Dehydrogenative Cross-Coupling Reaction Between *N*-Aryl α-Amino Acid Esters and Phenols or Phenol Derivative for Synthesis of α-Aryl α-Amino acid Esters

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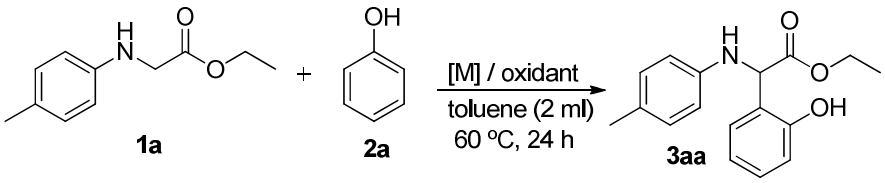
1. General Information

Unless otherwise indicated, all reagents were purchased from commercial distributors and used without further purification. ^{1}H NMR and ^{13}C NMR spectra were recorded at 400 MHz and 100 MHz respectively, using tetramethylsilane as an internal reference. Mass spectra were obtained on an HRMS-EI instrument. Melting points were determine by digital melting point apparatus and uncorrected. Flash column chromatography was performed over silica gel 200-300 mesh. *N*-aryl glycine esters **1** were prepared according to reported protocols.[1]

2. Optimization of Reaction Conditions

Table S1. Screening of Metal Catalysts and Oxidants [a]

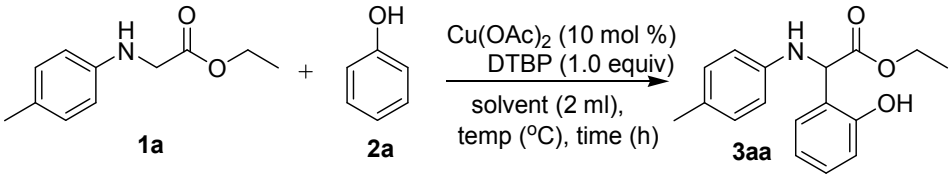


entry	M (10 mol %)	oxidant	yield (%)[b]
1	CuBr	O_2 (1 atm)	26
2	CuC l	O_2 (1 atm)	17
3	CuI	O_2 (1 atm)	22
4	CuOAc	O_2 (1 atm)	13
5	$CuSO_4$	O_2 (1 atm)	37
6	CuO_2	O_2 (1 atm)	34
7	$Cu(OTf)_2$	O_2 (1 atm)	5
8	$CuBr_2$	O_2 (1 atm)	15
9	$CuCl_2$	O_2 (1 atm)	12
10	$Cu(OAc)_2$	O_2 (1 atm)	45
11	$Cu(acac)_2$	O_2 (1 atm)	31
12	$FeCl_3$	O_2 (1 atm)	NP
13	$Fe(acac)_3$	O_2 (1 atm)	NP
14	$Sc(OTf)_3$	O_2 (1 atm)	NP
15	$Mn(OAc)_2$	O_2 (1 atm)	trace
16	$Co(OAc)_2$	O_2 (1 atm)	11
17	$CoCl_2$	O_2 (1 atm)	8

18	$Pd(OAc)_2$	O_2 (1 atm)	NP
19	-	O_2 (1 atm)	trace
20	$Cu(OAc)_2$	TBHP (1.0 equiv)	30
21	$Cu(OAc)_2$	$K_2S_2O_8$ (1.0 equiv)	21
22	$Cu(OAc)_2$	DDQ (1.0 equiv)	trace
23	$Cu(OAc)_2$	DTBP (1.0 equiv)	49
24	$Cu(OAc)_2$	BPO (1.0 equiv)	10
25	$Cu(OAc)_2$	DCP (1.0 equiv)	15
26	$Cu(OAc)_2$	TBPB (1.0 equiv)	40
27	$Cu(OAc)_2$	*m*CPBA (1.0 equiv)	NP
28	$Cu(OAc)_2$	Air	18

[a] Reaction conditions: **1a** (0.25 mmol), **2a** (0.5 mmol) and solvent (2 mL). [b] Isolated yields

Table S2. Screening of Solvents, Temperatures, Times, etc. [a]



entry	solvent (2 ml)	time (h)	temperature (°C)	yield (%)[b]
1	toluene	24	60	49
2	MeCN	24	60	18
3	EtOH	24	60	13
4	DMSO	24	60	NP
5	THF	24	60	NP
6	DCM	24	60	30
7	DCE	24	60	56
8	xylene	24	60	25
9	DCE	24	80	28
10	DCE	24	40	39
11	DCE	6	60	17
12	DCE	12	60	40
13	DCE	18	60	64
14[c]	DCE	18	60	42
15[d]	DCE	18	60	31
16[e]	DCE	18	60	30

17[f]	DCE	18	60	44
18[g]	DCE	18	60	25
19[h]	DCE	18	60	53

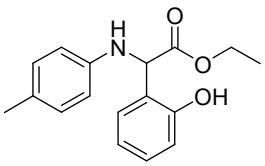
[a] Reaction conditions: **1a** (0.25 mmol), **2a** (0.5 mmol), and solvent (2 mL) [b] Isolated yields. [c] 5 mol % $Cu(OAc)_2$ [d] 15 mol % $Cu(OAc)_2$, [e] 0.5 equiv DTBP.[f] 2.0 equiv DTBP. [g] 1.0 equiv phenol [h] 3.0 equiv phenol

3. Experimental Procedure

General procedure for the DCC reaction between glycine ester derivatives 1 and Phenols 2 or 1, 3, 5-trimethxoybenzene 4: To a mixture of $Cu(OAc)_2$ (4.5 mg, 0.025 mmol 10 mol %), *N*-glycine esters **1** (0.25 mmol) and phenols **2** (0.5 mmol) or 1, 3, 5-trimethoxybenzene **4** (84 mg, 0.5 mmol) in dichloroethane (2 mL) was added DTBP (36.5 mg, 0.25 mmol, 1.0 equiv)**.** The reaction mixtures was stirred for 18 h at 60 ^{o}C. After the reaction was finished, the resulting mixtures was concentrated under vacuum and the residue was purified by column chromatography (silica gel, petroleum ether/ethyl acetate as an eluent) to afford the desired α-aryl α-amino acid esters **3** or **5**.

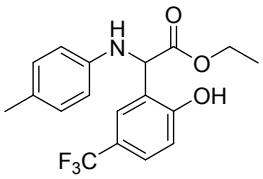
4. Characterization of DCC Products

Ethyl 2-(4-tolylamino)-2-(2-hydroxyphenyl)acetate **3aa**



Yellow oil (45.8 mg, 64% yield); Rf = 0.5 (ethyl acetate:petroleum ether 2:5), ^{1}H NMR (400 MHz, $CDCl_3$), δ (ppm): 8.77 (br, *OH*, 1H), 7.17-7.12 (m, 2H), 6.91 (d, J = 8.4 Hz, 2H), 6.82 (t, J = 7.8 Hz, 1H), 6.78 (d, J = 8.4 Hz, 1H), 6.60 (d, J = 8.4 Hz, 2H), 4.97 (s, 1H), 4.74 (s, 1H), 4.23-4.09 (m, 2H), 2.15 (s, 3H), 1.14 (t, J = 7.0 Hz, 3H); ^{13}C NMR (100 MHz, $CDCl_3$), δ (ppm): 171.4, 156.4, 143.0, 130.3, 129.8, 129.7, 129.2, 121.3, 120.3, 117.6, 116.0, 62.3, 61.8, 20.5, 14.0; HR-MS (EI-TOF) (M^+) calculated for $C_{17}H_{19}NO_3$, 285.1365, found 285.1370.

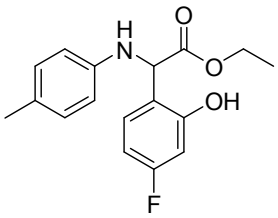
Ethyl 2-(4-tolylamino)-2-(2-hydroxy-5-(trifluoromethyl)phenyl)acetate **3ab**



Yellow oil (50.6 mg, 57% yield); Rf = 0.5 (ethyl acetate:petroleum ether 2:5), ^{1}H NMR (400 MHz, $CDCl_3$), δ (ppm): 7.46 (d, J = 1.6 Hz, 1H), 7.40 (dd, J_1 = 8.6 Hz, J_2 = 1.8 Hz, 1H), 6.94 (d, J = 8.0 Hz, 2H), 6.84 (d, J = 8.8 Hz, 1H), 6.61 (d, J = 8.4 Hz, 2H), 4.95 (s, 1H), 4.22-4.12 (m, 2H), 2.17 (s, 3H), 1.14 (t, J = 7.2 Hz, 3H); ^{13}C NMR (100 MHz, $CDCl_3$), δ (ppm): 170.5, 159.6, 142.4, 131.3, 130.0, 127.0-126.7 (m, coupled by flourine, 2C), 124.3 (q, $^{1}J_{C\text{-}F}$ = 269.5 Hz, CF_3), 122.3 (q, $^{2}J_{C\text{-}F}$ = 32.6 Hz), 121.1, 117.9, 116.4, 62.8, 62.3, 20.5, 13.9; ^{19}F

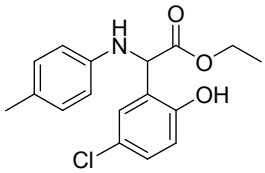
NMR (376 MHz, $CDCl_3$) δ (ppm): -61.42 (s, 3F); HR-MS (EI-TOF) (M^+) calculated for $C_{18}H_{18}NO_3F_3$, 353.1239, found 353.1234.

Ethyl 2-(4-tolylamino)-2-(4-fluoro-2-hydroxyphenyl)acetate **3ac**



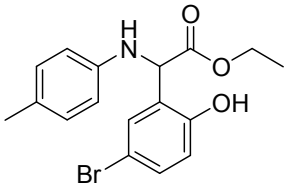
Reddish brown oil (50.3 mg, 66% yield); Rf = 0.6 (ethyl acetate :Petroleum ether 2:5), ^{1}H NMR (400 MHz, $CDCl_3$), δ (ppm): 9.33 (br, *OH*, 1H), 7.20-7.17 (m, 1H), 6.99 (d, J = 8.0 Hz, 2H), 6.67 (d, J = 8.4 Hz, 2H), 6.63-6.54 (m, 2H), 4.99 (s, 1H), 4.28-4.17 (m, 2H), 2.23 (s, 3H), 1.22 (t, J = 7.2 Hz, 3H); ^{13}C NMR (100 MHz, $CDCl_3$), δ (ppm): 171.2, 163.3 (d, $^1J_{C\text{-}F}$ = 244 Hz), 158.0 (d, $^3J_{C\text{-}F}$ = 12.3 Hz, *OH*), 142.7, 130.8, 130.4, (d, $^3J_{C\text{-}F}$ = 10.3 Hz), 129.9, 117.1 (d, $^4J_{C\text{-}F}$ = 3.2 Hz), 116.2, 107.2 (d, $^2J_{C\text{-}F}$ = 21.8 Hz), 104.9 (d, $^2J_{C\text{-}F}$ = 24.1 Hz), 62.5, 61.6, 20.5, 14.0; ^{19}F NMR (376 MHz, $CDCl_3$) δ (ppm): -112.03 (s, F); HR-MS (EI-TOF) (M^+) calculated for $C_{17}H_{18}NO_3F$, 303.1271, found 303.1270.

Ethyl 2-(4-tolylamino)-2-(5-chloro-2-hydroxyphenyl)acetate **3ad**



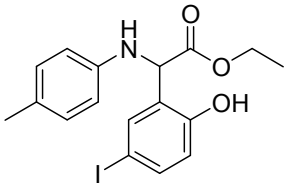
Yellow oil (49.1 mg, 61% yield); Rf = 0.6 (ethyl acetate:petroleum ether 2:5), ^{1}H NMR (400 MHz, $CDCl_3$), δ (ppm): 7.24 (d, J = 2.4 Hz, 1H), 7.16 (dd, J_1 = 8.8 Hz, J_2 = 2.4 Hz, 1H), 7.00 (d, J = 8.0 Hz, 2H), 6.78 (d, J = 8.4 Hz, 1H), 6.66 (d, J = 8.4 Hz, 2H), 4.95 (s, 1H), 4.30-4.18 (m, 2H), 2.24 (s, 3H), 1.24 (t, J = 7.0 Hz, 3H); ^{13}C NMR (100 MHz, $CDCl_3$), δ (ppm): 170.7, 155.2, 142.6, 130.8, 129.9, 129.6, 128.9, 124.8, 122.7, 118.9, 116.1, 62.7, 61.7, 20.5, 14.0; HR-MS (EI-TOF) (M^+) calculated for $C_{17}H_{18}NO_3Cl$, 319.0975, found 319.0970.

Ethyl 2-(4-tolylamino)-2-(5-bromo-2-hydroxyphenyl)acetate **3ae**



Brown oil (58.3 mg, 64% yield); Rf = 0.5 (ethyl acetate:petroleum ether 2:5), ^{1}H NMR (400 MHz, $CDCl_3$), δ (ppm): 7.38 (d, J = 2.4 Hz, 1H), 7.30 (dd, J_1 = 8.8 Hz, J_2 = 2.4 Hz, 1H), 7.00 (d, J = 8.0 Hz, 2H), 6.73 (d, J = 8.8 Hz, 1H), 6.66 (d, J = 8.4 Hz, 2H), 4.95 (s, 1H), 4.29-4.18 (m, 2H), 2.24 (s, 3H), 1.24 (t, J = 7.2 Hz, 3H); ^{13}C NMR (100 MHz, $CDCl_3$), δ (ppm): 170.7, 155.7, 142.6, 132.5, 131.8, 130.8, 129.9, 123.2, 119.4, 116.1, 111.9, 62.7, 61.6, 20.5, 14.0; HR-MS (EI-TOF) (M^+) calculated for $C_{17}H_{18}NO_3Br$, 363.0470, found 363.0465.

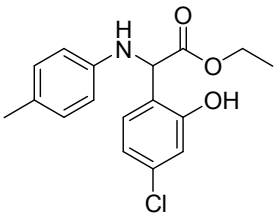
Ethyl 2-(4-tolylamino)-2-(2-hydroxy-5-iodophenyl)acetate **3af**



Brown oil (69.1 mg, 67% yield); Rf = 0.5 (ethyl acetate:petroleum ether 2:5), ^{1}H NMR (400 MHz, $CDCl_3$), δ (ppm): 7.55 (d, J = 2.0 Hz, 1H), 7.48 (dd, J_1 = 8.4 Hz, J_2 = 2.0 Hz, 1H), 7.01 (d, J = 8.0 Hz, 2H), 6.66 (d,

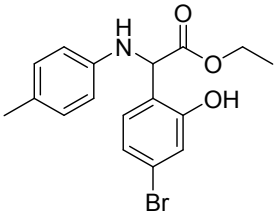
J = 8.4 Hz, 2H), 6.62 (d, J = 8.4 Hz, 1H), 4.92 (s, 1H), 4.30-4.19 (m, 2H), 2.24 (s, 3H), 1.23 (t, J = 7.0 Hz, 3H); ^{13}C NMR (100 MHz, $CDCl_3$), δ (ppm): 170.7, 156.5, 142.6, 138.4, 137.7, 130.9, 129.9, 123.7, 119.9, 116.2, 81.6, 62.7, 61.5, 20.5, 14.0; HR-MS (EI-TOF) (M^+) calculated for $C_{17}H_{18}NO_3I$, 411.0331, found 411.0338.

Ethyl 2-(4-tolylamino)-2-(4-chloro-2-hydroxyphenyl)acetate **3ag**



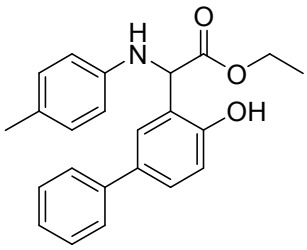
Yellow oil (56.4 mg, 70% yield); Rf = 0.6 (ethyl acetate:petroleum ether 2:5), ^{1}H NMR (400 MHz, $CDCl_3$), δ (ppm): 9.29 (br, *OH*, 1H), 7.17 (d, J = 8.0 Hz, 1H), 6.99 (d, J = 8.0 Hz , 2H), 6.89-6.85 (m, 2H), 6.66 (d, J = 8.4 Hz, 2H), 4.97 (s, 1H), 4.28-4.17 (m, 2H), 2.23 (s, 3H), 1.21 (t, J = 7.2 Hz, 3H); ^{13}C NMR (100 MHz, $CDCl_3$), δ (ppm): 170.8, 157.4, 142.6, 135.1, 130.9, 130.3, 129.9, 120.4, 119.8, 117.8, 116.2, 62.6, 61.8, 20.5, 14.0; HR-MS (EI-TOF) (M^+) calculated for $C_{17}H_{18}NO_3Cl$, 319.0975, found 319.0979.

Ethyl 2-(4-tolylamino)-2-(4-bromo-2-hydroxyphenyl)acetate **3ah**



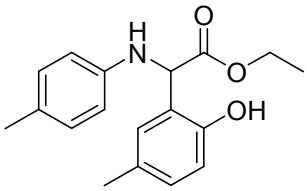
Brown oil (66.9 mg, 73% yield); Rf = 0.5 (ethyl acetate:petroleum ether 2:5), ^{1}H NMR (400 MHz, $CDCl_3$), δ (ppm): 7.11 (d, J = 8.8 Hz, 1H), 7.03 (dd, J_1 = 6.8 Hz, J_2 = 2.0 Hz, 2H), 6.99 (d, J = 8.0 Hz, 2H), 6.66 (d, J = 8.4 Hz, 2H), 4.95 (s, 1H), 4.29-4.17 (m, 2H), 2.23 (s, 3H), 1.23 (t, J = 7.0 Hz, 3H); ^{13}C NMR (100 MHz, $CDCl_3$), δ (ppm): 170.7, 157.4, 142.5, 130.9, 130.6, 129.9, 123.3, 123.0, 120.8, 120.2, 116.3, 62.6, 61.9, 20.5, 14.0; HR-MS (EI-TOF) (M^+) calculated for $C_{17}H_{18}NO_3Br$, 363.0470, found 363.0467.

Ethyl 2-(4-tolylamino)-2-[2-hydroxy-(5-phenyl)-phenyl]acetate **3ai**



Yellow oil (54.8 mg, 60% yield); Rf = 0.6 (ethyl acetate:petroleum ether 2:5), ^{1}H NMR (400 MHz, $CDCl_3$), δ (ppm): 8.99 (br, *OH*, 1H), 7.56-7.54 (m, 2H), 7.49 (d, J = 2.0 Hz, 1H), 7.46 (dd, J_1 = 8.4 Hz, J_2 = 2.4 Hz, 1H), 7.41 (d, J = 7.6 Hz, 2H), 7.30 (t, J = 7.4 Hz, 1H), 6.99 (d, J = 8.4 Hz, 2H), 6.93 (d, J = 8.4 Hz, 1H), 6.70 (d, J = 8.4 Hz, 2H), 5.09 (s, 1H), 4.31-4.18 (m, 2H), 2.23 (s, 3H), 1.22 (t, J = 7.2 Hz, 3H); ^{13}C NMR (100 MHz, $CDCl_3$), δ (ppm): 171.3, 156.0, 142.9, 140.6, 133.4, 130.5, 129.9, 128.7, 128.4, 127.9, 126.7, 126.6, 121.4, 118.0, 116.1, 62.5, 62.2, 20.5, 14.0; HR-MS (EI-TOF) (M^+) calculated for $C_{23}H_{23}NO_3$, 361.1678, found 361.1680.

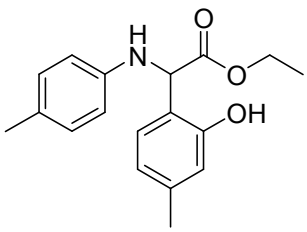
Ethyl 2-(4-tolylamino)-2-(2-hydroxy-5-methylphenyl)acetate **3aj**



Yellow oil (50.4 mg, 67% yield); Rf = 0.5 (ethyl acetate:petroleum ether 2:5), ^{1}H NMR (400 MHz, $CDCl_3$), δ (ppm):, 7.02 (s, 1H), 7.00-6.97 (m, 3H), 6.76 (d, J = 8.0 Hz, 1H), 6.66 (d, J = 8.4 Hz, 2H), 5.00

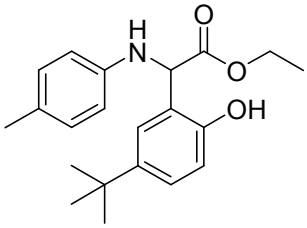
(s, 1H), 4.29-4.16 (m, 2H), 2.28 (s, 3H), 2.23 (s, 3H), 1.24 (t, J = 7.2 Hz, 3H); ^{13}C NMR (100 MHz, $CDCl_3$), δ (ppm): 171.6, 153.9, 143.1, 130.3, 130.1, 129.8, 129.5, 129.5, 121.2, 117.3, 115.8, 62.3, 61.6, 20.5, 14.0; HR-MS (EI-TOF) (M^+) calculated for $C_{18}H_{21}NO_3$, 299.1521, found 299.1530.

Ethyl 2-(4-tolylamino)-2-(2-hydroxy-4-methylphenyl)acetate **3ak**



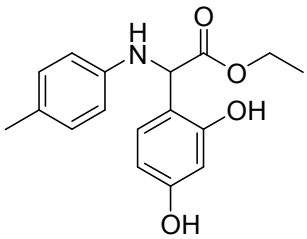
Yellow oil (55.5 mg, 74% yield); Rf = 0.5 (ethyl acetate:petroleum ether 2:5), ^{1}H NMR (400 MHz, $CDCl_3$), δ (ppm): 7.11 (d, J = 8.0 Hz, 1H), 6.97 (d, J = 8.0 Hz, 2H), 6.70 (d, J = 8.0 Hz, 2H), 6.66 (d, J = 8.4 Hz, 2H), 5.01 (s, 1H), 4.28-4.14 (m, 2H), 2.28 (s, 3H), 2.22 (s, 3H), 1.22 (t, J = 7.2 Hz, 3H); ^{13}C NMR (100 MHz, $CDCl_3$), δ (ppm): 171.6, 156.2, 143.1, 140.0, 130.2, 129.8, 129.0, 121.1, 118.3, 118.1, 115.9, 62.3, 61.6, 21.1, 20.5, 14.0; HR-MS (EI-TOF) (M^+) calculated for $C_{18}H_{21}NO_3$, 299.1521, found 299.1518.

Ethyl 2-(4-tolylamino)-2-(5-tert-butyl-2-hydroxyphenyl)acetate **3al**



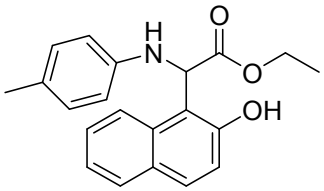
Yellow oil (56.8 mg, 66% yield); Rf = 0.6 (ethyl acetate:petroleum ether 2:5), ^{1}H NMR (400 MHz, $CDCl_3$), δ (ppm): 7.24-7.21 (m, 2H), 7.00 (d, J = 8.0 Hz, 2H), 6.80 (d, J = 8.4 Hz, 1H), 6.68 (d, J = 8.4 Hz, 2H), 5.04 (s, 1H), 4.27-4.18 (m, 2H), 2.23 (s, 3H), 1.29 (s, 9H), 1.22 (t, J = 7.0 Hz, 3H); ^{13}C NMR (100 MHz, $CDCl_3$), δ (ppm): 171.7, 154.0, 143.2, 142.9, 130.2, 129.8, 126.6, 126.0, 120.4, 117.0, 115.9, 62.2 (2C), 34.1, 31.5, 20.5, 14.0; HR-MS (EI-TOF) (M^+) calculated for $C_{21}H_{27}NO_3$, 341.1991, found 341.1991.

Ethyl 2-(4-tolylamino)-2-(2,4-dihydroxyphenyl)acetate **3am**



Pale yellow oil (56.8 mg, 75% yield); Rf = 0.6 (ethyl acetate:petroleum ether 1:1), ^{1}H NMR (400 MHz, $CDCl_3$), δ (ppm): 9.00 (br, *OH*, 1H), 7.00 (d, J = 8.4 Hz, 1H), 6.92 (d, J = 8.0 Hz, 2H), 6.61 (d, J = 8.0 Hz, 2H), 6.31 (d, J = 8.4 Hz, 1H), 6.27 (s, 1H), 5.03 (br, *OH,* 1H), 4.89 (s, 1H), 4.71 (br, *NH*, 1H), 4.21-4.09 (m, 2H), 2.16 (s, 3H), 1.15 (t, J = 7.2 Hz, 3H); ^{13}C NMR (100 MHz, $CDCl_3$), δ (ppm): 171.7, 157.6, 157.0, 143.0, 130.4, 130.3, 129.8, 116.1, 113.6, 107.6, 104.4, 62.3, 61.6, 20.5, 14.0; HR-MS (EI-TOF) (M^+) calculated for $C_{17}H_{19}NO_4$, 301.1314, found 301.1319.

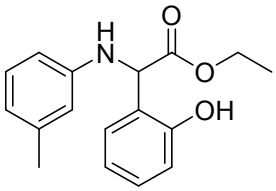
Ethyl 2-(4-tolylamino)-2-(2-hydroxynaphthalen-1-yl)acetate **3an**



Brown oil (48.9 mg, 58% yield); Rf = 0.5 (ethyl acetate:petroleum ether 2:5), ^{1}H NMR (400 MHz, $CDCl_3$), δ (ppm): 10.28 (br, *OH*, 1H),

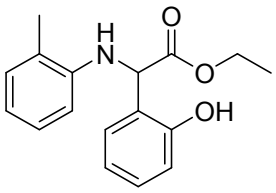
8.09 (d, J = 8.4 Hz, 1H), 7.80 (d, J = 7.6 Hz, 1H), 7.72 (d, J = 8.8 Hz, 1H), 7.56-7.51 (m, 1H), 7.37 (t, J = 7.4 Hz, 1H), 7.05 (d, J = 8.8 Hz, 1H), 6.91 (d, J = 8.0 Hz, 2H), 6.61 (d, J = 8.4 Hz, 2H), 5.82 (s, 1H), 5.10 (br, *NH*, 1H), 4.26-4.05 (m, 2H), 2.18 (s, 3H), 1.07 (t, J = 7.2 Hz, 3H); ^{13}C NMR (100 MHz, $CDCl_3$), δ (ppm): 171.3, 155.9, 142.9, 132.4, 130.8, 130.6, 129.9, 129.2, 129.0, 126.8, 122.9, 121.9, 119.8, 116.2, 111.4, 62.4, 57.5, 20.4, 13.9; HR-MS (EI-TOF) (M^+) calculated for $C_{21}H_{21}NO_3$, 335.1521, found 335.1527.

Ethyl 2-(3-tolylamino)-2-(2-hydroxyphenyl)acetate **3ba**



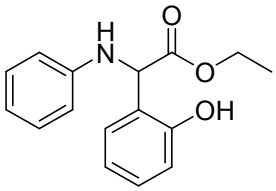
Yellow oil (42.9 mg, 60% yield); Rf = 0.6 (ethyl acetate:petroleum ether 2:5), ^{1}H NMR (400 MHz, $CDCl_3$), δ (ppm): 7.27-7.20 (m, 2H), 7.06 (t, J = 7.8 Hz, 1H), 6.93-6.86 (m, 2H), 6.69 (d, J = 7.6 Hz, 1H), 6.59 (s, 1H), 6.54 (dd, J_1 = 8.0 Hz, J_2 = 2.4 Hz, 1H), 5.08 (s, 1H), 4.32-4.15 (m, 2H), 2.25 (s, 3H), 1.22 (t, J = 7.2 Hz, 3H); ^{13}C NMR (100 MHz, $CDCl_3$), δ (ppm): 171.5, 156.2, 145.5, 139.2, 129.8, 129.3, 129.2, 121.6, 120.4, 117.6, 116.6, 115.6, 112.61, 62.4, 61.3, 21.5, 14.0; HR-MS (EI-TOF) (M^+) calculated for $C_{17}H_{19}NO_3$, 285.1365, found 285.1367.

Ethyl 2-(2-tolylamino)-2-(2-hydroxyphenyl)acetate **3ca**



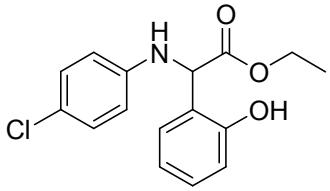
Brown oil (45.0 mg, 63% yield); Rf = 0.6 (ethyl acetate:petroleum ether 2:5), ^{1}H NMR (400 MHz, $CDCl_3$), δ (ppm): 7.28 (d, J = 7.6 Hz, 1H), 7.22-7.20 (m, 1H), 7.10 (d, J = 7.2 Hz, 1H), 7.02 (t, J = 7.6 Hz, 1H), 6.90 (t, J = 7.4 Hz, 1H), 6.87 (d, J = 8.4 Hz, 1H), 6.78 (t, J = 7.4 Hz, 1H), 6.61 (d, J = 8.0 Hz, 1H), 5.13 (s, 1H), 4.30-4.18 (m, 2H), 2.29 (s, 3H), 1.22 (t, J = 7.2 Hz, 3H); ^{13}C NMR (100 MHz, $CDCl_3$), δ (ppm): 171.7, 156.2, 143.6, 130.5, 129.8, 129.3, 127.1, 124.7, 121.5, 120.5, 120.3, 117.7, 113.0, 62.5, 61.0, 17.5, 14.0; HR-MS (EI-TOF) (M^+) calculated for $C_{17}H_{19}NO_3$, 285.1365, found 285.1365.

Ethyl 2-(2-hydroxyphenyl)-2-(phenylamino)acetate **3da**[2]



Yellow oil (42.3 mg, 62% yield); Rf = 0.5 (ethyl acetate:petroleum ether 2:5), ^{1}H NMR (400 MHz, $CDCl_3$), δ (ppm): 7.28-7.15 (m, 4H), 6.93-6.84 (m, 3H), 6.76-6.73 (m, 2H), 5.09 (s, 1H), 4.31-4.15 (m, 2H), 1.22 (t, J = 7.2 Hz, 3H); ^{13}C NMR (100 MHz, $CDCl_3$), δ (ppm): 171.5, 156.1, 145.5, 129.8, 129.3, 129.3, 121.5, 120.7, 120.5, 117.6, 115.6, 62.4, 61.2, 14.0; HR-MS (EI-TOF) (M^+) calculated for $C_{16}H_{17}NO_3$, 271.1208, found 271.1206.

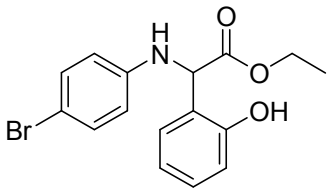
Ethyl 2-(4-chlorophenylamino)-2-(2-hydroxyphenyl)acetate **3ea**



Yellow oil (40.8 mg, 53% yield); Rf = 0.6 (ethyl acetate:petroleum ether 2:5), ^{1}H NMR (400 MHz, $CDCl_3$), δ (ppm): 8.03 (br, *OH*, 1H),

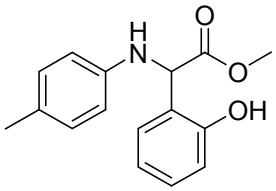
7.26-7.20 (m, 2H), 7.13-7.09 (m, 2H), 6.91 (td, J_1 = 7.4 Hz, J_2 = 1.2 Hz, 1H), 6.87 (dd, J_1 = 8.0 Hz, J_2 = 1.2 Hz, 1H), 6.66-6.62 (m, 2H), 5.07 (s, 1H), 4.29-4.18 (m, 2H), 1.23 (t, J = 7.2 Hz, 3H); ^{13}C NMR (100 MHz, $CDCl_3$), δ (ppm): 171.4, 155.7, 144.0, 130.0, 129.2, 129.2, 125.3, 121.3, 120.7, 117.7, 116.5, 62.6, 60.6, 14.0; HR-MS (EI-TOF) (M^+) calculated for $C_{16}H_{16}NO_3Cl$, 305.0819, found 305.0818.

Ethyl 2-(4-bromophenylamino)-2-(2-hydroxyphenyl)acetate **3fa**



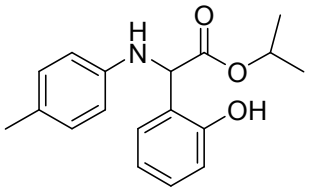
Yellow oil (50.2 mg, 57% yield); Rf = 0.5 (ethyl acetate:petroleum ether 2:5), ^{1}H NMR (400 MHz, $CDCl_3$), δ (ppm): 7.27-7.20 (m, 4H), 6.91 (td, J_1 = 7.4 Hz, J_2 = 1.2 Hz, 1H), 6.87 (dd, J_1 = 8.0 Hz, J_2 = 1.2 Hz, 1H), 6.61-6.57 (m, 2H), 5.07 (s, 1H), 4.31-4.15 (m, 2H), 1.22 (t, J = 7.0 Hz, 3H); ^{13}C NMR (100 MHz, $CDCl_3$), δ (ppm): 171.4, 155.6, 144.6, 132.1, 129.9, 129.1, 121.4, 120.8, 117.6, 116.8, 112.3, 62.6, 60.2, 14.0; HR-MS (EI-TOF) (M^+) calculated for $C_{16}H_{16}NO_3Br$, 349.0314, found 349.0311.

Methyl 2-(4-tolylamino)-2-(2-hydroxyphenyl)acetate **3ga**



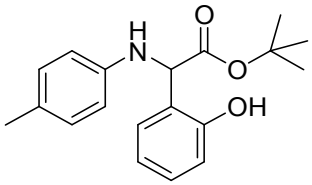
Yellow oil (49.0 mg, 72% yield); Rf = 0.5 (ethyl acetate:petroleum ether 2:5). ^{1}H NMR (400 MHz, $CDCl_3$), δ (ppm): 7.24-7.19 (m, 2H), 6.97 (d, J = 8.0 Hz, 2H), 6.89 (td, J_1 = 7.4 Hz, J_2 = 0.8 Hz, 1H), 6.85 (d, J = 8.0 Hz, 1H), 6.66 (d, J = 8.4 Hz, 2H), 5.06 (s, 1H), 3.75 (s, 3H), 2.22 (s, 3H); ^{13}C NMR (100 MHz, $CDCl_3$), δ (ppm): 171.9, 156.4, 143.0, 130.4, 129.9, 129.8, 129.3, 121.3, 120.3, 117.6, 116.0, 61.6, 53.2, 20.5; HR-MS (EI-TOF) (M^+) calculated for $C_{16}H_{17}NO_3$, 271.1208, found 271.1212.

Isopropyl 2-(4-tolylamino)-2-(2-hydroxyphenyl)acetate **3ha**



Yellow oil (46.9 mg, 62% yield); Rf = 0.5 (ethyl acetate:petroleum ether 1.5:5)^{1}H NMR (400 MHz, $CDCl_3$), δ (ppm): 7.23-7.17 (m, 2H), 6.97 (d, J = 8.4 Hz, 2H), 6.90-6.84 (m, 2H), 6.66 (d, J = 8.4 Hz, 2H), 5.10-5.03 (m, 1H), 5.02 (s, 1H), 2.24 (s, 3H), 1.25 (d, J = 6.4 Hz, 3H), 1.11 (d, J = 6.0 Hz, 3H);^{13}C NMR (100 MHz, $CDCl_3$), δ (ppm): 170.9, 156.4, 143.1, 130.2, 129.8, 129.7, 129.1, 121.4, 120.2, 117.5, 115.9, 70.3, 61.9, 21.7, 21.4, 20.5; HR-MS (EI-TOF) (M^+) calculated for $C_{18}H_{21}NO_3$, 299.1521, found 299.1518.

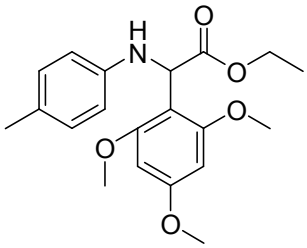
Tert-butyl 2-(4-tolylamino)-2-(2-hydroxyphenyl)acetate **3ia**



Red oil (46.2 mg, 59% yield); Rf = 0.6 (ethyl acetate:petroleum ether 1.5:5), ^{1}H NMR (400 MHz, $CDCl_3$), δ (ppm): 7.24-7.18 (m, 2H), 6.98 (d, J = 8.0 Hz, 2H), 6.90-6.85 (m, 2H), 6.68-6.65 (m, 2H), 4.94 (s, 1H), 2.23 (s, 3H), 1.40 (s, 9H);^{13}C NMR (100 MHz, $CDCl_3$), δ (ppm):

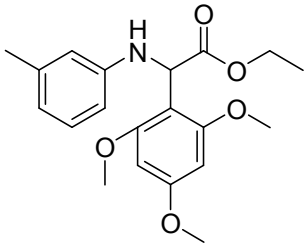
170.4, 156.4, 143.1, 130.1, 129.8, 129.5, 129.1, 121.8, 120.1, 117.4, 115.9, 80.3, 62.3, 27.8, 20.5; HR-MS (EI-TOF) (M^+) calculated for $C_{19}H_{23}NO_3$, 313.1678, found 313.1680.

Ethyl 2-(4-tolylamino)-2-(2,4,6-trimethoxyphenyl)acetate **5a**



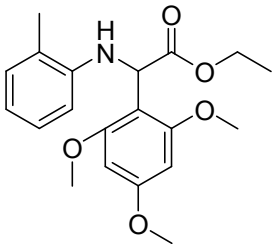
White solid (77.5 mg, 86% yield); mp.: 105-106 °C; Rf = 0.5 (ethyl acetate:petroleum ether 2:5). ^{1}H NMR (400 MHz, $CDCl_3$), δ (ppm): 6.92 (d, J = 8.4 Hz, 2H), 6.65 (d, J = 8.4 Hz, 2H), 6.10 (s, 2H), 5.63 (s, 1H), 4.78 (br, *NH*, 1H), 4.19-4.09 (m, 2H), 3.82 (s, 6H), 3.77 (s, 3H), 2.19 (s, 3H), 1.15 (t, J = 7.2 Hz, 3H); ^{13}C NMR (100 MHz, $CDCl_3$), δ (ppm): 173.0, 160.9, 158.7, 145.1, 129.5, 126.8, 114.0, 108.8, 91.0, 60.9, 55.8, 55.3, 51.4, 20.4, 14.2; HR-MS (EI-TOF) (M^+) calculated for $C_{20}H_{25}NO_5$, 359.1733, found 359.1733.

Ethyl 2-(3-tolylamino)-2-(2,4,6-trimethoxyphenyl)acetate **5b**



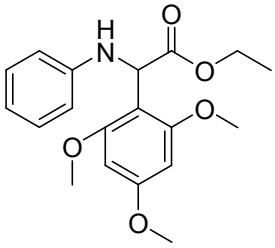
White solid (71.9 mg, 80% yield); mp.: 104-105 °C; Rf = 0.5 (ethyl acetate:petroleum ether 2:5). ^{1}H NMR (400 MHz, $CDCl_3$), δ (ppm): 6.99 (t, J = 7.8 Hz, 1H), 6.56-6.533 (m, 2H), 6.48 (d, J = 7.6 Hz, 1H), 6.10 (s, 2H), 5.65 (s, 1H), 4.85 (br, *NH*, 1H), 4.19-4.11 (m, 2H), 3.83 (s, 6H), 3.77 (s, 3H), 2.23 (s, 3H), 1.15 (t, J = 7.2 Hz, 3H); ^{13}C NMR (100 MHz, $CDCl_3$), δ (ppm): 172.9, 160.9, 158.7, 147.3, 138.5, 128.8, 118.5, 114.5, 110.5, 108.7, 90.9, 61.0, 55.8, 55.3, 50.9, 21.6, 14.2; HR-MS (EI-TOF) (M^+) calculated for $C_{20}H_{25}NO_5$, 359.1733, found 359.1732.

Ethyl 2-(2-tolylamino)-2-(2,4,6-trimethoxyphenyl)acetate **5c**



White solid (76.1 mg, 84% yield); mp.: 106-107 °C; Rf = 0.5 (ethyl acetate:petroleum ether 2:5). ^{1}H NMR (400 MHz, $CDCl_3$), δ (ppm): 7.04-6.98 (m, 2H), 6.76 (d, J = 8.0 Hz, 1H), 6.59 (t, J = 7.4 Hz, 1H), 6.11 (s, 2H), 5.73 (s, 1H), 4.94 (br, *NH*, 1H), 4.18-4.11 (m, 2H), 3.83 (s, 6H), 3.77 (s, 3H), 2.19 (s, 3H), 1.15 (t, J = 7.0 Hz, 3H); ^{13}C NMR (100 MHz, $CDCl_3$), δ (ppm): 172.9, 160.9, 158.8, 145.3, 130.0, 126.8, 122.6, 117.1, 111.0, 108.7, 91.0, 61.0, 55.8, 55.3, 51.0, 17.5, 14.2; HR-MS (EI-TOF) (M^+) calculated for $C_{20}H_{25}NO_5$, 359.1733, found 359.1730.

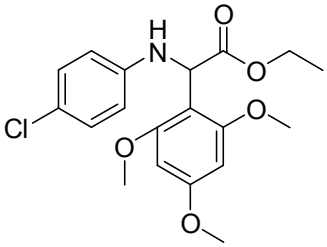
Ethyl 2-(phenylamino)-2-(2,4,6-trimethoxyphenyl)acetate **5d**



White solid (67.5 mg, 78% yield); mp.: 109-110 °C; Rf = 0.5 (ethyl acetate:petroleum ether 2:5). ^{1}H NMR (400 MHz, $CDCl_3$), δ (ppm): 7.12 (t, J = 7.8 Hz, 2H), 6.73 (d, J = 8.0 Hz, 2H), 6.65 (t, J = 7.2 Hz, 1H), 6.11 (s, 2H), 5.67 (s, 1H), 4.20-4.11 (m, 2H), 3.83 (s, 6H), 3.78 (s, 3H), 1.17

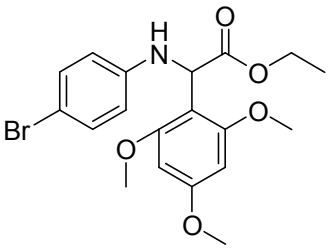
(t, J = 7.2 Hz, 3H); ^{13}C NMR (100 MHz, $CDCl_3$), δ (ppm): 172.9, 160.9, 158.7, 147.3, 128.9, 117.5, 113.7, 108.6, 90.9, 61.0, 55.8, 55.3, 50.9, 14.2; HR-MS (EI-TOF) (M^+) calculated for $C1_9H_{23}NO_5$, 345.1576, found 345.1577.

Ethyl 2-(4-chlorophenylamino)-2-(2,4,6-trimethoxyphenyl)acetate **5e**



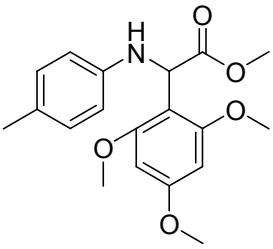
White solid (58.3 mg, 61% yield); mp.: 101-103 °C; Rf = 0.5 (ethyl acetate:petroleum ether 1.6:4). ^{1}H NMR (400 MHz, $CDCl_3$), δ (ppm): 7.09-7.06 (m, 2H), 6.68-6.66 (m, 2H), 6.13 (s, 2H), 5.62 (s, 1H), 4.94 (br, *NH*, 1H), 4.22-4.15 (m, 2H), 3.85 (s, 6H), 3.81 (s, 3H), 1.18 (t, J = 7.2 Hz, 3H); ^{13}C NMR (100 MHz, $CDCl_3$), δ (ppm): 172.6, 161.0, 158.7, 145.8, 128.8, 122.1, 114.9, 108.0, 90.9, 61.1, 55.8, 55.3, 51.0, 14.2; HR-MS (EI-TOF) (M^+) calculated for $C_{19}H_{22}NO_5Cl$, 379.1187, found 379.1185.

Ethyl 2-(4-bromophenylamino)-2-(2,4,6-trimethoxyphenyl)acetate **5f**



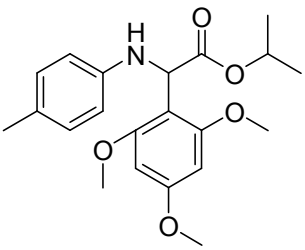
White solid (67.9 mg, 64% yield); mp.: 113-114 °C; Rf = 0.5 (ethyl acetate:petroleum ether 2:5). ^{1}H NMR (400 MHz, $CDCl_3$), δ (ppm): 7.20-7.16 (m, 2H), 6.61-6.57 (m, 2H), 6.11 (s, 2H), 5.59 (s, 1H), 4.93 (br, *NH*, 1H), 4.20-4.11 (m, 2H), 3.82 (s, 6H), 3.78 (s, 3H), 1.17 (t, J = 7.0 Hz, 3H); ^{13}C NMR (100 MHz, $CDCl_3$), δ (ppm): 172.6, 161.0, 158.7, 146.3, 131.7, 115.3, 109.2, 108.0, 90.9, 61.1, 55.8, 55.3, 50.9, 14.2; HR-MS (EI-TOF) (M^+) calculated for $C_{19}H_{22}NO_5Br$, 423.0681, found 423.0677.

Methyl 2-(4-tolylamino)-2-(2,4,6-trimethoxyphenyl)acetate **5g**[3]



White solid (78.7 mg, 91% yield); mp.: 165-167 °C; Rf = 0.4 (ethyl acetate:petroleum ether 2:5). ^{1}H NMR (400 MHz, $CDCl_3$), δ (ppm): 6.93 (d, J = 8.0 Hz, 2H), 6.66-6.63 (m, 2H), 6.11 (s, 2H), 5.66 (s, 1H), 4.80 (br, *NH*, 1H), 3.83 (s, 6H), 3.77 (s, 3H), 3.66 (s, 3H), 2.19 (s, 3H); ^{13}C NMR (100 MHz, $CDCl_3$), δ (ppm): 173.5, 161.0, 158.7, 144.9, 129.5, 126.9, 114.1, 108.5, 91.0, 55.9, 55.3, 52.3, 51.2, 20.4; HR-MS (EI-TOF) (M^+) calculated for $C_{19}H_{23}NO_5$, 345.1576, found 345.1580.

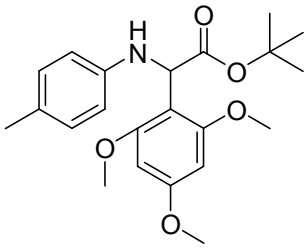
Isopropyl 2-(4-tolylamino)-2-(2,4,6-trimethoxyphenyl)acetate **5h**



Yellow semi solid (62.9 mg, 67% yield); Rf = 0.5 (ethyl acetate : petroleum ether 2:5). ^{1}H NMR (400 MHz, $CDCl_3$), δ (ppm): 6.92 (d, J = 8.4 Hz, 2H), 6.65 (d, J = 8.4 Hz, 2H)), 6.09 (s, 2H), 5.59 (s, 1H), 5.04-4.98 (m, 1H), 3.81 (s, 6H), 3.77 (s, 3H), 2.19 (s, 3H), 1.18 (d, J = 6.4 Hz, 3H), 1.07 (d, J = 6.4 Hz, 3H); ^{13}C NMR (100 MHz, $CDCl_3$), δ

(ppm): 172.6, 160.8, 158.7, 145.2, 129.4, 126.7, 114.1, 109.0, 90.9, 68.3, 55.8, 55.3, 51.6, 21.7, 21.4, 20.4; HR-MS (EI-TOF) (M^+) calculated for $C_{21}H_{27}NO_5$, 373.1889, found 373.1892.

Tert-butyl 2-(4-tolylamino)-2-(2,4,6-trimethoxyphenyl)acetate **5i**



Red semi solid (57.4 mg, 60% yield); Rf = 0.6 (ethyl acetate:petroleum ether 2:5), ^{1}H NMR (400 MHz, $CDCl_3$), δ (ppm): 6.91 (d, J = 8.0 Hz, 2H), 6.64 (d, J = 8.4 Hz, 2H), 6.08 (s, 2H), 5.54 (s, 1H), 4.77 (br, *NH*, 1H), 3.81 (s, 6H), 3.76 (s, 3H), 2.18 (s, 3H), 1.35 (s, 9H); ^{13}C NMR (100 MHz, $CDCl_3$), δ (ppm): 172.0, 160.6, 158.7, 145.3, 129.4, 126.5, 113.9, 109.5, 90.9, 80.7, 55.8, 55.2, 51.9, 27.9, 19.4; HR-MS (EI-TOF) (M^+) calculated for $C_{22}H_{29}NO_5$, 387.2046, found 387.2047.

5. References

[1] a). Anderson, W. K.; Bhattacharjee, D.; Houston, D. M. *J. Med. Chem*. **1989**, *32*,
119 b) Xie, J.; Huang, Z.-Z. *Angew. Chem. Int. Ed*. **2010**, *49*, 10181.

[2] Huang, T.; Li, C.-J. *Tetrahedron Lett*, **2000**, *41*, 6715.

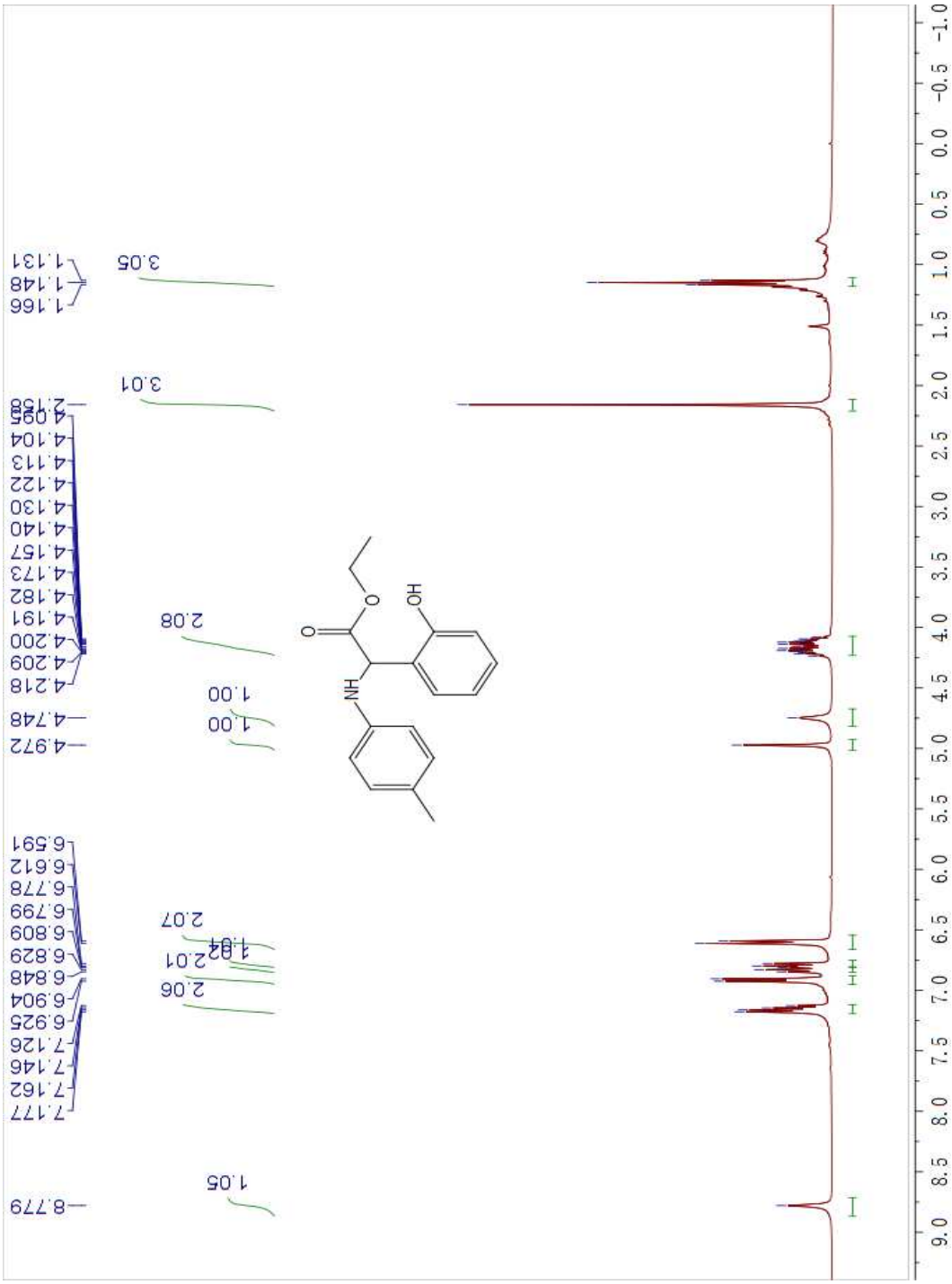
[3] Huo, C.; Wang, C.; Sun, C.; Jia, X.; Wang, X.; Chang, W.; and Wu, M. *Adv. Synth. Catal*. **2013**, *355*, 1911.

[4] About the structure of e*thyl 2-(4-tolylamino)-2-(2-hydroxynaphthalen-1-yl)acetate* **3an** also see: a) Morrison, R. T and Boyed, R .N, Organic Chemistry, 3rd edition, Chapter 30, Polynuclear Aromatic Compounds. Allyn and Bacon, Inc, p. 985, 1978. b) Xu, Z.-W.; Yu, X.-Q.; Feng, X.-J.; Bao, M *Beilstein J. Org. Chem.* **2012***, 8,* 1564.

