Supporting Information

Kinetic Resolution of 1-(1-Alkynyl)cyclopropyl Ketones by Gold(I)-Catalyzed Asymmetric [4+3]Cycloaddition with Nitrones: Scope, Mechanism and Applications.

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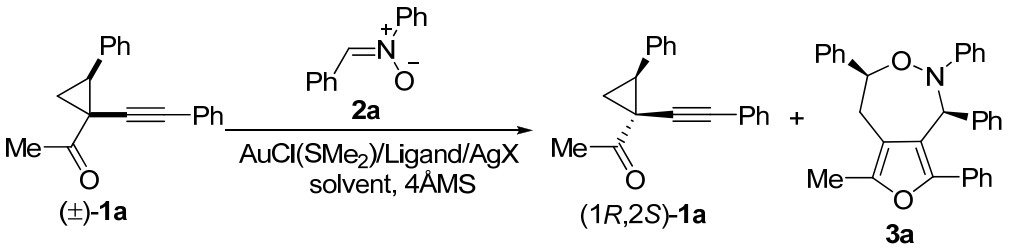
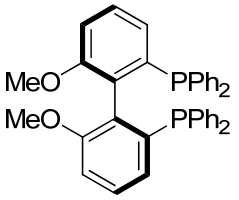
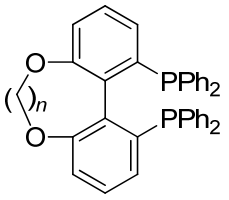
Table 1. Screening reaction conditions [a].

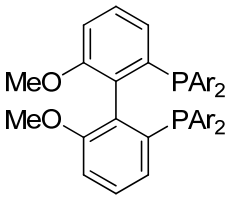




(*S*)-MeO-biphep



C*n*-tunephos
n = 1-4

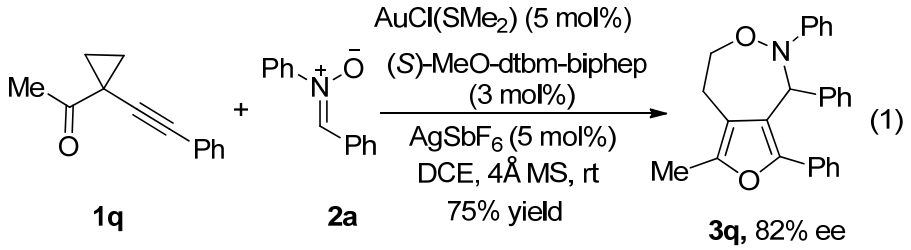


MeO-dtbm-biphep
Ar = 3,5-(*t*Bu)$_2$-4-MeOC$_6$H$_2$

Entry	Ligand	AgX	Solvent	Temp (^{o}C)	Time (h)	**1a**	
						ee (%)	yield(%)
1	(*S*)-MeO-biphenp	AgOTf	DCM	-10	40	-11	48
2	(*R*)-C$_1$-tunephos	AgOTf	DCM	-10	37	-6	40
3	(*S*)- C$_2$-tunephos	AgOTf	DCM	-10	39	32	44
4	(*R*)- C$_3$-tunephos	AgOTf	DCM	-10	43	-23	41
5	(*R*)- C$_4$-tunephos	AgOTf	DCM	-10	43	-7	46
6	(*S*)-binap	AgOTf	DCM	-10	40	28	42
7	(*R*)-MeO-dtbm-biphep	AgOTf	DCM	25	13	-94	39
8	(*R*)-MeO-dtbm-biphep	AgOTf	DCE	25	10	-95	42
9	(*R*)-MeO-dtbm-biphep	AgOTf	TCE	25	13	-89	29
10[b]	(*R*)-MeO-dtbm-biphep	AgOTf	DCE	25	13	-94	30
11	(*R*)-MeO-dtbm-biphep	$AgPF_6$	DCE	25	13	-99	28
12	(*R*)-MeO-dtbm-biphep	$AgBF_4$	DCE	25	13	-72	47
13	(*S*)-MeO-dtbm-biphep	$AgSbF_6$	DCE	25	7	92	43
14[c]	(*S*)-MeO-dtbm-biphep	AgOTf	DCE	25	10	94	39
15[d]	(*S*)-MeO-dtbm-biphep	AgOTf	DCE	25	21	92	41

[a] Reaction conditions: $AuCl(SMe_2)$ (5 mol%), ligand (3 mol%) and AgX (5 mol%), **1a**/**2a** =0.40 mmol/0.22 mmol, 4Å molecular sieves (60 mg), solvent (3 mL), Ar. [b] 4Å MS was not used. [c] (1*S*, 4*S*)-3a was isolated in 51% with 77% ee. [d] $AuCl(SMe_2)$ (1 mol%), (*S*)-L_6 (0.6 mol%) and $AgSbF_6$ (1 mol%) of catalyst were used, **1a**/**2a** = 4.0 mmol/2.2 mmol.

We also paid our attention on the asymmetric [4+3] annulation of 2-nonsubstituted cyclopropyl ketone 1q. After reacting with nitrone 2a under the optimized reaction conditions, heterobicyclic cycloadduct 3q is isolated in 75% yield with 82% ee, indicating the present reaction conditions are applicable to the 2-non-substituted cyclopropyl ketones [Eq (1)].



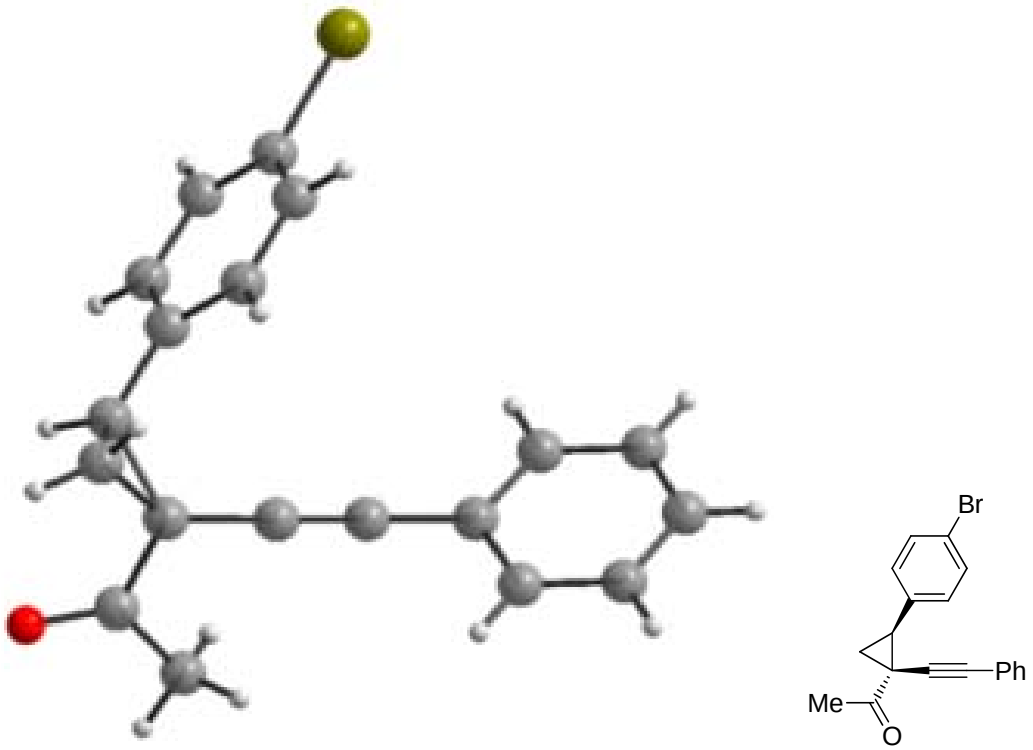


Figure 1. X-ray structure of (1*R*, 2*S*)-**1k**

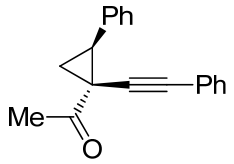
General: All Lewis acid and ligand are commercially available. All reactions were carried out under nitrogen or argon atmosphere. All solvents were fresh distilled from calcium hydride. ^{1}H and ^{13}C NMR spectra were obtained using a Bruker DPX-400 spectrometer in $CDCl_3$, Splitting patterns were designed as s (singlet), d (doublet), t (triplet), m (multiplet) and q (quartet). Compounds **1a-q** and **4** were prepared according to the procedure of literature[1]. The data of compound **1a-1b**, **1e-1g**, **1m** and **1p** were consistent with those in the literature[2]. Compounds **2a-2f** were synthesized according to the procedure of literature[3]. Compound **6** was synthesized according to the procedure of literature[4]. The data of compound **3p** and **5** were consistent with those in the literature.[5]

General procedure for kinetic resolution of ketone 1.

Conditions A (Small Scale) (Scale of **1**/**2** = 0.4/0.22 mmol): Me_2SAuCl (3.2 mg, 0.011mmol), (*S*)-MeO-dtbm-biphep (7.6 mg, 0.0066 mmol) and DCE (3 mL) was added to the dry Schlenk tube under Ar or N_2. After stirring for two hours, $AgSbF_6$ (3.7 mg, 0.011 mmol) was added to the mixture. The mixture was then stirred for another 15 mins at rt. To the resulting mixture was added activated molecular sieves 4Å (50 mg). The mixture was stirred for 30 minutes and then nitrone **2** (0.22 mmol,) and ketone **1** (0.4 mmol) were added. The resulting mixture was stirred at rt until the reaction was complete (monitored by TLC).The reaction was quenched by saturated NaCl. After standard work-up, the residue was purified by flash column chromatography on silica gel (hexanes/DCM/EA = 50:10:1).

Conditions B (large Scale) (Scale of **1**/**2** = 4.0/2.2 mmol): The procedure is same as the small scale with the use of Me_2SAuCl (32.0 mg, 0.11mmol), (*S*)-MeO-dtbm-biphep (76.0 mg, 0.066 mmol), DCE (15 mL), $AgSbF_6$ (37 mg, 0.11 mmol), activated molecular sieves 4Å (300 mg). nitrone **2a** (2.2 mmol) and ketone **1a** (4.0 mmol).

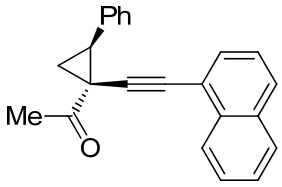
1. 1-((1*R*, 2*S*)-2-phenyl-1-(phenylethynyl)cyclopropyl)ethanone (1a).



^{1}H NMR (400 MHz, $CDCl_3$) δ 7.38 - 7.18 (m, 8 H), 7.16 - 7.08 (m, 2 H), 3.04 (t, *J* = 8.8 Hz, 1 H), 2.59 (s, 3 H), 2.20 (dd, *J* = 8.8, 4.0 Hz, 1 H), 1.86 (dd, *J* = 7.6, 4.0 Hz, 1 H).

Conditions A: the reaction under conditions A afforded the recovered **1a** in 43% yield with 92% ee. The ee was determined by chiral HPLC (Daicel OD-H column, hexanes : isopropanol = 98 : 2, 0.8 ml/min, λ= 230 nm: t_R = 7.45 min, t_R = 8.67 min.)

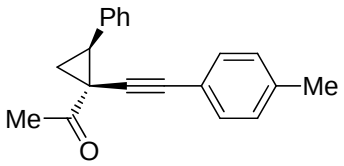
2. 1-((1*R*, 2*S*)-1-(naphthalen-1-ylethynyl)-2-phenylcyclopropyl)ethanone (1b).



^{1}H NMR (400 MHz, $CDCl_3$) δ 7.82 - 7.69 (m, 2 H), 7.53 - 7.28 (m, 10 H), 3.16 (t, *J* = 8.0 Hz, 1 H), 2.69 (s, 3 H), 2.26 (dd, *J* = 9.2, 3.2 Hz, 1 H), 1.99 (dd, *J* = 8.0, 4.4 Hz, 1 H).

Conditions B: The reaction under conditions B afforded the recovered **1b** in 34% yield with 95% ee. The ee was determined by chiral HPLC (Daicel OD-H column, hexanes : isopropanol = 95 : 5, 0.8 ml/min, λ= 220 nm: t_R = 9.42 min, t_R = 15.13 min.).

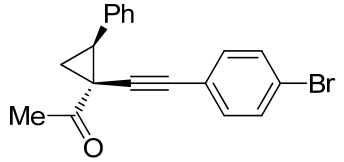
3. 1-((1*R*, 2*S*)-2-phenyl-1-(p-tolylethynyl)cyclopropyl)ethanone (1c).



Light yellow solid, m.p.27-30 ^{o}C. ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.43 - 7.35 (m, 2 H), 7.35-7.26 (m, 3H), 7.12 - 7.10 (m, 4 H), 3.06 (T, *J* = 8.0 Hz, 1 H), 2.62 (s, 3 H), 2.34 (s, 3 H), 2.23 (t, *J* = 5.2, 4.0 Hz, 1 H), 1.87 (t, *J* = 4.0, 3.6 Hz, 1 H); ^{13}C NMR (100 MHz, $CDCl_3$) δ 205.05, 138.05, 135.90, 131.18, 128.89, 128.63, 127.88, 127.14, 119.84, 86.47, 84.44, 39.06, 33.30, 29.57, 26.42, 21.38 ppm; MS (EI) m/z (%): 274 $[M]^+$ (42.24), 215 (100); HRMS calcd for $C_{20}H_{18}O$: 274.1358, found: 274.1357.

Conditions A: The reaction under conditions A afforded the recovered **1c** in 41% yield with 90% ee. The ee was determined by chiral HPLC (Daicel OD-H column, hexanes : isopropanol = 98 : 2, 0.8 ml/min, λ= 220 nm: t_R = 7.05 min, t_R = 8.45 min.) .

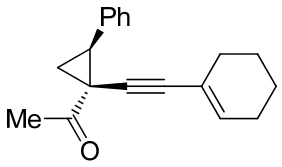
4. 1-((1*R*, 2*S*)-1-((4-bromophenyl)ethynyl)-2-phenylcyclopropyl)ethanone (1d).



Light yellow solid, m.p.45-48 ^{o}C.^{1}H NMR (400 MHz, $CDCl_3$) δ 7.38 -7.31 (m, 4 H), 7.22 -7.29 (m, 3 H), 6.95 (d, *J* = 8.4 Hz, 2 H), 3.06 (t, *J* = 8.4 Hz, 1 H), 2.57 (s, 3 H), 2.20 (dd, *J* = 8.8, 4.0 Hz, 1 H), 1.86 (dd, *J* = 8.0, 4.4 Hz, 1 H); ^{13}C NMR (100 MHz, $CDCl_3$) δ 204.45, 135.72, 132.72, 131.41, 128.65, 127.96, 127.29, 122.14, 121.85, 88.64, 83.27, 39.21, 33.23, 29.58, 26.35 ppm; MS (EI) m/z (%): 338 $[M]^+$ (1.52), 43 (100); HRMS calcd for $C_{19}H_{15}OBr$: 338.0306, found: 338.0302.

Conditions B The reaction under conditions B afforded the recovered **1d** in 42% yield with 93% ee. The ee was determined by chiral HPLC (Daicel OD-H column, hexanes : isopropanol = 95 : 5, 0.8 ml/min, λ= 220 nm: t_R = 6.64 min, t_R = 7.75 min.).

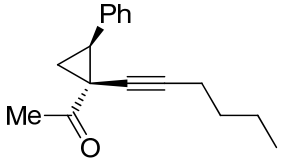
5. 1-((1*R*, 2*S*)-1-(cyclohex-1-en-1-ylethynyl)-2-phenylcyclopropyl)ethanone (1e).



^{1}H NMR (400 MHz, $CDCl_3$) δ 7.35 - 7.18 (m, 5 H), 5.81 (s, 1 H), 2.94 (t, *J* = 8.4 Hz, 1 H), 2.51 (s, 3 H), 2.12 (dd, *J* = 9.2, 4.0 Hz, 1 H), 2.05 - 1.94 (m, 2 H), 1.91 - 1.82 (m, 2 H), 1.72 (dd, *J* = 7.6, 4.0 Hz, 1 H), 1.57 - 1.46 (m, 4 H).

Conditions A: The reaction under conditions A afforded the recovered **1e** in 41% yield with 35% ee.. The ee was determined by chiral HPLC (Daicel OD-H column, hexanes : isopropanol = 95 : 5, 0.8 ml/min, λ= 230 nm: t_R = 5.43 min, t_R = 6.06 min.).

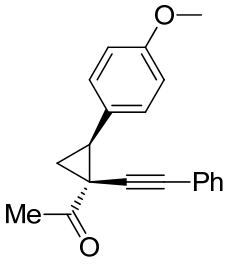
6. 1-((1*R*,2*S*)-1-(hex-1-yn-1-yl)-2-phenylcyclopropyl)ethanone (1f)



^{1}H NMR (400 MHz, $CDCl_3$) δ 7.36-7.11 (m, 5 H), 2.87 (t, *J* = 8.4 Hz, 1 H), 2.50 (s, 3 H), 2.08-2.04 (m, 2 H), 2.04-2.01 (m, 1 H), 1.64-1.66 (m, 1 H), 1.30-1.22 (m, 2 H), 1.21-1.11 (m, 2 H), 0.80 (t, *J* = 7.6 Hz, 3 H).

Conditions A: The reaction under conditions A afforded the recovered **1f** in 30% yield with 32% ee.. The ee was determined by chiral HPLC (Daicel OD-H column, hexanes : isopropanol = 95 : 5, 0.8 ml/min, λ= 230 nm: t_R = 5.05 min, t_R = 5.35 min.).

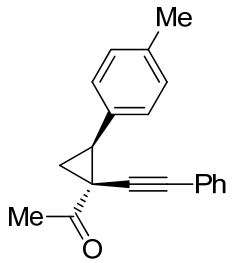
7. 1-((1*R*,2*S*)-2-(4-methoxyphenyl)-1-(phenylethynyl)cyclopropyl)ethanone (1g).



^{1}H NMR (400 MHz, $CDCl_3$) δ 7.33 - 7.11 (m, 7 H), 6.94 - 6.83 (m, 2 H), 3.81 (s, 3 H), 2.99 (t, *J* = 8.4 Hz, 1 H), 2.58 (s, 3 H), 2.19 (t, *J* = 4.4 Hz, 1 H), 1.79 (dd, *J* = 8.4, 4.4 Hz, 1 H).

Conditions B: The reaction under conditions B afforded the recovered **1g** in 35% yield with 93% ee. The ee was determined by chiral HPLC (Daicel OD-H column, hexanes : isopropanol = 98 : 2, 0.8 ml/min, λ= 220 nm: t_R = 9.99 min, t_R = 10.30 min.).

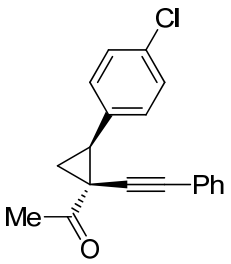
8. 1-((1*R*,2*S*)-1-(phenylethynyl)-2-(p-tolyl)cyclopropyl)ethanone (1h).



Light yellow solid, m.p.46-48 °C. ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.26 -7.20 (m, 3 H), 7.20 -7.1 (m, 6 H), 2.30 (t, *J* = 8.4 Hz, 1 H), 2.58 (s, 3 H), 2.36 (s, 3 H), 2.19 (dd, *J* = 6.9, 4.4 Hz, 1 H), 1.82 (dd, *J* = 8.4, 4.4 Hz, 1 H); ^{13}C NMR (100 MHz, $CDCl_3$) δ 205.03, 136.87, 132.73, 131.29, 128.62, 128.46, 128.14, 127.92, 123.02, 87.46, 84.32, 39.20, 33.32, 29.61, 26.57, 21.13 ppm; MS (EI) m/z (%): 274 $[M]^+$ (22.28), 215 (100); HRMS calcd for $C_{20}H_{18}O$: 274.1358, found: 274.1357.

Conditions B: The reaction under conditions B afforded the recovered **1h** in 42% yield with 96% ee. The ee was determined by chiral HPLC (Daicel OJ-H column, hexanes : isopropanol = 98 : 2, 0.8 ml/min, λ= 230 nm: t_R = 11.17 min, t_R = 12.04 min.).

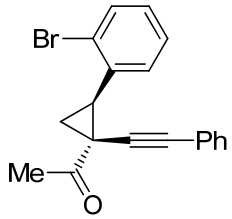
9. 1-((1*R*,2*S*)-2-(4-chlorophenyl)-1-(phenylethynyl)cyclopropyl)ethanone (1i).



Light yellow solid, m.p.44-47 °C.^{1}H NMR (400 MHz, $CDCl_3$) δ 7.29 - 7.35 (m, 2 H), 7.19 - 7.29 (m, 5 H), 7.11 - 7.19 (m, 2 H), 2.30 (t, *J* = 8.4 Hz, 1 H), 2.59 (s, 3 H), 2.19 (dd, *J* = 9.2, 4.0 Hz, 1 H), 1.79 (dd, *J* = 7.6, 4.0 Hz, 1 H); ^{13}C NMR (100 MHz, $CDCl_3$) δ 204.71, 134.47, 133.02, 131.31, 129.93, 128.27, 128.18, 128.07, 122.67, 86.82, 84.68, 38.12, 33.15, 29.63, 26.60 ppm; MS (EI) m/z (%): 294 $[M]^+$ (12.73), 43 (100); HRMS calcd for $C_{19}H_{15}OCl$: 294.0811, found: 294.0810.

Condition B: The reaction under conditions B afforded the recovered **1i** in 44% yield with 97% ee. The ee was determined by chiral HPLC (Daicel OJ-H column, hexanes : isopropanol = 98 : 2, 0.8 ml/min, λ= 230 nm: t_R = 18.58 min, t_R = 23.24 min.).

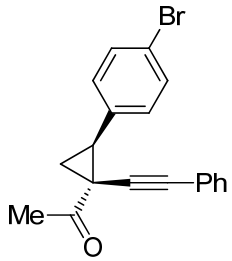
10. 1-((1*R*,2*R*)-2-(2-bromophenyl)-1-(phenylethynyl)cyclopropyl)ethanone(1j).



Oil.^{1}H NMR (400 MHz, $CDCl_3$) δ 7.63 (d, *J* = 7.6 Hz, 1 H), 7.36 - 7.27 (m, 1 H), 7.25 - 7.12 (m, 5 H), 7.02 - 6.93 (m, 2 H), 3.03 (t, *J* = 8.4 Hz, 1 H), 2.65 (s, 3 H), 2.26 (dd, *J* = 8.4, 4.0 Hz, 1 H), 1.88 (dd, *J* = 6.8, 4.0 Hz, 1 H); ^{13}C NMR (100 MHz, $CDCl_3$) δ 205.00, 136.27, 132.36, 131.33, 129.57, 128.82, 128.08, 127.90, 127.45, 127.01, 122.83, 86.85, 83.16, 40.32, 32.17, 29.43, 25.59 ppm; MS (EI) m/z (%): 338 $[M]^+$ (4.88), 43 (100); HRMS calcd for $C_{19}H_{15}OBr$: 338.0306, found: 338.0303.

Conditions A: The reaction under conditions A afforded the recovered **1j** in 41% yield with 98% ee. The ee was determined by chiral HPLC (Daicel AD-H column, hexanes : isopropanol = 98 : 2, 0.8 ml/min, λ= 220 nm: t_R = 7.19 min, t_R = 7.69 min.).

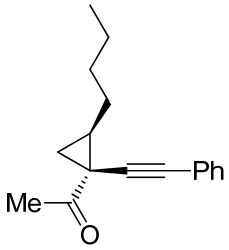
11. 1-((1*R*,2*S*)-2-(4-bromophenyl)-1-(phenylethynyl)cyclopropyl)ethanone (1k).



Light yellow solid, m.p.69-72 °C.^{1}H NMR (400 MHz, $CDCl_3$) δ 7.52 - 7.42 (m, 2 H), 7.31 - 7.22 (m, 3 H), 7.20 - 7.10 (m, 4 H), 2.98 (t, *J* = 8.4 Hz, 1 H), 2.59 (s, 3 H), 2.18 (dd, *J* = 8.8, 4.0 Hz, 1 H), 1.79 (dd, *J* = 6.4, 4.0 Hz, 1 H); ^{13}C NMR (100 MHz, $CDCl_3$) δ 204.63, 135.02, 131.32, 131.01, 130.28, 128.27, 128.18, 122.65, 121.13, 86.79, 84.73, 38.12, 33.11, 29.60,26.53 ppm; MS (EI) m/z (%): 338 $[M]^+$ (3.43), 43 (100); HRMS calcd for $C_{19}H_{15}OBr$: 338.0306, found: 338.0302.

Conditions A: The reaction under conditions A afforded the recovered **1k** in 42% yield with 98% ee. The ee was determined by chiral HPLC (Daicel OD-H column, hexanes : isopropanol = 95 : 5, 0.8 ml/min, λ = 230 nm: t_R = 7.40 min, t_R = 7.90 min.).

12. 1-((1*R*,2*R*)-2-butyl-1-(phenylethynyl)cyclopropyl)ethanone (1l)

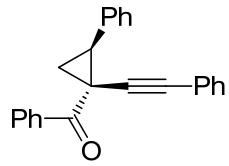


Oil. ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.51-7.39 (m, 2 H), 7.38-7.28 (m, 3 H), 2.54 (s, 3 H), 1.83 (dd, *J* = 8.8, 3.2 Hz, 1 H), 1.80-1.69 (m, 1 H), 1.69-1.57 (m, 2 H), 1.54-1.34 (m, 4 H), 1.10 (dd, *J* = 7.2, 3.2 Hz, 1 H), 0.92 (t, *J* = 7.2 Hz, 3 H); ^{13}C NMR (100 MHz, $CDCl_3$) δ 206.00, 131.50, 128.30, 127.98, 123.34, 88.27, 82.70, 35.08, 31.02, 30.01, 29.89, 29.45, 29.06, 22.41, 14.04 ppm; MS (EI) m/z (%): 240 $[M]^+$ (31.11), 43(100); HRMS calcd for $C_{17}H_{20}O$: 240.1514, found: 240.1514.

Condition A: The reaction under conditions A afforded the recovered **1l** in 43% yield with 27% ee.

The ee was determined by chiral HPLC (Daicel OJ-3 column, hexanes : isopropanol = 98 : 2, 0.8 ml/min, λ= 254 nm: t_R = 5.78 min, t_R = 6.29 min.).

13. Phenyl((1*R*,2*S*)-2-phenyl-1-(phenylethynyl)cyclopropyl)methanone(1m).

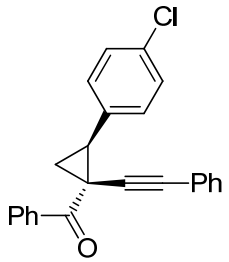


^{1}H NMR (400 MHz, $CDCl_3$) δ 8.16 - 8.02 (m, 2 H), 7.58 - 7.30 (m, 8 H), 7.24 - 7.30 (m, 3 H), 7.05 - 6.91 (m, 2 H), 3.04 (t, *J* = 7.6 Hz, 1 H), 3.02 (dd, *J* = 9.2, 4.8 Hz, 1 H), 1.96 (dd, *J* = 10.8, 4.8 Hz, 1 H).

Condition B: The reaction under conditions B afforded the recovered **1m** in 37% yield with 99% ee.

The ee was determined by chiral HPLC (Daicel OD-H column, hexanes : isopropanol = 95 : 5, 0.8 ml/min, λ= 220 nm: t_R = 6.35 min, t_R = 7.27 min.).

14. ((1*R*,2*S*)-2-(4-chlorophenyl)-1-(phenylethynyl)cyclopropyl)(phenyl)methanone (1n).

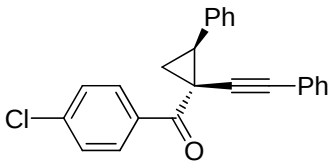


Light yellow solid, m.p.60-62 °C.^{1}H NMR (400 MHz, $CDCl_3$) δ 8.10 - 8.01 (m, 2 H), 7.60 - 7.50 (m, 1 H), 7.48 - 7.40 (m, 2 H), 7.40 - 7.33 (m, 2 H), 7.43 - 7.27 (m, 2 H), 7.24 - 7.12 (m, 3 H), 7.06 - 6.94 (m, 2 H), 3.00 (t, *J* = 8.4 Hz, 1 H), 2.50 (dd, *J* = 8.4, 4.8 Hz, 1 H), 1.90 (t, *J* = 6.0 Hz, 1 H); ^{13}C NMR (100 MHz, $CDCl_3$) δ 196.42, 136.62, 134.48, 133.16, 132.69, 131.12, 129.95, 129.20, 128.23, 128.15, 127.98, 122.80, 87.74, 85.30, 36.84, 31.95, 23.81 ppm; MS (EI) m/z (%): 356 $[M]^+$ (5.92), 105 (100); HRMS calcd for $C_{24}H_{17}OCl$: 356.0968, found: 356.0970.

Condition B: The reaction under conditions B afforded the recovered **1n** in 49% yield with 92% ee..

The ee was determined by chiral HPLC (Daicel AD-H column, hexanes : isopropanol = 98 : 2, 0.8 ml/min, λ= 220 nm: t_R = 8.71 min, t_R = 9.45 min.).

15. (4-chlorophenyl)((1*R*,2*S*)-2-phenyl-1-(phenylethynyl)cyclopropyl)methanone (1o).

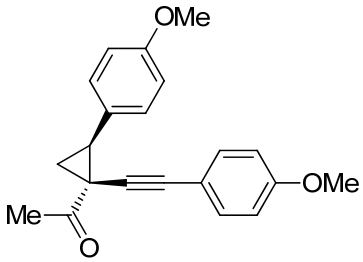


Light yellow solid, m.p.44-47 °C. ^{1}H NMR (400 MHz, $CDCl_3$) δ 8.08 - 7.98 (m, 2 H), 7.44 - 7.31 (m, 7 H), 7.22 - 7.12 (m, 3 H), 7.04 -6.94 (m, 2 H), 3.02 (t, *J* = 8.4 Hz, 1 H), 2.51 (dd, *J* = 9.2, 4.8 Hz, 1 H), 1.96 (t, *J* = 6.0 Hz, 1 H); ^{13}C NMR (100 MHz, $CDCl_3$) δ 195.47, 138.92, 135.54, 135.03, 131.10, 130.67, 128.63, 128.26, 128.10, 127.96, 127.42, 122.79, 87.77, 85.13, 38.22, 31.99, 23.65 ppm; MS (EI) m/z (%): 356 $[M]^+$ (2.47), 43 (100); HRMS calcd for $C_{24}H_{17}OCl$: 356.0968, found: 356.0967.

Condition A: The reaction under conditions A afforded the recovered **1o** in 37% yield with 97% ee.

The ee was determined by chiral HPLC (Daicel AD-H column, hexanes : isopropanol = 98 : 2, 0.8 ml/min, λ= 220 nm: t_R = 8.07 min, t_R = 8.80 min.).

16. 1-((1*R*,2*S*)-2-(4-methoxyphenyl)-1-((4-methoxyphenyl)ethynyl)cyclopropyl)ethanone (1p)

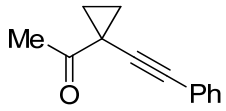


^{1}H NMR (400 MHz, $CDCl_3$) δ 7.20 (d, *J* = 8.4 Hz, 2 H), 7.10 (d, *J* = 8.8 Hz, 2 H), 6.88 (d, *J* = 8.4 Hz, 2 H), 6.76 (d, *J* = 8.8 Hz, 2 H). 3.81 (s, 3 H), 3.78 (s, 3 H), 2.96 (t, *J* = 8.4 Hz, 1 H), 2.57 (s, 3 H), 2.22-2.12 (m, 1 H), 1.79-1.72 (m, 1 H).

Condition A: The reaction under conditions A afforded the recovered **1p** in 39% yield with 68% ee. The ee was determined by chiral HPLC (Daicel OD-H column, hexanes : isopropanol = 99 : 1, 0.8 ml/min, λ= 230 nm: t_R = 26.81 min, t_R = 30.16 min.).

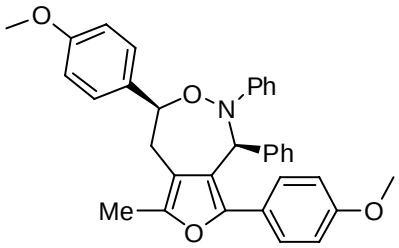
Condition B: The reaction under conditions B afforded the recovered **1p** in 24% yield with 87% ee. The ee was determined by chiral HPLC (Daicel OD-H column, hexanes : isopropanol = 98 : 2, 0.8 ml/min, λ= 230 nm: t_R = 13.90 min, t_R = 14.69 min.).

17. 1-(1-(phenylethynyl)cyclopropyl)ethanone (1q)



^{1}H NMR (400 MHz, $CDCl_3$) δ 7.39 - 7.46 (m, 2 H), 7.35 - 7.28 (m, 3 H), 2.56 (s, 3 H), 1.62 (dd, *J* = 2.4, 1.6 Hz, 2 H), 1.39 (t, *J* = 1.6 Hz, 2 H).

18. (1*S*,4*S*)-4,8-bis(4-methoxyphenyl)-6-methyl-1,2-diphenyl-1,2,4,5-tetrahydrofuro[3,4-d][1,2]oxazepine (3p)



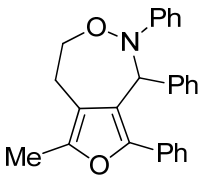
^{1}H NMR (400 MHz, $CDCl_3$) δ 7.30 (d, *J* = 8.4 Hz, 2 H), 7.26-7.22 (m, 5 H), 7.20-7.12 (m, 4 H), 6.92-6.80 (m, 7 H), 6.07 (s, 1 H), 5.03 (d, *J* = 10.4 Hz, 1 H), 3.81 (s, 3 H), 3.80 (s, 3 H), 3.19 (dd, *J* = 15.2, 11.2 Hz, 1 H), 2.97 (d, *J* = 15.2 Hz, 1 H), 2.33 (s, 3 H).

Condition A: The reaction under conditions A afforded the recovered **3p** in 54% yield with 97% ee. The ee was determined by chiral HPLC (Daicel OD-H column, hexanes : isopropanol = 95 : 5, 0.8 ml/min, λ= 230 nm: t_R = 8.16 min, t_R = 8.78 min.).

Table 2, entry 2: The reaction afforded the recovered **3p** in 87% yield with 91% ee. The ee was determined by chiral HPLC (Daicel OD-H column, hexanes : isopropanol = 95 : 5, 0.8 ml/min, λ= 230 nm: t_R = 8.46 min, t_R = 9.13 min.).

