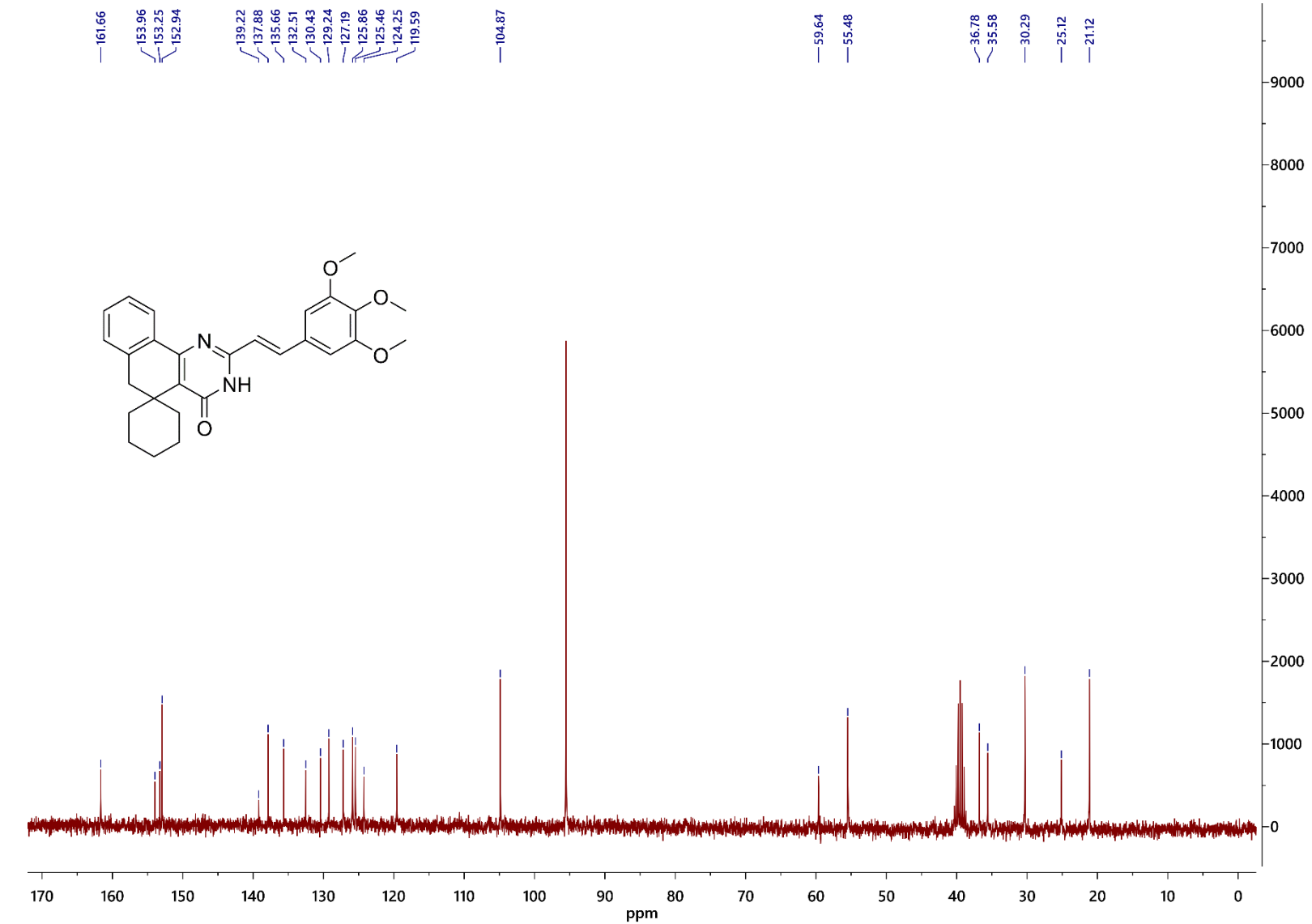
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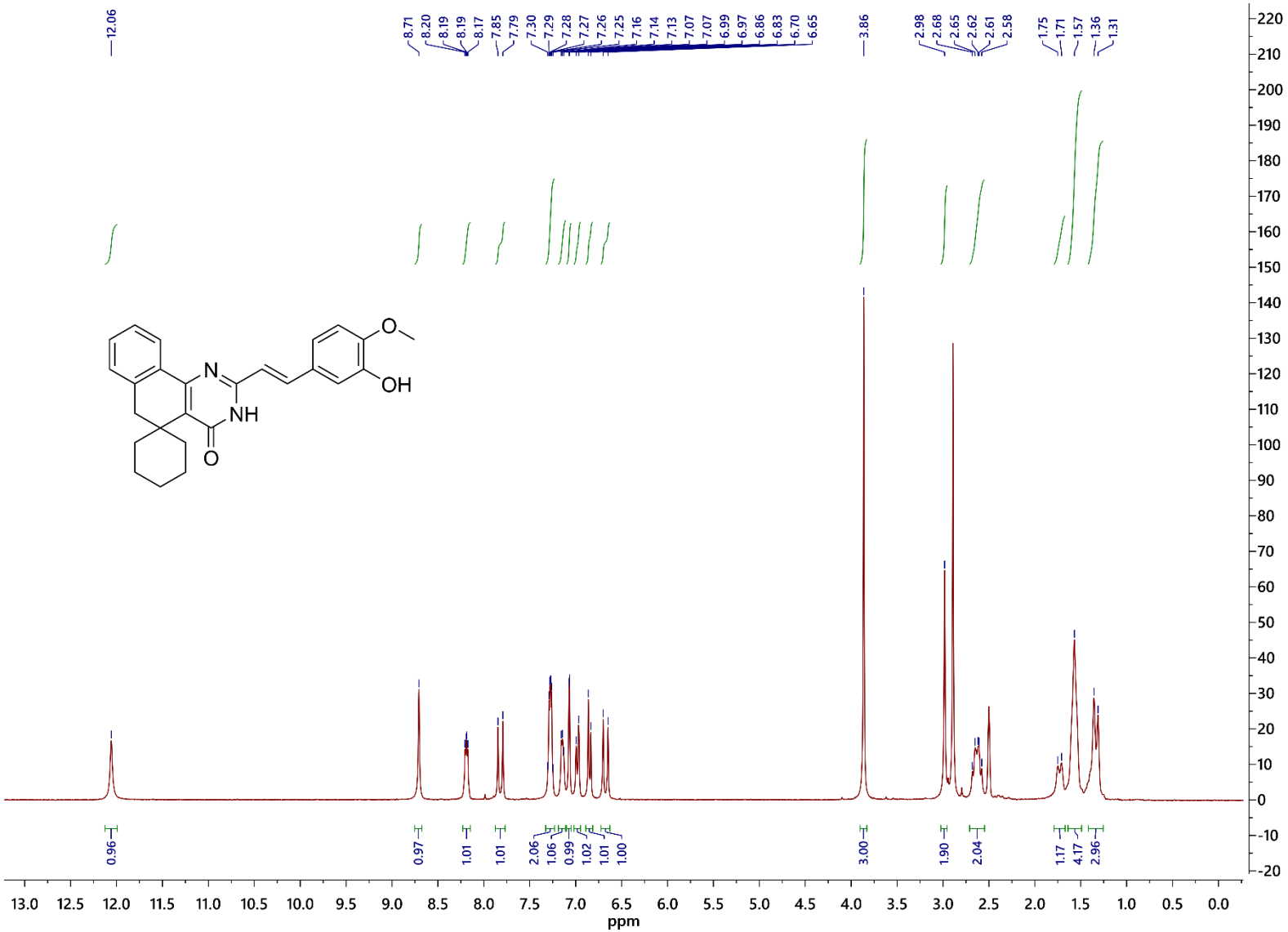
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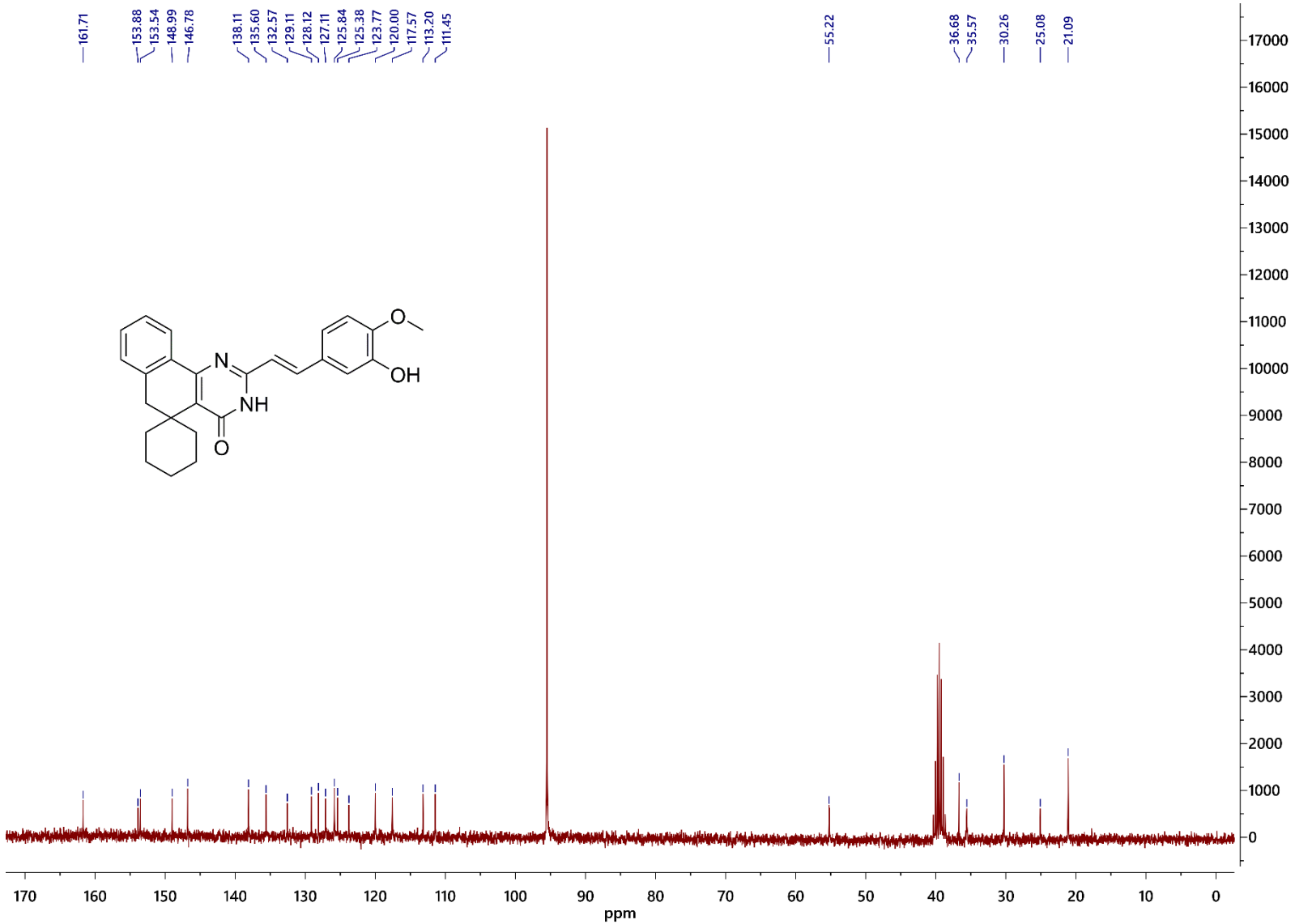
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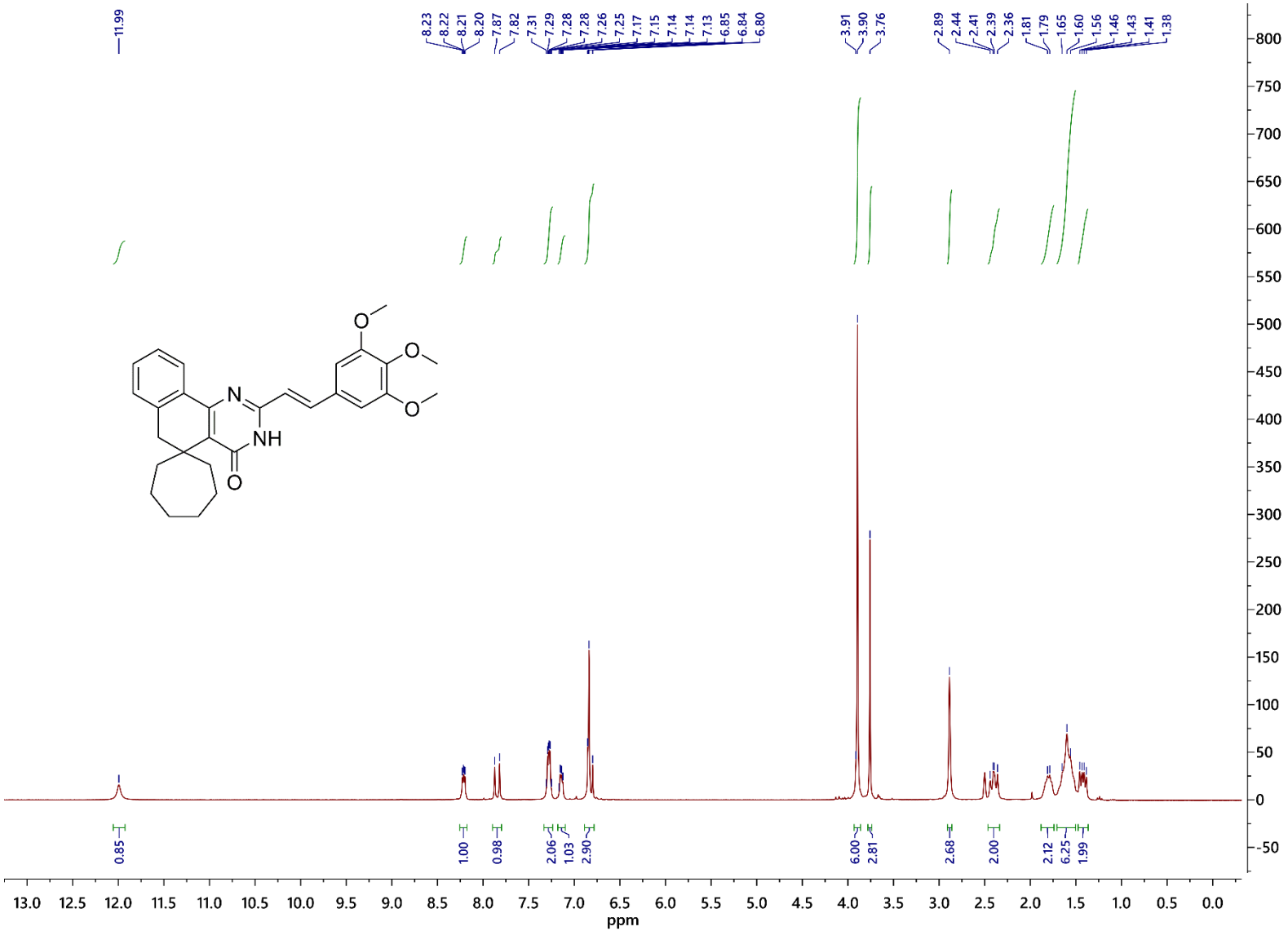