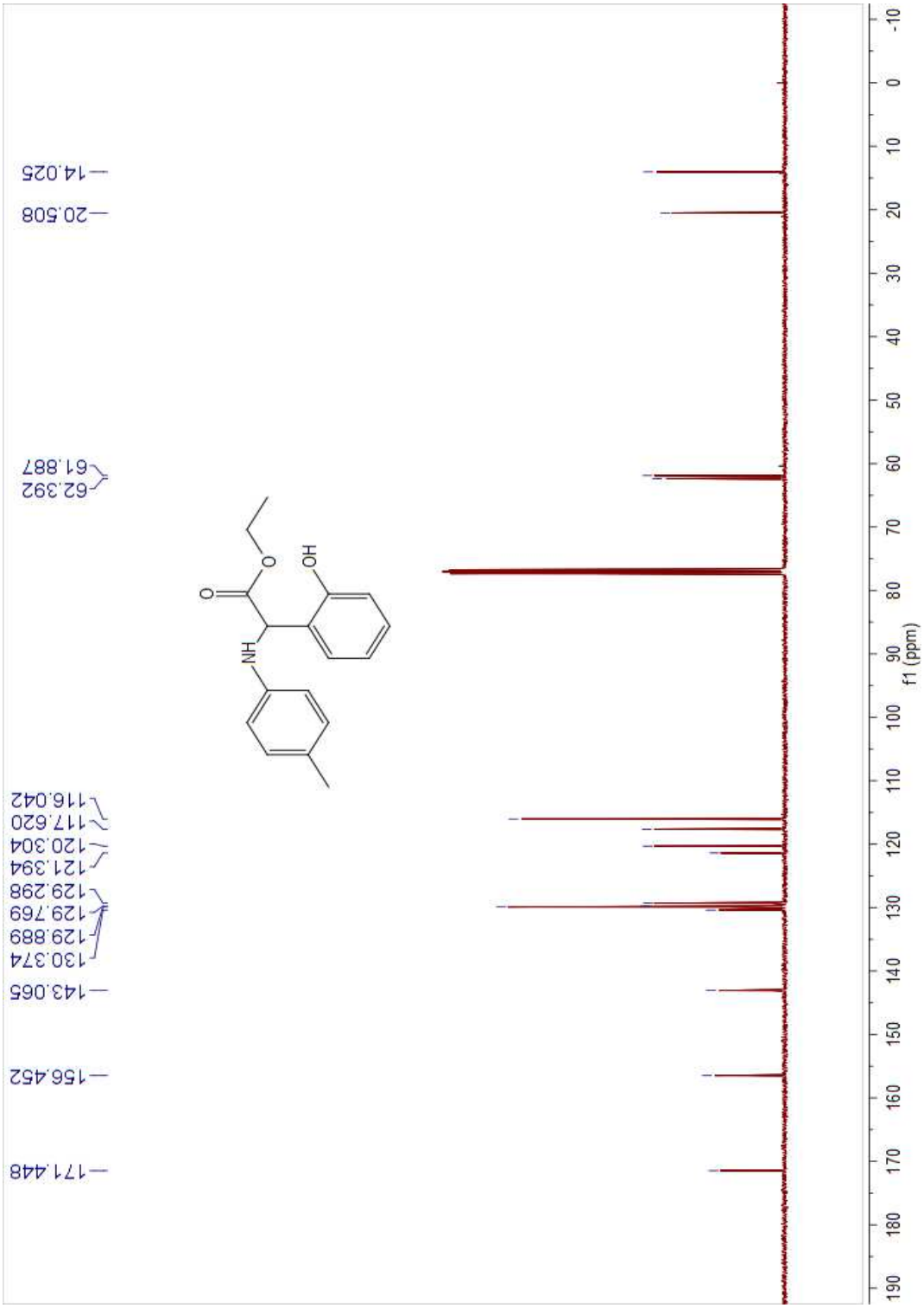
[5] About chemical shifts of phenolic carbons for HMBC also see: Vidya, S.; Nishanth, T.; Baoshan, X.; Jeffrey, S. *Soil Biology & Biochemistry*, **2014**, *75*, 102.

6. ^{1}H NMR, ^{13}C NMR, ^{19}F CNMR, HR-MS and HMBC Spectra of New Compounds

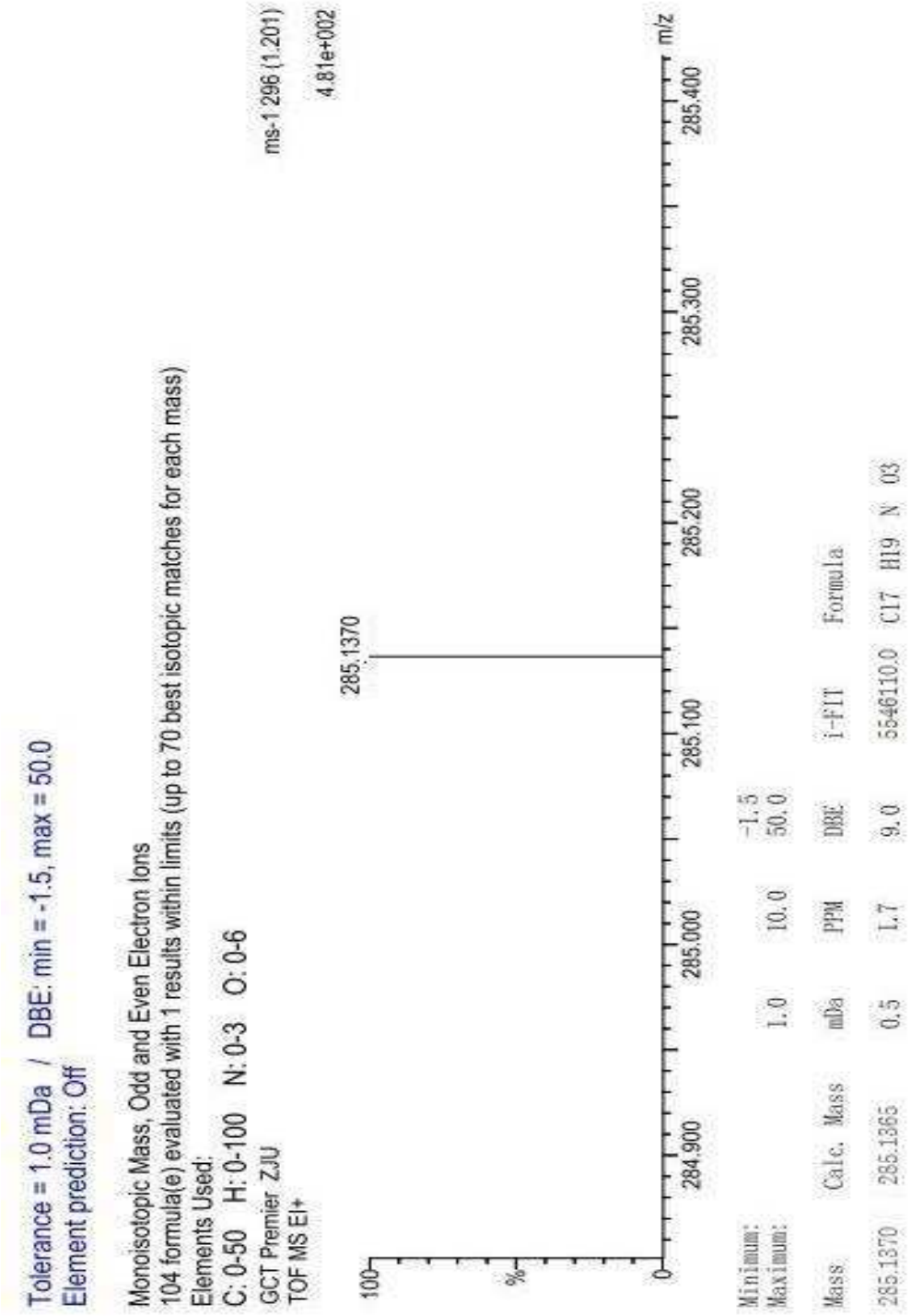
^{1}H-NMR Spectrum of ethyl 2-(4-tolylamino)-2-(2-hydroxyphenyl)acetate **3aa**



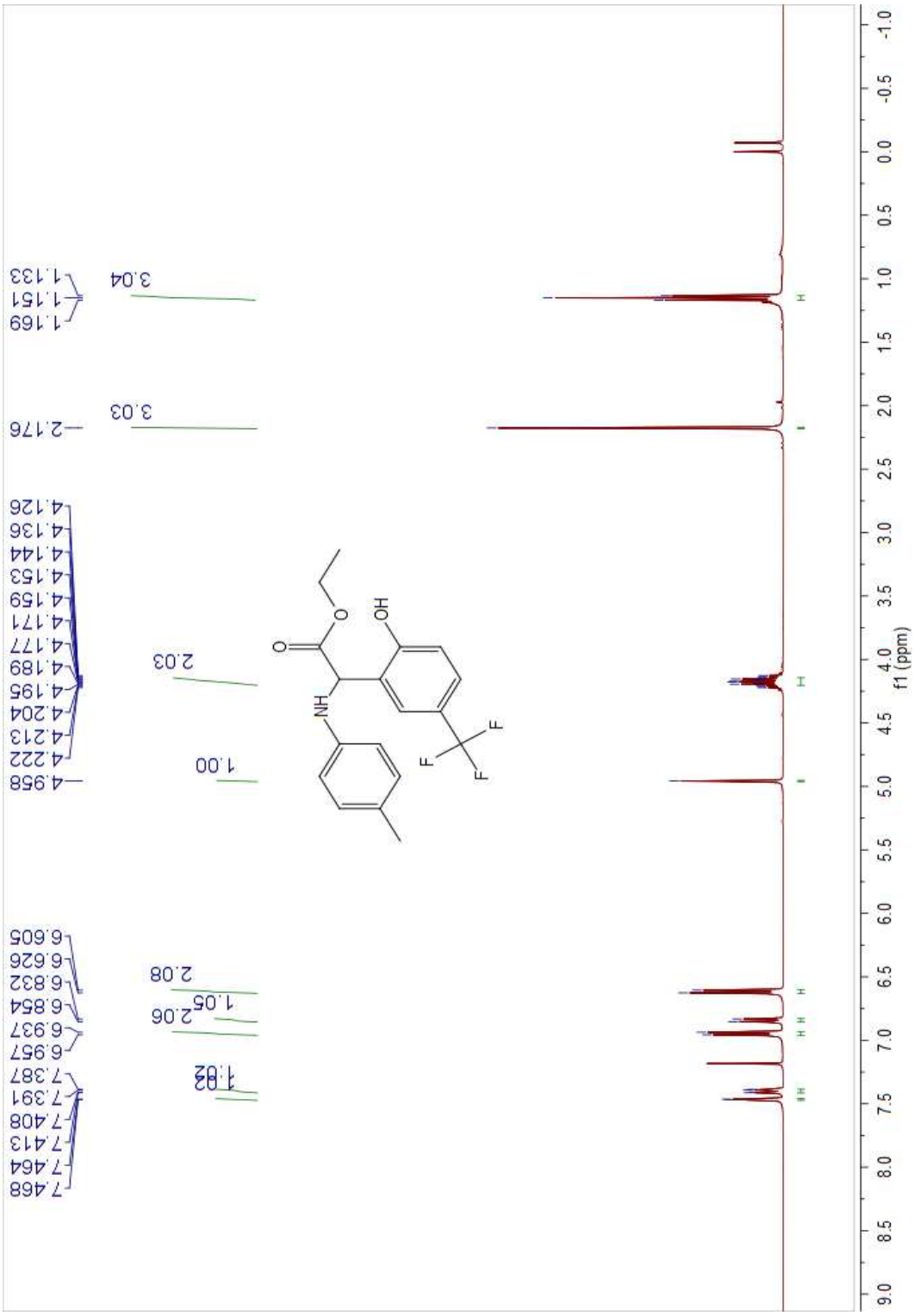
^{13}C-NMR Spectrum of ethyl 2-(4-tolylamino)-2-(2-hydroxyphenyl)acetate **3aa**



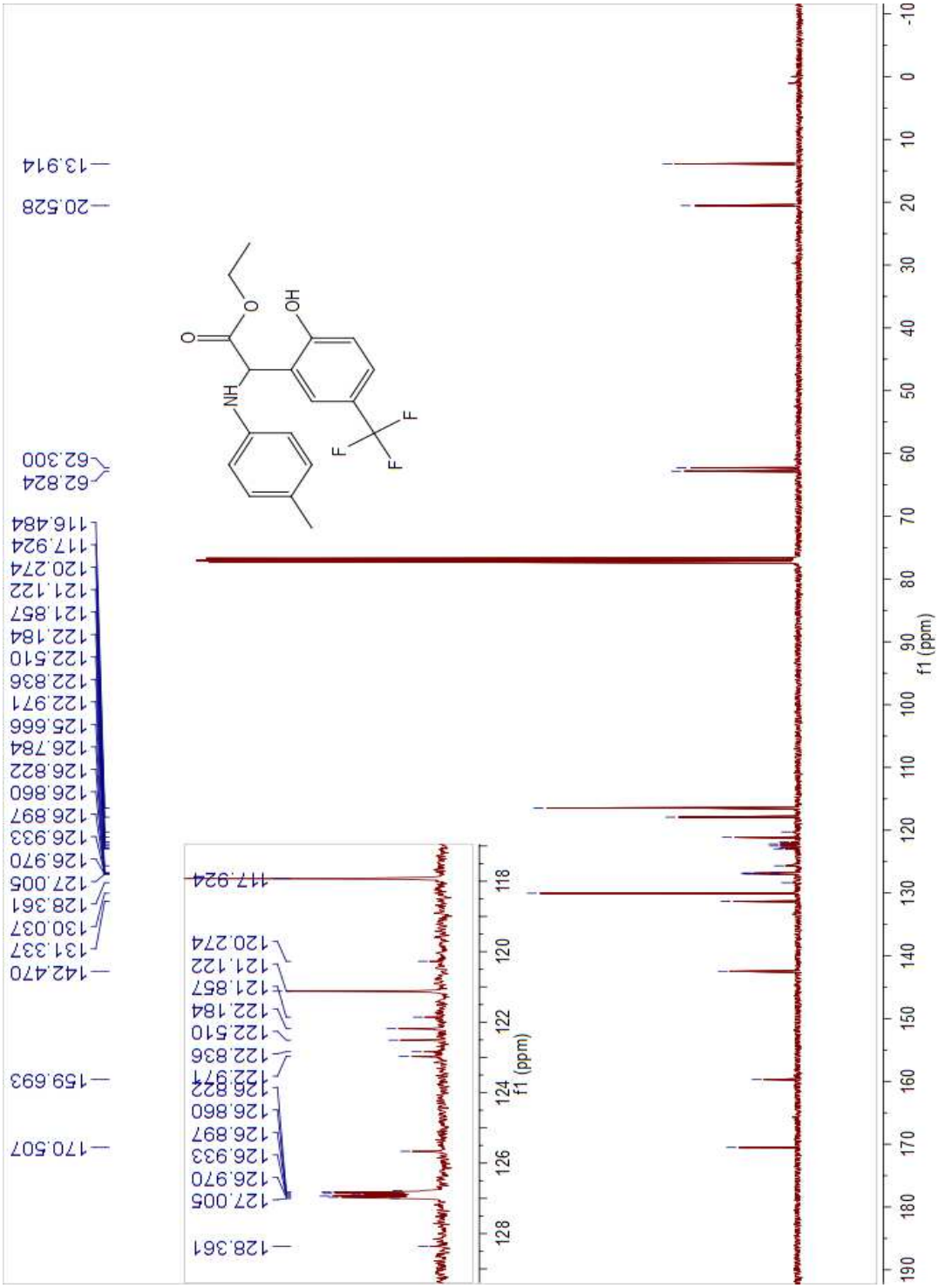
HR-MS Spectrum of ethyl 2-(4-tolylamino)-2-(2-hydroxyphenyl)acetate **3aa**



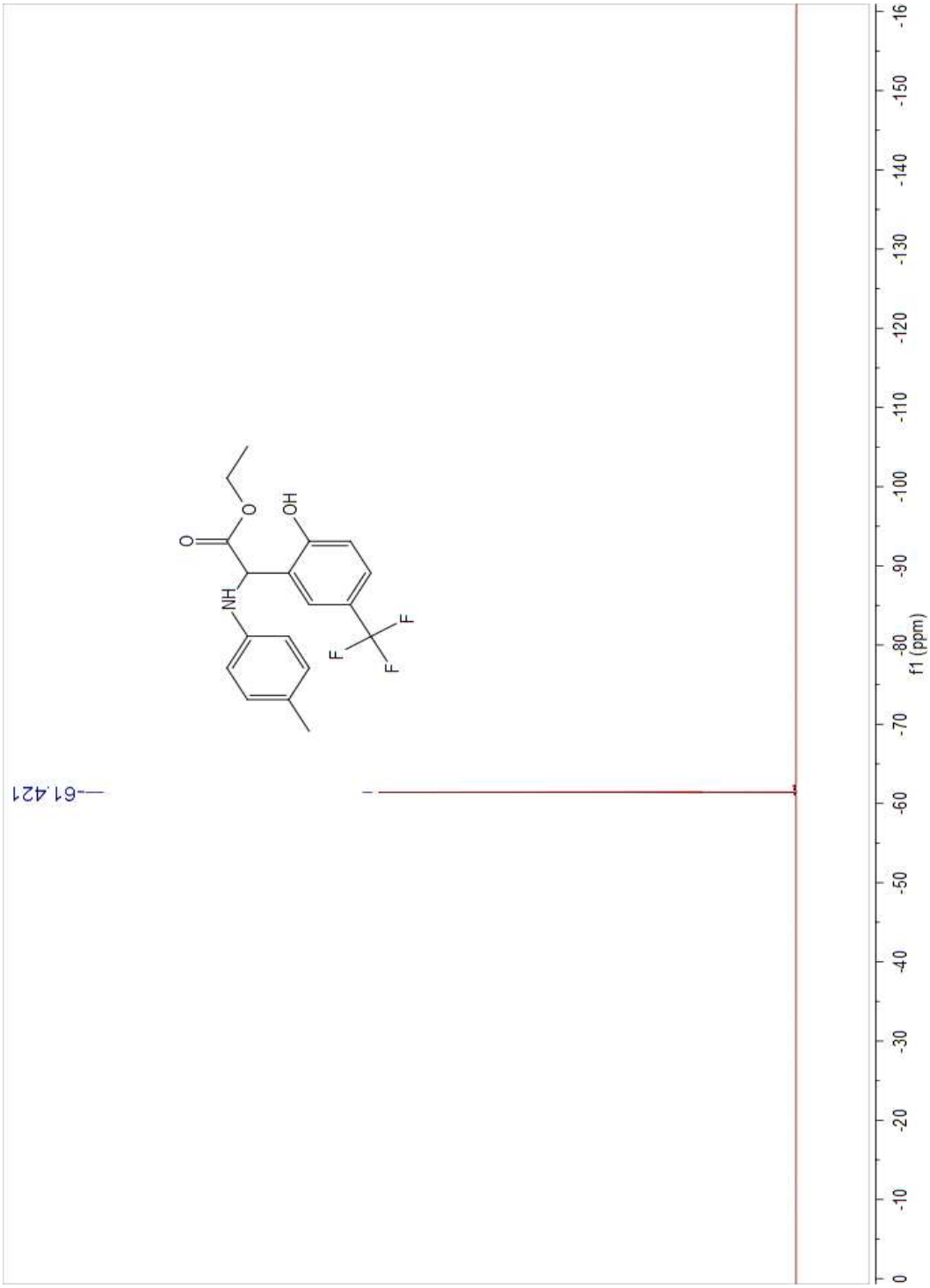
^{1}H-NMR Spectrum of ethyl 2-(4-tolylamino)-2-(2-hydroxy-5-(trifluoromethyl)phenyl)acetate **3ab**



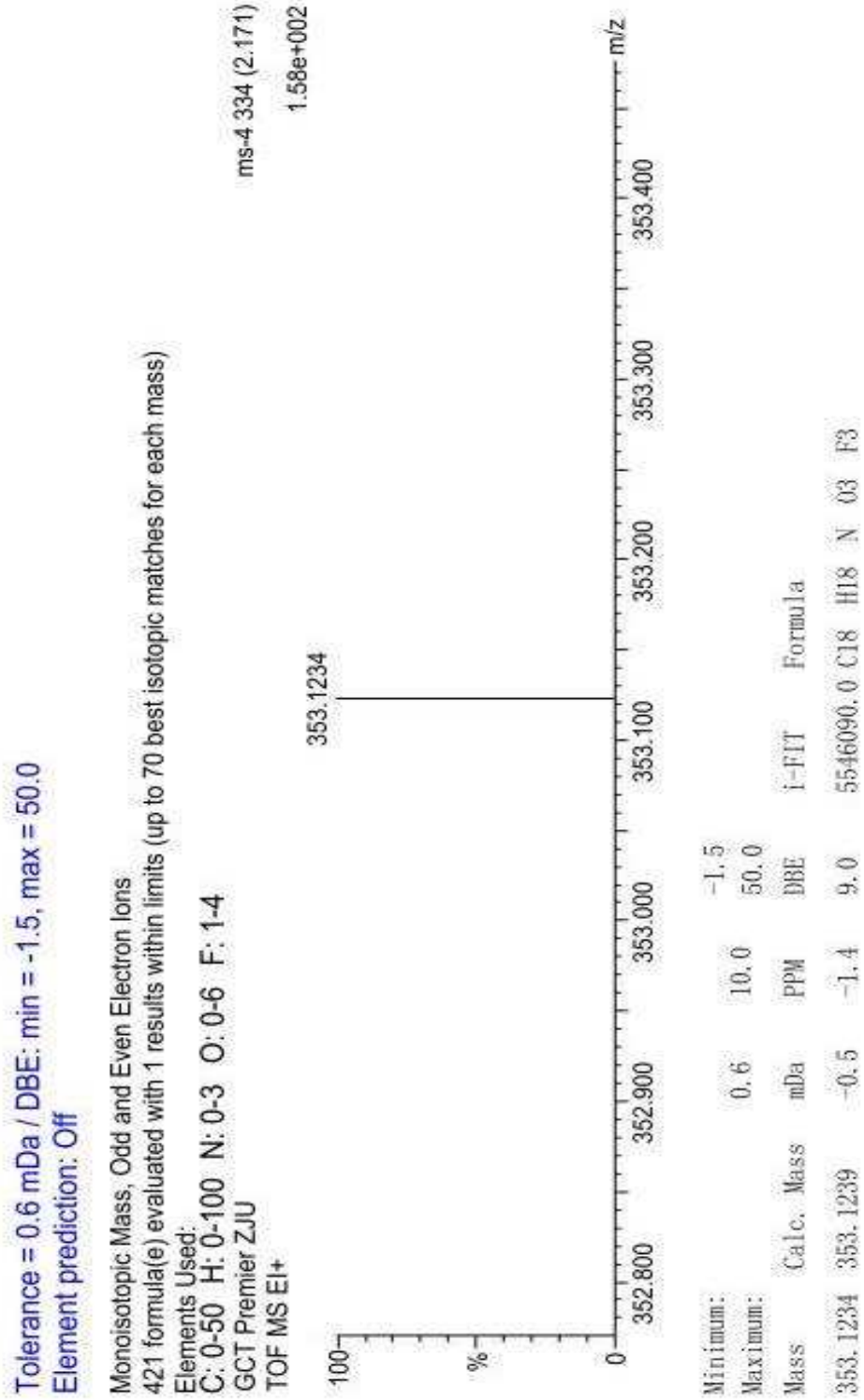
^{13}C NMR Spectrum of ethyl 2-(4-tolylamino)-2-(2-hydroxy-5-(trifluoromethyl)phenyl)acetate **3ab**



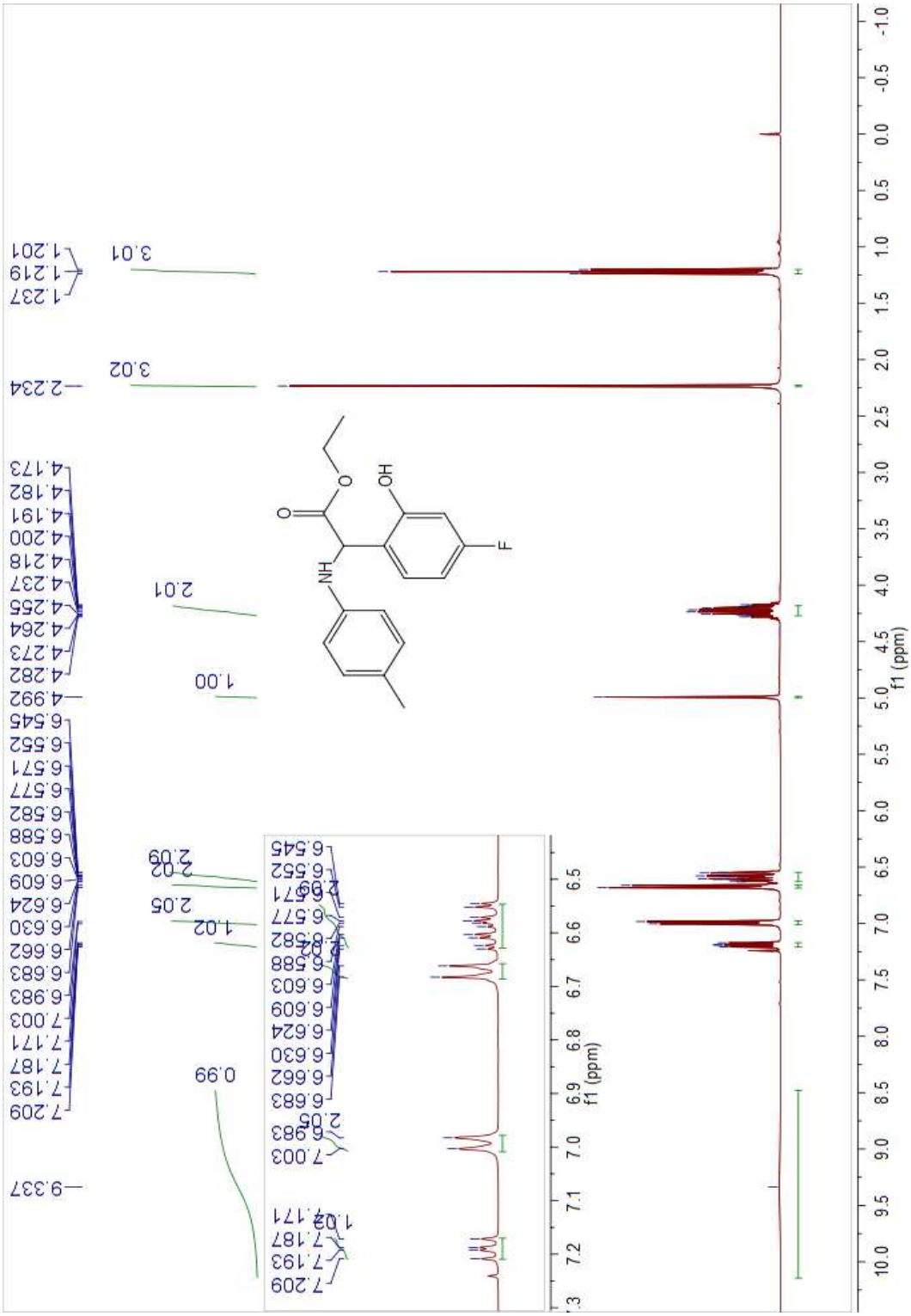
^{19}F NMR Spectrum of ethyl 2-(4-tolylamino)-2-(2-hydroxy-5-(trifluoromethyl)phenyl)acetate **3ab**



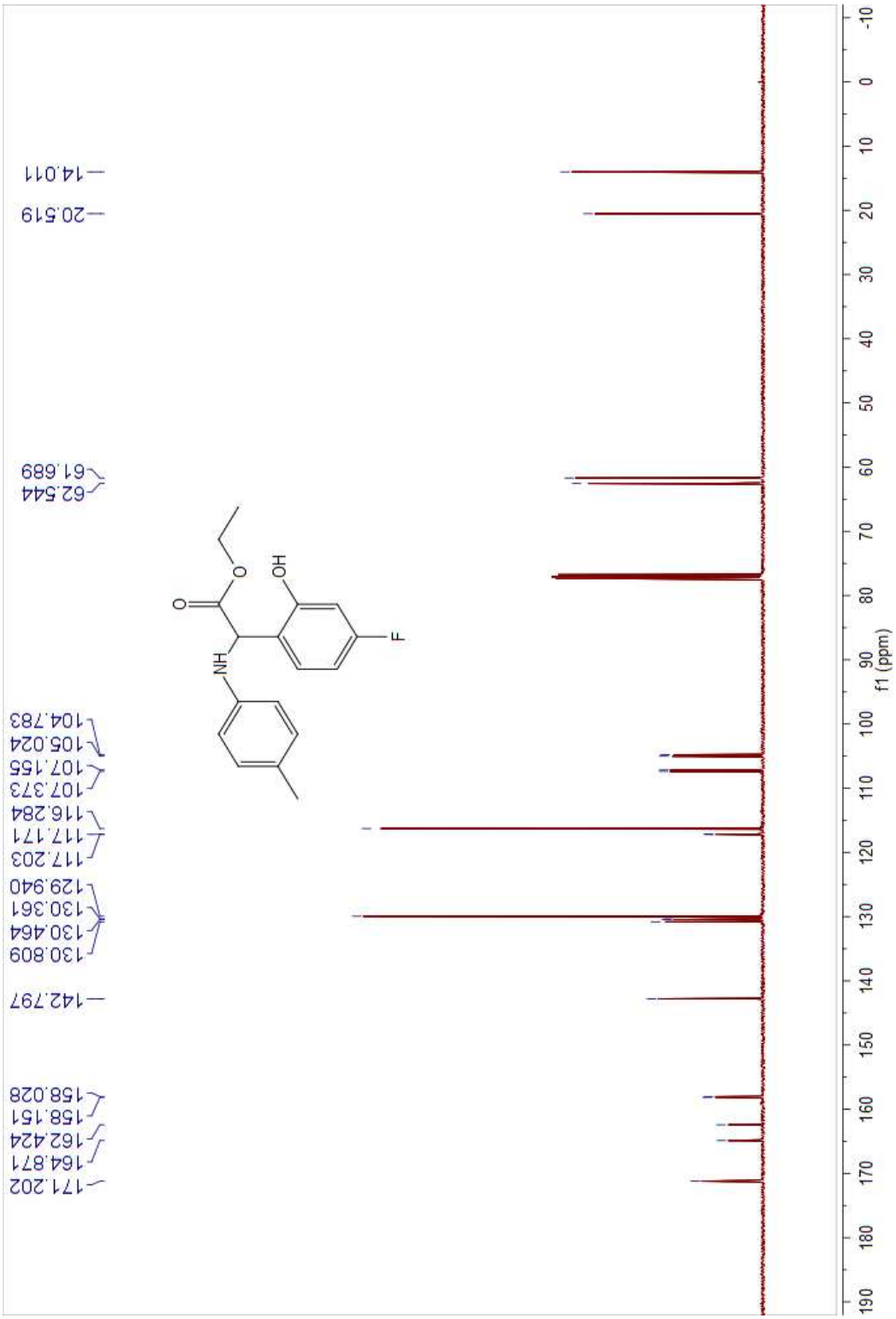
HR-MS of Spectrum ethyl 2-(4-tolylamino)-2-(2-hydroxy-5-(trifluoromethyl)phenyl)acetate **3ab**



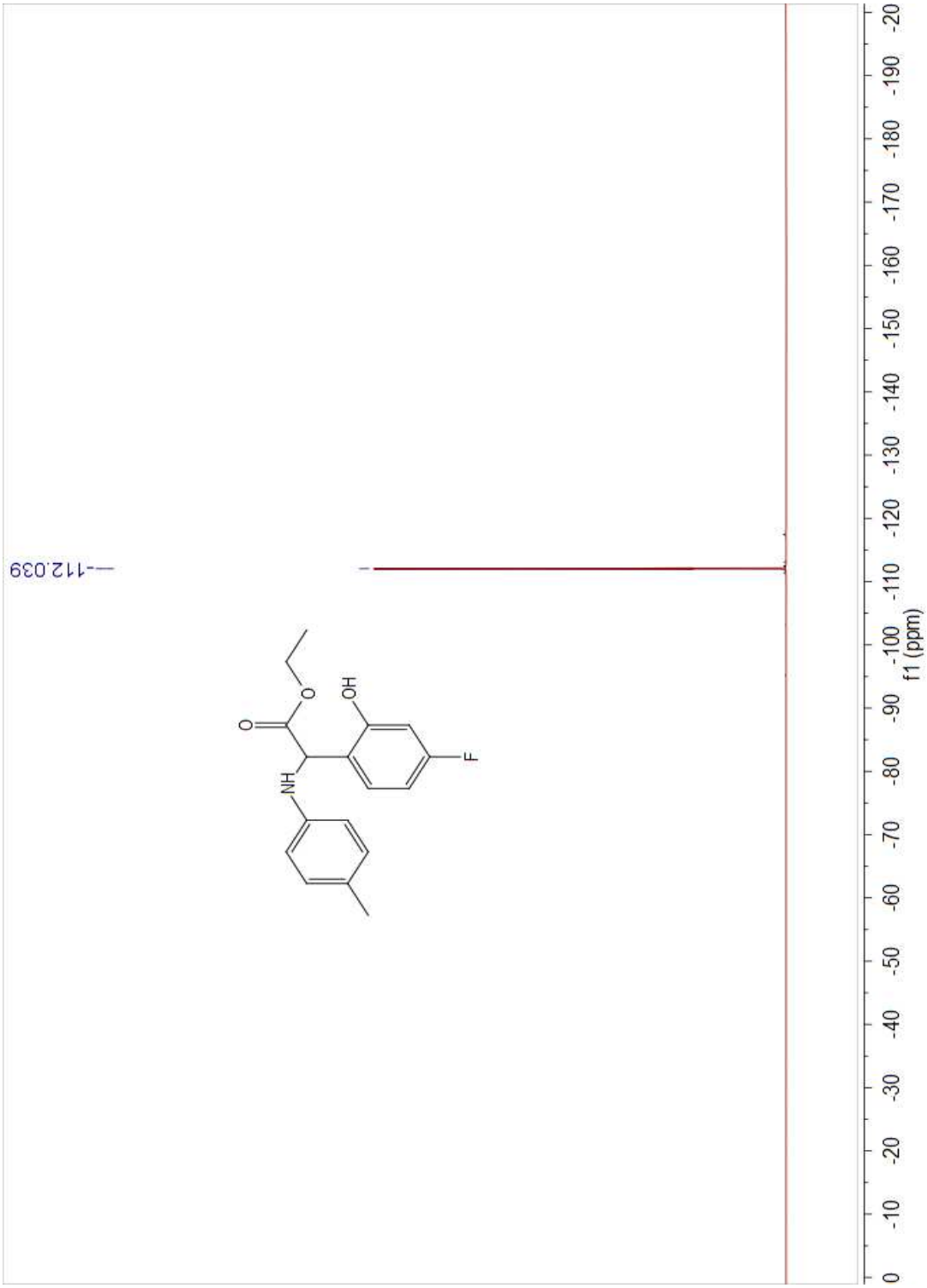
^{1}H NMR Spectrum of ethyl 2-(4-tolylamino)-2-(4-fluoro-2-hydroxyphenyl)acetate **3ac**



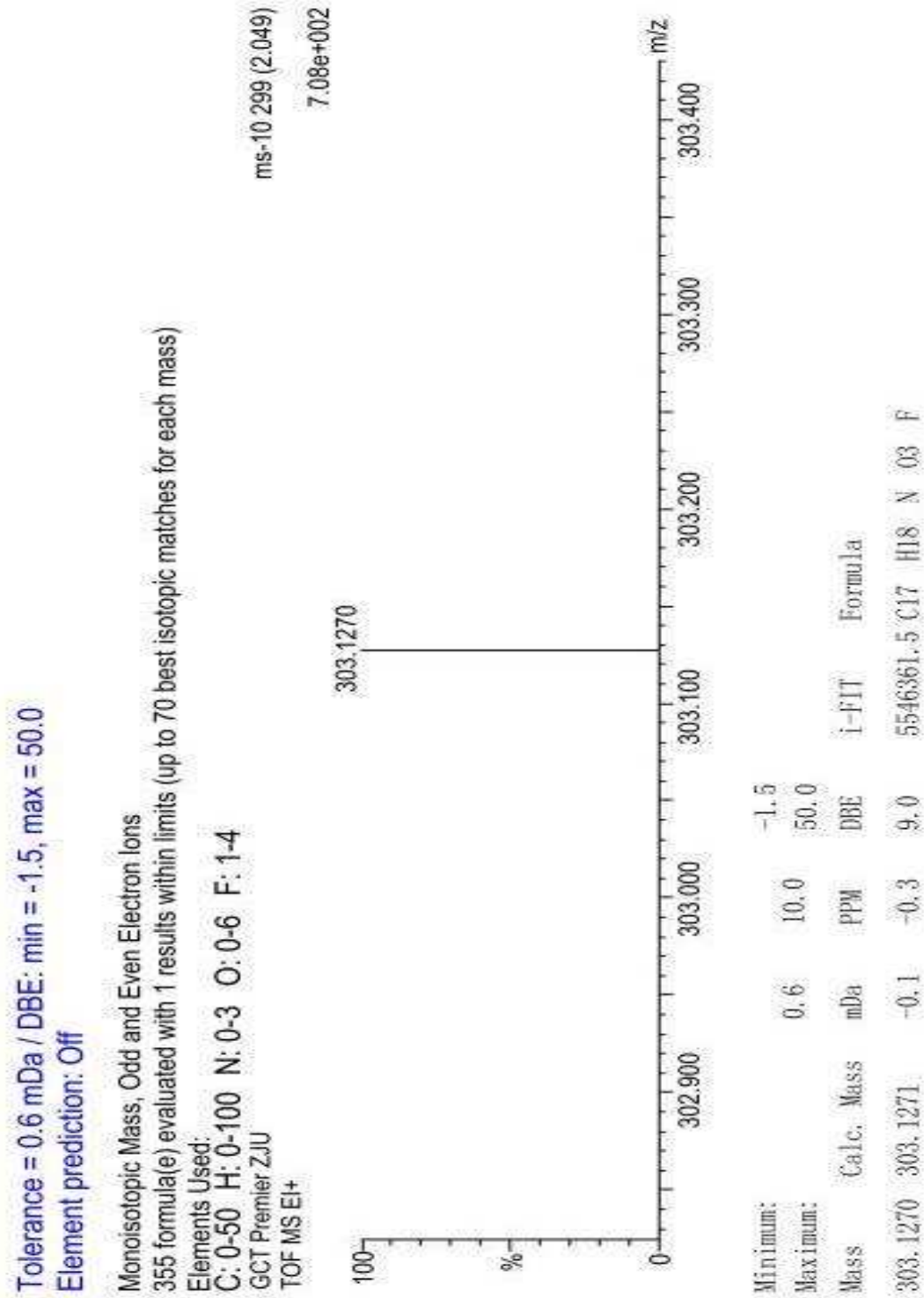
^{13}C NMR Spectrum of ethyl 2-(4-tolylamino)-2-(4-fluoro-2-hydroxyphenyl)acetate **3ac**



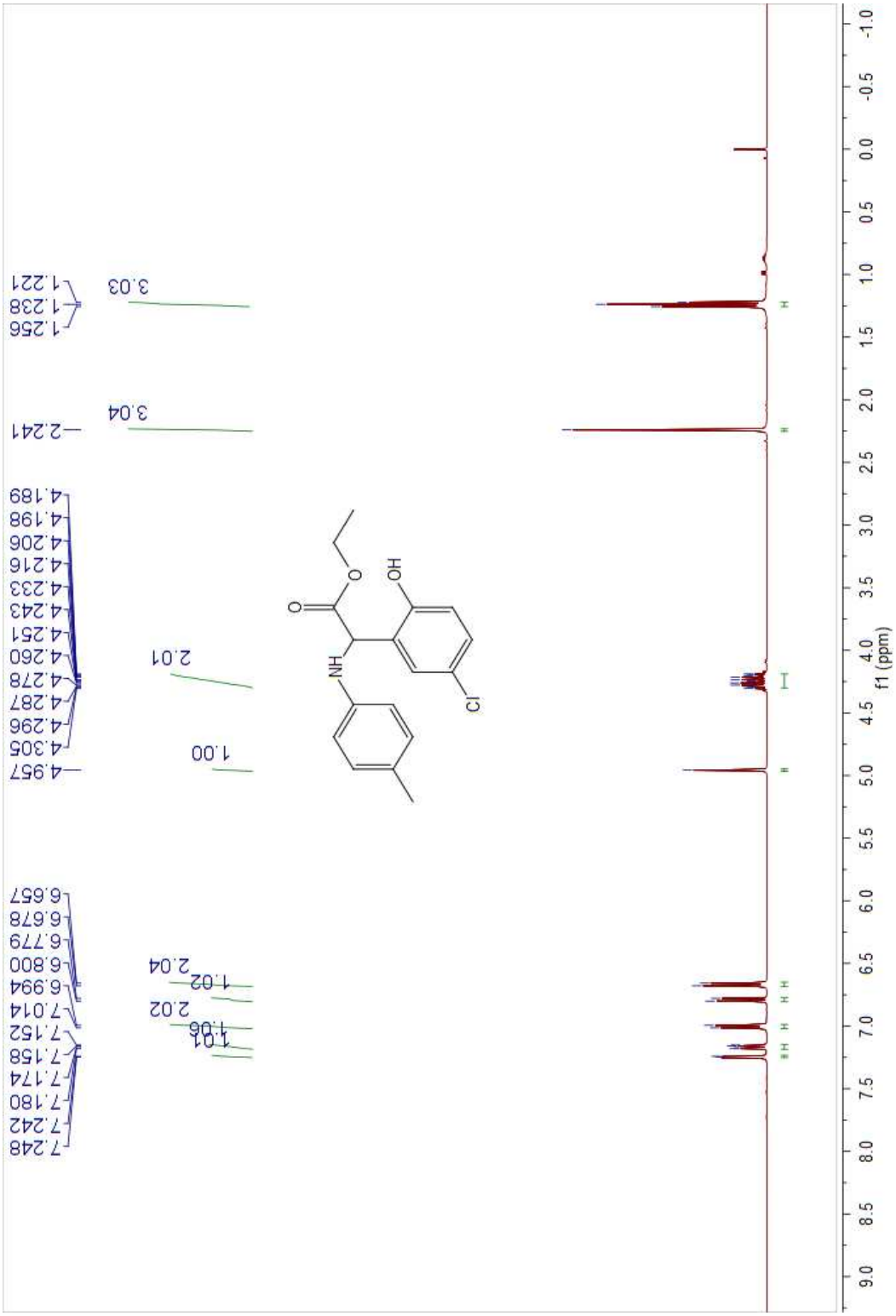
^{19}F NMR Spectrum of ethyl 2-(4-tolylamino)-2-(4-fluoro-2-hydroxyphenyl)acetate **3ac**



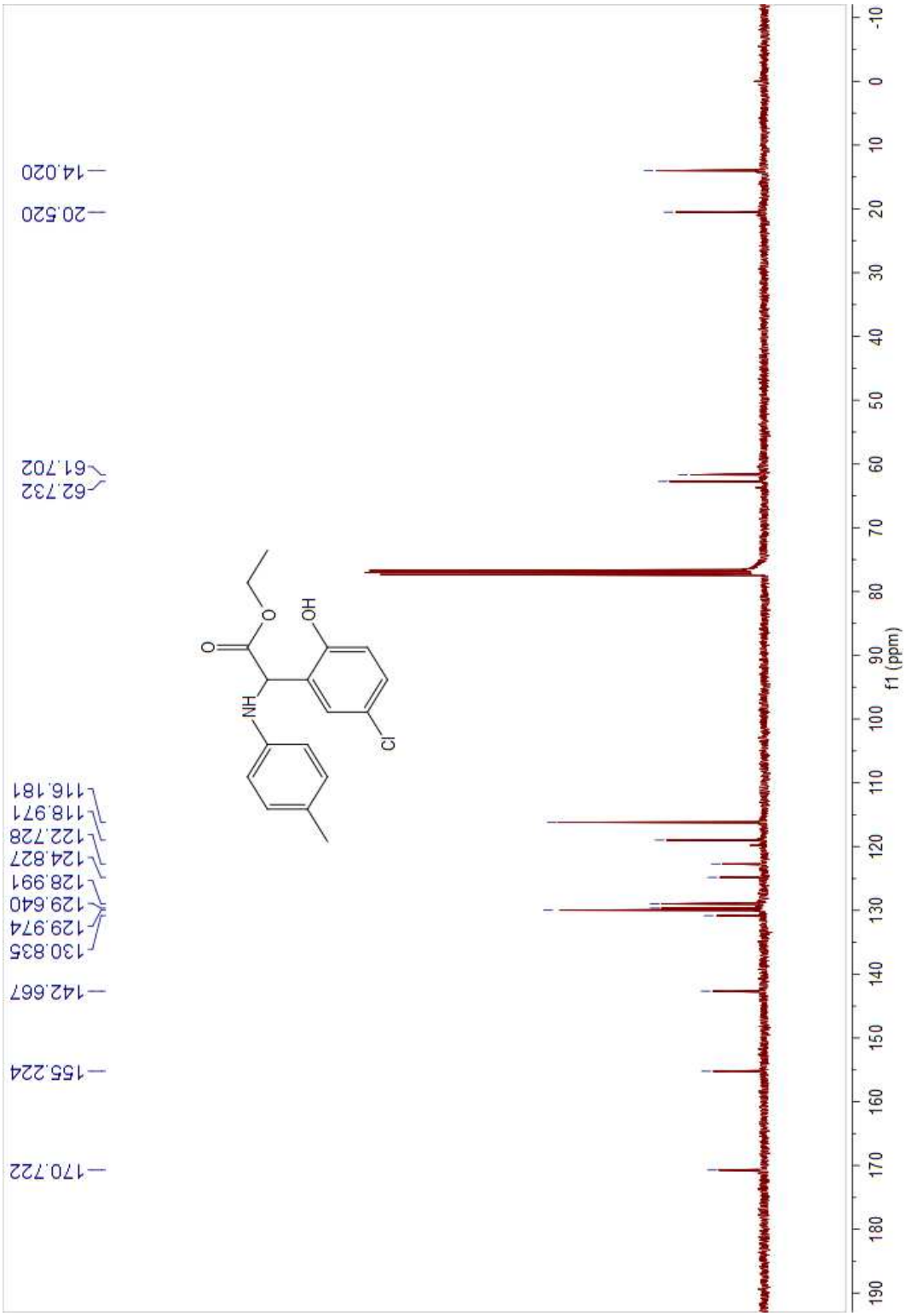
HR-MS Spectrum of ethyl 2-(4-tolylamino)-2-(4-fluoro-2-hydroxyphenyl)acetate **3ac**



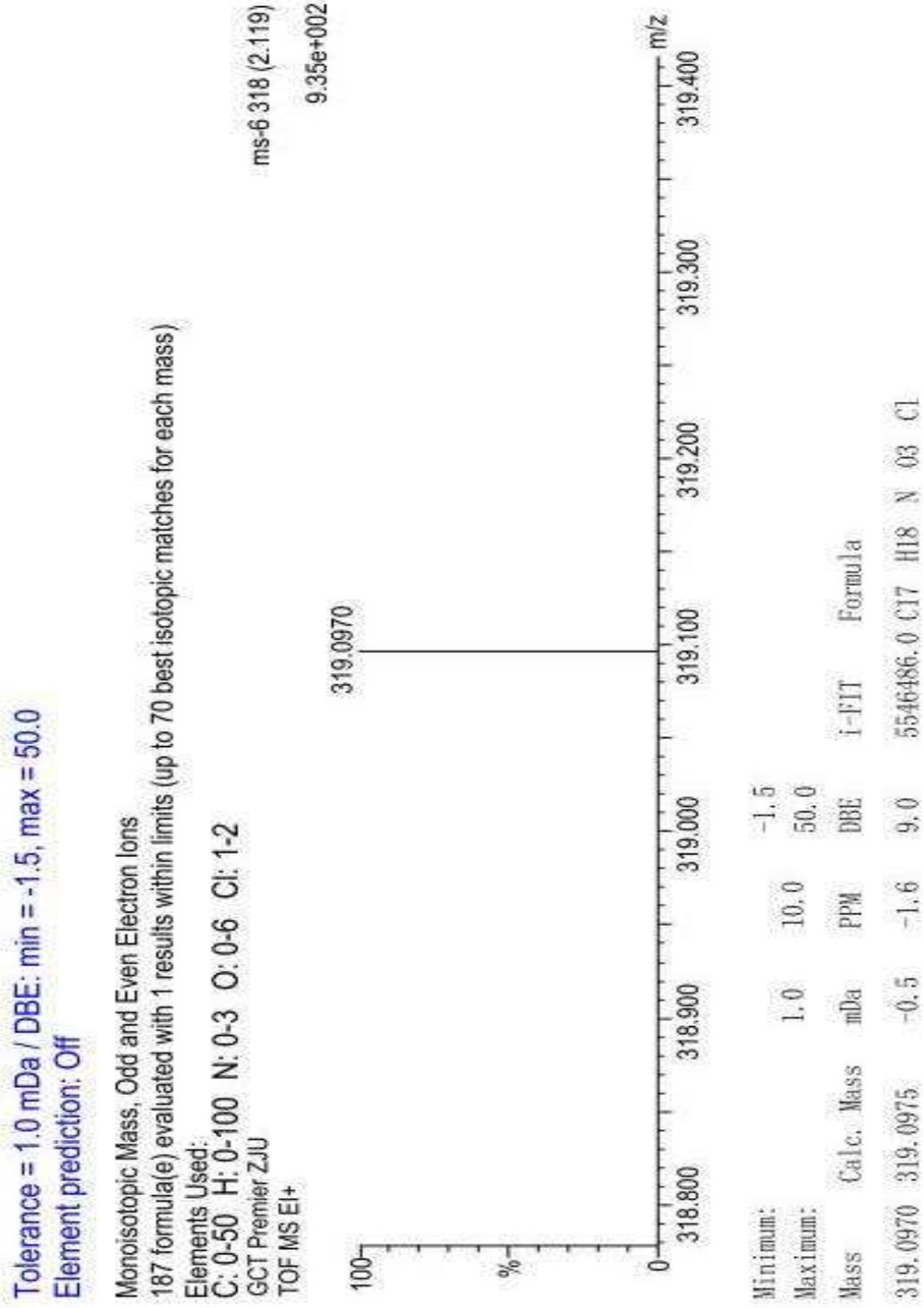
^{1}H NMR Spectrum of ethyl 2-(4-tolylamino)-2-(5-chloro-2-hydroxyphenyl)acetat*e* **3ad**



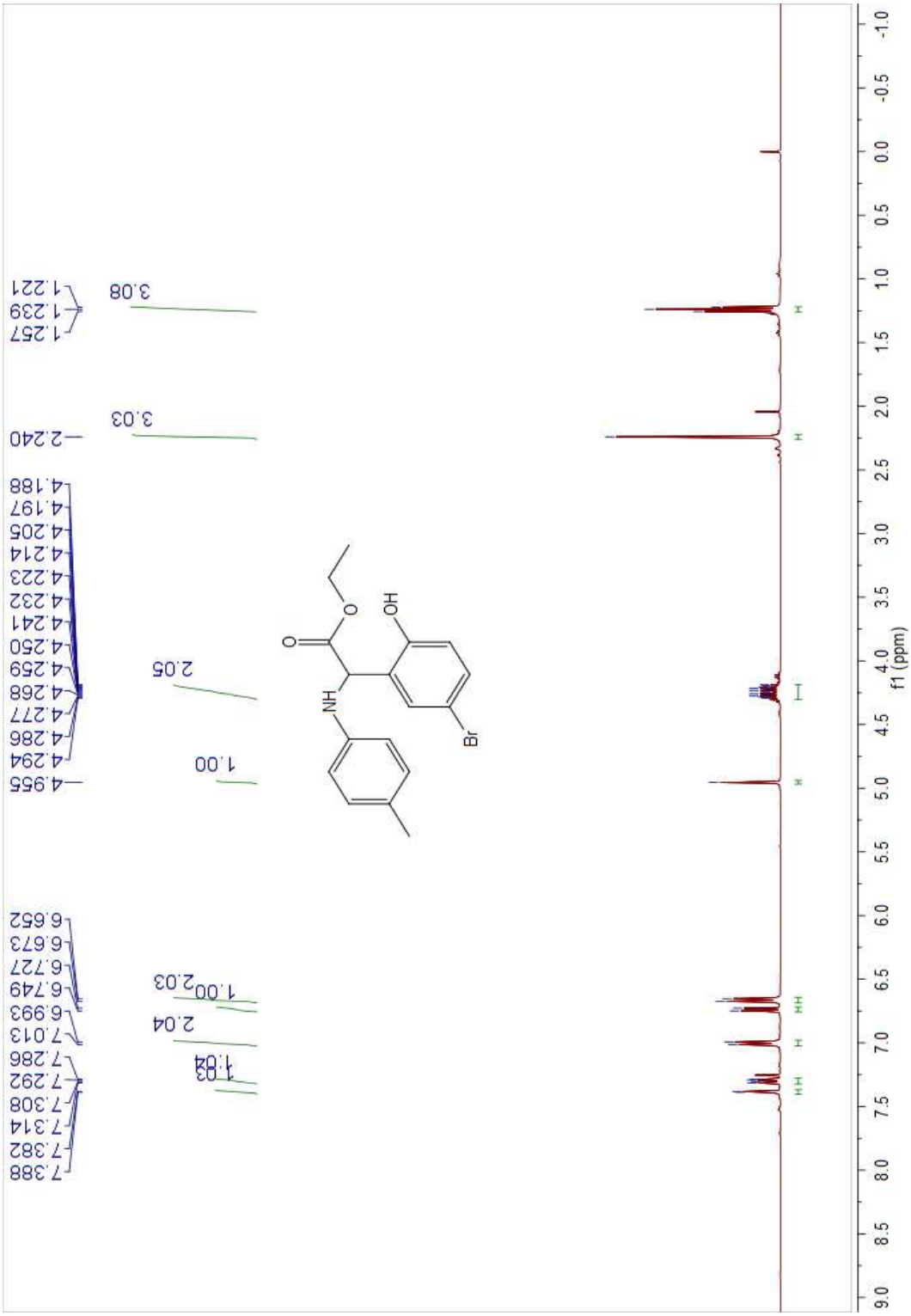
^{13}C NMR Spectrum of ethyl 2-(4-tolylamino)-2-(5-chloro-2-hydroxyphenyl)acetat*e* **3ad**



