SI1-Melting points, ^{1}H-NMR, ^{13}C-NMR and HRMS of W103-W111

W103 White solid product with a yield of 83.2%. Melting point: 179-181 °C. ^{1}H NMR (400 MHz, Chloroform-d) δ 12.84 (s, 1H, NH), 8.30 (d, J = 5.1 Hz, 1H, pyrimidin-H), 7.53 (s, 1H, Ph-H), 7.22 (d, J = 8.9 Hz, 1H, Ph-H), 6.72 (d, J = 6.5 Hz, 1H, Ph-H), 6.45 (d, J = 5.9 Hz, 1H, pyrimidin-H), 4.01 (s, 3H, OCH_3), 3.40 (q, J = 13.9, 6.9 Hz, 4H, $\underline{CH_2}CH_3$), 1.19 (t, J = 7.0 Hz, 6H, $CH_2\underline{CH_3}$). ^{13}C NMR (101 MHz, Chloroform-d) δ 170.14, 157.36, 156.43, 148.81, 146.44, 136.21, 132.10, 116.64, 115.75, 115.17, 103.24, 54.72, 44.65, 12.29. HRMS (ESI) calcd for $C_{16}H_{21}ClN_5O_4S$ $[M+H]^+$ 414.0997, found 414.0994.

W104 White solid product with a yield of 81.8%. Melting point: 144-146 °C. ^{1}H NMR (400 MHz, Chloroform-d) δ 12.98 (s, 1H, NH), 8.46 (d, J = 5.1 Hz, 1H, pyrimidin-H), 7.55 (s, 1H, Ph-H), 7.24 (d, J = 9.0 Hz, 1H, Ph-H), 6.90 (d, J = 5.2 Hz, 1H, Ph-H), 6.76 (d, J = 7.1 Hz, 1H, pyrimidin-H), 3.40 (q, J = 7.1 Hz, 4H, $\underline{CH_2}CH_3$), 2.53 (s, 3H, CH_3), 1.19 (t, J = 7.1 Hz, 6H, $CH_2\underline{CH_3}$). ^{13}C NMR (101 MHz, Chloroform-d) δ 168.54, 158.30, 156.57, 149.25, 146.38, 136.48, 132.12, 116.59, 115.67, 114.84, 114.84, 44.65, 24.01, 12.27. HRMS (ESI) calcd for $C_{16}H_{21}ClN_5O_3S$ $[M+H]^+$ 398.1048, found 398.1049.

W105 White solid product with a yield of 82.2%. Melting point: 187-189 °C. ^{1}H NMR (400 MHz, DMSO-d6) δ 12.56 (s, 1H, NH), 11.07 (s, 1H, NH), 7.39 (d, J = 8.9 Hz, 1H, Ph-H), 7.30 (s, 1H, Ph-H), 6.95 (d, J = 9.0 Hz, 1H, Ph-H), 3.98 (s, 6H, OCH_3), 3.39 (q, J = 7.0 Hz, 4H, $\underline{CH_2}CH_3$), 1.12 (t, J = 7.1 Hz, 6H, $CH_2\underline{CH_3}$). ^{13}C NMR (101 MHz, Chloroform-d) δ 172.06, 164.52, 147.83, 146.34, 135.85, 132.18, 116.89, 115.75, 115.29, 55.91, 44.75, 12.23. HRMS (ESI) calcd for $C_{16}H_{22}ClN_6O_5S$ $[M+H]^+$ 445.1055, found 445.1054.

W106 White solid product with a yield of 84.1%. Melting point: 197-200 °C. ^{1}H NMR (400 MHz, Chloroform-d) δ 12.83 (s, 1H, NH), 7.54 (s, 1H, Ph-H), 7.22 (d, J = 4.7 Hz, 1H, Ph-H), 6.76 (s, 1H, Ph-H), 5.79 (s, 1H, pyrimidin-H), 3.96 (s, 6H, OCH_3), 3.40 (q, J = 6.8 Hz, 4H, $\underline{CH_2}CH_3$), 1.19 (t, J = 6.9 Hz, 6H, $CH_2\underline{CH_3}$). ^{13}C NMR (101 MHz, Chloroform-d) δ 171.48, 155.35, 148.52, 146.26, 136.07, 132.14, 116.76, 115.41, 85.34, 85.28, 54.90, 44.75, 12.23. HRMS (ESI) calcd for $C_{17}H_{23}ClN_5O_5S$ $[M+H]^+$ 444.1103, found 444.1102.

W107 White solid product with a yield of 82.6%. Melting point: 226-228 °C. ^{1}H NMR (400 MHz, DMSO-d6) δ 13.35 (s, 1H, NH), 10.81 (s, 1H, NH), 8.75 (d, J = 5.4 Hz, 1H, pyrimidin-H), 8.11 (d, J = 8.2 Hz, 2H, Ph-H), 7.79 (d, J = 5.4 Hz, 1H, pyrimidin-H), 7.39 (d, J = 8.1 Hz, 2H, Ph-H), 7.35 (d, J = 8.9 Hz, 1H, Ph-H), 7.32 (d, J = 3.1 Hz, 1H, Ph-H), 6.93 (dd, J = 9.0, 3.1 Hz, 1H, Ph-H), 3.39 (dd, J = 13.3, 6.3 Hz, 4H, $\underline{CH_2}CH_3$), 2.41 (s, 3H, CH_3), 1.12 (t, J = 7.0 Hz, 6H, $CH_2\underline{CH_3}$). ^{13}C NMR (101 MHz, DMSO-d6) δ 169.58, 164.18, 163.98, 159.27, 146.43, 141.73, 140.73, 134.67, 132.37, 129.74, 127.08, 115.67, 114.90, 111.50, 105.93, 44.37, 21.40, 12.57. HRMS (ESI) calcd for $C_{22}H_{25}ClN_5O_3S$ $[M+H]^+$ 474.1361, found 474.1360.