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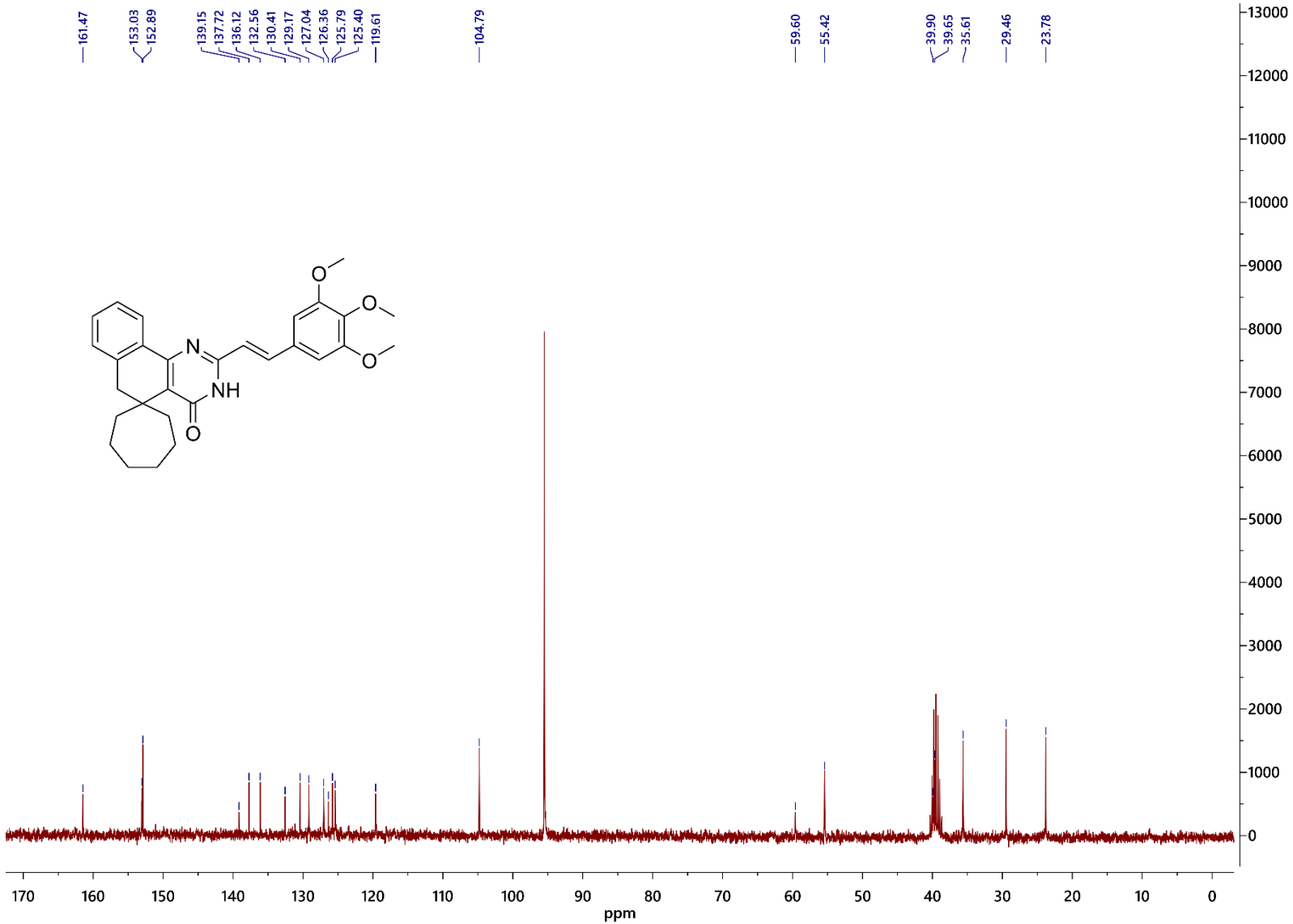
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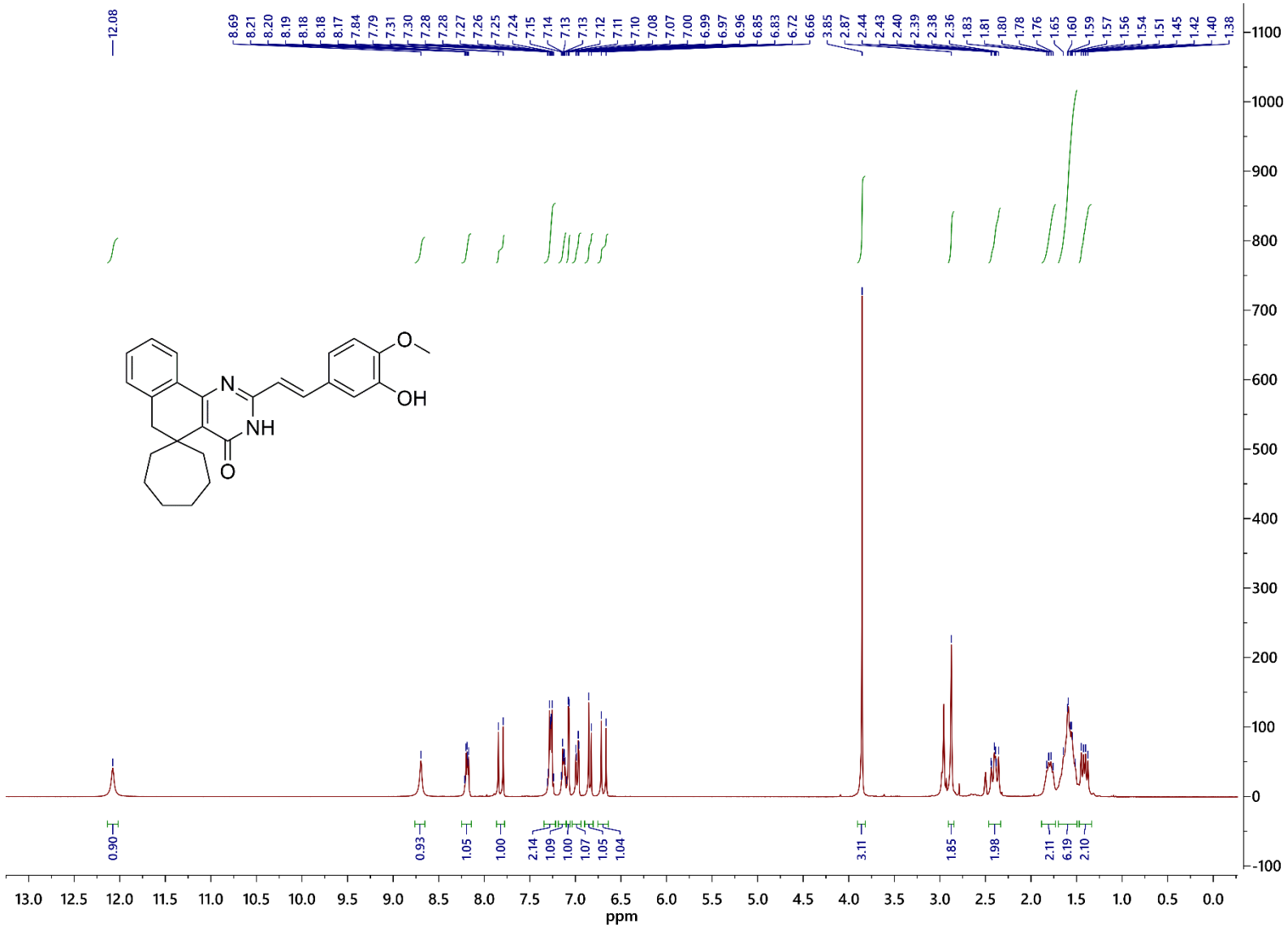
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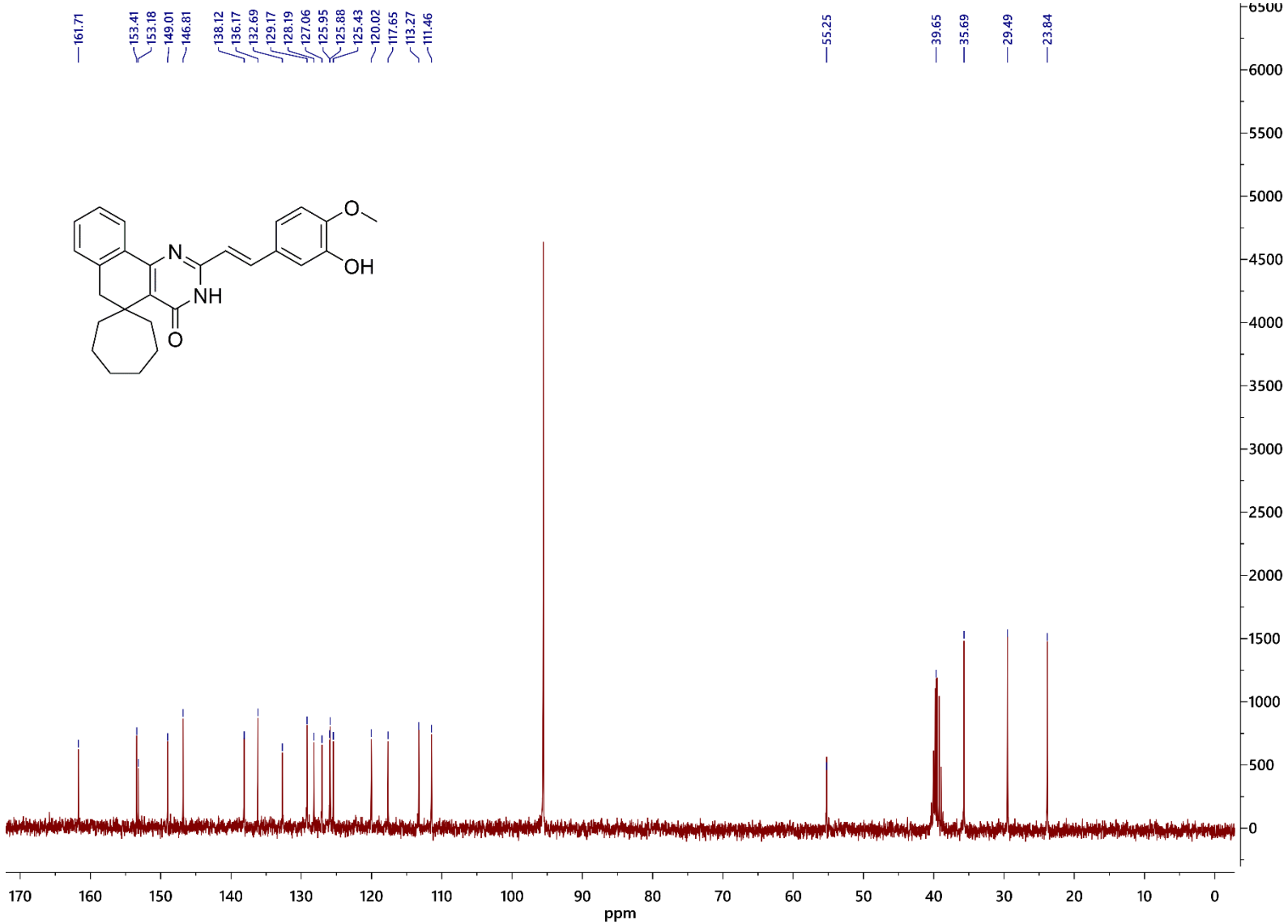