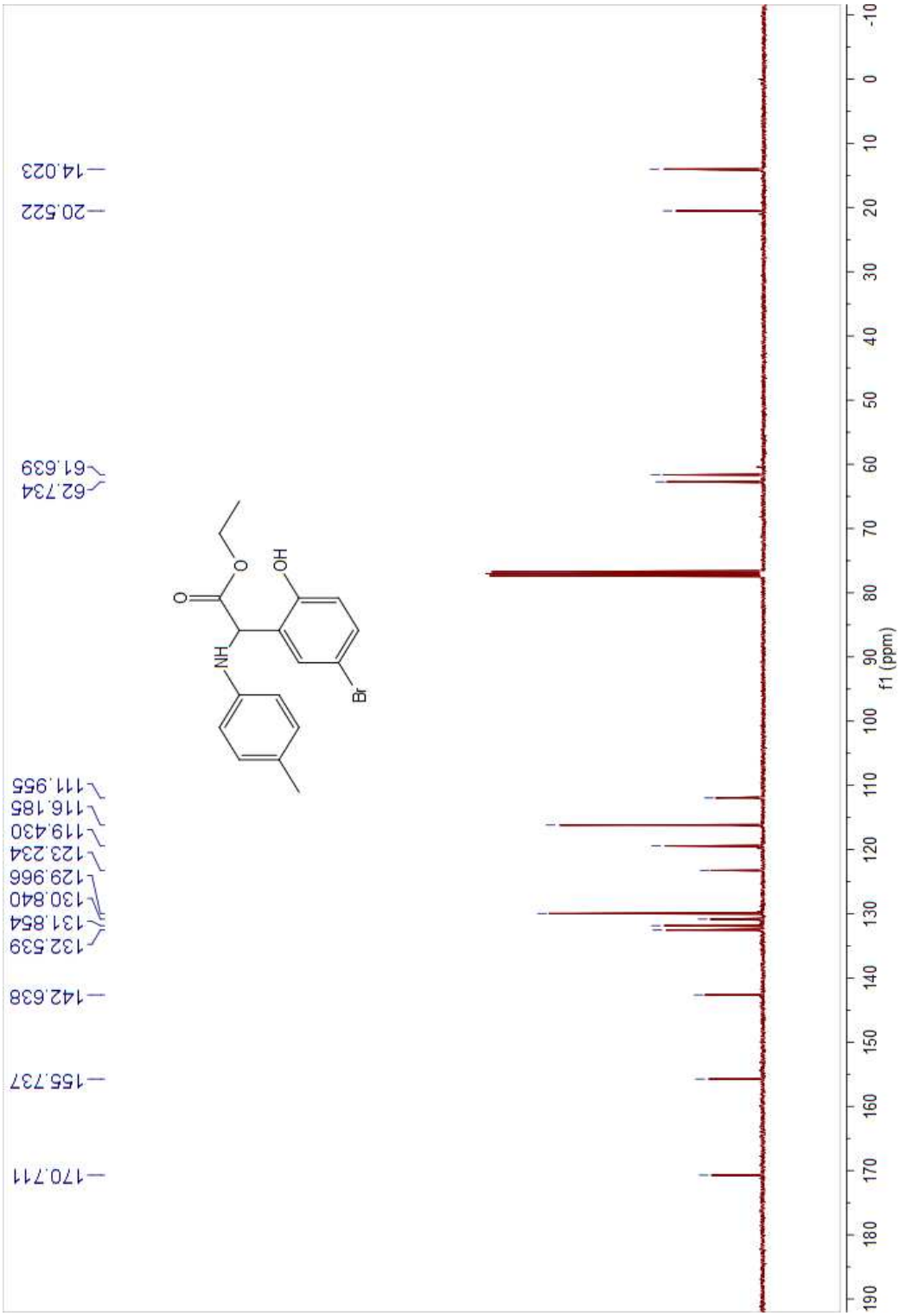
HR-MS Spectrum of ethyl 2-(4-tolylamino)-2-(5-chloro-2-hydroxyphenyl)acetate **3ad**



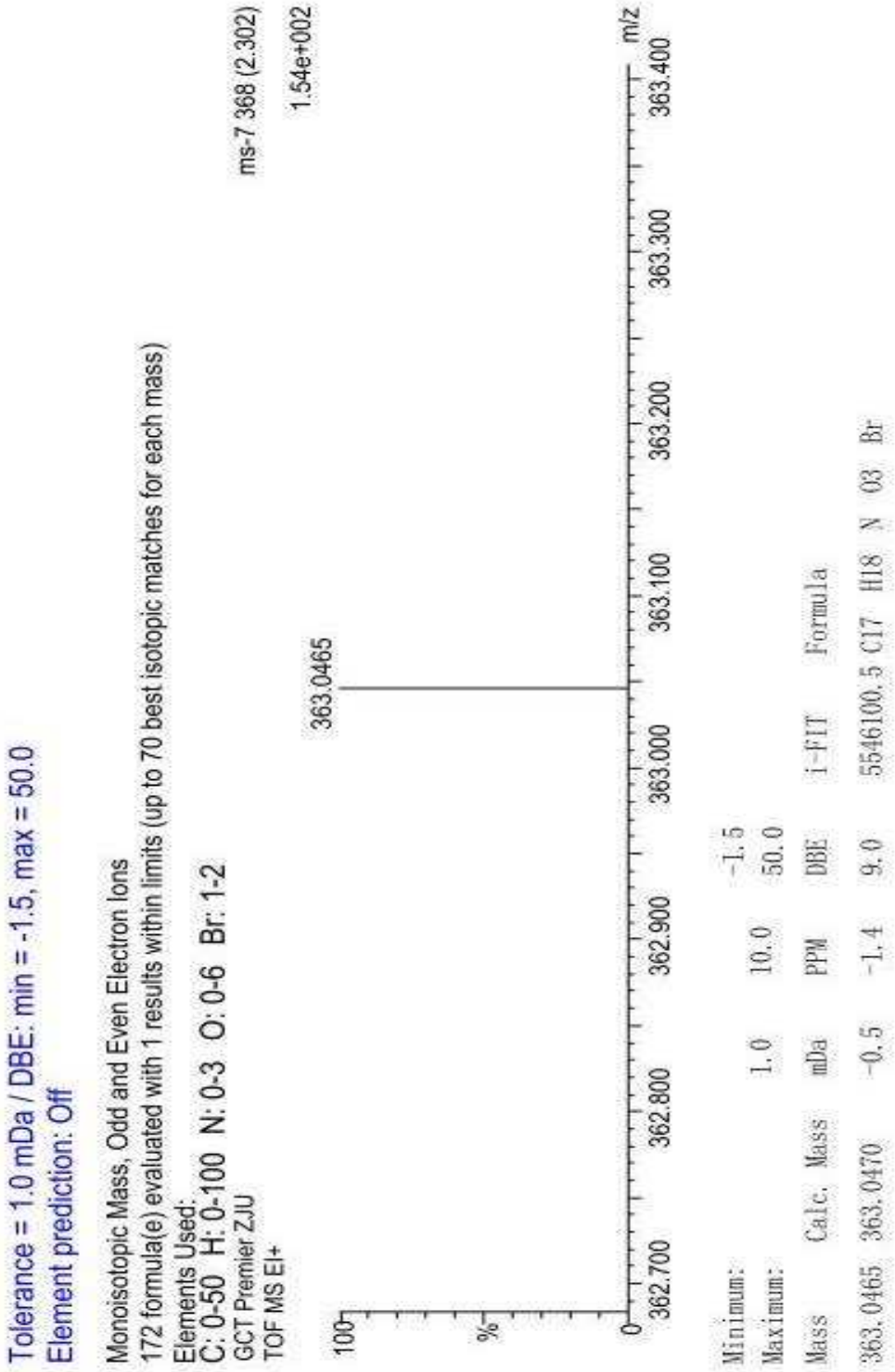
^{1}H NMR Spectrum of ethyl 2-(4-tolylamino)-2-(5-bromo-2-hydroxyphenyl)acetate **3ae**



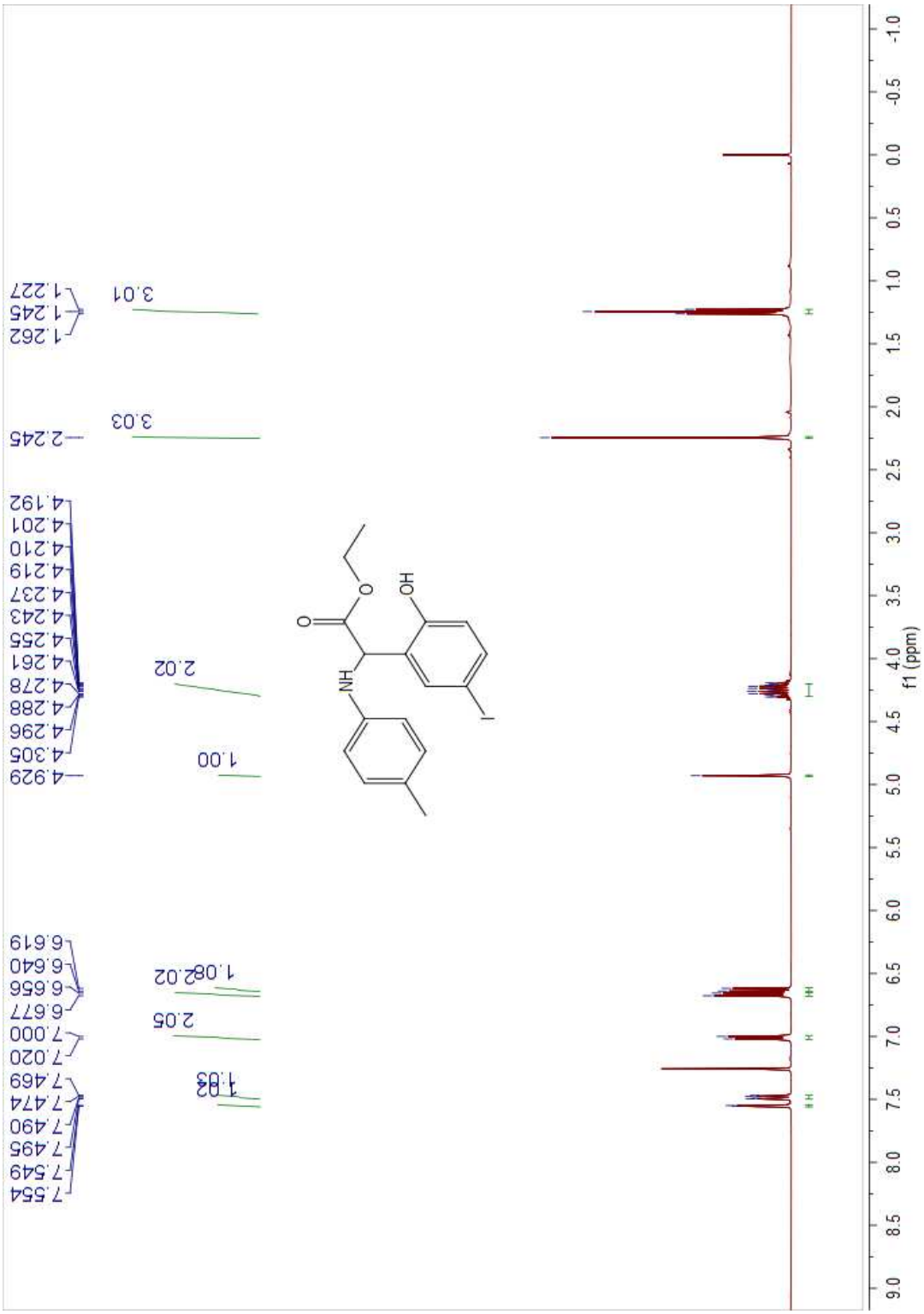
^{13}C NMR Spectrum of ethyl 2-(4-tolylamino)-2-(5-bromo-2-hydroxyphenyl)acetate **3ae**



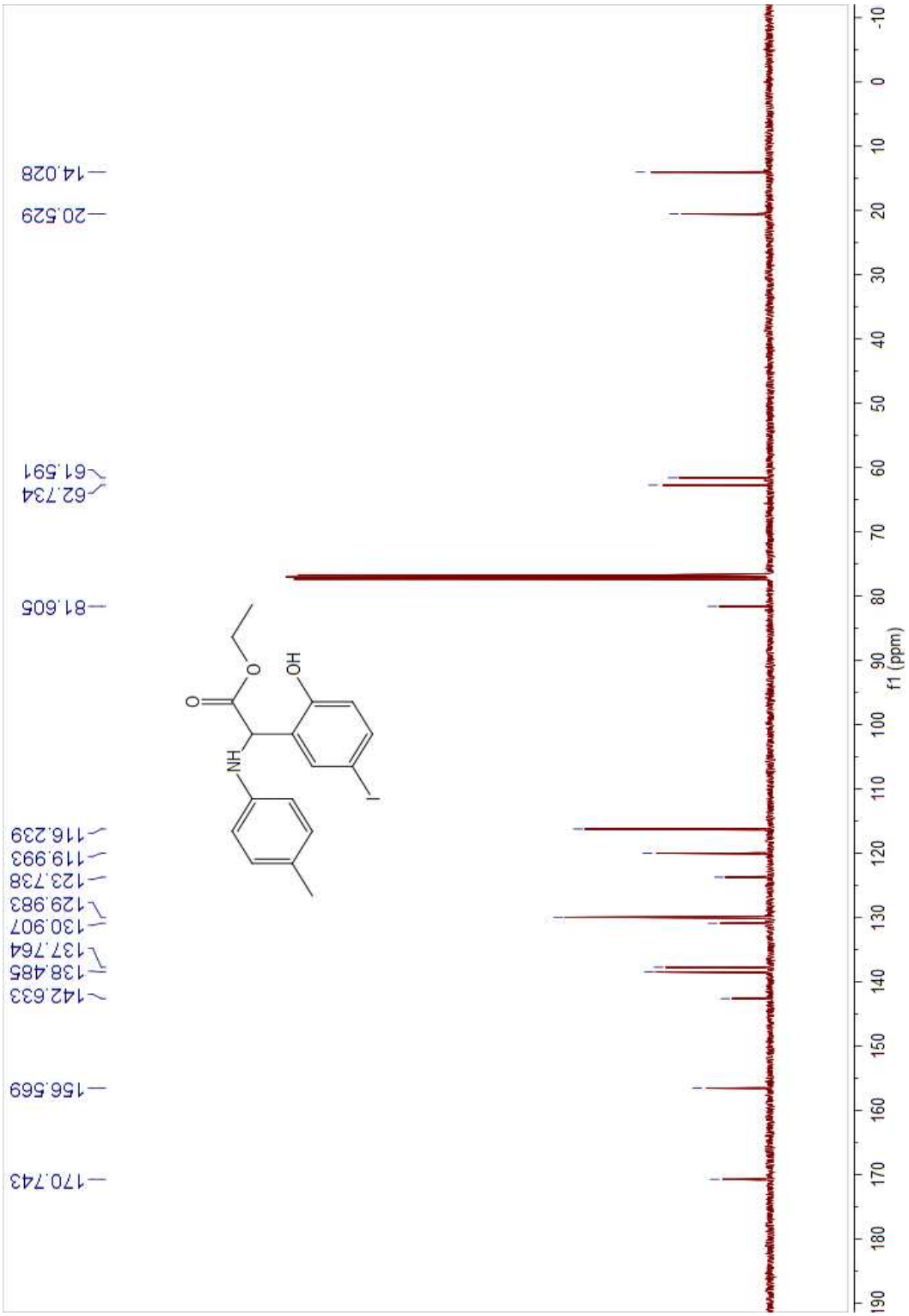
HR-MS Spectrum of ethyl 2-(4-tolylamino)-2-(5-bromo-2-hydroxyphenyl)acetate **3ae**



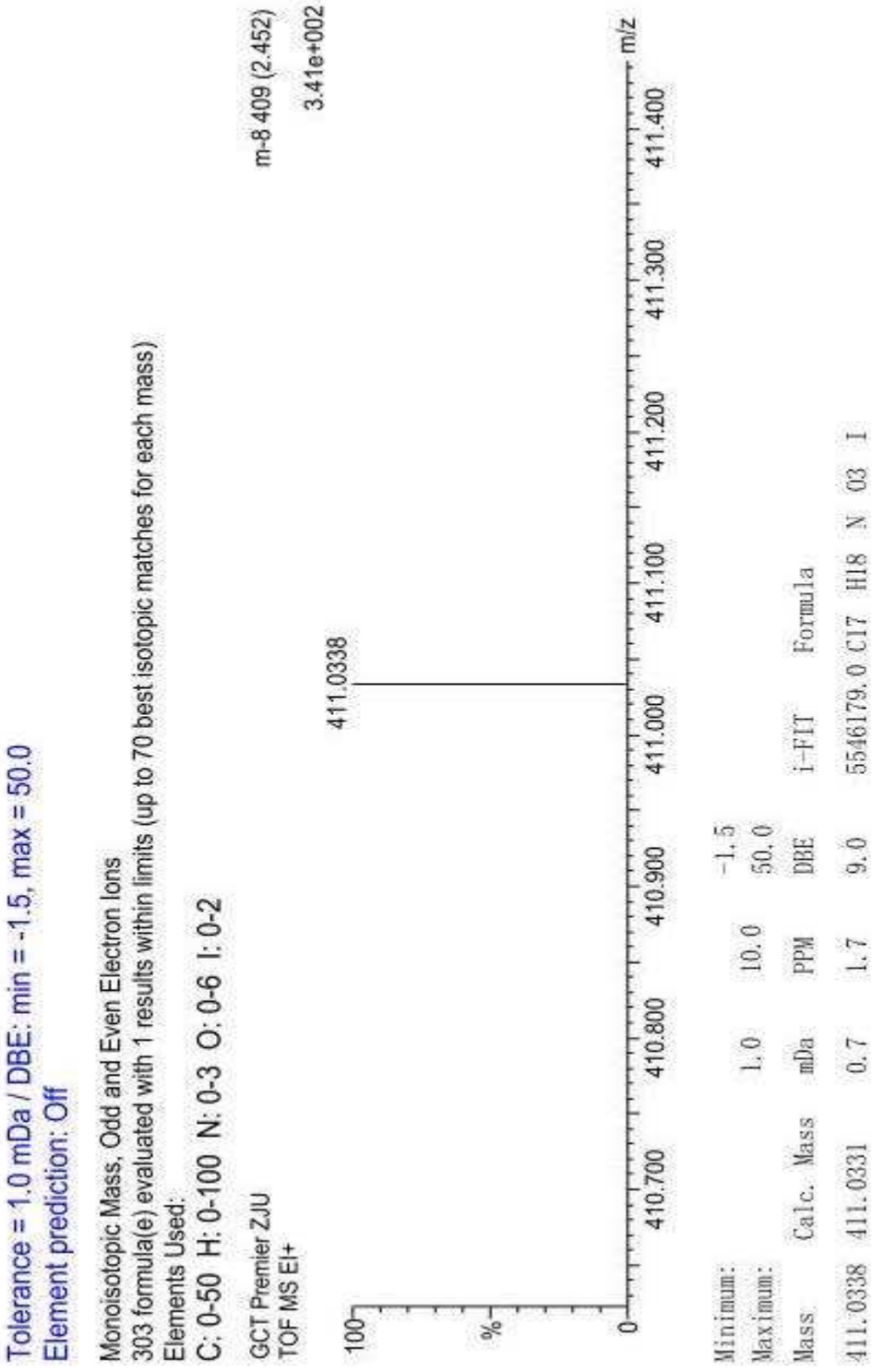
^{1}H NMR Spectrum of ethyl 2-(4-tolylamino)-2-(2-hydroxy-5-iodophenyl)acetate **3af**



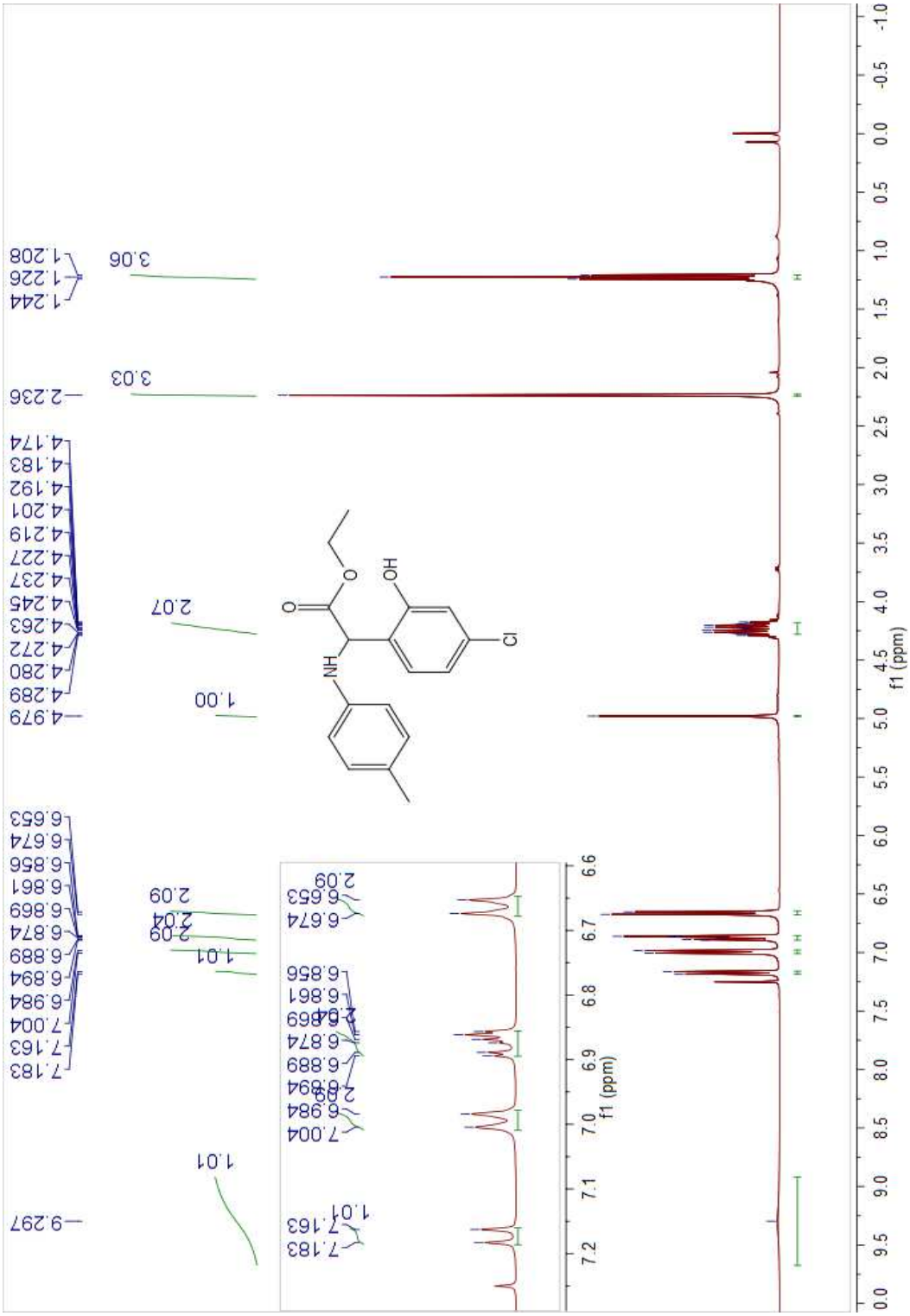
^{13}C NMR Spectrum of ethyl 2-(4-tolylamino)-2-(2-hydroxy-5-iodophenyl)acetate **3af**



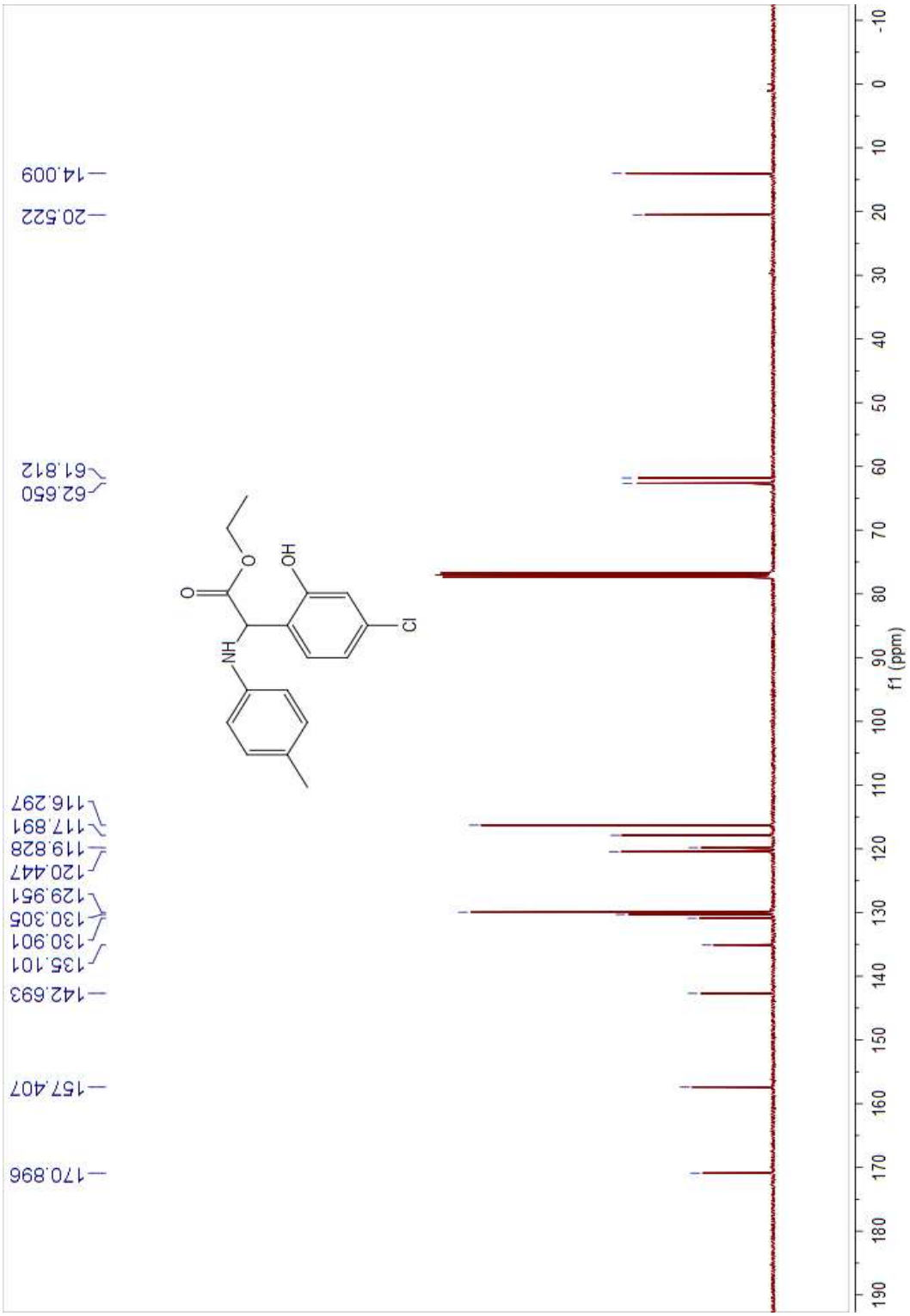
HR-MS Spectrum of ethyl 2-(4-tolylamino)-2-(2-hydroxy-5-iodophenyl)acetate **3af**



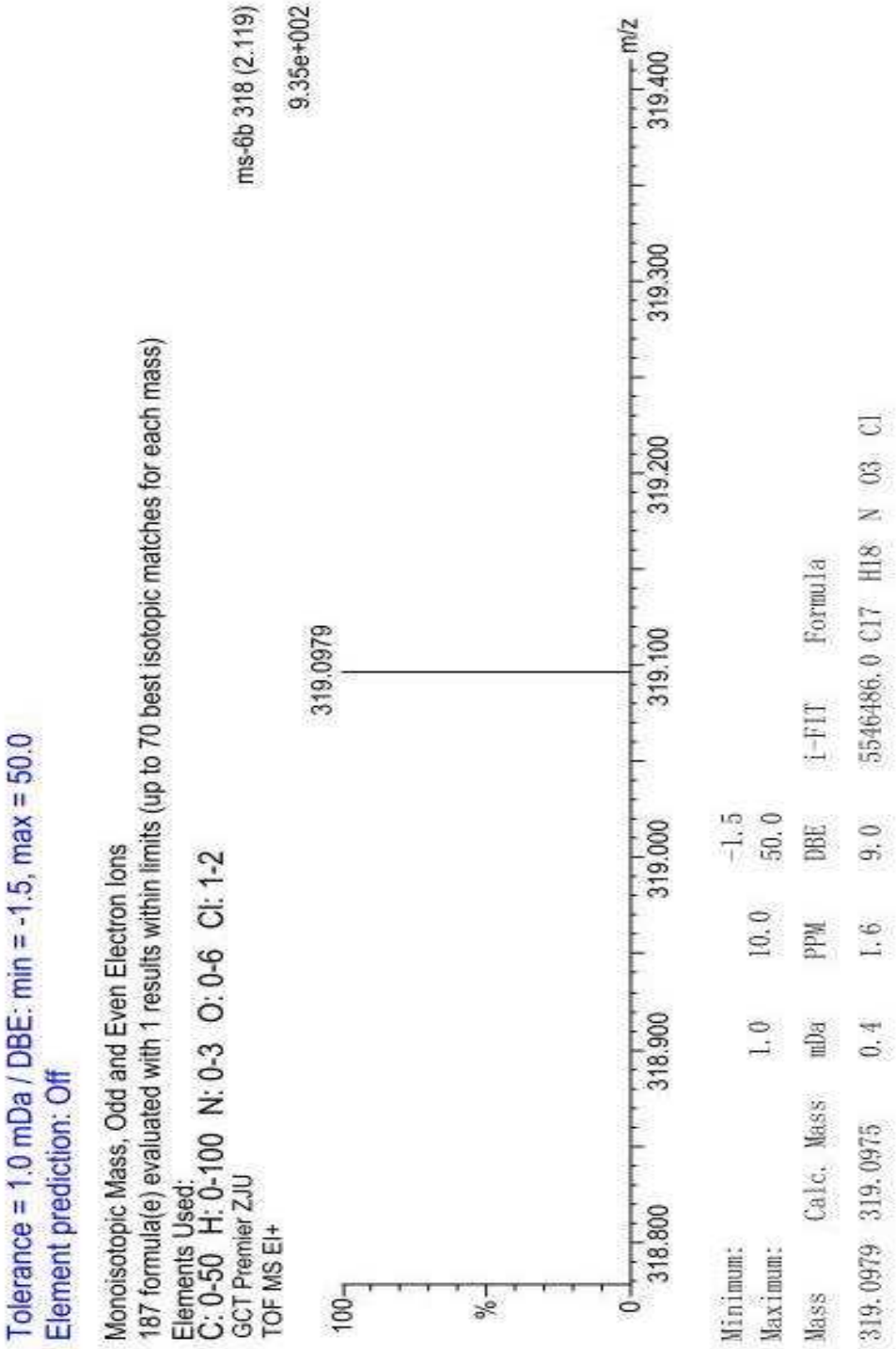
^{1}H NMR Spectrum of ethyl 2-(4-tolylamino)-2-(4-chloro-2-hydroxyphenyl)acetate **3ag**



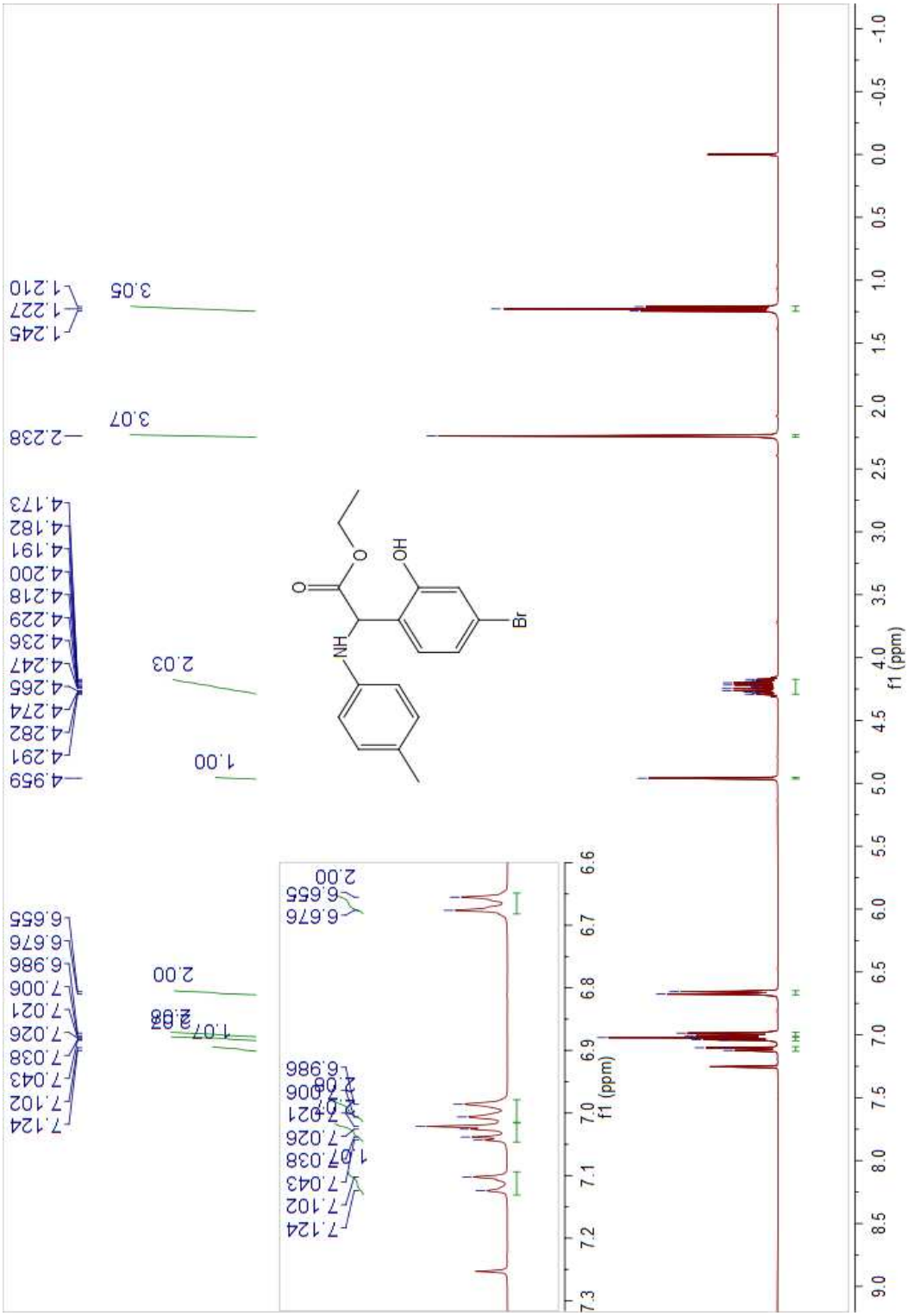
^{13}C NMR Spectrum of ethyl 2-(4-tolylamino)-2-(4-chloro-2-hydroxyphenyl)acetate **3ag**



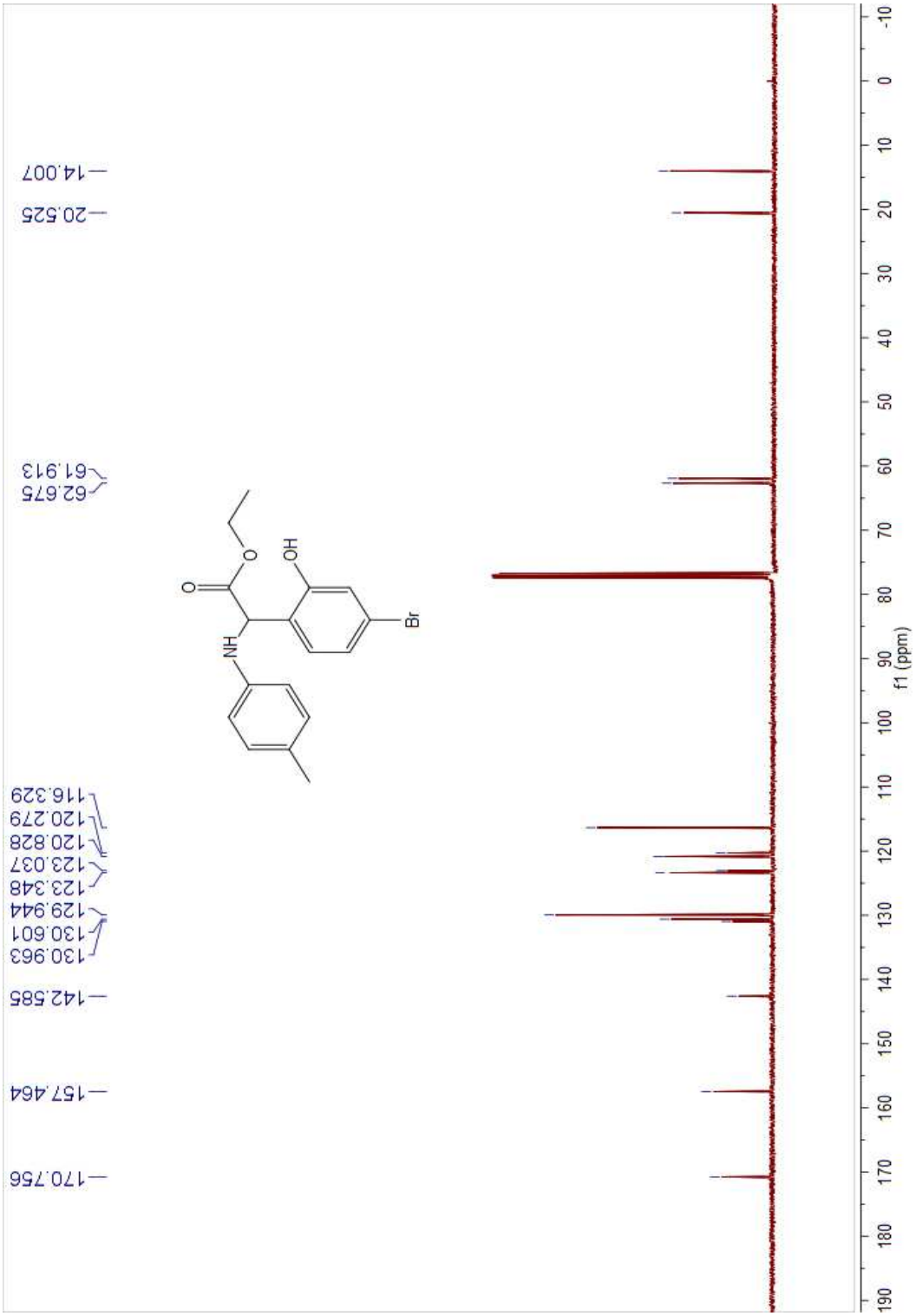
HR-MS Spectrum of ethyl 2-(4-tolylamino)-2-(4-chloro-2-hydroxyphenyl)acetate **3ag**



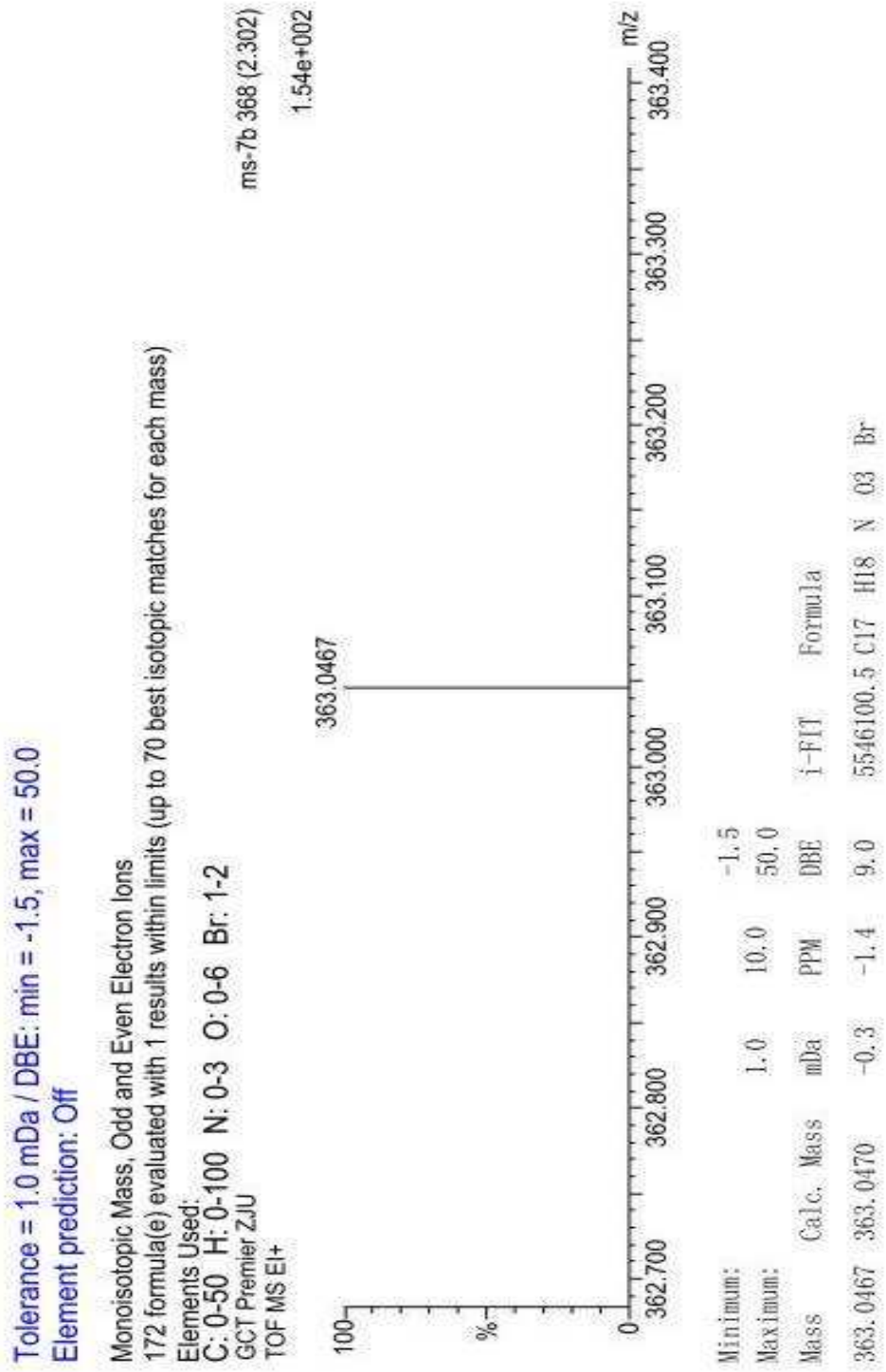
^{1}H NMR Spectrum of ethyl 2-(4-tolylamino)-2-(4-bromo-2-hydroxyphenyl)acetate **3ah**



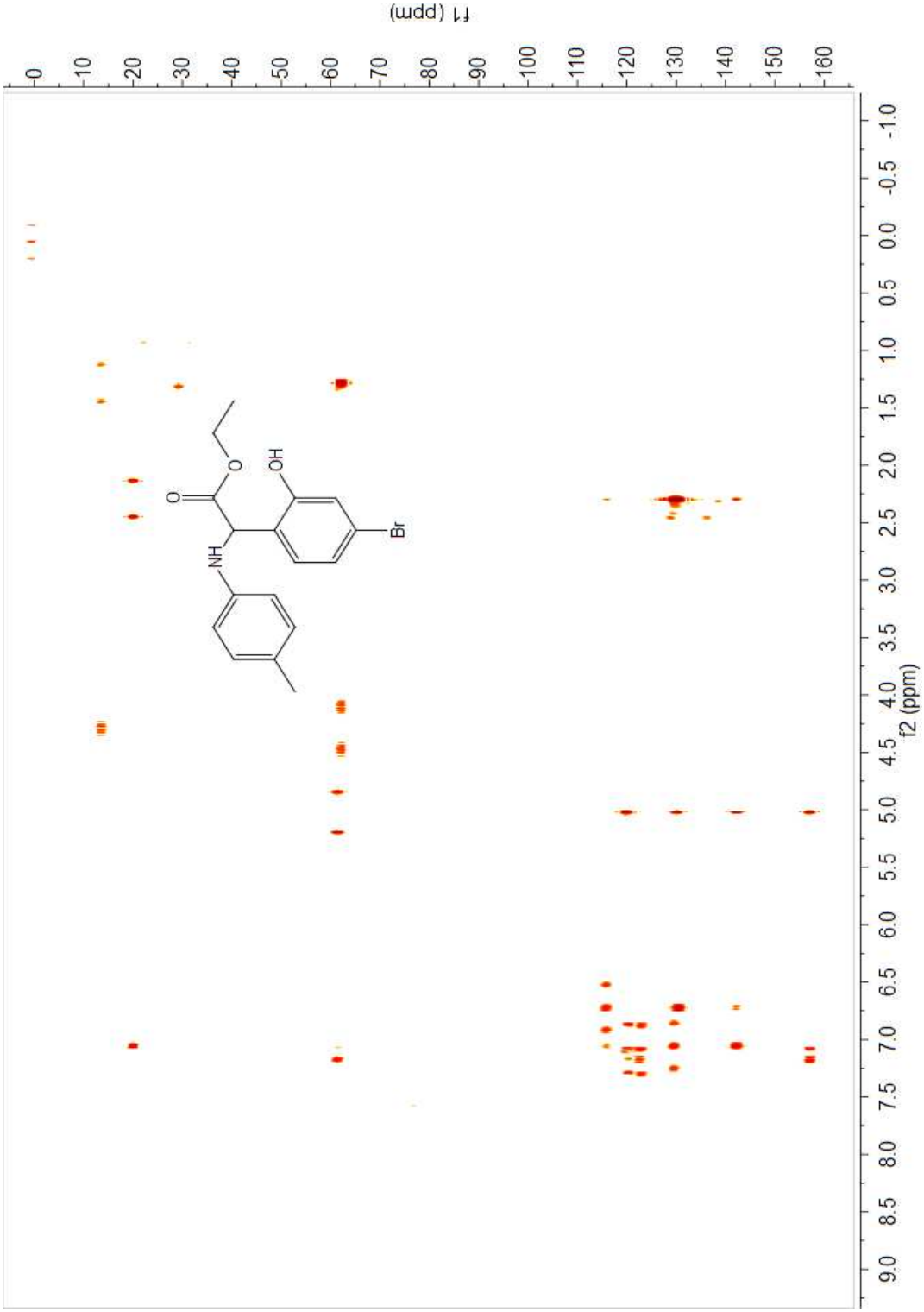
^{13}C NMR Spectrum of ethyl 2-(4-tolylamino)-2-(4-bromo-2-hydroxyphenyl)acetate **3ah**



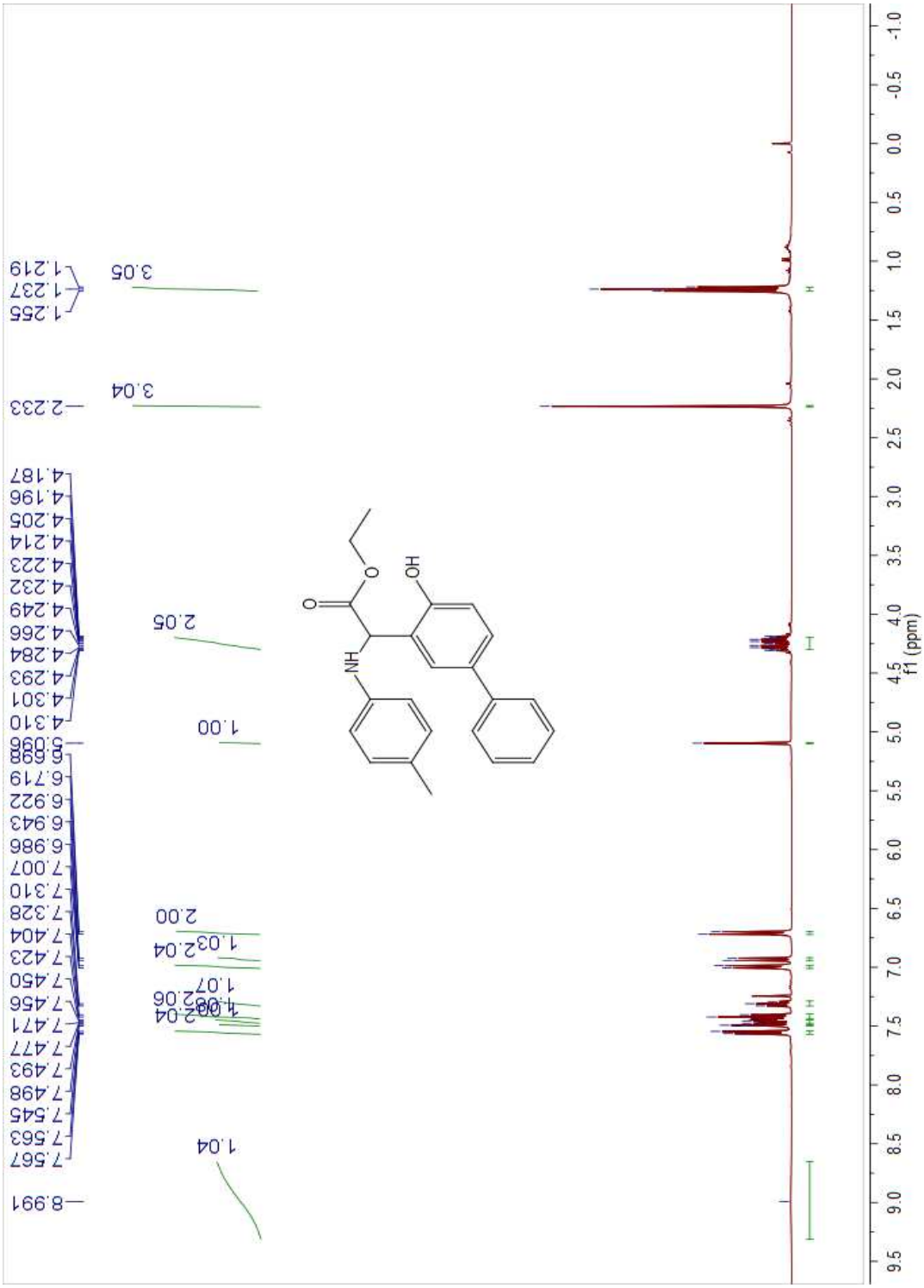
HR-MS Spectrum of ethyl 2-(4-tolylamino)-2-(4-bromo-2-hydroxyphenyl)acetate **3ah**