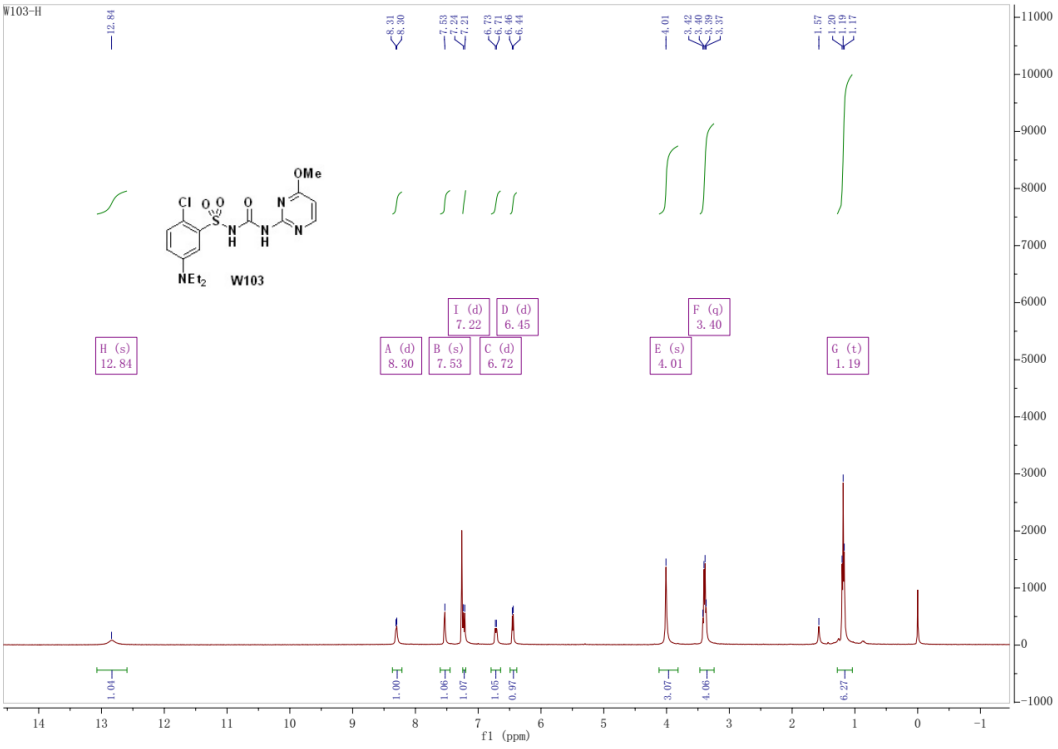
W108 White solid product with a yield of 84.8%. Melting point: 231-233 °C. ^{1}H NMR (400 MHz, DMSO-d6) δ 12.87 (s, 1H, NH), 10.78 (s, 1H, NH), 8.70 (d, J = 4.9 Hz, 1H, pyrimidin-H), 8.16 (s, 1H, Thio-*H*), 7.98 (d, J = 3.7 Hz, 1H, Thio-*H*), 7.72 (d, J = 4.8 Hz, 1H, Thio-*H*), 7.36 (d, J = 8.9 Hz, 1H, Ph-H), 7.32 (s, 1H, Ph-H), 6.94 (d, J = 8.3 Hz, 1H, Ph-H), 5.77 (s, 1H, pyrimidin-H), 3.43 – 3.36 (m, 4H, $\underline{CH_2}CH_3$), 1.12 (t, J = 6.3 Hz, 6H, $CH_2\underline{CH_3}$). HRMS (ESI) calcd for $C_{19}H_{21}ClN_5O_3S_2$ $[M+H]^+$ 465.0769, found 466.0768.

W109 White solid product with a yield of 80.9%. Melting point: 185-187 °C. ^{1}H NMR (400 MHz, Chloroform-d) δ 13.34 (s, 1H, NH), 7.57 (s, 1H, Ph-H), 7.28 (d, J = 3.7 Hz, 1H, Ph-H), 6.77 (d, J = 5.8 Hz, 1H, Ph-H), 6.31 (s, 1H, pyrimidin-H), 3.97 (s, 3H, OCH_3), 3.42 (dd, J = 7.0 Hz, 4H,