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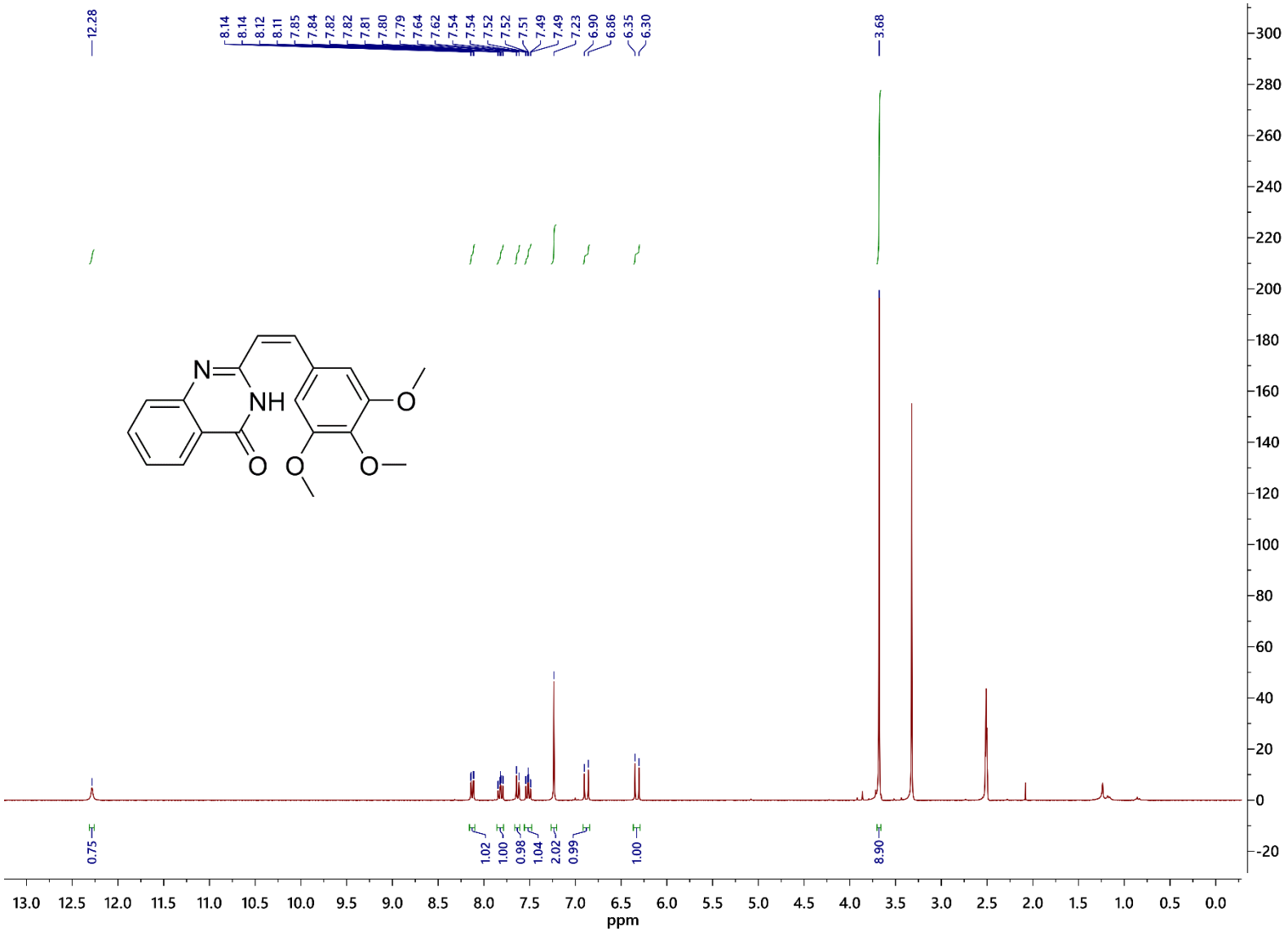
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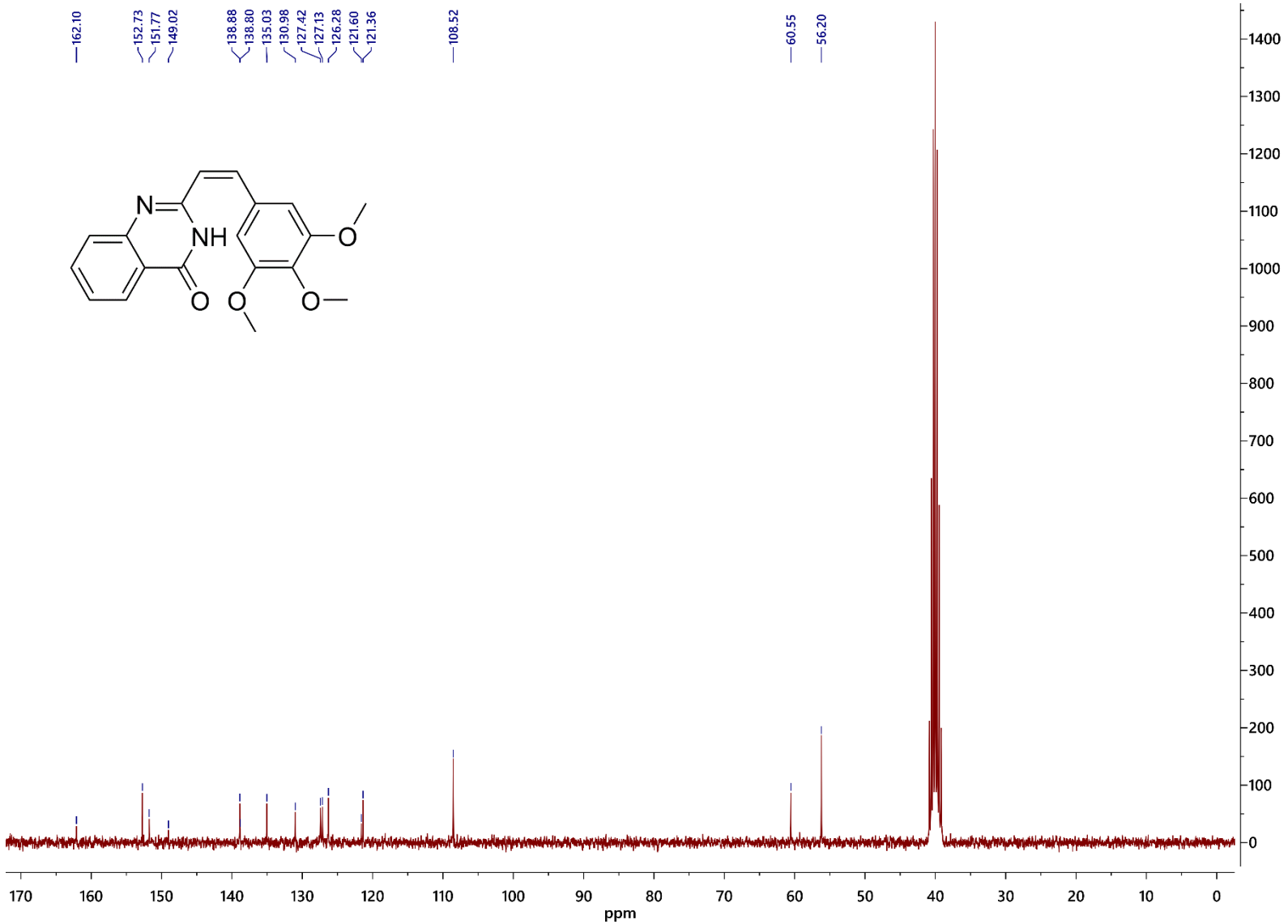
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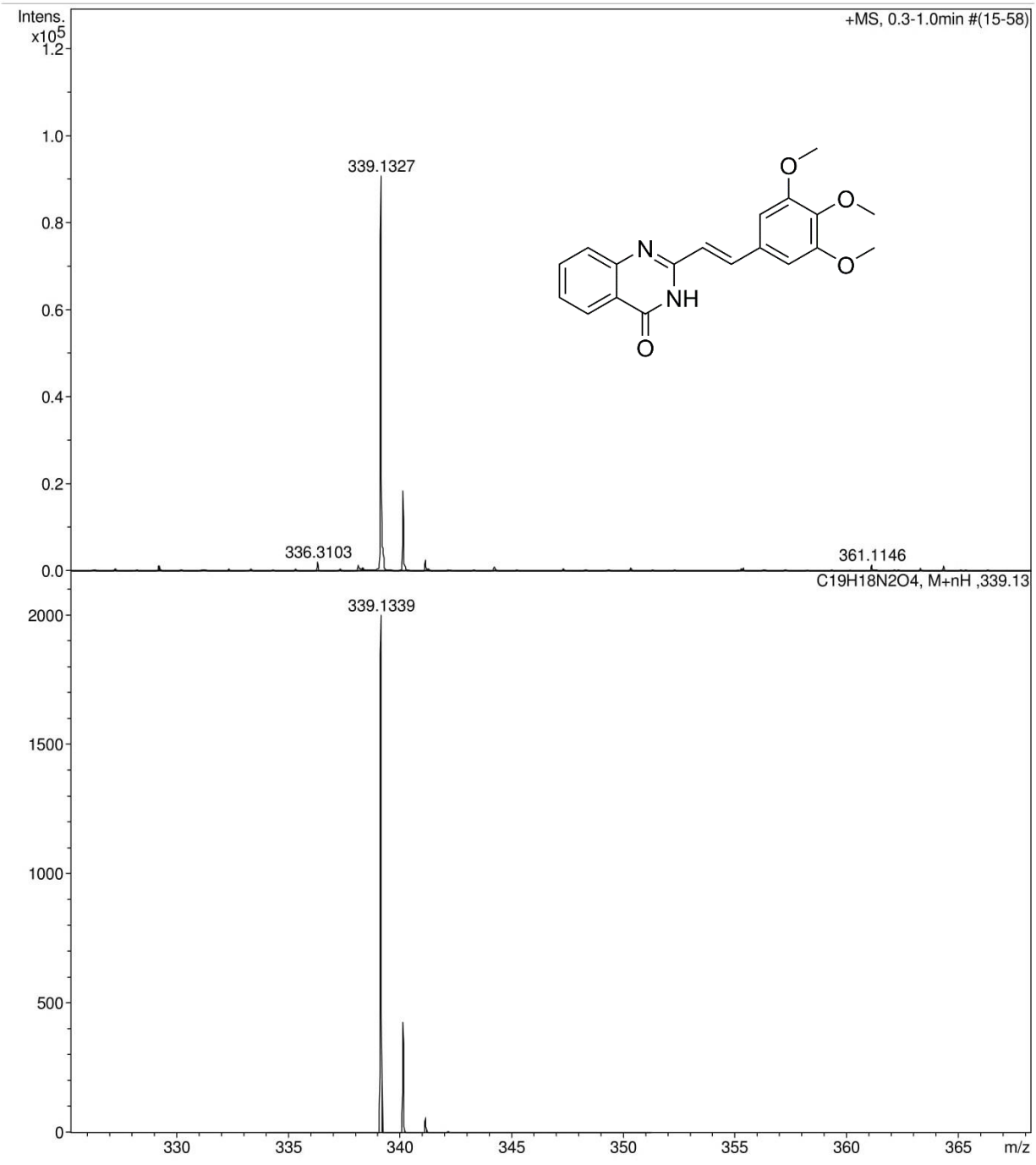
VI. Copies of HRMS spectra