Condition B: The reaction under conditions B afforded the recovered **3p** in 46% yield with 96% ee. The ee was determined by chiral HPLC (Daicel OD-H column, hexanes : isopropanol = 95 : 5, 0.8 ml/min, λ= 230 nm: t_R = 8.76 min, t_R = 9.67 min.).

19. 6-methyl-1,2,8-triphenyl-1,2,4,5-tetrahydrofuro[3,4-d][1,2]oxazepine(3q).

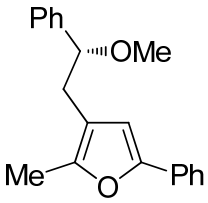


Me_2SAuCl (6.4 mg, 0.02mmol), (*S*)-**L_6** (15.2 mg, 0.012 mmol) and DCE (2 mL) was added to the dry Schlenk tube in glove box. After stirring for two hours, $AgSbF_6$ (7.4 mg, 0.002 mmol) was added to the mixture. The mixture was stirred for another 15 mins at rt. To the resulting solution was added activated molecular sieves 4Å MS (60 mg). The mixture was stirred for 30 minutes and then nitrone **2** (0.3 mmol, 59.1 mg) and ketone **1q** (0.2 mmol, 36.9 mg) were added. The resulting mixture was then stirred under N_2 at rt until the reaction was complete after 87 hours (monitored by TLC).The reaction was quenched by saturated NaCl. After standard work-up, the residue was purified by flash column chromatography on silica gel (hexanes/DCM/EA = 50:10:1) to afford the pure product **3q** (56.9 mg) in 75% yield with 82% ee.

Solid, m.p.127-130 °C. ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.4 - 7.05 (m, 12 H), 6.96 - 6.82 (m, 3 H), 6.09 (s, 1 H), 4.25 (d, *J* = 11.6 Hz, 1 H), 4.01 (t, *J* = 12.0 Hz, 1 H), 3.04 (t, *J* = 12.0 Hz, 1 H), 2.68 (d, *J* = 15.2 Hz, 1 H), 2.32 (s, 3 H); ^{13}C NMR (100 MHz, $CDCl_3$) δ 149.67, 147.10, 147.02, 138.00, 130.89, 128.77, 128.73, 128.52, 127.97, 127.46, 127.09, 125.81, 122.10, 121.25, 119.55, 116.12, 73.68, 67.06, 27.47, 11.72; MS (EI) m/z (%): 381 $[M]^+$ (18.28), 77 (100); HRMS calcd for $C_{26}H_{23}NO_2$: 381.1729, found: 381.1724.

The ee was determined by chiral HPLC (Daicel AS-H column, hexanes : isopropanol = 98 : 2, 0.8 ml/min, λ= 220 nm: t_R = 5.99 min, t_R = 6.51 min.).

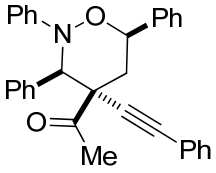
20. 3-(2-methoxy-2-phenylethyl)-2-methyl-5-phenylfuran (4).



The reaction afforded the product **4** in 99% yield with 86% ee according to the procedure of reference. ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.63 - 7.52 (m, 2 H), 7.37 - 7.15 (m, 8 H), 6.38 (s, 1 H), 4.24 (t, *J* = 6.4 Hz, 1 H), 3.24 (s, 3 H), 2.87 (dd, *J* = 14.4, 6.4 Hz, 1 H), 2.66 (dd, *J* = 14.4, 6.8 Hz, 1 H), 1.98 (s, 3 H).

The ee was determined by chiral HPLC (Daicel OD-H column, hexanes : isopropanol = 98 : 2, 0.8 ml/min, λ= 220 nm: t_R = 6.40 min, t_R = 7.08 min.).

21. 1-(2,3,6-triphenyl-4-(phenylethynyl)-1,2-oxazinan-4-yl)ethanone (5).

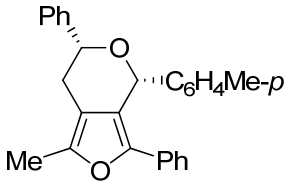


The reaction of **1a** with nitrone **2a** under the catalysis of $Sc(OTf)_3$ afford the pure product **5** in 90% yield with d.r.= 11:1. The major isomer is with 72% ee.

^{1}H NMR (400 MHz, $CDCl_3$) δ 7.66 -7.29 (m, 12 H), 7.21 - 7.05 (m, 7 H), 6.88 - 6.76 (m, 1 H), 5.57 (d, *J* = 11.6 Hz, 1 H), 5.26 (s, 1 H), 3.02 (t, *J* = 13.2 Hz, 1 H), 2.35 (s, 3 H), 2.21 (d, *J* = 14.0 Hz, 1 H).

The ee was determined by chiral HPLC (Daicel AS-H column, hexanes : isopropanol = 80 : 20, 0.8 ml/min, λ= 220 nm: t_R = 7.02 min, t_R = 9.44 min.) .

22. 1-Methyl-3,6-diphenyl-4-(p-tolyl)-6,7-dihydro-4H-furo[3,4-c]pyran (6).

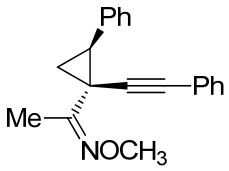


The reaction of **1a** with aldehyde under the catalysis of gold(I) afforded compound **6** in 90% yield with 79% ee according to the procedure of [4+3] cycloaddition reaction.

White solid, m.p. 64-67 °C. ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.50 - 6.57(m, 14 H), 6.03 (s, 1 H), 4.74 (d, *J* = 11.2 Hz, 1 H), 2.83 (d, *J* = 14.8 Hz, 1 H), 2.73 (dd, *J* = 14.8, 11.2 Hz, 1 H), 2.32 (s, 3 H), 2.24 (s, 3 H); ^{13}C NMR (100 MHz, $CDCl_3$) δ 145.19, 144.89, 142.21, 137.79, 137.16, 130.70, 128.88 (2 C), 128.25, 127.77, 127.45, 126.13, 126.01, 125.23, 119.23, 117.66, 77.76, 76.88, 29.82, 21.15, 11.67; MS (EI) m/z (%): 380 $[M]^+$ (14.05), 259 (100); HRMS calcd for $C_{27}H_{24}O_2$: 380.1776, found: 380.1778.

The ee was determined by chiral HPLC (Daicel OD-H column, hexanes : isopropanol = 95 : 5, 0.8 ml/min, λ= 220 nm: t_R = 5.96 min, t_R = 6.87 min.).

23. 1-((1*R*,2*S*)-2-phenyl-1-(phenylethynyl)cyclopropyl)ethanone O-methyl oxime (7).



The reaction of **1a** with O-methylhydroxylamine hydrochloride under the sodium acetate afforded **7** in yield 95% with 96% ee.

Oil. ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.38 - 7.01 (m, 10 H), 3.87 (s, 3 H), 2.67 (t, *J* = 7.6 Hz, 1 H), 2.16 (dd, *J* = 5.2, 2.8 Hz, 1 H), 2.13 (s, 3 H), 1.67 (dd, *J* = 4.4, 0.8 Hz, 1 H); ^{13}C NMR (100 MHz, $CDCl_3$) δ 155.91, 137.19, 131.41, 128.56, 128.02, 127.83, 127.65, 126.64, 123.29, 88.64, 82.22, 61.57, 34.28, 26.53, 20.86, 13.86 ppm; MS (EI) m/z (%): 289 $[M]^+$ (42.90), 215 (100); HRMS calcd for $C_{20}H_{19}NO$: 289.1467, found: 289.1468.

The ee was determined by chiral HPLC (Daicel OD-3 column, hexanes : isopropanol = 98 : 2, 0.8 ml/min, λ= 254 nm: t_R = 6.0 min, t_R = 8.06 min.).

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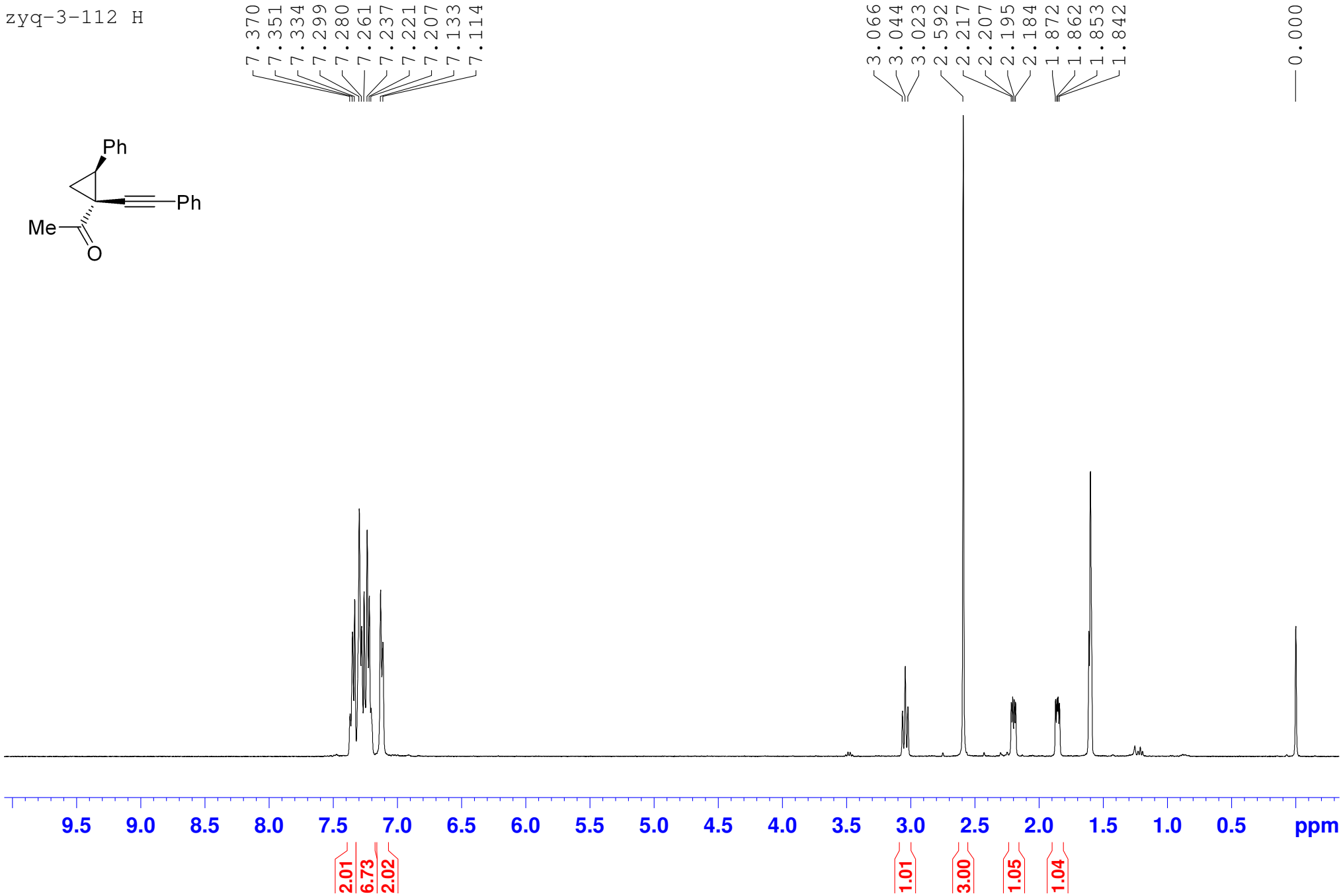

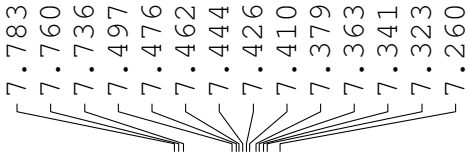

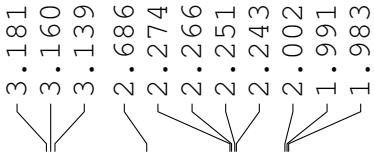

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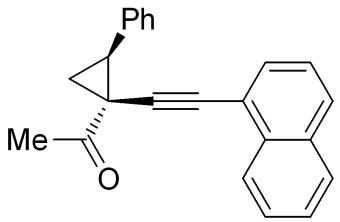
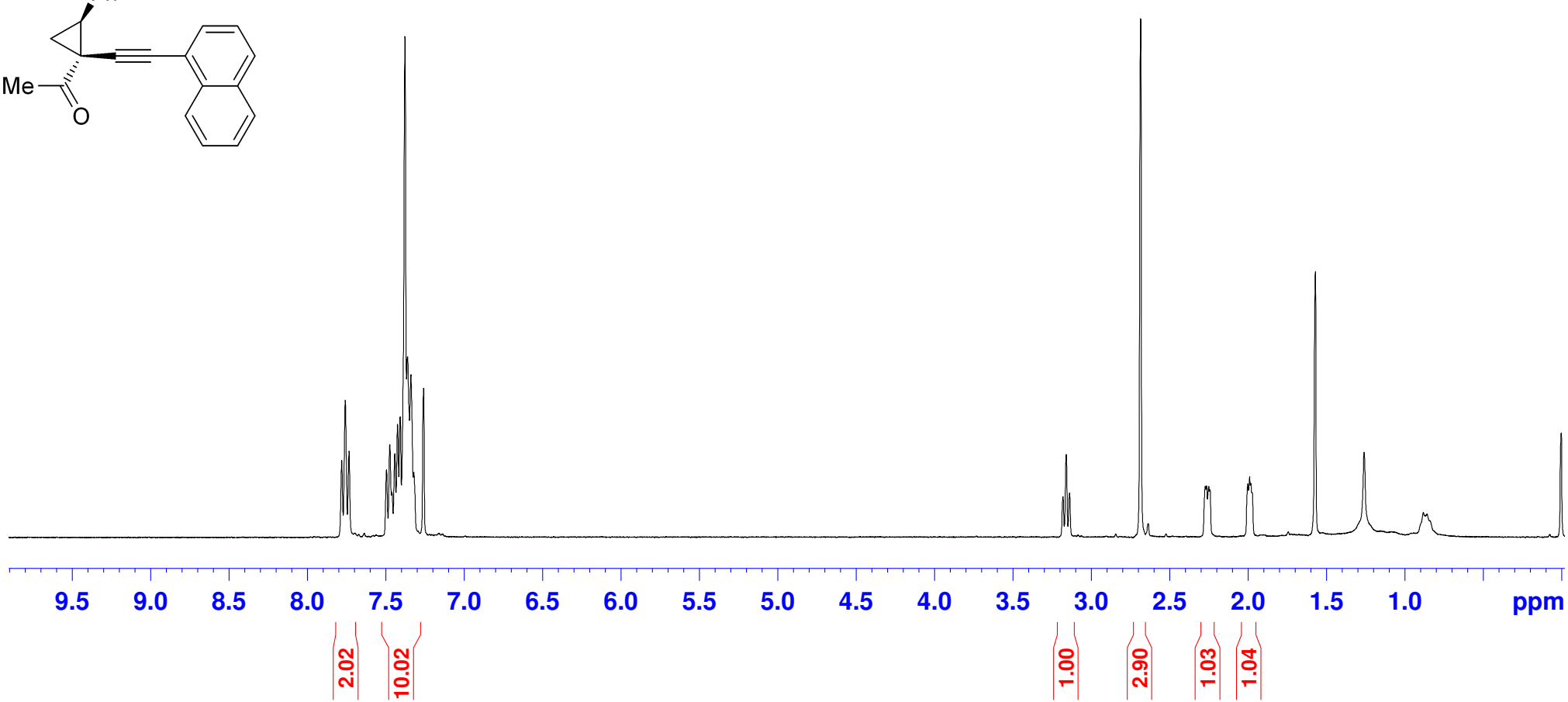
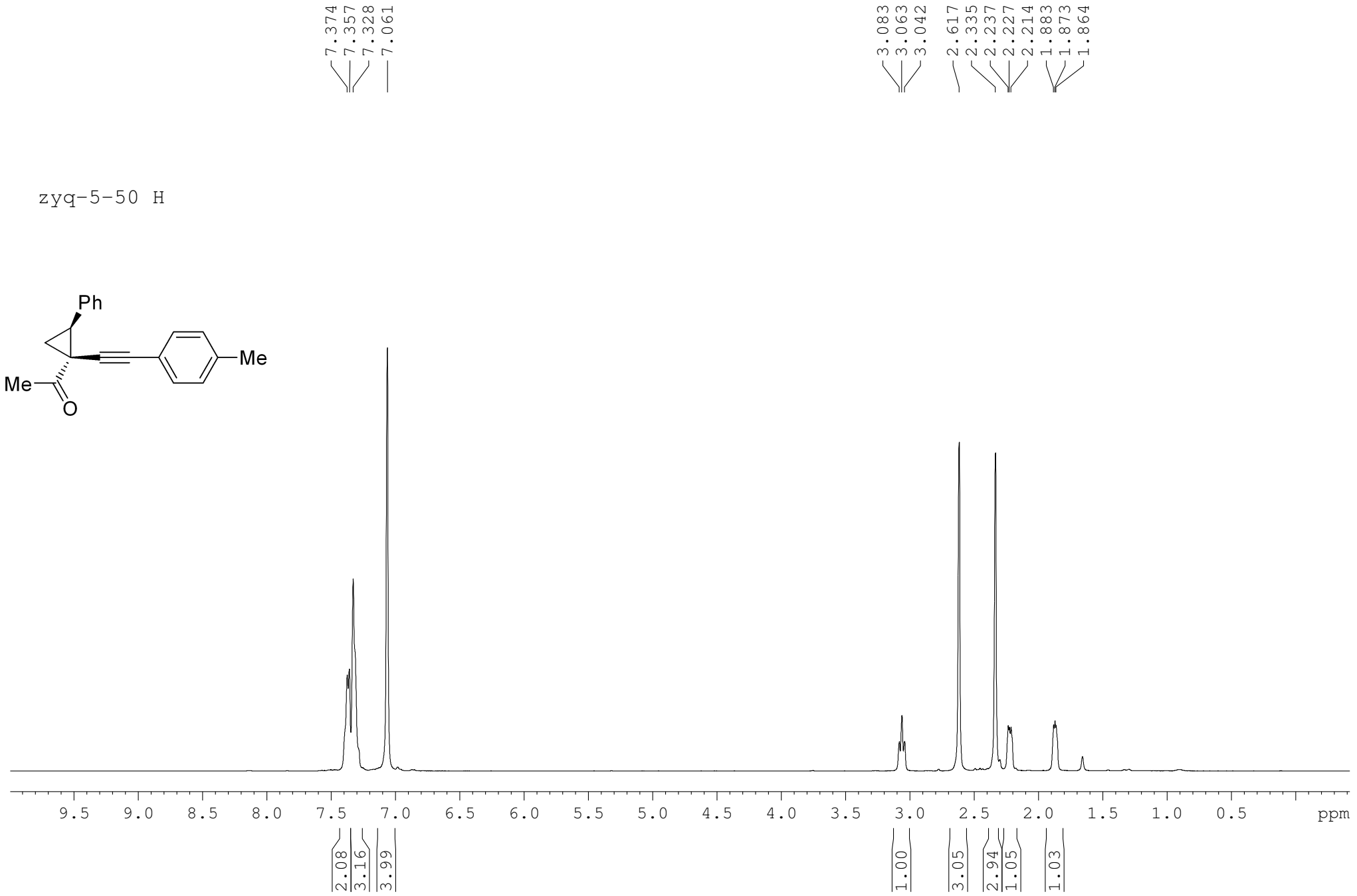
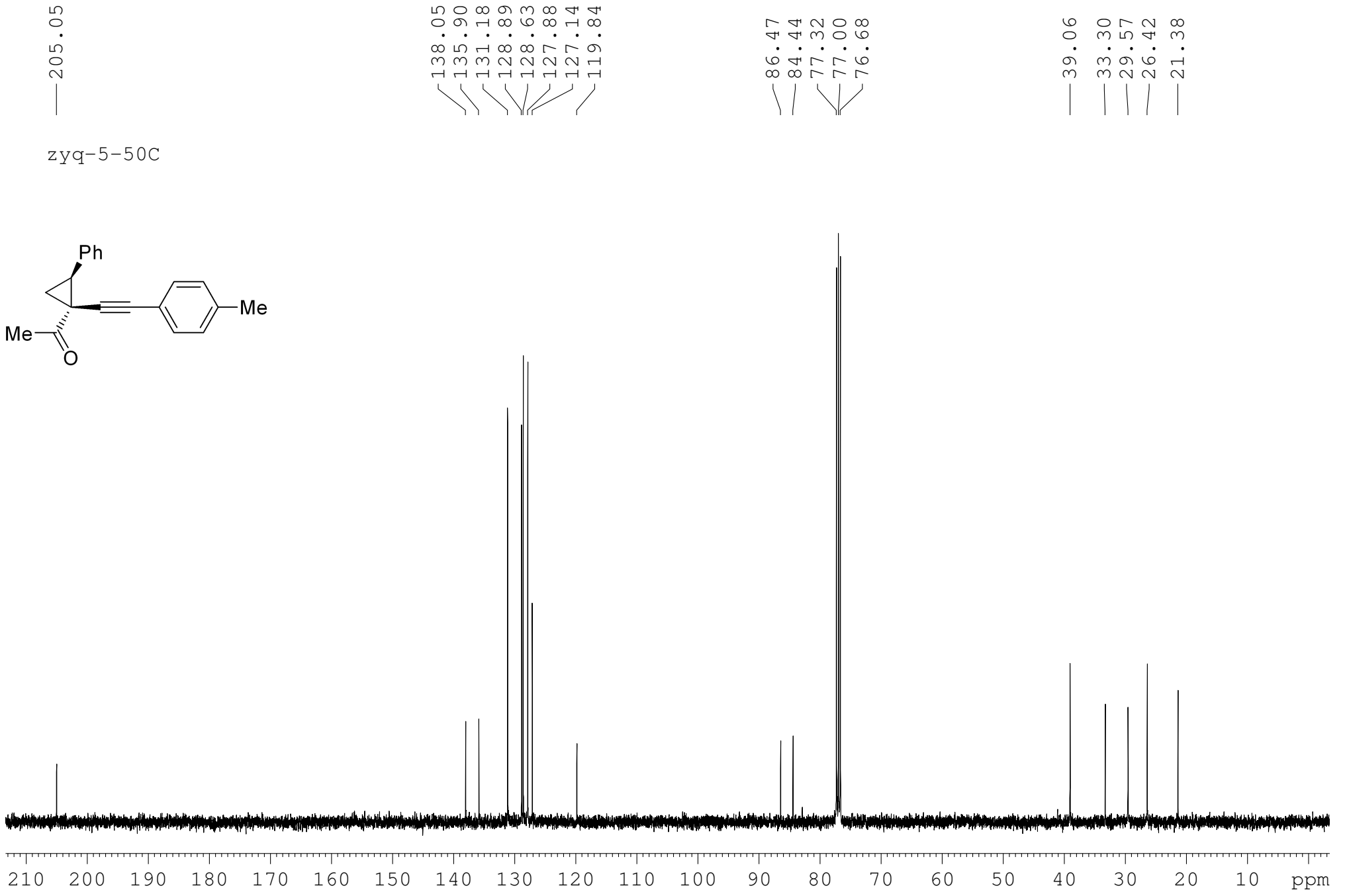
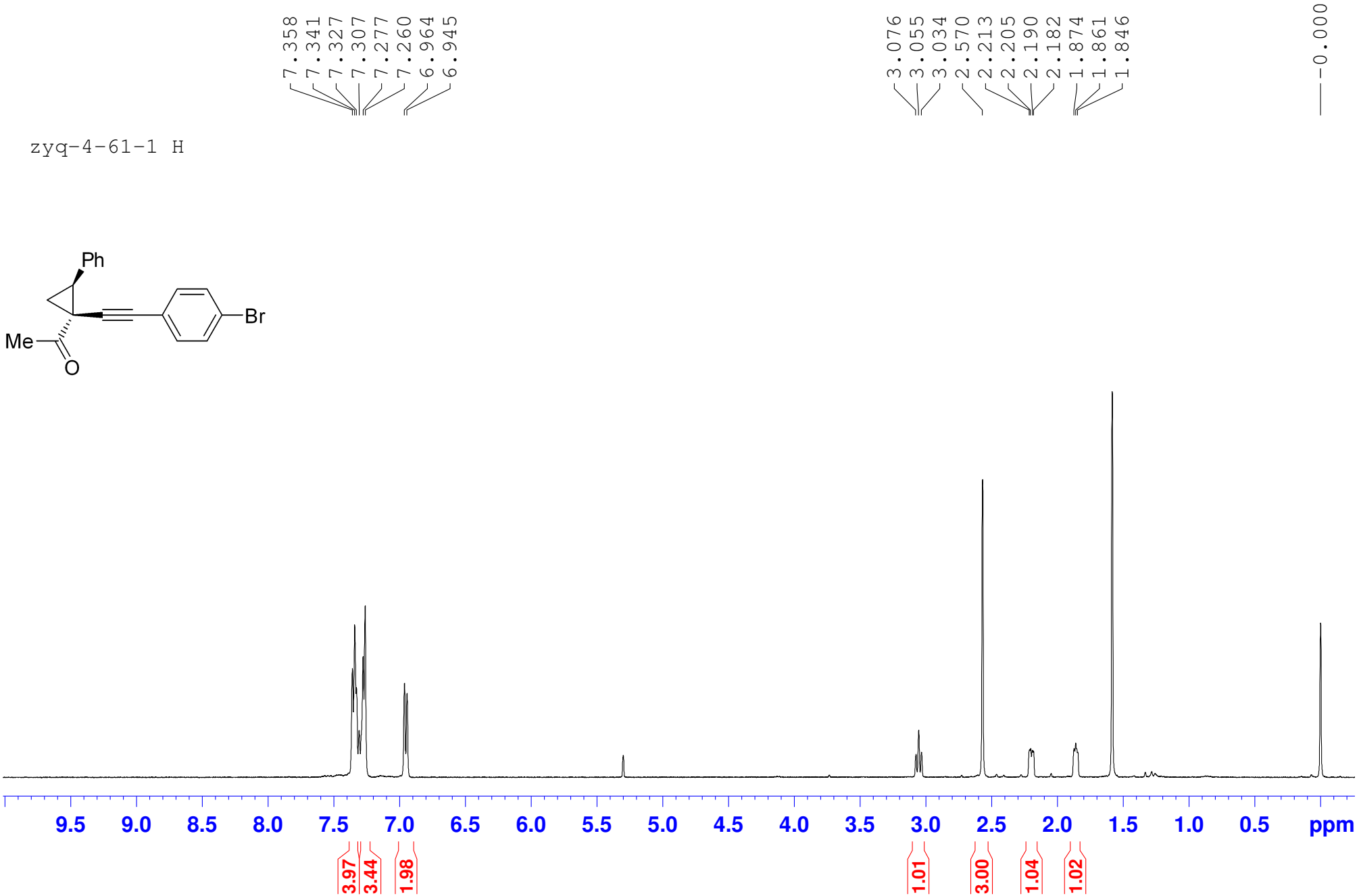
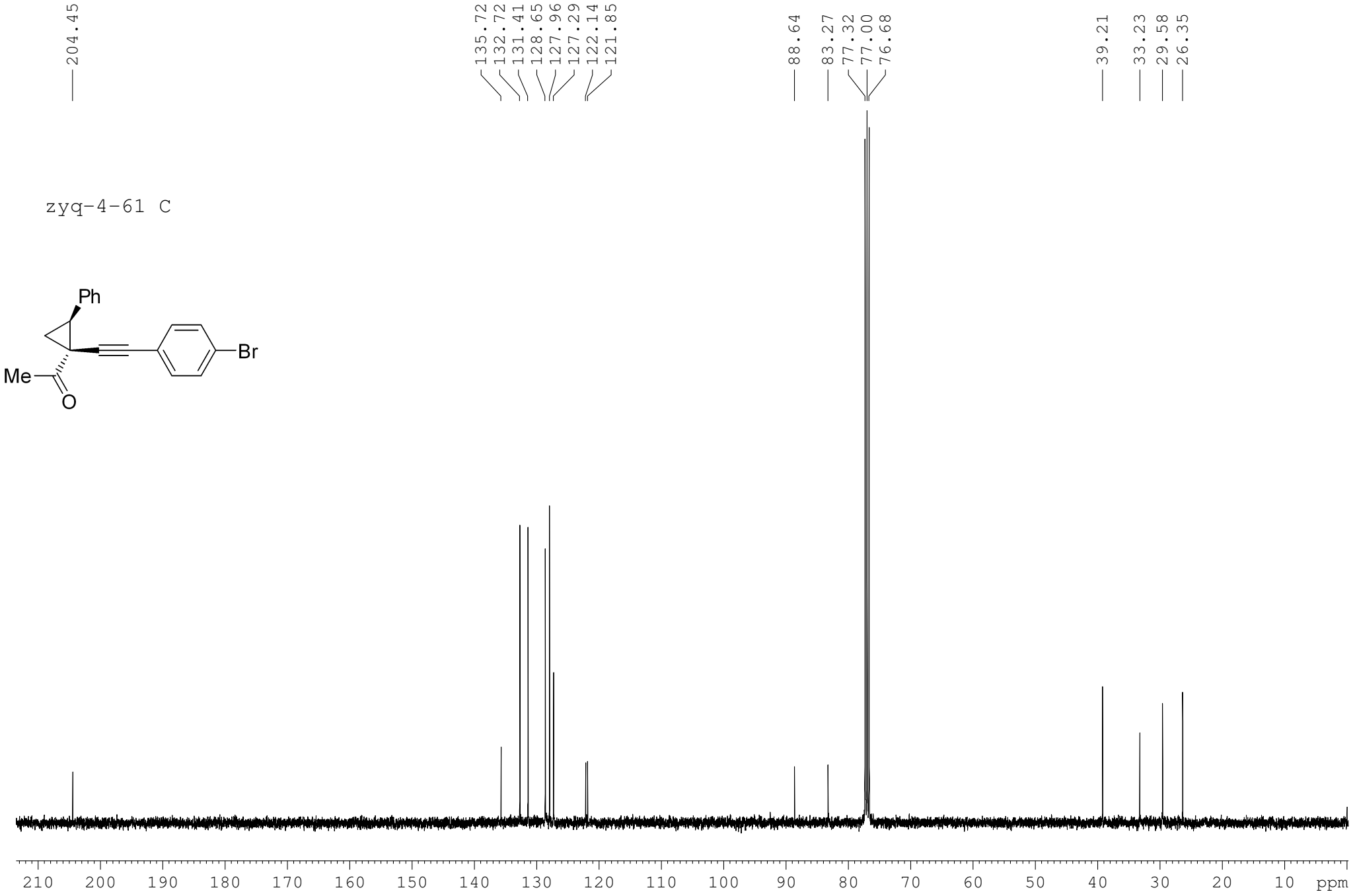