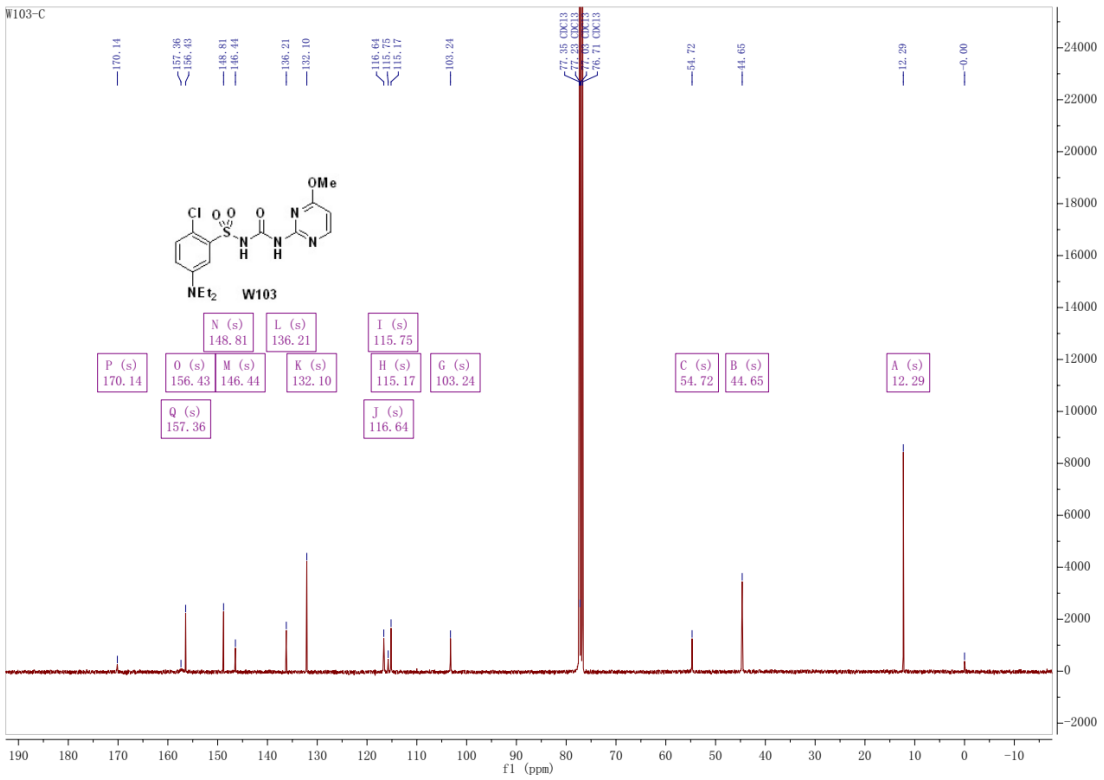
$\underline{CH_2}CH_3$), 2.44 (s, 3H, CH_3), 1.21 (t, *J* = 7.1 Hz, 6H, $CH_2\underline{CH_3}$). ^{13}C NMR (101 MHz, Chloroform-d) δ 170.69, 167.79, 155.90, 148.83, 146.29, 136.36, 132.09, 116.62, 115.89, 115.21, 101.80, 54.48, 44.73, 23.46, 12.25. HRMS (ESI) calcd for $C_{17}H_{23}ClN_5O_4S$ $[M+H]^+$ 428.1154, found 428.1153.

W110 White solid product with a yield of 83.5%. Melting point: 199-201 °C. ^{1}H NMR (400 MHz, $CDCl_3$) δ 13.32 (s, 1H, NH), 7.77 (s, 1H, NH), 7.54 (d, *J* = 2.6 Hz, 1H, Ph-H), 7.23 (d, *J* = 8.8 Hz, 1H, Ph-H), 6.78 (s, 1H, Ph-H), 6.73 (dd, *J* = 8.8, 2.7 Hz, 1H, pyrimidin-H), 3.41 (q, *J* = 6.9 Hz, 4H, $\underline{CH_2}CH_3$), 2.48 (s, 6H, CH_3), 1.20 (t, *J* = 7.0 Hz, 6H, $CH_2\underline{CH_3}$). ^{13}C NMR (101 MHz, Chloroform-d) δ 168.49, 156.31, 149.08, 146.34, 136.43, 132.05, 116.49, 115.61, 115.25, 114.92, 44.61, 23.67, 12.27. HRMS (ESI) calcd for $C_{17}H_{23}ClN_5O_3S$ $[M+H]^+$ 412.1205, found 412.1203.

W111 White solid product with a yield of 85.1%. Melting point: 209-210 °C. ^{1}H NMR (400 MHz, $CDCl_3$) δ 12.29 (s, 1H, NH), 7.54 (s, 1H, Ph-H), 7.31 (s, 1H, Ph-H), 6.78 (s, 1H, Ph-H), 6.50 (s, 1H, pyrimidin-H), 4.05 (s, 3H, CH_3), 3.40 (dd, *J* = 13.7, 6.8 Hz, 4H, $\underline{CH_2}CH_3$), 1.19 (t, *J* = 6.9 Hz, 6H, $CH_2\underline{CH_3}$). ^{13}C NMR (101 MHz, DMSO-d6) δ 171.04, 160.35, 156.70, 148.24, 146.45, 136.33, 132.74, 117.59, 114.69, 114.49, 101.82, 55.68, 44.53, 12.46. HRMS (ESI) calcd for $C_{16}H_{20}Cl_2N_5O_4S$ $[M+H]^+$ 448.0608, found 448.0609.