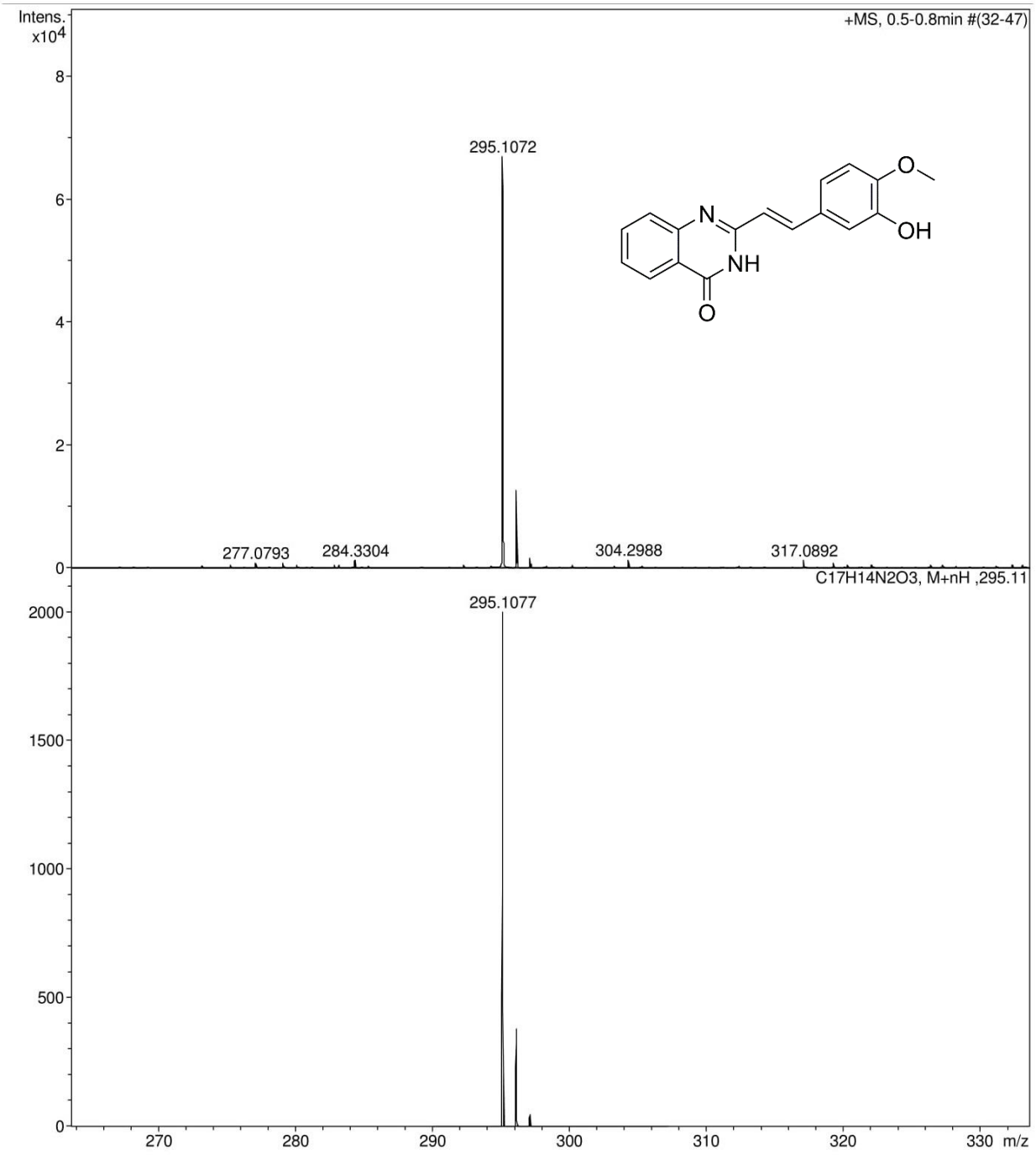
Acquisition Parameter

Source Type	ESI	Ion Polarity	Positive	Set Nebulizer	1.0 Bar
Focus	Not active			Set Dry Heater	200 °C
Scan Begin	50 m/z	Set Capillary	4500 V	Set Dry Gas	4.0 l/min
Scan End	1600 m/z	Set End Plate Offset	-500 V	Set Divert Valve	Waste



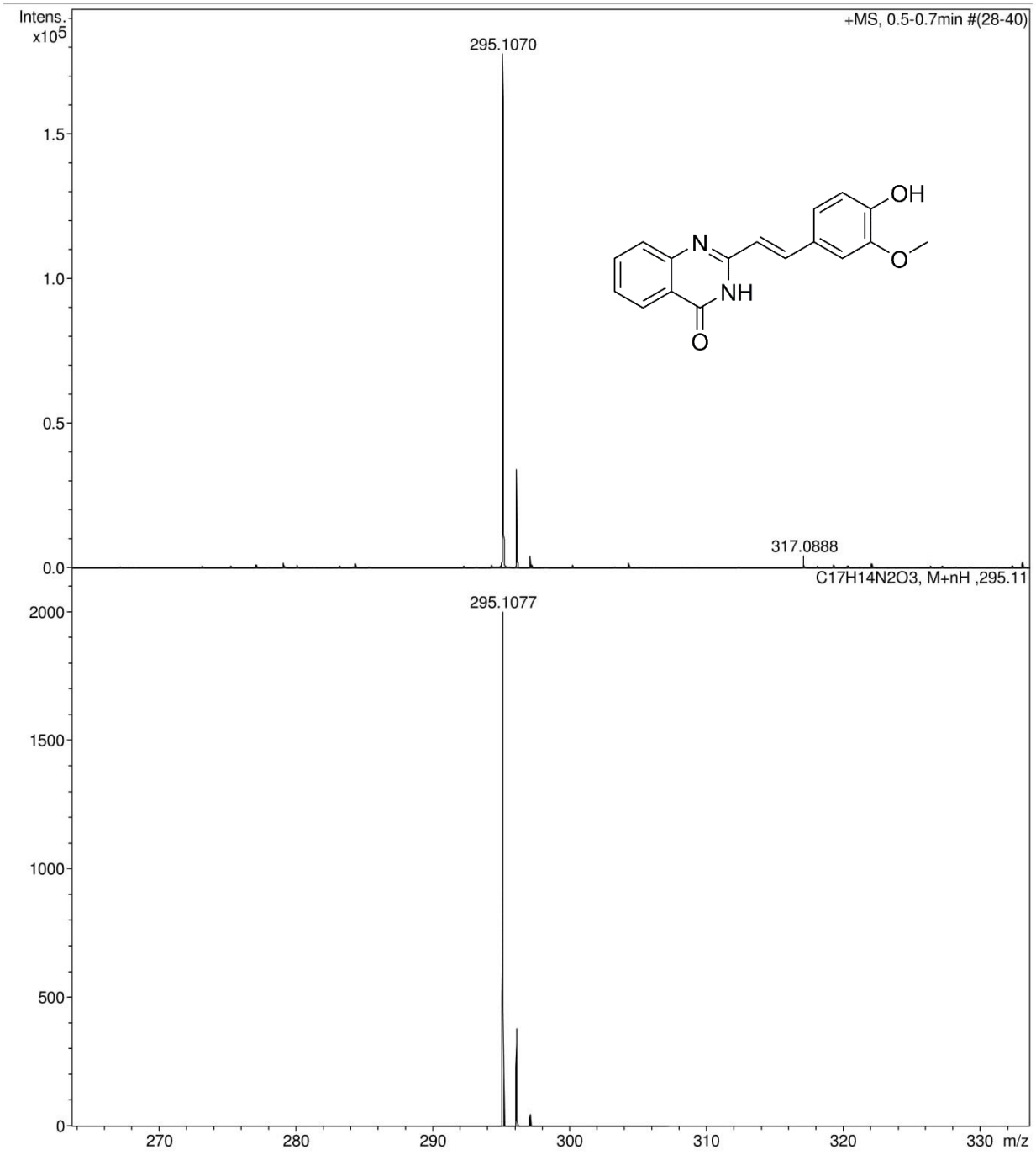
Acquisition Parameter

Source Type	ESI	Ion Polarity	Positive	Set Nebulizer	1.0 Bar
Focus	Not active			Set Dry Heater	200 ℃
Scan Begin	50 m/z	Set Capillary	4500 V	Set Dry Gas	4.0 l/min
Scan End	1600 m/z	Set End Plate Offset	-500 V	Set Divert Valve	Waste