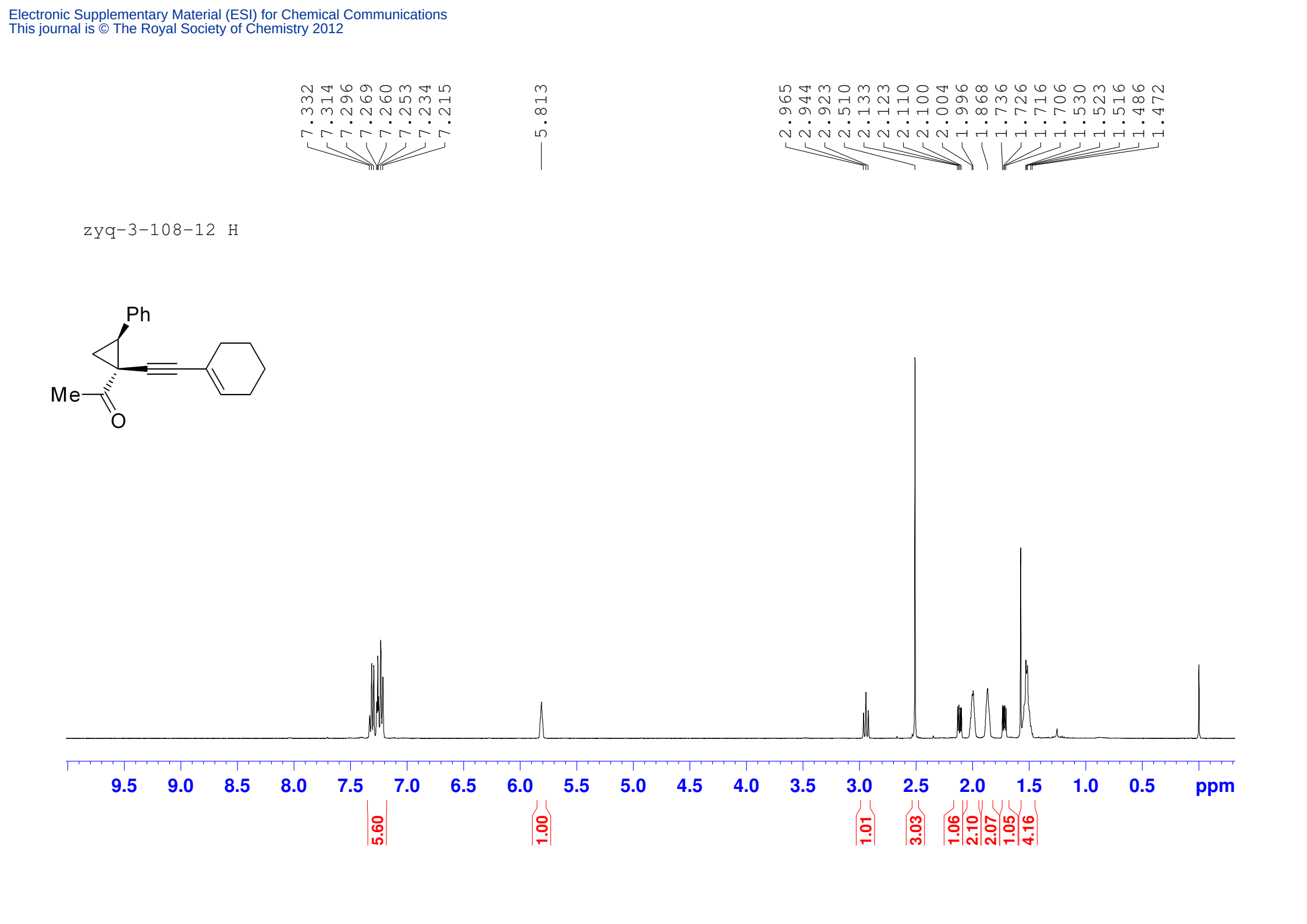


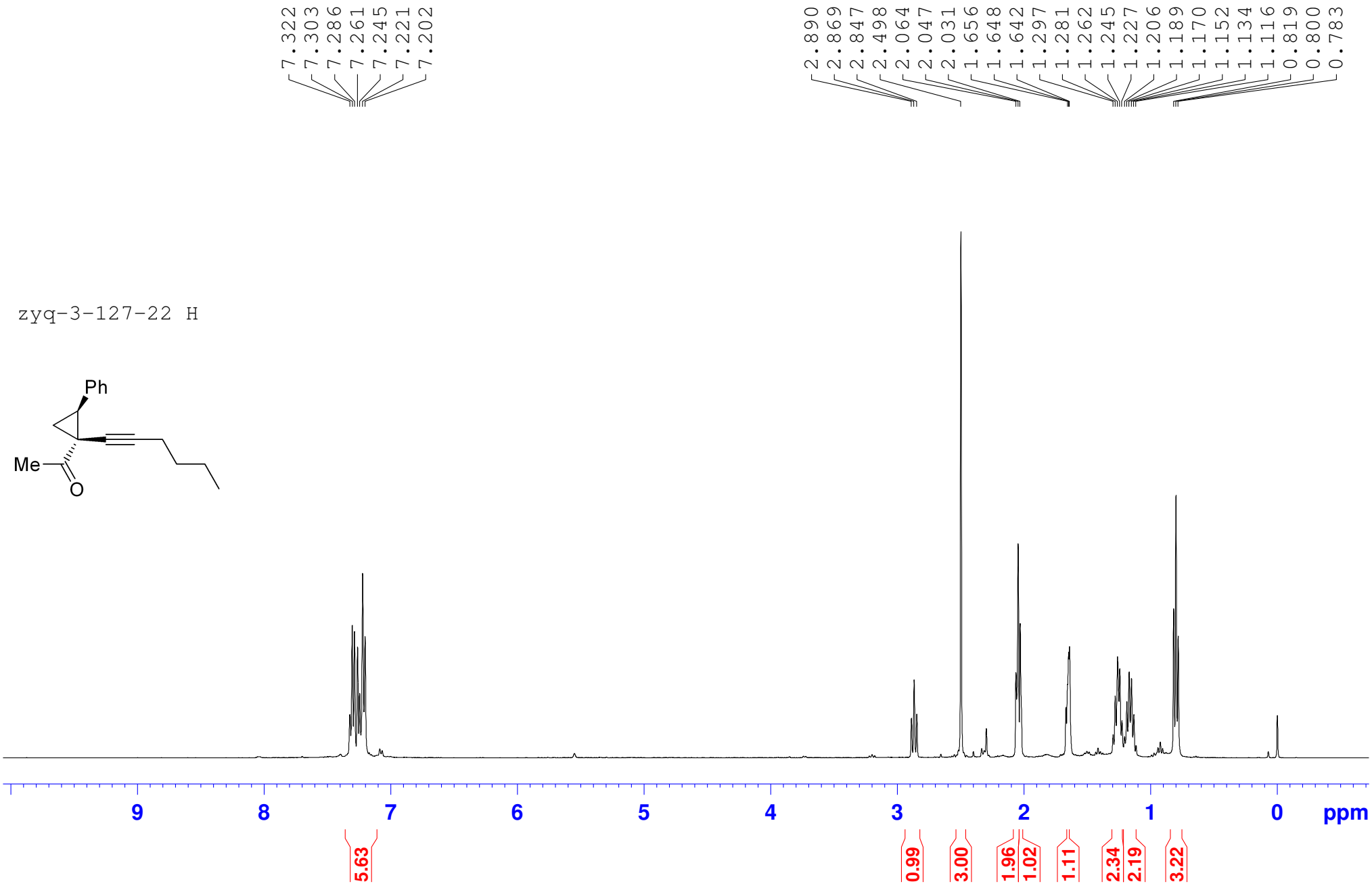


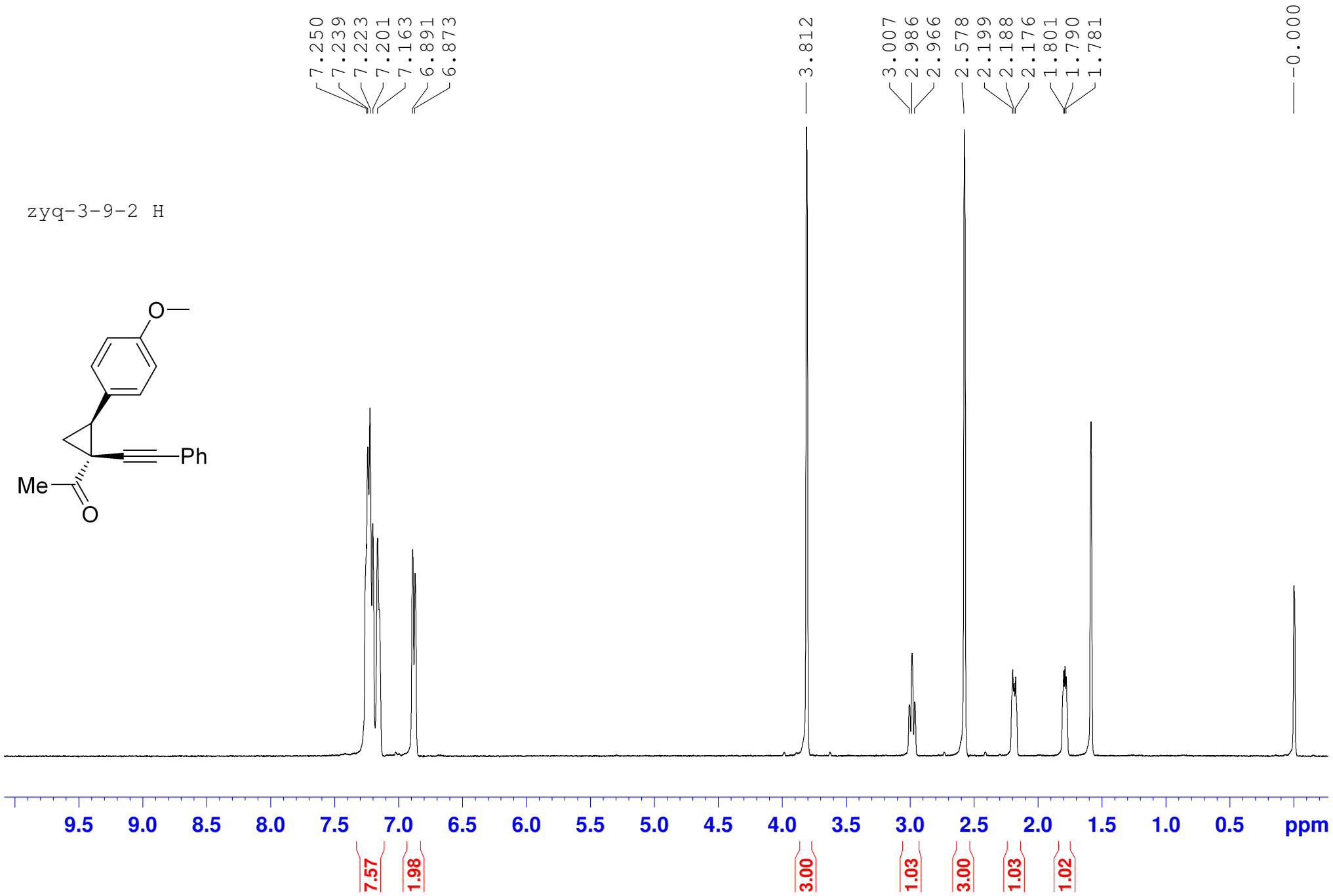


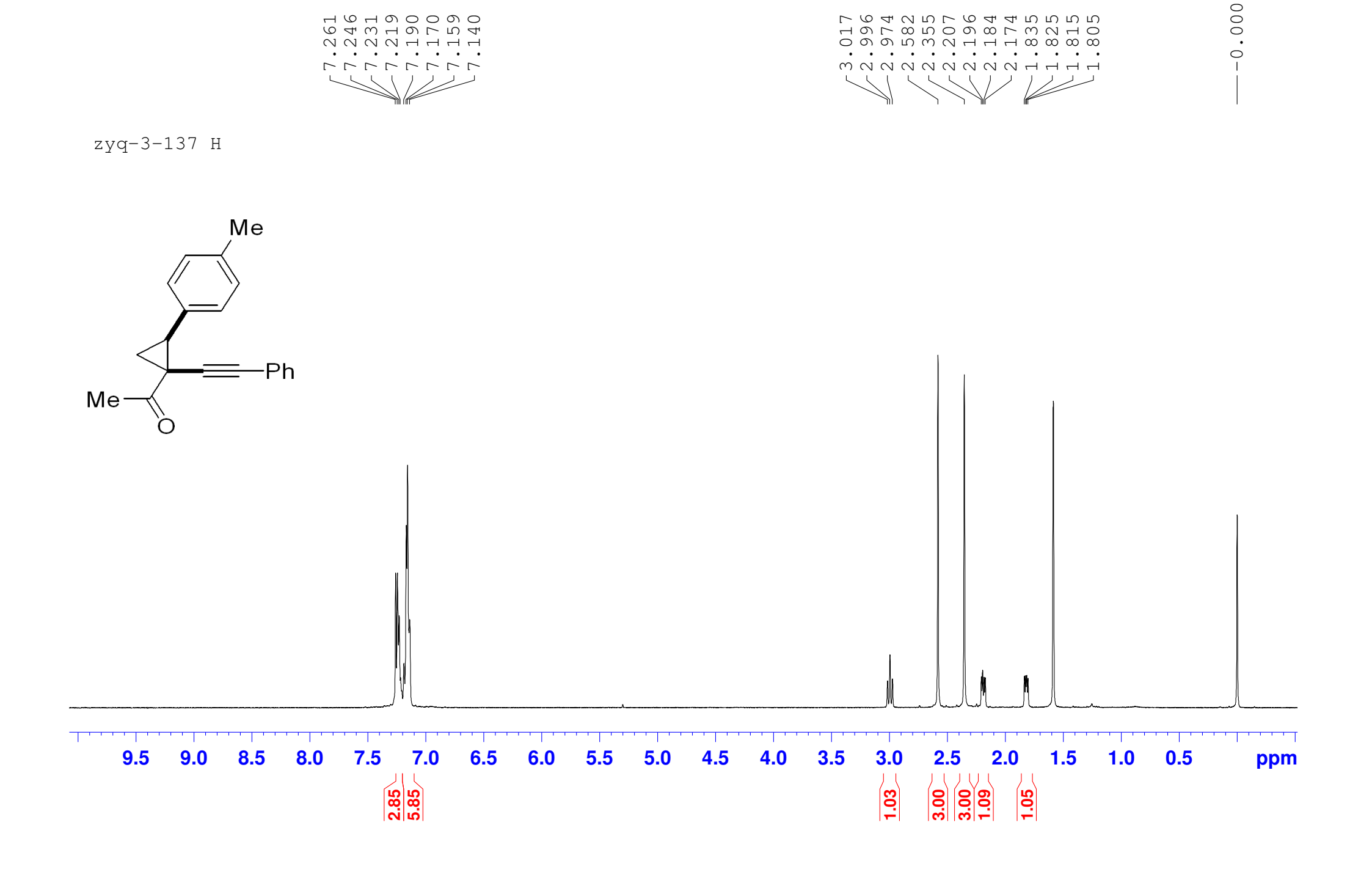


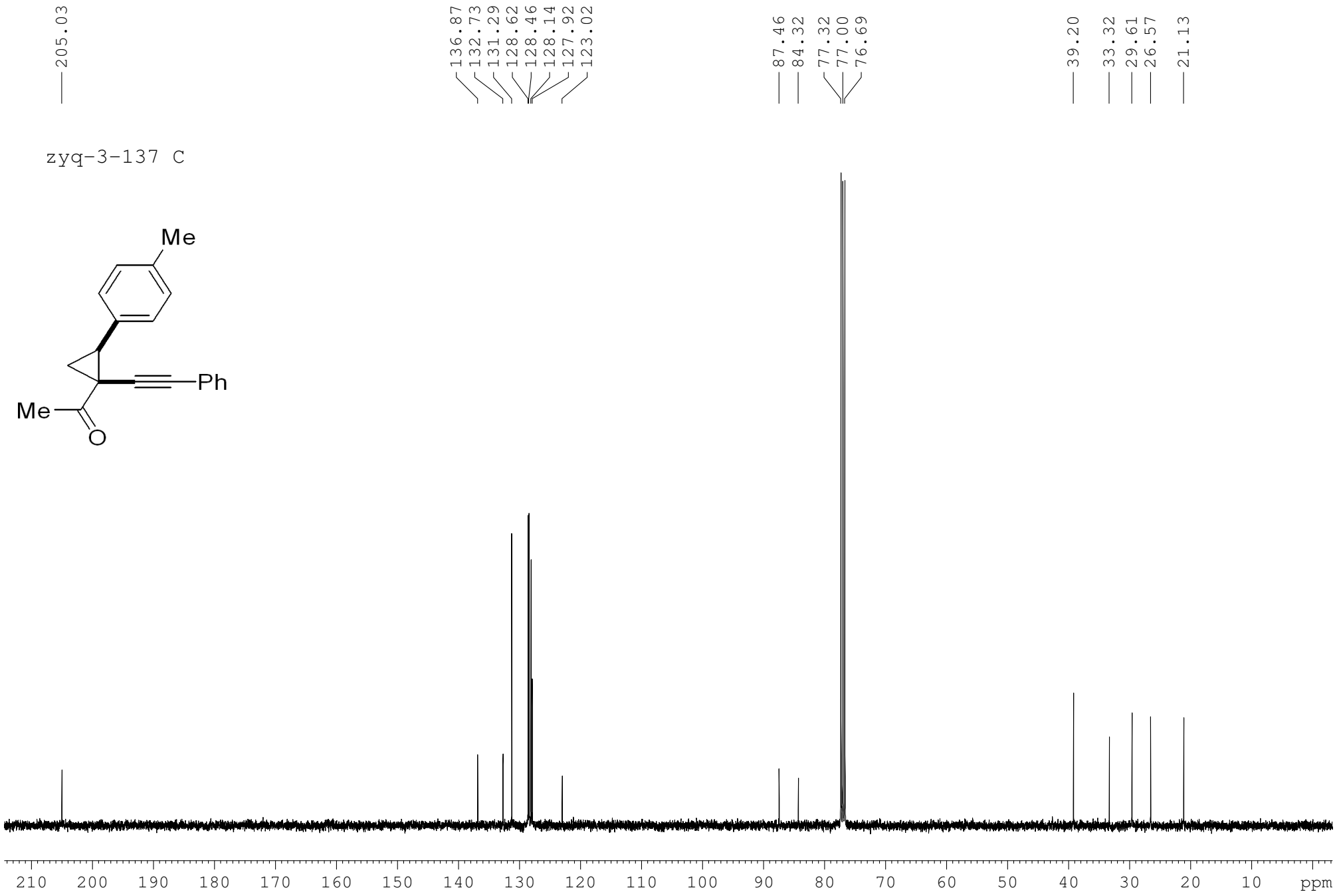


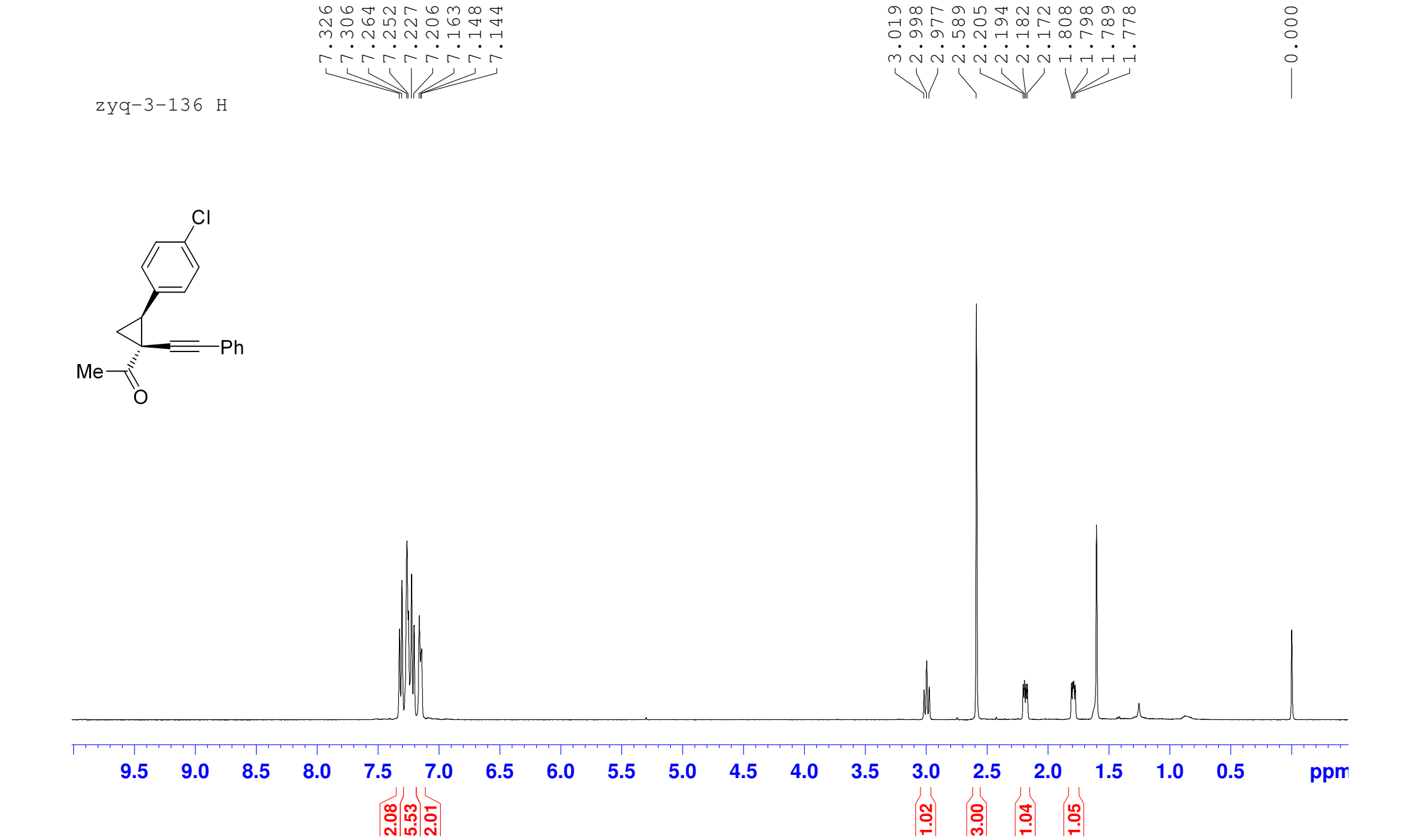


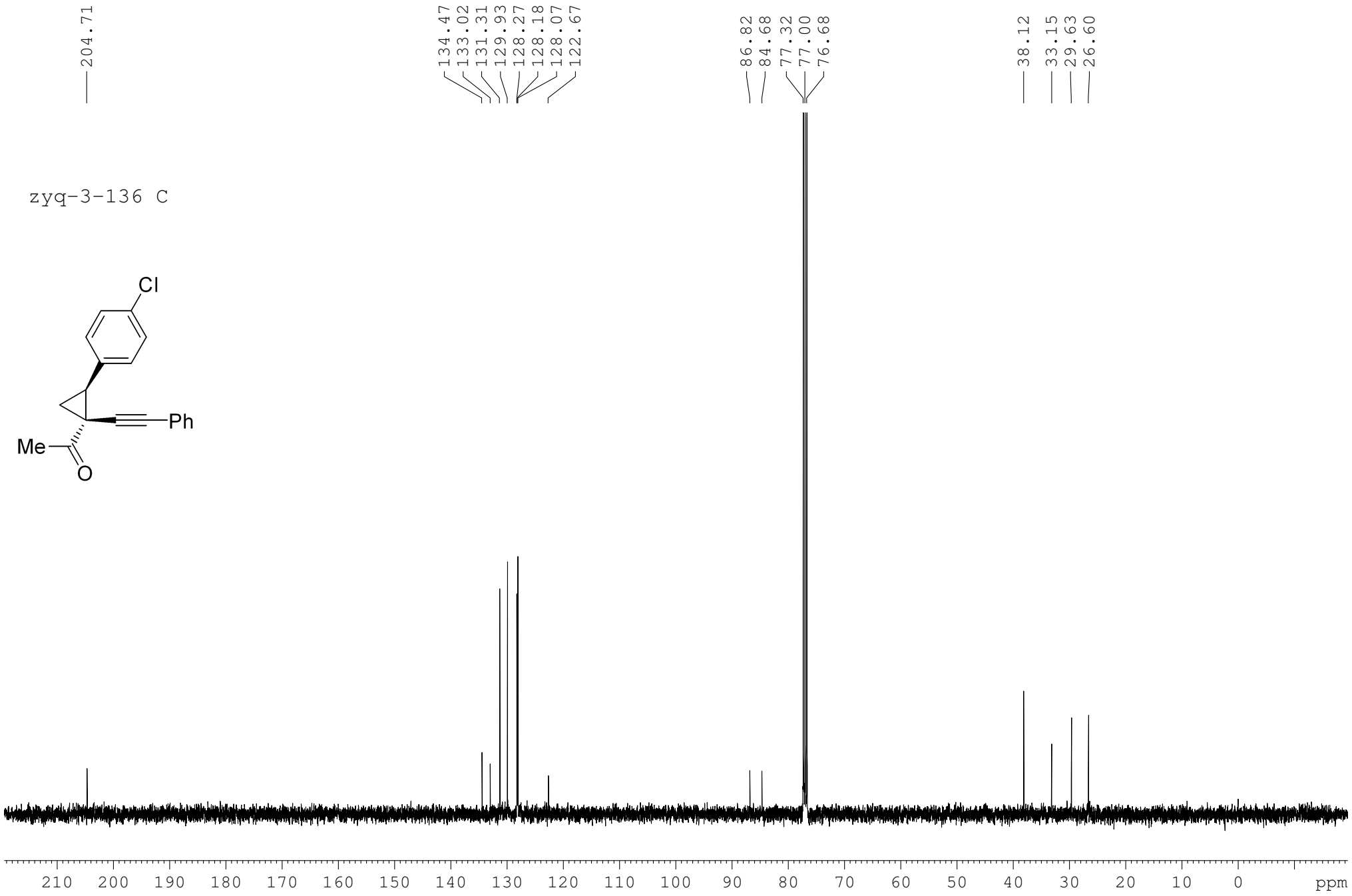


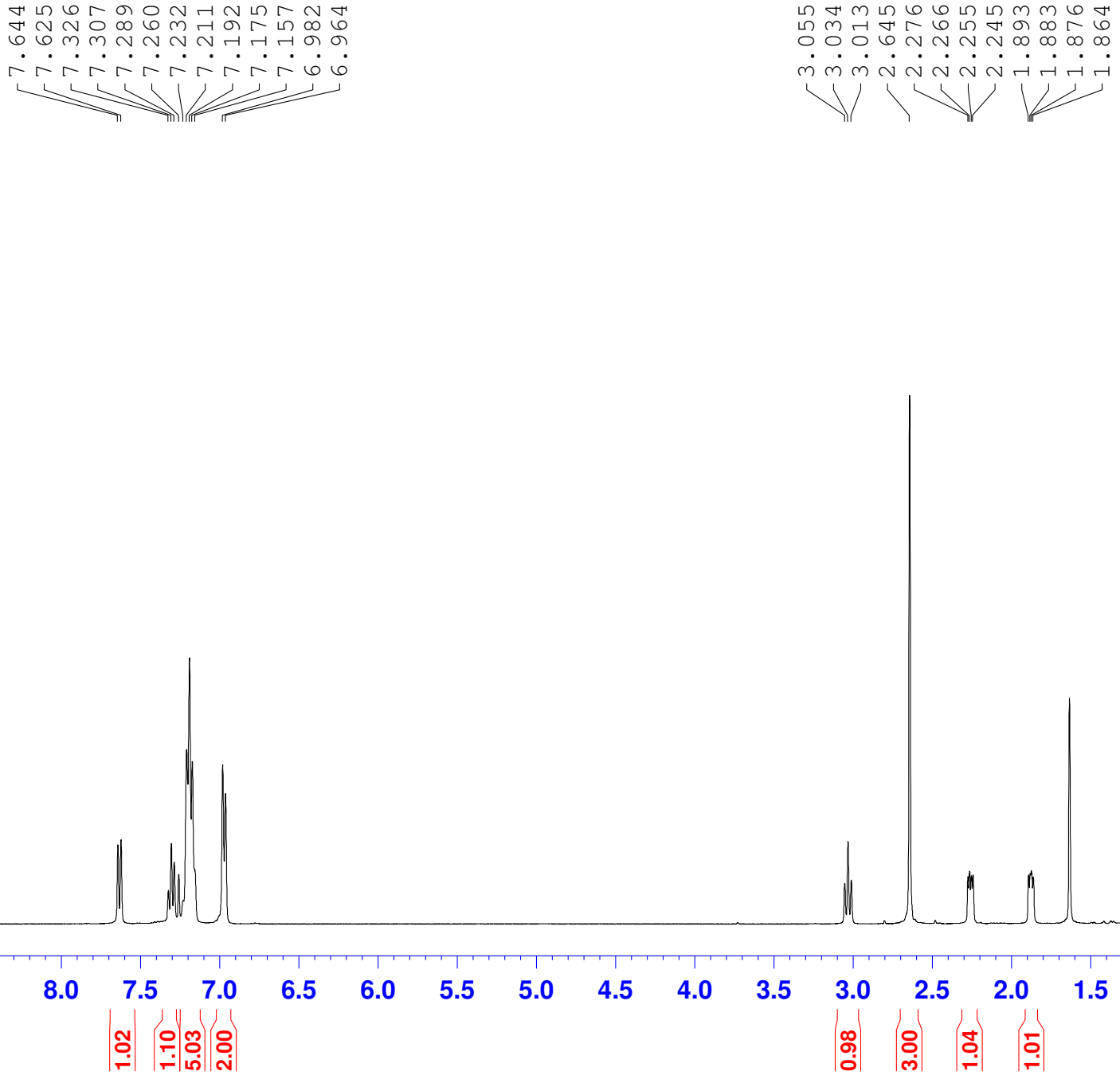


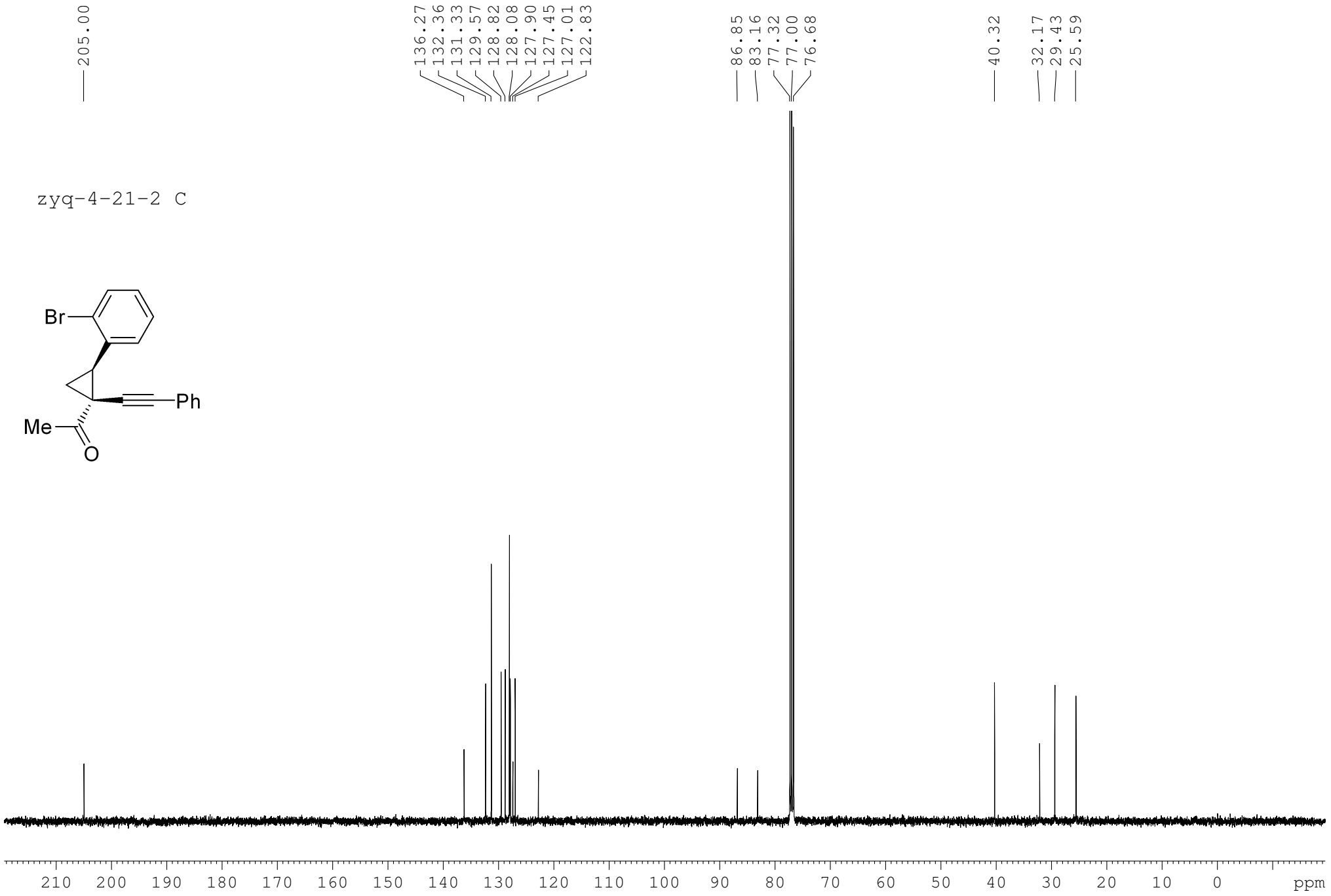


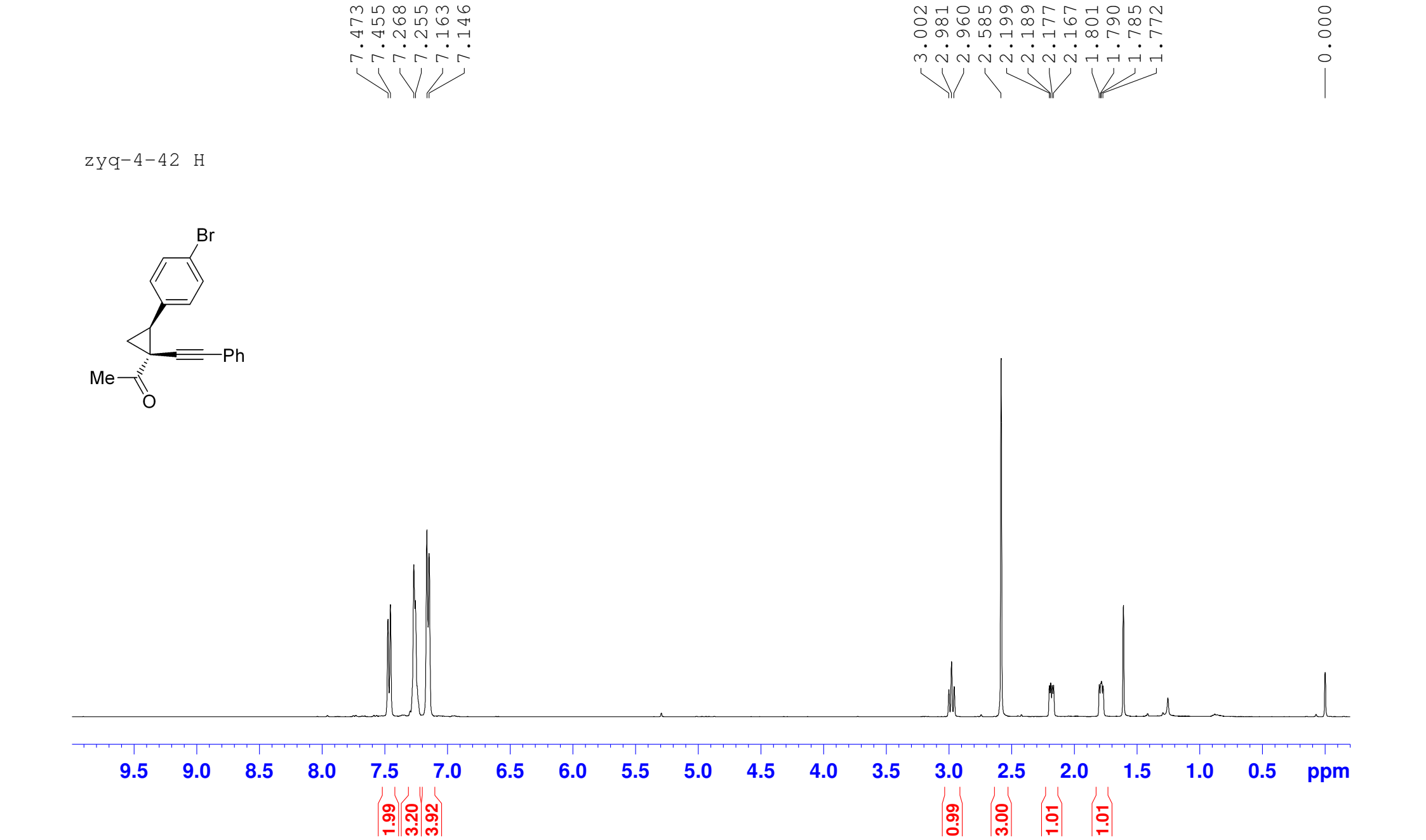


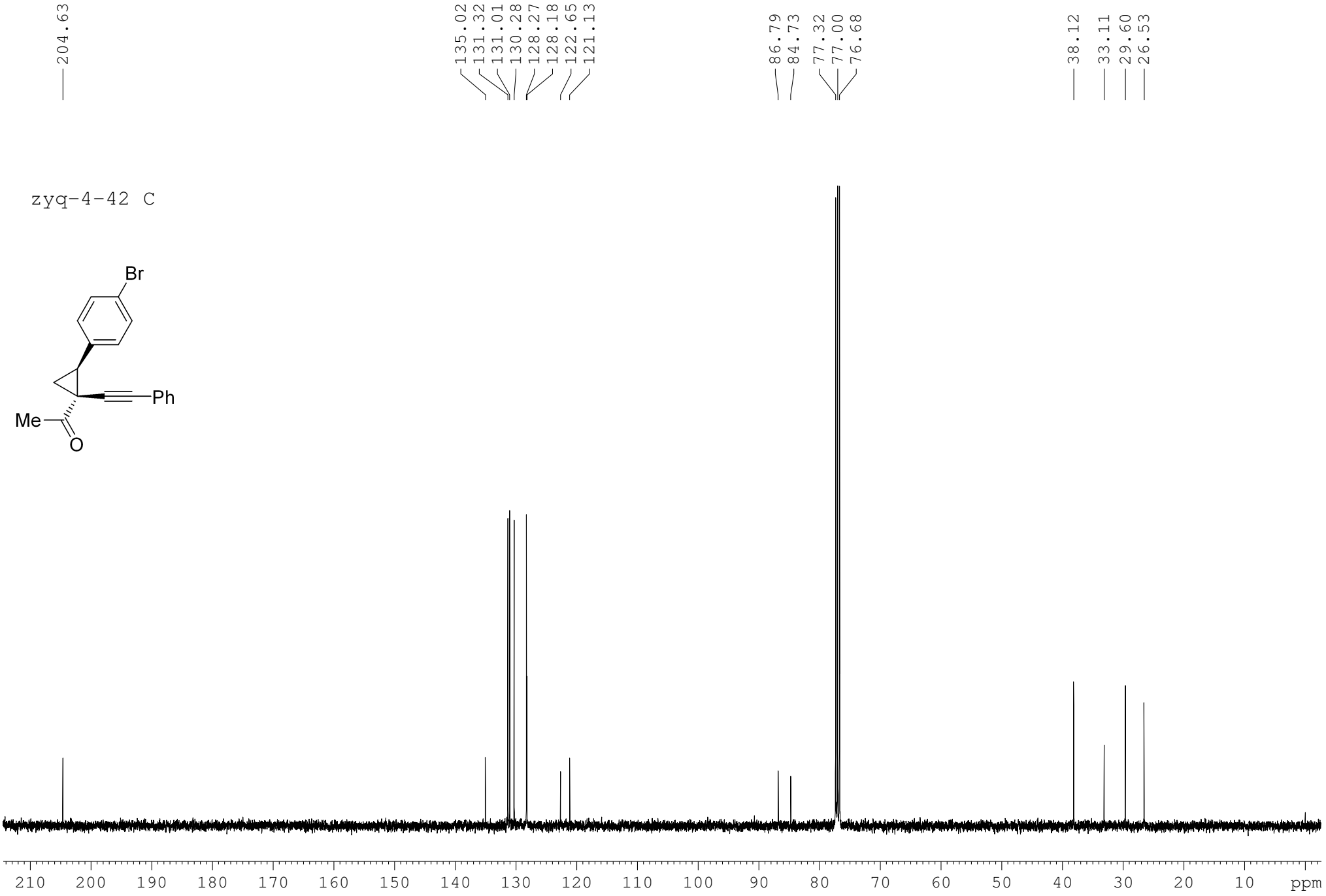


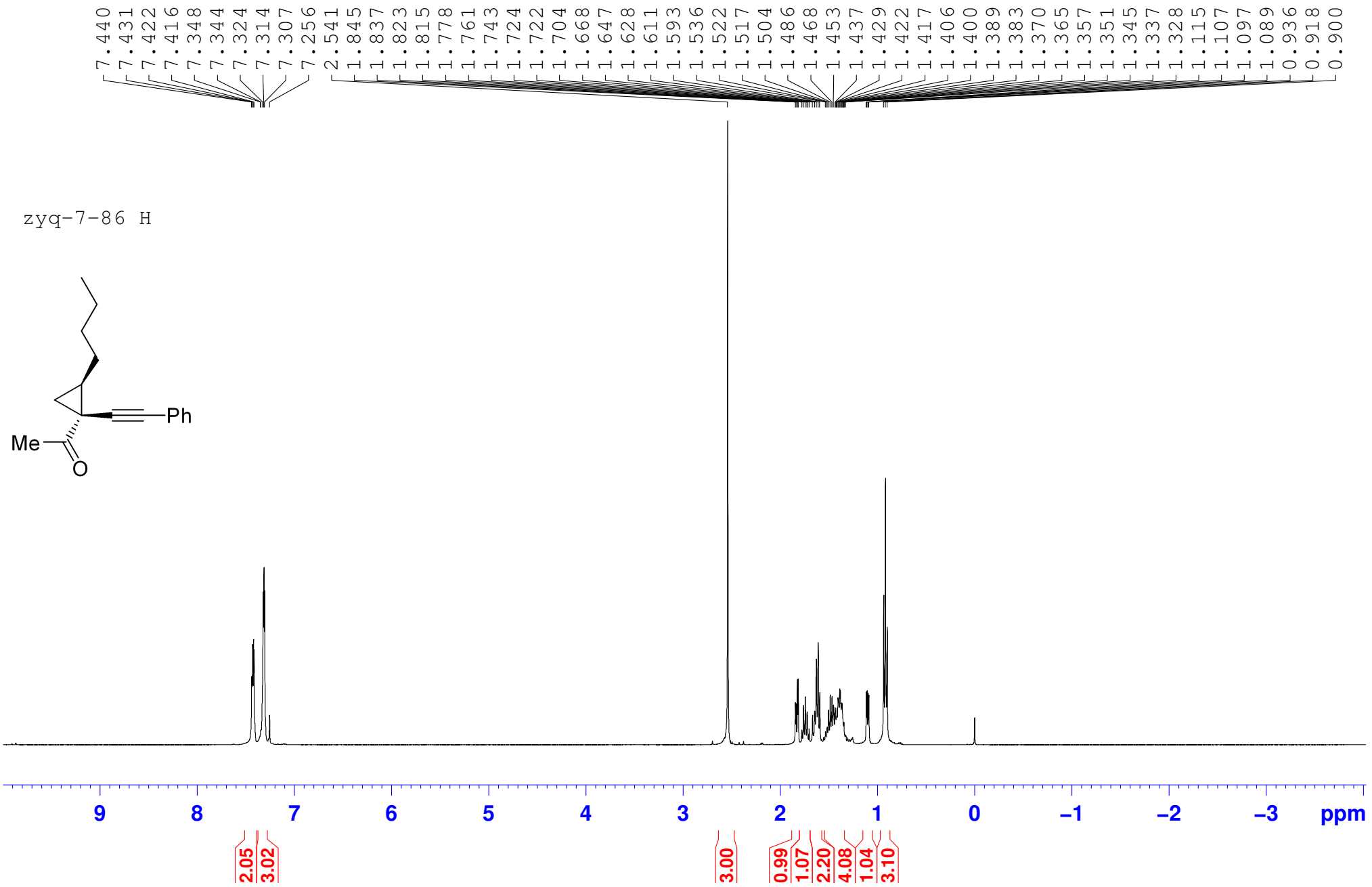


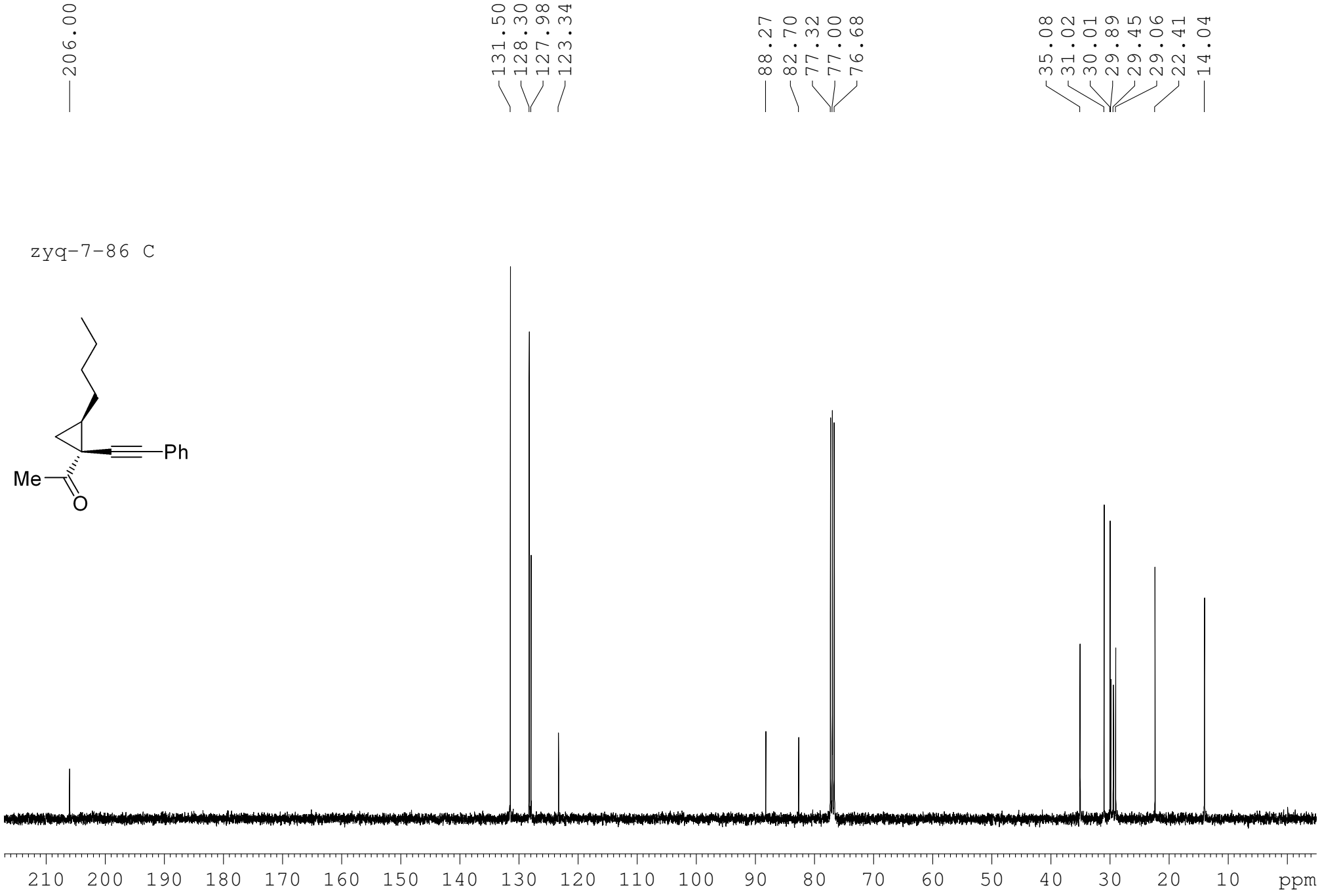




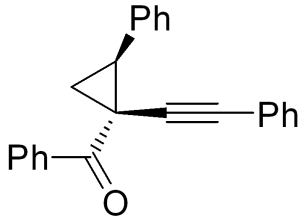


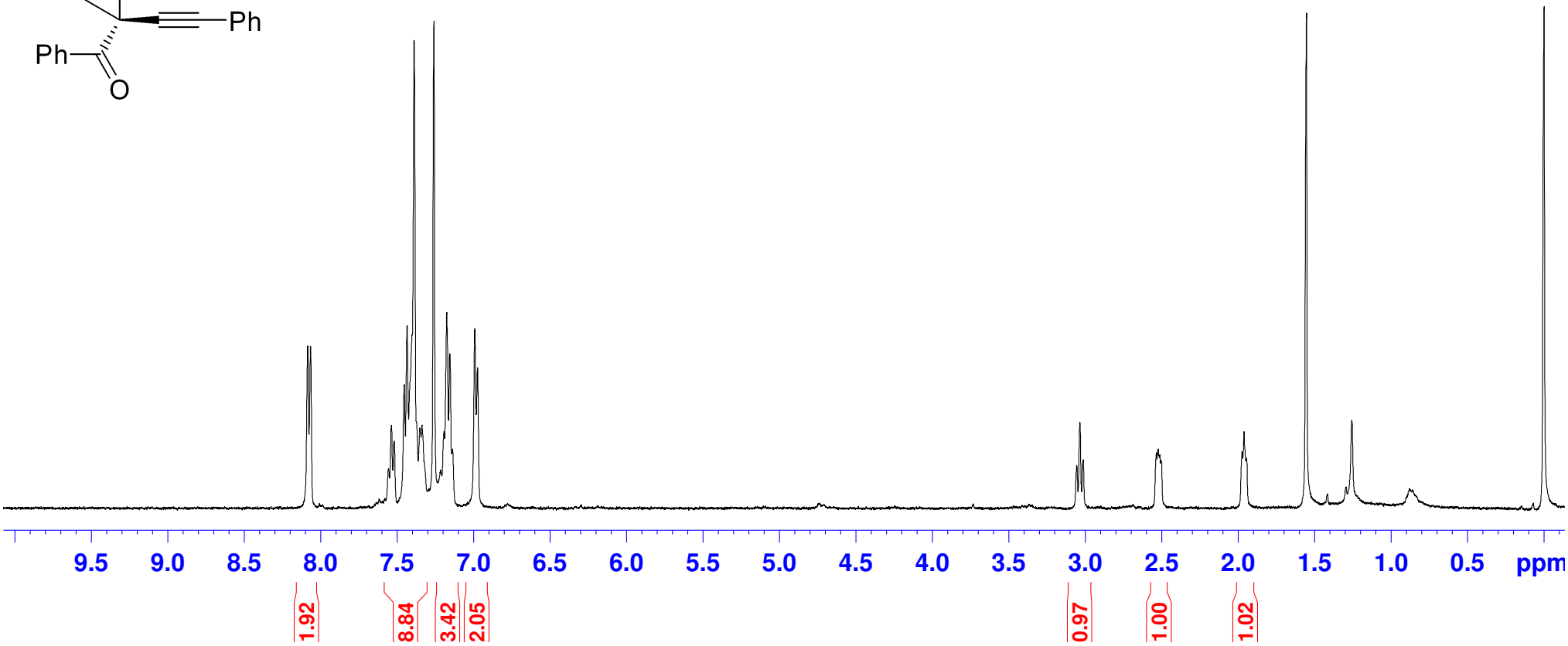


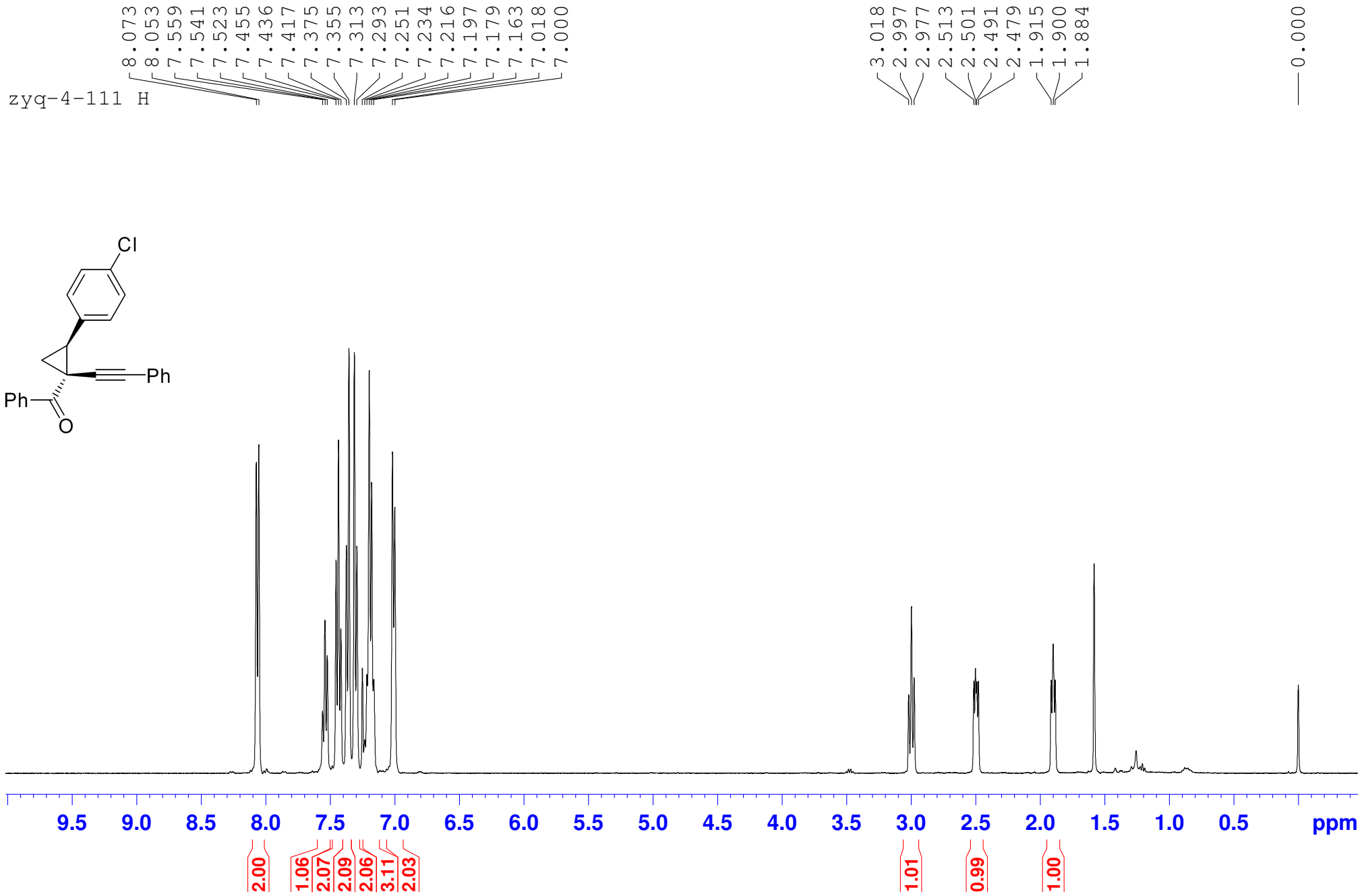


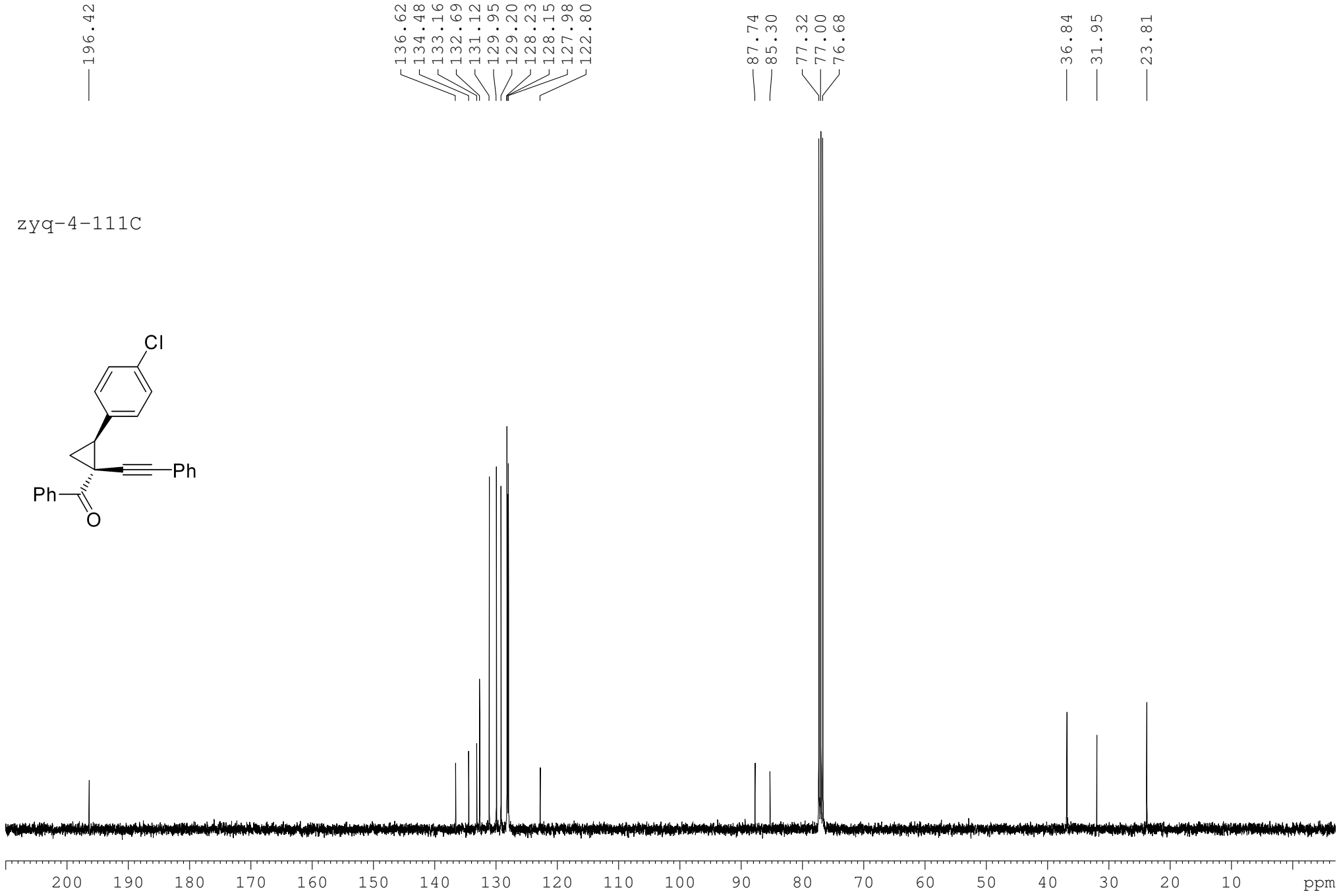


zyq-4-139-2 H

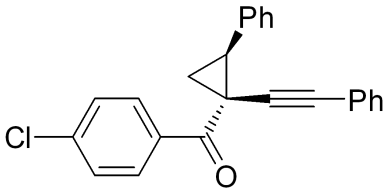


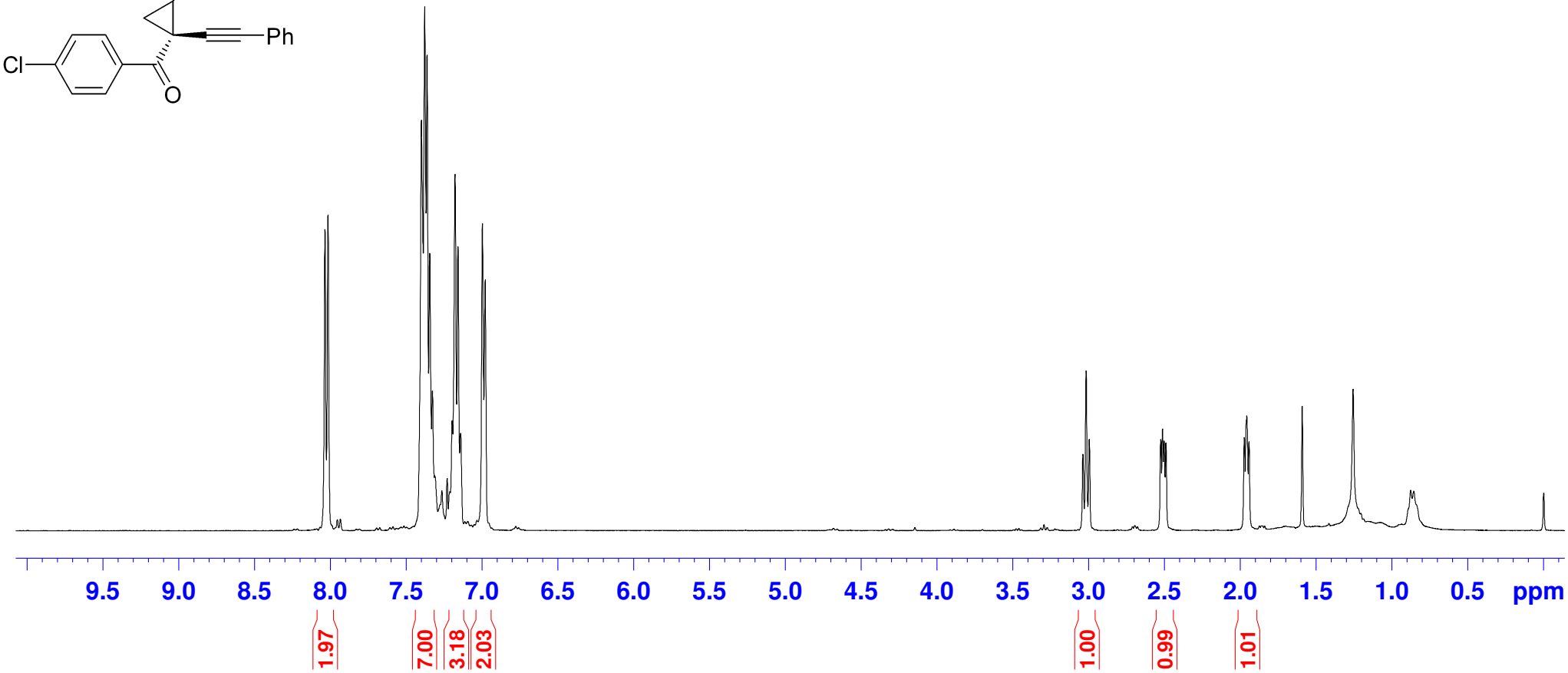


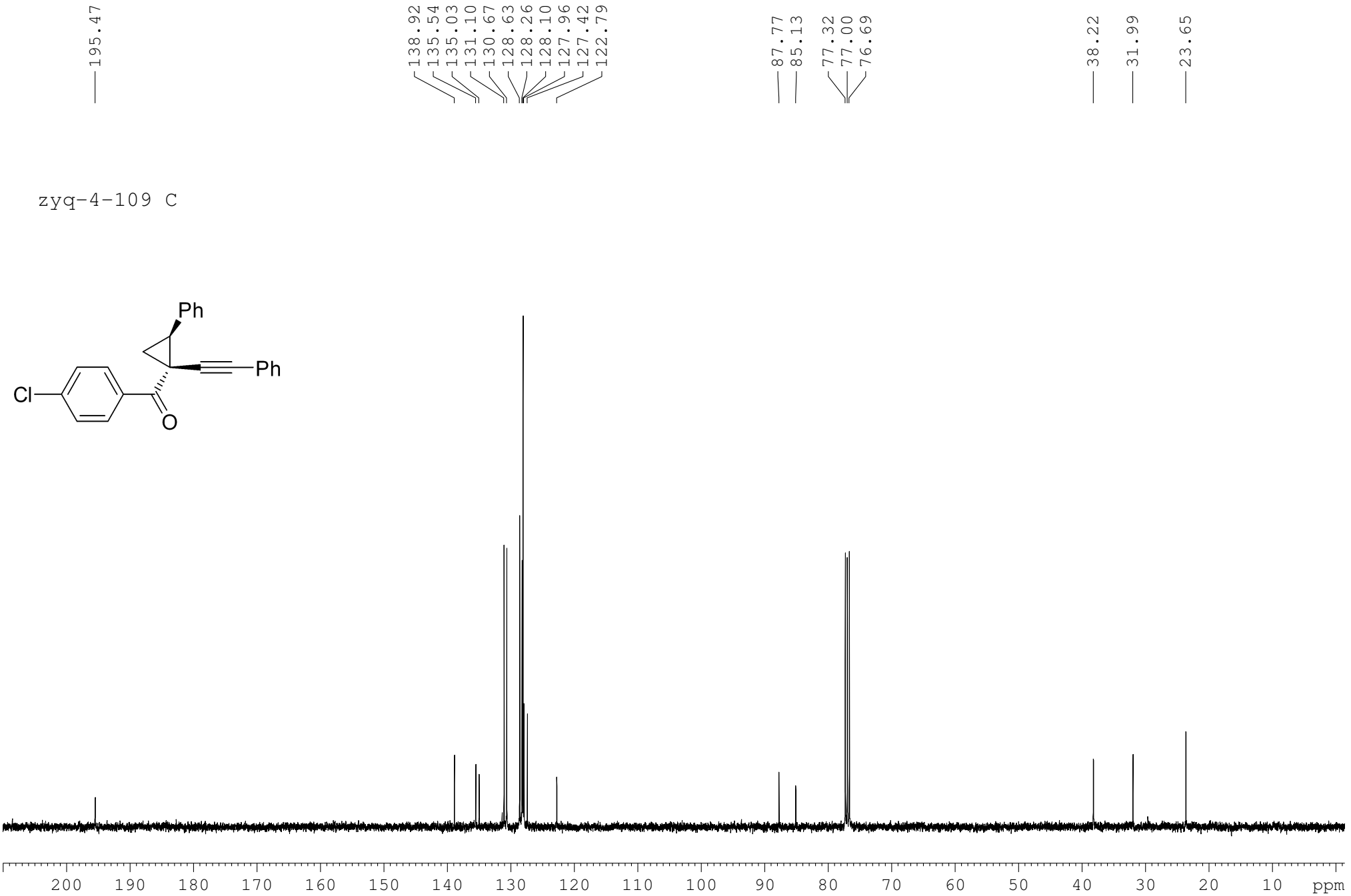


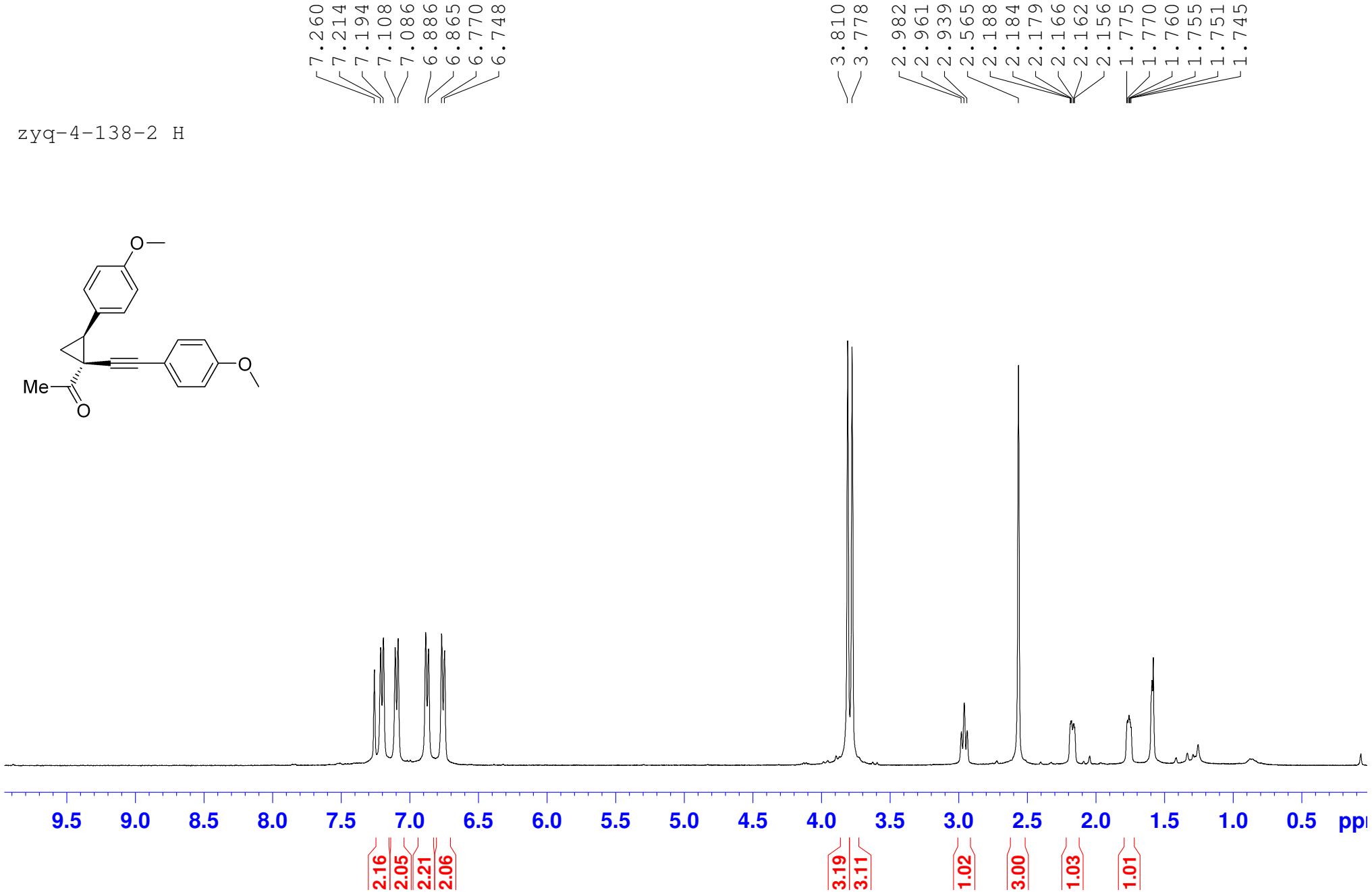


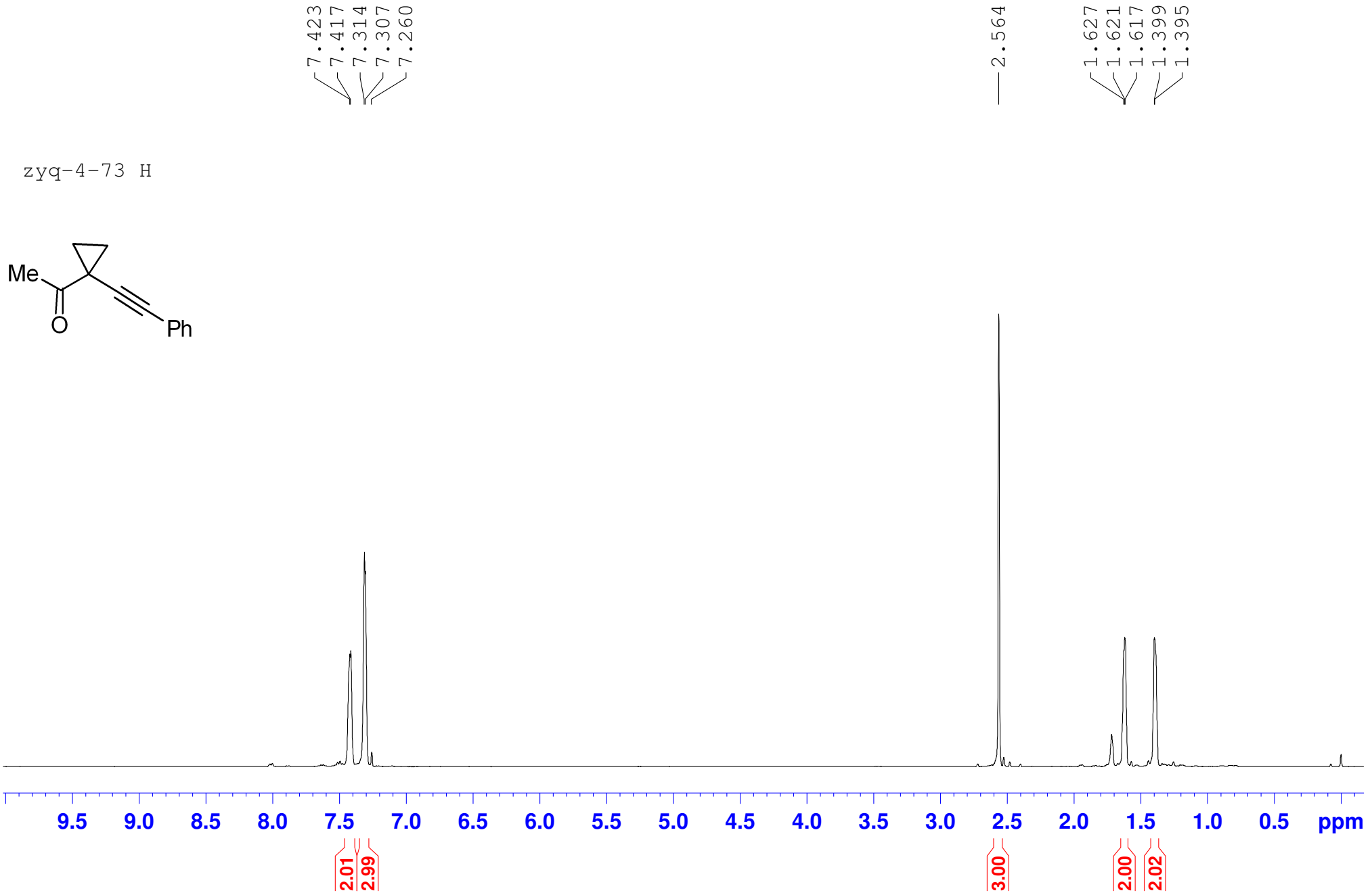
zyq-4-109 H

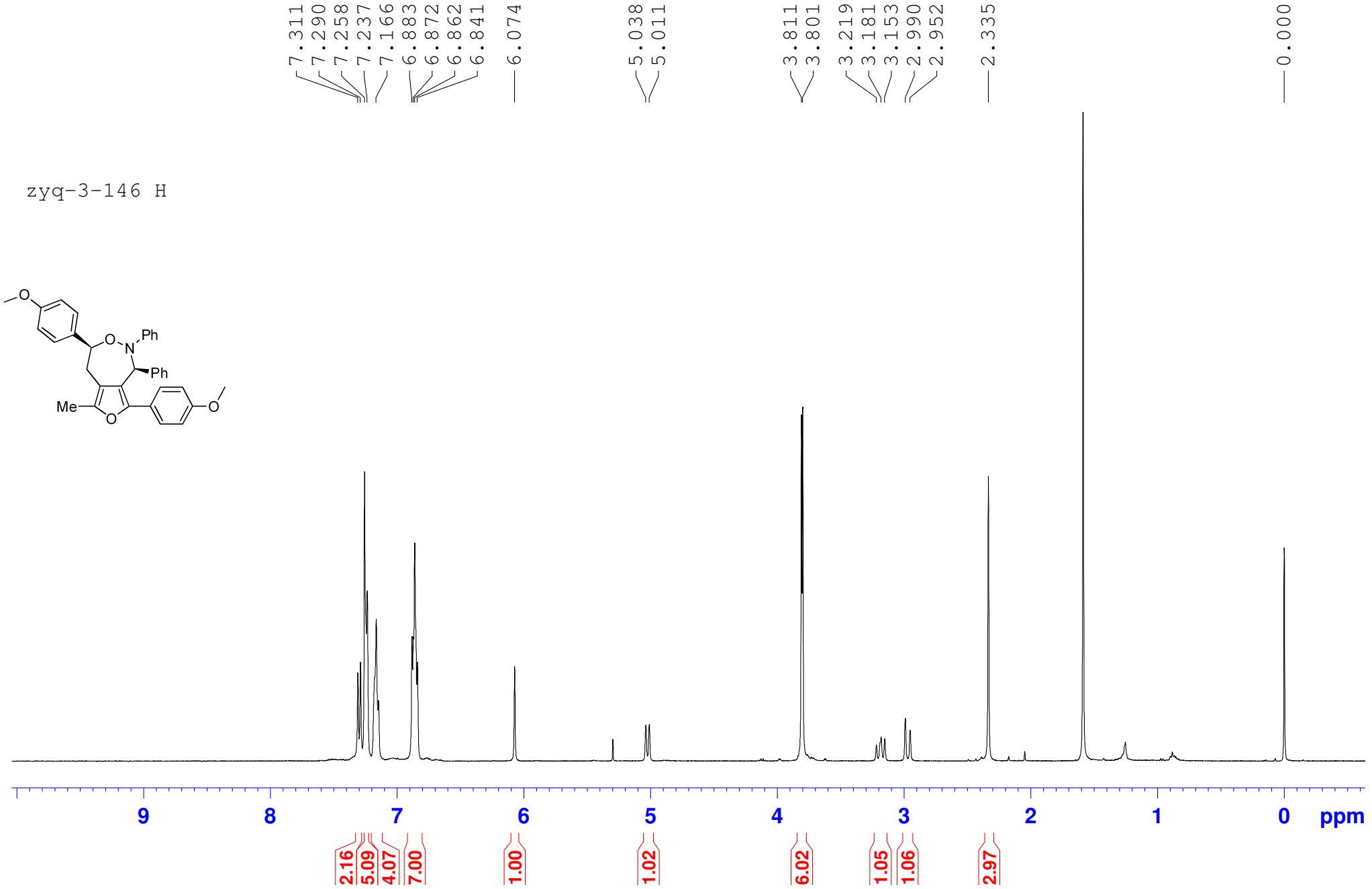


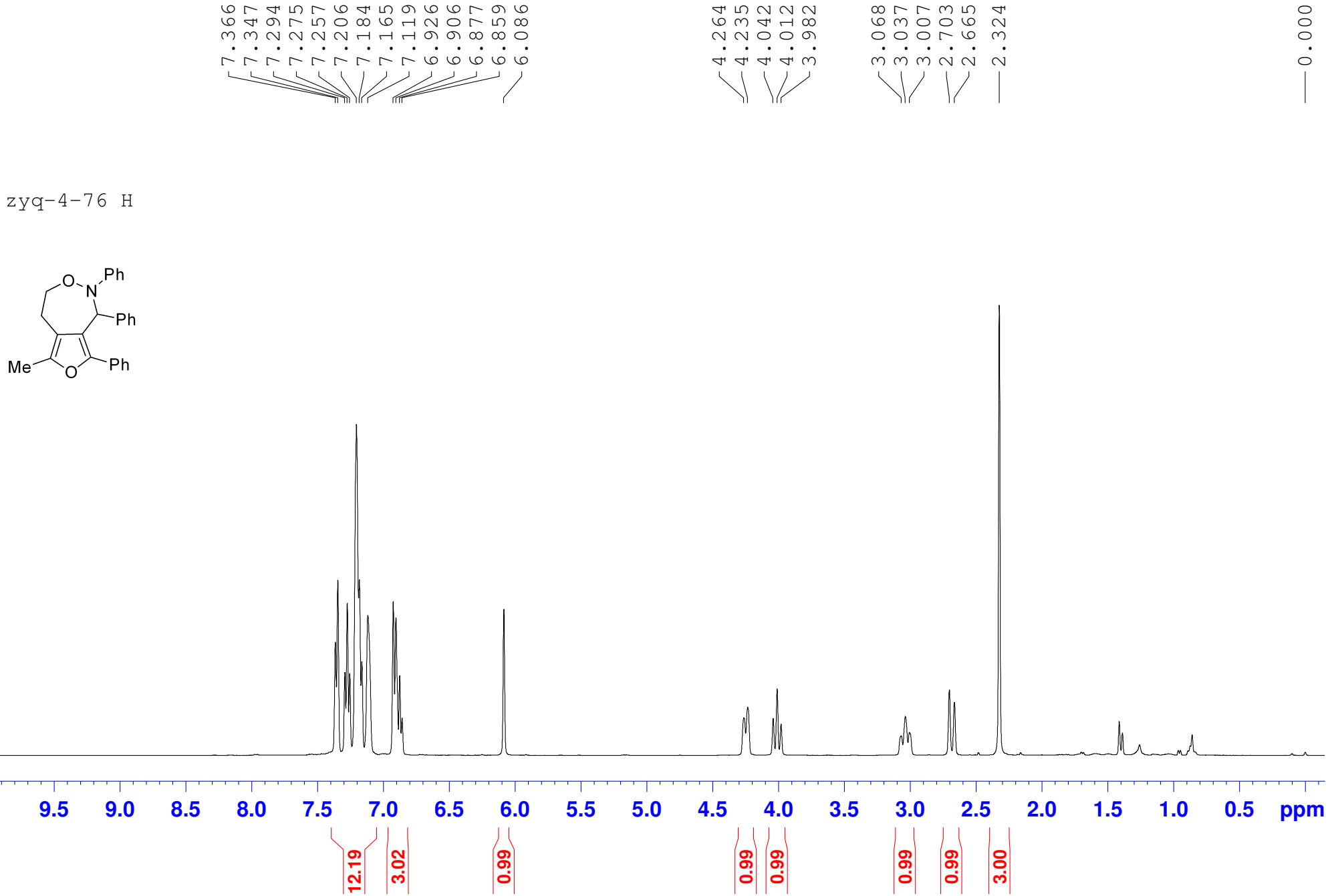


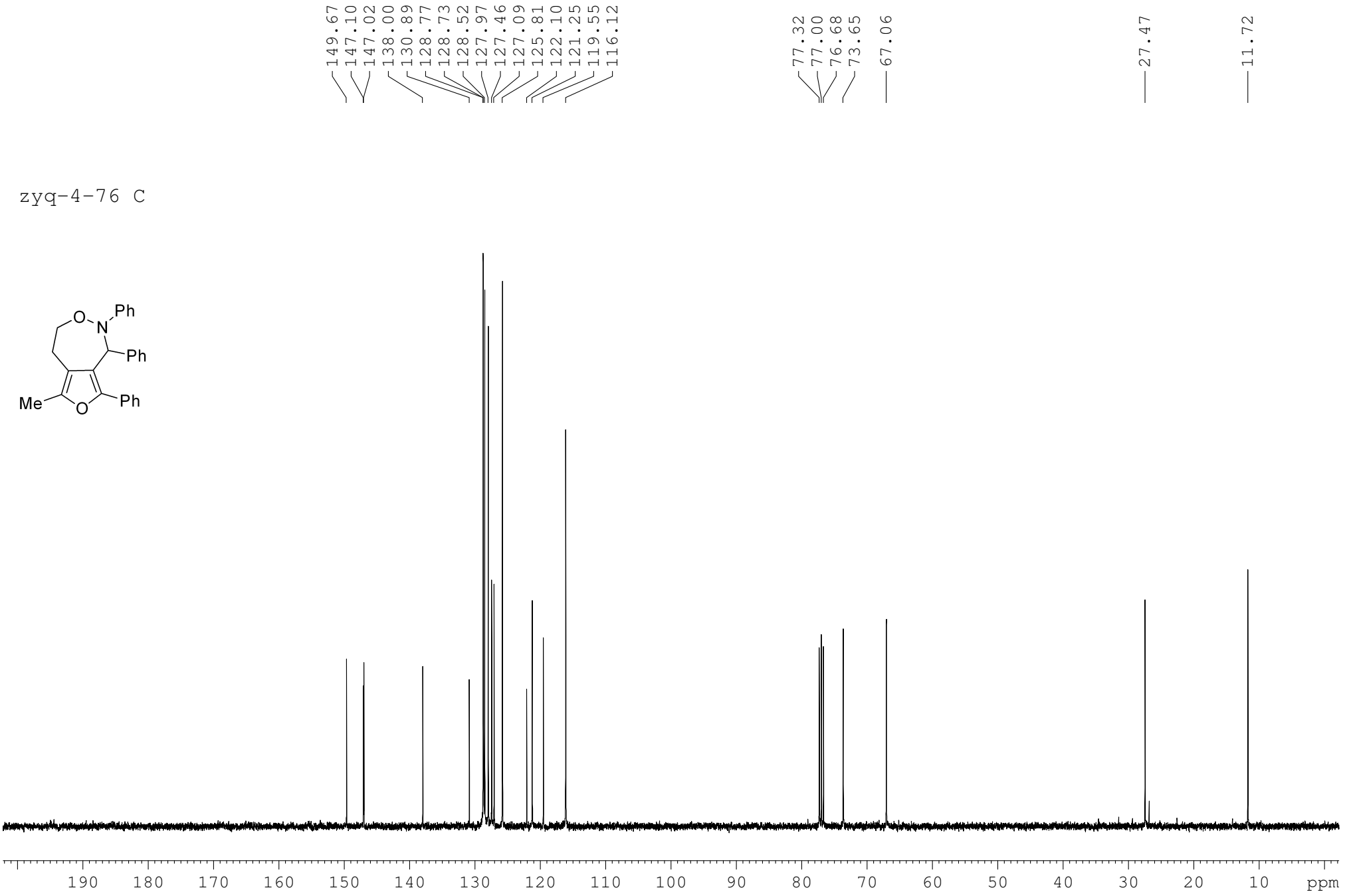


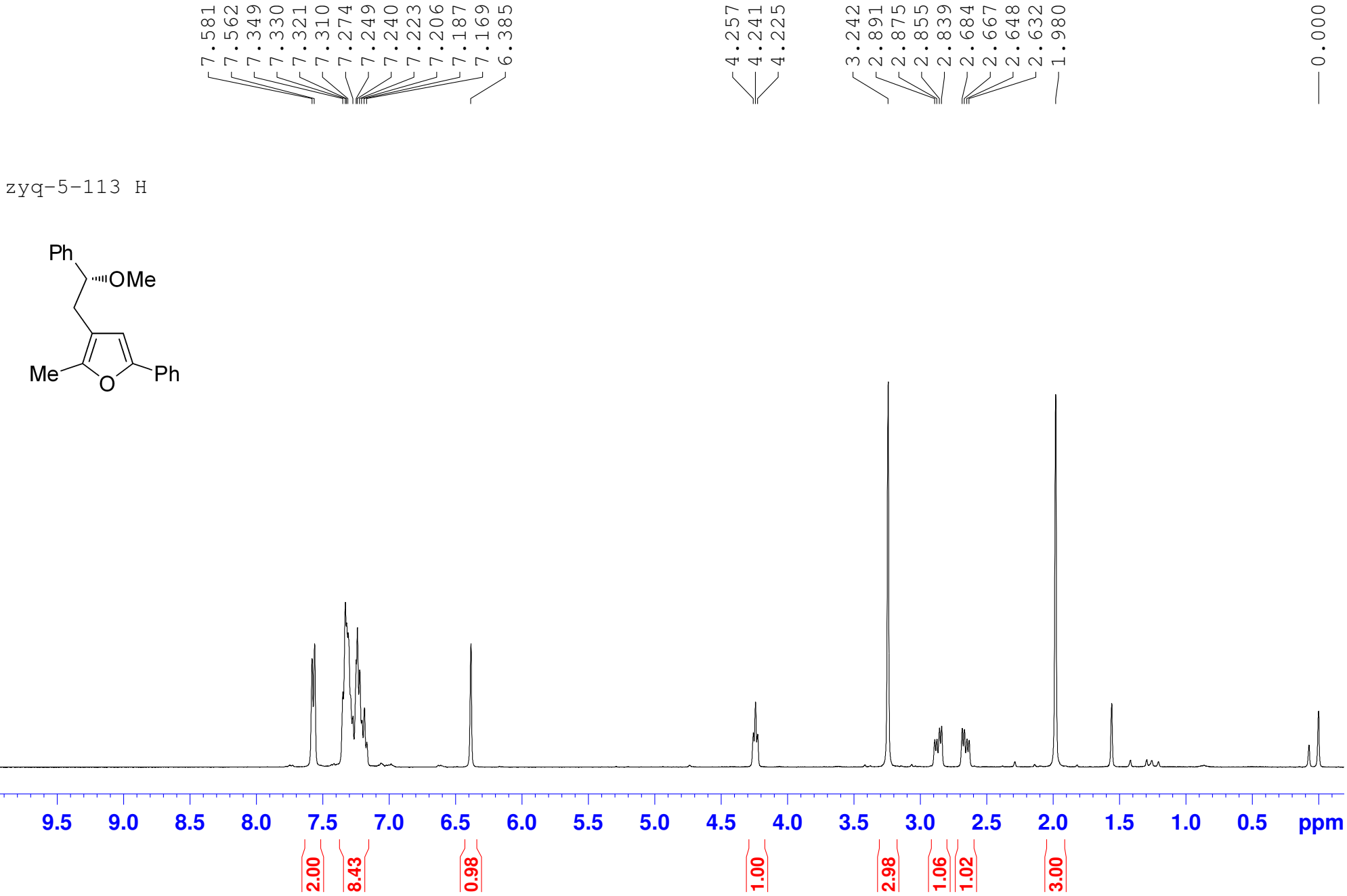


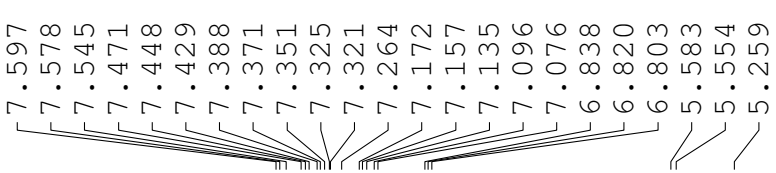




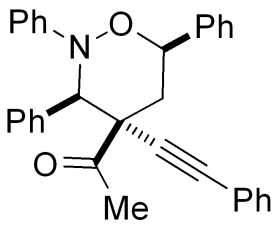


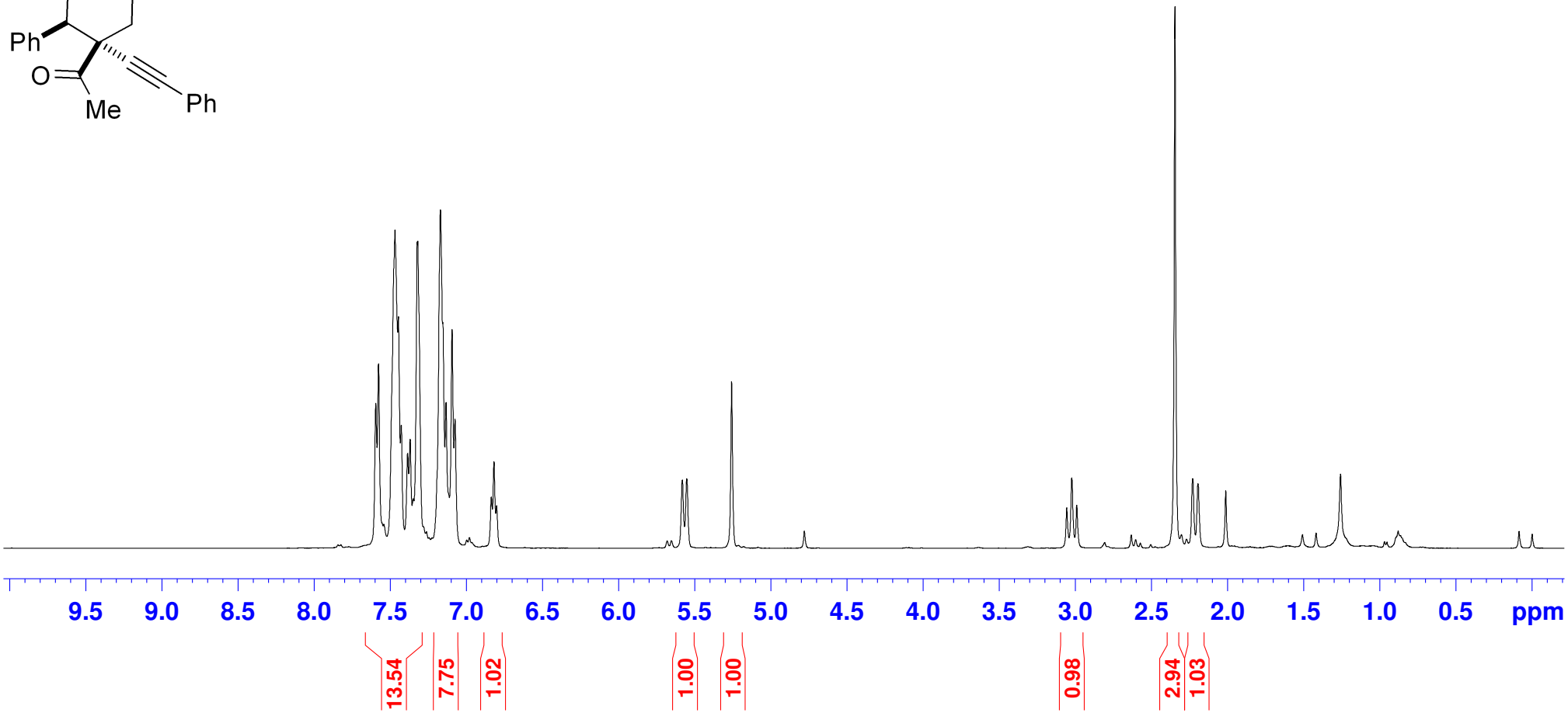


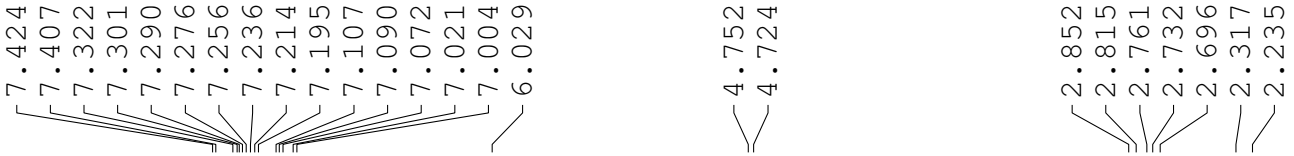




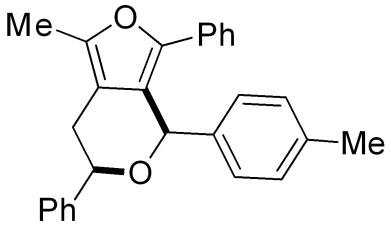
zyq-5-74 H

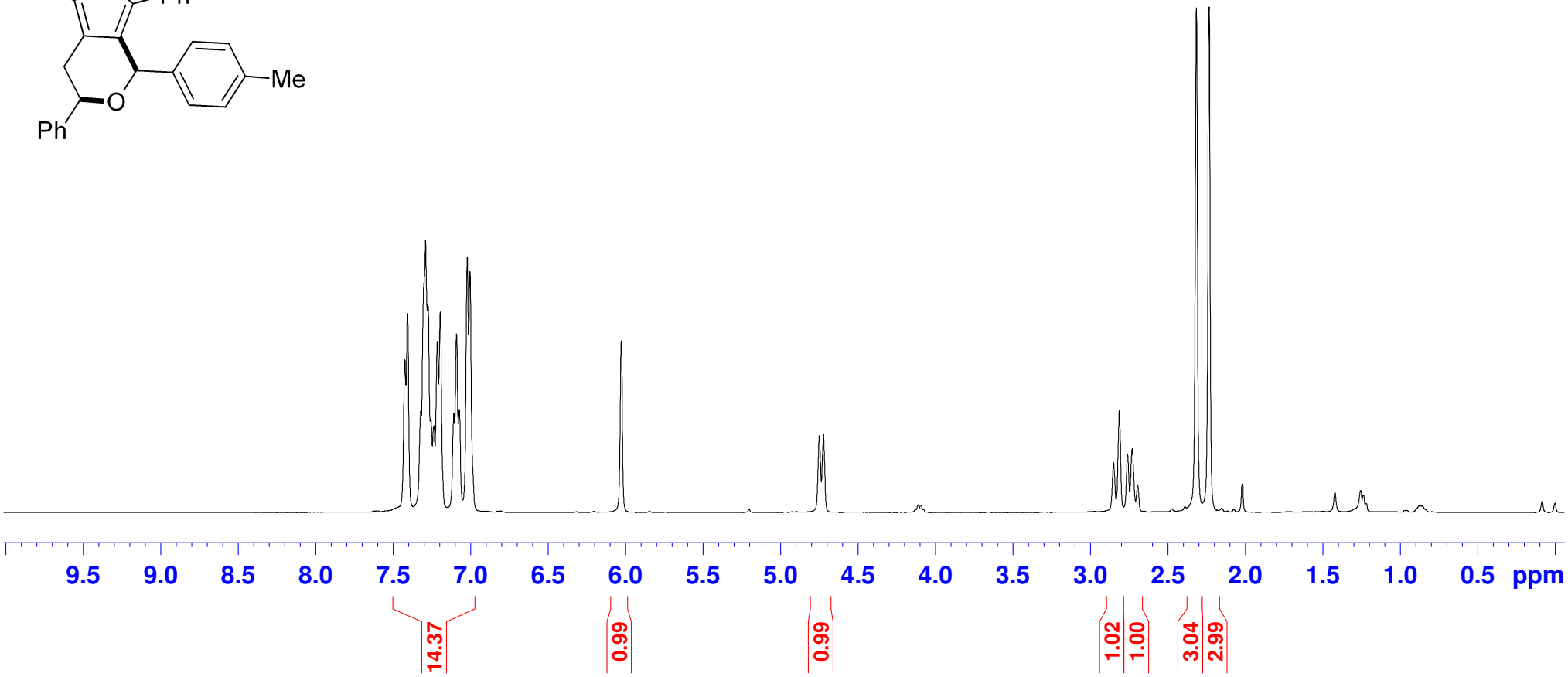


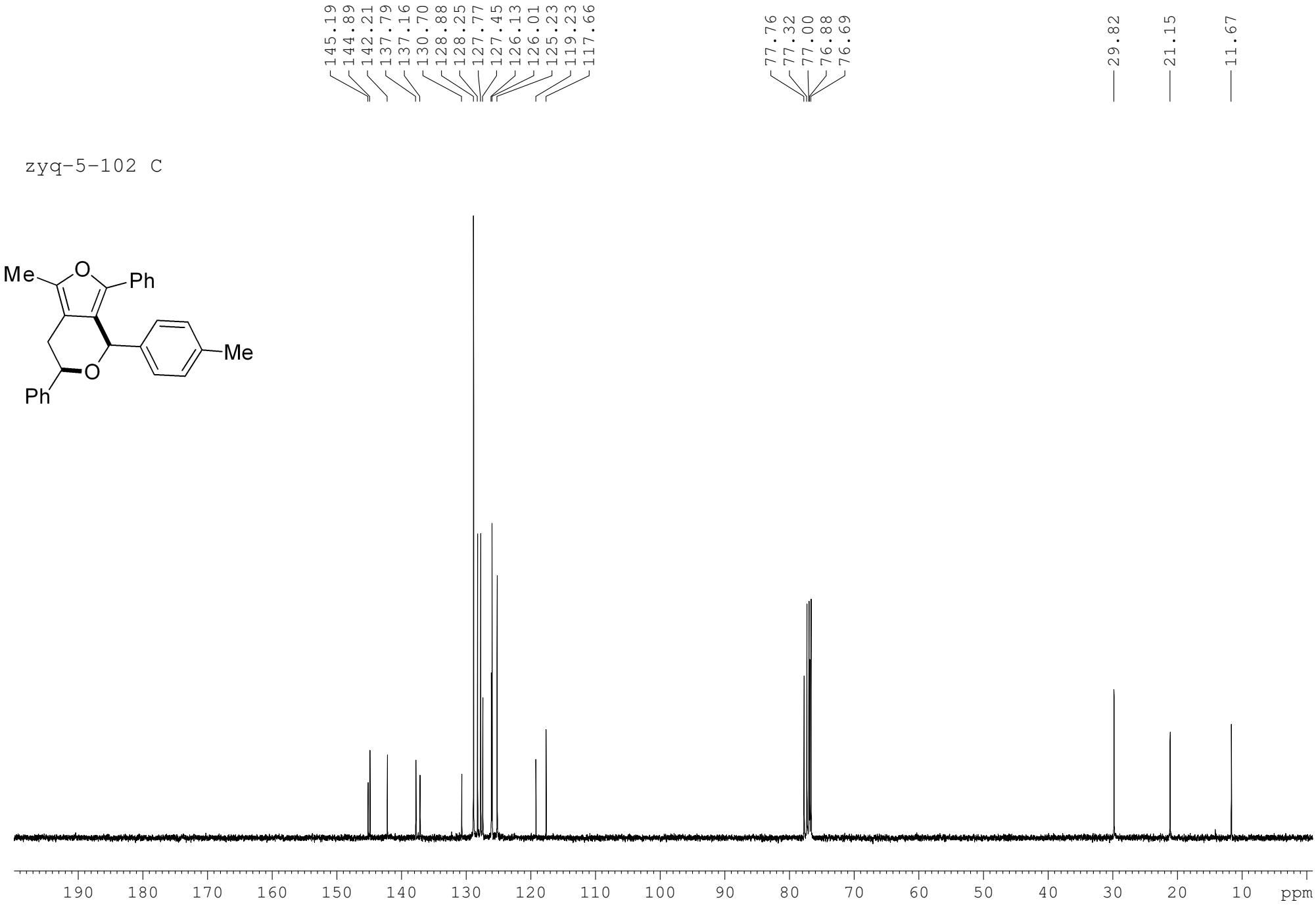


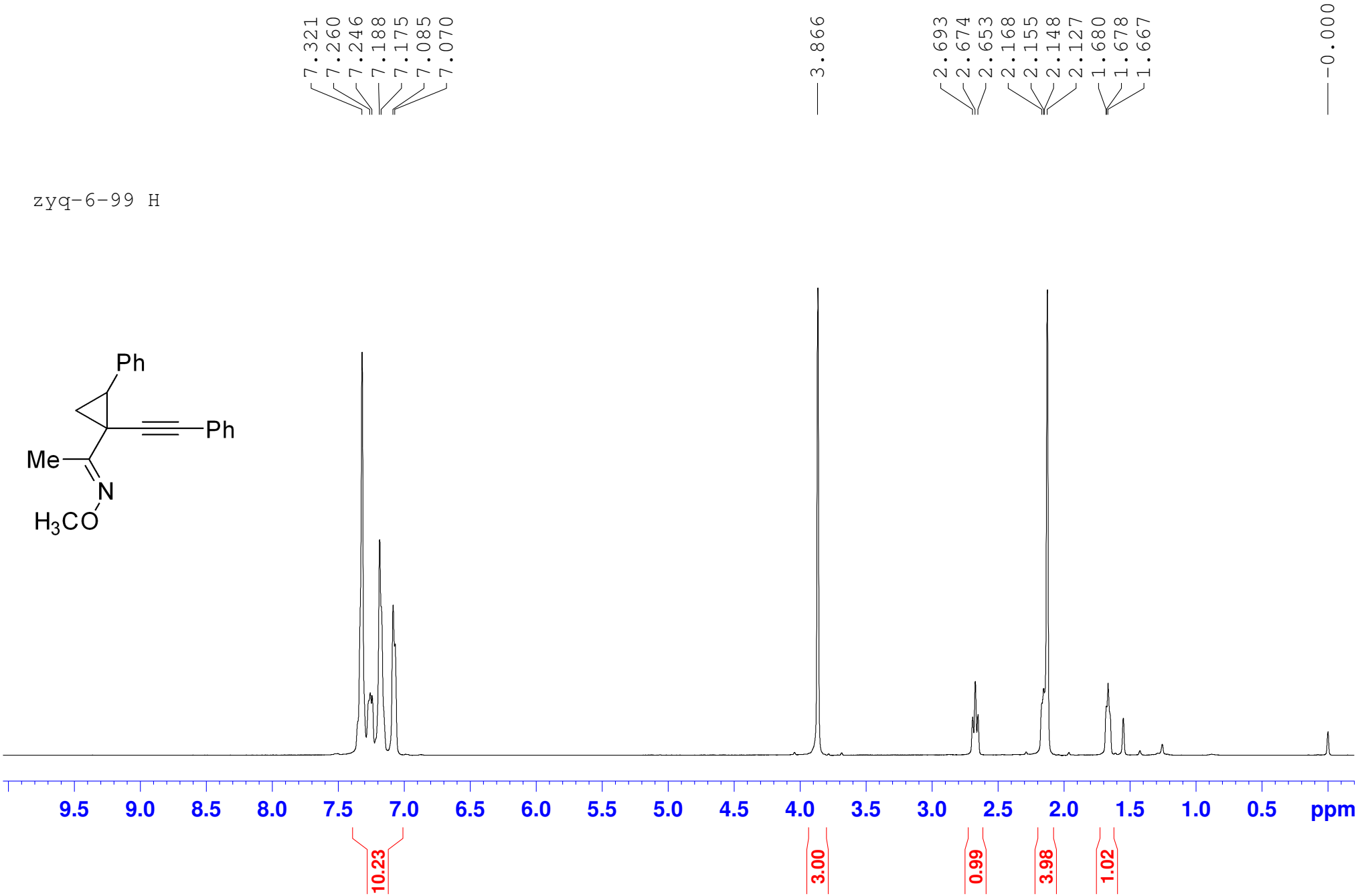


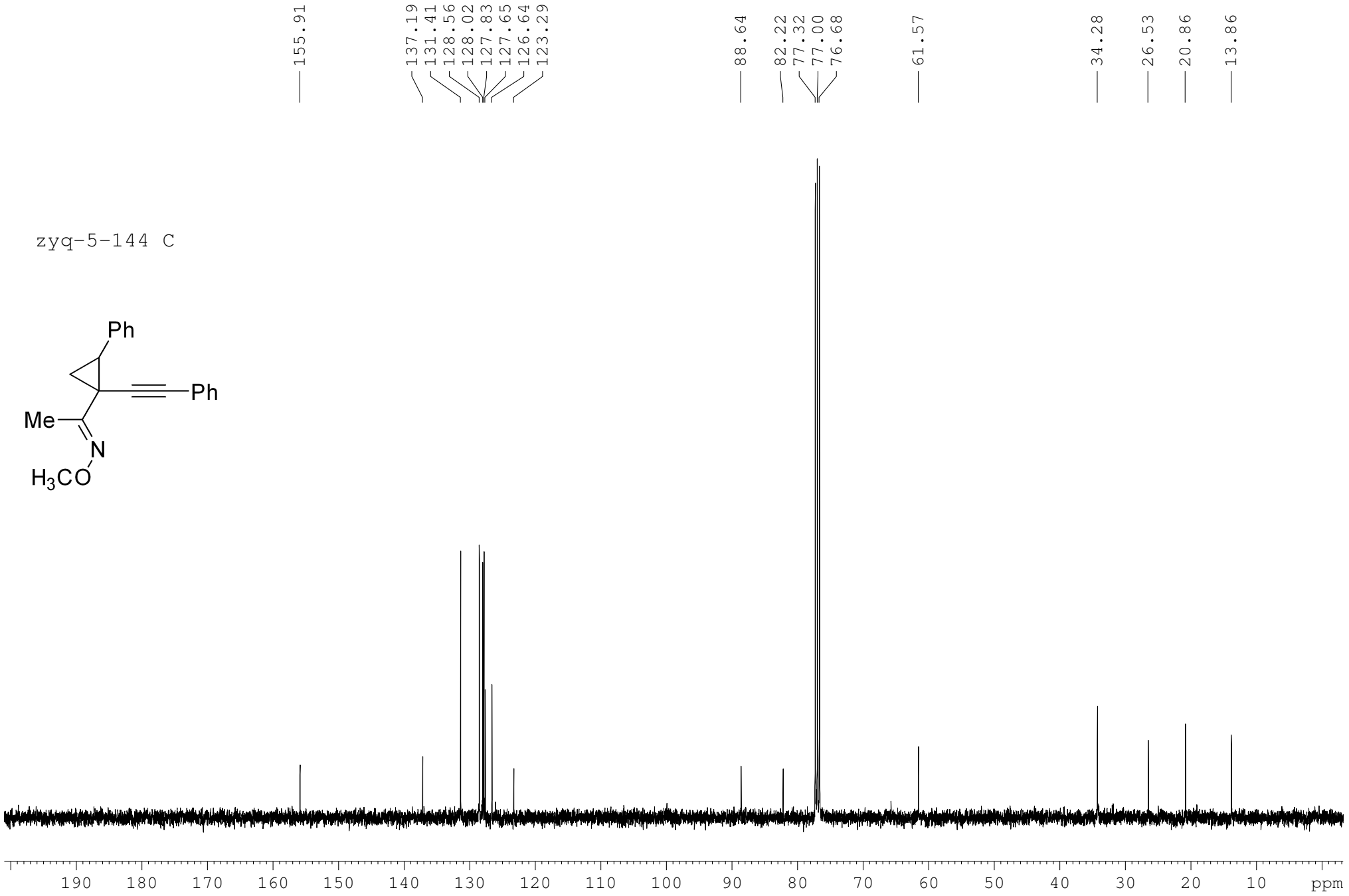
zyq-5-102 H











Data File C:\CHEM32\1\DATA\ZHANG\ZYQ-340-OD-H-98208 25 220.D
Sample Name: 0

```
Acq. Operator   :
Acq. Instrument : HPLC1200LC                    Location :   -
Injection Date  : 2011-5-20 2:39:39 下午
Acq. Method     : C:\CHEM32\1\METHODS\JWHTEST.M
Last changed    : 2011-5-20 2:52:27 下午
                  (modified after loading)
Analysis Method : C:\CHEM32\1\DATA\ZHANG\ZYQ-340-OD-H-98208 25 220.D\DA.M (JWHTEST.M)
Last changed    : 2011-5-21 2:01:20 下午
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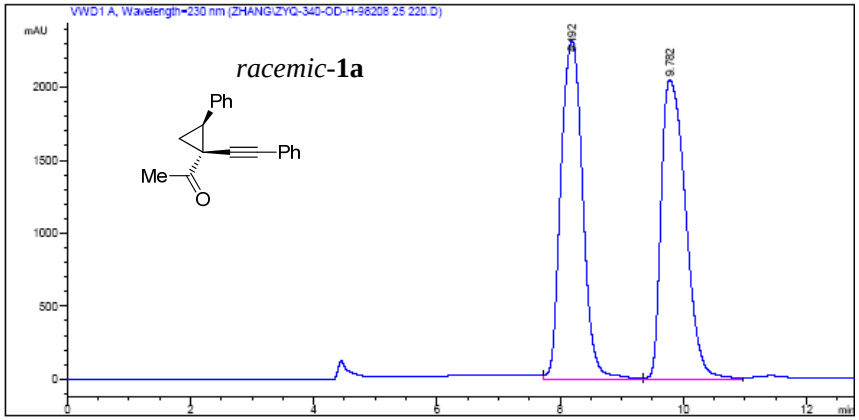


```
                          Area Percent Report

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: VWD1 A, Wavelength=230 nm

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]  mAU   *s    [mAU   ]      %
----|-------|----|-------|----------|----------|--------|
   1   8.192 VV     0.4026 5.74661e4  2319.72485  50.2245
   2   9.782 VV     0.4471 5.69523e4  2055.21533  49.7755

Totals :                  1.14418e5  4374.94019
```


Data File C:\CHEM32\1\DATA\JIANG\ZYQ-3-100-12-ODH-98208-230-20.D
Sample Name: 0

```
Acq. Operator   :
Acq. Instrument : HPLC1200LC                    Location : Vial 1
Injection Date  : 2010-6-13 3:16:59 下午
Acq. Method     : C:\CHEM32\1\METHODS\JWHTEST.M
Last changed    : 2010-6-13 3:12:50 下午
                  (modified after loading)
Analysis Method : C:\CHEM32\1\DATA\JIANG\ZYQ-3-100-12-ODH-98208-230-20.D\DA.M (JWHTEST.M)
Last changed    : 2011-5-18 4:40:01 下午
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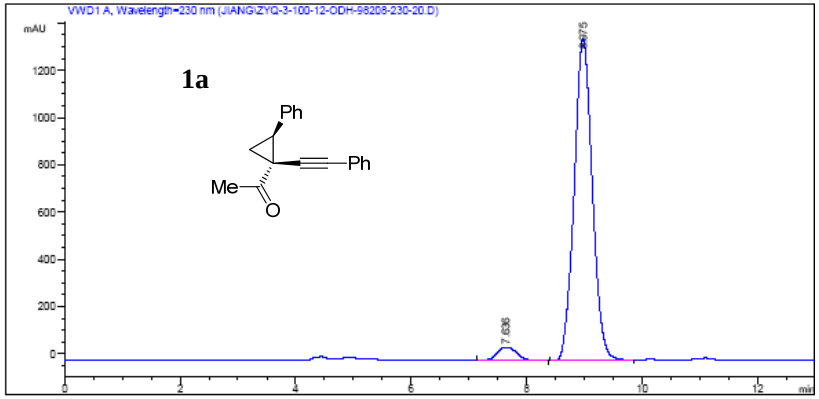
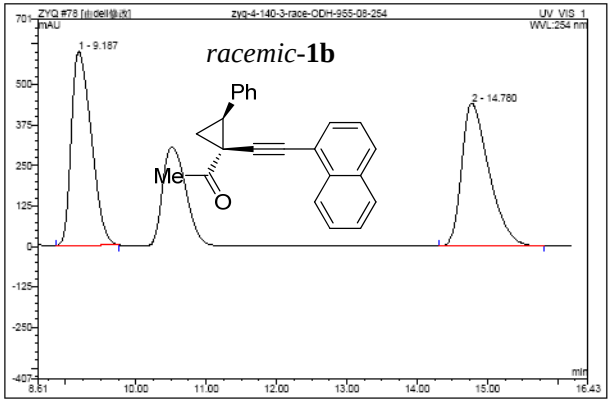



```
                          Area Percent Report

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: VWD1 A, Wavelength=230 nm

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]  mAU   *s    [mAU   ]      %
----|-------|----|-------|----------|----------|--------|
   1   7.636 BB     0.3745 1319.30237   56.46800   4.2518
   2   8.975 BV     0.3314 2.97101e4  1363.54675  95.7482

Totals :                  3.10294e4  1420.01475