^{1}H NMR of W103



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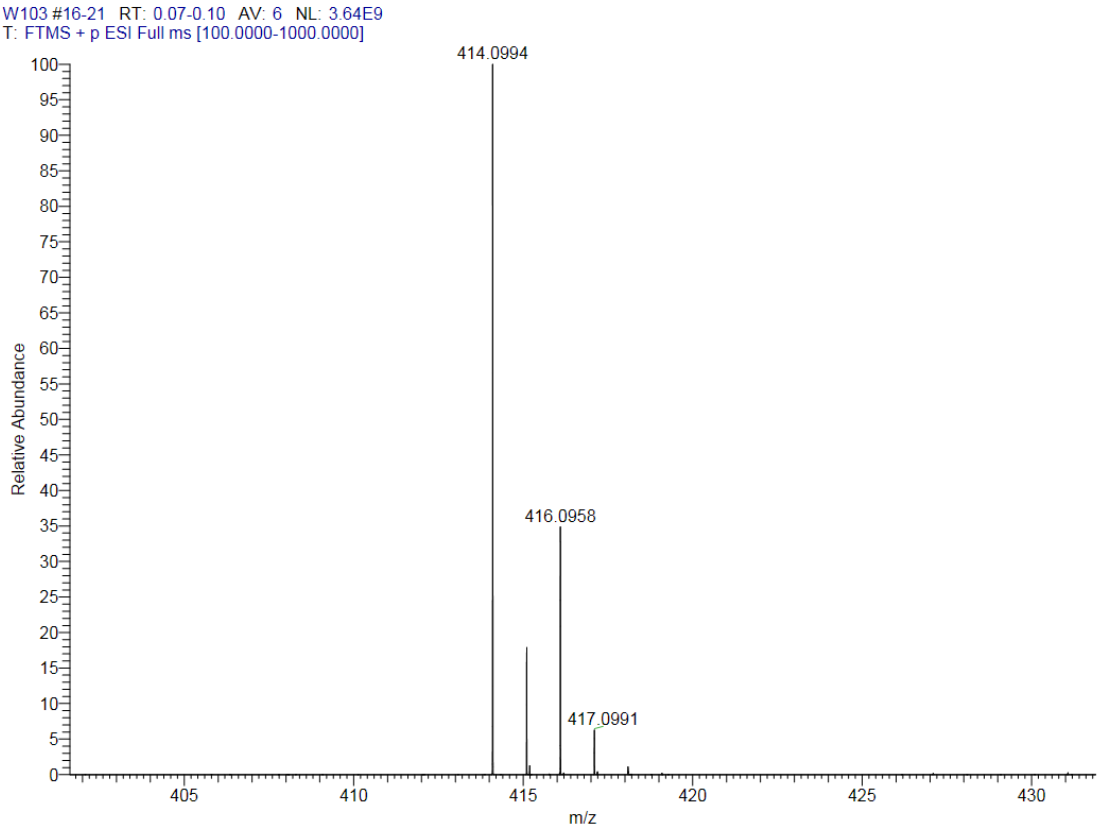
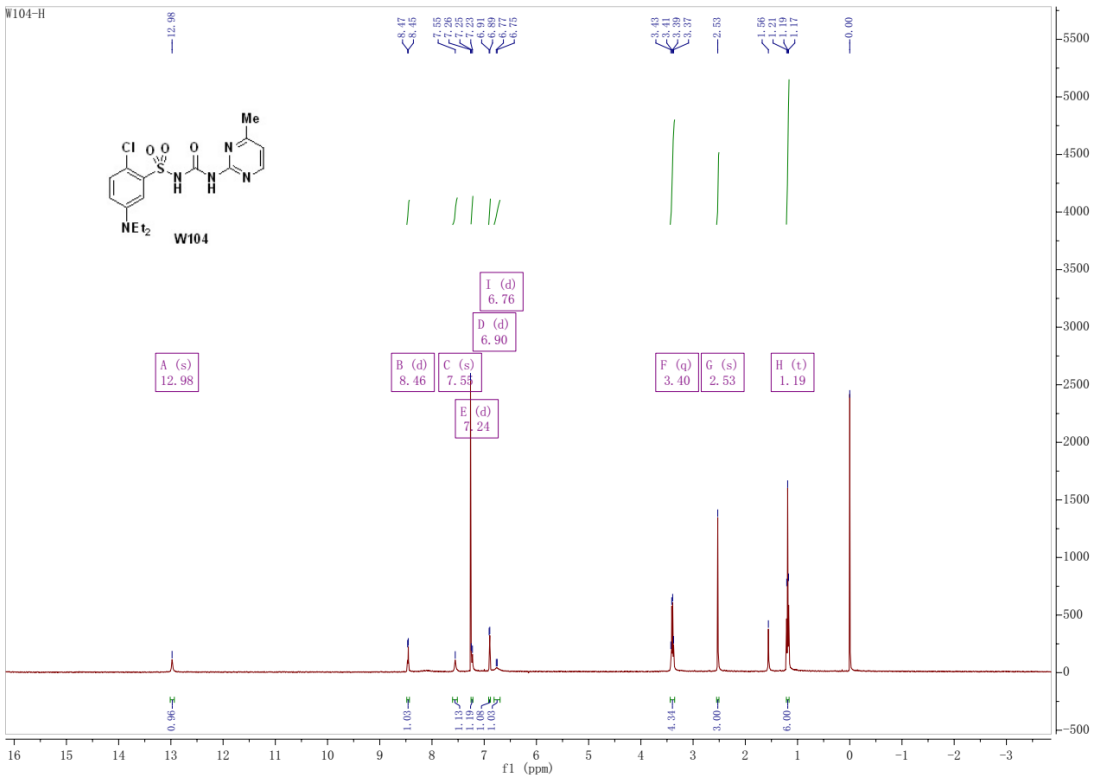
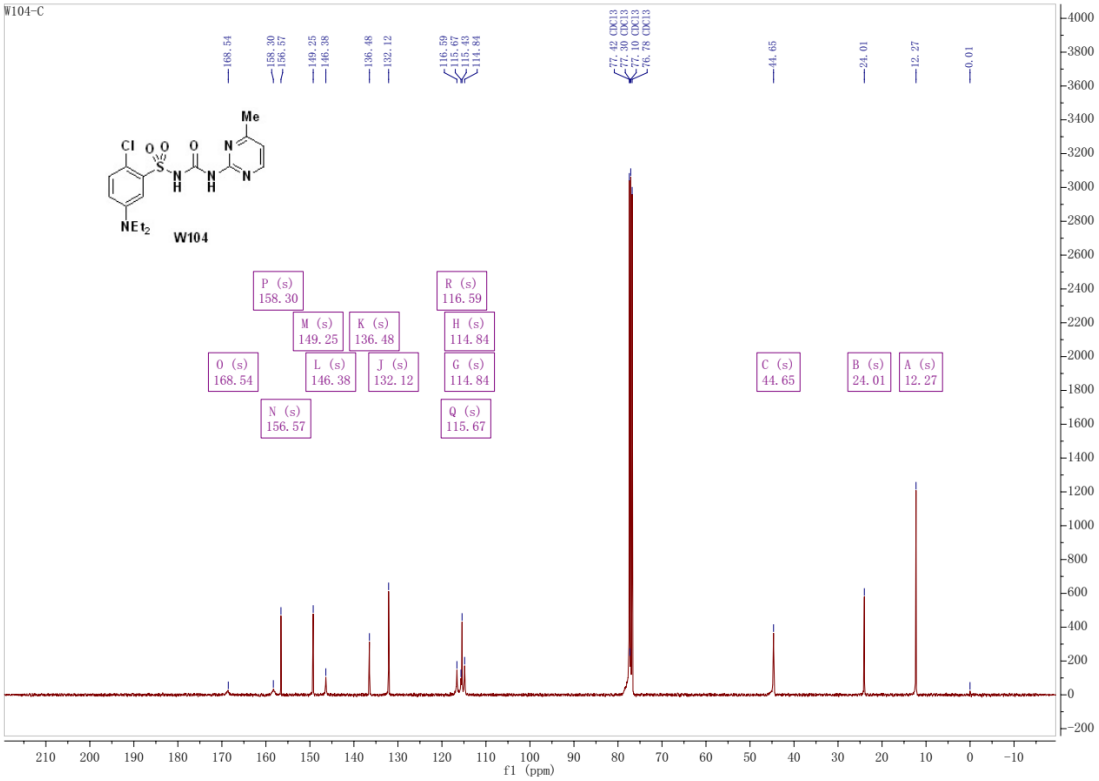