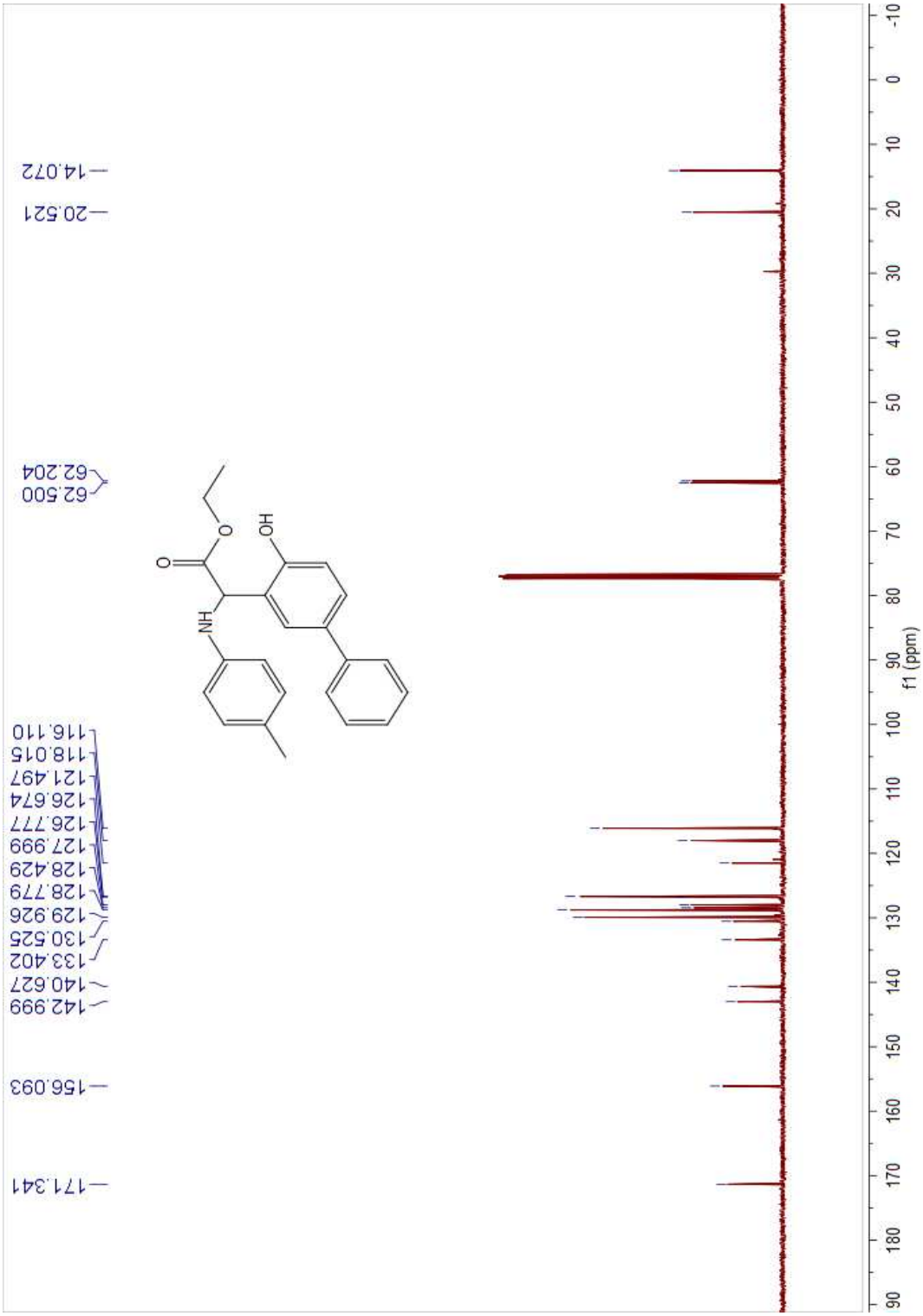
HMBC Spectrum of ethyl 2-(4-tolylamino)-2-(4-bromo-2-hydroxyphenyl)acetate **3ah**



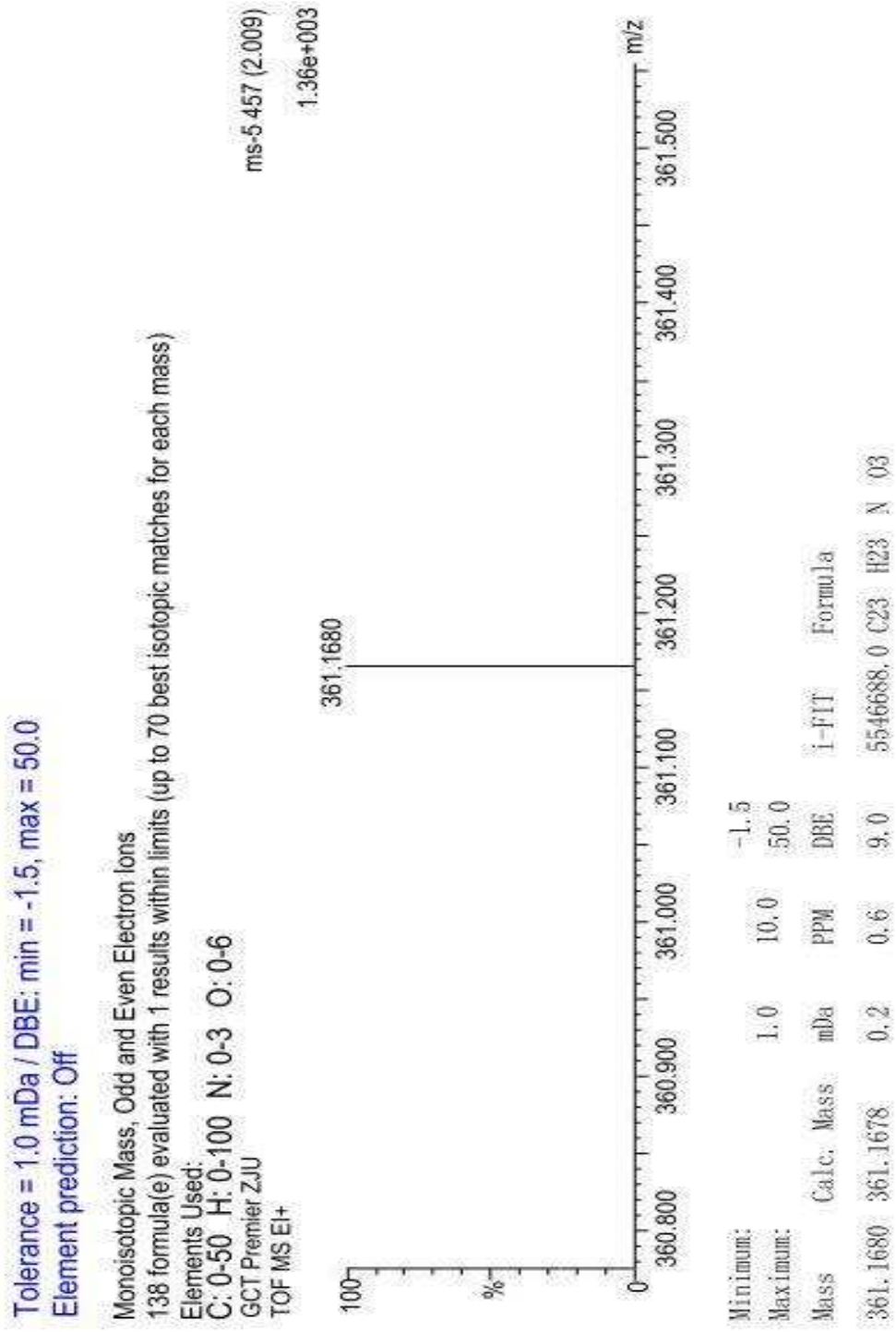
^{1}H NMR Spectrum of ethyl 2-(4-tolylamino)-2-[2-hydroxy-(5-phenyl)-phenyl]acetat*e* **3ai**



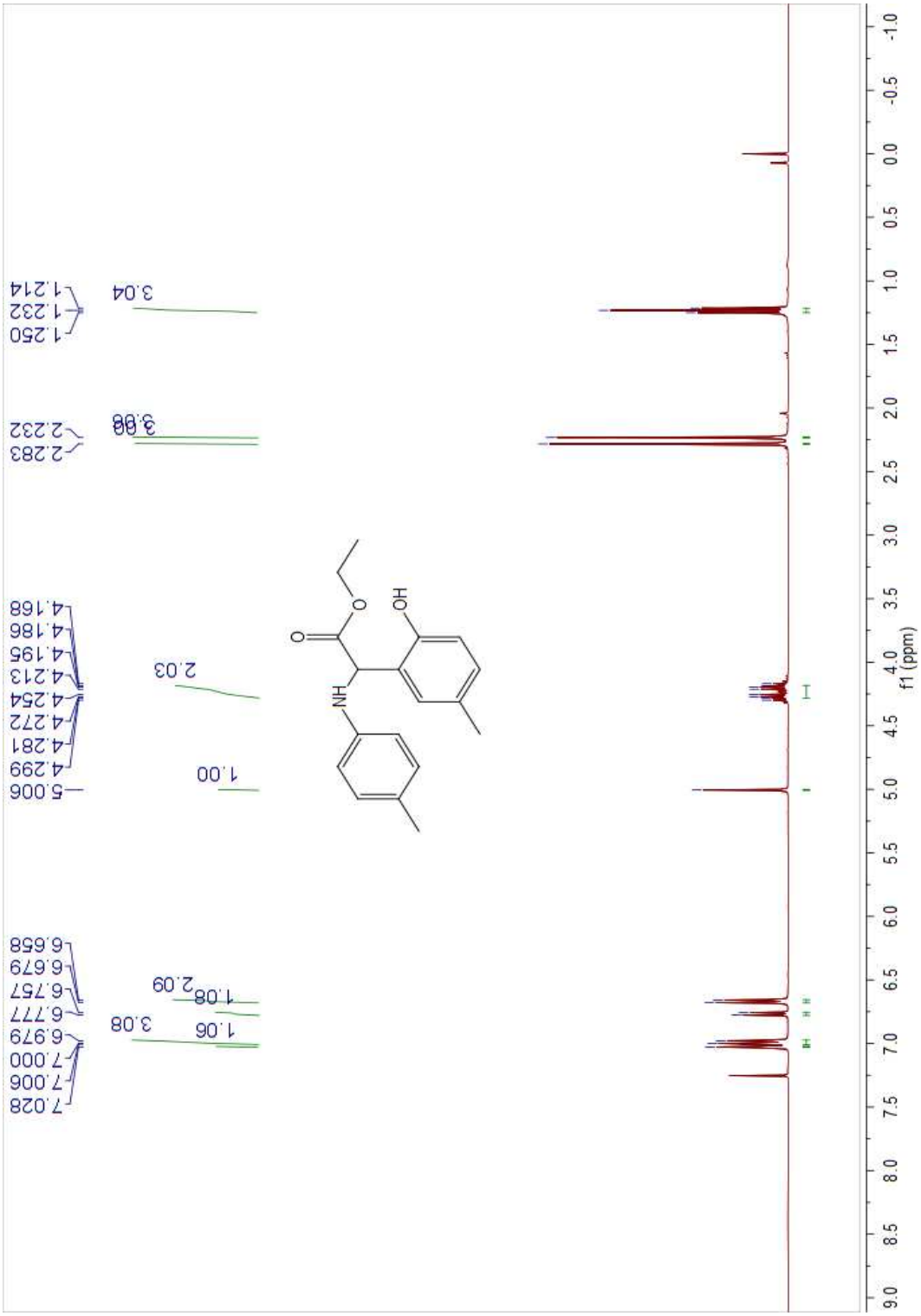
^{13}C NMR Spectrum of ethyl 2-(4-tolylamino)-2-[2-hydroxy-(5-phenyl)-phenyl]acetate **3ai**



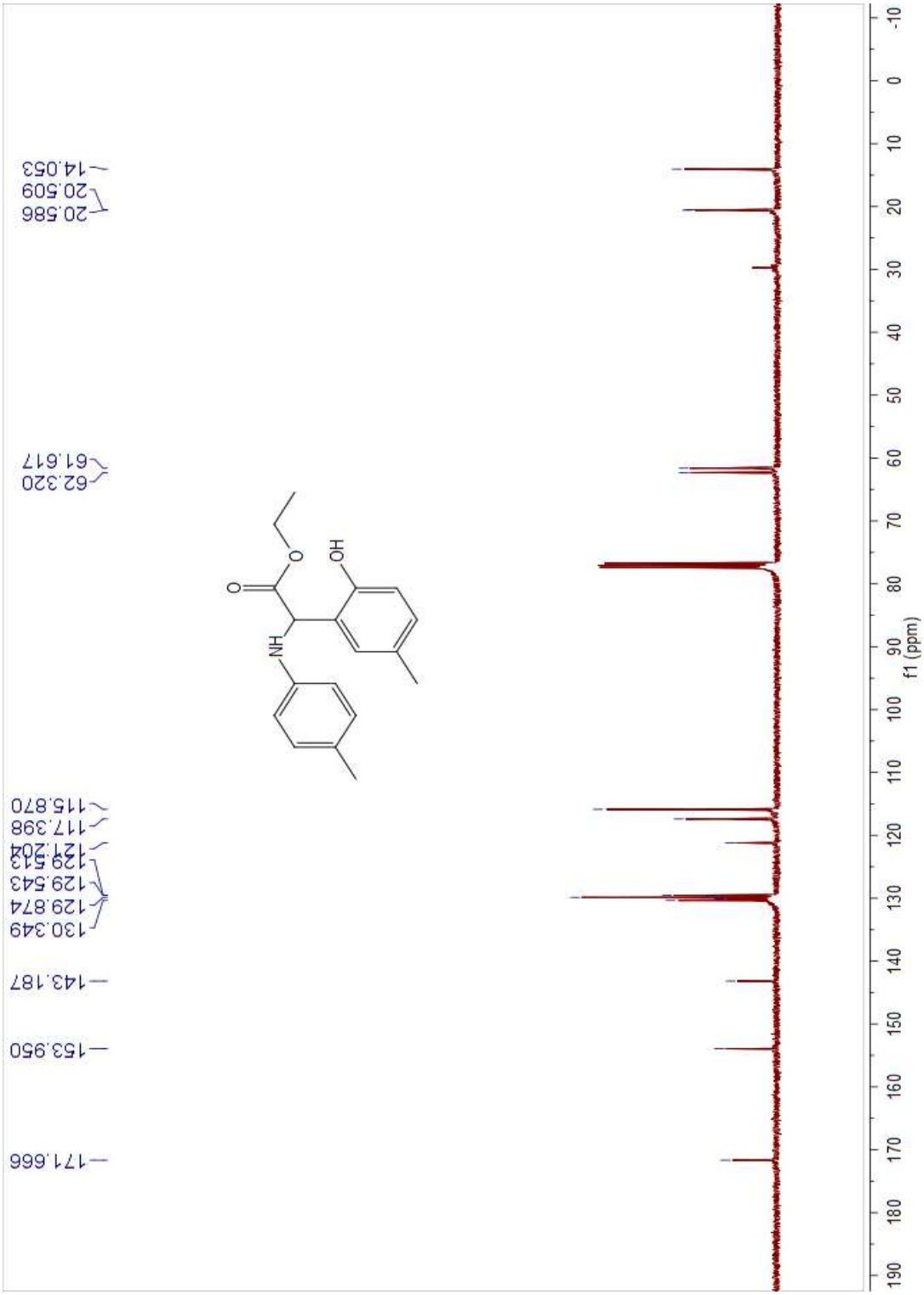
HR-MS Spectrum of ethyl 2-(4-tolylamino)-2-[2-hydroxy-(5-phenyl)-phenyl]acetate **3ai**



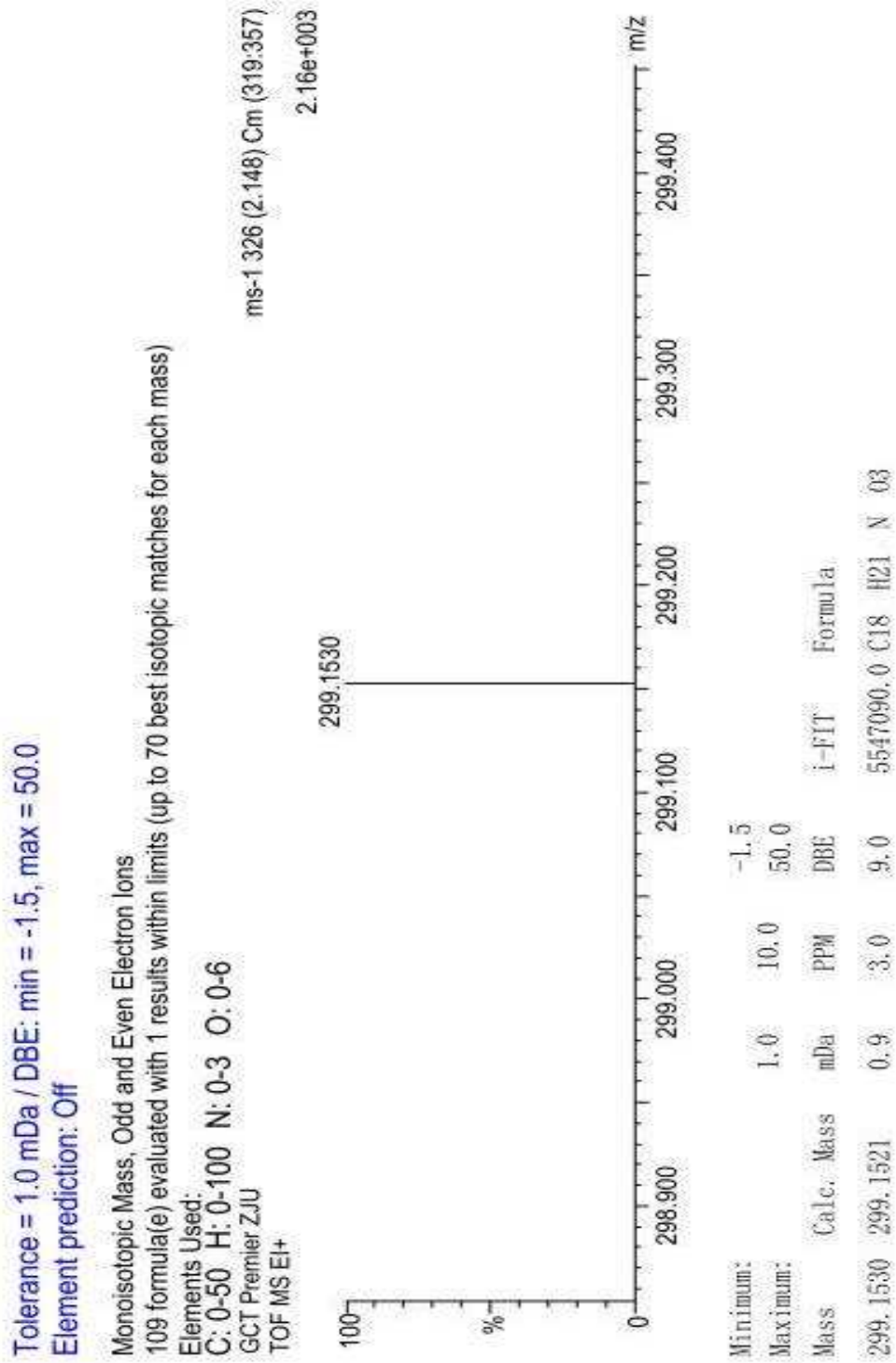
^{1}H-NMR Spectrum of ethyl 2-(4-tolylamino)-2-(2-hydroxyphenyl)acetate **3aj**



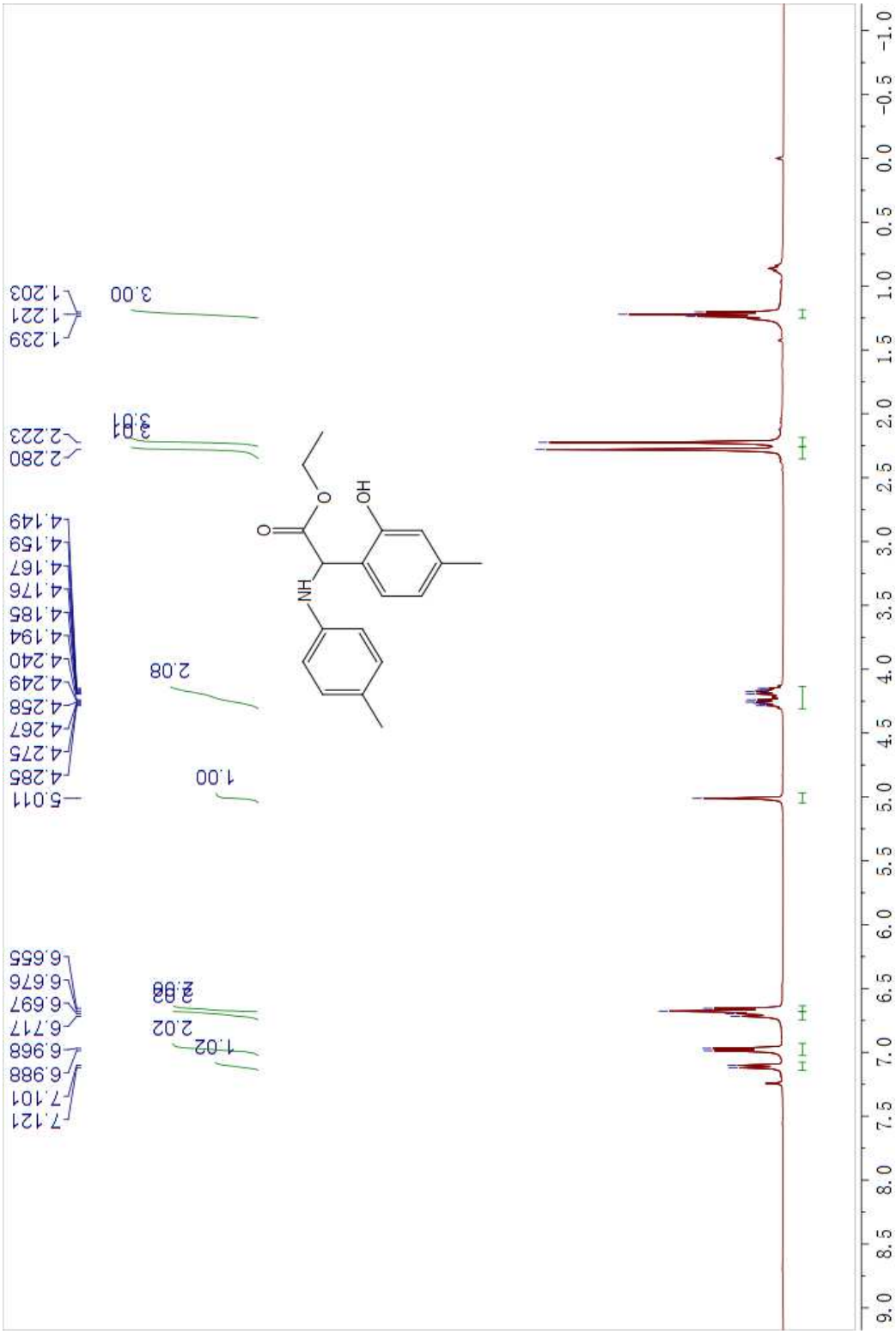
^{13}C-NMR Spectrum of ethyl 2-(4-tolylamino)-2-(2-hydroxyphenyl)acetate **3aj**



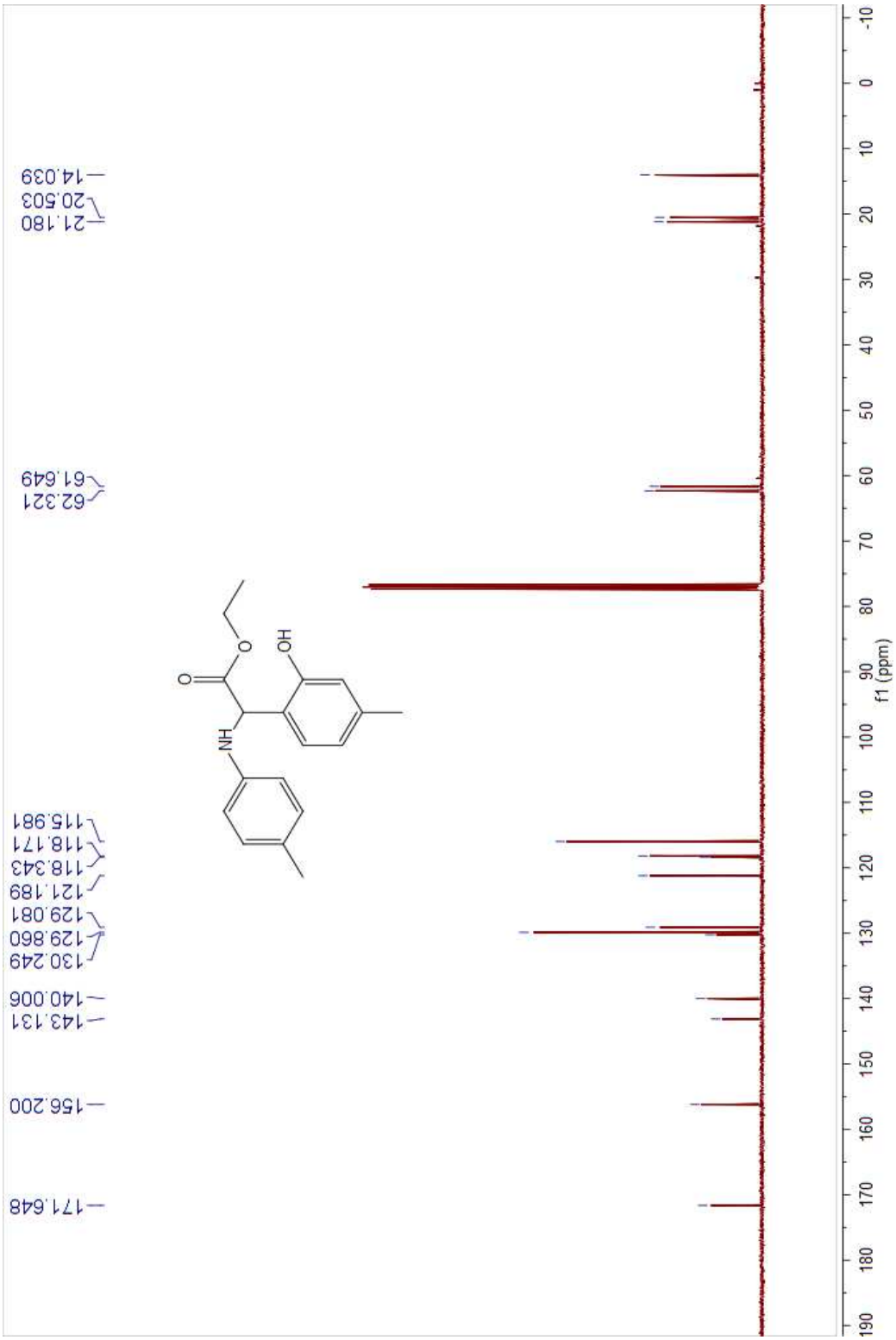
HR-MS Spectrum of ethyl 2-(4-tolylamino)-2-(2-hydroxyphenyl)acetate **3aj**



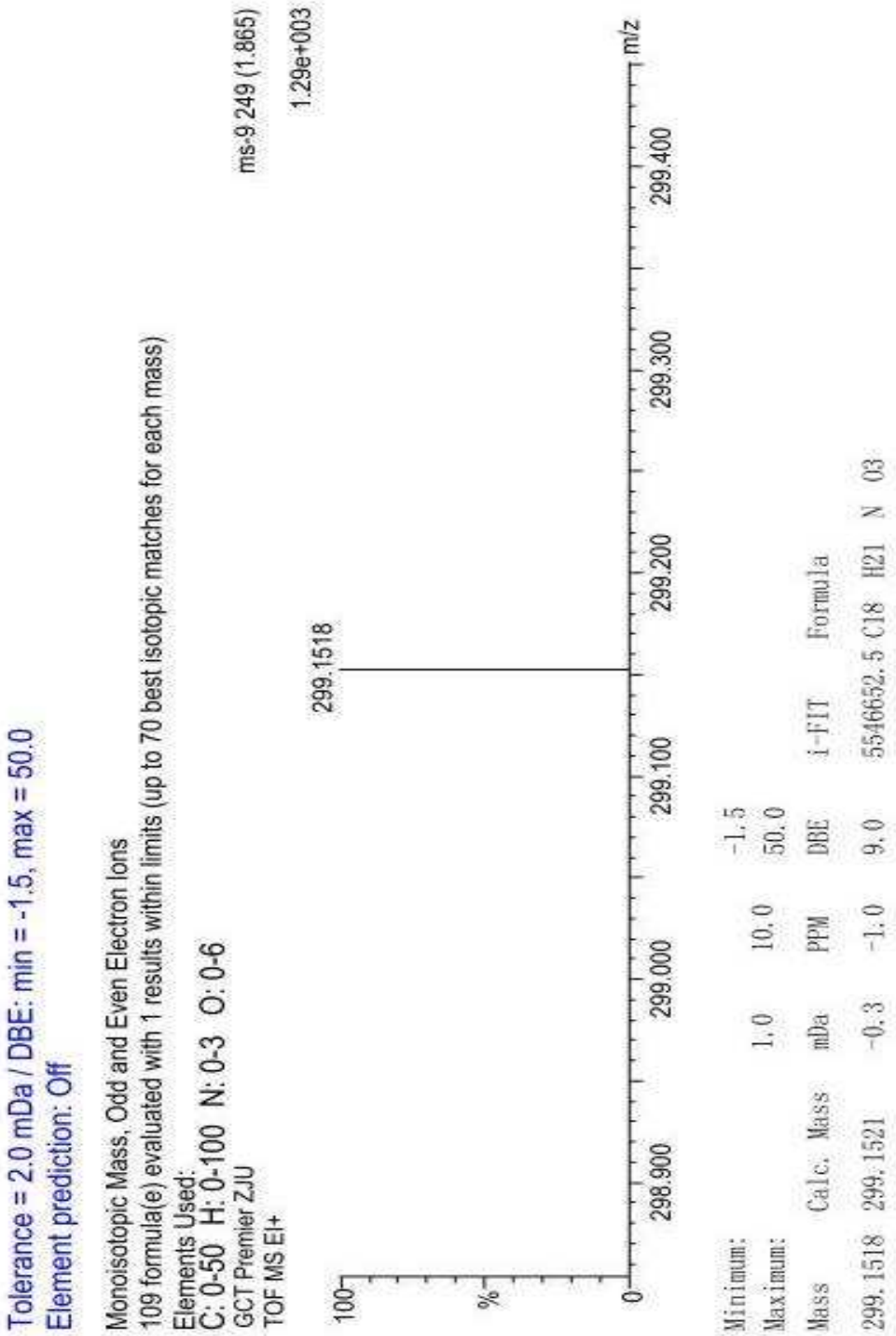
^{1}H NMR Spectrum of ethyl 2-(4-tolylamino)-2-(2-hydroxy-4-methylphenyl)acetate **3ak**



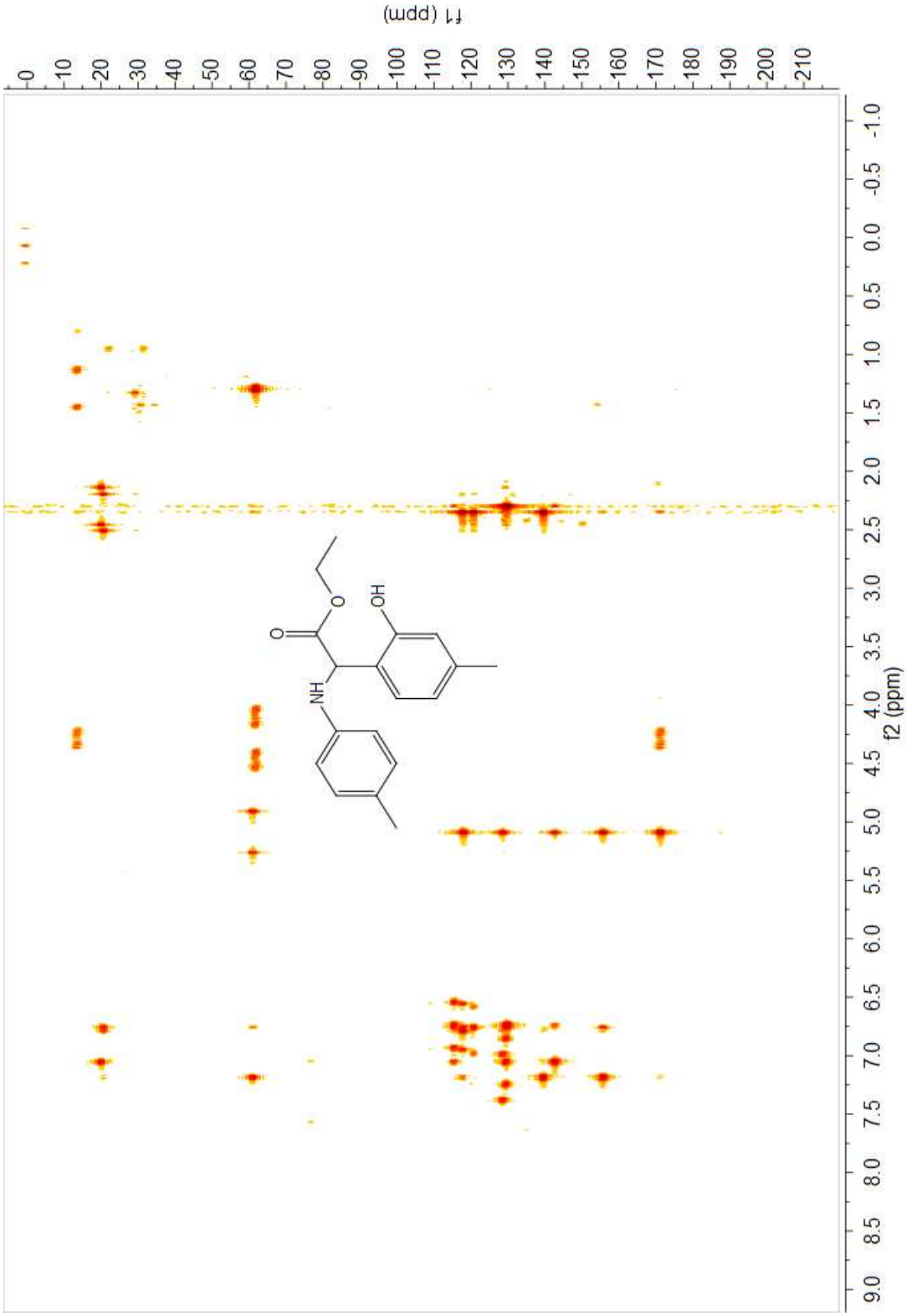
^{13}C NMR Spectrum of ethyl 2-(4-tolylamino)-2-(2-hydroxy-4-methylphenyl)acetate **3ak**



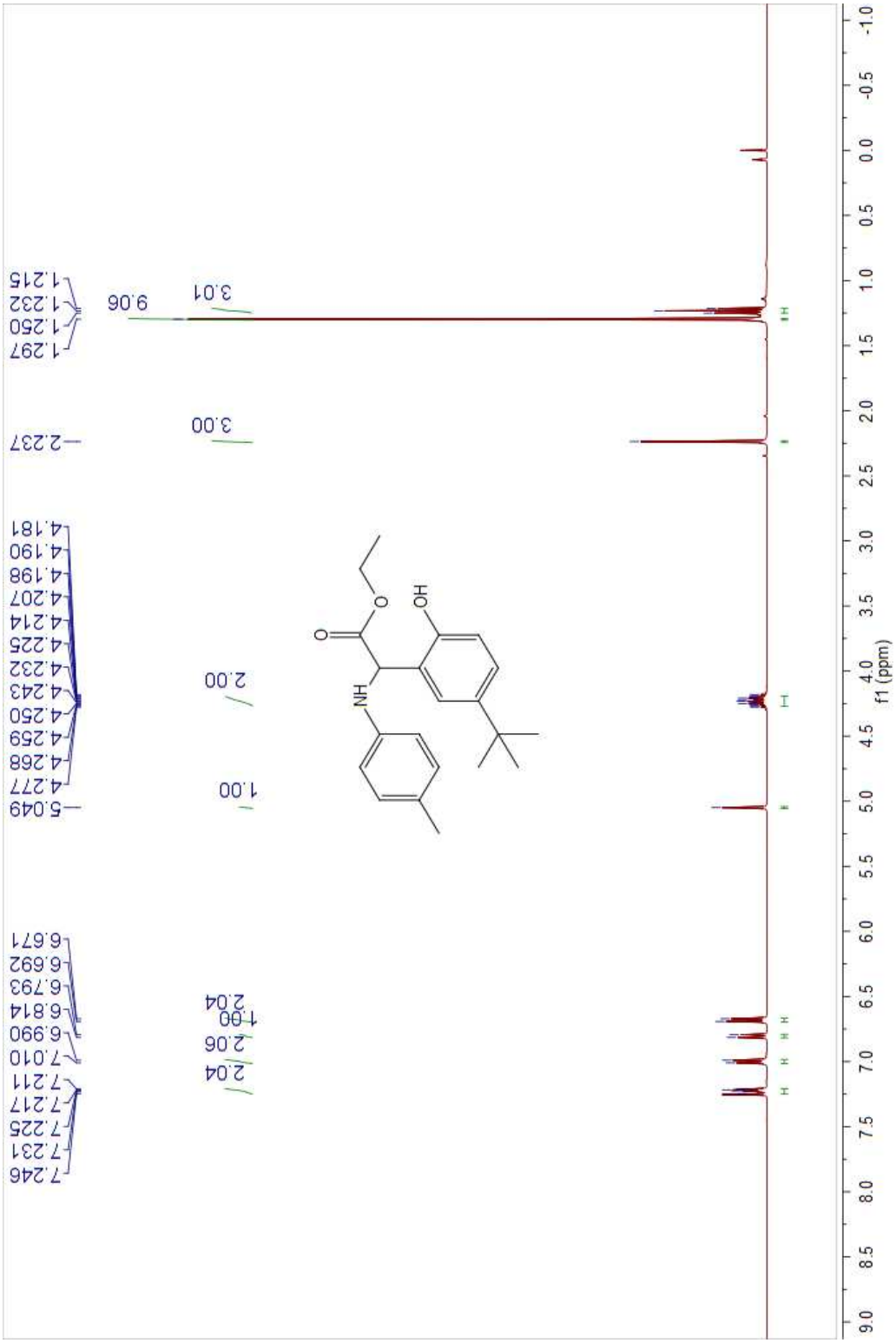
HR-MS Spectrum of ethyl 2-(4-tolylamino)-2-(2-hydroxy-4-methylphenyl)acetate **3ak**



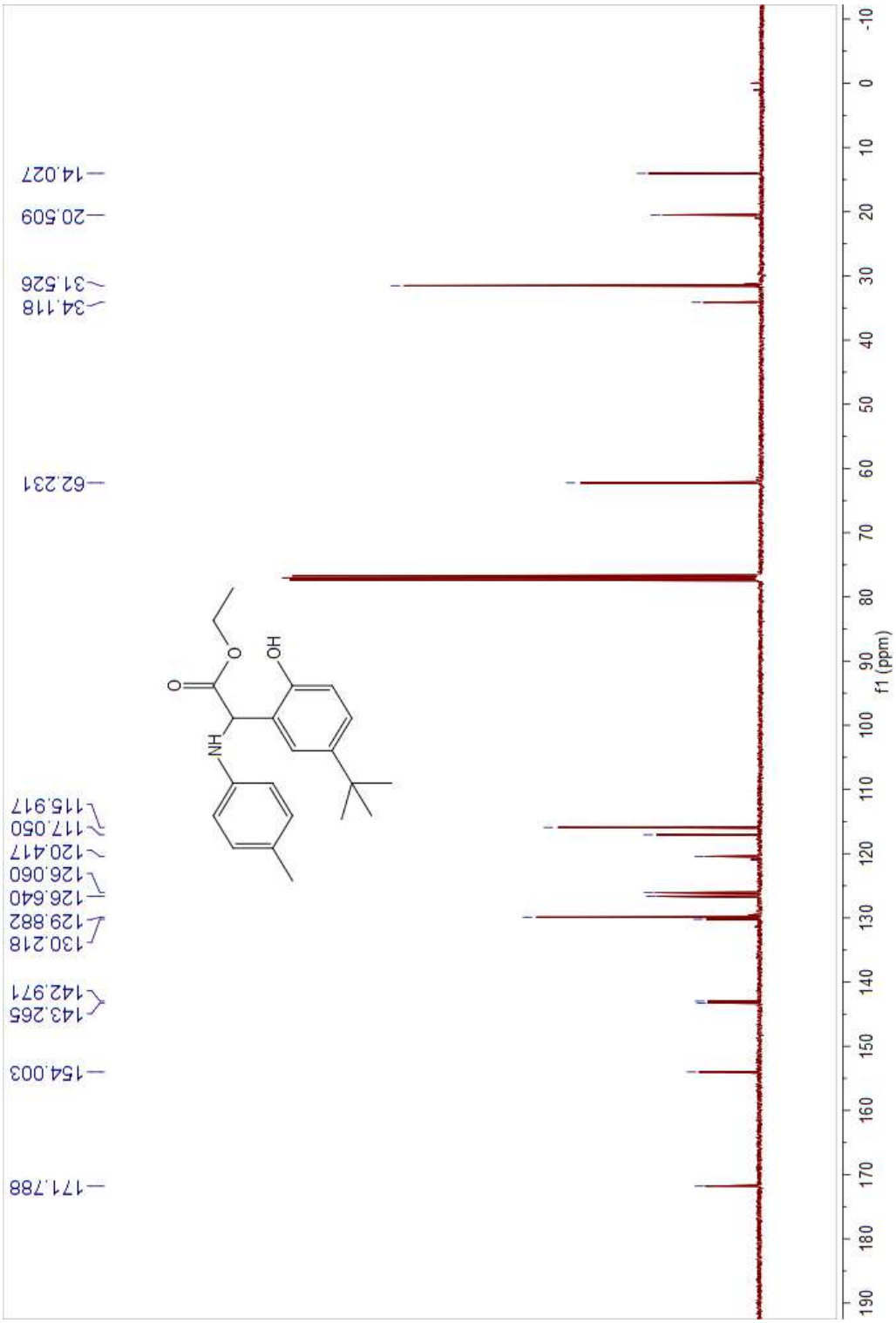
HMBC Spectrum of ethyl 2-(4-tolylamino)-2-(2-hydroxy-4-methylphenyl)acetate **3ak**



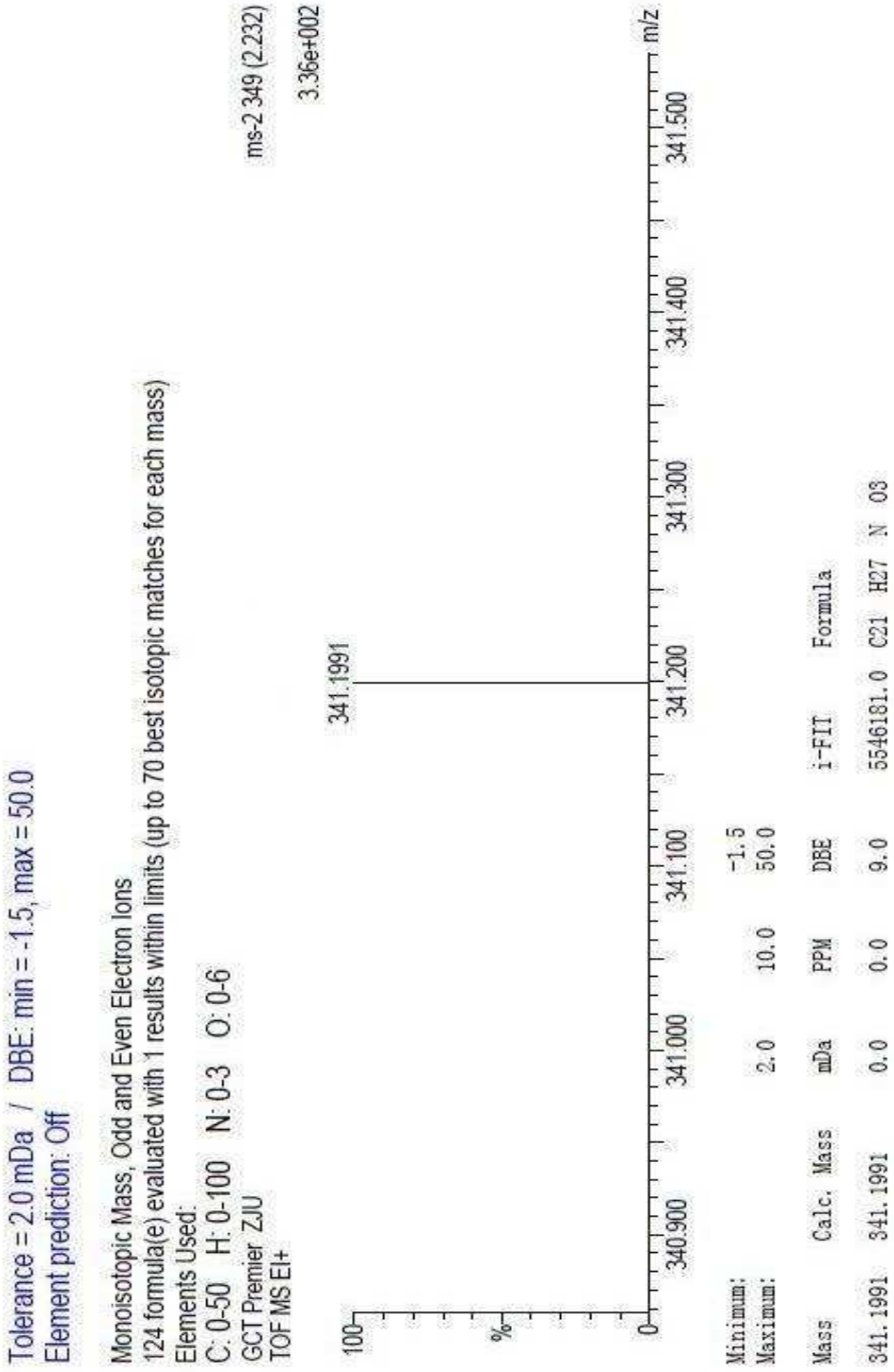
^{1}H-NMR Spectrum of ethyl 2-(4-tolylamino)-2-(5-tert-butyl-2-hydroxyphenyl)acetate **3ai**



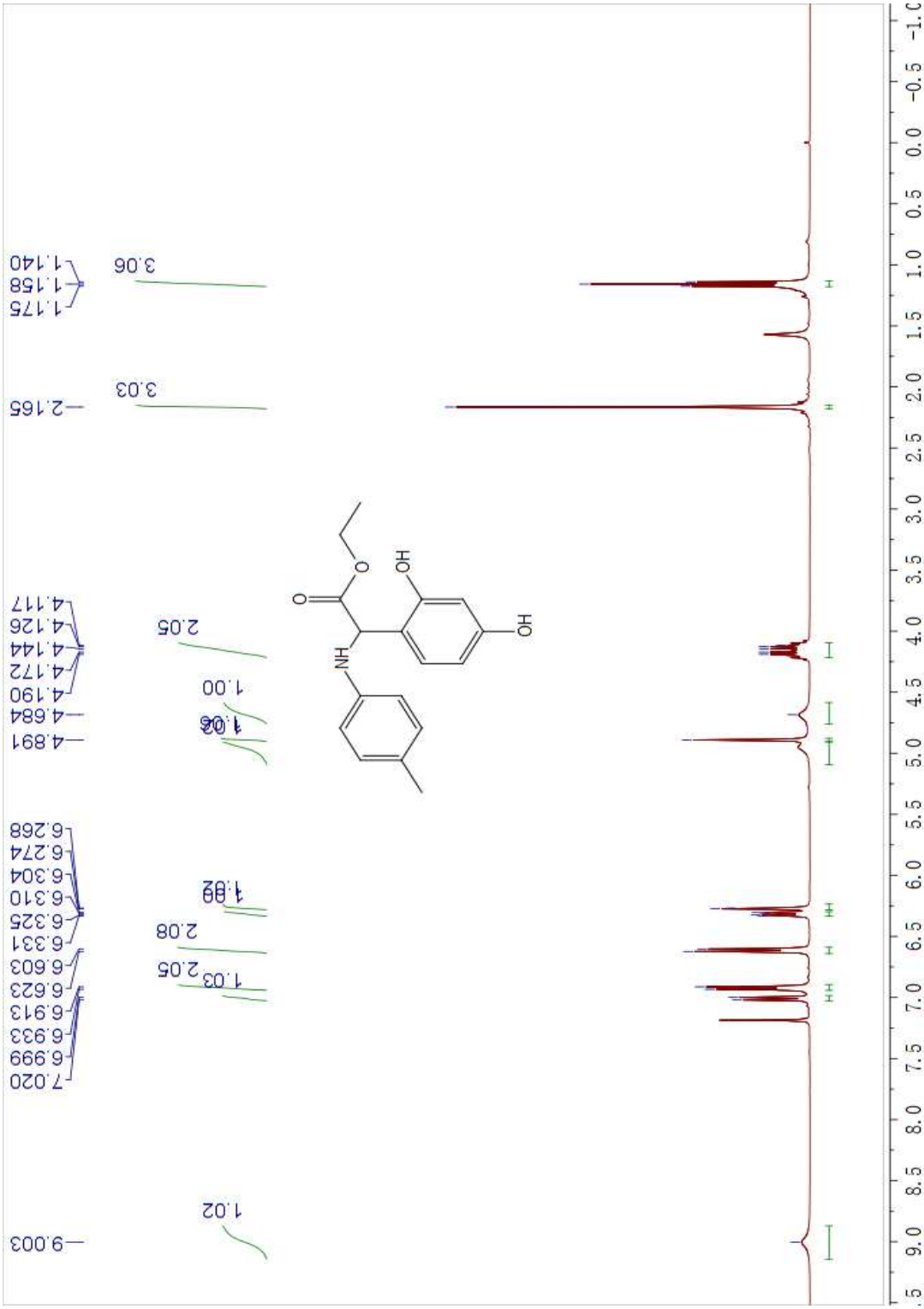
^{13}C-NMR Spectrum of ethyl 2-(4-tolylamino)-2-(5-tert-butyl-2-hydroxyphenyl)acetate **3ai**



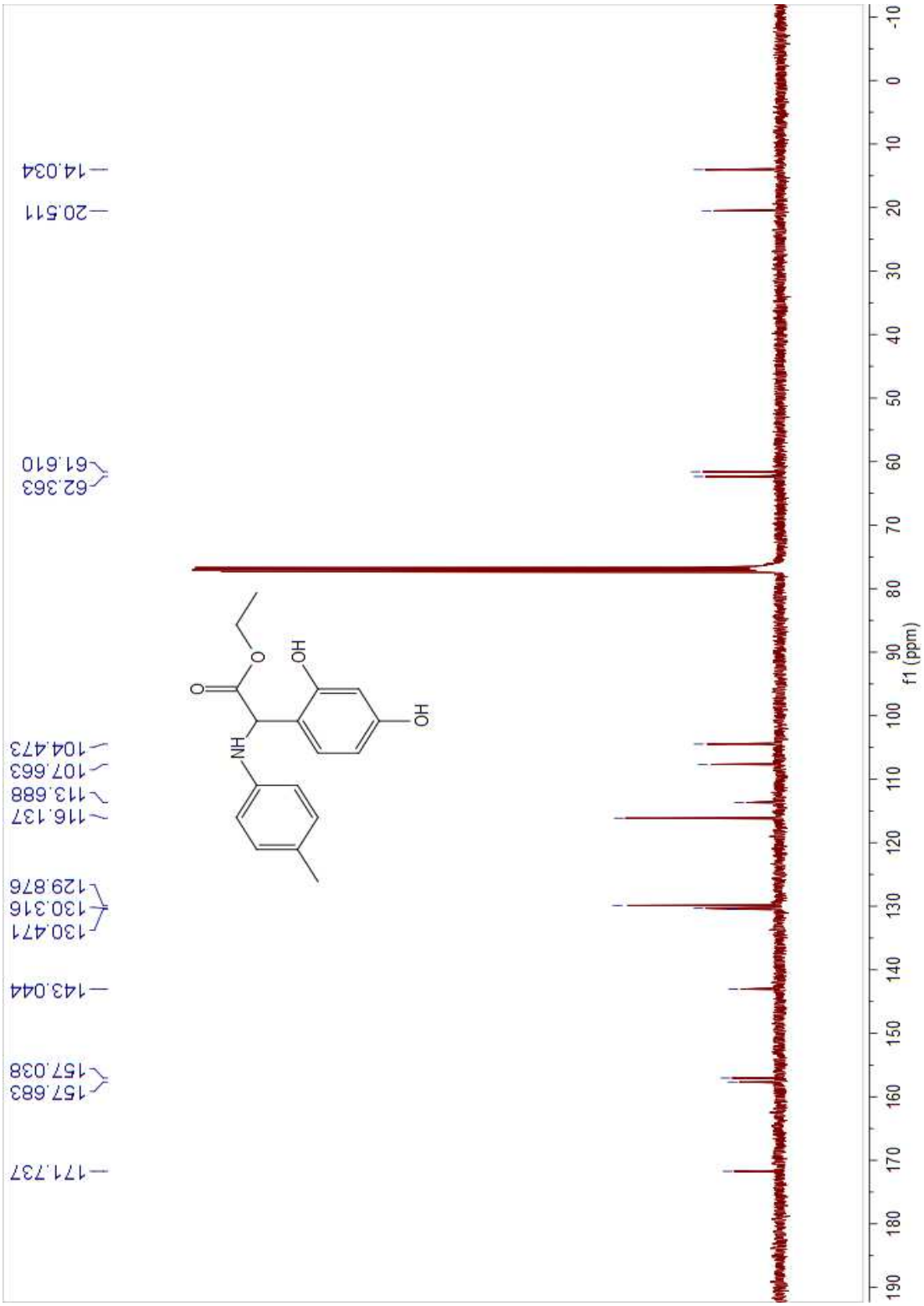
HR-MS Spectrum of ethyl 2-(4-tolylamino)-2-(5-tert-butyl-2-hydroxyphenyl)acetate **3ai**