```

78 zyq-4-140-3-race-ODH-955-08-254

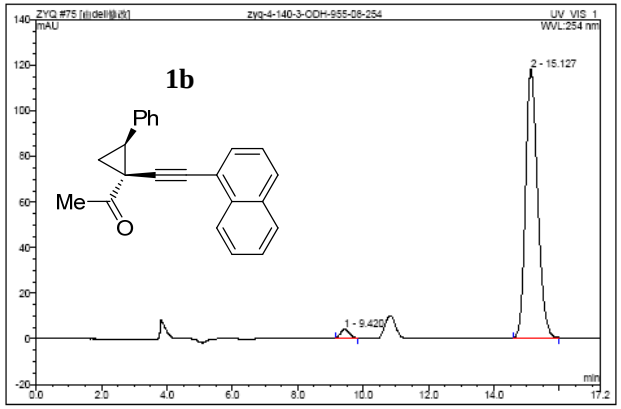
样品名:	zyq-4-140-3-race-ODH-955-08-254	进样量:	20.0
瓶序号:	72	通道:	UV_VIS_1
样品类型:	unknown	波长:	254
控制程序:	程序文件-公用-08	带宽:	n.a.
定量方法:	方法-公用	稀释因子:	1.0000
记录时间:	2011-7-18 14:45	样品重量:	1.0000
运行时间 (min):	16.21	样品量:	1.0000



序号	保留时间 min		峰名称	峰高 mAU	峰面积 mAU*min	相对峰面积 %	样品量	类型
1	9.19	n.a.		597.746	195.154	49.77	n.a.	BMB*
2	14.78	n.a.		440.413	196.961	50.23	n.a.	BMB*
总和:				1038.159	392.115	100.00	0.000	

75 zyq-4-140-3-ODH-955-08-254

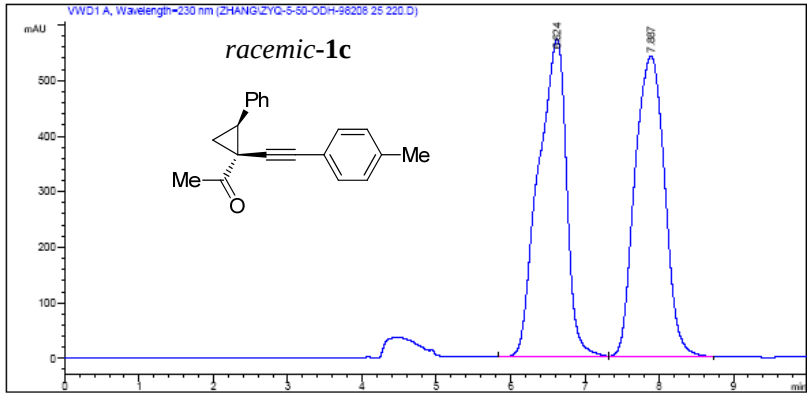
样品名:	zyq-4-140-3-ODH-955-08-254	进样量:	20.0
瓶序号:	68	通道:	UV_VIS_1
样品类型:	unknown	波长:	254
控制程序:	程序文件-公用-08	带宽:	n.a.
定量方法:	方法-公用	稀释因子:	1.0000
记录时间:	2011-7-18 10:49	样品重量:	1.0000
运行时间 (min):	17.24	样品量:	1.0000



序号	保留时间 min		峰名称	峰高 mAU	峰面积 mAU*min	相对峰面积 %	样品量	类型
1	9.42	n.a.		3.858	1.182	2.31	n.a.	BMB*
2	15.13	n.a.		118.044	50.065	97.69	n.a.	BMB*
总和:				121.902	51.246	100.00	0.000	

Data File C:\CHEM32\1\DATA\ZHANG\ZYQ-5-50-ODH-98208 25 220.D
Sample Name: 0

Acq. Operator :
Acq. Instrument : HPLC1200LC Location : -
Injection Date : 2011-5-21 2:26:35 下午
Acq. Method : C:\CHEM32\1\METHODS\JWHTEST.M
Last changed : 2011-5-21 2:34:59 下午
(modified after loading)
Analysis Method : C:\CHEM32\1\DATA\ZHANG\ZYQ-5-50-ODH-98208 25 220.D\DA.M (JWHTEST.M)
Last changed : 2011-5-21 2:39:04 下午



Area Percent Report

Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

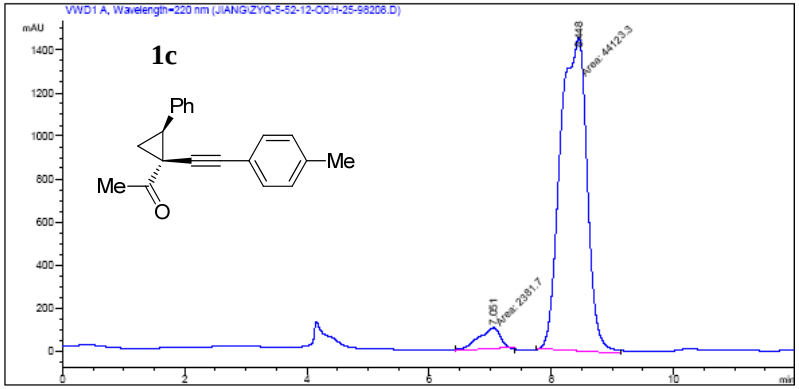
Signal 1: VWD1 A, Wavelength=230 nm

Peak #	RetTime [min]	Type	Width [min]	Area mAU *s	Height [mAU]	Area %
1	6.624	BV	0.3735	1.50519e4	572.92896	49.8919
2	7.887	VV	0.4678	1.51172e4	542.54443	50.1081

Totals : 3.01691e4 1115.47339

Data File C:\CHEM32\1\DATA\JIANG\ZYQ-5-52-12-ODH-25-98208.D
Sample Name: 0

Acq. Operator :
Acq. Instrument : HPLC1200LC Location : -
Injection Date : 2010-12-27 2:46:32 下午
Acq. Method : C:\CHEM32\1\METHODS\JWHTEST.M
Last changed : 2010-12-27 2:45:27 下午
(modified after loading)
Analysis Method : C:\CHEM32\1\DATA\JIANG\ZYQ-5-52-12-ODH-25-98208.D\DA.M (JWHTEST.M)
Last changed : 2011-5-18 3:40:47 下午



Area Percent Report

Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: VWD1 A, Wavelength=220 nm

Peak #	RetTime [min]	Type	Width [min]	Area mAU *s	Height [mAU]	Area %
1	7.051	MM	0.4081	2381.70020	97.25755	5.1214
2	8.448	MM	0.5049	4.41233e4	1456.50232	94.8786

Totals : 4.65050e4 1553.75986

Data File C:\CHEM32\1\DATA\JIANG\ZYQ-4-66-ODH 95508-25-220.D
Sample Name: 0

```
======================================================================
Acq. Operator   :
Acq. Instrument : HPLC1200LC                    Location : Vial 1
Injection Date  : 2010-10-27 4:11:02 下午
Acq. Method     : C:\CHEM32\1\METHODS\JWHTEST.M
Last changed    : 2010-10-27 4:10:07 下午
                  (modified after loading)
Analysis Method : C:\CHEM32\1\DATA\JIANG\ZYQ-4-66-ODH 95508-25-220.D\DA.M (JWHTEST.M)
Last changed    : 2010-10-27 4:23:47 下午
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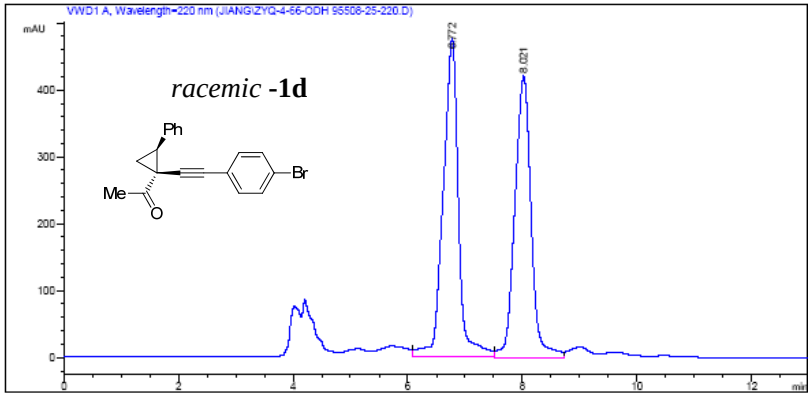


```
======================================================================
                        Area Percent Report
======================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: VWD1 A, Wavelength=220 nm

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]  mAU   *s   [mAU   ]      %
----|-------|----|-------|----------|----------|--------|
   1   6.772 VV    0.2661 8839.35938  476.03470  51.6729
   2   8.021 VV    0.3123 8267.00293  420.62219  48.3271

Totals :                  1.71064e4   896.65689
```


Data File C:\CHEM32\1\DATA\JIANG\ZYQ-5-9-2-ODH-95508-217.D
Sample Name: 0