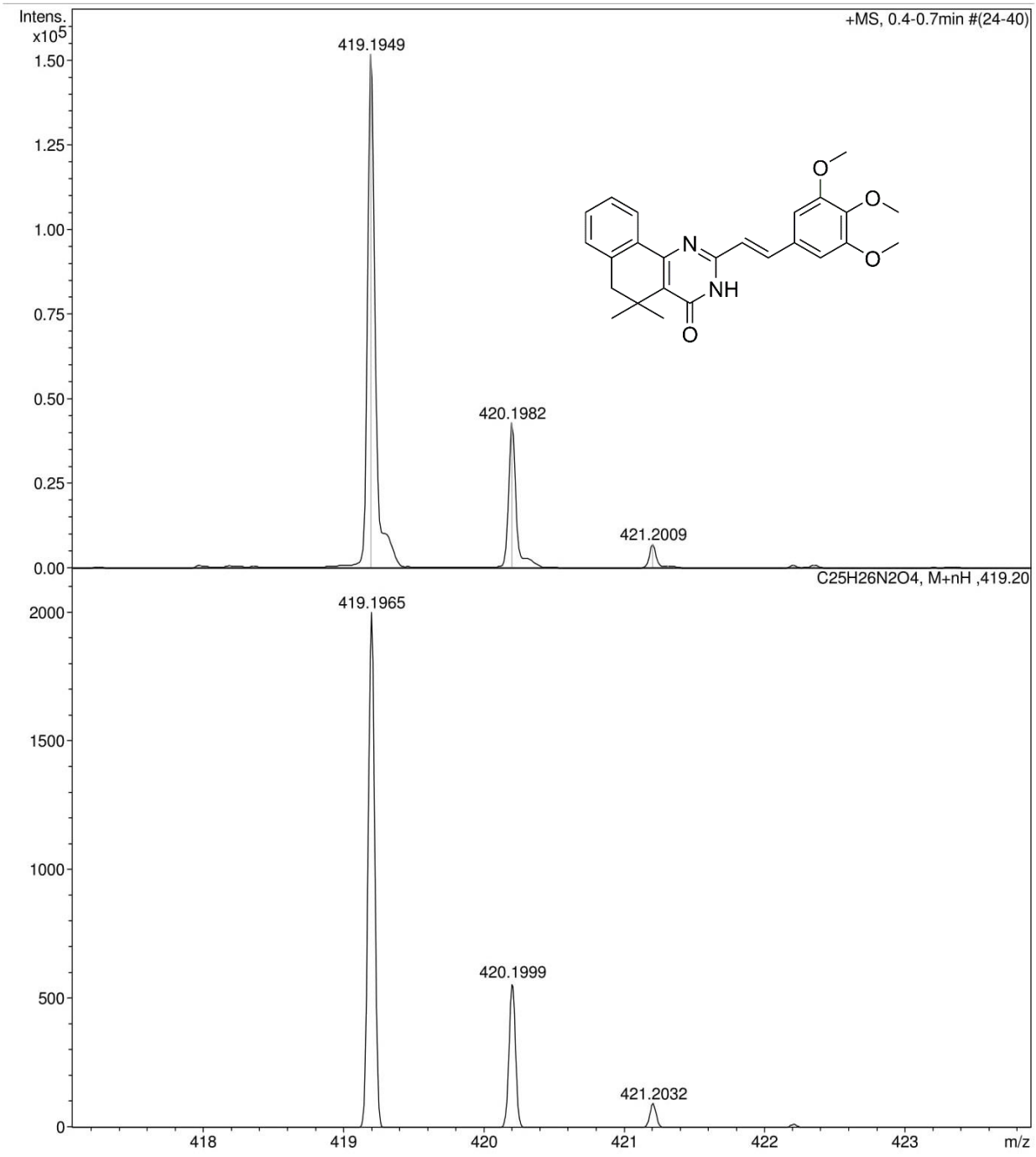
Acquisition Parameter

Source Type	ESI	Ion Polarity	Positive	Set Nebulizer	1.0 Bar
Focus	Not active			Set Dry Heater	200 ℃
Scan Begin	50 m/z	Set Capillary	4500 V	Set Dry Gas	4.0 l/min
Scan End	1600 m/z	Set End Plate Offset	-500 V	Set Divert Valve	Waste



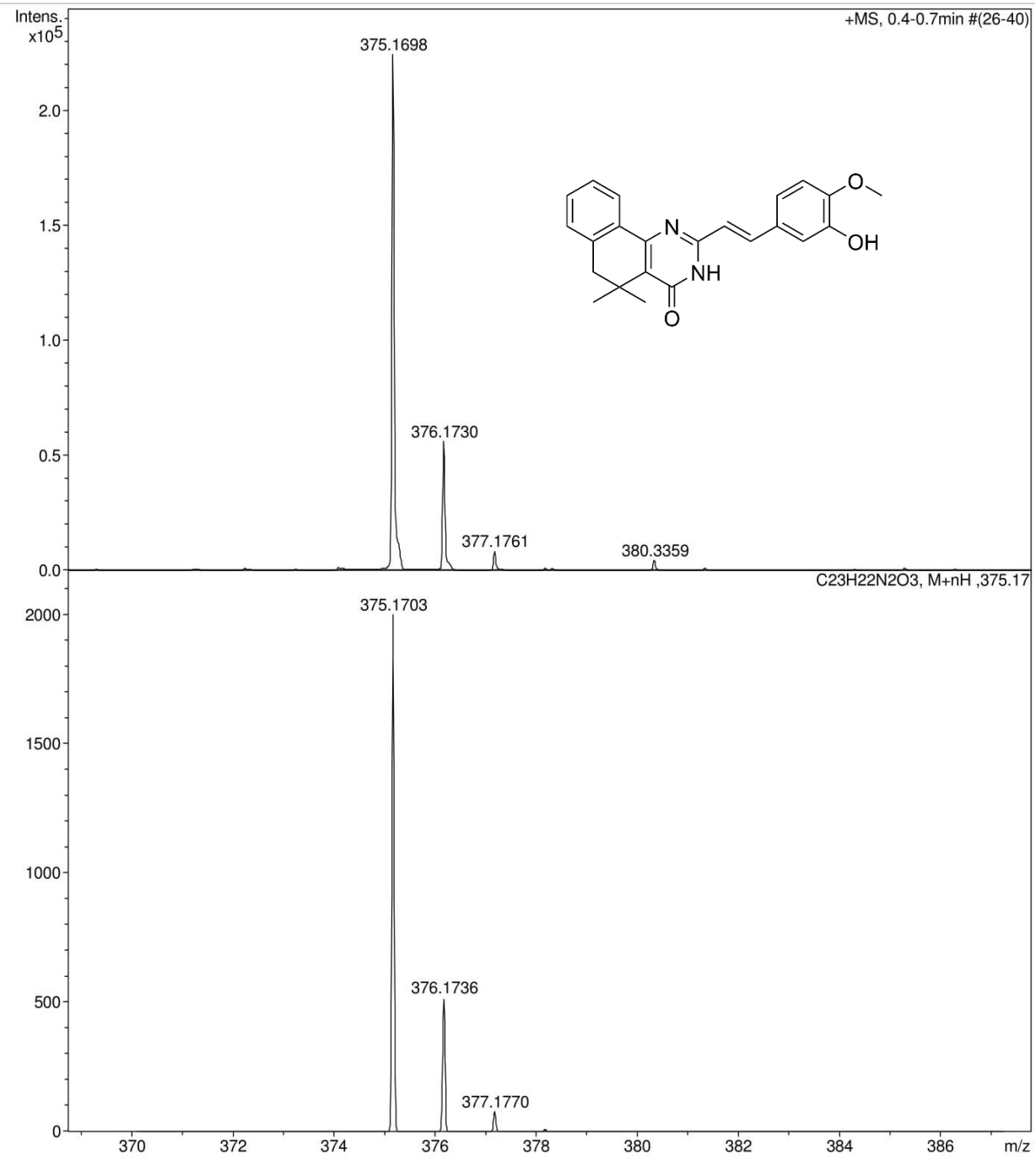
Acquisition Parameter

Source Type	ESI	Ion Polarity	Positive	Set Nebulizer	1.0 Bar
Focus	Not active			Set Dry Heater	200 °C
Scan Begin	50 m/z	Set Capillary	4500 V	Set Dry Gas	4.0 l/min
Scan End	1600 m/z	Set End Plate Offset	-500 V	Set Divert Valve	Waste



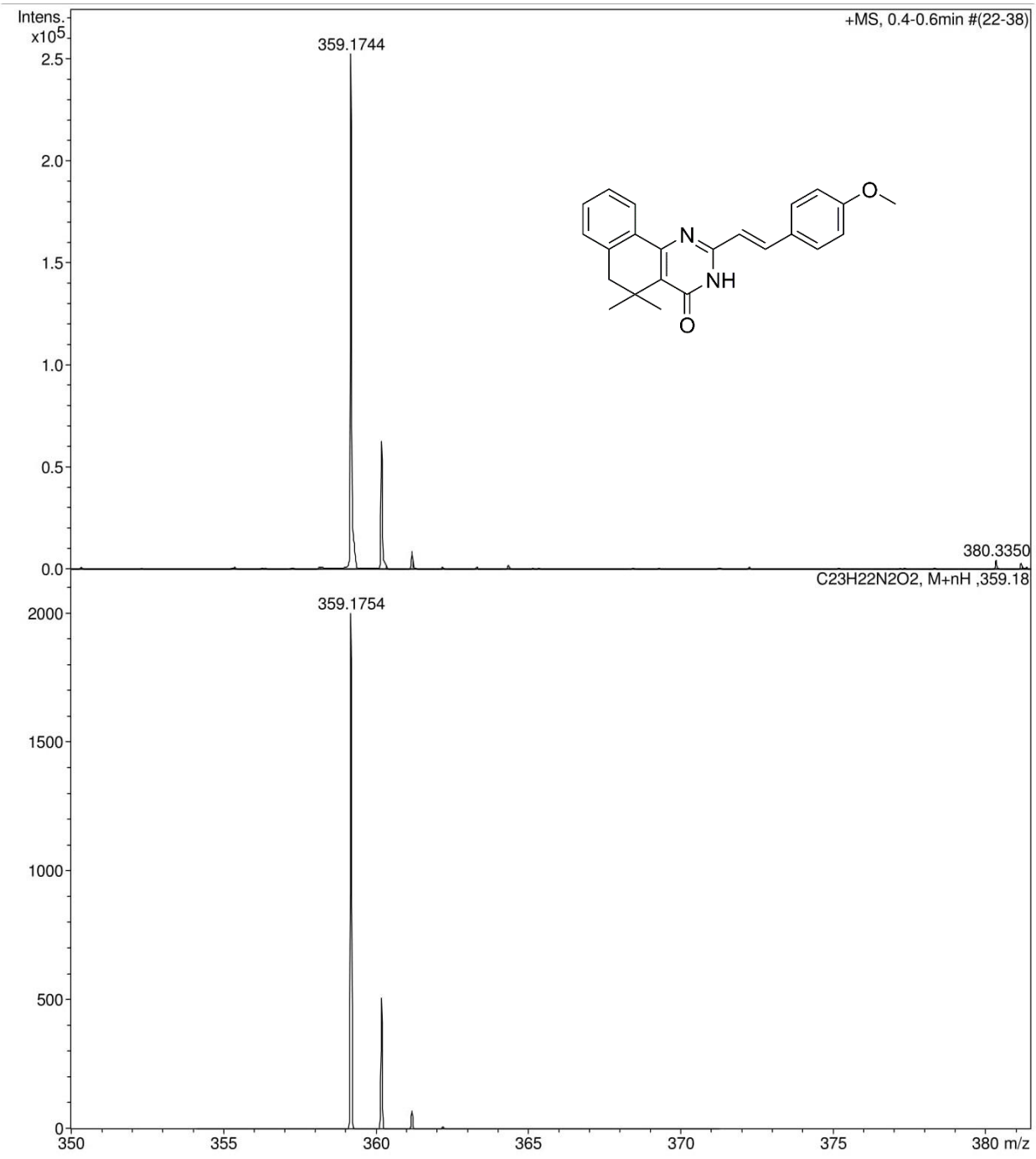
Acquisition Parameter

Source Type	ESI	Ion Polarity	Positive	Set Nebulizer	1.0 Bar
Focus	Not active			Set Dry Heater	200 °C
Scan Begin	50 m/z	Set Capillary	4500 V	Set Dry Gas	4.0 l/min
Scan End	1600 m/z	Set End Plate Offset	-500 V	Set Divert Valve	Waste