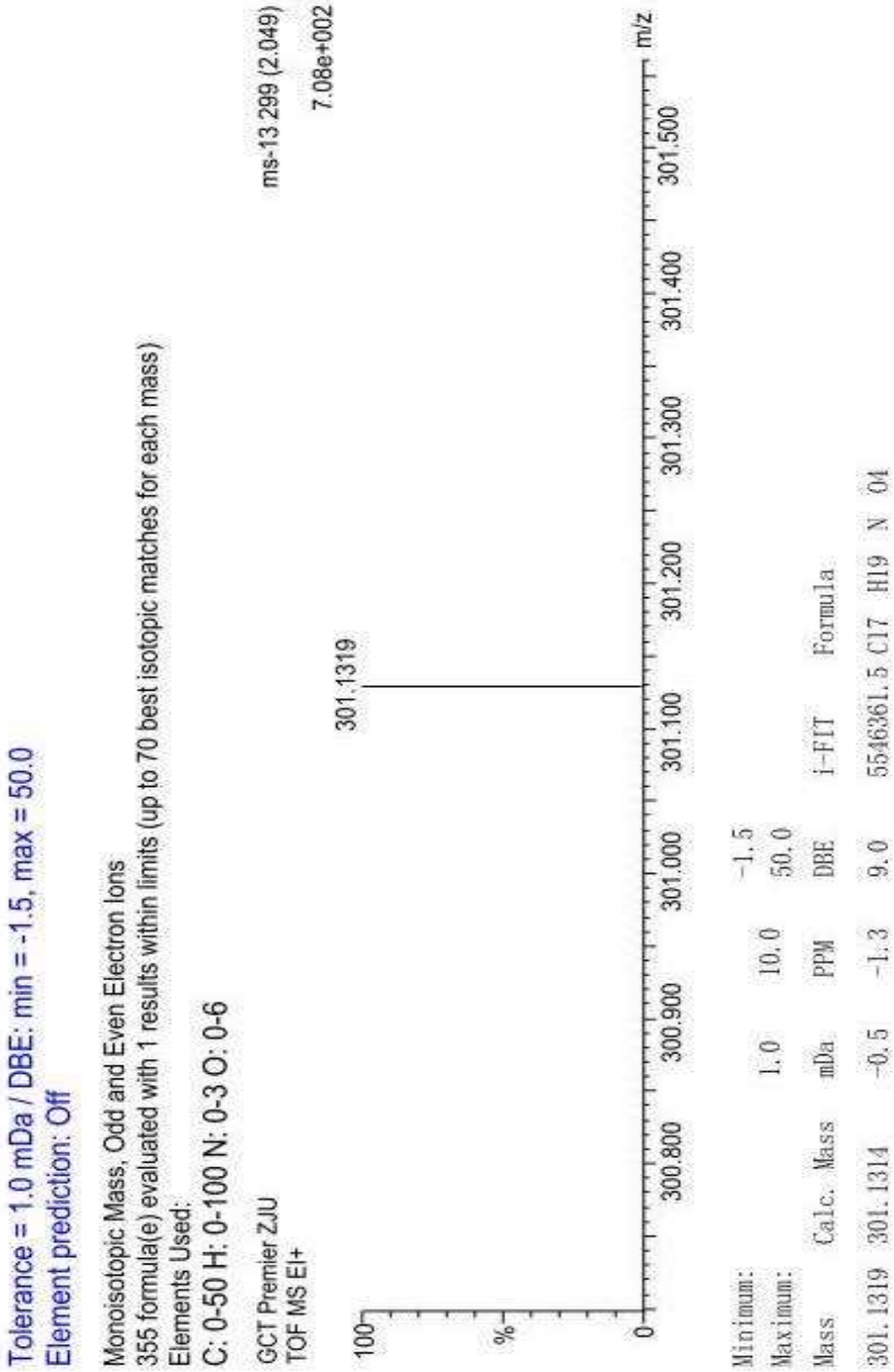
^{1}H NMR Spectrum of ethyl 2-(4-tolylamino)-2-(2,4-dihydroxyphenyl)acetate **3am**



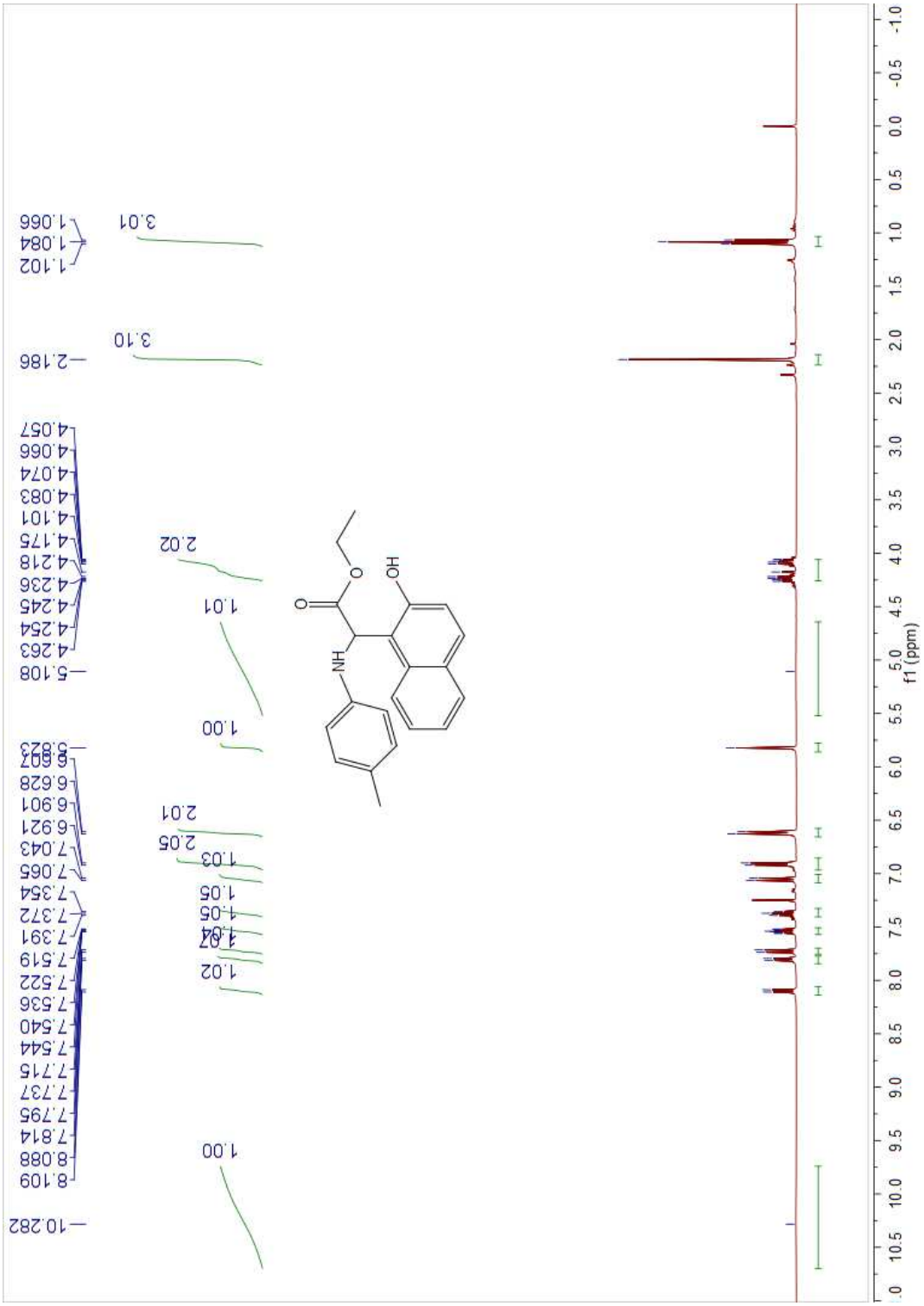
^{13}C NMR Spectrum of ethyl 2-(4-tolylamino)-2-(2,4-dihydroxyphenyl)acetate **3am**



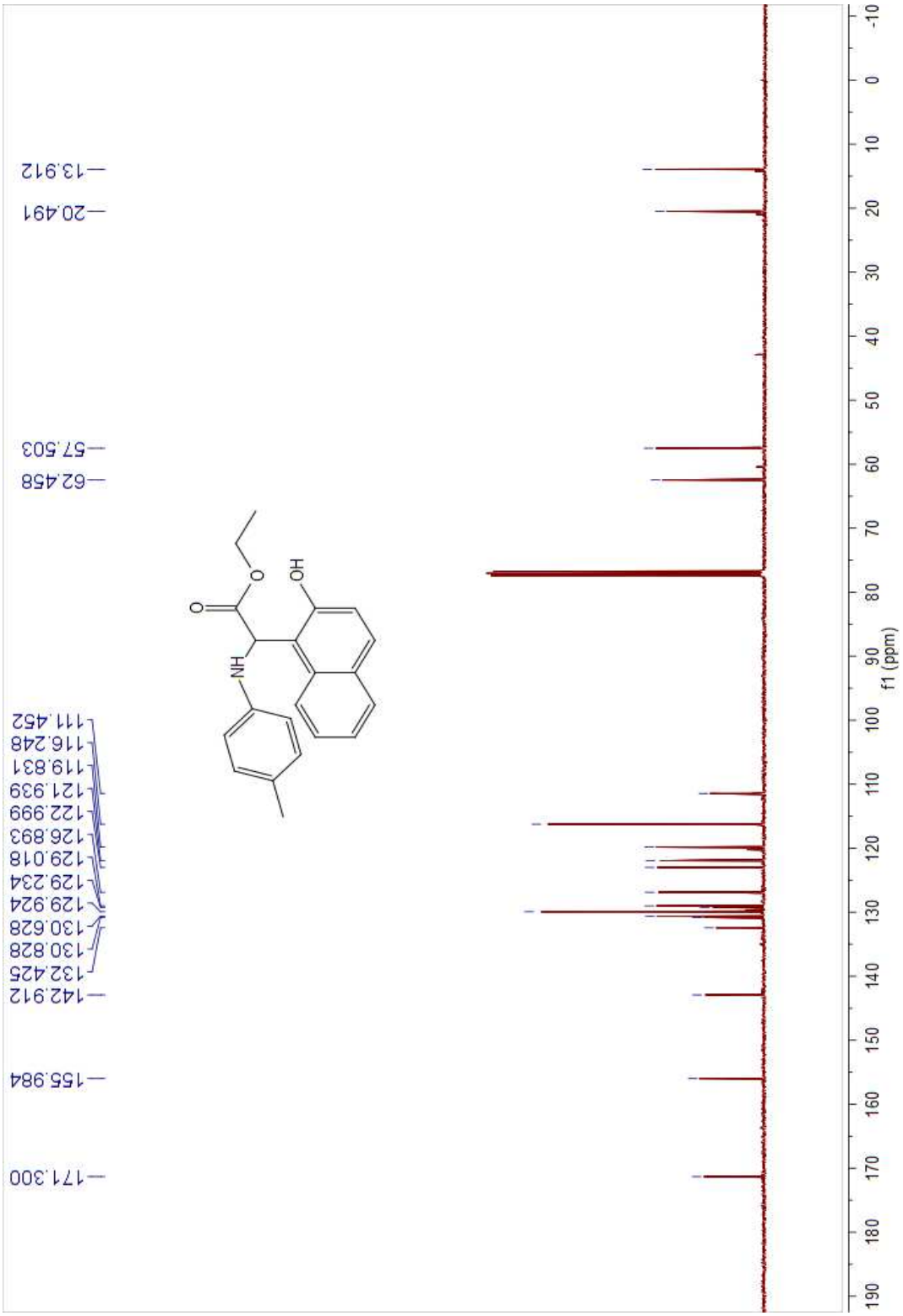
HR-MS Spectrum of ethyl 2-(4-tolylamino)-2-(2,4-dihydroxyphenyl)acetate **3am**



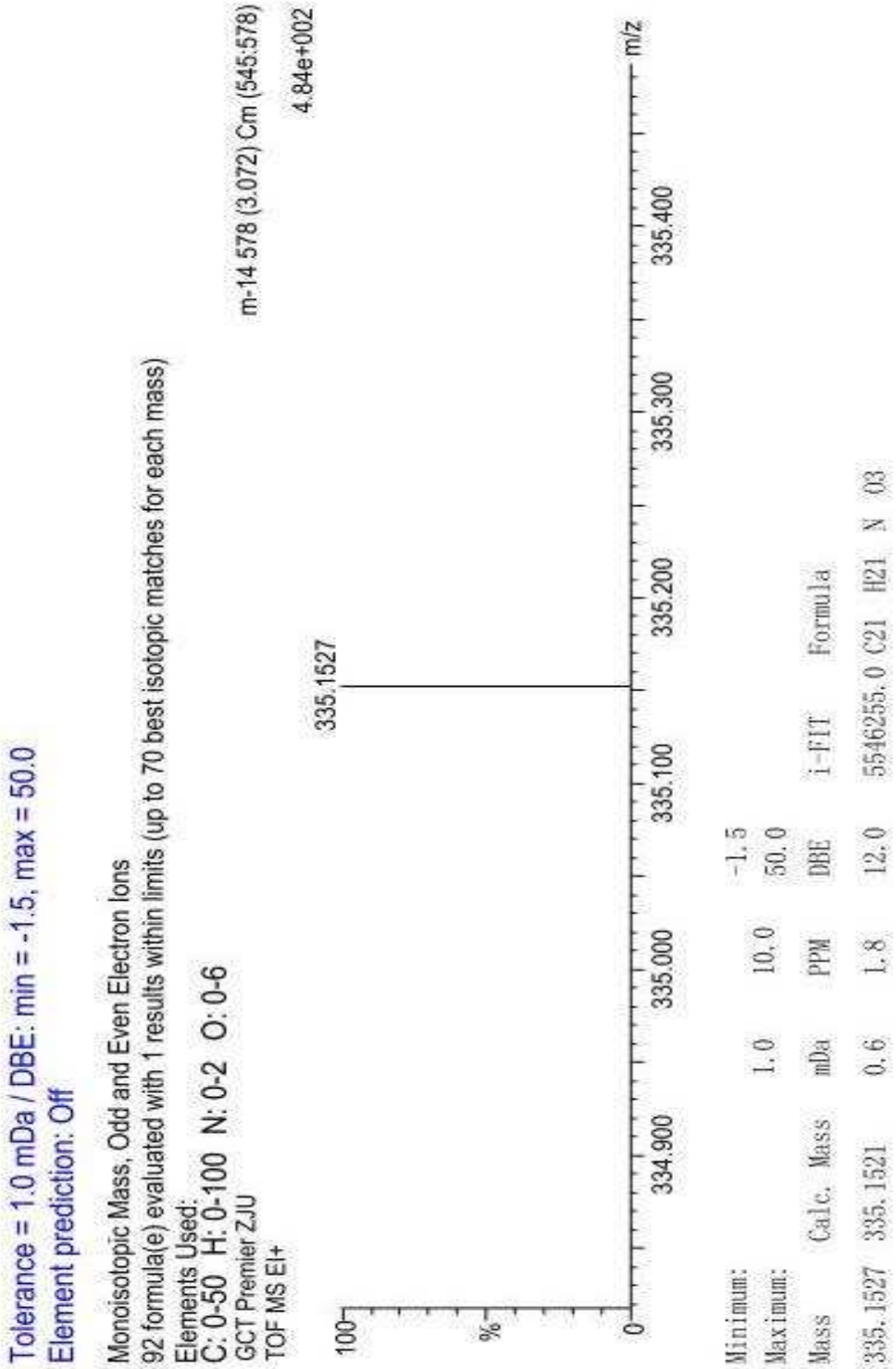
^{1}H NMR Spectrum of ethyl 2-(4-tolylamino)-2-(2-hydroxynaphthalen-1-yl)acetate **3an**



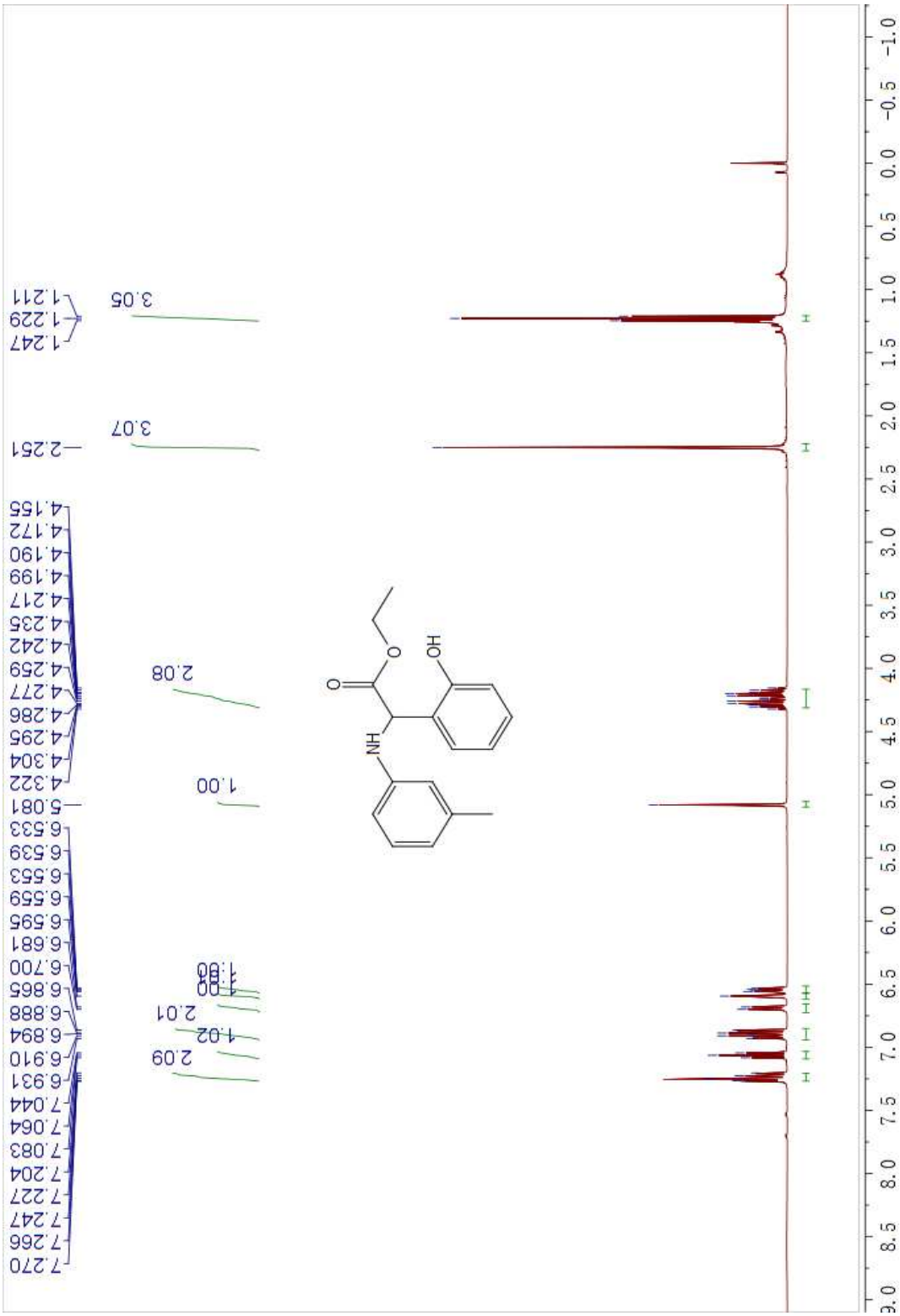
^{13}C NMR Spectrum of ethyl 2-(4-tolylamino)-2-(2-hydroxynaphthalen-1-yl)acetate **3an**



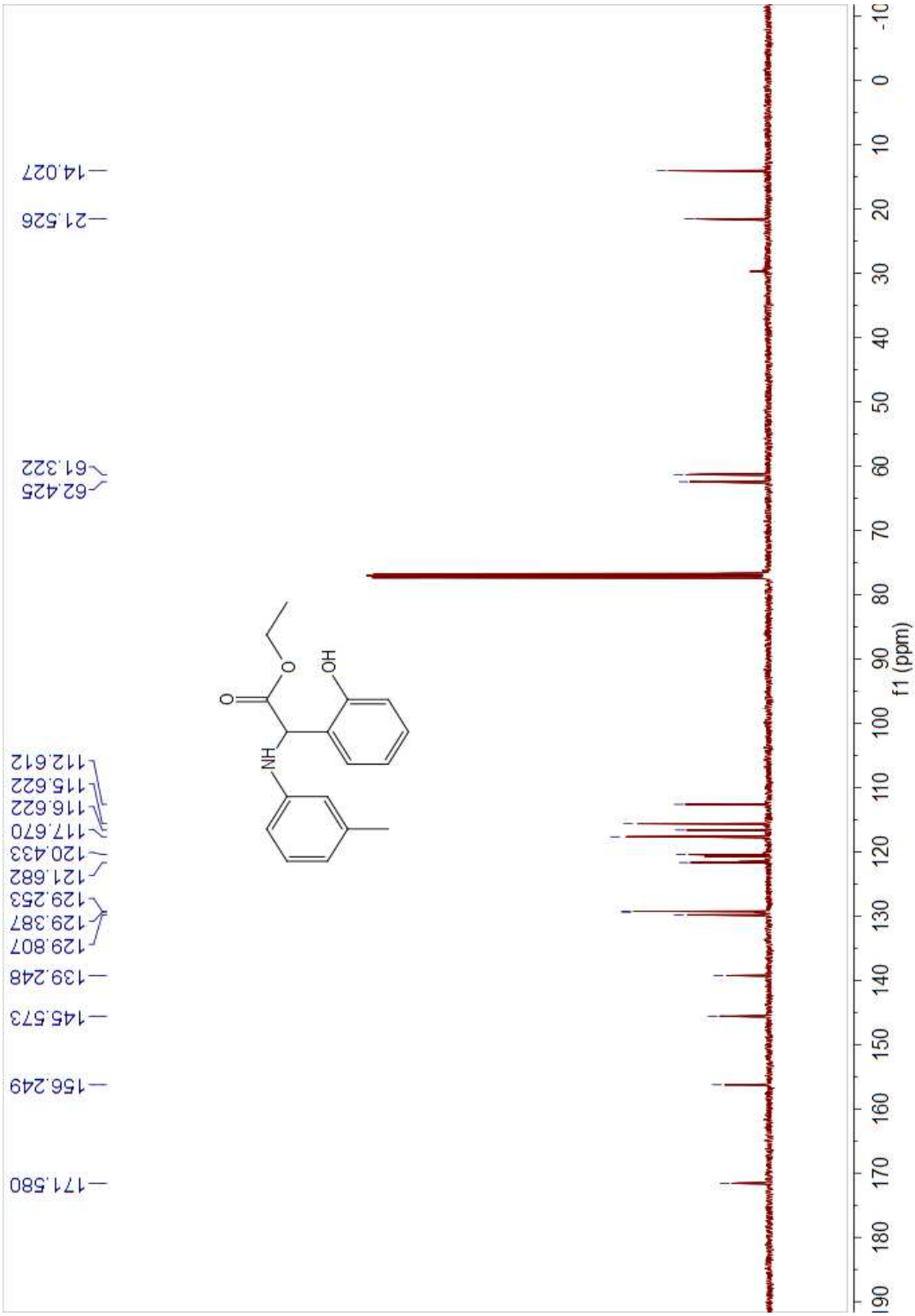
HR-MS Spectrum of ethyl 2-(4-tolylamino)-2-(2-hydroxynaphthalen-1-yl)acetate **3an**



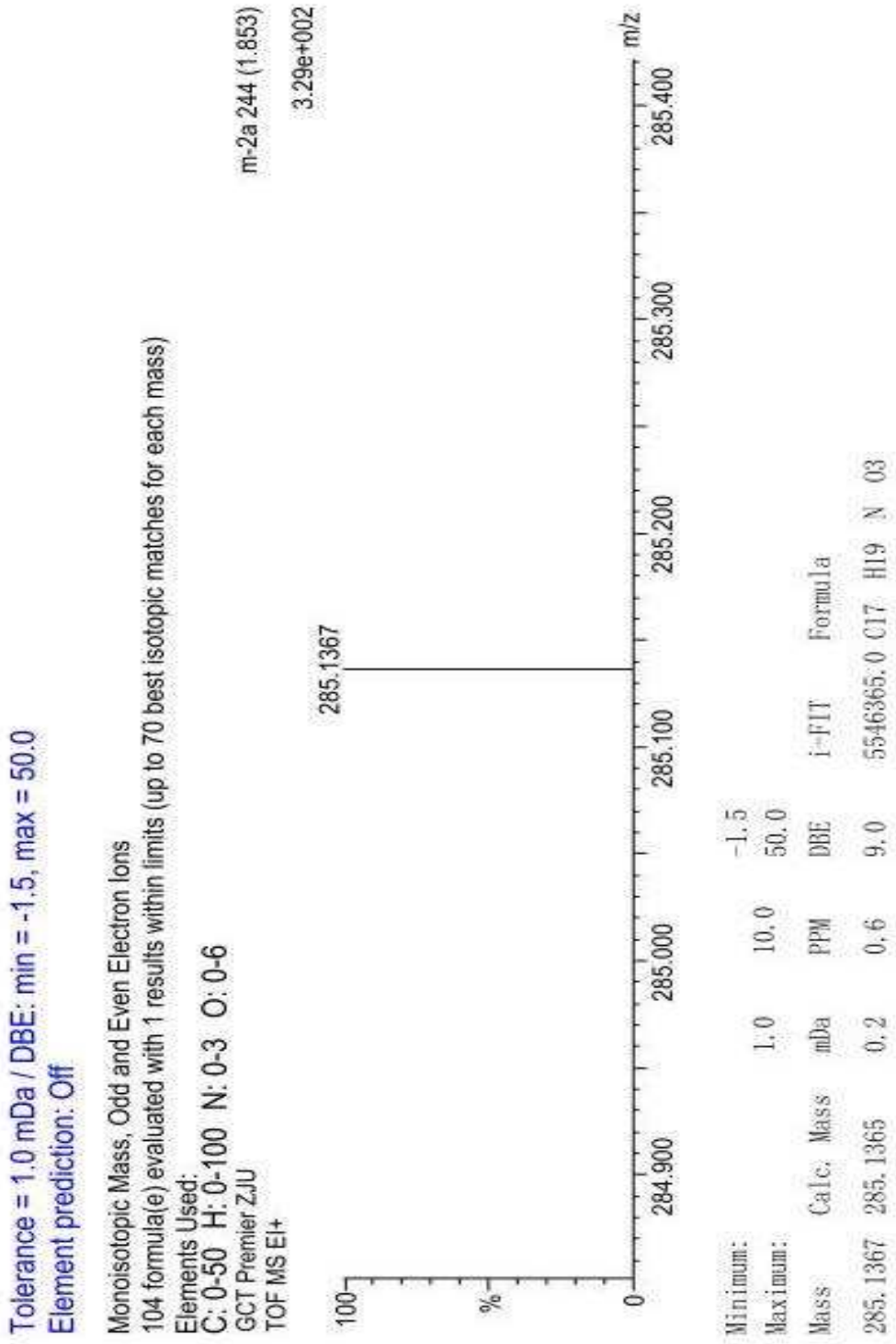
^{1}H NMR Spectrum of ethyl 2-(3-tolylamino)-2-(2-hydroxyphenyl)acetate **3ba**



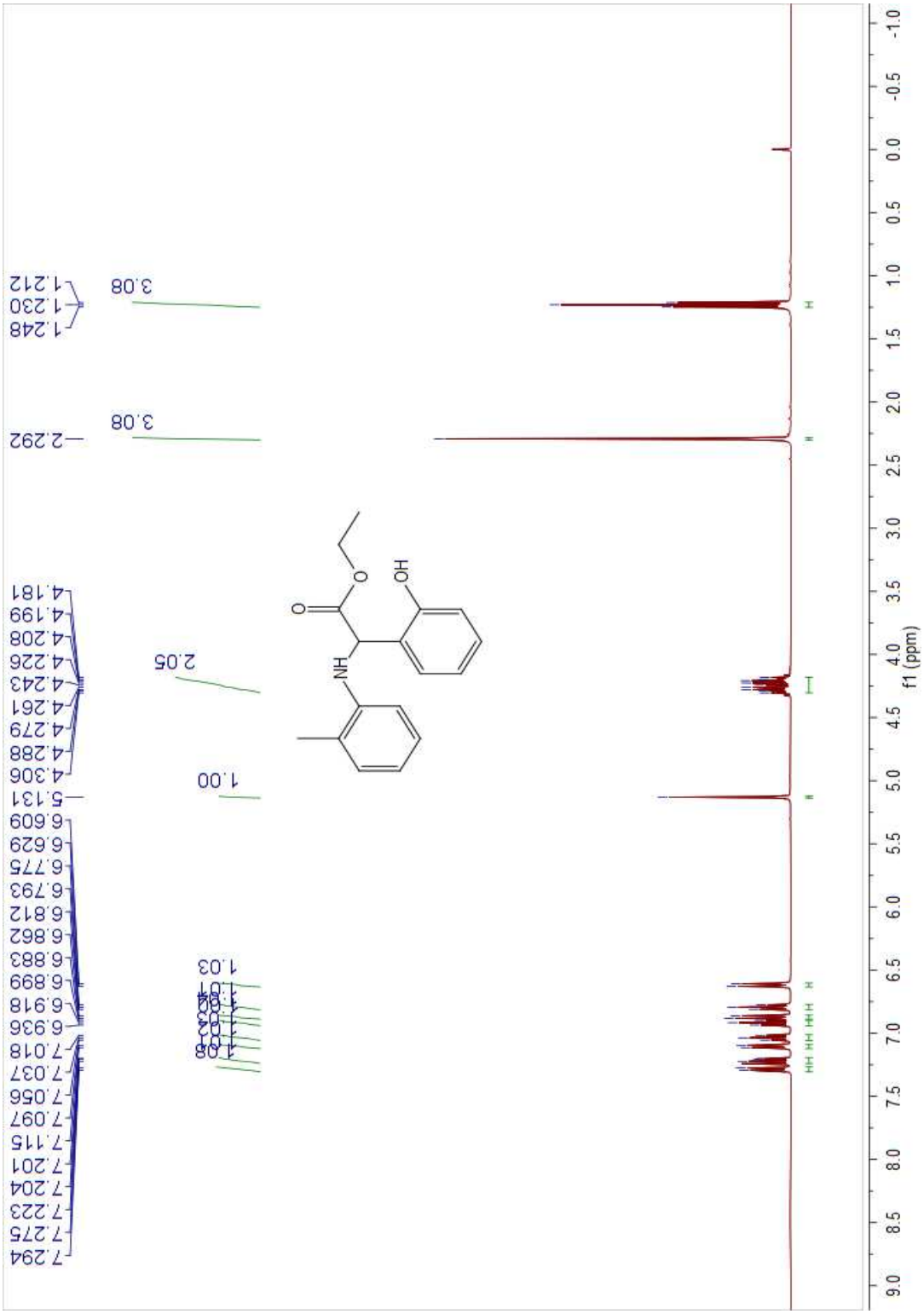
^{13}C NMR Spectrum of ethyl 2-(3-tolylamino)-2-(2-hydroxyphenyl)acetate **3ba**



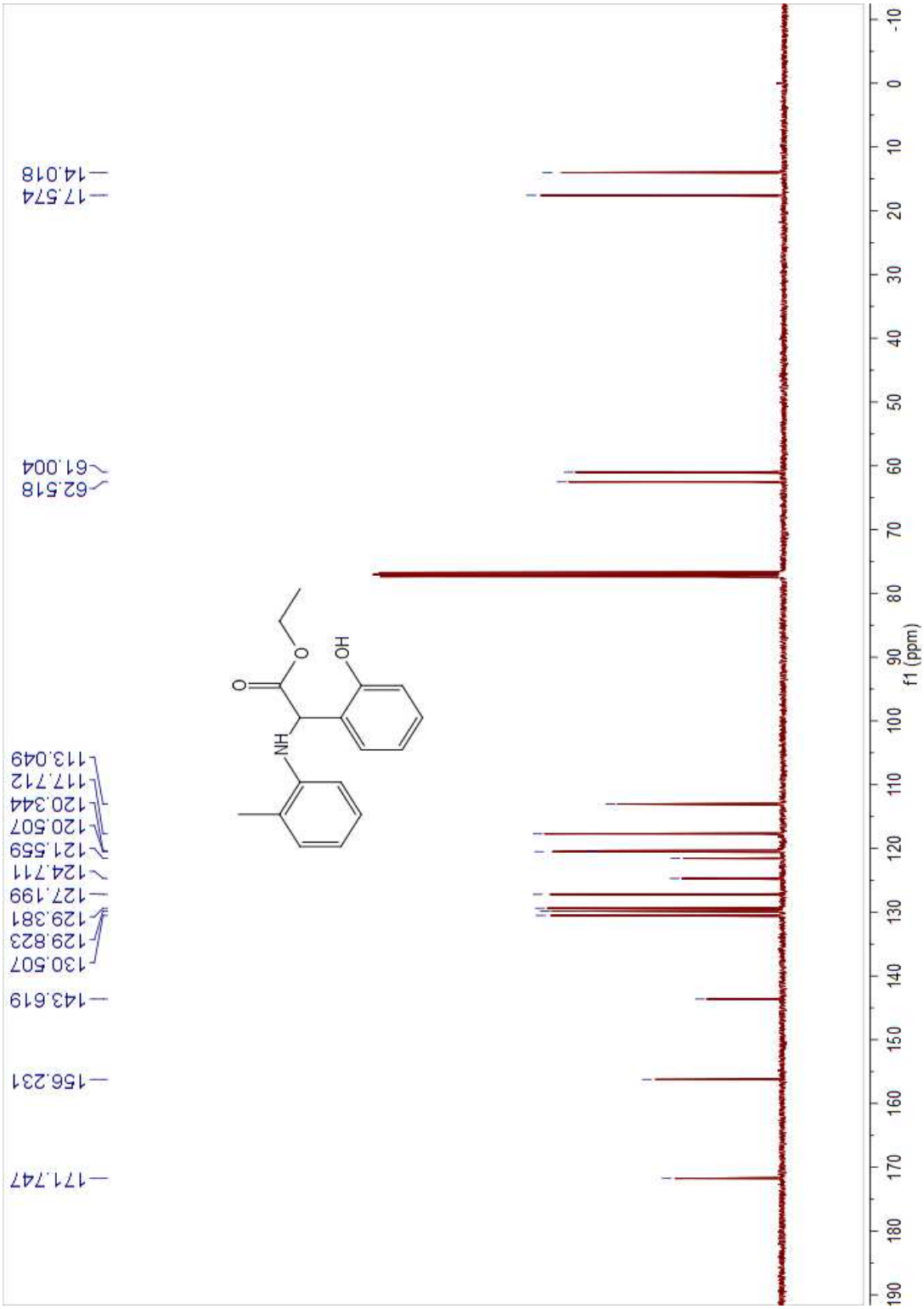
HR-MS Spectrum of ethyl 2-(3-tolylamino)-2-(2-hydroxyphenyl)acetate **3ba**



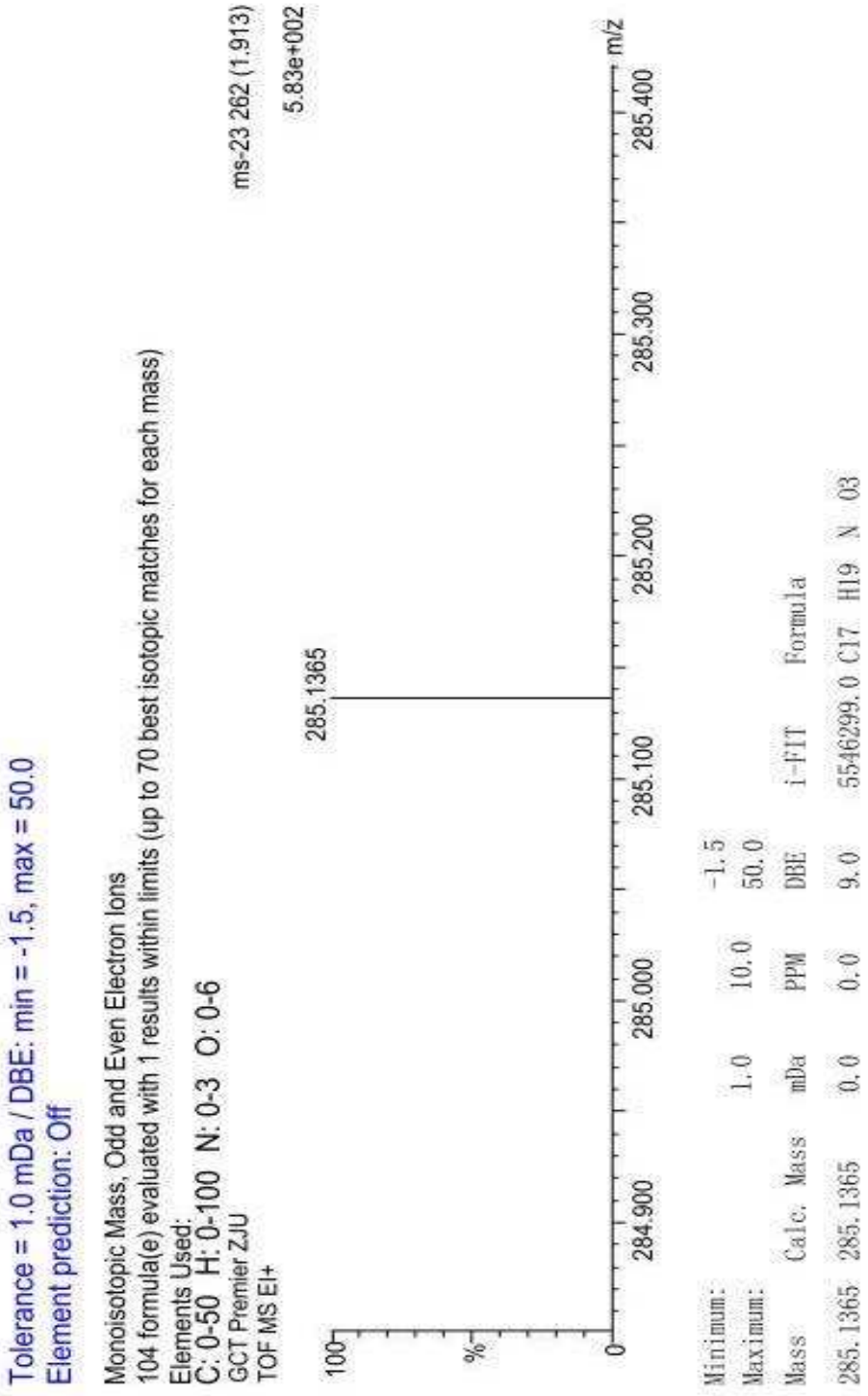
^{1}H NMR Spectrum of ethyl 2-(2-tolylamino)-2-(2-hydroxyphenyl)acetate **3ca**



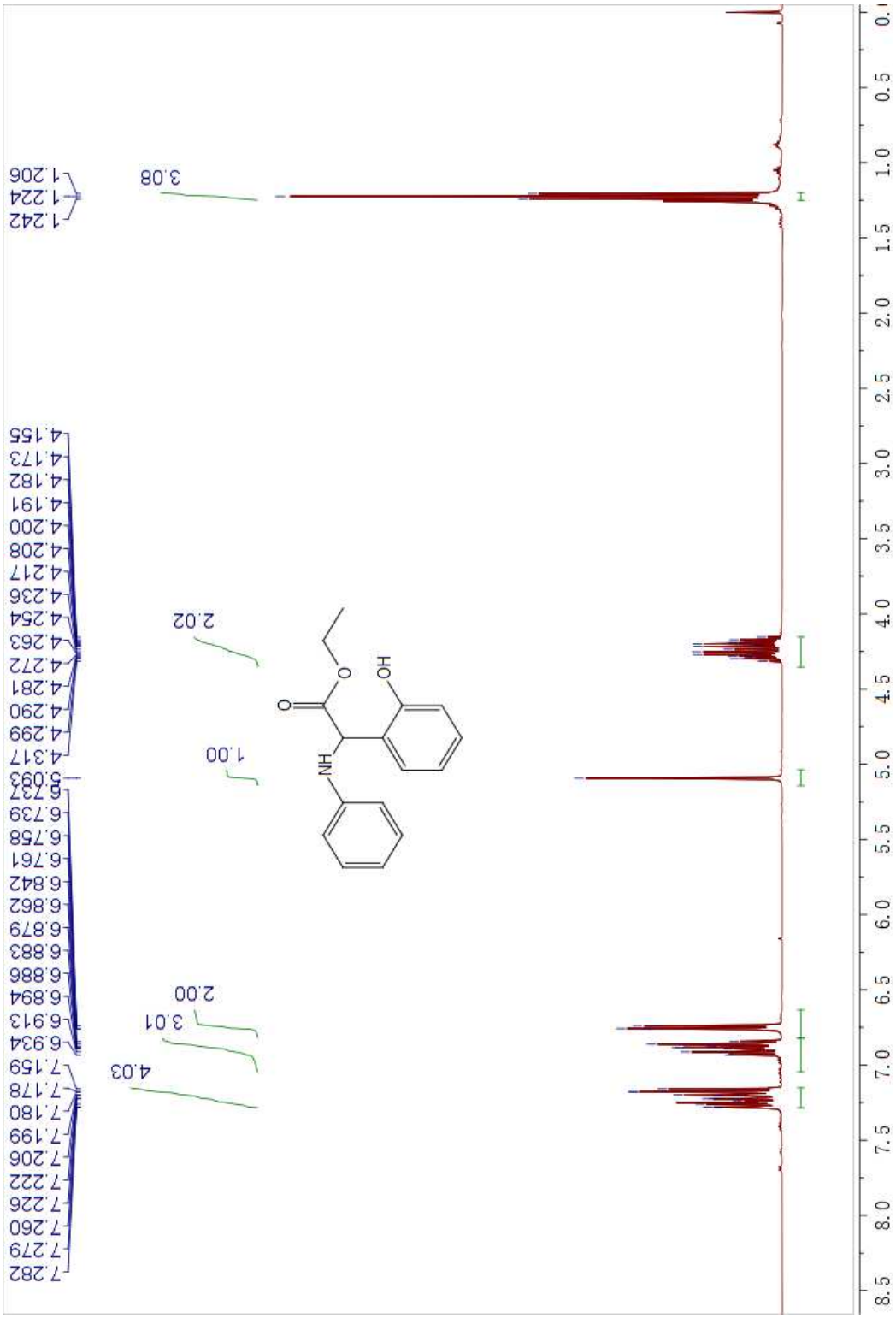
^{13}C NMR Spectrum of ethyl 2-(2-tolylamino)-2-(2-hydroxyphenyl)acetate **3ca**



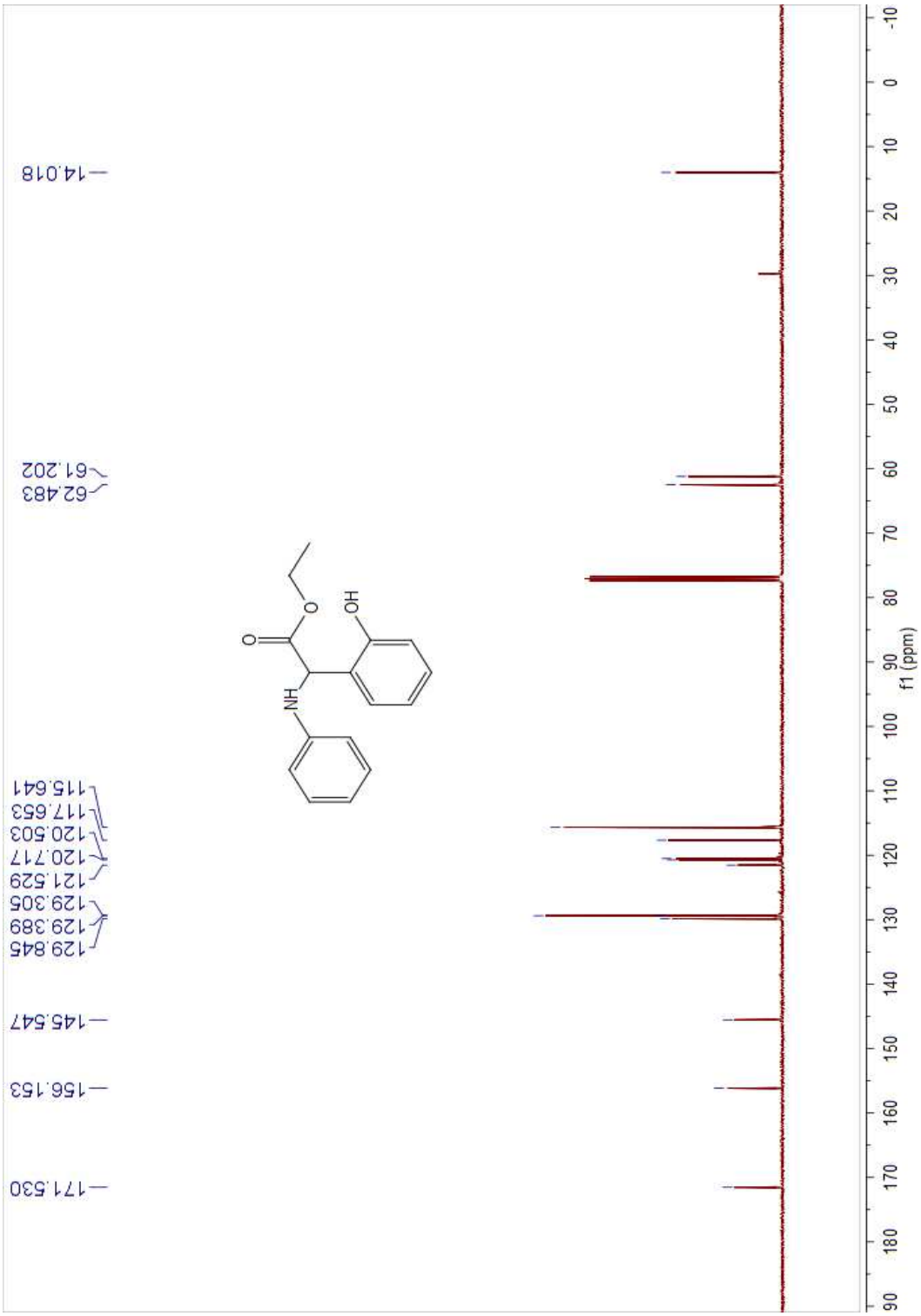
HR-MS Spectrum of ethyl 2-(2-tolylamino)-2-(2-hydroxyphenyl)acetate **3ca**



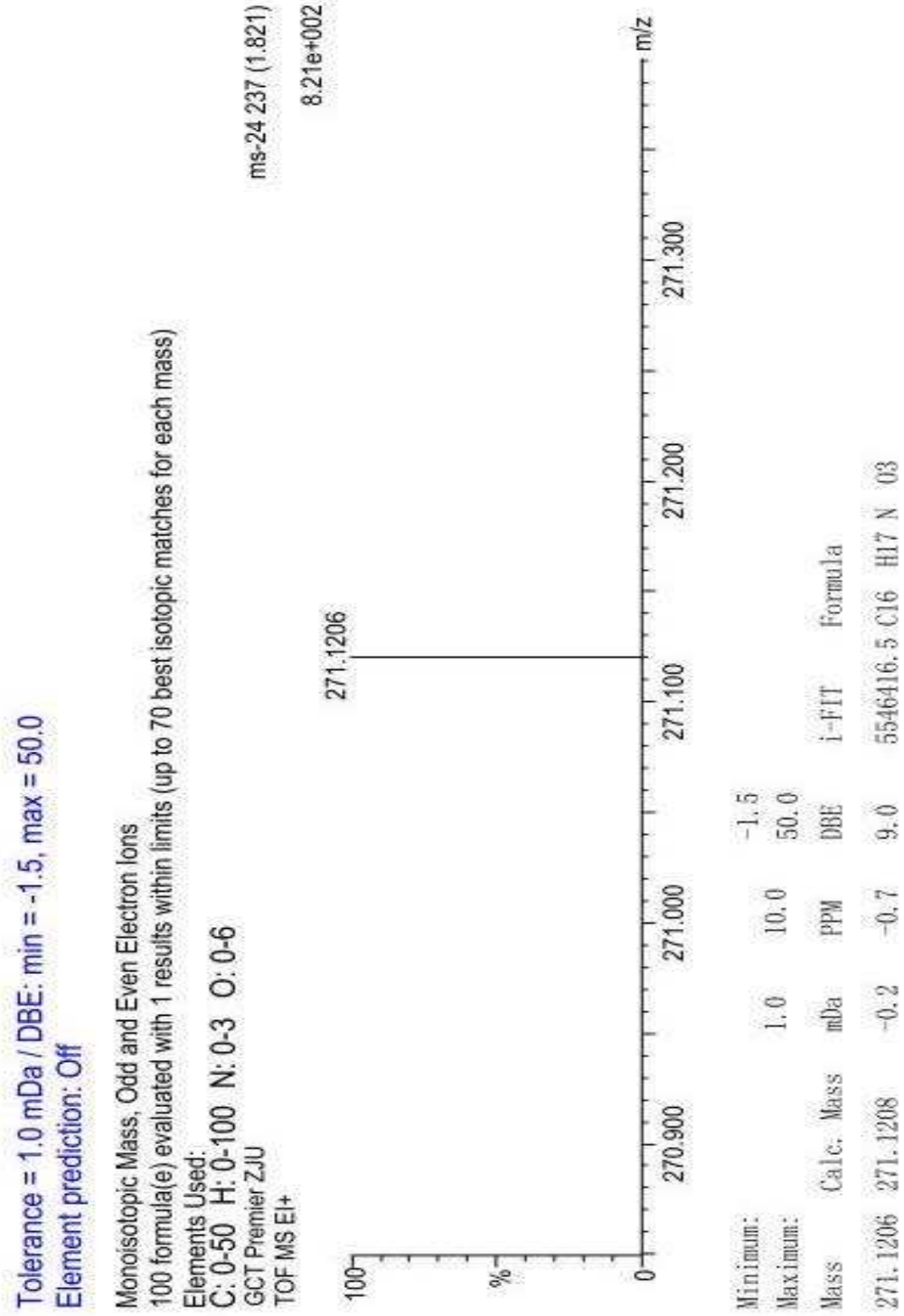
^{1}H NMR Spectrum of ethyl 2-(2-hydroxyphenyl)-2-(phenylamino)acetate **3da**



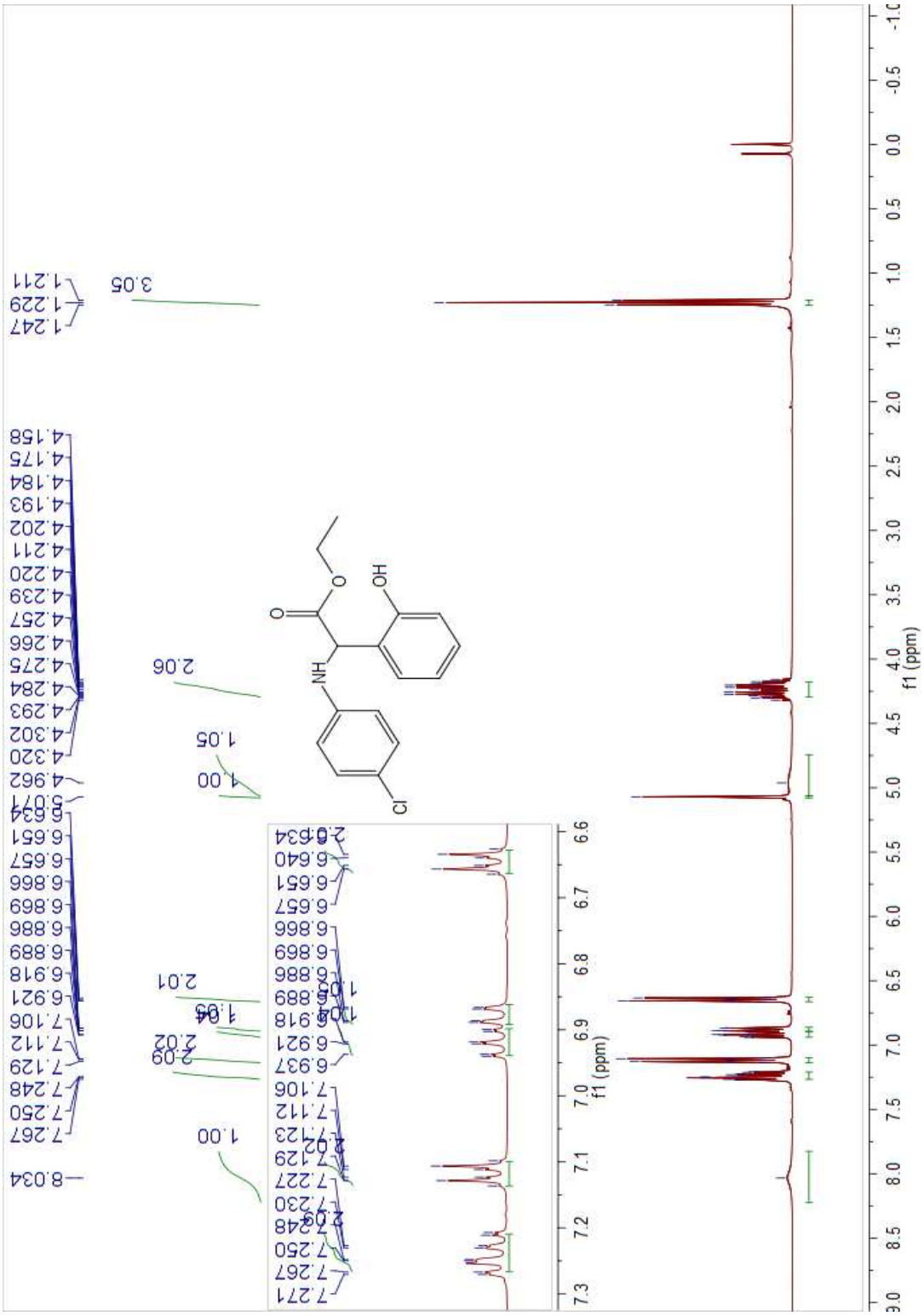
^{13}C NMR Spectrum of ethyl 2-(2-hydroxyphenyl)-2-(phenylamino)acetate **3da**