```
======================================================================
Acq. Operator   :
Acq. Instrument : HPLC1200LC                    Location : Vial 1
Injection Date  : 2010-12-1 11:07:19 上午
Acq. Method     : C:\CHEM32\1\METHODS\JWHTEST.M
Last changed    : 2010-12-1 11:06:42 上午
                  (modified after loading)
Analysis Method : C:\CHEM32\1\DATA\JIANG\ZYQ-5-9-2-ODH-95508-217.D\DA.M (JWHTEST.M)
Last changed    : 2011-5-18 3:45:33 下午
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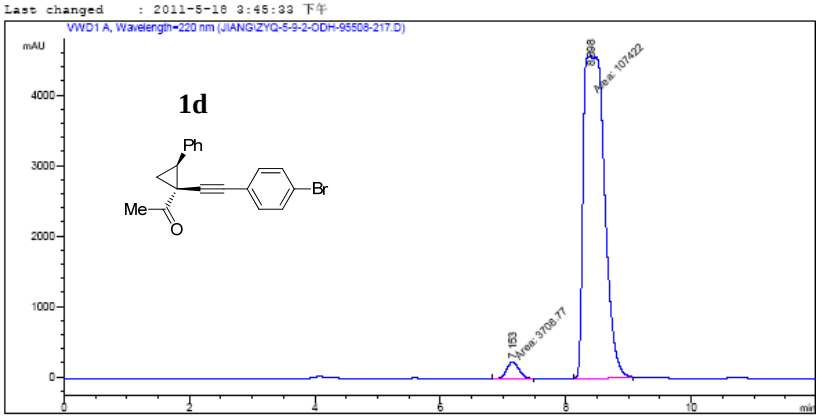
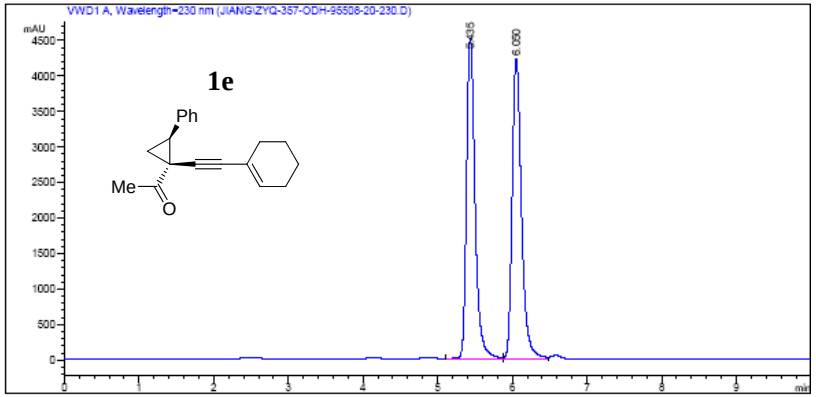



```
======================================================================
                        Area Percent Report
======================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: VWD1 A, Wavelength=220 nm

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]  mAU   *s   [mAU   ]      %
----|-------|----|-------|----------|----------|--------|
   1   7.153 MM    0.2431 3708.77197  254.25969   3.3373
   2   8.398 MM    0.3908 1.07422e5  4581.81348  96.6627

Totals :                  1.11131e5  4836.07317
```

Data File C:\CHEM32\1\DATA\JIANG\ZYQ-357-ODH-95508-20-230.D
Sample Name: 0

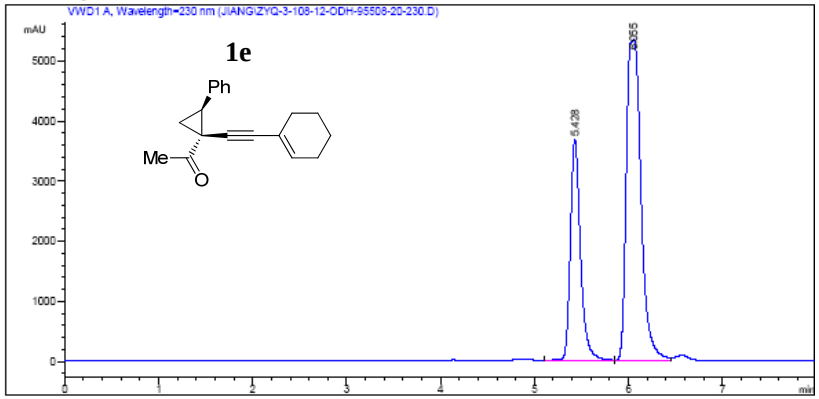
```
Acq. Operator   :
Acq. Instrument : HPLC1200LC                    Location : Vial 1
Injection Date  : 2010-6-17 4:48:02 下午
Acq. Method     : C:\CHEM32\1\METHODS\JWHTEST.M
Last changed    : 2010-6-17 4:56:41 下午
                  (modified after loading)
Analysis Method : C:\CHEM32\1\DATA\JIANG\ZYQ-357-ODH-95508-20-230.D\DA.M (JWHTEST.M)
Last changed    : 2011-5-19 4:57:13 下午
```




```
                        Area Percent Report

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: VWD1 A, Wavelength=230 nm

Peak RetTime Type  Width     Area      Height     Area
  #   [min]       [min]  mAU   *s    [mAU   ]      %
----|-------|----|-------|----------|----------|--------|
   1   5.435 VV    0.1207 3.59999e4  4612.65771  49.4589
   2   6.050 VV    0.1320 3.67877e4  4233.36475  50.5411

Totals :                 7.27876e4  8746.02246
```


Data File C:\CHEM32\1\DATA\JIANG\ZYQ-3-108-12-ODH-95508-20-230.D
Sample Name: 0

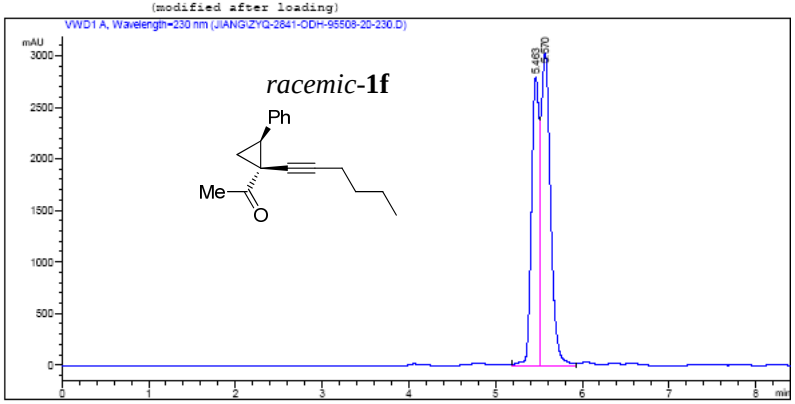
```
Acq. Operator   :
Acq. Instrument : HPLC1200LC                    Location : Vial 1
Injection Date  : 2010-6-17 4:58:55 下午
Acq. Method     : C:\CHEM32\1\METHODS\JWHTEST.M
Last changed    : 2010-6-17 5:00:45 下午
                  (modified after loading)
Analysis Method : C:\CHEM32\1\DATA\JIANG\ZYQ-3-108-12-ODH-95508-20-230.D\DA.M (JWHTEST.M)
Last changed    : 2011-5-19 4:56:26 下午
```




```
                        Area Percent Report

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: VWD1 A, Wavelength=230 nm

Peak RetTime Type  Width     Area      Height     Area
  #   [min]       [min]  mAU   *s    [mAU   ]      %
----|-------|----|-------|----------|----------|--------|
   1   5.428 VV    0.1144 2.77955e4  3677.33667  32.4390
   2   6.055 VV    0.1497 5.78898e4  5342.87939  67.5610

Totals :                 8.56853e4  9020.21606
```

Data File C:\CHEM32\1\DATA\JIANG\ZYQ-2841-ODH-95508-20-230.D
Sample Name: 0

Acq. Operator :
Acq. Instrument : HPLC1200LC Location : Vial 1
Injection Date : 2010-6-22 10:34:38 上午
Acq. Method : C:\CHEM32\1\METHODS\JWHTEST.M
Last changed : 2010-6-22 10:42:39 上午
(modified after loading)
Analysis Method : C:\CHEM32\1\METHODS\JICONGBIN.M
Last changed : 2012-2-17 3:44:18 下午 by JCB
(modified after loading)



Area Percent Report

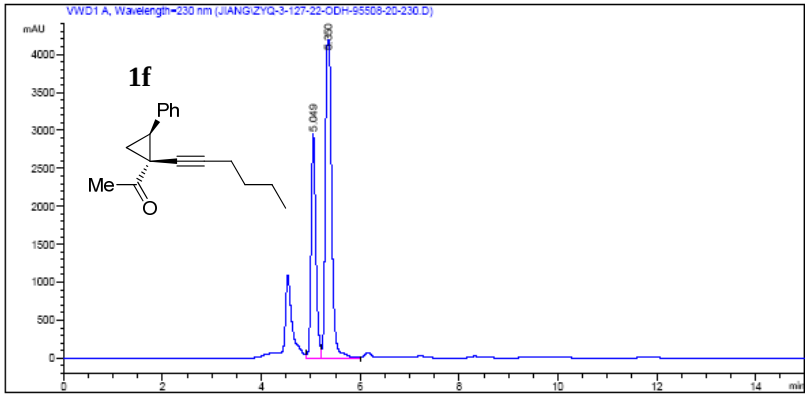
Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: VWD1 A, Wavelength=230 nm