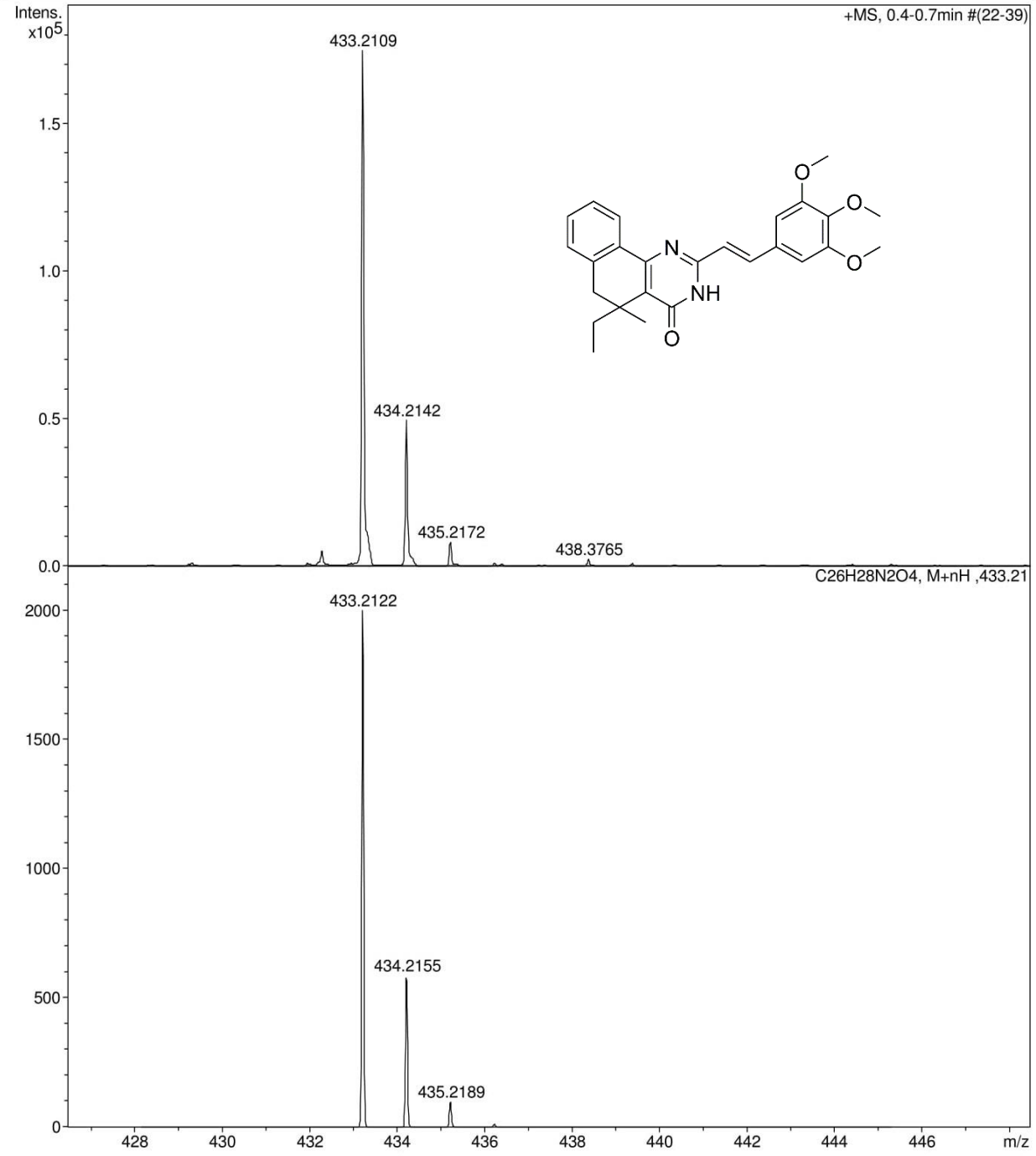
Acquisition Parameter

Source Type	ESI	Ion Polarity	Positive	Set Nebulizer	1.0 Bar
Focus	Not active			Set Dry Heater	200 °C
Scan Begin	50 m/z	Set Capillary	4500 V	Set Dry Gas	4.0 l/min
Scan End	1600 m/z	Set End Plate Offset	-500 V	Set Divert Valve	Waste



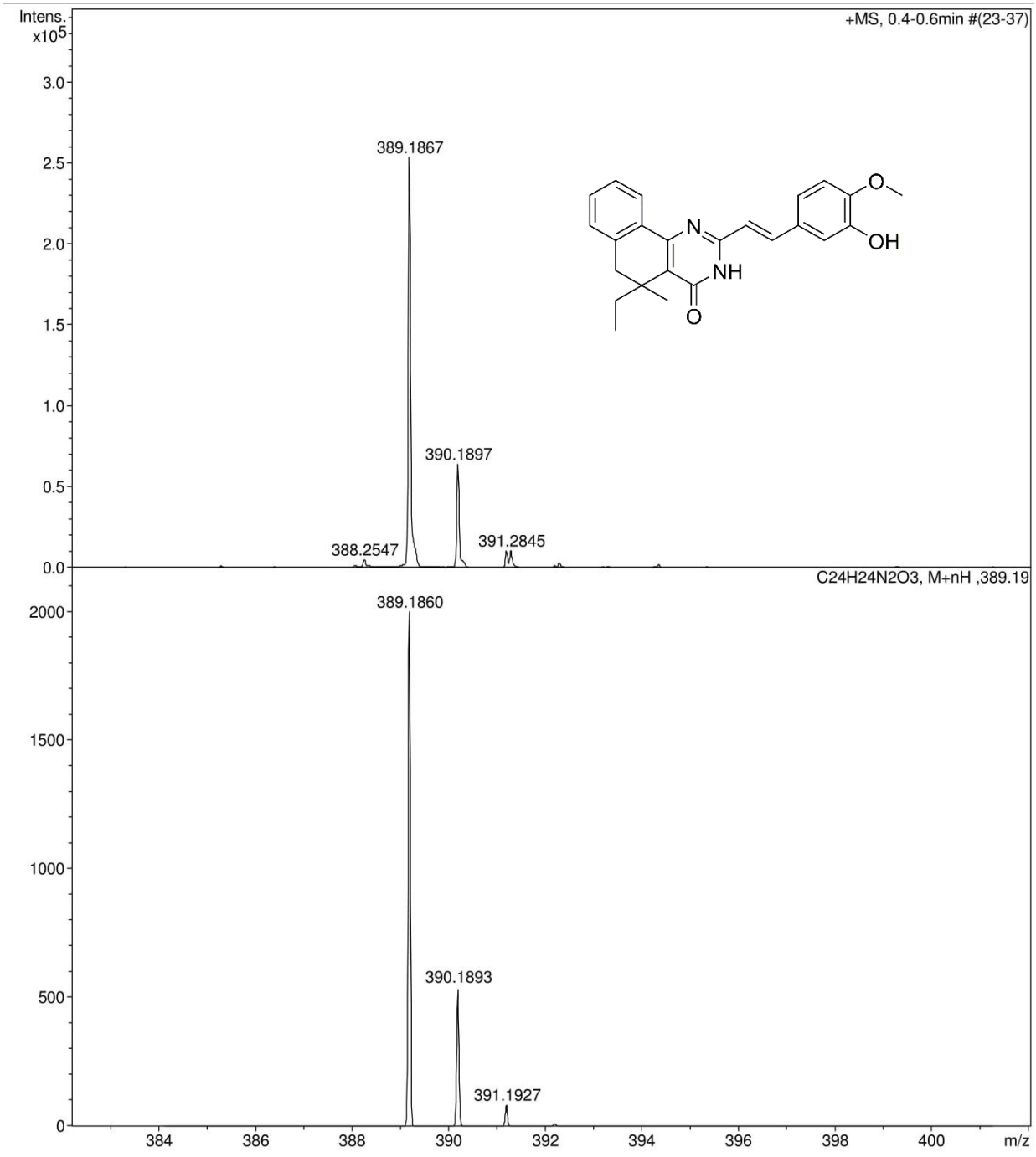
Acquisition Parameter

Source Type	ESI	Ion Polarity	Positive	Set Nebulizer	1.0 Bar
Focus	Not active			Set Dry Heater	200 °C
Scan Begin	50 m/z	Set Capillary	4500 V	Set Dry Gas	4.0 l/min
Scan End	1600 m/z	Set End Plate Offset	-500 V	Set Divert Valve	Waste



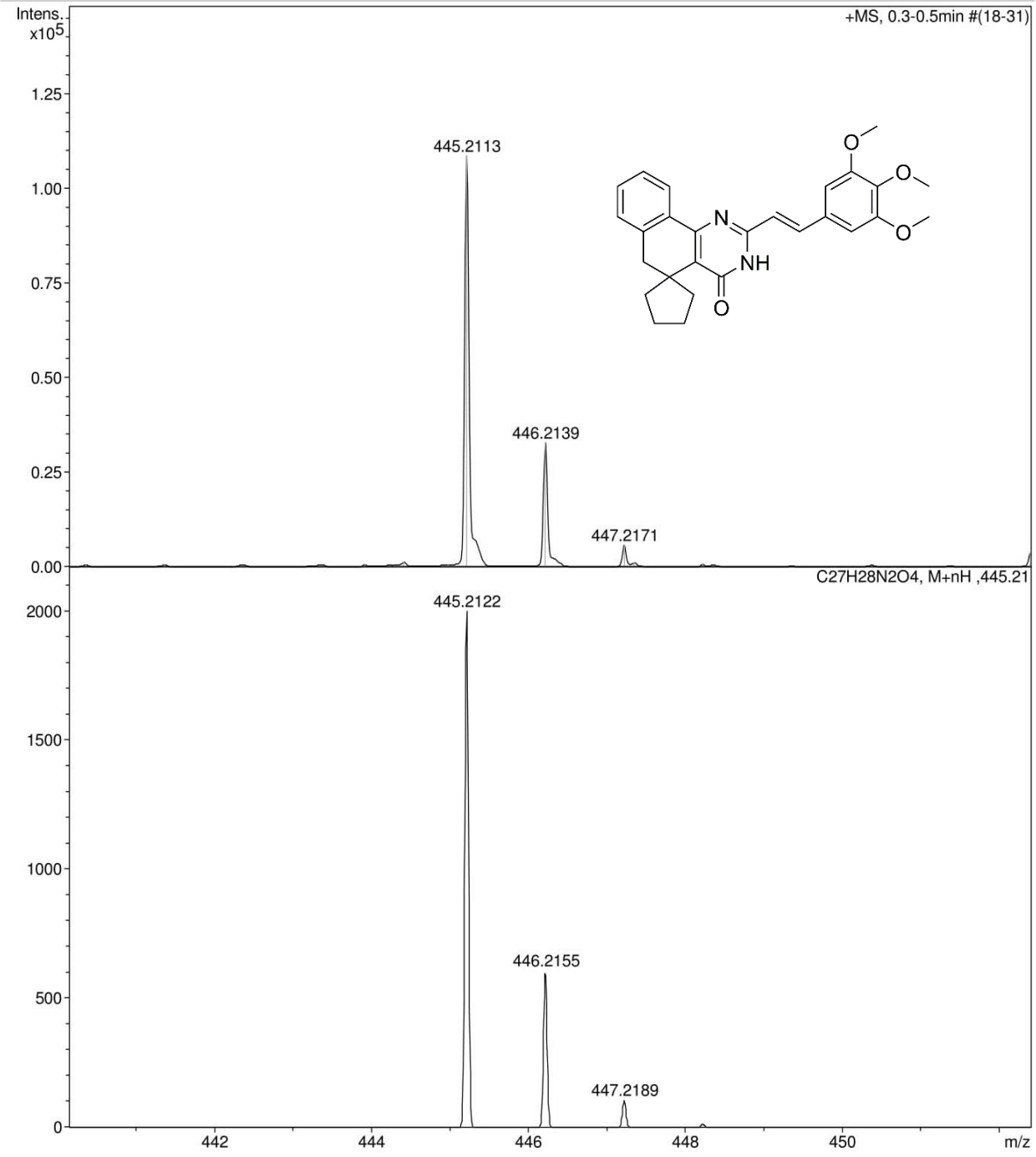
Acquisition Parameter

Source Type	ESI	Ion Polarity	Positive	Set Nebulizer	1.0 Bar
Focus	Not active			Set Dry Heater	200 °C
Scan Begin	50 m/z	Set Capillary	4500 V	Set Dry Gas	4.0 l/min
Scan End	1600 m/z	Set End Plate Offset	-500 V	Set Divert Valve	Waste