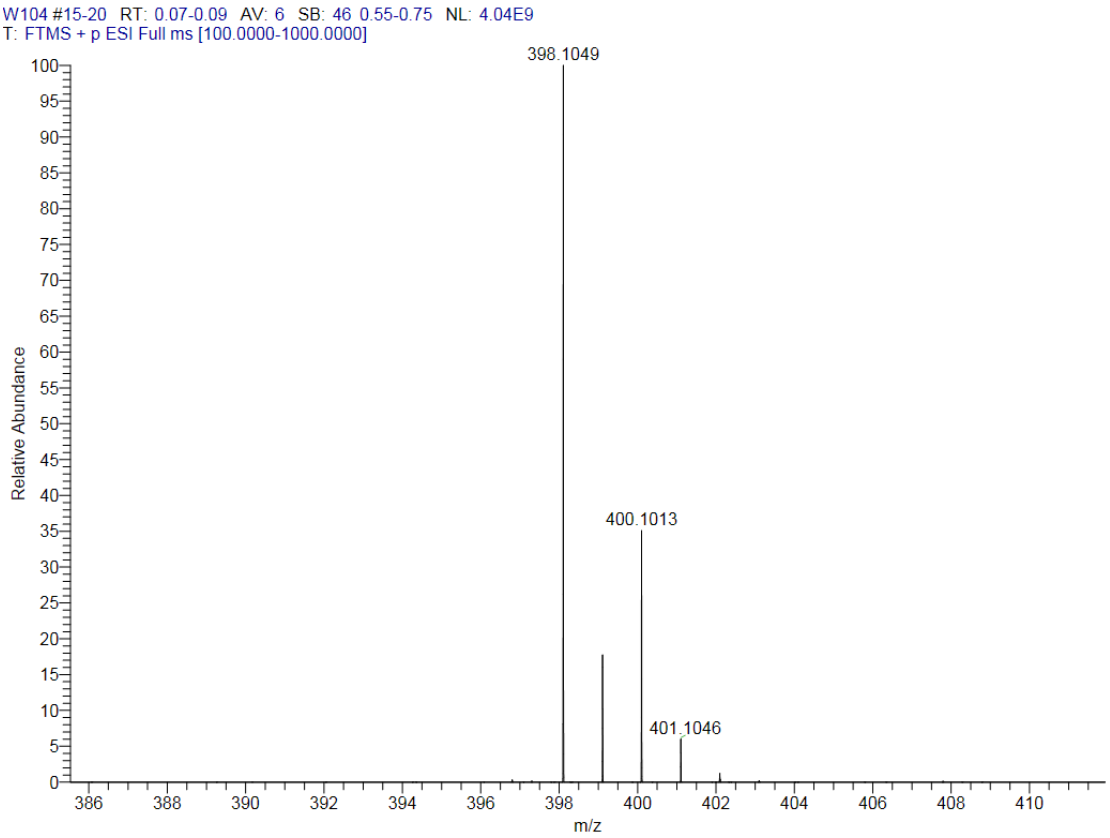
HRMS of W103



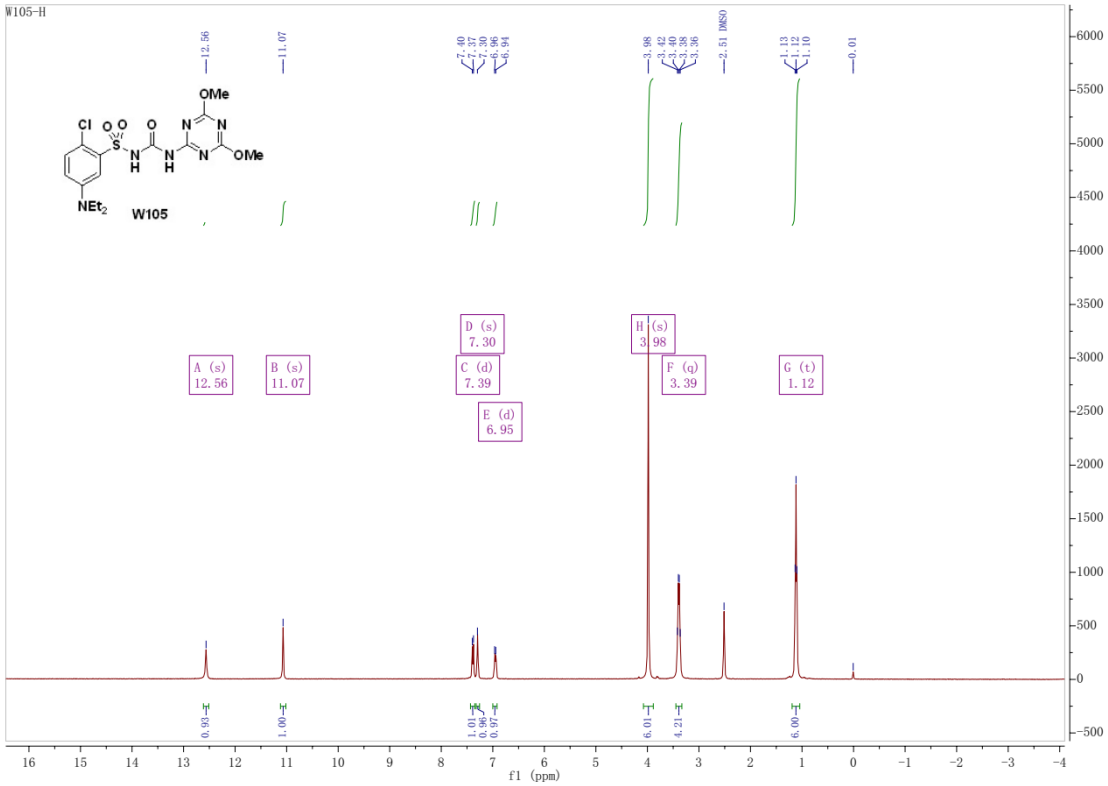
^{1}H NMR of W104