Peak #	RetTime [min]	Type	Width [min]	Area mAU *s	Height [mAU]	Area %
1	5.463	VV	0.0930	1.71090e4	2804.72192	42.3140
2	5.570	VV	0.1142	2.33244e4	3041.19995	57.6860
Totals :				4.04334e4	5845.92188	

Data File C:\CHEM32\1\DATA\JIANG\ZYQ-3-127-22-ODH-95508-20-230.D
Sample Name: 0

Acq. Operator :
Acq. Instrument : HPLC1200LC Location : Vial 1
Injection Date : 2010-7-6 11:54:00 上午
Acq. Method : C:\CHEM32\1\METHODS\JWHTEST.M
Last changed : 2010-7-6 11:52:57 上午
(modified after loading)
Analysis Method : C:\CHEM32\1\METHODS\JICONGBIN.M
Last changed : 2012-2-17 3:44:18 下午 by JCB
(modified after loading)



Area Percent Report

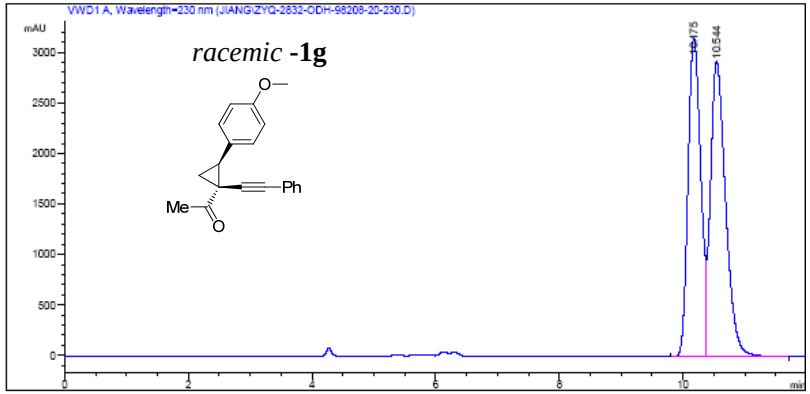
Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: VWD1 A, Wavelength=230 nm

Peak #	RetTime [min]	Type	Width [min]	Area mAU *s	Height [mAU]	Area %
1	5.049	VV	0.1016	1.94268e4	2948.13550	34.1265
2	5.350	VV	0.1392	3.74990e4	4198.16748	65.8735
Totals :				5.69258e4	7146.30298	

Data File C:\CHEM32\1\DATA\JIANG\ZYQ-2832-ODH-98208-20-230.D
Sample Name: 0

Acq. Operator :
Acq. Instrument : HPLC1200LC Location : Vial 1
Injection Date : 2010-6-22 2:45:40 下午
Acq. Method : C:\CHEM32\1\METHODS\JWHTEST.M
Last changed : 2010-6-22 2:56:39 下午
(modified after loading)
Analysis Method : C:\CHEM32\1\DATA\JIANG\ZYQ-2832-ODH-98208-20-230.D\DA.M (JWHTEST.M)
Last changed : 2011-5-26 9:43:57 下午



Area Percent Report

Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

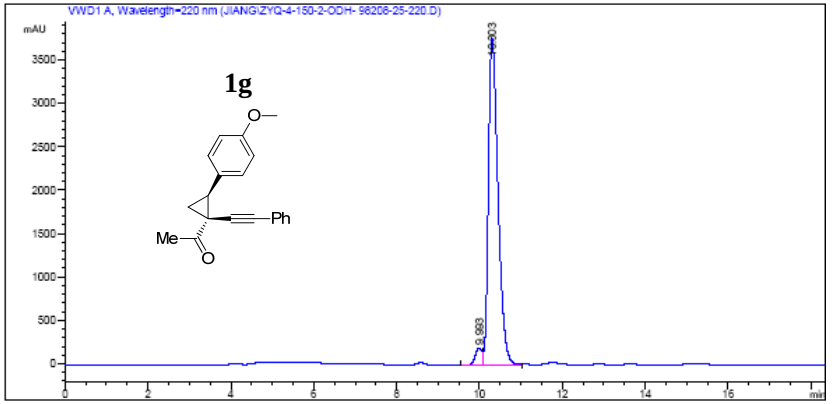
Signal 1: VWD1 A, Wavelength=230 nm

Peak #	RetTime [min]	Type	Width [min]	Area mAU *s	Height [mAU]	Area %
1	10.175	BV	0.2208	4.47419e4	3154.29468	47.3307
2	10.544	VV	0.2570	4.97884e4	2922.55518	52.6693

Totals : 9.45303e4 6076.84985

Data File C:\CHEM32\1\DATA\JIANG\ZYQ-4-150-2-ODH- 98208-25-220.D
Sample Name: 0

Acq. Operator :
Acq. Instrument : HPLC1200LC Location : Vial 1
Injection Date : 2010-11-23 1:50:04 下午
Acq. Method : C:\CHEM32\1\METHODS\JWHTEST.M
Last changed : 2010-11-23 2:08:27 下午
(modified after loading)
Analysis Method : C:\CHEM32\1\DATA\JIANG\ZYQ-4-150-2-ODH- 98208-25-220.D\DA.M (JWHTEST.M)
Last changed : 2011-5-16 4:00:23 下午



Area Percent Report

Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

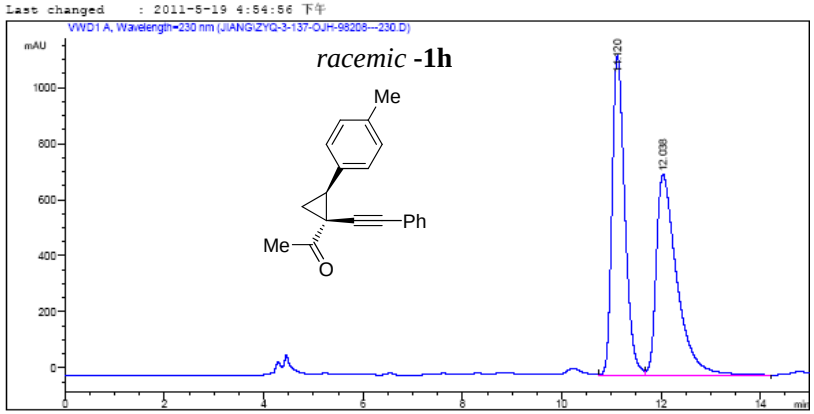
Signal 1: VWD1 A, Wavelength=220 nm

Peak #	RetTime [min]	Type	Width [min]	Area mAU *s	Height [mAU]	Area %
1	9.993	BV	0.1744	2243.84375	200.31853	3.5649
2	10.303	VV	0.2468	6.06990e4	3756.54590	96.4351

Totals : 6.29428e4 3956.86443

Data File C:\CHEM32\1\DATA\JIANG\ZYQ-3-137-OJH-98208---230.D
Sample Name: 0

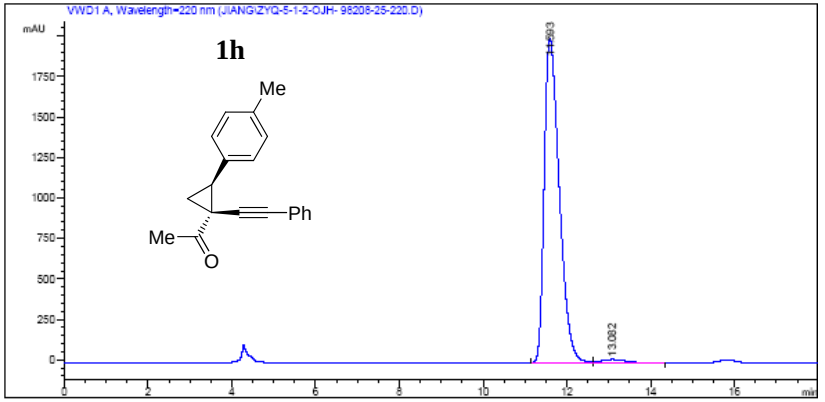
```
======================================================================
Acq. Operator   :
Acq. Instrument : HPLC1200LC                    Location : Vial 1
Injection Date  : 2010-7-20 4:31:06 下午
Acq. Method     : C:\CHEM32\1\METHODS\JWHTEST.M
Last changed    : 2010-7-20 4:44:16 下午
                  (modified after loading)
Analysis Method : C:\CHEM32\1\DATA\JIANG\ZYQ-3-137-OJH-98208---230.D\DA.M (JWHTEST.M)
Last changed    : 2011-5-19 4:54:56 下午
```




```
======================================================================
                        Area Percent Report
======================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: VWD1 A, Wavelength=230 nm

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]  mAU   *s    [mAU   ]      %
----|-------|----|-------|----------|----------|--------|
   1  11.120 VV    0.2738 2.04224e4  1144.20544  49.2574
   2  12.038 VB    0.4326 2.10382e4   719.99146  50.7426

Totals :                  4.14606e4  1864.19690
```