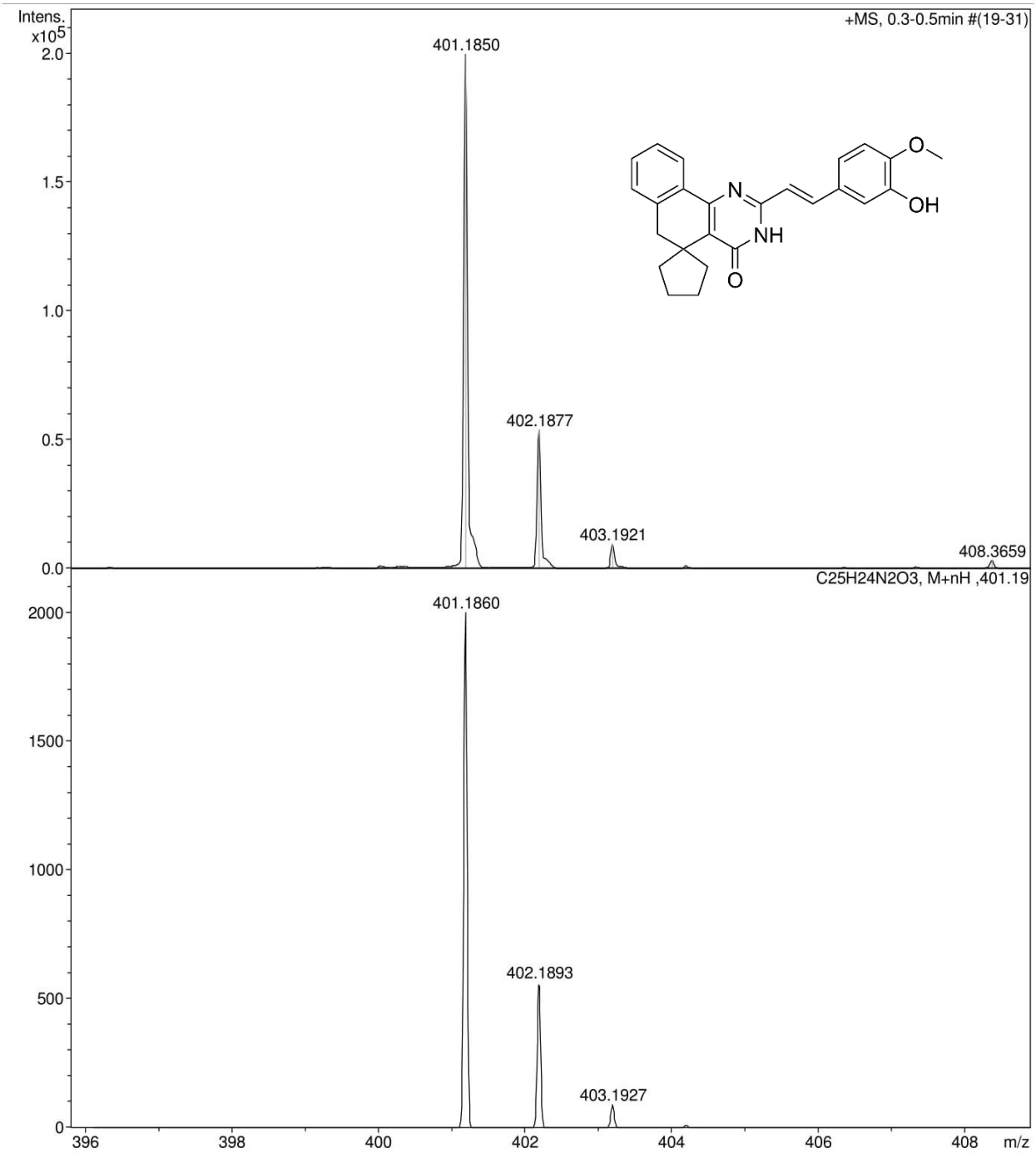
Acquisition Parameter

Source Type	ESI	Ion Polarity	Positive	Set Nebulizer	1.0 Bar
Focus	Not active			Set Dry Heater	200 °C
Scan Begin	50 m/z	Set Capillary	4500 V	Set Dry Gas	4.0 l/min
Scan End	1600 m/z	Set End Plate Offset	-500 V	Set Divert Valve	Waste



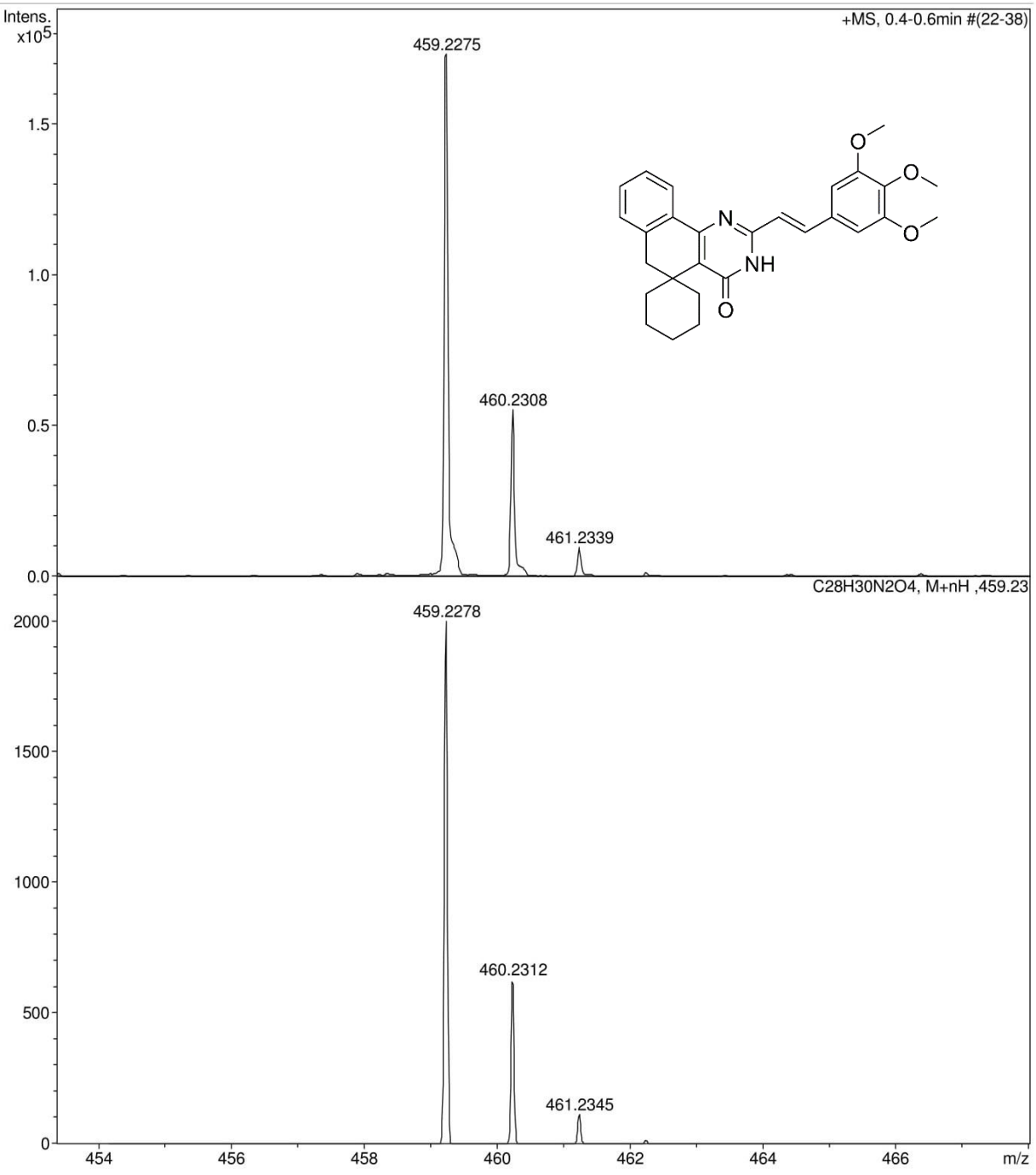
Acquisition Parameter

Source Type	ESI	Ion Polarity	Positive	Set Nebulizer	1.0 Bar
Focus	Not active			Set Dry Heater	200 °C
Scan Begin	50 m/z	Set Capillary	4500 V	Set Dry Gas	4.0 l/min
Scan End	1600 m/z	Set End Plate Offset	-500 V	Set Divert Valve	Waste



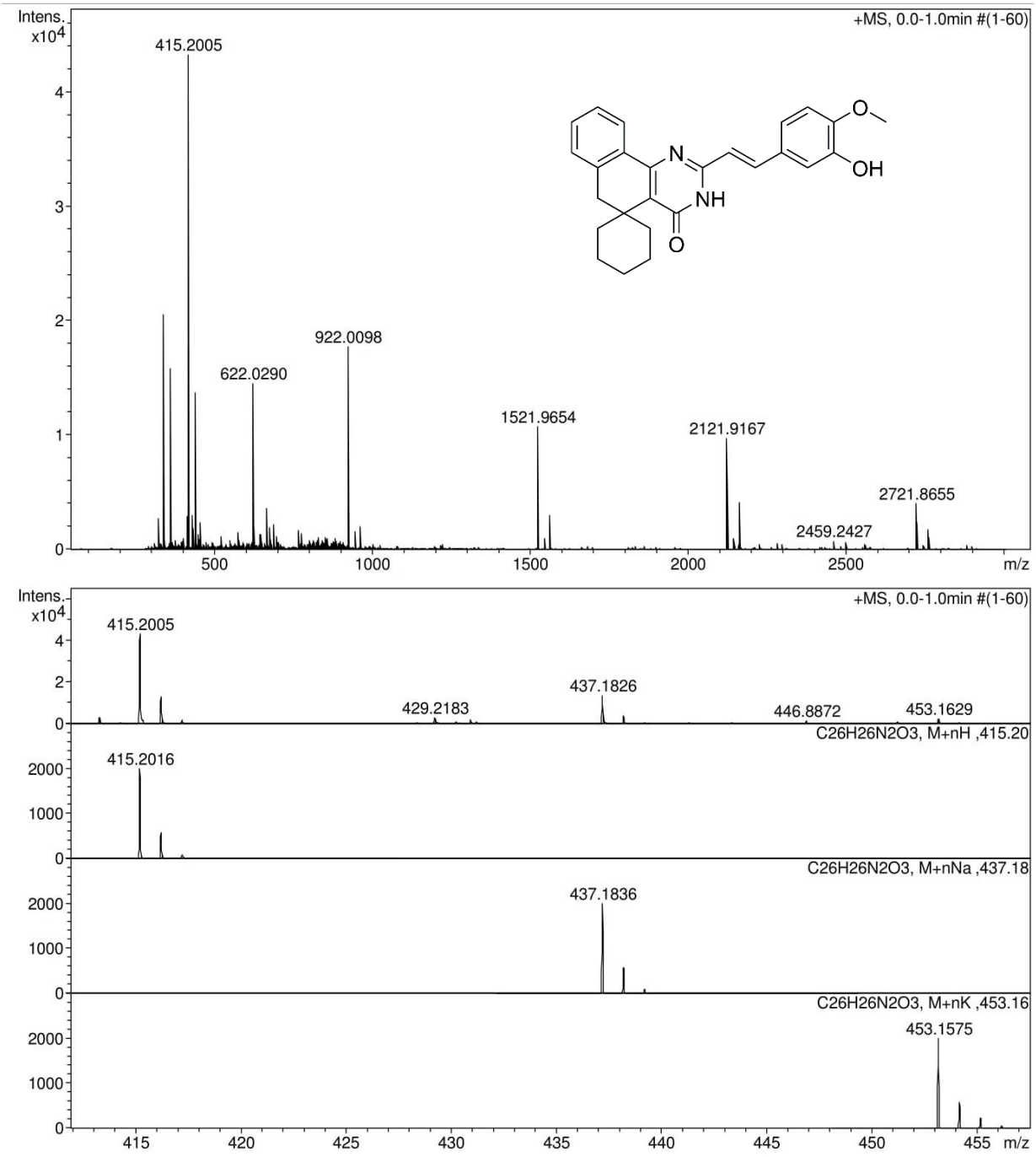
Acquisition Parameter

Source Type	ESI	Ion Polarity	Positive	Set Nebulizer	1.0 Bar
Focus	Not active			Set Dry Heater	200 °C
Scan Begin	50 m/z	Set Capillary	4500 V	Set Dry Gas	4.0 l/min
Scan End	1600 m/z	Set End Plate Offset	-500 V	Set Divert Valve	Waste