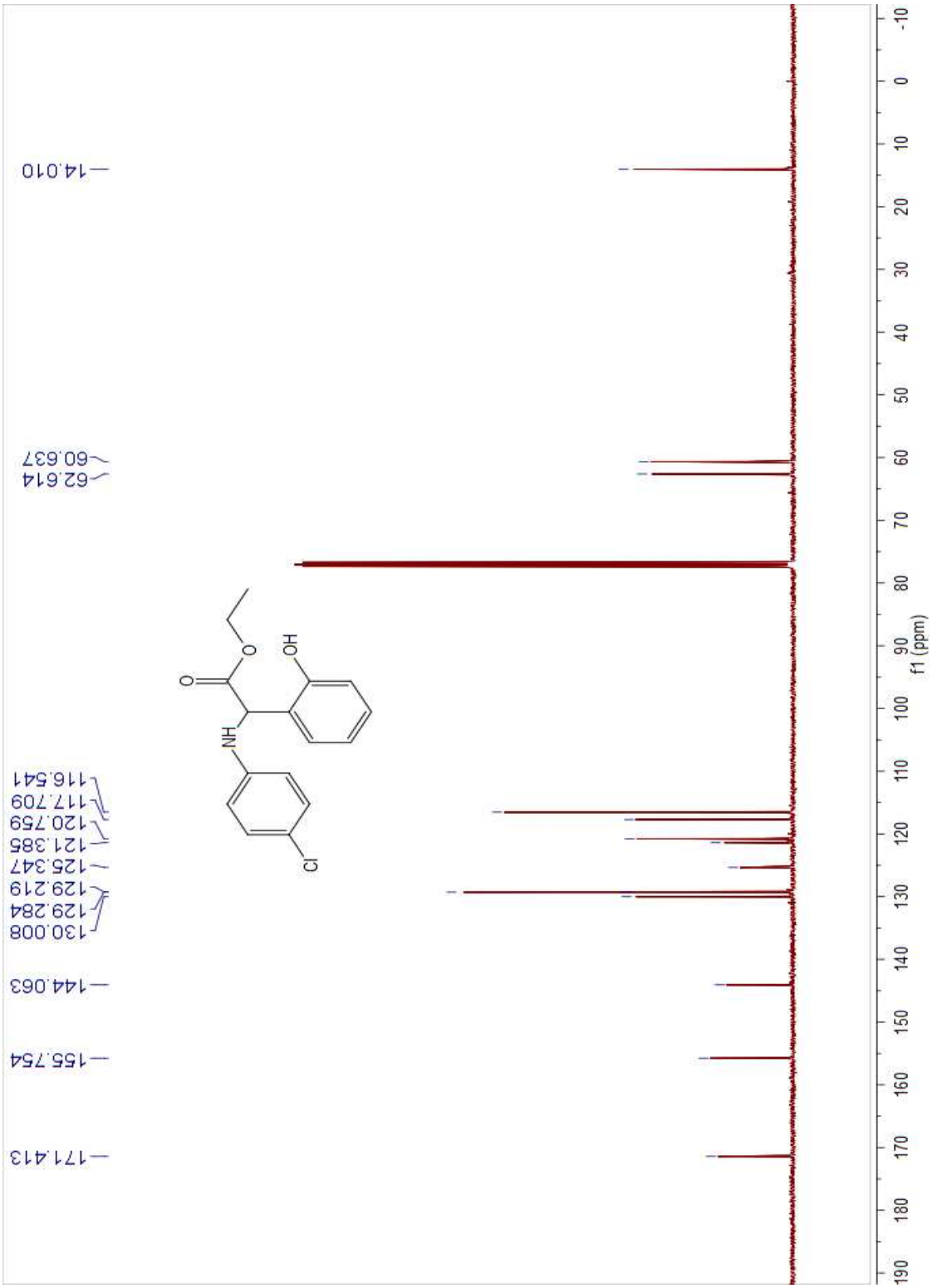
HR-MS Spectrum of ethyl 2-(2-hydroxyphenyl)-2-(phenylamino)acetate **3da**



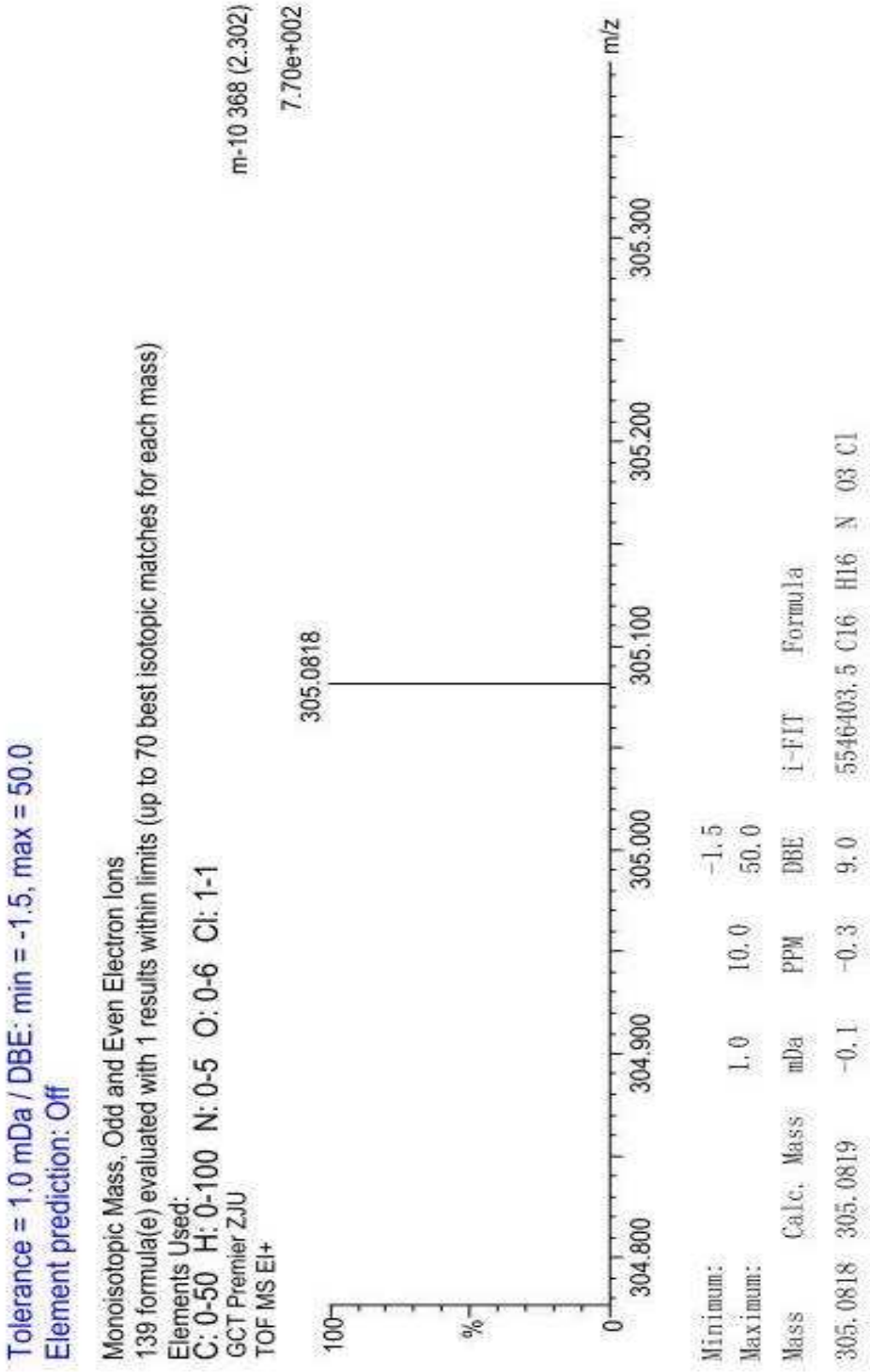
^{1}H NMR Spectrum of ethyl 2-(4-chlorophenylamino)-2-(2-hydroxyphenyl)acetate **3ea**



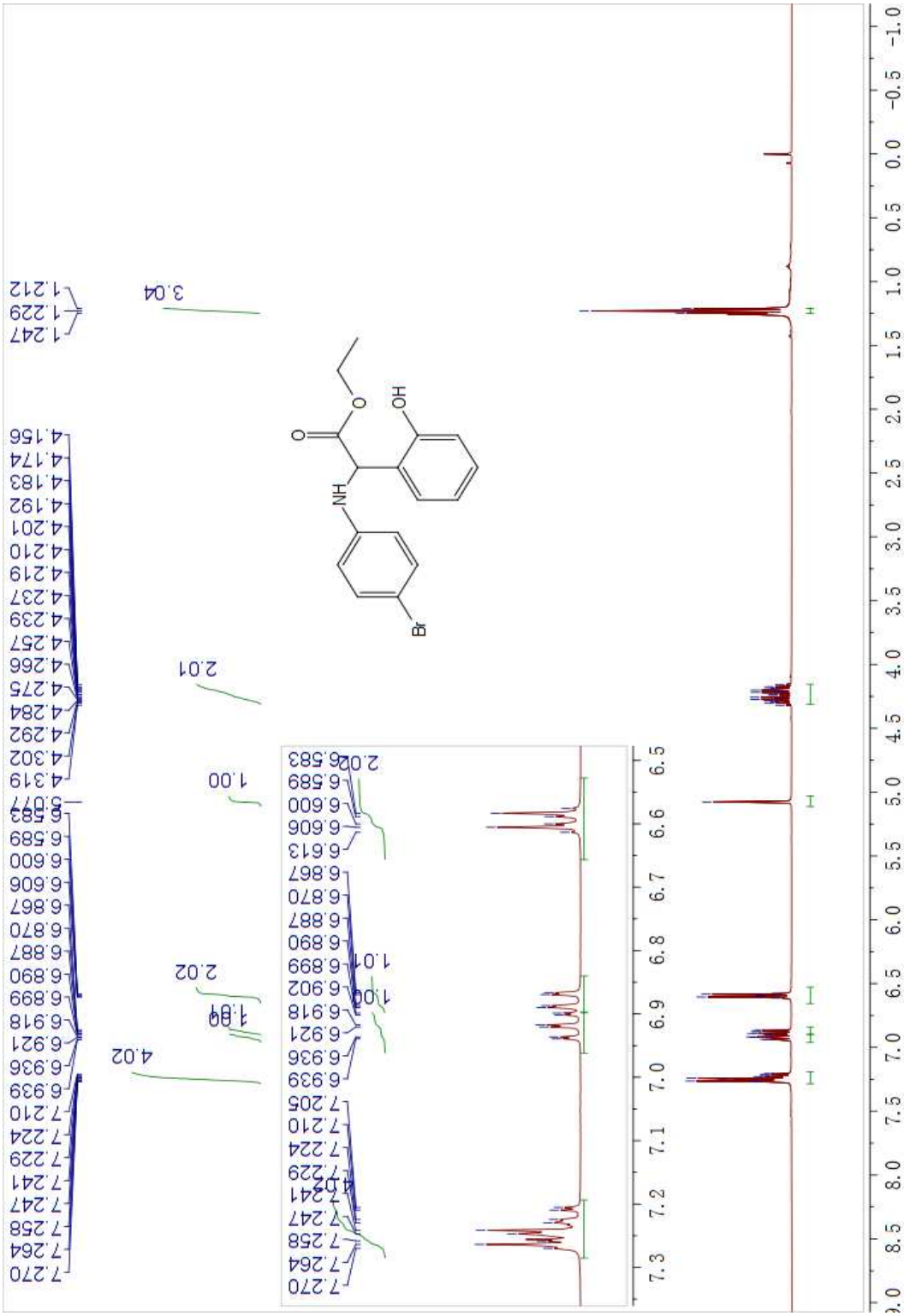
^{13}C NMR Spectrum of ethyl 2-(4-chlorophenylamino)-2-(2-hydroxyphenyl)acetate **3ea**



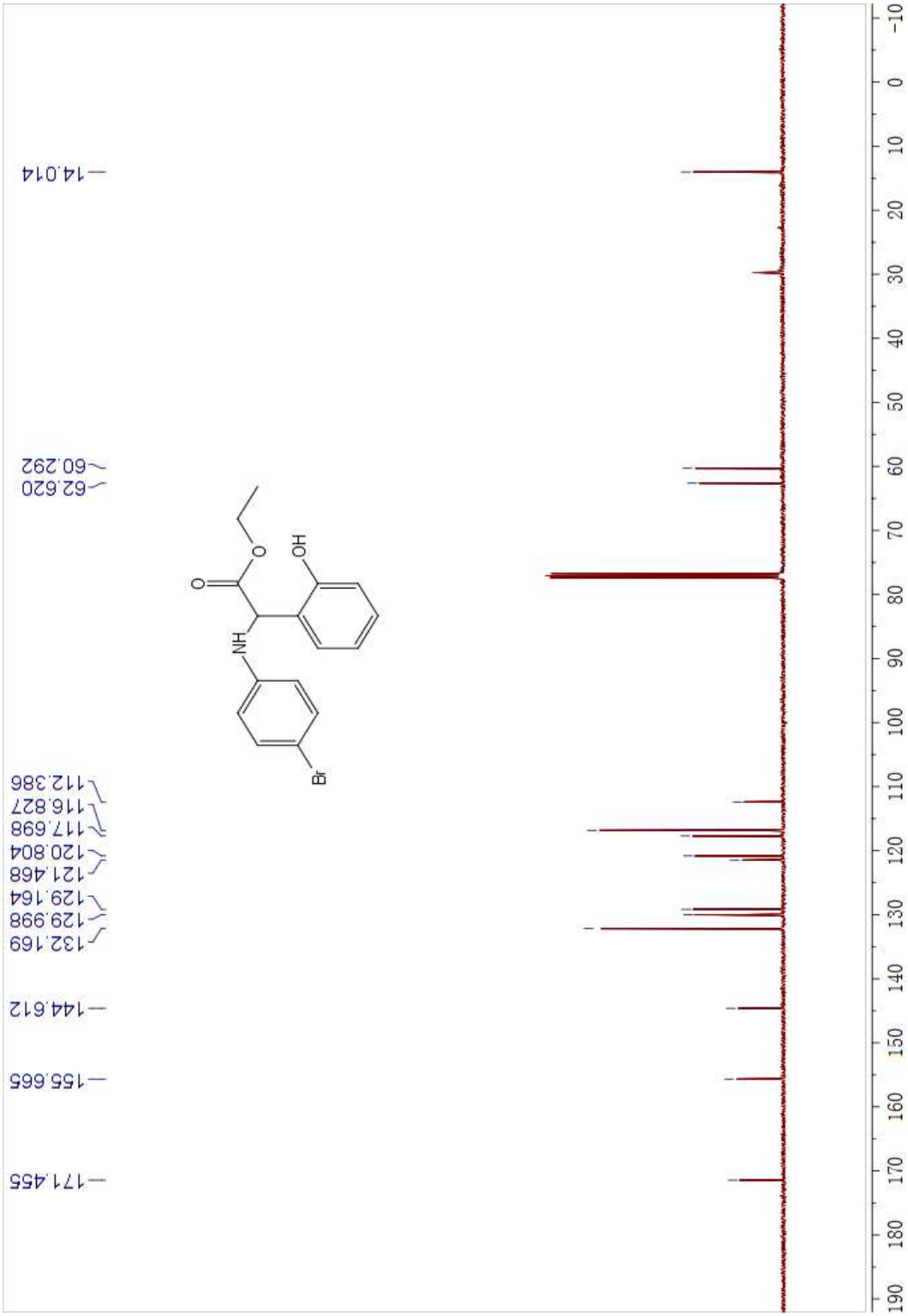
HR-MS Spectrum of ethyl 2-(4-chlorophenylamino)-2-(2-hydroxyphenyl)acetate **3ea**



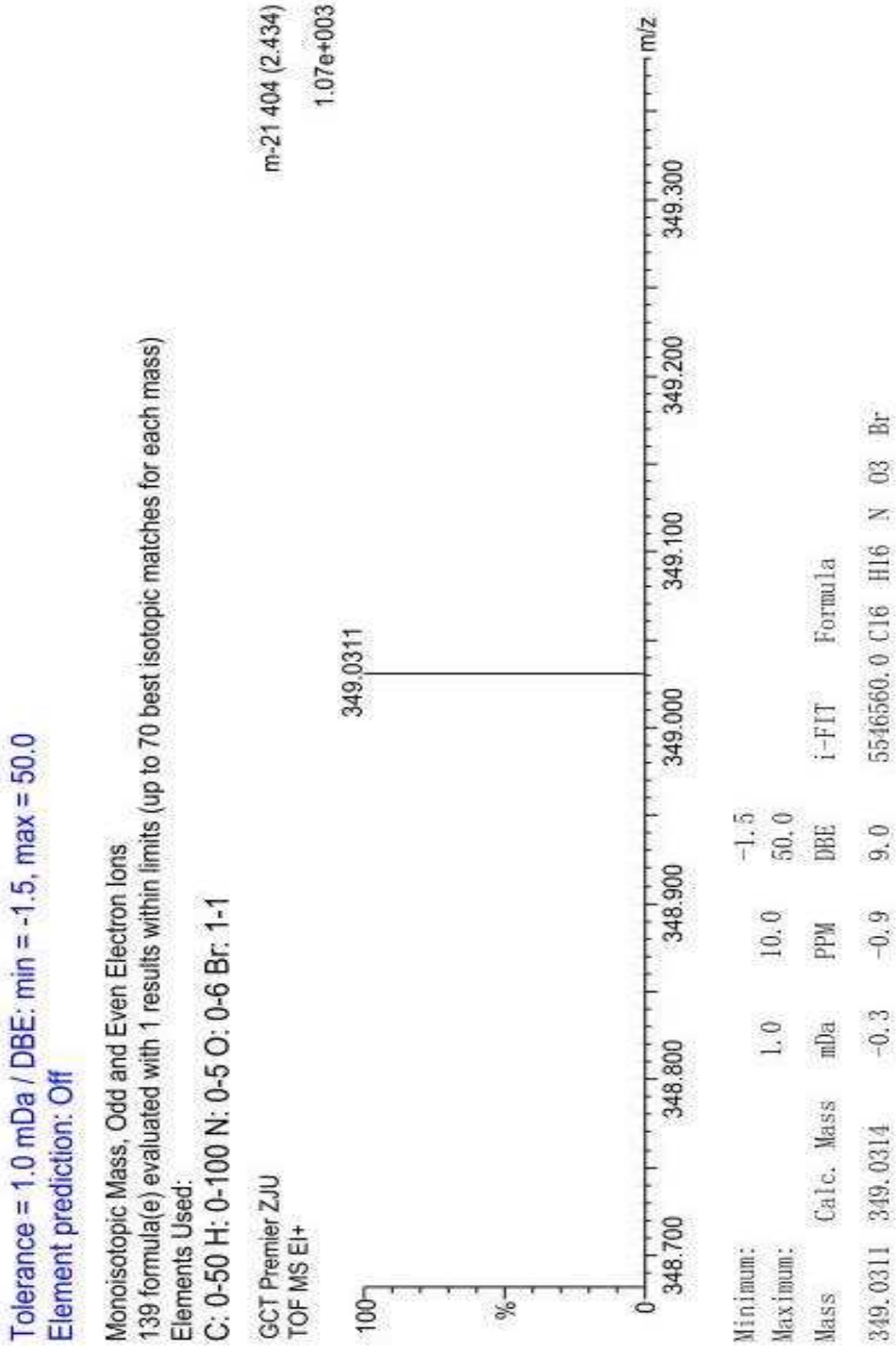
^{1}H NMR Spectrum of ethyl 2-(4-bromophenylamino)-2-(2-hydroxyphenyl)acetate **3fa**



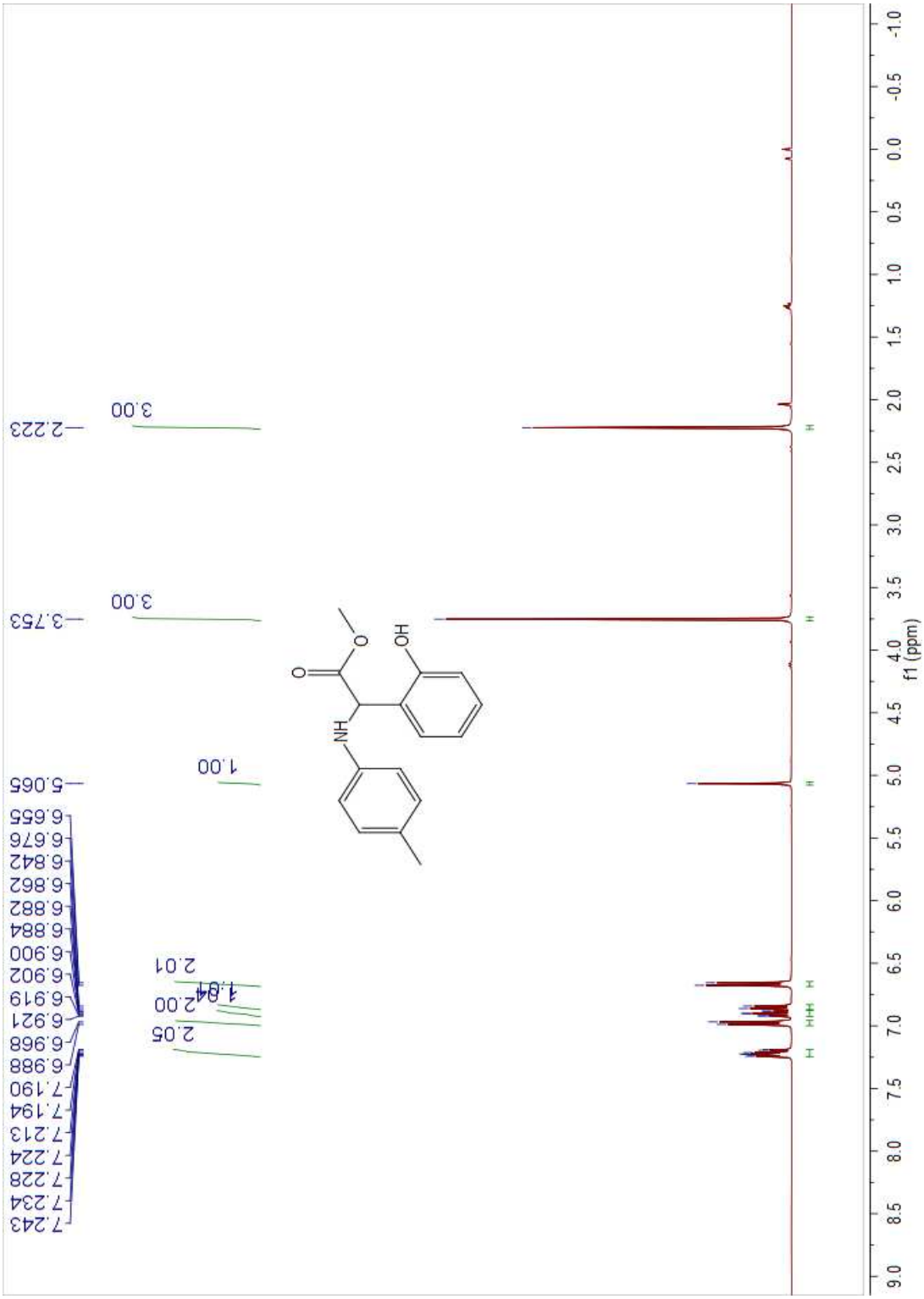
^{13}C NMR Spectrum of ethyl 2-(4-bromophenylamino)-2-(2-hydroxyphenyl)acetate **3fa**



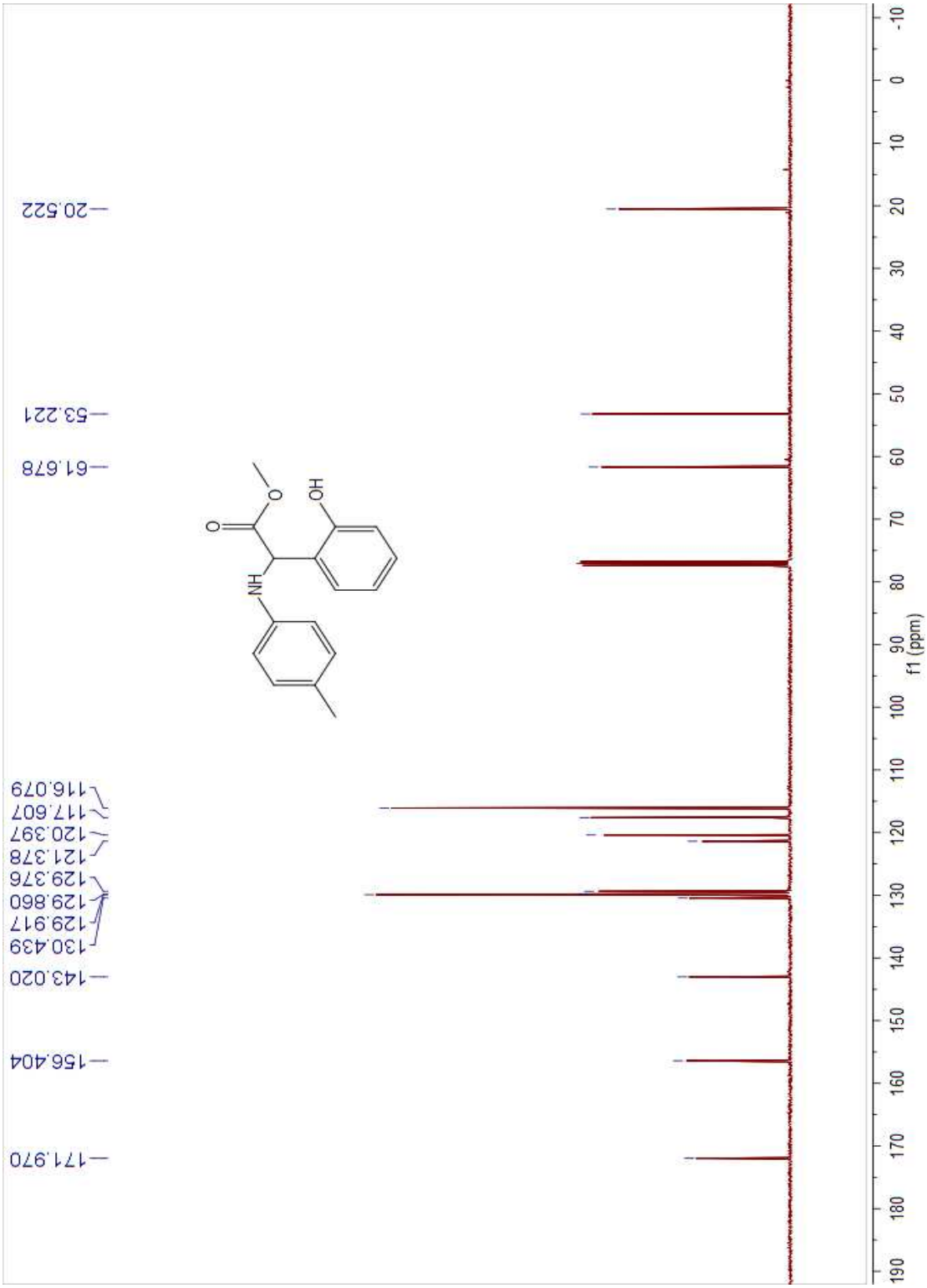
HR-MS Spectrum of ethyl 2-(4-bromophenylamino)-2-(2-hydroxyphenyl)acetate **3fa**



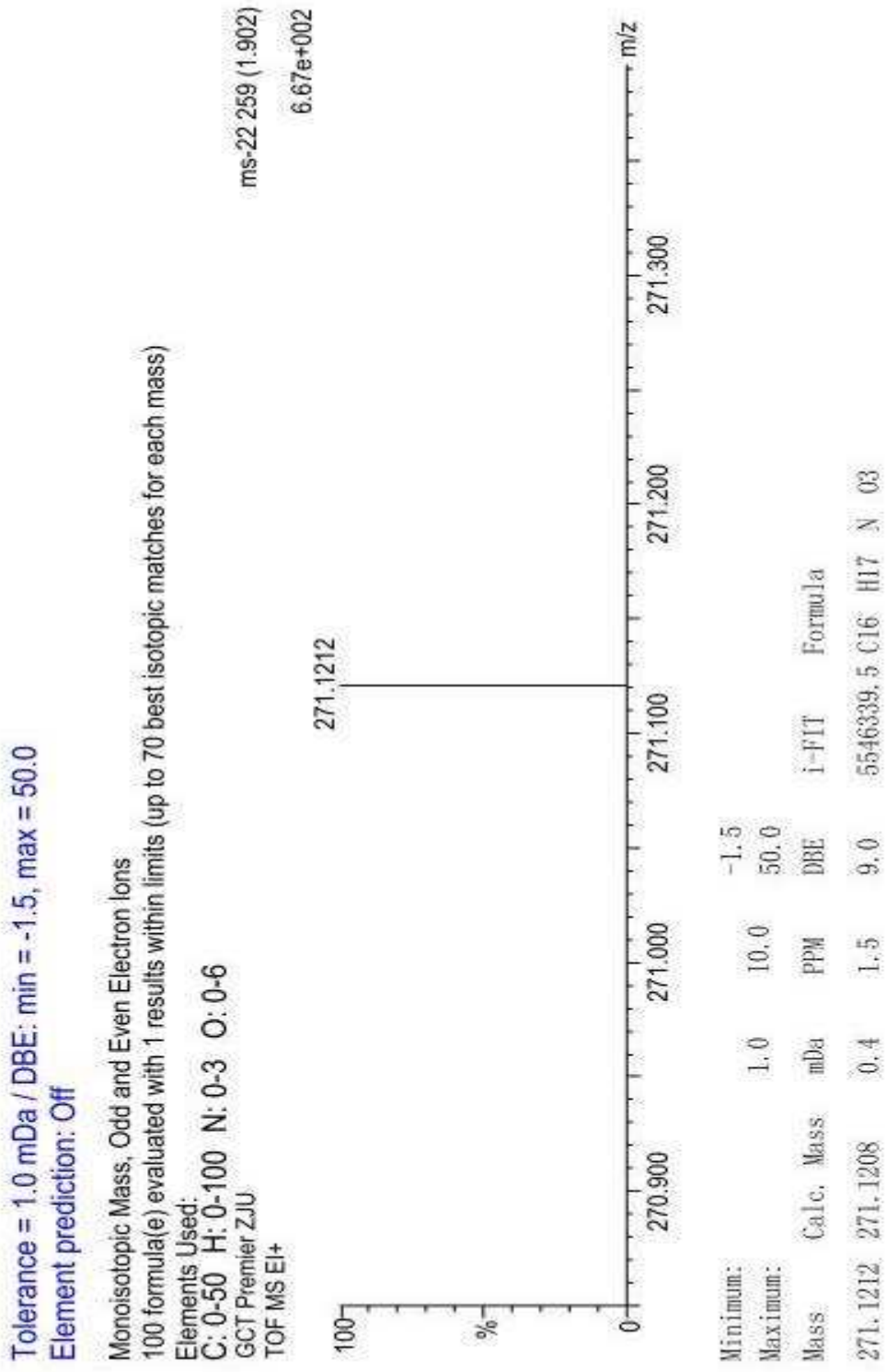
^{1}H NMR Spectrum of methyl 2-(4-tolylamino)-2-(2-hydroxyphenyl)acetate **3ga**



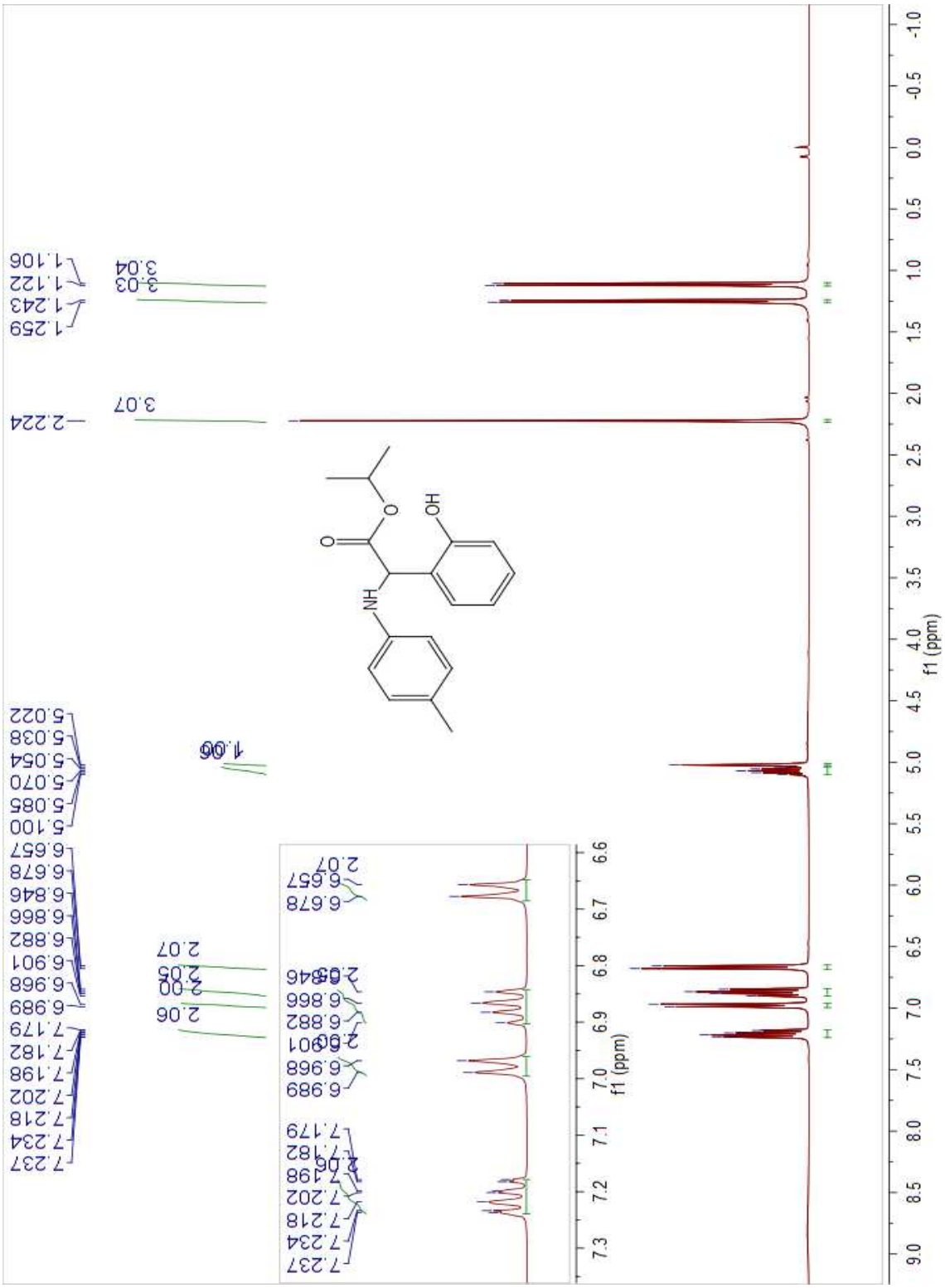
^{13}C NMR Spectrum of methyl 2-(4-tolylamino)-2-(2-hydroxyphenyl)acetate **3ga**



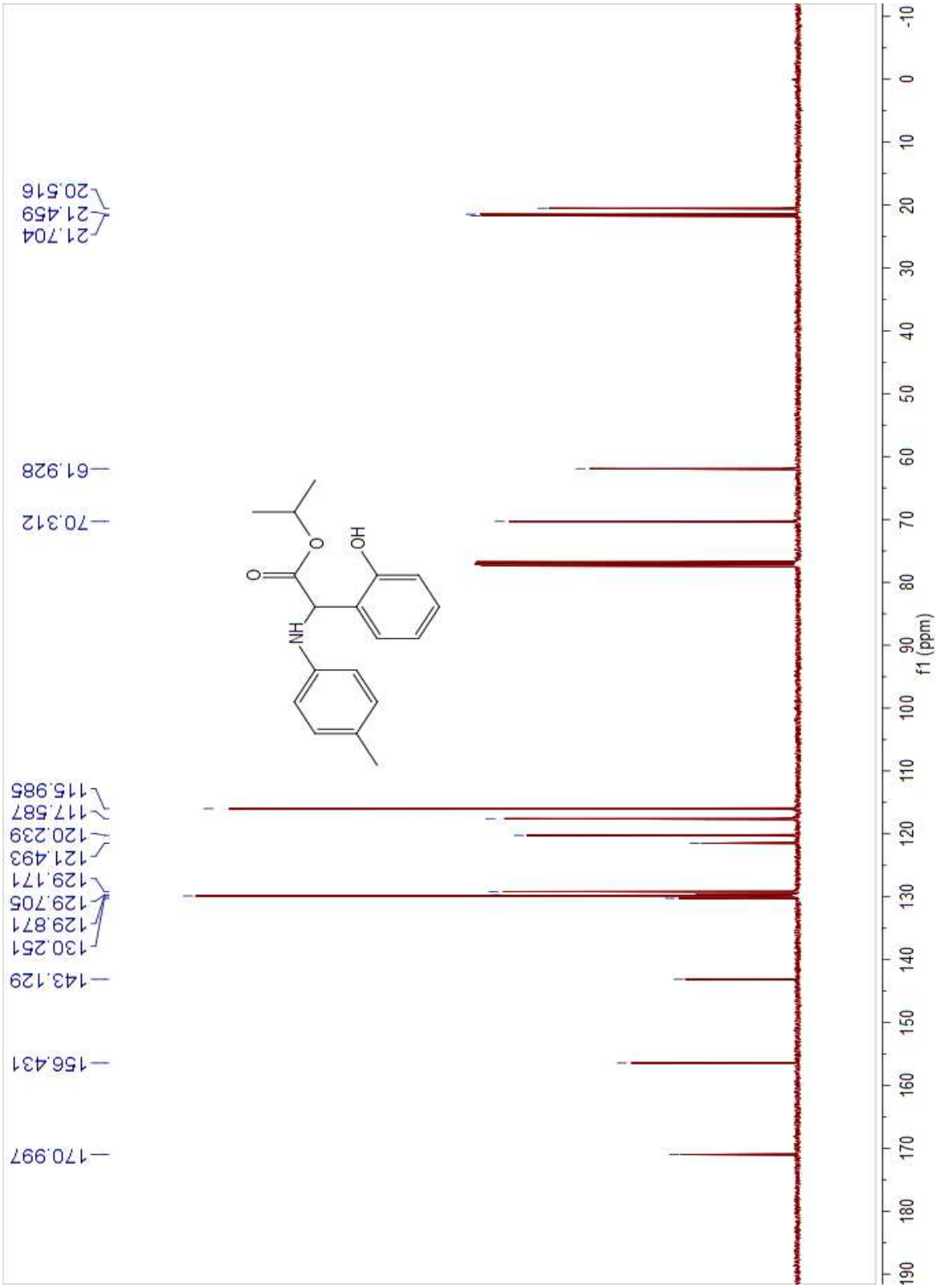
HR-MS Spectrum of methyl 2-(4-tolylamino)-2-(2-hydroxyphenyl)acetate **3ga**



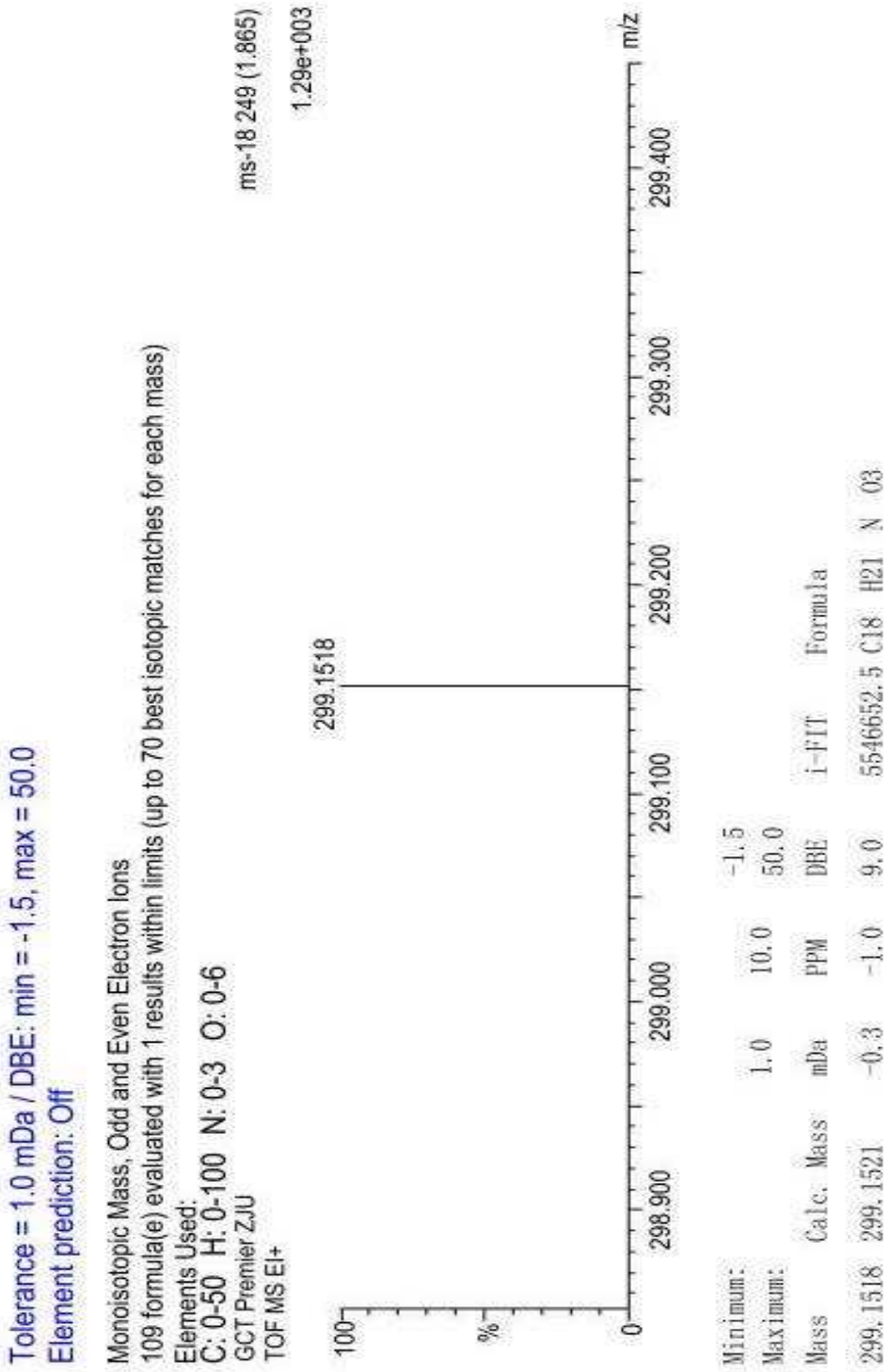
^{1}H NMR Spectrum of isopropyl 2-(4-tolylamino)-2-(2-hydroxyphenyl)acetate **3ha**



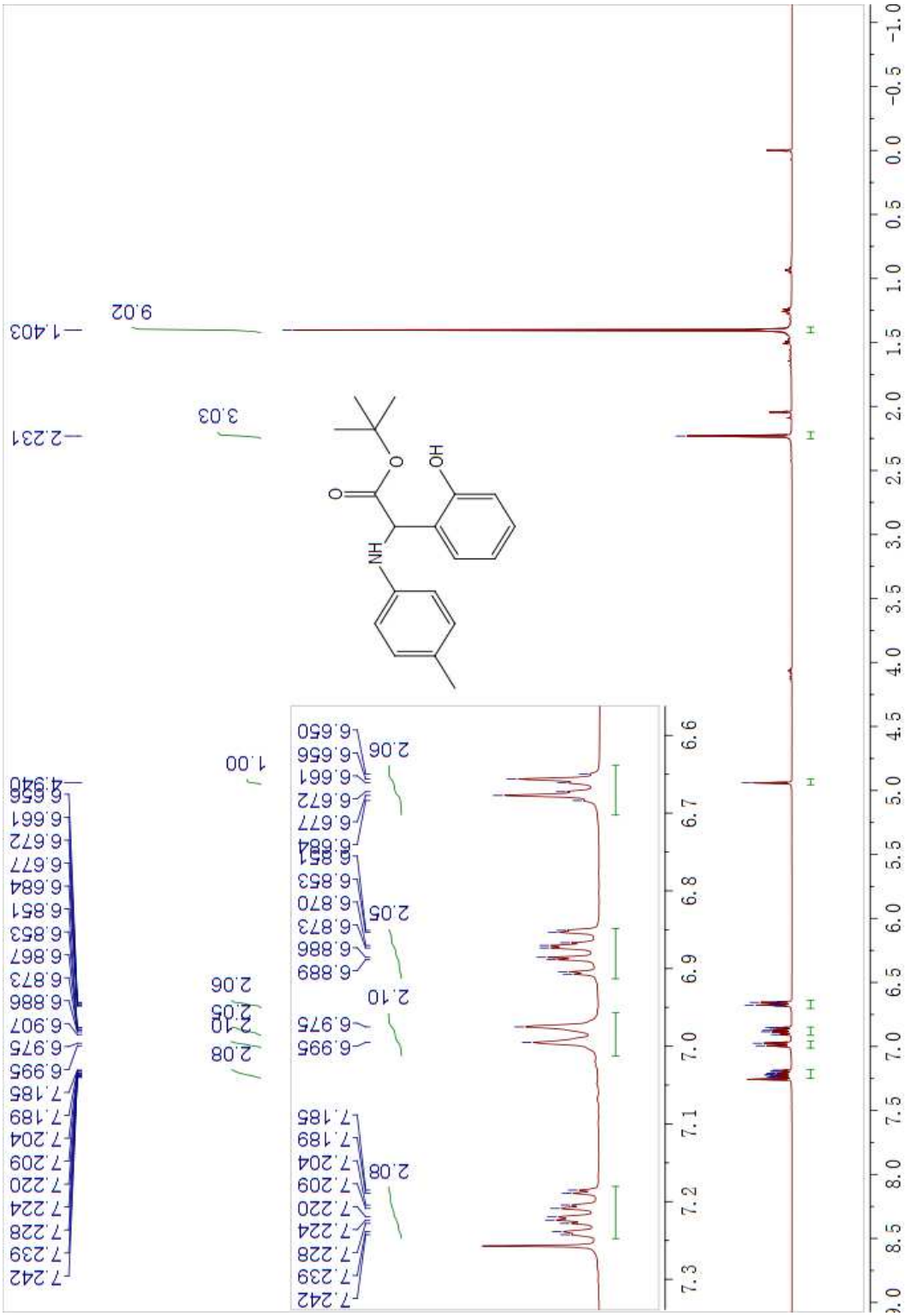
^{13}C NMR Spectrum of isopropyl 2-(4-tolylamino)-2-(2-hydroxyphenyl)acetate **3ha**



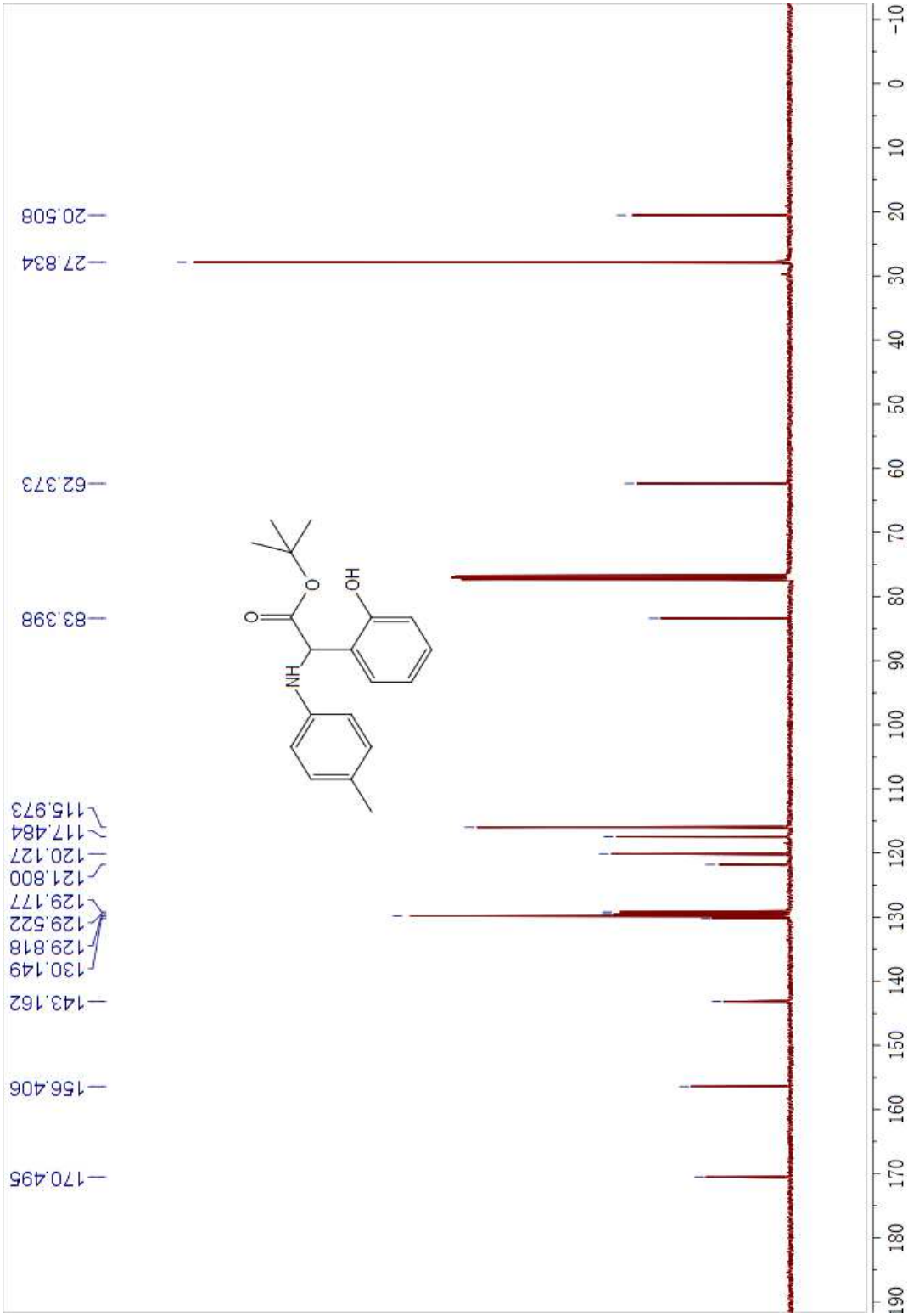
HR-MS Spectrum of isopropyl 2-(4-tolylamino)-2-(2-hydroxyphenyl)acetate **3ha**



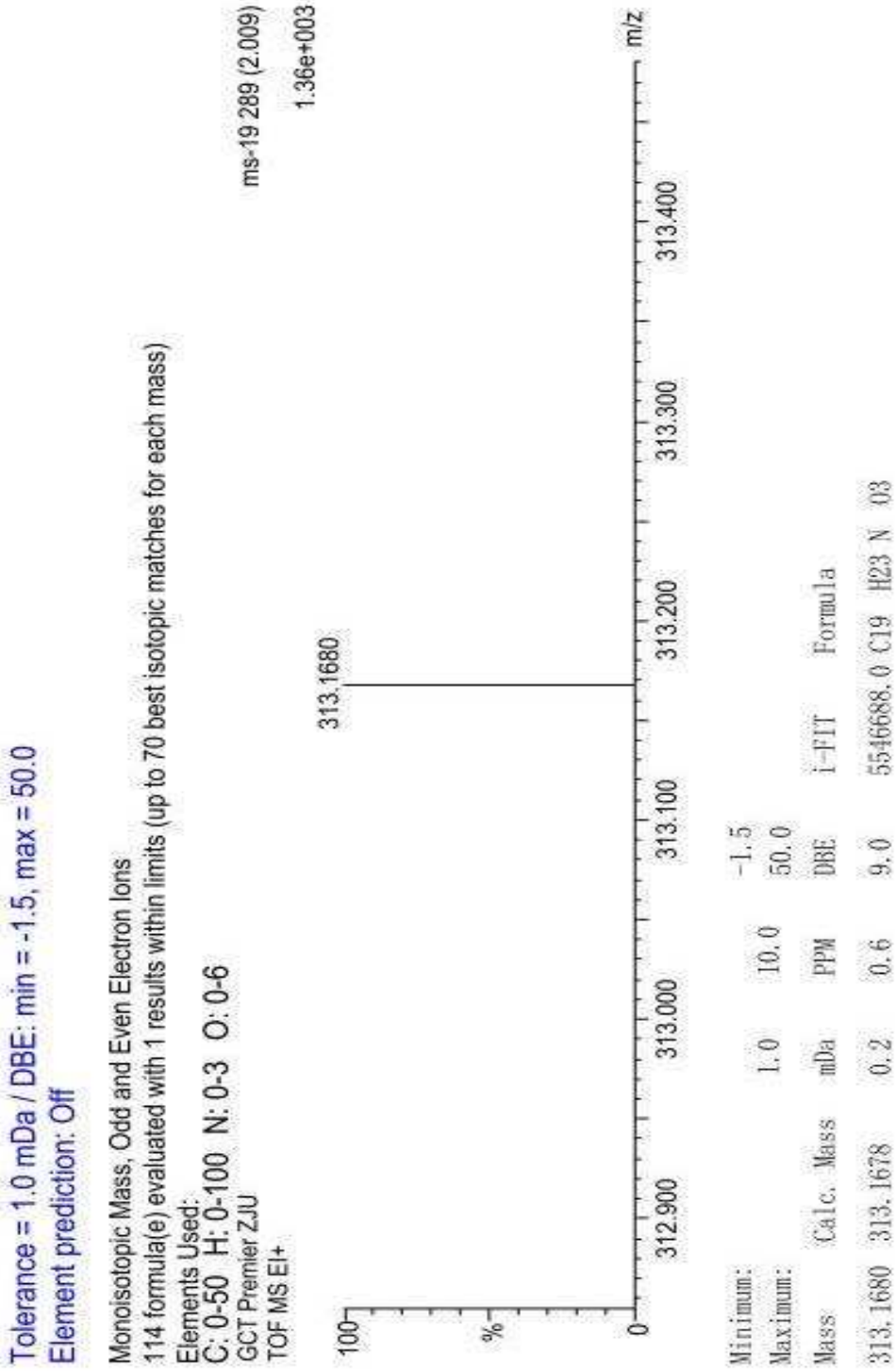
^{1}H NMR Spectrum of tert-butyl 2-(4-tolylamino)-2-(2-hydroxyphenyl)acetate **3ia**