Data File C:\CHEM32\1\DATA\JIANG\ZYQ-5-1-2-OJH- 98208-25-220.D
Sample Name: 0

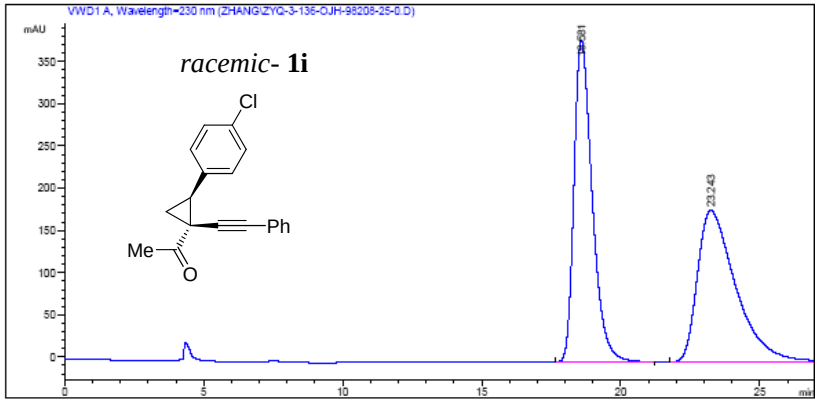
```
======================================================================
Acq. Operator   :
Acq. Instrument : HPLC1200LC                    Location : Vial 1
Injection Date  : 2010-11-24 4:32:54 下午
Acq. Method     : C:\CHEM32\1\METHODS\JWHTEST.M
Last changed    : 2010-11-24 4:31:24 下午
                  (modified after loading)
Analysis Method : C:\CHEM32\1\DATA\JIANG\ZYQ-5-1-2-OJH- 98208-25-220.D\DA.M (JWHTEST.M)
Last changed    : 2011-5-18 3:57:36 下午
```




```
======================================================================
                        Area Percent Report
======================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: VWD1 A, Wavelength=220 nm

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]  mAU   *s    [mAU   ]      %
----|-------|----|-------|----------|----------|--------|
   1  11.593 VV    0.3863 5.01001e4  2004.06604  98.1796
   2  13.082 VB    0.6211  928.94171   22.37971   1.8204

Totals :                  5.10291e4  2026.44575
```

Data File C:\CHEM32\1\DATA\ZHANG\ZYQ-3-136-OJH-98208-25-0.D
Sample Name: 0

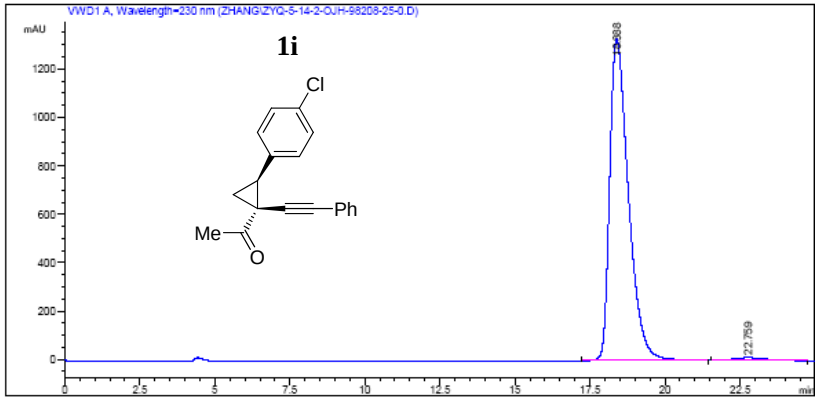
```
Acq. Operator   :
Acq. Instrument : HPLC1200LC                    Location :   -
Injection Date  : 2011-5-25 8:43:37 上午
Acq. Method     : C:\CHEM32\1\METHODS\JWHTEST.M
Last changed    : 2011-5-24 11:34:50 下午
Analysis Method : C:\CHEM32\1\DATA\ZHANG\ZYQ-3-136-OJH-98208-25-0.D\DA.M (JWHTEST.M)
Last changed    : 2011-5-25 9:27:04 上午
```




```
Area Percent Report

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: VWD1 A, Wavelength=230 nm

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]  mAU   *s    [mAU   ]      %
----|-------|----|-------|----------|----------|--------|
   1  18.581 BB    0.6944 1.73620e4   381.25934  50.2099
   2  23.243 BBA   1.4447 1.72169e4   179.34392  49.7901

Totals :                  3.45789e4   560.60326
```


Data File C:\CHEM32\1\DATA\ZHANG\ZYQ-5-14-2-OJH-98208-25-0.D
Sample Name: 0

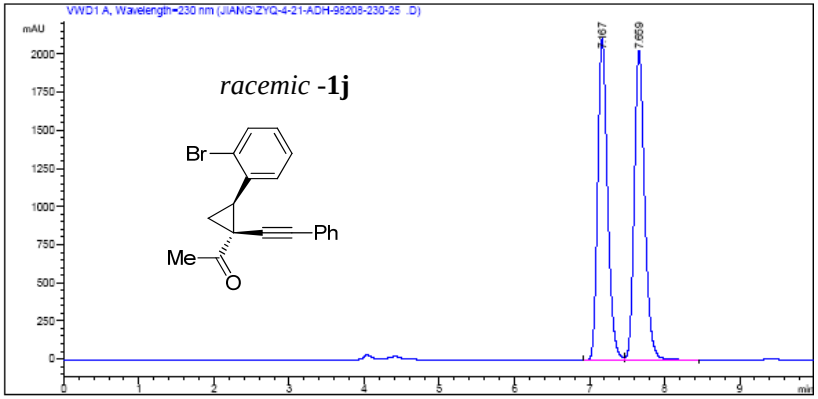
```
Acq. Operator   :
Acq. Instrument : HPLC1200LC                    Location :   -
Injection Date  : 2011-5-24 10:37:08 下午
Acq. Method     : C:\CHEM32\1\METHODS\JWHTEST.M
Last changed    : 2011-5-24 10:31:04 下午
                  (modified after loading)
Analysis Method : C:\CHEM32\1\DATA\ZHANG\ZYQ-5-14-2-OJH-98208-25-0.D\DA.M (JWHTEST.M)
Last changed    : 2011-5-24 11:07:16 下午
```




```
Area Percent Report

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: VWD1 A, Wavelength=230 nm

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]  mAU   *s    [mAU   ]      %
----|-------|----|-------|----------|----------|--------|
   1  18.388 BB    0.6600 5.77773e4  1329.21130  98.4619
   2  22.759 BB    1.0977  902.55243   12.07564   1.5381

Totals :                  5.86799e4  1341.28694
```

Data File C:\CHEM32\1\DATA\JIANG\ZYQ-4-21-ADH-98208-230-25 .D
Sample Name: 0

Acq. Operator :
Acq. Instrument : HPLC1200LC Location : Vial 1
Injection Date : 2010-9-10 5:28:23 下午
Acq. Method : C:\CHEM32\1\METHODS\JWHTEST.M
Last changed : 2010-9-10 5:36:04 下午
(modified after loading)
Analysis Method : C:\CHEM32\1\DATA\JIANG\ZYQ-4-21-ADH-98208-230-25 .D\DA.M (JWHTEST.M)
Last changed : 2011-5-19 4:53:42 下午



Area Percent Report

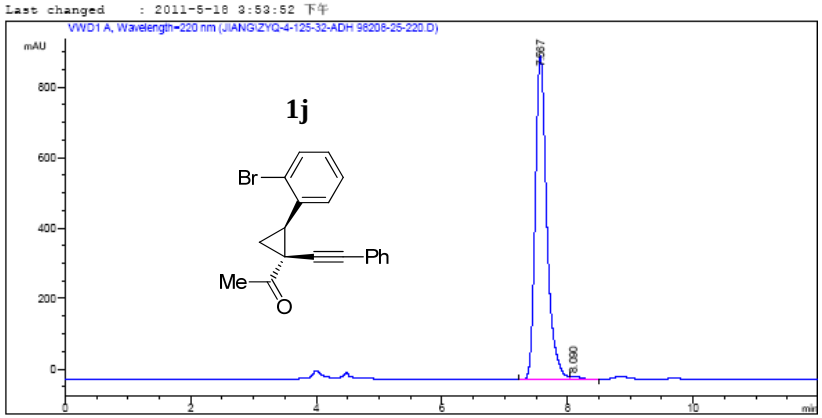
Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: VWD1 A, Wavelength=230 nm

Peak #	RetTime [min]	Type	Width [min]	Area mAU *s	Height [mAU]	Area %
1	7.167	VV	0.1386	1.92810e4	2111.25195	49.5214
2	7.659	VV	0.1465	1.96537e4	2028.46252	50.4786
Totals :				3.89347e4	4139.71448	

Data File C:\CHEM32\1\DATA\JIANG\ZYQ-4-125-32-ADH 98208-25-220.D
Sample Name: 0

Acq. Operator :
Acq. Instrument : HPLC1200LC Location : Vial 1
Injection Date : 2010-11-5 11:12:53 上午
Acq. Method : C:\CHEM32\1\METHODS\JWHTEST.M
Last changed : 2010-11-5 11:09:26 上午
(modified after loading)
Analysis Method : C:\CHEM32\1\DATA\JIANG\ZYQ-4-125-32-ADH 98208-25-220.D\DA.M (JWHTEST.M)
Last changed : 2011-5-18 3:53:52 下午



Area Percent Report

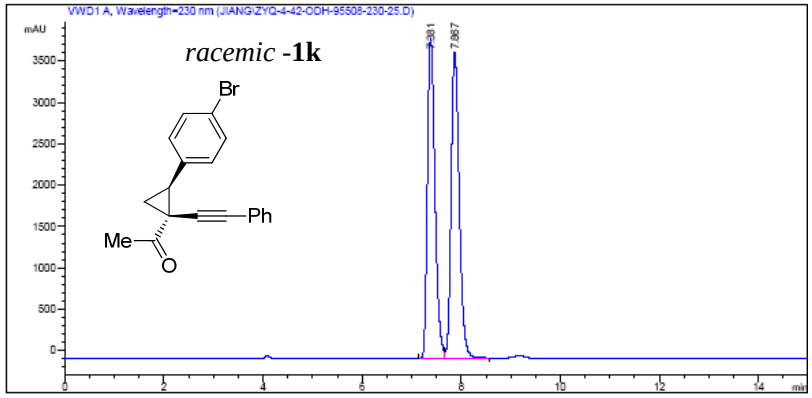
Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: VWD1 A, Wavelength=220 nm

Peak #	RetTime [min]	Type	Width [min]	Area mAU *s	Height [mAU]	Area %
1	7.567	VV	0.1938	1.17021e4	918.26910	98.9672
2	8.090	VV	0.1848	122.11980	9.69614	1.0328
Totals :				1.18242e4	927.96524	

Data File C:\CHEM32\1\DATA\JIANG\ZYQ-4-42-ODH-95508-230-25.D
Sample Name: 0

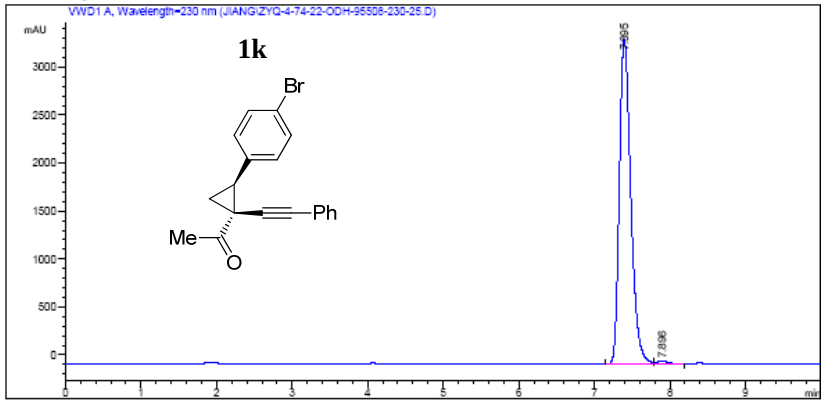
```
Acq. Operator   :
Acq. Instrument : HPLC1200LC                    Location : Vial 1
Injection Date  : 2010-9-26 1:40:10 下午
Acq. Method     : C:\CHEM32\1\METHODS\JWHTEST.M
Last changed    : 2010-9-26 1:28:56 下午
                  (modified after loading)
Analysis Method : C:\CHEM32\1\DATA\JIANG\ZYQ-4-42-ODH-95508-230-25.D\DA.M (JWHTEST.M)
Last changed    : 2011-5-27 9:20:57 上午
```




```
                        Area Percent Report

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: VWD1 A, Wavelength=230 nm

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]  mAU   *s    [mAU   ]     %
----|-------|----|-------|----------|----------|--------|
   1   7.381 VV    0.1656 4.13795e4  3866.21631  49.3073
   2   7.867 VV    0.1776 4.25422e4  3707.08105  50.6927

Totals :                  8.39217e4  7573.29736
```


Data File C:\CHEM32\1\DATA\JIANG\ZYQ-4-74-22-ODH-95508-230-25.D
Sample Name: 0

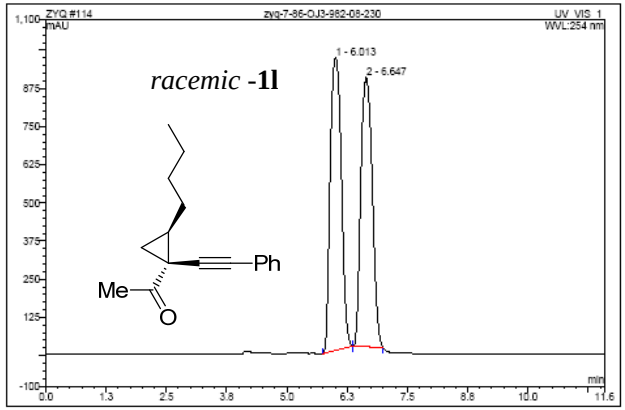
```
Acq. Operator   :
Acq. Instrument : HPLC1200LC                    Location : Vial 1
Injection Date  : 2010-9-26 2:09:43 下午
Acq. Method     : C:\CHEM32\1\METHODS\JWHTEST.M
Last changed    : 2010-9-26 2:19:16 下午
                  (modified after loading)
Analysis Method : C:\CHEM32\1\DATA\JIANG\ZYQ-4-74-22-ODH-95508-230-25.D\DA.M (JWHTEST.M)
Last changed    : 2011-5-18 3:50:02 下午
```




```
                        Area Percent Report

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: VWD1 A, Wavelength=230 nm

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]  mAU   *s    [mAU   ]     %
----|-------|----|-------|----------|----------|--------|
   1   7.395 VV    0.1627 3.58243e4  3386.77246  98.8527
   2   7.896 VV    0.1893  415.77295   32.03799   1.1473

Totals :                  3.62401e4  3418.81045
```

114 zyq-7-86-OJ3-982-08-230

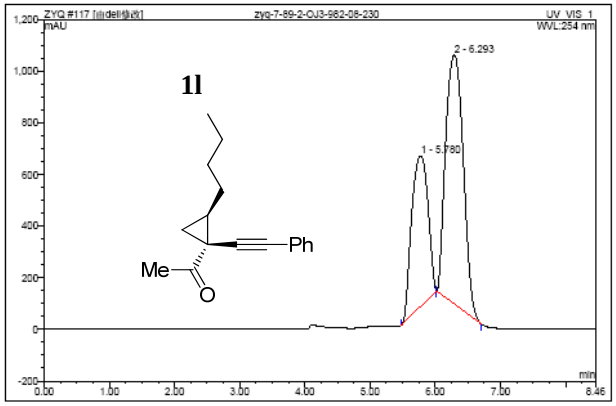
样品名:	zyq-7-86-OJ3-982-08-230	进样量:	20.0
瓶序号:	108	通道:	UV_VIS_1
样品类型:	unknown	波长:	254
控制程序:	程序文件-公用-08	带宽:	n.a.
定量方法:	方法-公用	稀释因子:	1.0000
记录时间:	2012-2-21 20:06	样品重量:	1.0000
运行时间 (min):	11.59	样品量:	1.0000



序号	保留时间 min	峰名称	峰高 mAU	峰面积 mAU*min	相对峰面积 %	样品量	类型
1	6.01	n.a.	959.347	256.525	51.31	n.a.	BMb
2	6.65	n.a.	881.697	243.414	48.69	n.a.	bMB
总和:			1841.043	499.939	100.00	0.000	

117 zyq-7-89-2-OJ3-982-08-230

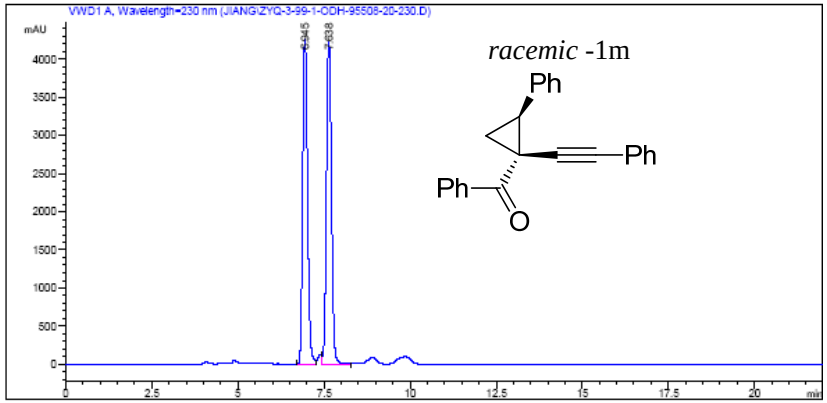
样品名:	zyq-7-89-2-OJ3-982-08-230	进样量:	20.0
瓶序号:	112	通道:	UV_VIS_1
样品类型:	unknown	波长:	254
控制程序:	程序文件-公用-08	带宽:	n.a.
定量方法:	方法-公用	稀释因子:	1.0000
记录时间:	2012-2-21 21:00	样品重量:	1.0000
运行时间 (min):	8.46	样品量:	1.0000



序号	保留时间 min	峰名称	峰高 mAU	峰面积 mAU*min	相对峰面积 %	样品量	类型
1	5.78	n.a.	585.013	170.185	35.98	n.a.	BMb
2	6.29	n.a.	966.528	302.817	64.02	n.a.	bMB
总和:			1551.541	473.002	100.00	0.000	

Data File C:\CHEM32\1\DATA\JIANG\ZYQ-3-99-1-ODH-95508-20-230.D
Sample Name: 0

Acq. Operator :
Acq. Instrument : HPLC1200LC Location : Vial 1
Injection Date : 2010-7-6 10:17:58 上午
Acq. Method : C:\CHEM32\1\METHODS\JWHTEST.M
Last changed : 2010-7-6 10:39:45 上午
(modified after loading)
Analysis Method : C:\CHEM32\1\DATA\JIANG\ZYQ-3-99-1-ODH-95508-20-230.D\DA.M (JWHTEST.M)
Last changed : 2011-5-19 4:52:02 下午



Area Percent Report

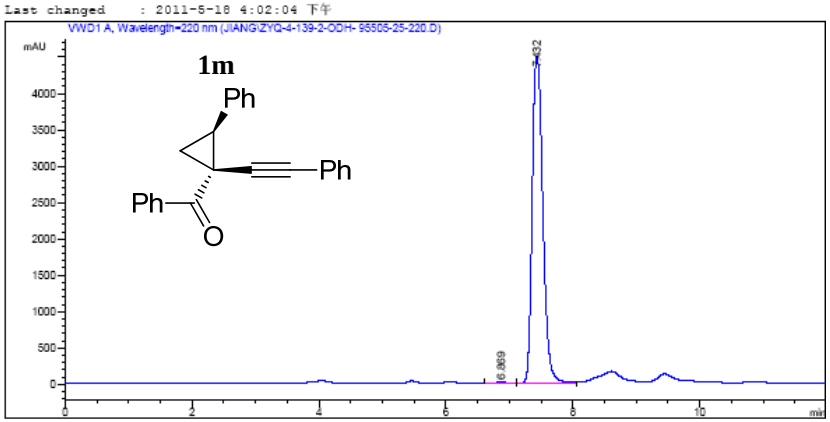
Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: VWD1 A, Wavelength=230 nm

Peak #	RetTime [min]	Type	Width [min]	Area mAU *s	Height [mAU]	Area %
1	6.945	VV	0.1547	4.21329e4	4260.04150	49.2671
2	7.638	VV	0.1604	4.33865e4	4230.02539	50.7329
Totals :				8.55194e4	8490.06689	

Data File C:\CHEM32\1\DATA\JIANG\ZYQ-4-139-2-ODH- 95505-25-220.D
Sample Name: 0

Acq. Operator :
Acq. Instrument : HPLC1200LC Location : Vial 1
Injection Date : 2010-11-16 4:37:26 下午
Acq. Method : C:\CHEM32\1\METHODS\JWHTEST.M
Last changed : 2010-11-16 4:49:20 下午
(modified after loading)
Analysis Method : C:\CHEM32\1\DATA\JIANG\ZYQ-4-139-2-ODH- 95505-25-220.D\DA.M (JWHTEST.M)
Last changed : 2011-5-18 4:02:04 下午



Area Percent Report

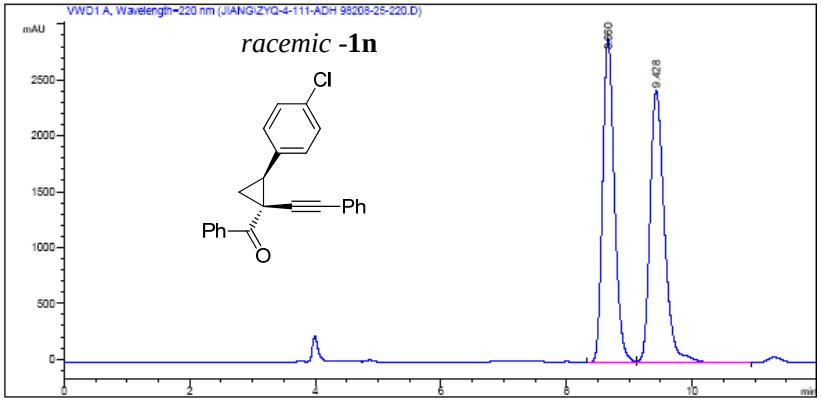
Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: VWD1 A, Wavelength=220 nm

Peak #	RetTime [min]	Type	Width [min]	Area mAU *s	Height [mAU]	Area %
1	6.869	VV	0.3167	390.91742	16.86459	0.7325
2	7.432	VV	0.1826	5.29779e4	4497.73779	99.2675
Totals :				5.33688e4	4514.62239	

Data File C:\CHEM32\1\DATA\JIANG\ZYQ-4-111-ADH 98208-25-220.D
Sample Name: 0

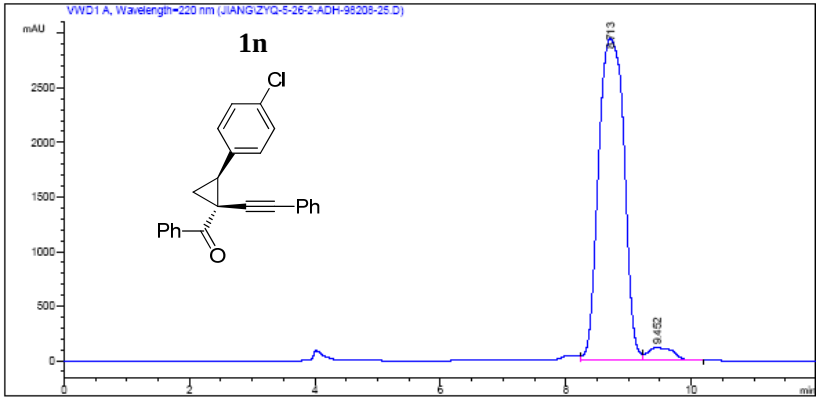
```
Acq. Operator   :
Acq. Instrument : HPLC1200LC                    Location : Vial 1
Injection Date  : 2010-11-5 11:31:55 上午
Acq. Method     : C:\CHEM32\1\METHODS\JWHTEST.M
Last changed    : 2010-11-5 11:24:51 上午
                  (modified after loading)
Analysis Method : C:\CHEM32\1\DATA\JIANG\ZYQ-4-111-ADH 98208-25-220.D\DA.M (JWHTEST.M)
Last changed    : 2010-11-5 11:43:51 上午
```




```
                        Area Percent Report

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: VWD1 A, Wavelength=220 nm

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]  mAU   *s   [mAU   ]      %
----|-------|----|-------|----------|----------|--------|
   1   8.660 VV    0.1996 3.76615e4  2898.78833  49.2614
   2   9.428 VV    0.2439 3.87909e4  2437.70264  50.7386

Totals :                  7.64525e4  5336.49097
```


Data File C:\CHEM32\1\DATA\JIANG\ZYQ-5-26-2-ADH-98208-25.D
Sample Name: 0

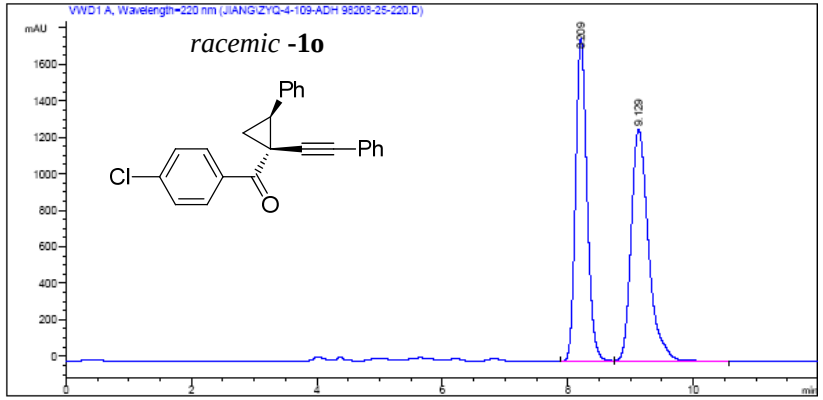
```
Acq. Operator   :
Acq. Instrument : HPLC1200LC                    Location :  -
Injection Date  : 2010-12-6 5:30:36 下午
Acq. Method     : C:\CHEM32\1\METHODS\JWHTEST.M
Last changed    : 2010-12-6 5:40:59 下午
                  (modified after loading)
Analysis Method : C:\CHEM32\1\DATA\JIANG\ZYQ-5-26-2-ADH-98208-25.D\DA.M (JWHTEST.M)
Last changed    : 2011-5-18 4:28:00 下午
```




```
                        Area Percent Report

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: VWD1 A, Wavelength=220 nm

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]  mAU   *s   [mAU   ]      %
----|-------|----|-------|----------|----------|--------|
   1   8.713 VV    0.4690 8.37276e4  2953.83594  96.1716
   2   9.452 VB    0.3829 3332.98975  119.77506   3.8284

Totals :                  8.70606e4  3073.61100
```

Data File C:\CHEM32\1\DATA\JIANG\ZYQ-4-109-ADH 98208-25-220.D
Sample Name: 0

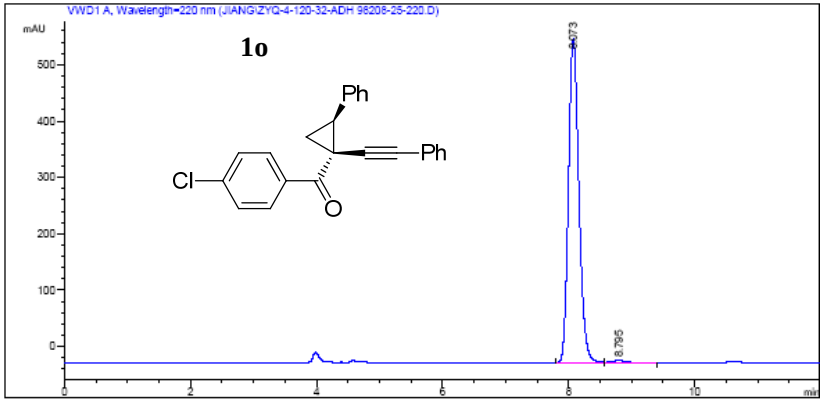
```
==========================================================================
Acq. Operator   :
Acq. Instrument : HPLC1200LC                    Location : Vial 1
Injection Date  : 2010-11-5 10:29:09 上午
Acq. Method     : C:\CHEM32\1\METHOD8\JWHTEST.M
Last changed    : 2010-11-5 10:40:20 上午
                  (modified after loading)
Analysis Method : C:\CHEM32\1\DATA\JIANG\ZYQ-4-109-ADH 98208-25-220.D\DA.M (JWHTEST.M)
Last changed    : 2011-5-23 8:21:47 下午
```




```
==========================================================================
                        Area Percent Report
==========================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: VWD1 A, Wavelength=220 nm

Peak RetTime Type  Width     Area      Height     Area
  #   [min]       [min]  mAU   *s   [mAU   ]      %
----|-------|----|-------|----------|----------|-------|
   1   8.209 VV     0.1961 2.24793e4  1771.52808  47.7140
   2   9.129 VB     0.2951 2.46333e4  1276.03247  52.2860

Totals :                  4.71127e4  3047.56055
```


Data File C:\CHEM32\1\DATA\JIANG\ZYQ-4-120-32-ADH 98208-25-220.D
Sample Name: 0

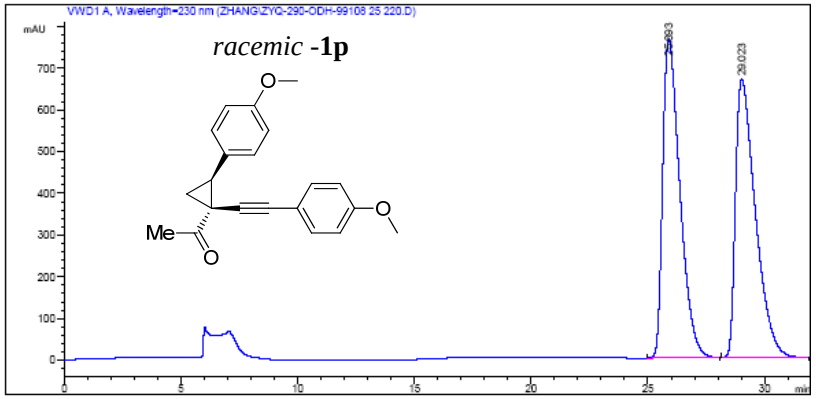
```
==========================================================================
Acq. Operator   :
Acq. Instrument : HPLC1200LC                    Location : Vial 1
Injection Date  : 2010-11-5 10:57:28 上午
Acq. Method     : C:\CHEM32\1\METHOD8\JWHTEST.M
Last changed    : 2010-11-5 10:55:00 上午
                  (modified after loading)
Analysis Method : C:\CHEM32\1\DATA\JIANG\ZYQ-4-120-32-ADH 98208-25-220.D\DA.M (JWHTEST.M)
Last changed    : 2011-5-18 3:44:18 下午
```




```
==========================================================================
                        Area Percent Report
==========================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: VWD1 A, Wavelength=220 nm

Peak RetTime Type  Width     Area      Height     Area
  #   [min]       [min]  mAU   *s   [mAU   ]      %
----|-------|----|-------|----------|----------|-------|
   1   8.073 VV     0.1764 6631.81982  576.45844  98.5452
   2   8.795 VB     0.2996   97.90403    4.85007   1.4548

Totals :                  6729.72385  581.30851
```

Data File C:\CHEM32\1\DATA\ZHANG\ZYQ-290-ODH-99108 25 220.D
Sample Name: 0

```
Acq. Operator   :
Acq. Instrument : HPLC1200LC                    Location :   -
Injection Date  : 2011-5-21 9:17:23 上午
Acq. Method     : C:\CHEM32\1\METHODS\JWHTEST.M
Last changed    : 2011-5-21 9:49:09 上午
                  (modified after loading)
Analysis Method : C:\CHEM32\1\DATA\ZHANG\ZYQ-290-ODH-99108 25 220.D\DA.M (JWHTEST.M)
Last changed    : 2011-5-21 9:57:21 上午
```

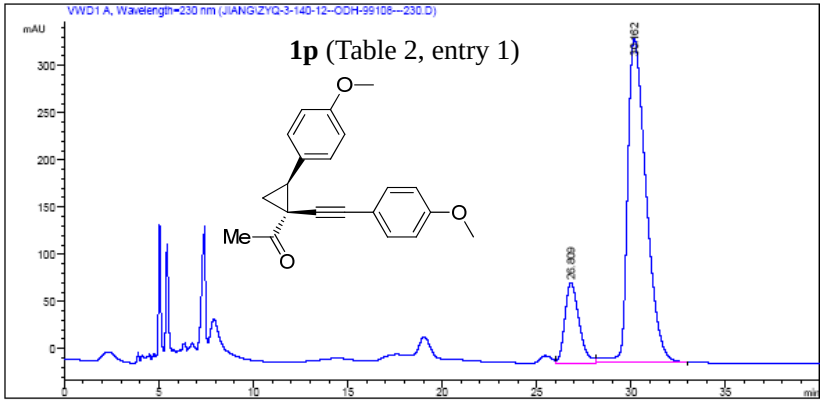


Area Percent Report

```
Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: VWD1 A, Wavelength=230 nm

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]  mAU   *s   [mAU   ]      %
----|-------|----|-------|----------|----------|--------|
   1  25.693 BB    0.7854 3.93517e4   764.60315  49.8927
   2  29.023 BB    0.8922 3.95209e4   668.41833  50.1073

Totals :                  7.88725e4  1433.02148
```