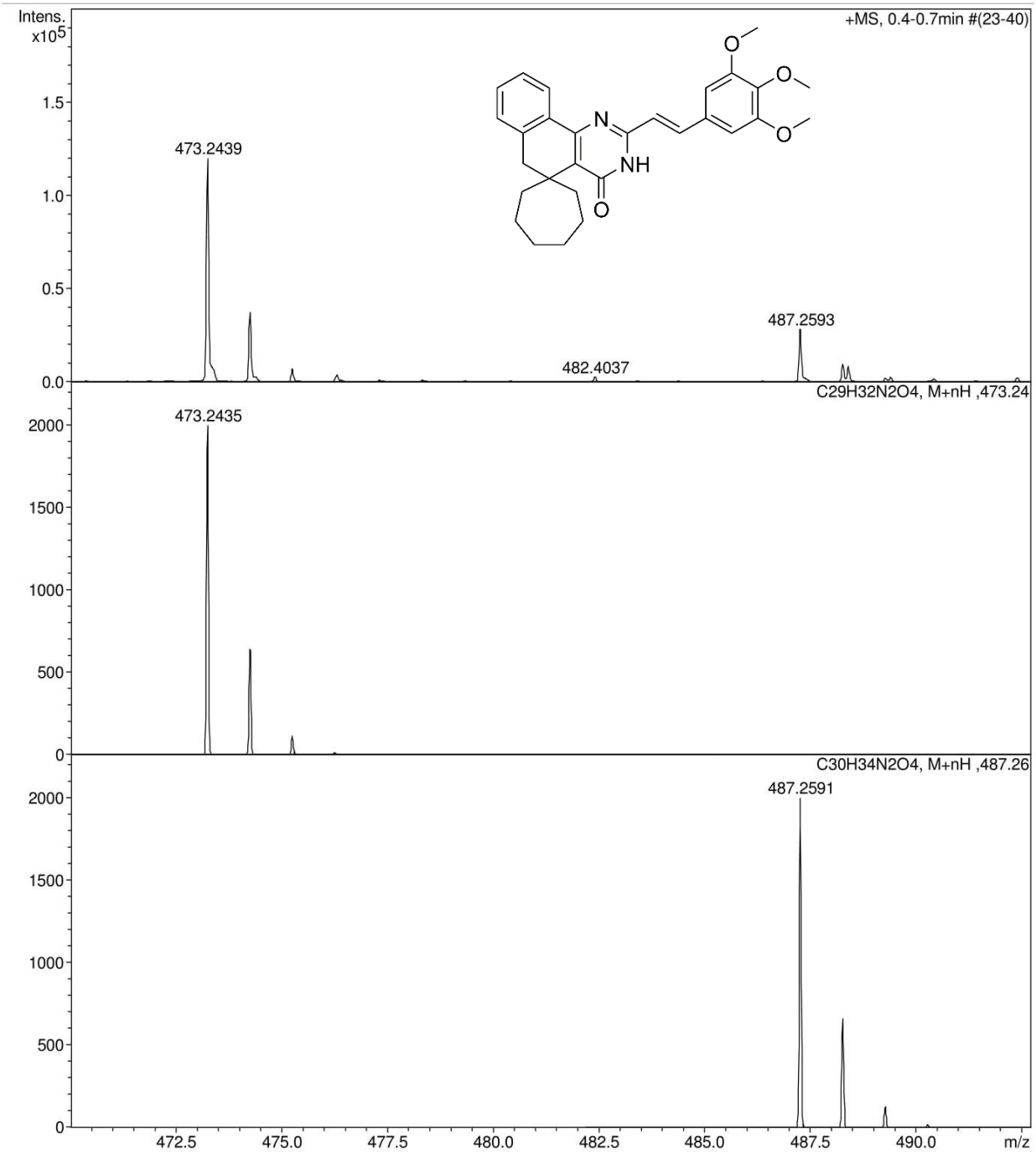
Acquisition Parameter

Source Type	ESI	Ion Polarity	Positive	Set Nebulizer	0.4 Bar
Focus	Not active			Set Dry Heater	180 ℃
Scan Begin	50 m/z	Set Capillary	4500 V	Set Dry Gas	4.0 l/min
Scan End	3000 m/z	Set End Plate Offset	-500 V	Set Divert Valve	Waste



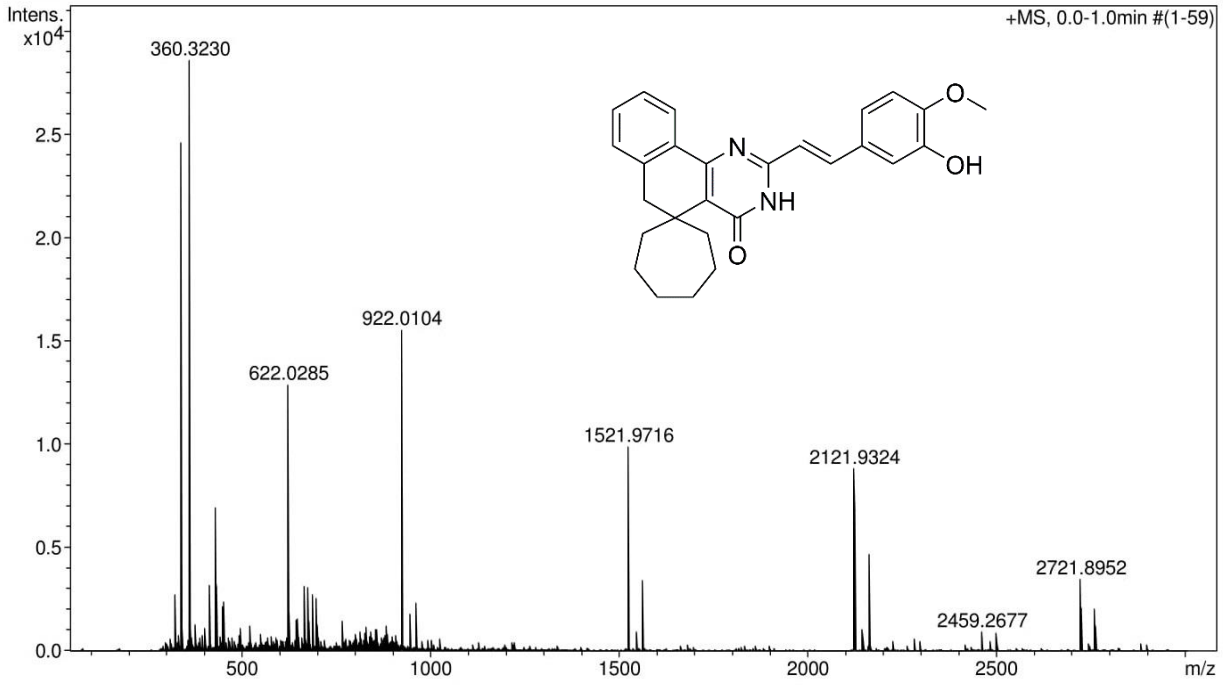
Acquisition Parameter

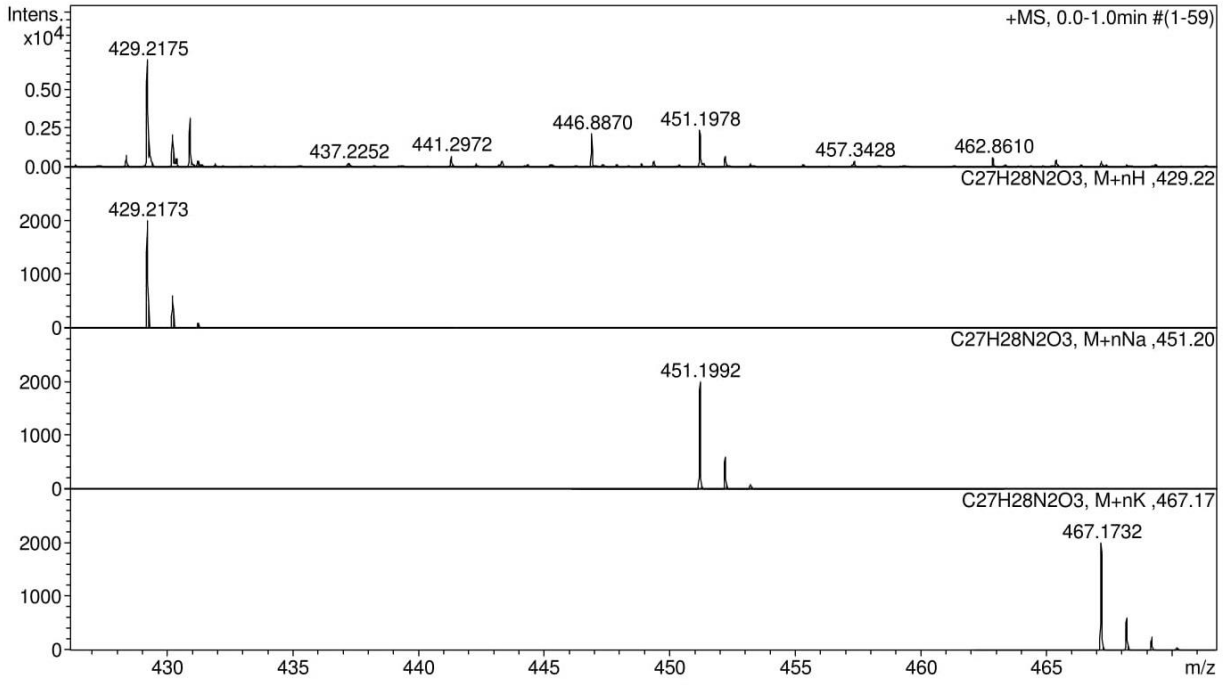
Source Type	ESI	Ion Polarity	Positive	Set Nebulizer	1.0 Bar
Focus	Not active			Set Dry Heater	200 °C
Scan Begin	50 m/z	Set Capillary	4500 V	Set Dry Gas	4.0 l/min
Scan End	1600 m/z	Set End Plate Offset	-500 V	Set Divert Valve	Waste



Acquisition Parameter

Source Type	ESI	Ion Polarity	Positive	Set Nebulizer	0.4 Bar
Focus	Not active			Set Dry Heater	180 °C
Scan Begin	50 m/z	Set Capillary	4500 V	Set Dry Gas	4.0 l/min
Scan End	3000 m/z	Set End Plate Offset	-500 V	Set Divert Valve	Waste





VII. References

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