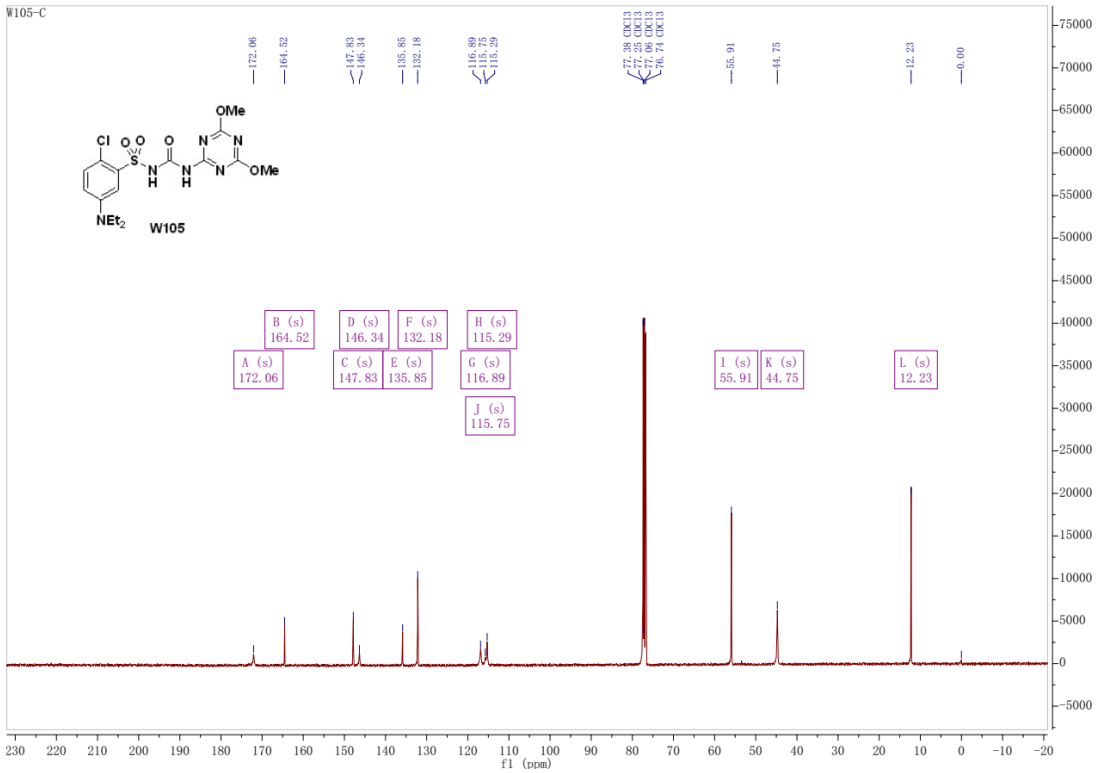
^{13}C NMR of W104



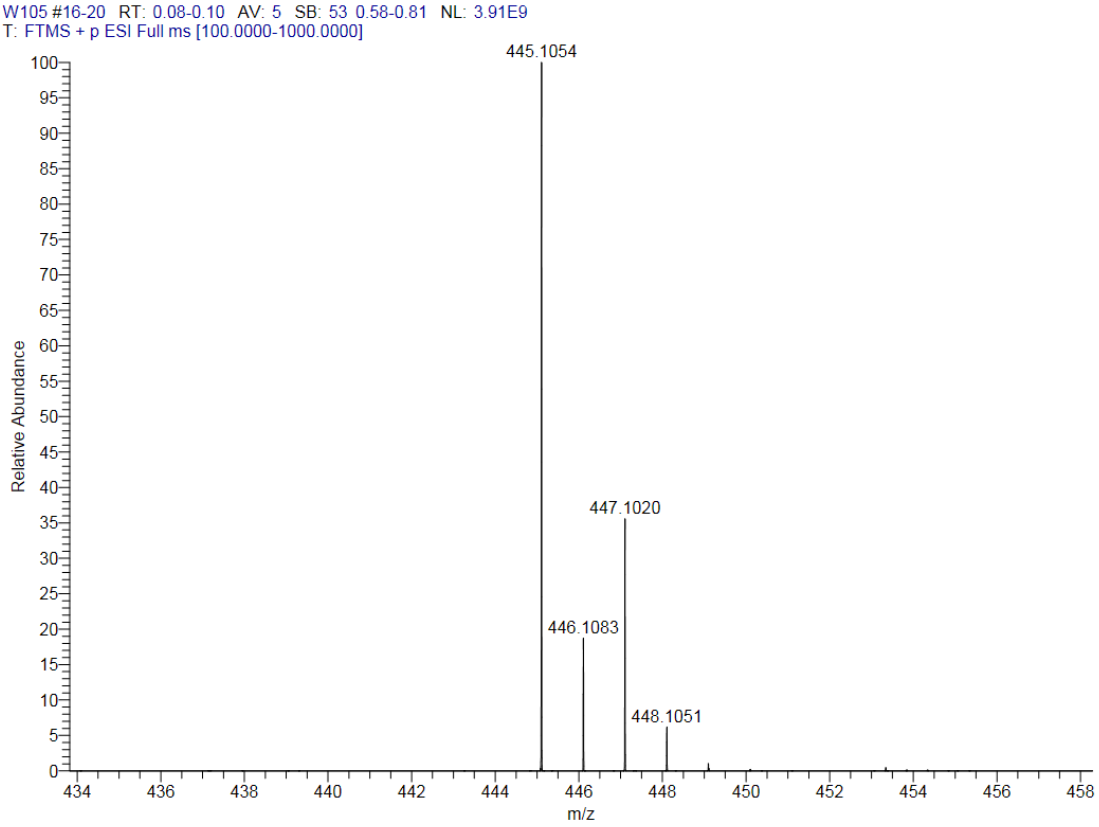