Data File C:\CHEM32\1\DATA\JIANG\ZYQ-3-140-12--ODH-99108---230.D
Sample Name: 0

```
Acq. Operator   :
Acq. Instrument : HPLC1200LC                    Location : Vial 1
Injection Date  : 2010-7-16 12:01:13 下午
Acq. Method     : C:\CHEM32\1\METHODS\JWHTEST.M
Last changed    : 2010-7-16 12:02:51 下午
                  (modified after loading)
Analysis Method : C:\CHEM32\1\DATA\JIANG\ZYQ-3-140-12--ODH-99108---230.D\DA.M (JWHTEST.M)
Last changed    : 2011-5-18 4:06:33 下午
```

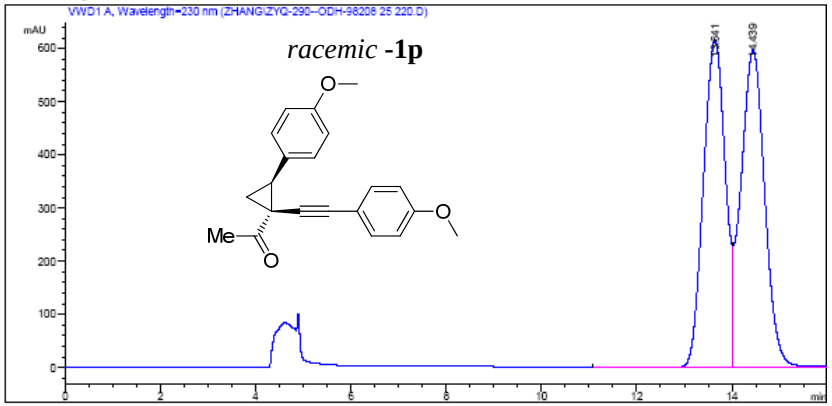


Area Percent Report

```
Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: VWD1 A, Wavelength=230 nm

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]  mAU   *s   [mAU   ]      %
----|-------|----|-------|----------|----------|--------|
   1  26.809 VV    0.8192 4493.11523   84.98091  16.1108
   2  30.162 VB    1.0515 2.33957e4   343.23669  83.8892

Totals :                  2.78888e4   428.21761
```

Data File C:\CHEM32\1\DATA\ZHANG\ZYQ-290--ODH-98208 25 220.D
Sample Name: 0

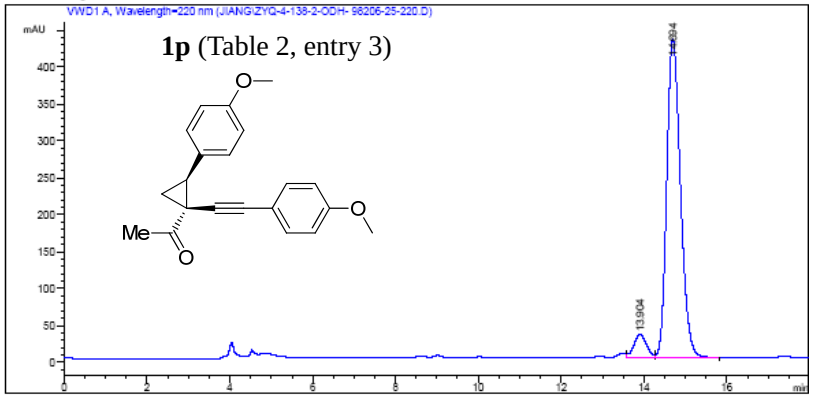
```
Acq. Operator   :
Acq. Instrument : HPLC1200LC                    Location :   -
Injection Date  : 2011-5-21 9:13:14 下午
Acq. Method     : C:\CHEM32\1\METHODS\JWHTEST.M
Last changed    : 2011-5-21 9:19:13 下午
                  (modified after loading)
Analysis Method : C:\CHEM32\1\DATA\ZHANG\ZYQ-290--ODH-98208 25 220.D\DA.M (JWHTEST.M)
Last changed    : 2011-5-21 9:30:44 下午
```




```
                          Area Percent Report

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: VWD1 A, Wavelength=230 nm

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]  mAU   *s   [mAU   ]      %
----|-------|----|-------|----------|----------|--------|
   1  13.641 BV    0.5093 1.98948e4   615.98596  48.9374
   2  14.439 VBA   0.5277 2.07588e4   597.44238  51.0626

Totals :                  4.06537e4  1213.42834
```


Data File C:\CHEM32\1\DATA\JIANG\ZYQ-4-138-2-ODH- 98206-25-220.D
Sample Name: 0

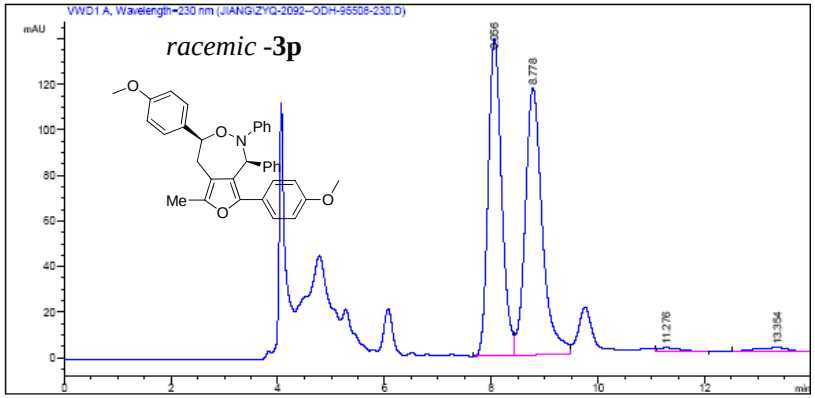
```
Acq. Operator   :
Acq. Instrument : HPLC1200LC                    Location : Vial 1
Injection Date  : 2010-11-16 4:54:52 下午
Acq. Method     : C:\CHEM32\1\METHODS\JWHTEST.M
Last changed    : 2010-11-16 4:55:46 下午
                  (modified after loading)
Analysis Method : C:\CHEM32\1\DATA\JIANG\ZYQ-4-138-2-ODH- 98206-25-220.D\DA.M (JWHTEST.M)
Last changed    : 2011-5-18 4:05:40 下午
```




```
                          Area Percent Report

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: VWD1 A, Wavelength=220 nm

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]  mAU   *s   [mAU   ]      %
----|-------|----|-------|----------|----------|--------|
   1  13.904 VV    0.3251  663.28522   31.38972   6.2729
   2  14.694 VB    0.3555 9910.60156  431.22668  93.7271

Totals :                  1.05739e4   462.61640
```

Data File C:\CHEM32\1\DATA\JIANG\ZYQ-2092--ODH-95508-230.D
Sample Name: 0

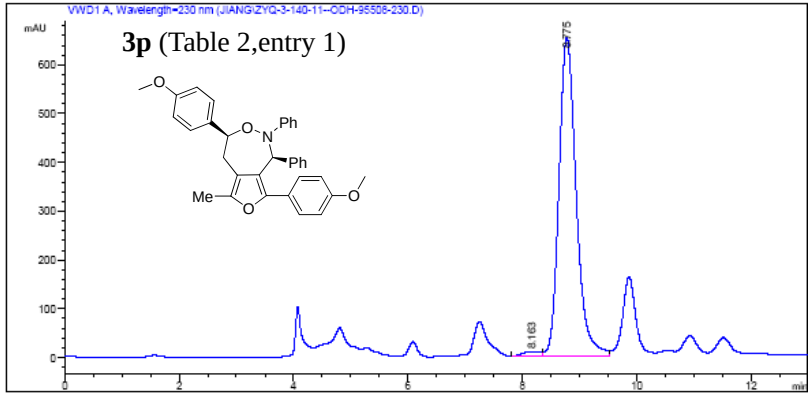
```
======================================================================
Acq. Operator   :
Acq. Instrument : HPLC1200LC                    Location : Vial 1
Injection Date  : 2010-7-15 1:29:55 下午
Acq. Method     : C:\CHEM32\1\METHODS\JWHTEST.M
Last changed    : 2010-7-15 1:40:43 下午
                  (modified after loading)
Analysis Method : C:\CHEM32\1\DATA\JIANG\ZYQ-2092--ODH-95508-230.D\DA.M (JWHTEST.M)
Last changed    : 2010-7-15 1:43:55 下午
```




```
======================================================================
                        Area Percent Report
======================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: VWD1 A, Wavelength=230 nm

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]  mAU   *s   [mAU   ]      %
----|-------|----|-------|----------|----------|--------|
   1   8.056 VV    0.2675 2430.62061  139.37289  47.2011
   2   8.778 VV    0.3330 2588.22144  117.37360  50.2616
   3  11.276 VB    0.3586   82.07229    1.95634   1.0112
   4  13.354 BBA   0.5832   78.58978    1.79644   1.5262

Totals :                  5149.50411  260.49927
```


Data File C:\CHEM32\1\DATA\JIANG\ZYQ-3-140-11--ODH-95508-230.D
Sample Name: 0

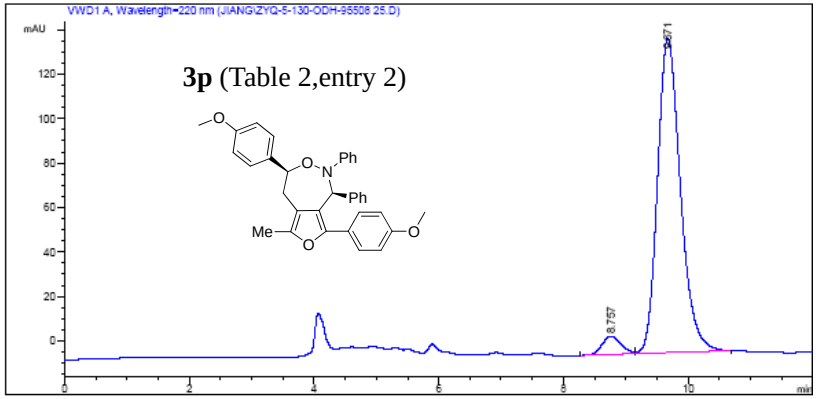
```
======================================================================
Acq. Operator   :
Acq. Instrument : HPLC1200LC                    Location : Vial 1
Injection Date  : 2010-7-15 2:26:52 下午
Acq. Method     : C:\CHEM32\1\METHODS\JWHTEST.M
Last changed    : 2010-7-15 2:23:18 下午
                  (modified after loading)
Analysis Method : C:\CHEM32\1\DATA\JIANG\ZYQ-3-140-11--ODH-95508-230.D\DA.M (JWHTEST.M)
Last changed    : 2011-5-19 4:14:43 下午
```




```
======================================================================
                        Area Percent Report
======================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: VWD1 A, Wavelength=230 nm

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]  mAU   *s   [mAU   ]      %
----|-------|----|-------|----------|----------|--------|
   1   8.163 VV    0.3480  207.04996    9.53283   1.4963
   2   8.775 VV    0.3212 1.36304e4   651.66498  98.5037

Totals :                  1.38374e4   661.19781
```

Data File C:\CHEM32\1\DATA\JIANG\ZYQ-5-130-ODH-95508 25.D
Sample Name: 0

```
======================================================================
Acq. Operator   :
Acq. Instrument : HPLC1200LC                    Location :   -
Injection Date  : 2011-4-20 11:56:11 上午
Acq. Method     : C:\CHEM32\1\METHODS\JWHTEST.M
Last changed    : 2011-4-20 12:07:48 下午
                  (modified after loading)
Analysis Method : C:\CHEM32\1\DATA\JIANG\ZYQ-5-130-ODH-95508 25.D\DA.M (JWHTEST.M)
Last changed    : 2011-5-26 11:21:45 上午
```

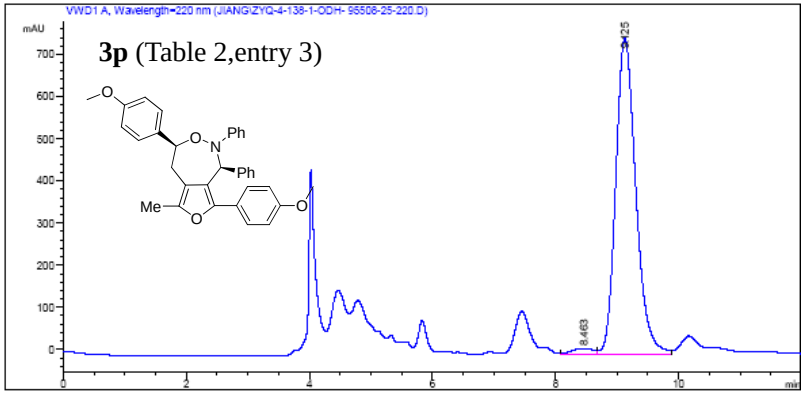


3p (Table 2,entry 2)


```
======================================================================
                    Area Percent Report
======================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: VWD1 A, Wavelength=220 nm

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]  mAU   *s   [mAU   ]      %
----|-------|----|-------|----------|----------|--------|
   1   8.757 BV    0.3312  174.74498    8.16423   4.6149
   2   9.671 VB    0.3928 3611.76465  141.33167  95.3851

Totals :                  3786.50963  149.49590
```


Data File C:\CHEM32\1\DATA\JIANG\ZYQ-4-138-1-ODH- 95508-25-220.D
Sample Name: 0

```
======================================================================
Acq. Operator   :
Acq. Instrument : HPLC1200LC                    Location : Vial 1
Injection Date  : 2010-11-19 12:10:24 下午
Acq. Method     : C:\CHEM32\1\METHODS\JWHTEST.M
Last changed    : 2010-11-19 12:18:04 下午
                  (modified after loading)
Analysis Method : C:\CHEM32\1\DATA\JIANG\ZYQ-4-138-1-ODH- 95508-25-220.D\DA.M (JWHTEST.M)
Last changed    : 2010-11-19 12:22:28 下午
```

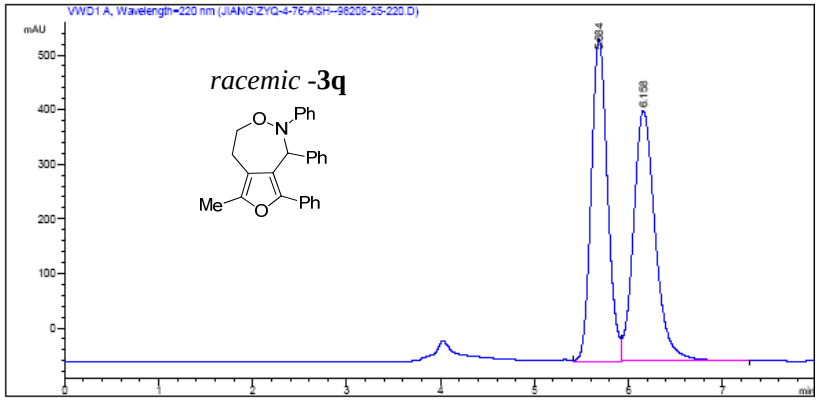


3p (Table 2,entry 3)


```
======================================================================
                    Area Percent Report
======================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: VWD1 A, Wavelength=220 nm

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]  mAU   *s   [mAU   ]      %
----|-------|----|-------|----------|----------|--------|
   1   8.463 VV    0.4173  360.03629   13.82911   2.0752
   2   9.125 VV    0.3489 1.69892e4   749.49902  97.9248

Totals :                  1.73492e4   763.32813
```

Data File C:\CHEM32\1\DATA\JIANG\ZYQ-4-76-ASH--98208-25-220.D
Sample Name: 0

Acq. Operator :
Acq. Instrument : HPLC1200LC Location : Vial 1
Injection Date : 2010-10-14 4:49:44 下午
Acq. Method : C:\CHEM32\1\METHODS\JWHTEST.M
Last changed : 2010-10-14 4:56:39 下午
(modified after loading)
Analysis Method : C:\CHEM32\1\DATA\JIANG\ZYQ-4-76-ASH--98208-25-220.D\DA.M (JWHTEST.M)
Last changed : 2011-5-26 8:50:47 上午



Area Percent Report

Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

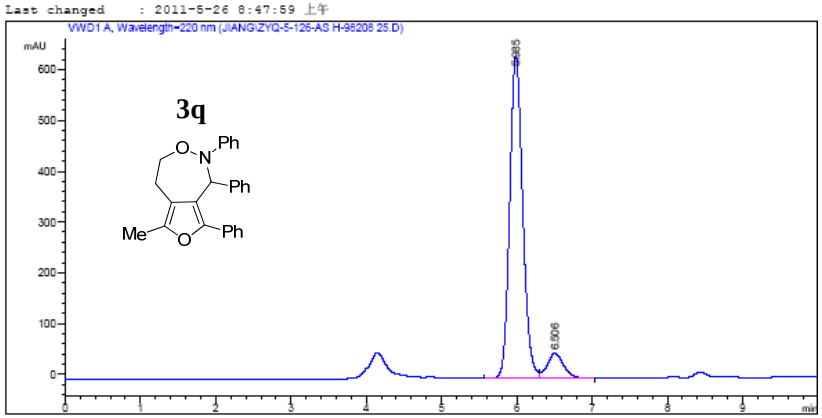
Signal 1: VWD1 A, Wavelength=220 nm

Peak #	RetTime [min]	Type	Width [min]	Area mAU *s	Height [mAU]	Area %
1	5.684	VV	0.1849	7062.54932	589.49207	49.0189
2	6.158	VB	0.2451	7345.25781	458.53296	50.9811

Totals : 1.44078e4 1048.02502

Data File C:\CHEM32\1\DATA\JIANG\ZYQ-5-126-AS H-98208 25.D
Sample Name: 0

Acq. Operator :
Acq. Instrument : HPLC1200LC Location : -
Injection Date : 2011-4-20 4:35:50 下午
Acq. Method : C:\CHEM32\1\METHODS\JWHTEST.M
Last changed : 2011-4-20 4:45:13 下午
(modified after loading)
Analysis Method : C:\CHEM32\1\DATA\JIANG\ZYQ-5-126-AS H-98208 25.D\DA.M (JWHTEST.M)
Last changed : 2011-5-26 8:47:59 上午



Area Percent Report

Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

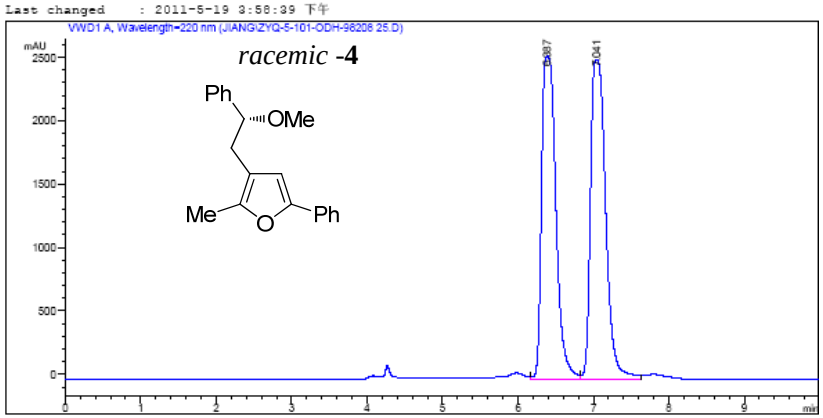
Signal 1: VWD1 A, Wavelength=220 nm

Peak #	RetTime [min]	Type	Width [min]	Area mAU *s	Height [mAU]	Area %
1	5.985	VV	0.1848	7599.10498	634.56635	91.1159
2	6.506	VB	0.2306	740.93933	48.91077	8.8841

Totals : 8340.04431 683.47712

Data File C:\CHEM32\1\DATA\JIANG\ZYQ-5-101-ODH-98208 25.D
Sample Name: 0

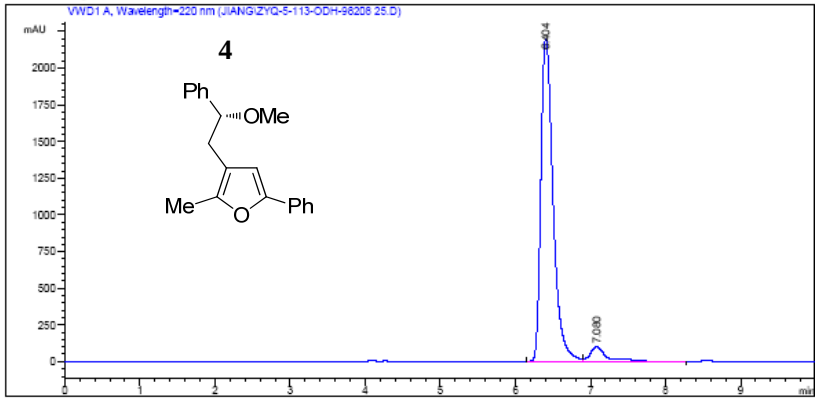
```
==========================================================================
Acq. Operator   :
Acq. Instrument : HPLC1200LC                    Location :   -
Injection Date  : 2011-3-3 3:34:15 下午
Acq. Method     : C:\CHEM32\1\METHODS\JWHTEST.M
Last changed    : 2011-3-3 3:21:20 下午
                  (modified after loading)
Analysis Method : C:\CHEM32\1\DATA\JIANG\ZYQ-5-101-ODH-98208 25.D\DA.M (JWHTEST.M)
Last changed    : 2011-5-19 3:58:39 下午
```




```
==========================================================================
                        Area Percent Report
==========================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: VWD1 A, Wavelength=220 nm

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]  mAU   *s    [mAU   ]     %
----|-------|----|-------|----------|----------|--------|
   1   6.387 VV     0.2063 3.37003e4  2554.38672  48.8666
   2   7.041 VV     0.2195 3.52635e4  2528.92090  51.1334

Totals :                  6.89638e4  5083.30762
```


Data File C:\CHEM32\1\DATA\JIANG\ZYQ-5-113-ODH-98208 25.D
Sample Name: 0

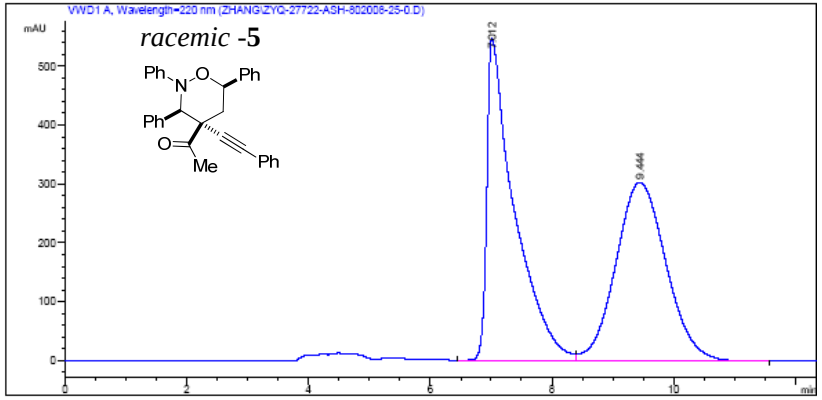
```
==========================================================================
Acq. Operator   :
Acq. Instrument : HPLC1200LC                    Location :   -
Injection Date  : 2011-3-10 2:16:30 下午
Acq. Method     : C:\CHEM32\1\METHODS\JWHTEST.M
Last changed    : 2011-3-10 2:23:23 下午
                  (modified after loading)
Analysis Method : C:\CHEM32\1\DATA\JIANG\ZYQ-5-113-ODH-98208 25.D\DA.M (JWHTEST.M)
Last changed    : 2011-5-19 3:59:03 下午
```




```
==========================================================================
                        Area Percent Report
==========================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: VWD1 A, Wavelength=220 nm

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]  mAU   *s    [mAU   ]     %
----|-------|----|-------|----------|----------|--------|
   1   6.404 VV     0.1748 2.50045e4  2200.04956  93.0741
   2   7.080 VV     0.2453 1860.64697  106.10714   6.9259

Totals :                  2.68652e4  2306.15670
```

Data File C:\CHEM32\1\DATA\ZHANG\ZYQ-27722-ASH-802008-25-0.D
Sample Name: 0

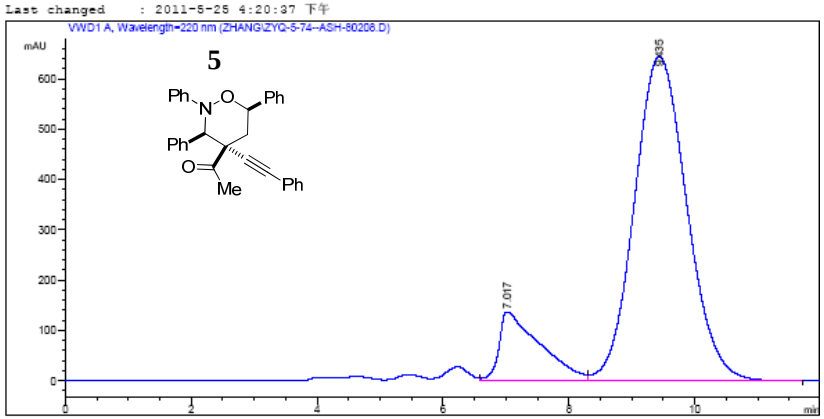
```
Acq. Operator   :
Acq. Instrument : HPLC1200LC                    Location :   -
Injection Date  : 2011-5-25 3:36:11 下午
Acq. Method     : C:\CHEM32\1\METHODS\JWHTEST.M
Last changed    : 2011-5-25 3:48:14 下午
                  (modified after loading)
Analysis Method : C:\CHEM32\1\DATA\ZHANG\ZYQ-27722-ASH-802008-25-0.D\DA.M (JWHTEST.M)
Last changed    : 2011-5-25 4:01:37 下午
```




```
                        Area Percent Report

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: VWD1 A, Wavelength=220 nm

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]  mAU   *s   [mAU   ]      %
----|-------|----|-------|----------|----------|--------|
   1   7.012 VV     0.4307 1.73013e4   548.38751  49.7609
   2   9.444 VB     0.8919 1.74675e4   303.87778  50.2391

Totals :                  3.47688e4   852.26529
```


Data File C:\CHEM32\1\DATA\ZHANG\ZYQ-5-74--ASH-80208.D
Sample Name: 0

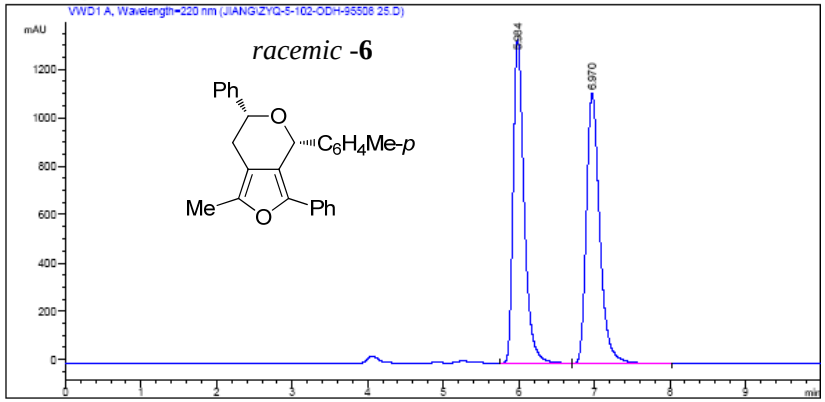
```
Acq. Operator   :
Acq. Instrument : HPLC1200LC                    Location :   -
Injection Date  : 2011-5-25 4:05:33 下午
Acq. Method     : C:\CHEM32\1\METHODS\JWHTEST.M
Last changed    : 2011-5-25 4:15:48 下午
                  (modified after loading)
Analysis Method : C:\CHEM32\1\DATA\ZHANG\ZYQ-5-74--ASH-80208.D\DA.M (JWHTEST.M)
Last changed    : 2011-5-25 4:20:37 下午
```




```
                        Area Percent Report

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: VWD1 A, Wavelength=220 nm

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]  mAU   *s   [mAU   ]      %
----|-------|----|-------|----------|----------|--------|
   1   7.017 VV     0.5677 6140.07520  136.80473  14.1529
   2   9.435 VB     0.8978 3.72439e4   645.12073  85.8471

Totals :                  4.33840e4   781.92546
```

Data File C:\CHEM32\1\DATA\JIANG\ZYQ-5-102-ODH-95508 25.D
Sample Name: 0

Acq. Operator :
Acq. Instrument : HPLC1200LC Location : -
Injection Date : 2011-3-10 11:12:16 上午
Acq. Method : C:\CHEM32\1\METHODS\JWHTEST.M
Last changed : 2011-3-10 11:21:23 上午
(modified after loading)
Analysis Method : C:\CHEM32\1\DATA\JIANG\ZYQ-5-102-ODH-95508 25.D\DA.M (JWHTEST.M)
Last changed : 2011-5-19 3:55:36 下午



Area Percent Report

Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

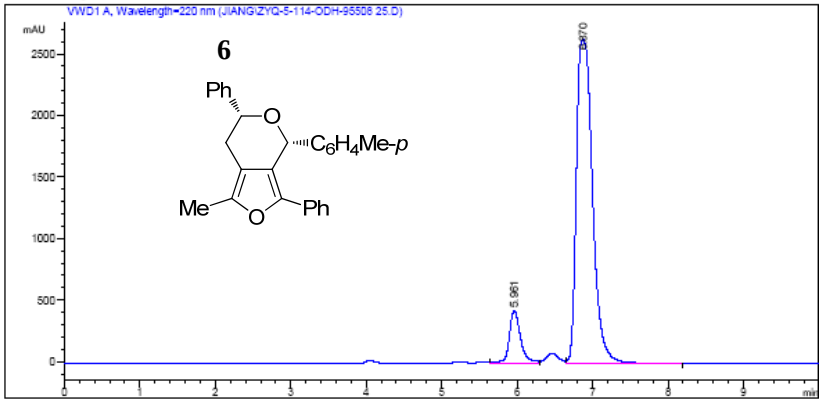
Signal 1: VWD1 A, Wavelength=220 nm

Peak #	RetTime [min]	Type	Width [min]	Area mAU *s	Height [mAU]	Area %
1	5.984	VV	0.1543	1.35504e4	1341.03833	49.7252
2	6.970	VB	0.1882	1.37002e4	1117.53821	50.2748

Totals : 2.72506e4 2458.57654

Data File C:\CHEM32\1\DATA\JIANG\ZYQ-5-114-ODH-95508 25.D
Sample Name: 0

Acq. Operator :
Acq. Instrument : HPLC1200LC Location : -
Injection Date : 2011-3-10 11:22:59 上午
Acq. Method : C:\CHEM32\1\METHODS\JWHTEST.M
Last changed : 2011-3-10 11:22:33 上午
(modified after loading)
Analysis Method : C:\CHEM32\1\DATA\JIANG\ZYQ-5-114-ODH-95508 25.D\DA.M (JWHTEST.M)
Last changed : 2011-5-19 3:53:24 下午



Area Percent Report

Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

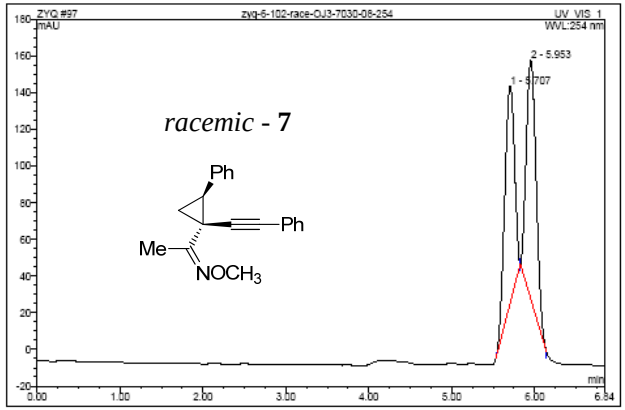
Signal 1: VWD1 A, Wavelength=220 nm

Peak #	RetTime [min]	Type	Width [min]	Area mAU *s	Height [mAU]	Area %
1	5.961	VV	0.1571	4597.64941	434.08902	10.5155
2	6.870	VB	0.2330	3.91251e4	2634.54517	89.4845

Totals : 4.37227e4 3068.63419

97 zyq-6-102-race-OJ3-7030-08-254

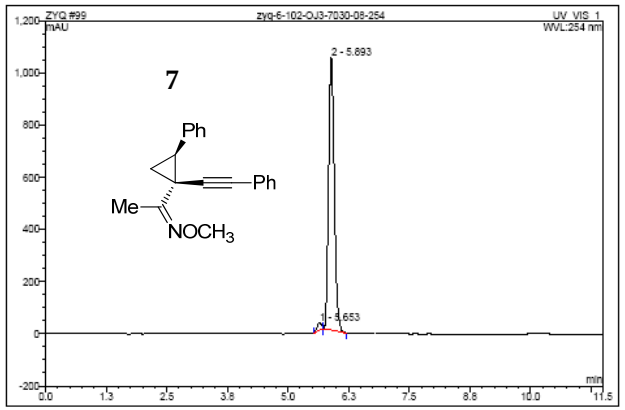
样品名:	zyq-6-102-race-OJ3-7030-08-254	进样量:	20.0
瓶序号:	91	通道:	UV_VIS_1
样品类型:	unknown	波长:	254
控制程序:	程序文件-公用-08	带宽:	n.a.
定量方法:	方法-公用	稀释因子:	1.0000
记录时间:	2011-10-15 14:37	样品重量:	1.0000
运行时间 (min):	6.84	样品量:	1.0000



序号	保留时间 min	峰名称	峰高 mAU	峰面积 mAU*min	相对峰面积 %	样品量	类型
1	5.71	n.a.	118.194	16.141	47.50	n.a.	BMb
2	5.95	n.a.	130.686	17.840	52.50	n.a.	bMB
总和:			248.880	33.981	100.00	0.000	

99 zyq-6-102-OJ3-7030-08-254

样品名:	zyq-6-102-OJ3-7030-08-254	进样量:	20.0
瓶序号:	93	通道:	UV_VIS_1
样品类型:	unknown	波长:	254
控制程序:	程序文件-公用-08	带宽:	n.a.
定量方法:	方法-公用	稀释因子:	1.0000
记录时间:	2011-10-15 14:56	样品重量:	1.0000
运行时间 (min):	11.49	样品量:	1.0000



序号	保留时间 min	峰名称	峰高 mAU	峰面积 mAU*min	相对峰面积 %	样品量	类型
1	5.65	n.a.	27.641	2.888	1.99	n.a.	BMb
2	5.89	n.a.	1047.626	141.998	98.01	n.a.	bMB
总和:			1075.267	144.886	100.00	0.000	