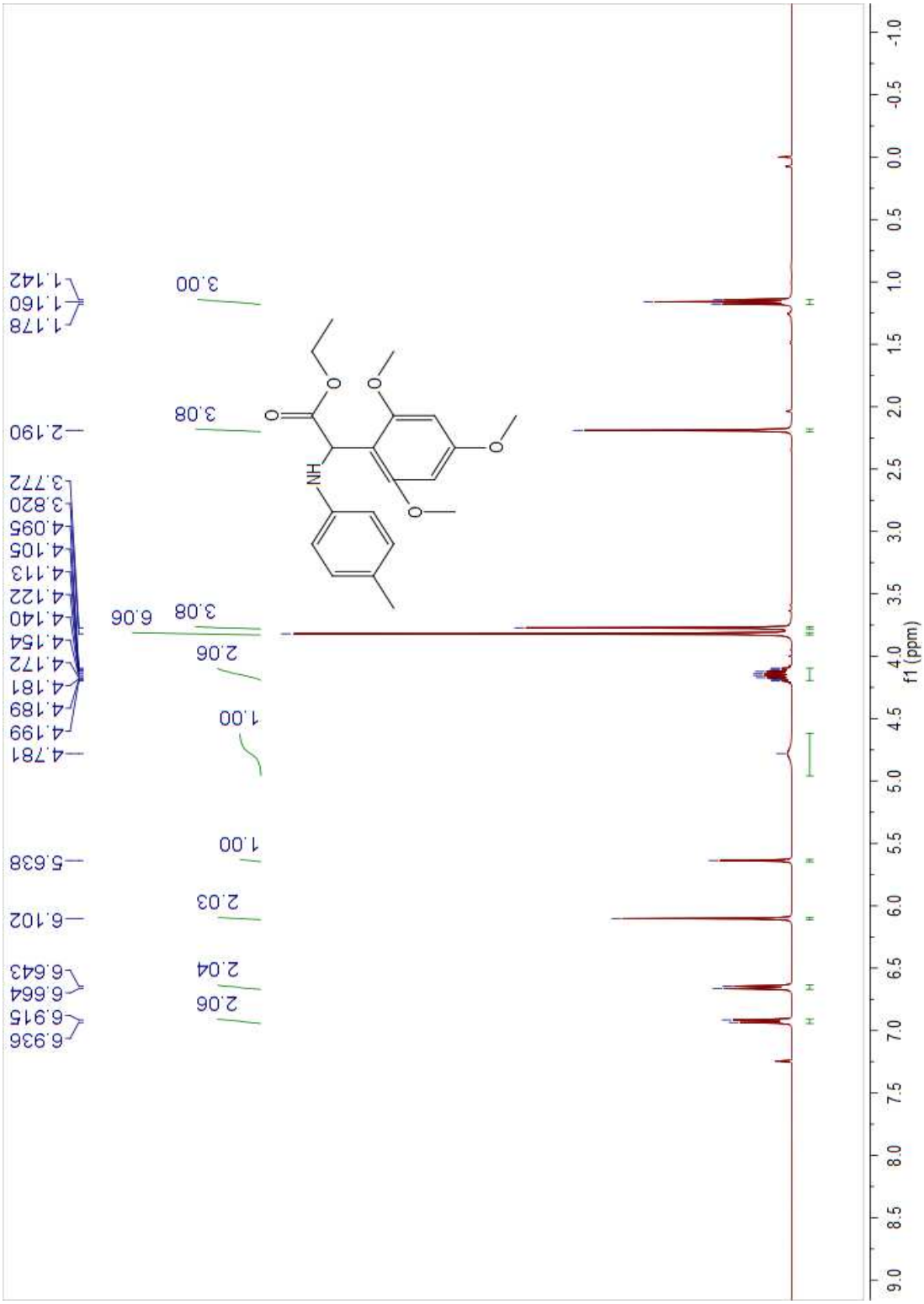
^{13}C NMR Spectrum of tert-butyl 2-(4-tolylamino)-2-(2-hydroxyphenyl)acetate **3ia**



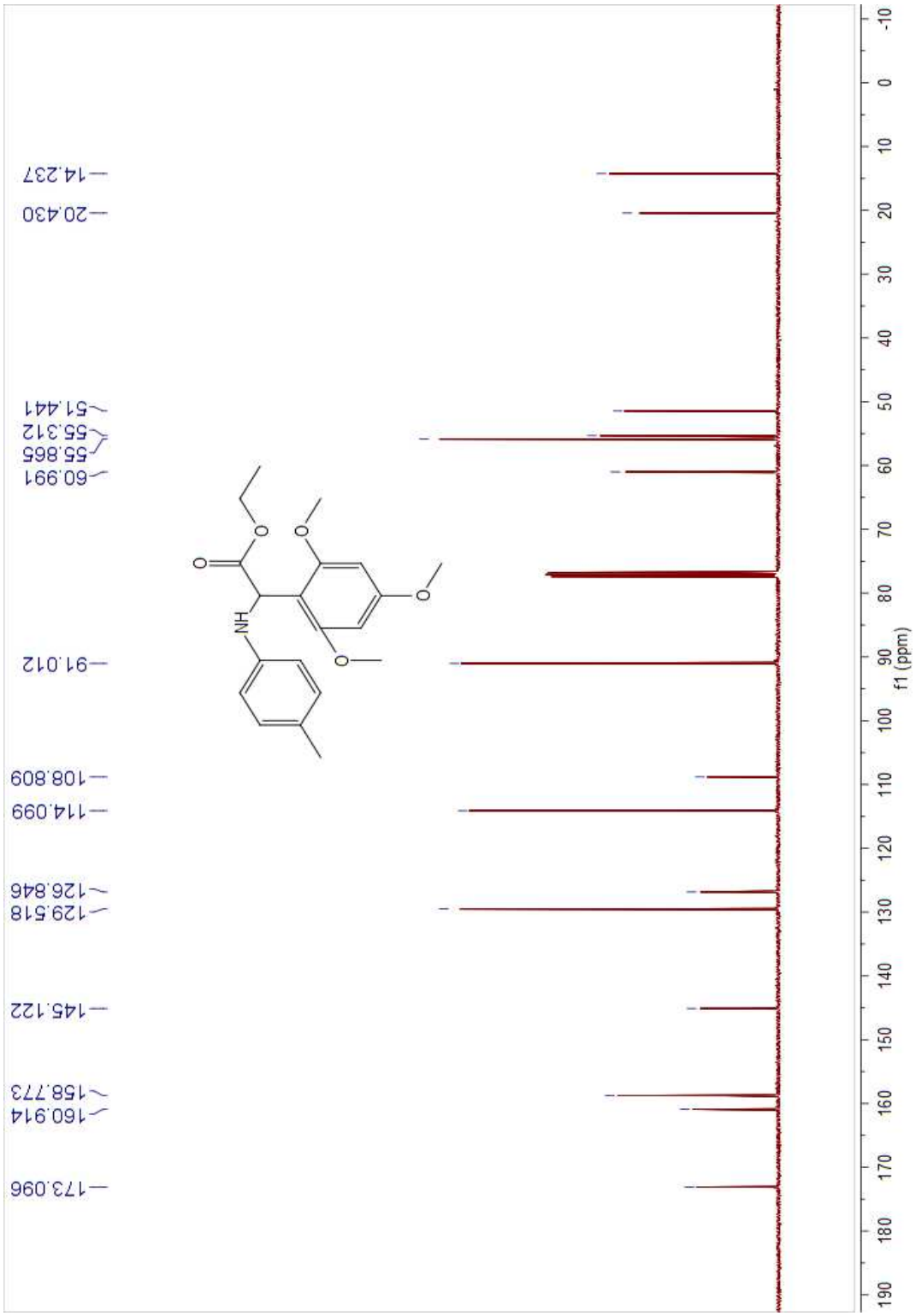
HR-MS Spectrum of tert-butyl 2-(4-tolylamino)-2-(2-hydroxyphenyl)acetate **3ia**



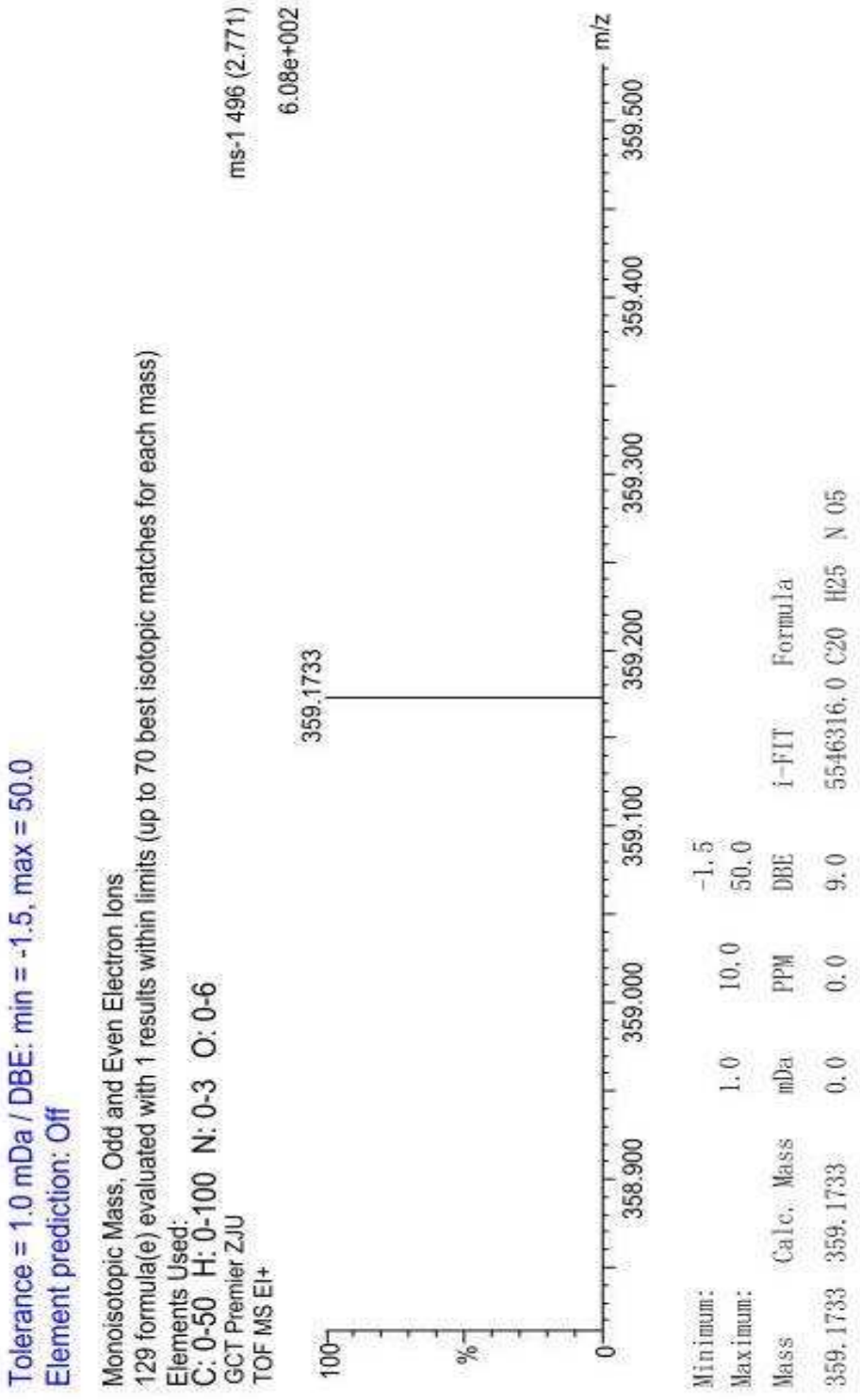
^{1}H NMR Spectrum of ethyl 2-(4-tolylamino)-2-(2,4,6-trimethoxyphenyl)acetate **5a**



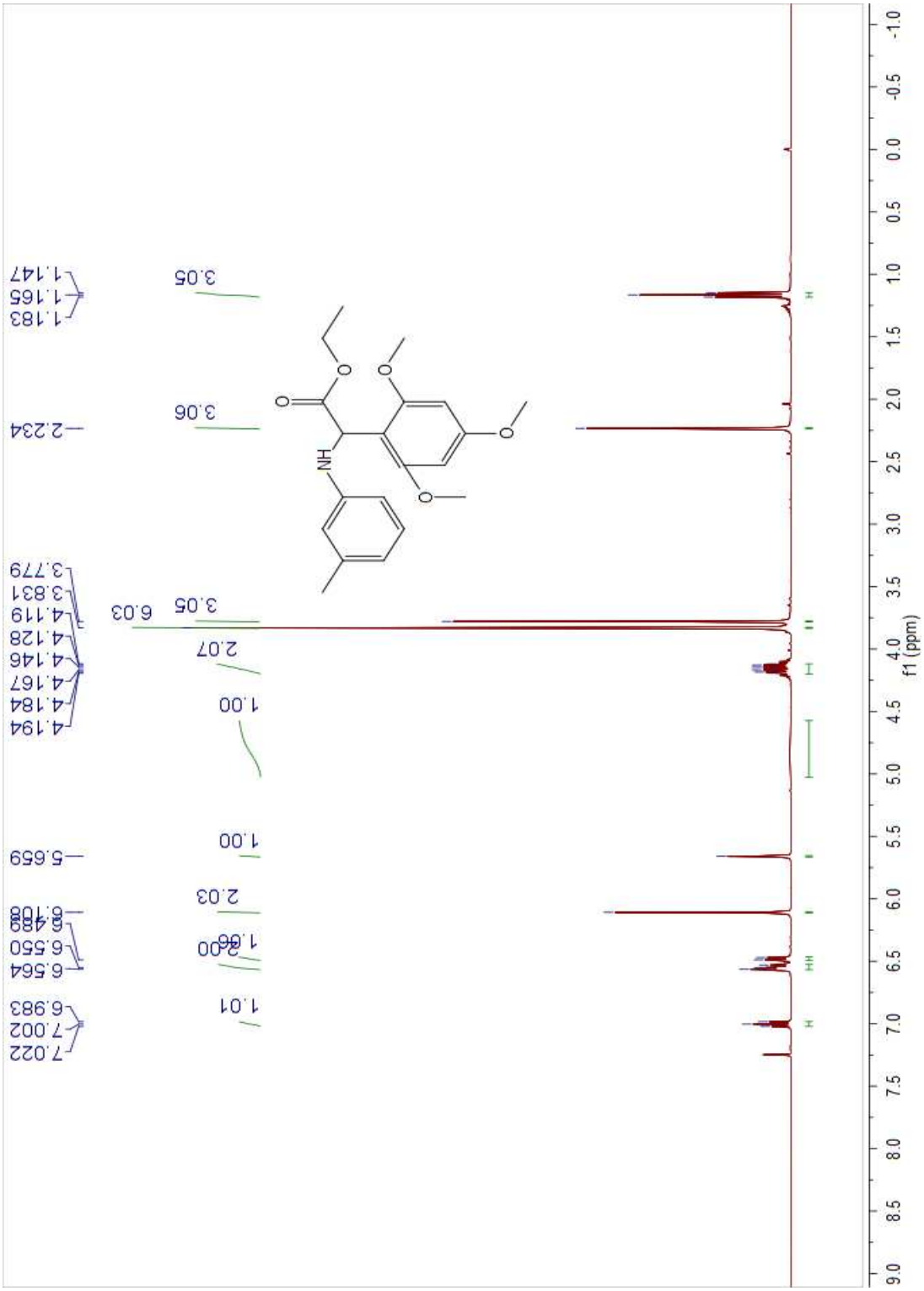
^{13}C NMR Spectrum of ethyl 2-(4-tolylamino)-2-(2,4,6-trimethoxyphenyl)acetate **5a**



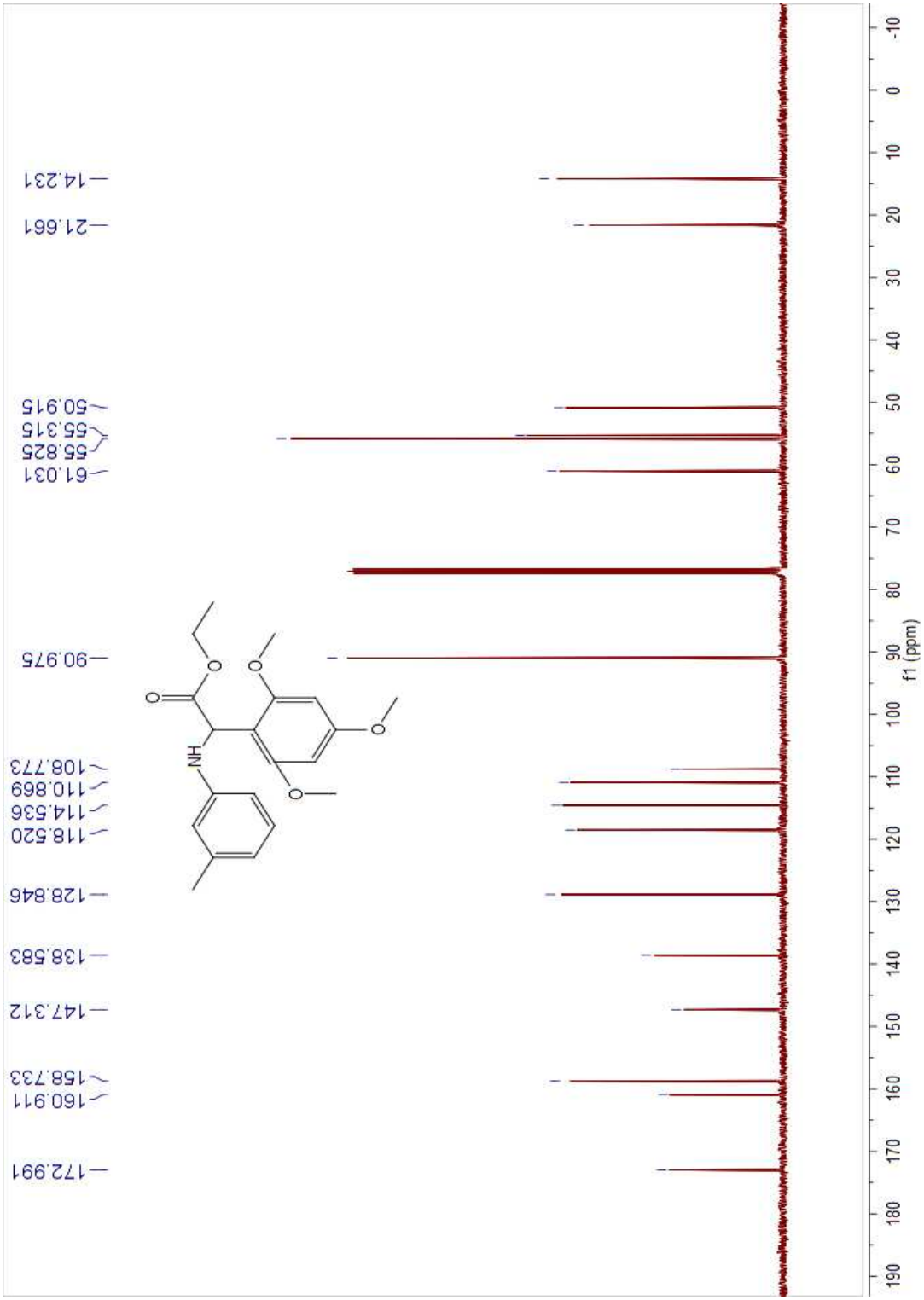
HR-MS Spectrum of ethyl 2-(4-tolylamino)-2-(2,4,6-trimethoxyphenyl)acetate **5a**



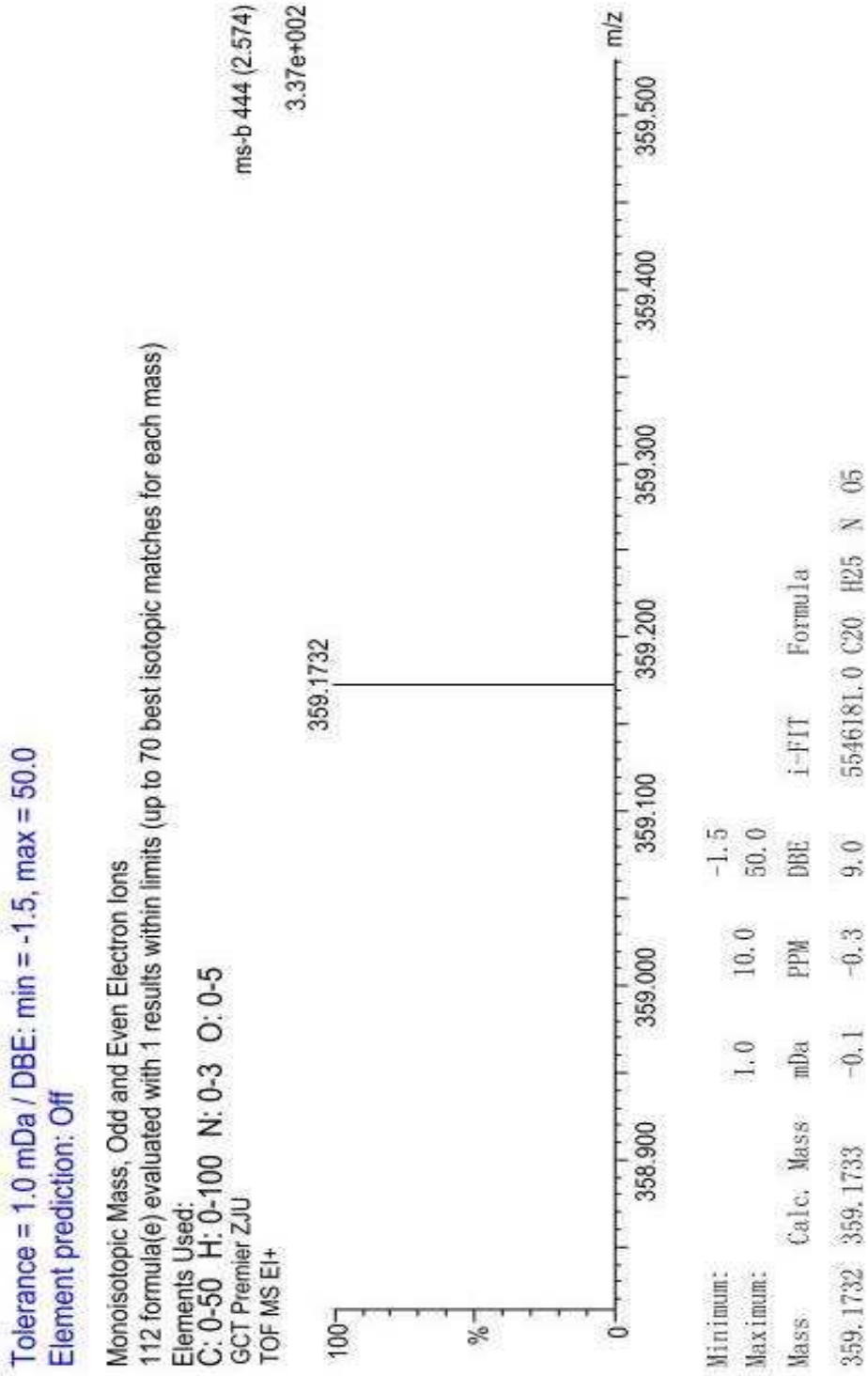
^{1}H NMR Spectrum of ethyl 2-(3-tolylamino)-2-(2,4,6-trimethoxyphenyl)acetate **5b**



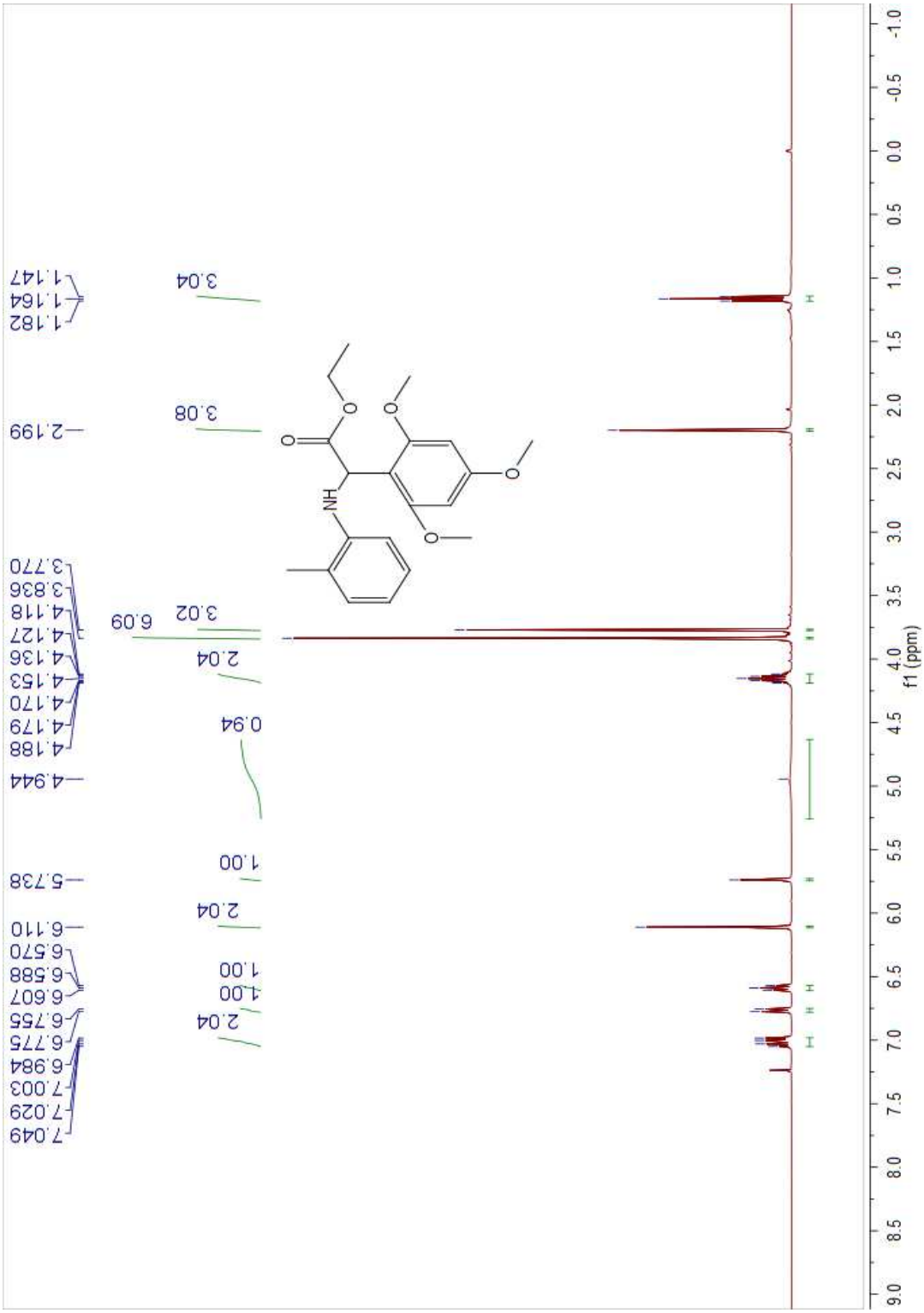
^{13}C NMR Spectrum of ethyl 2-(3-tolylamino)-2-(2,4,6-trimethoxyphenyl)acetate **5b**



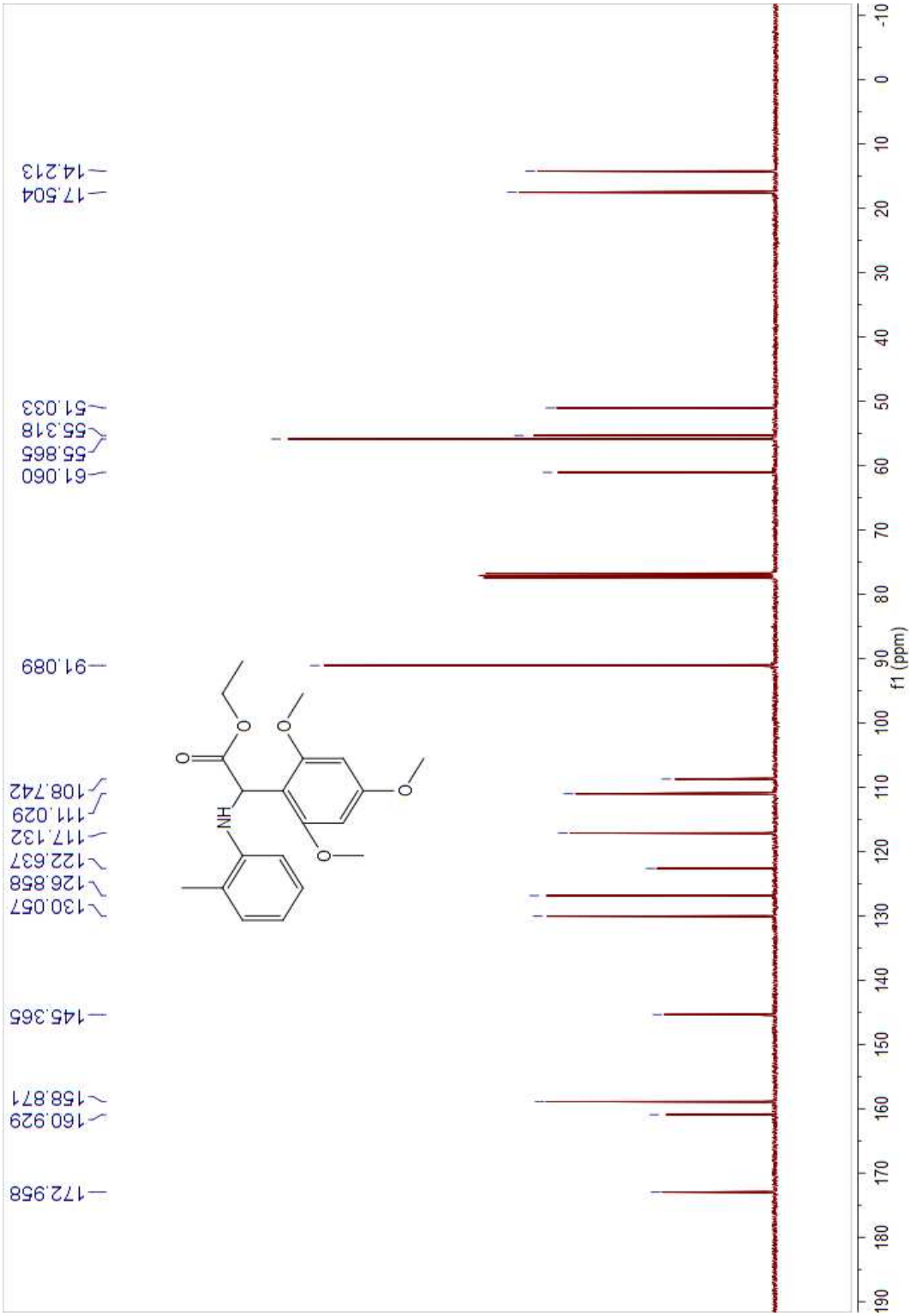
HR-MS Spectrum of ethyl 2-(3-tolylamino)-2-(2,4,6-trimethoxyphenyl)acetate **5b**



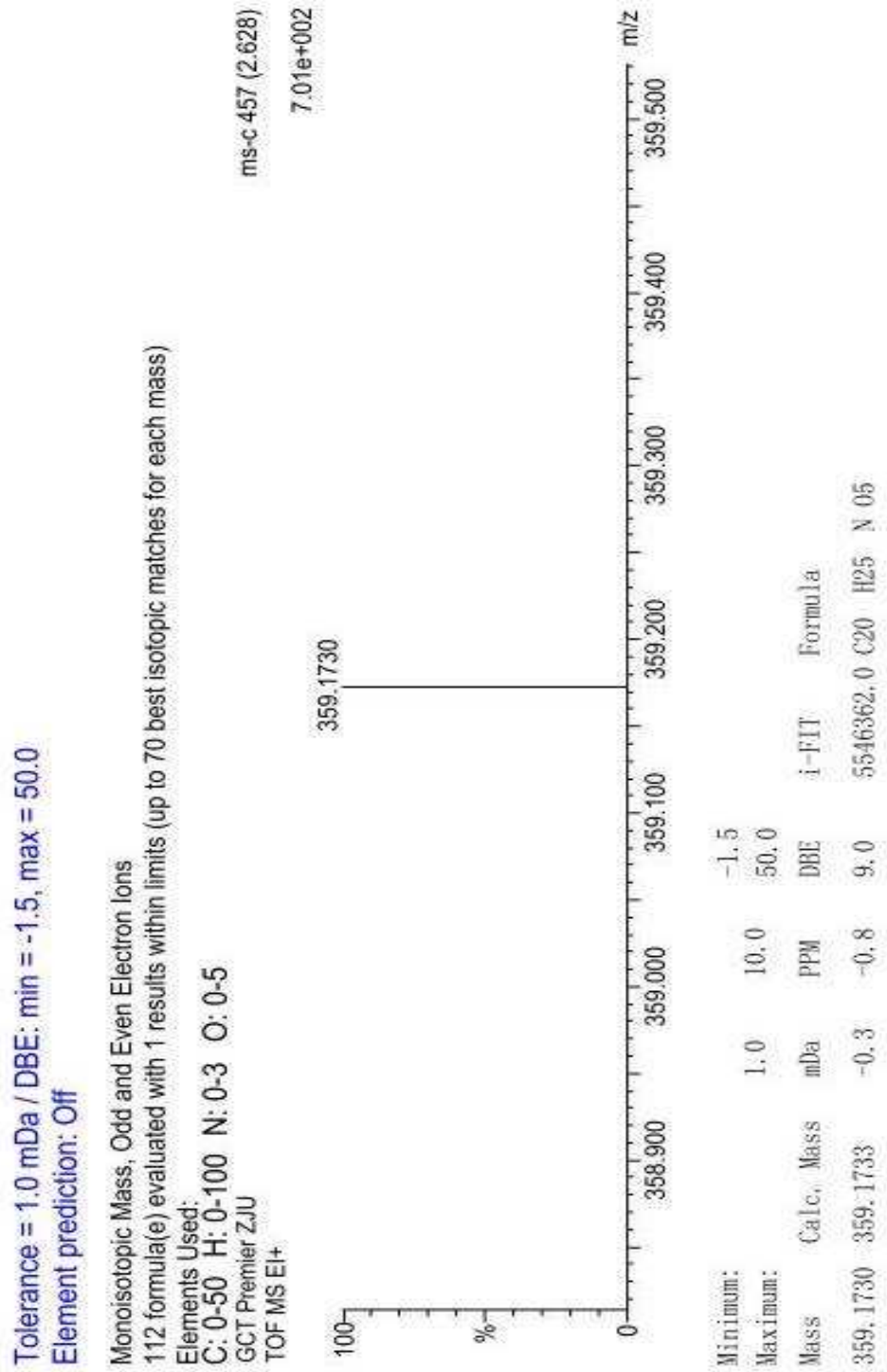
^{1}H NMR Spectrum of ethyl 2-(2-tolylamino)-2-(2,4,6-trimethoxyphenyl)acetate **5c**



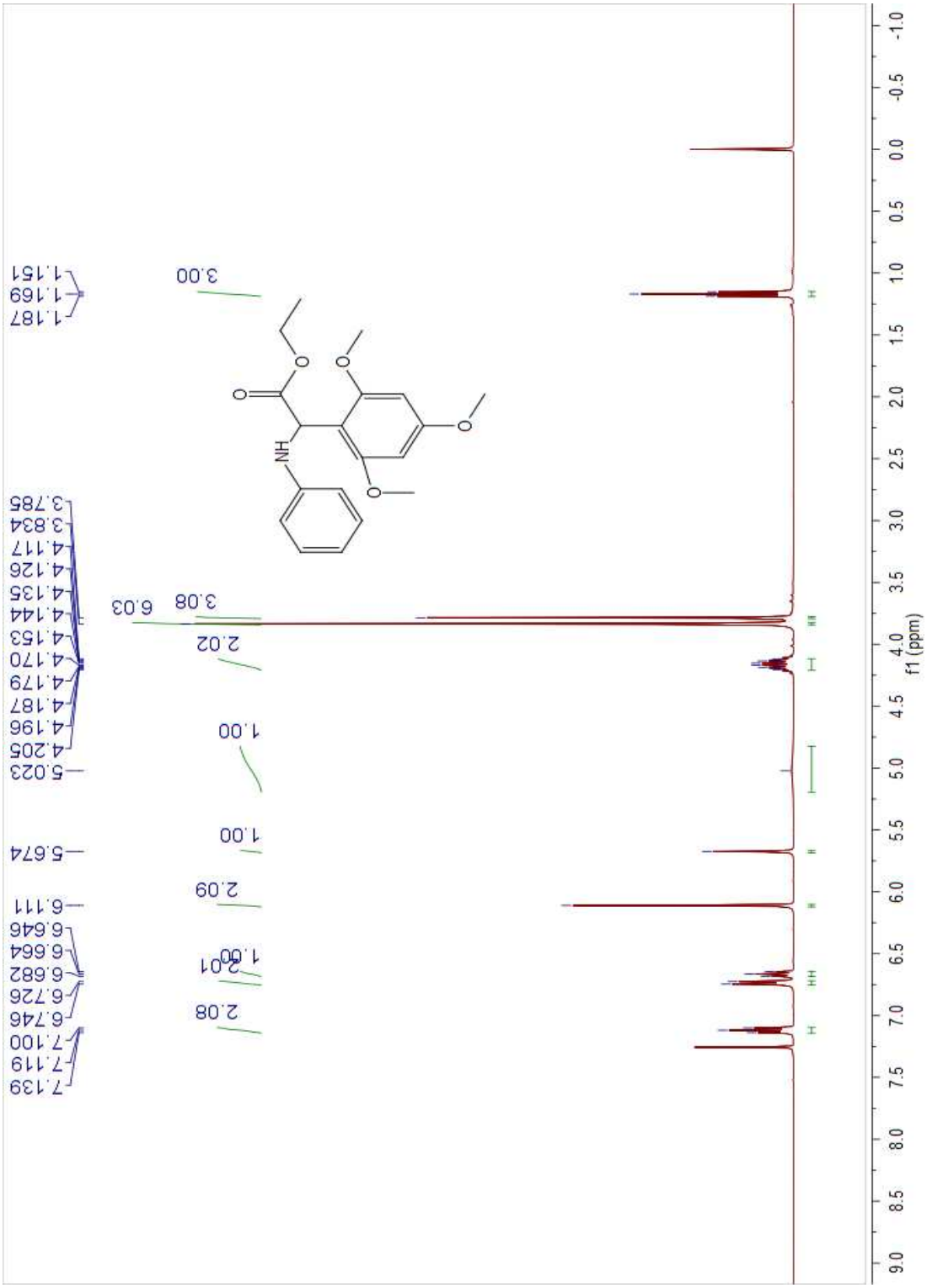
^{13}C NMR Spectrum of ethyl 2-(2-tolylamino)-2-(2,4,6-trimethoxyphenyl)acetate **5c**



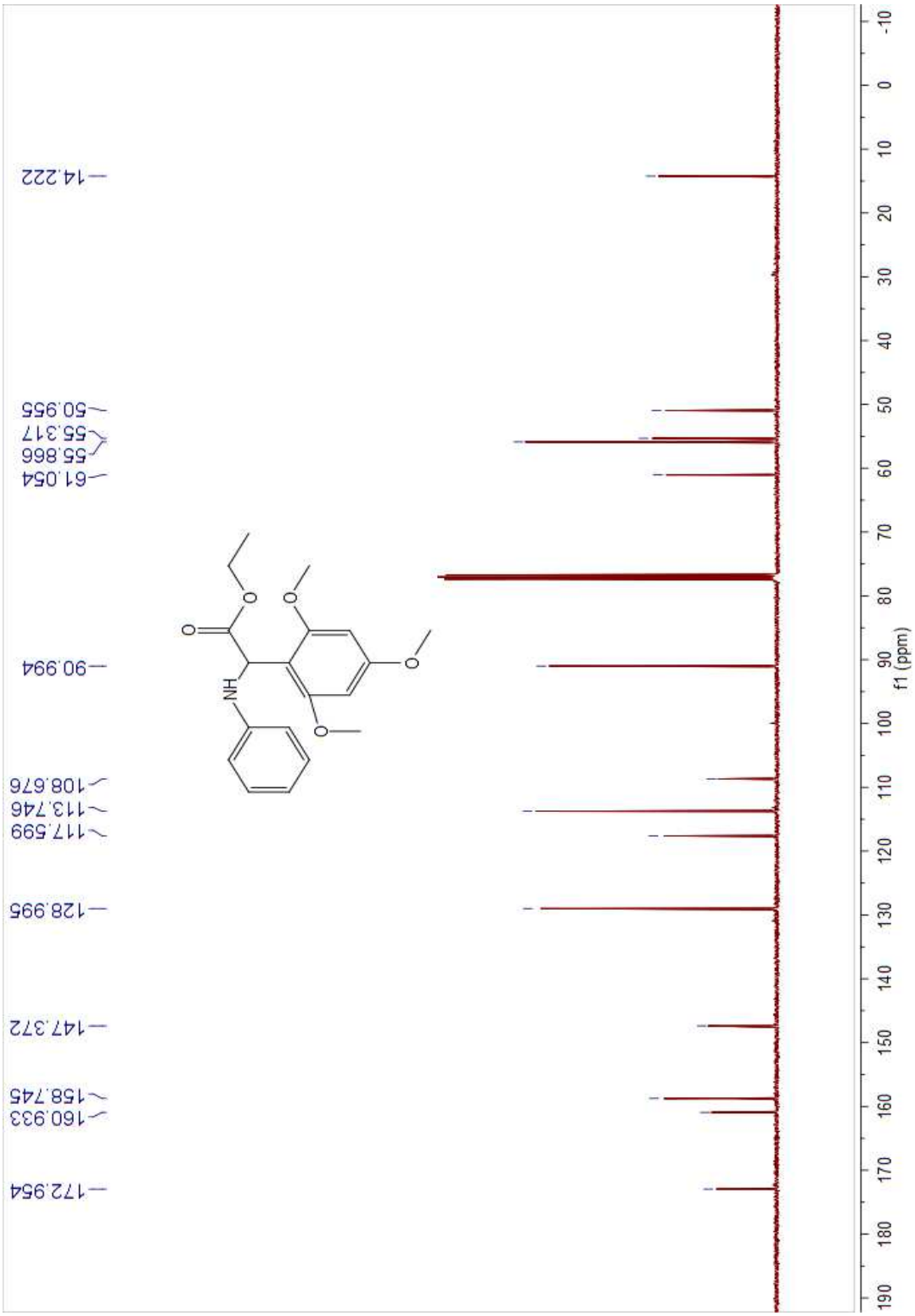
HR-MS Spectrum of ethyl 2-(2-tolylamino)-2-(2,4,6-trimethoxyphenyl)acetate **5c**



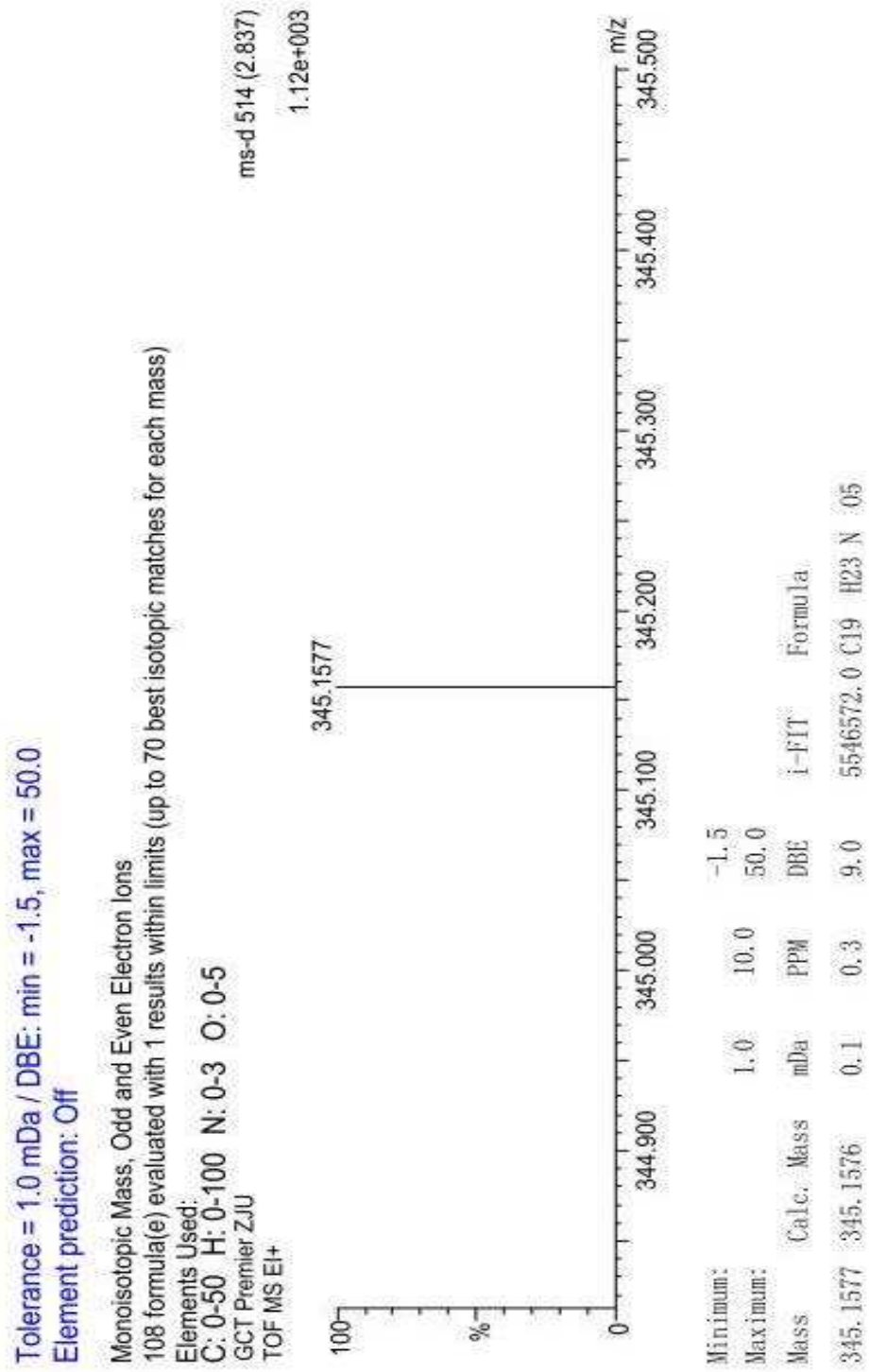
^{1}H NMR Spectrum of ethyl 2-(phenylamino)-2-(2,4,6-trimethoxyphenyl)acetate **5d**



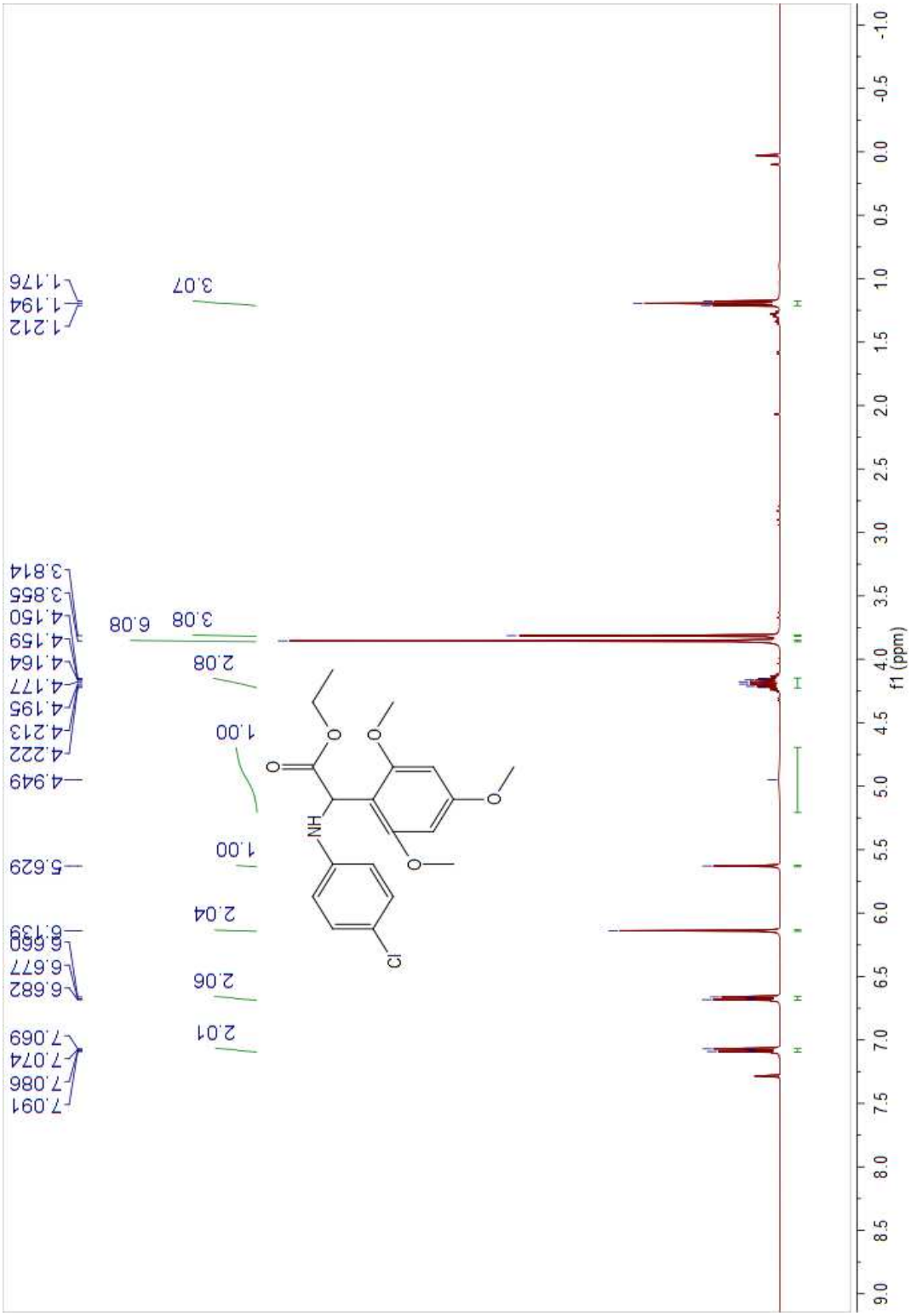
^{13}C NMR Spectrum of ethyl 2-(phenylamino)-2-(2,4,6-trimethoxyphenyl)acetate **5d**



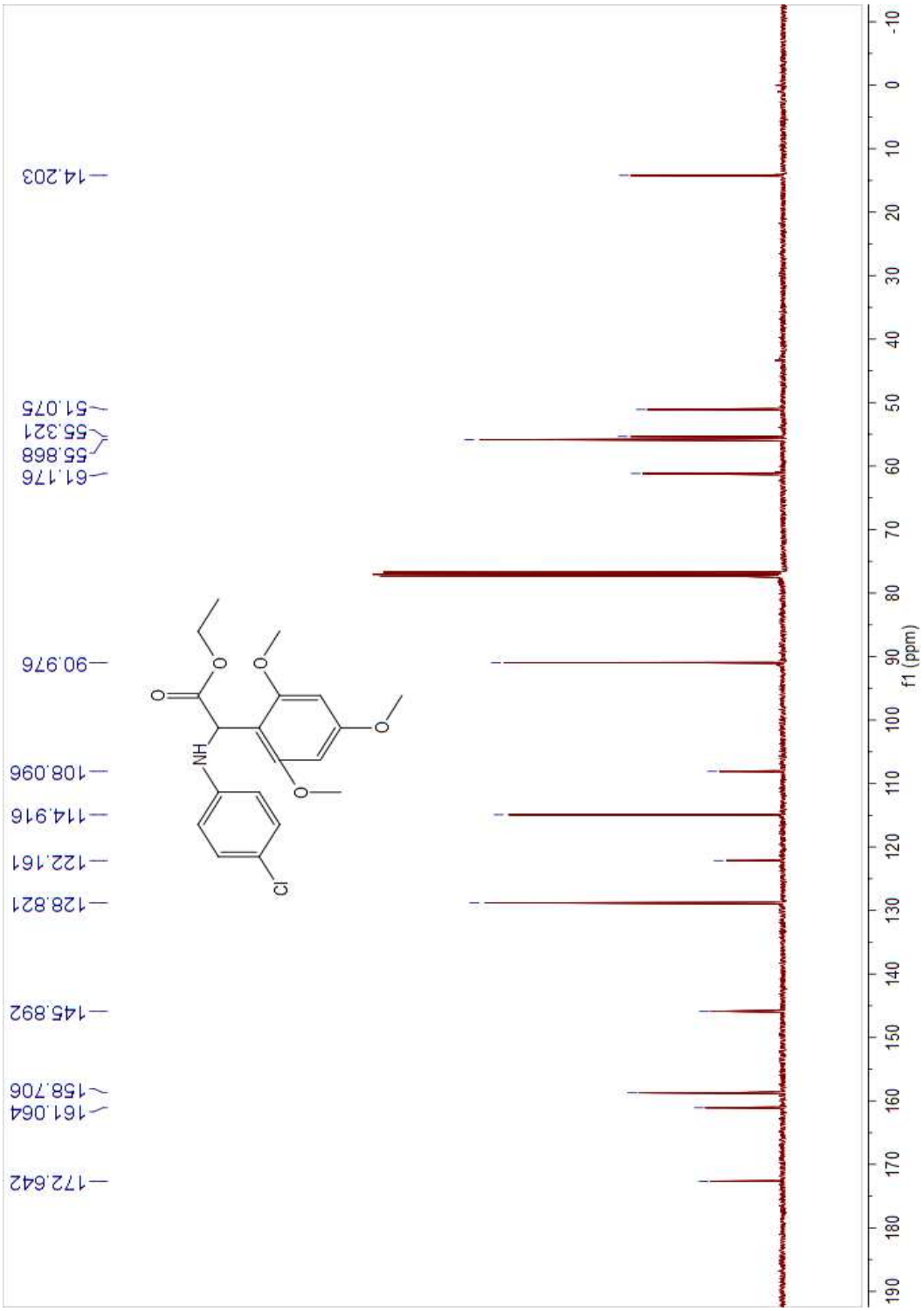
HR-MS Spectrum of ethyl 2-(phenylamino)-2-(2,4,6-trimethoxyphenyl)acetate **5d**



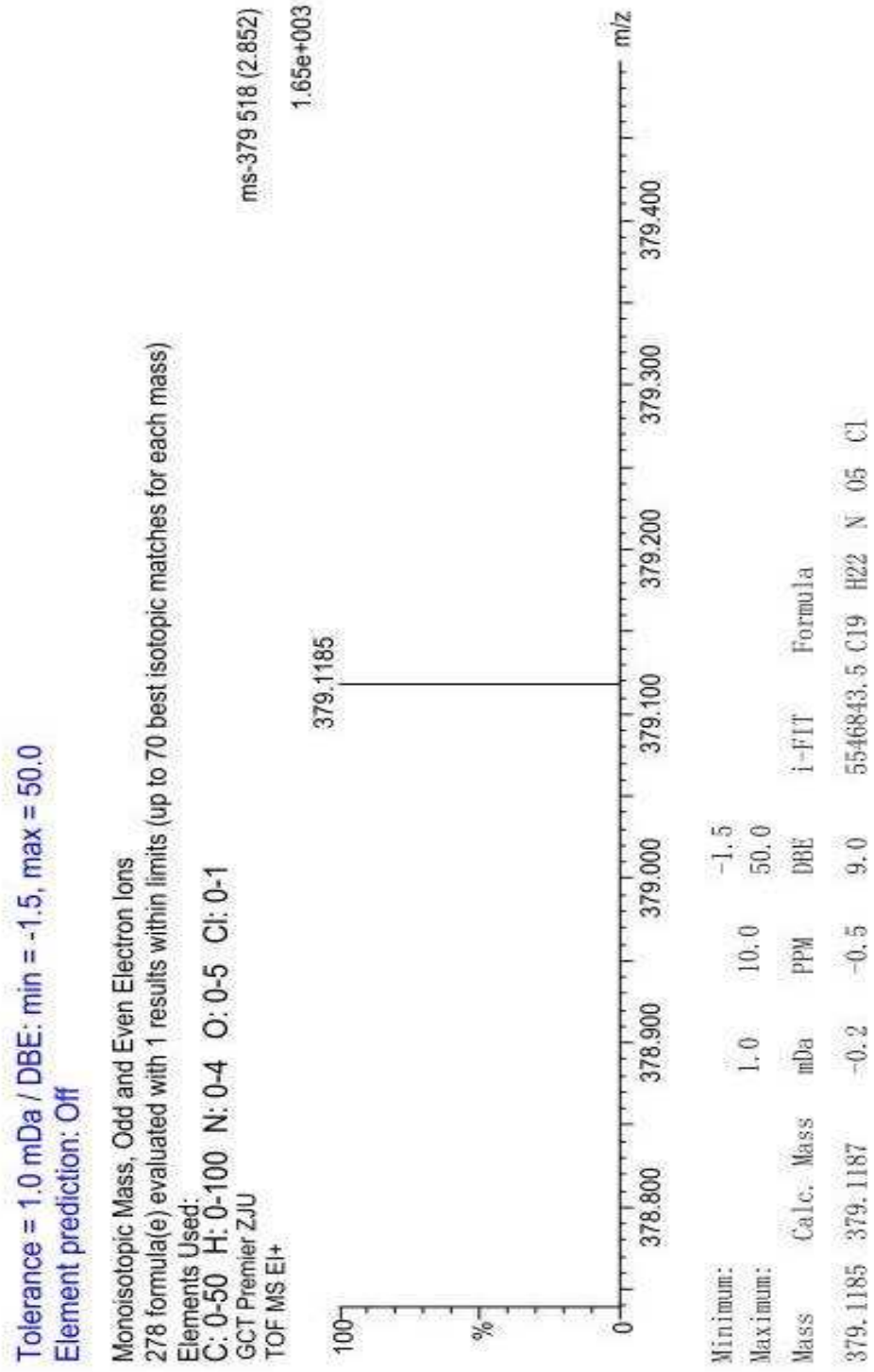
^{1}H NMR Spectrum of ethyl 2-(4-chlorophenylamino)-2-(2,4,6-trimethoxyphenyl)acetate **5e**



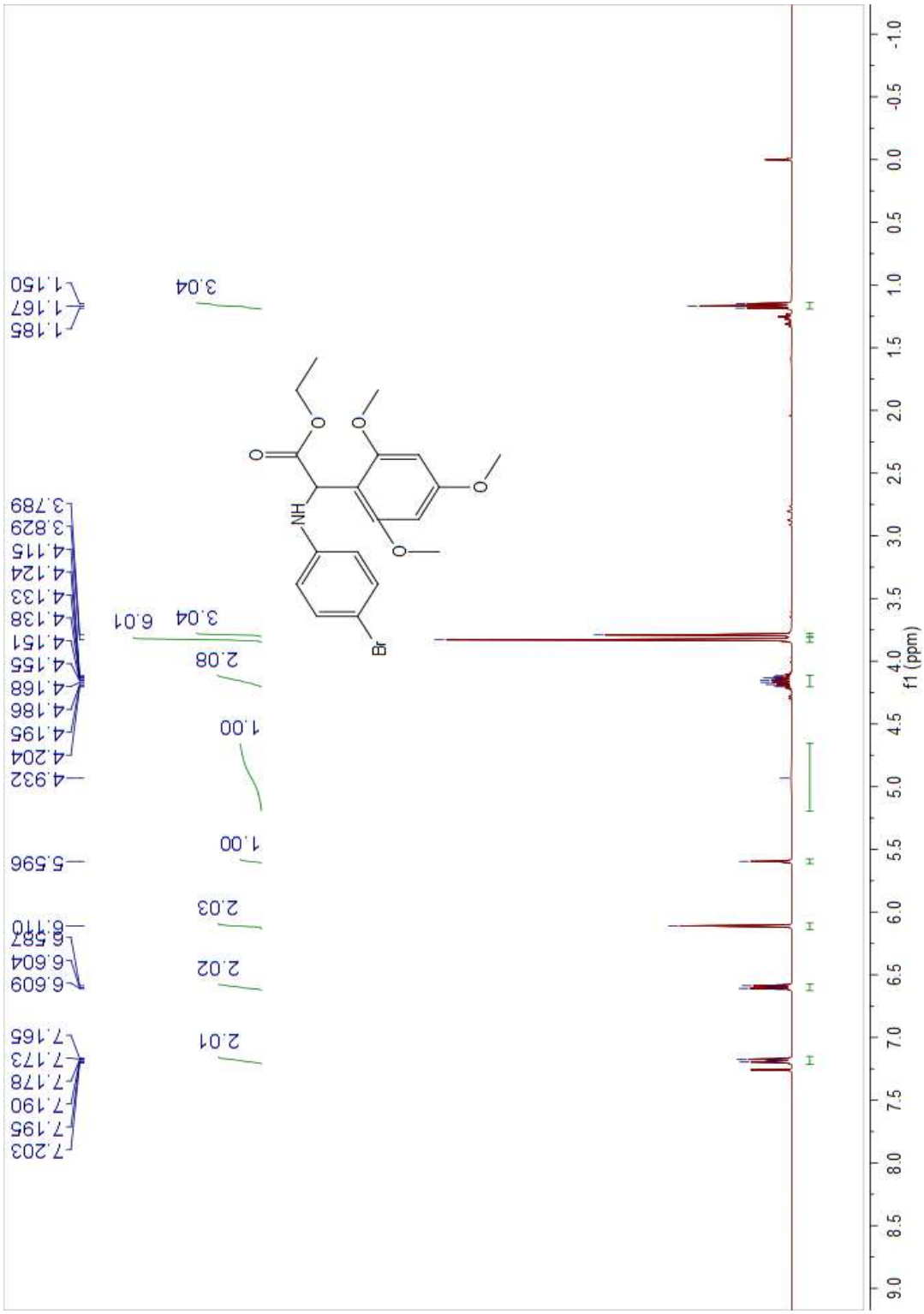
^{13}C NMR Spectrum of ethyl 2-(4-chlorophenylamino)-2-(2,4,6-trimethoxyphenyl)acetate **5e**



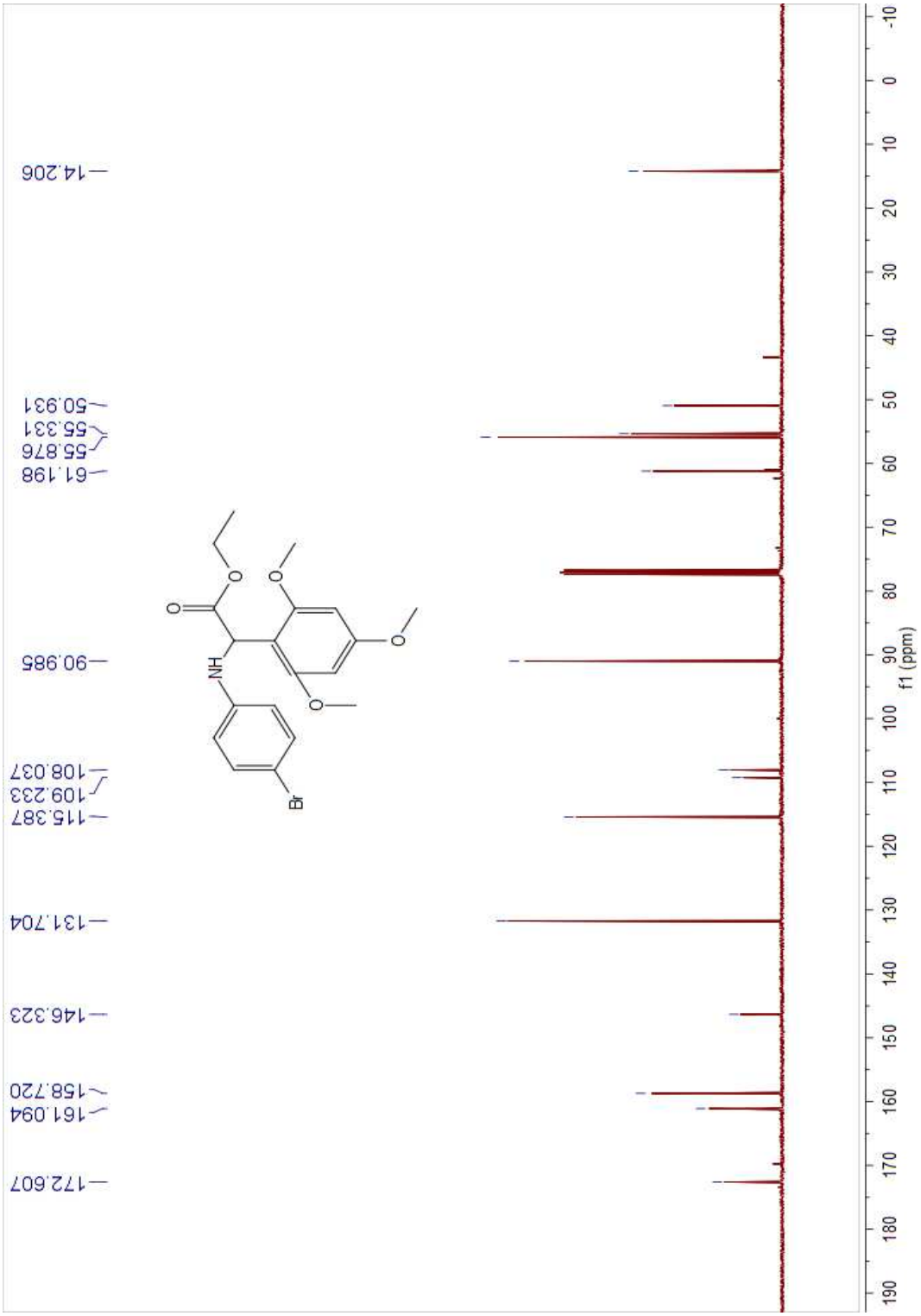
HR-MS Spectrum of ethyl 2-(4-chlorophenylamino)-2-(2,4,6-trimethoxyphenyl)acetate **5e**



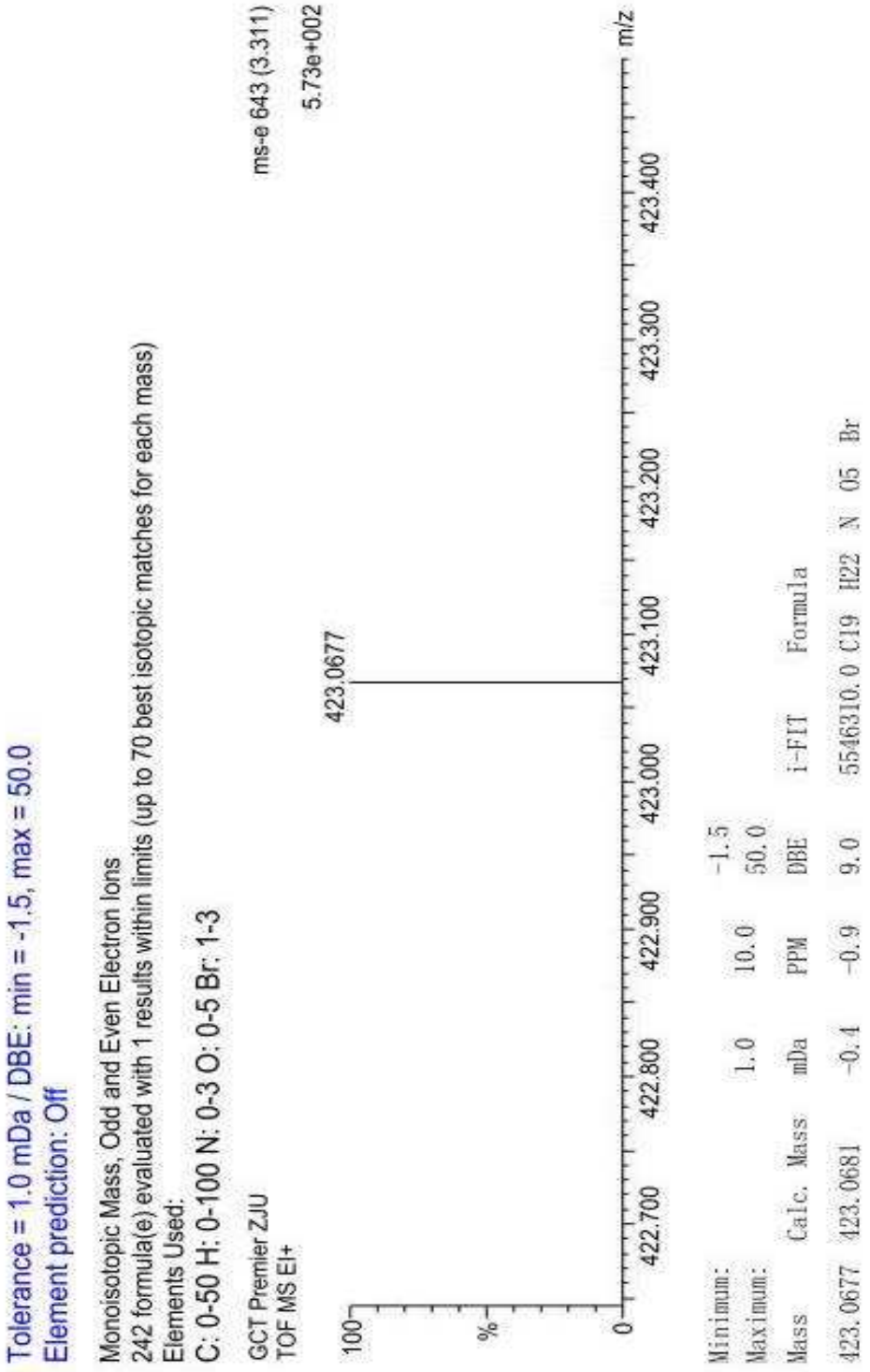
^{1}H NMR Spectrum ethyl 2-(4-bromophenylamino)-2-(2,4,6-trimethoxyphenyl)acetate **5f**



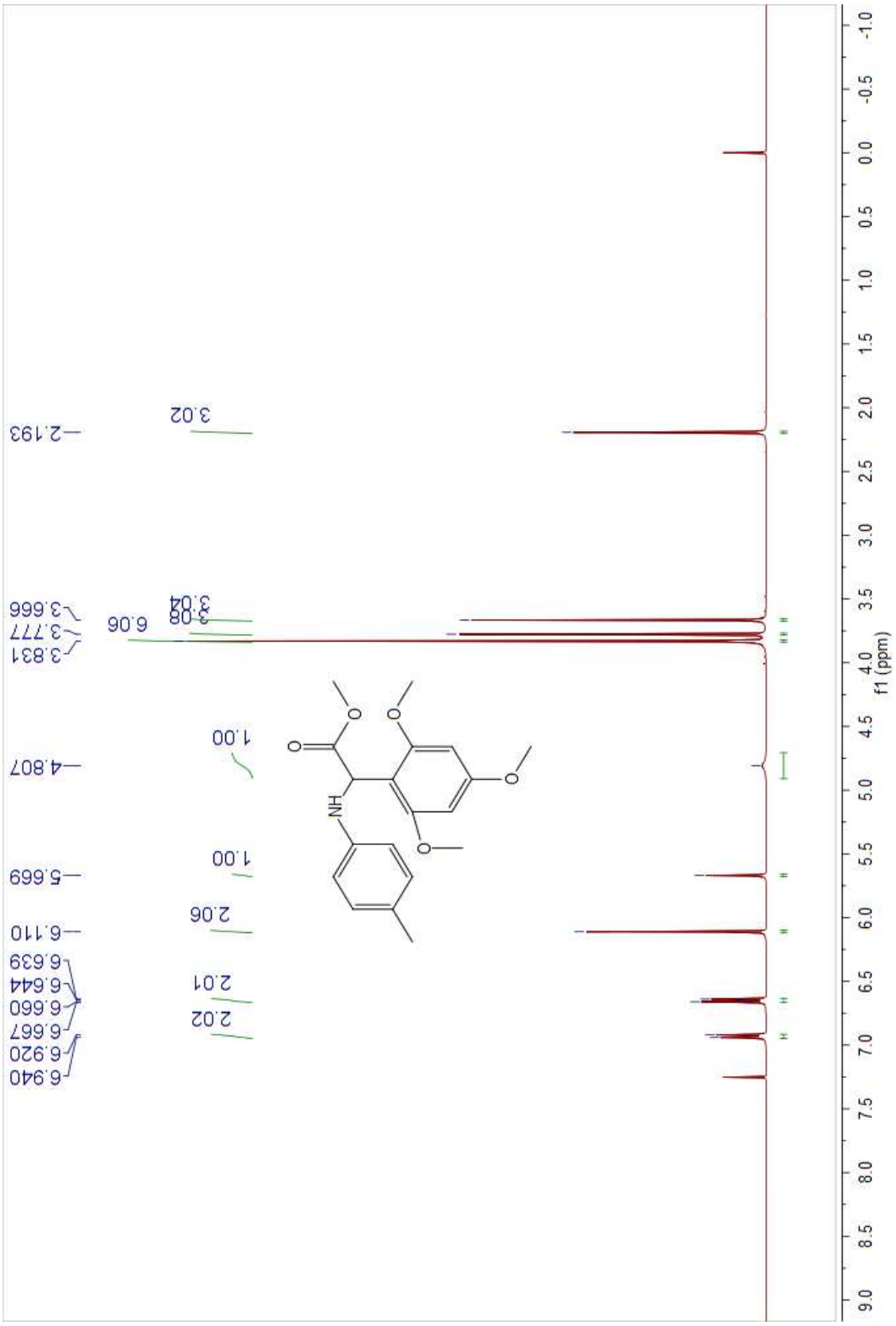
^{13}C NMR Spectrum ethyl 2-(4-bromophenylamino)-2-(2,4,6-trimethoxyphenyl)acetate **5f**



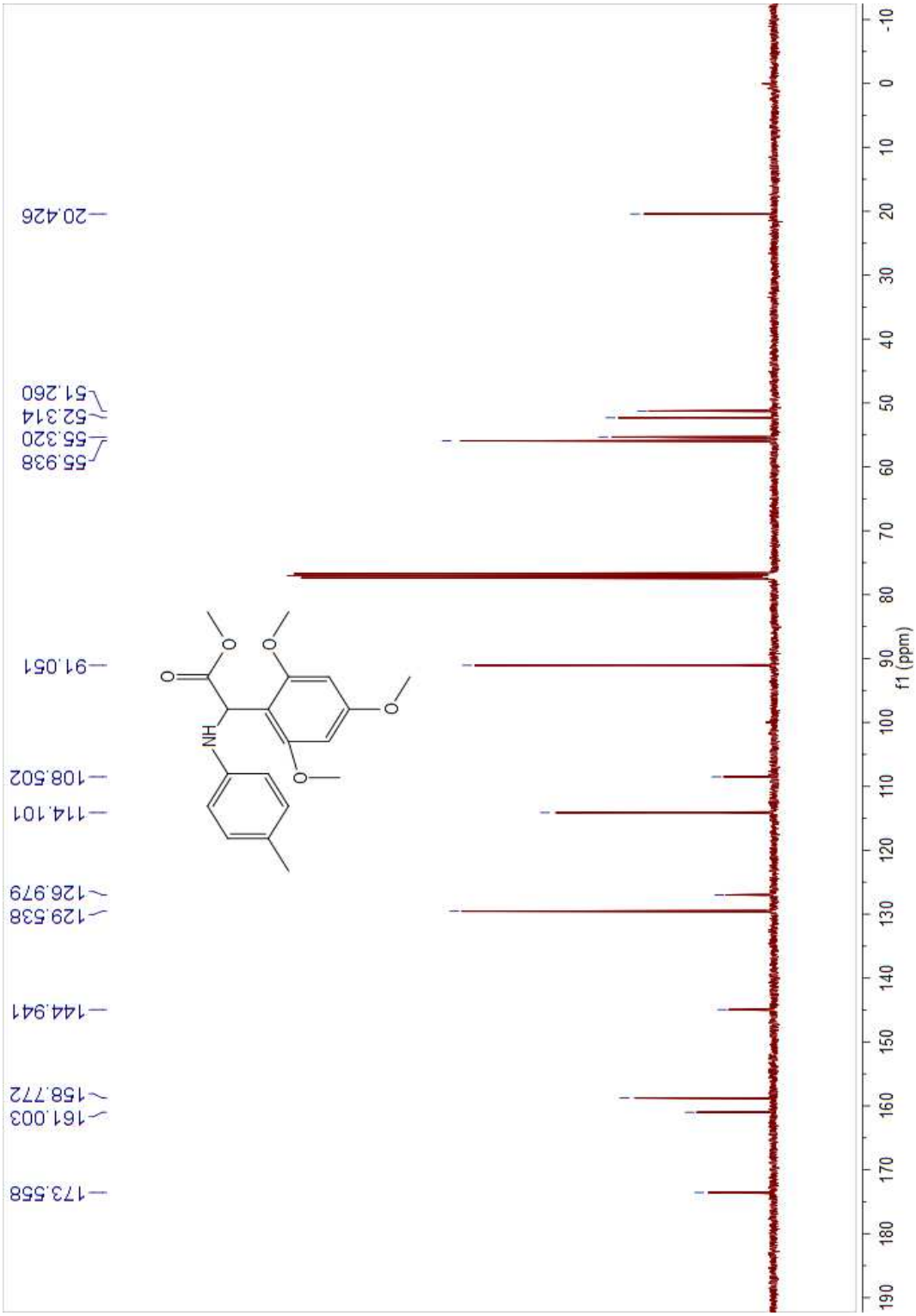
HR-MS Spectrum ethyl 2-(4-bromophenylamino)-2-(2,4,6-trimethoxyphenyl)acetate **5f**



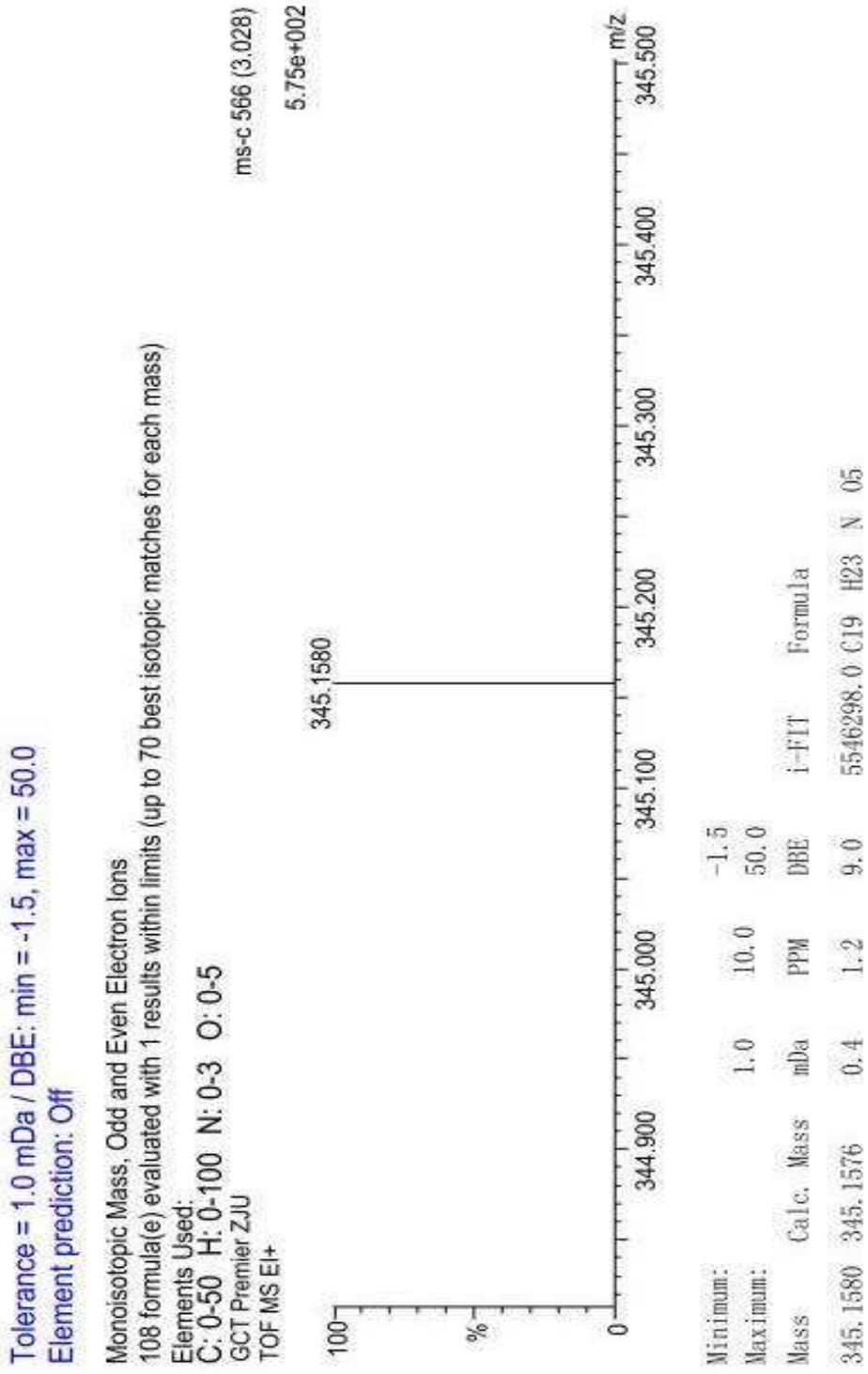
^{1}H NMR Spectrum of methyl 2-(4-tolylamino)-2-(2,4,6-trimethoxyphenyl)acetate **5g**



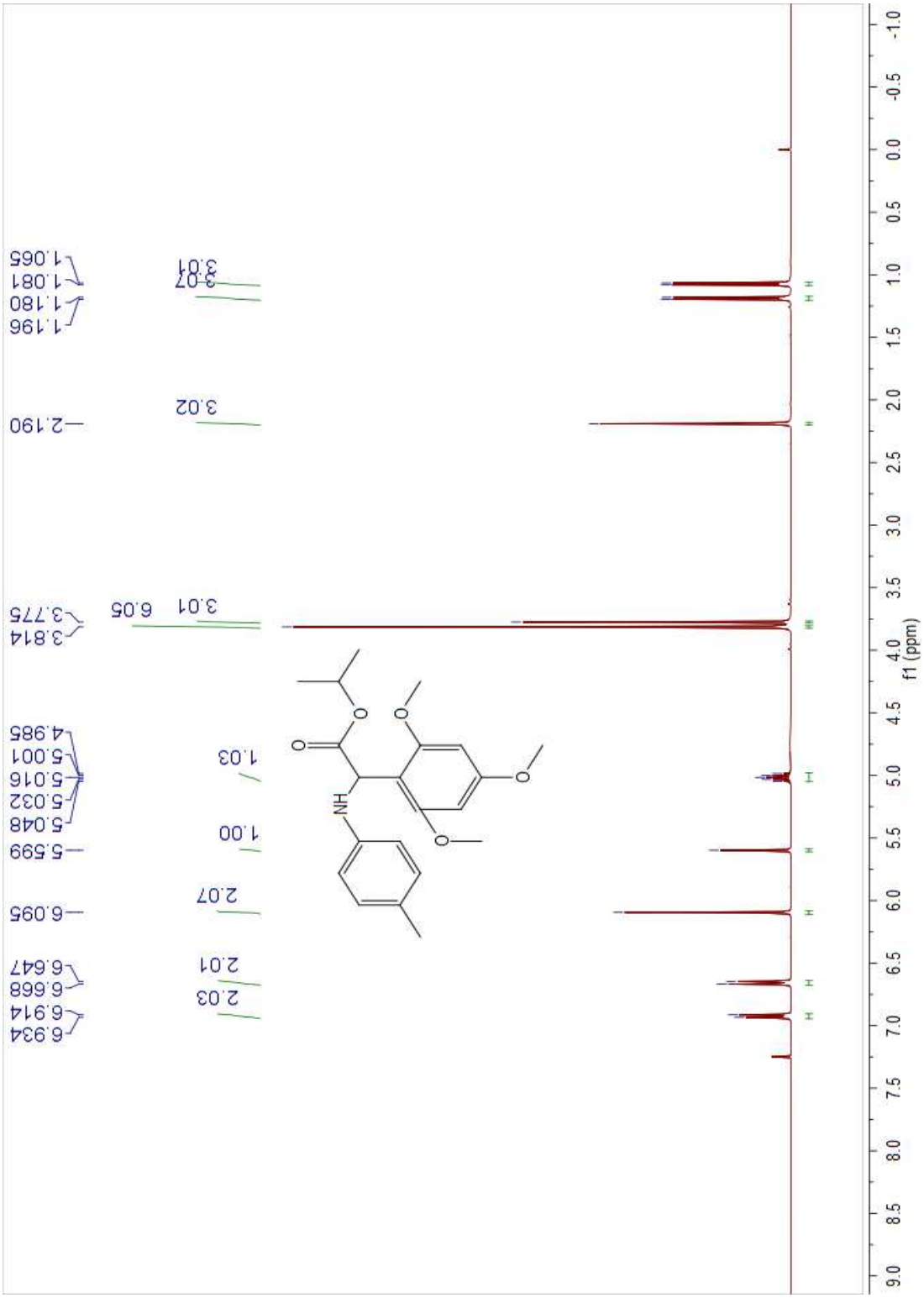
^{13}C NMR Spectrum of methyl 2-(4-tolylamino)-2-(2,4,6-trimethoxyphenyl)acetate **5g**



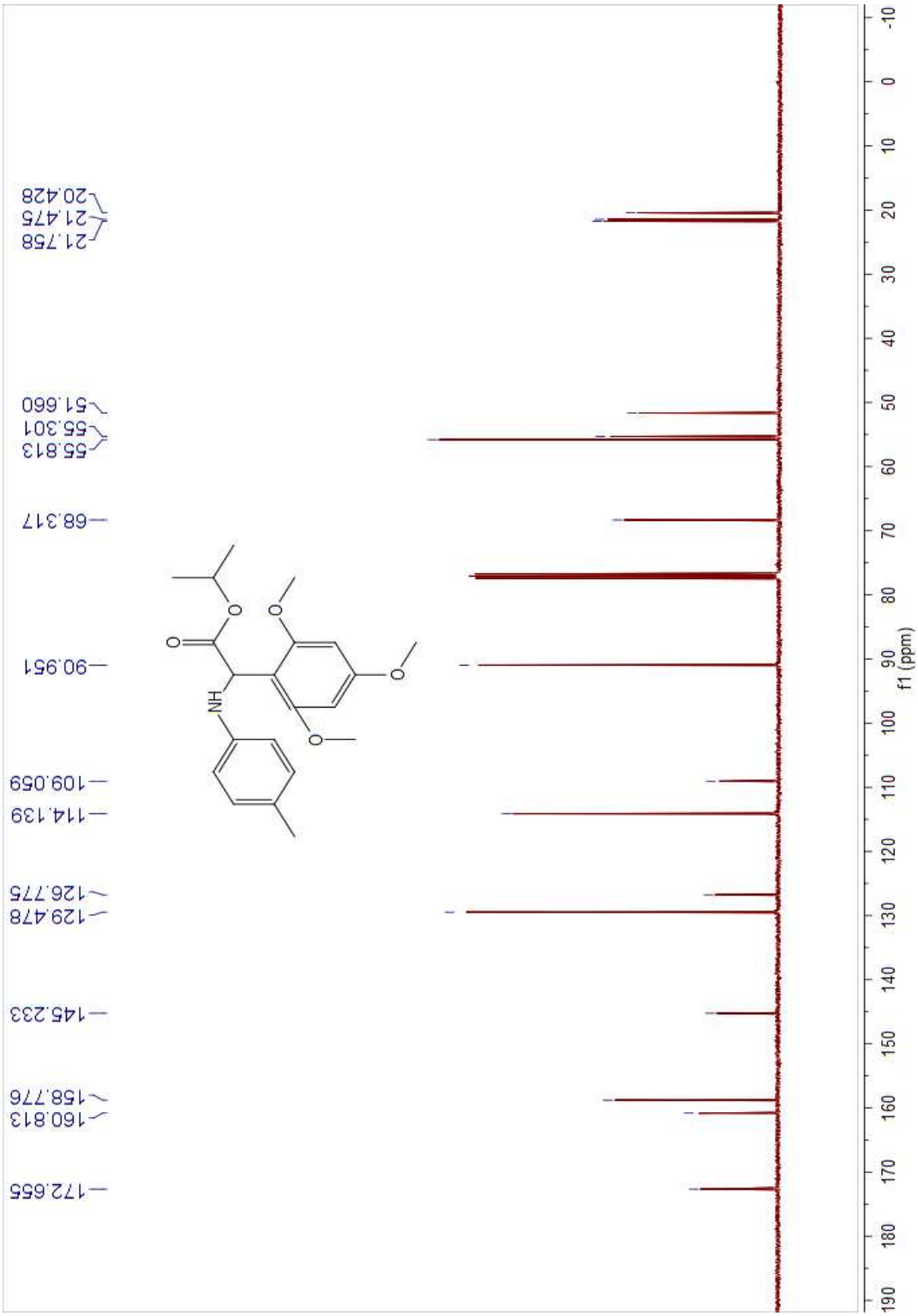
Mass Spectrum of methyl 2-(4-tolylamino)-2-(2,4,6-trimethoxyphenyl)acetate **5g**



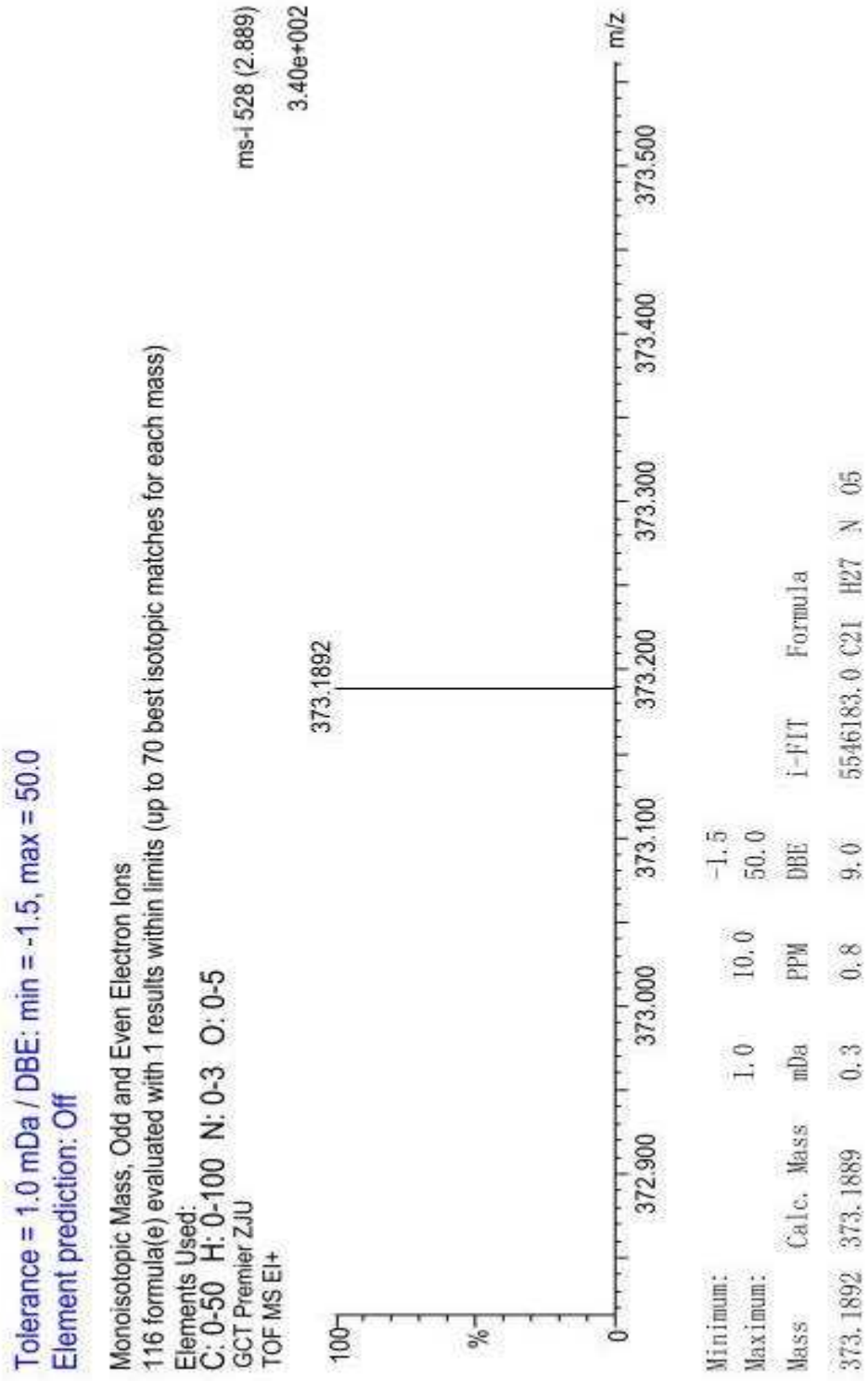
^{1}H NMR Spectrum of isopropyl 2-(4-tolylamino)-2-(2,4,6-trimethoxyphenyl)acetate **5h**



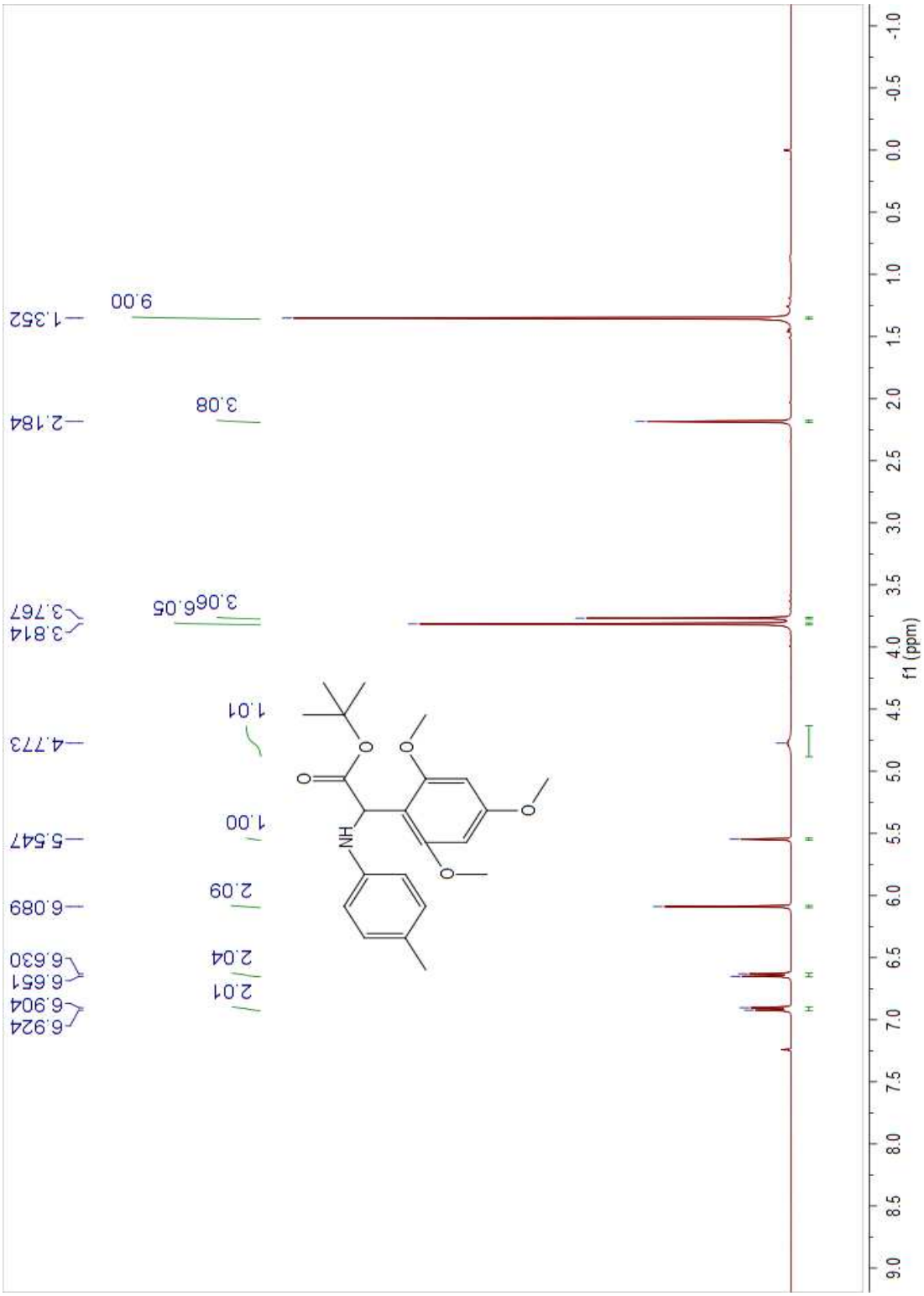
^{13}C NMR Spectrum of isopropyl 2-(4-tolylamino)-2-(2,4,6-trimethoxyphenyl)acetate **5h**



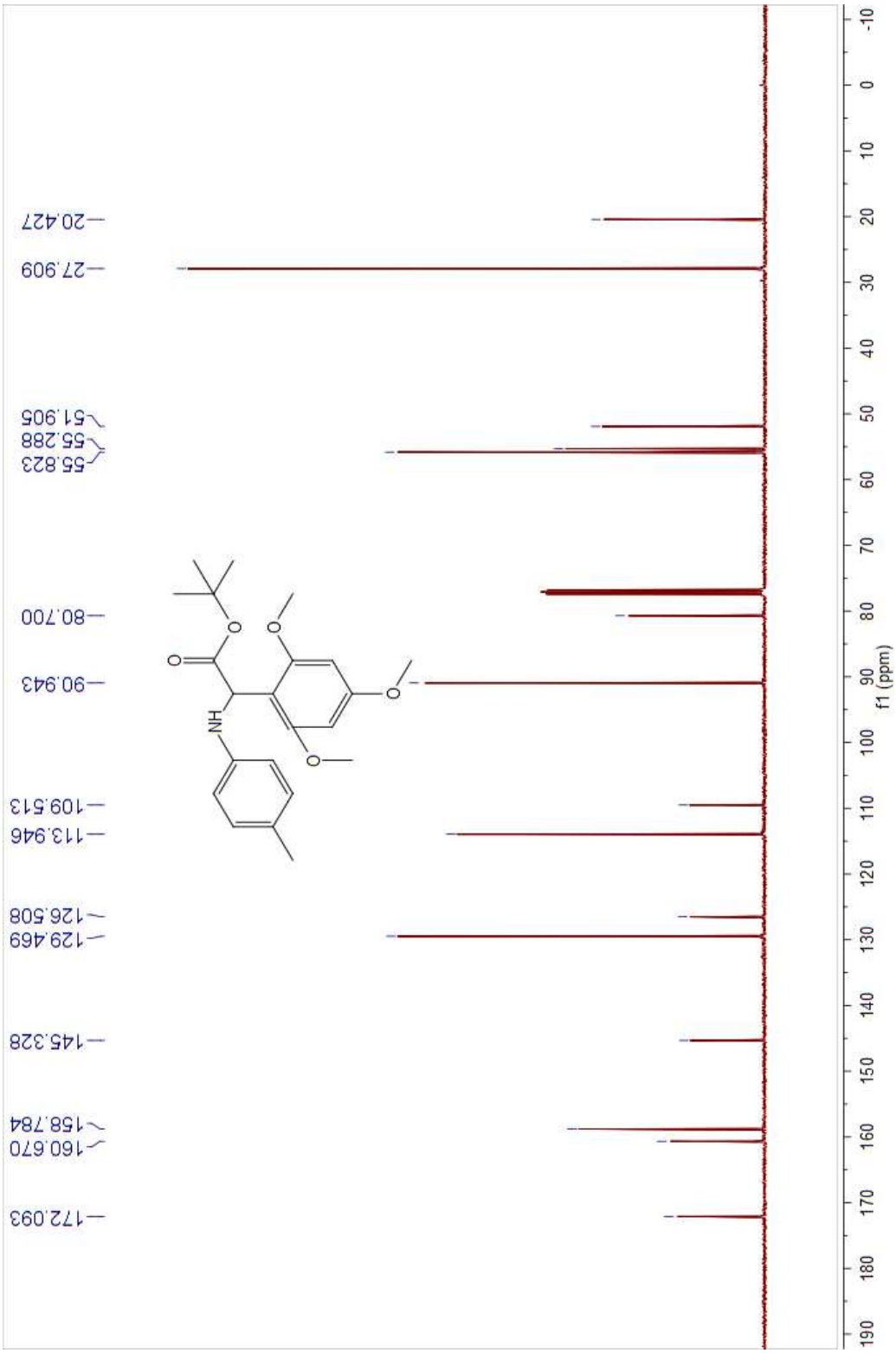
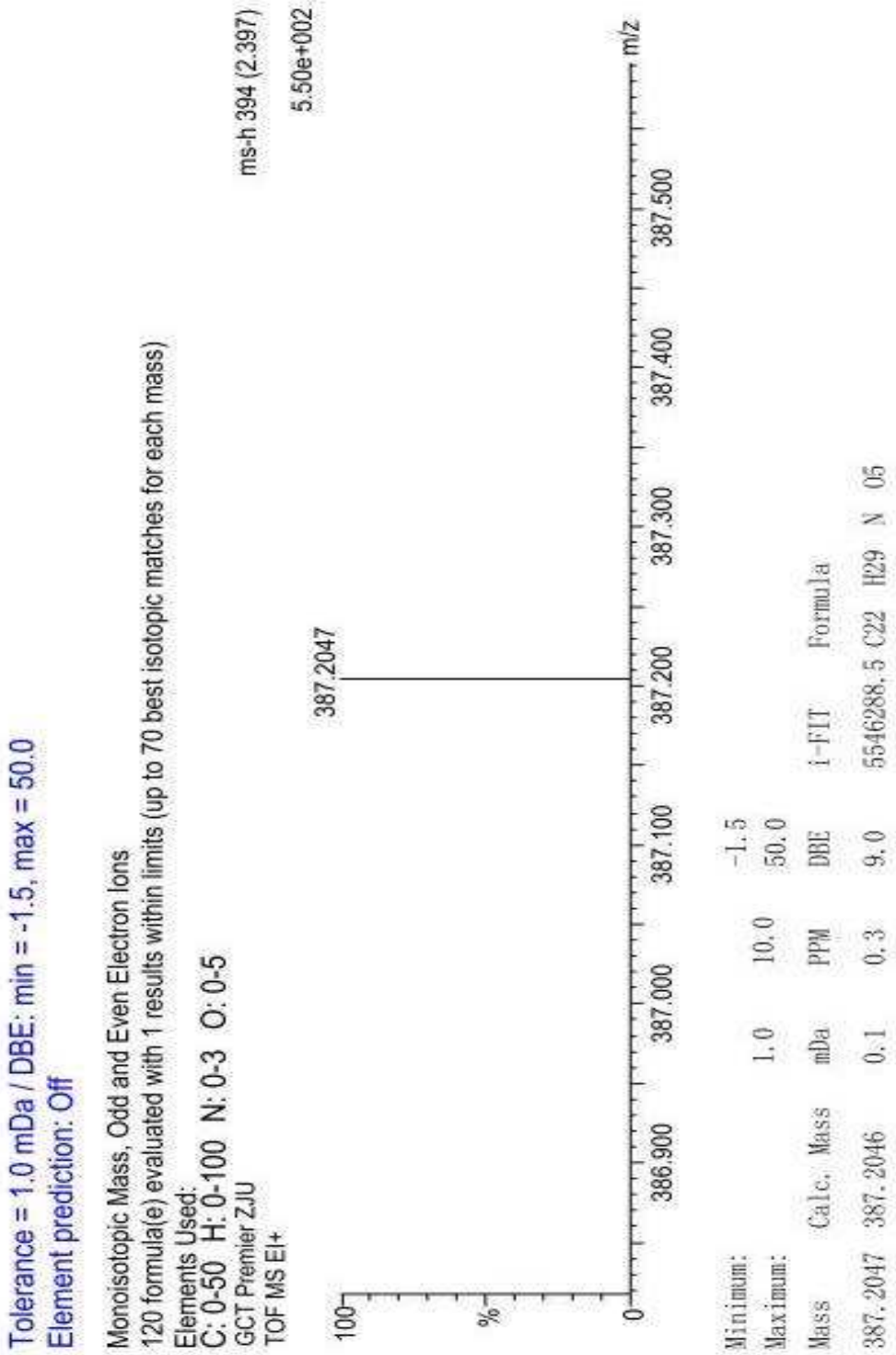
HR-MS Spectrum of isopropyl 2-(4-tolylamino)-2-(2,4,6-trimethoxyphenyl)acetate **5h**



^{1}H NMR Spectrum of tert-butyl 2-(4-tolylamino)-2-(2,4,6-trimethoxyphenyl)acetate **5i**



^{13}C NMR Spectrum of tert-butyl 2-(4-tolylamino)-2-(2,4,6-trimethoxyphenyl)acetate **5i**



HR-MS Spectrum of tert-butyl 2-(4-tolylamino)-2-(2,4,6-trimethoxyphenyl)acetate **5i**