HRMS of W104



^{1}H NMR of W105



^{13}C NMR of W105



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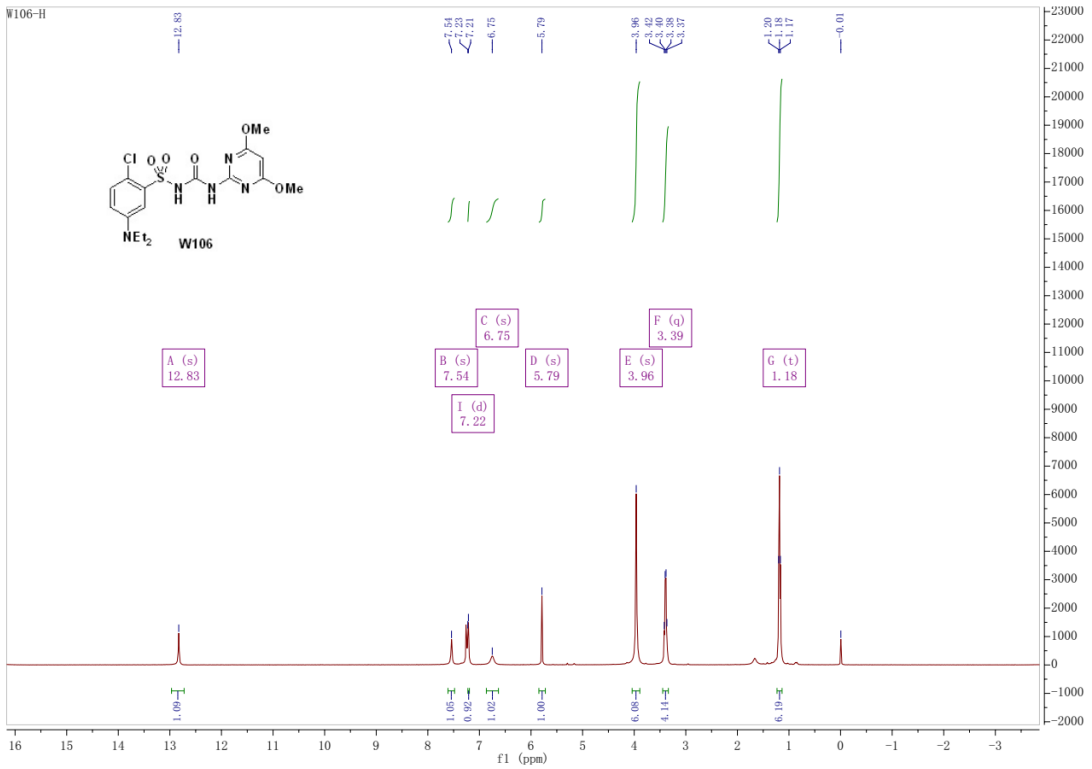
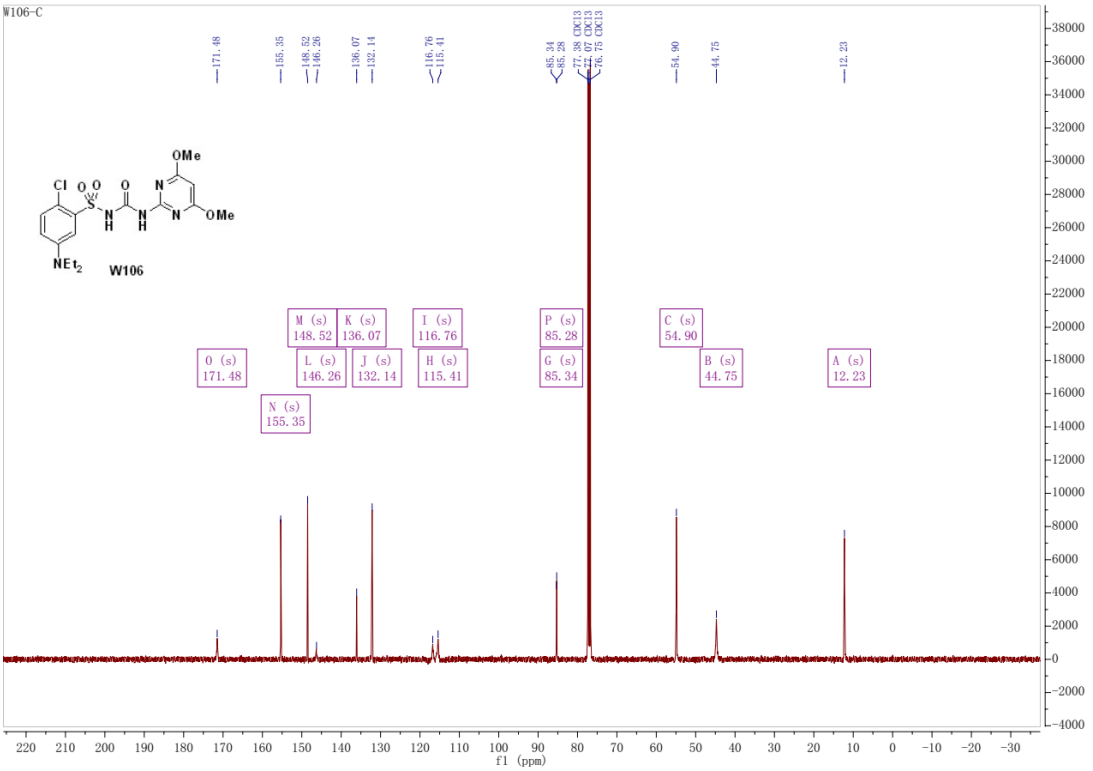
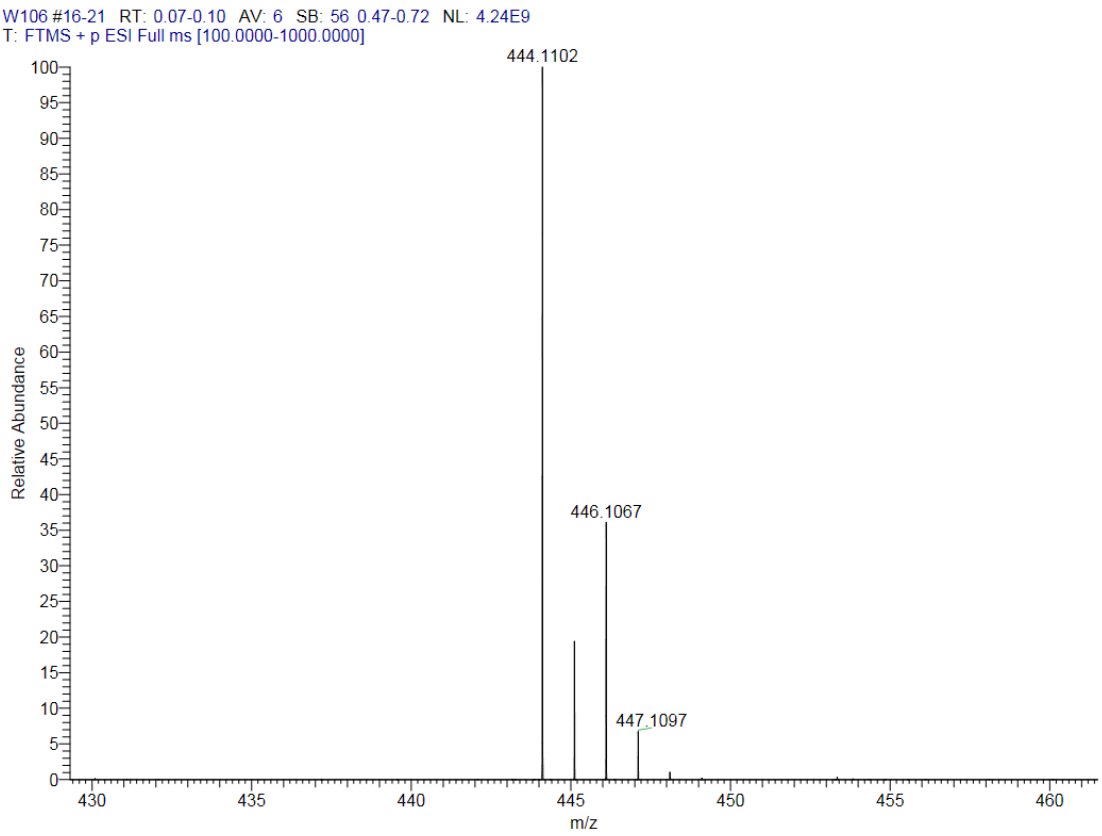


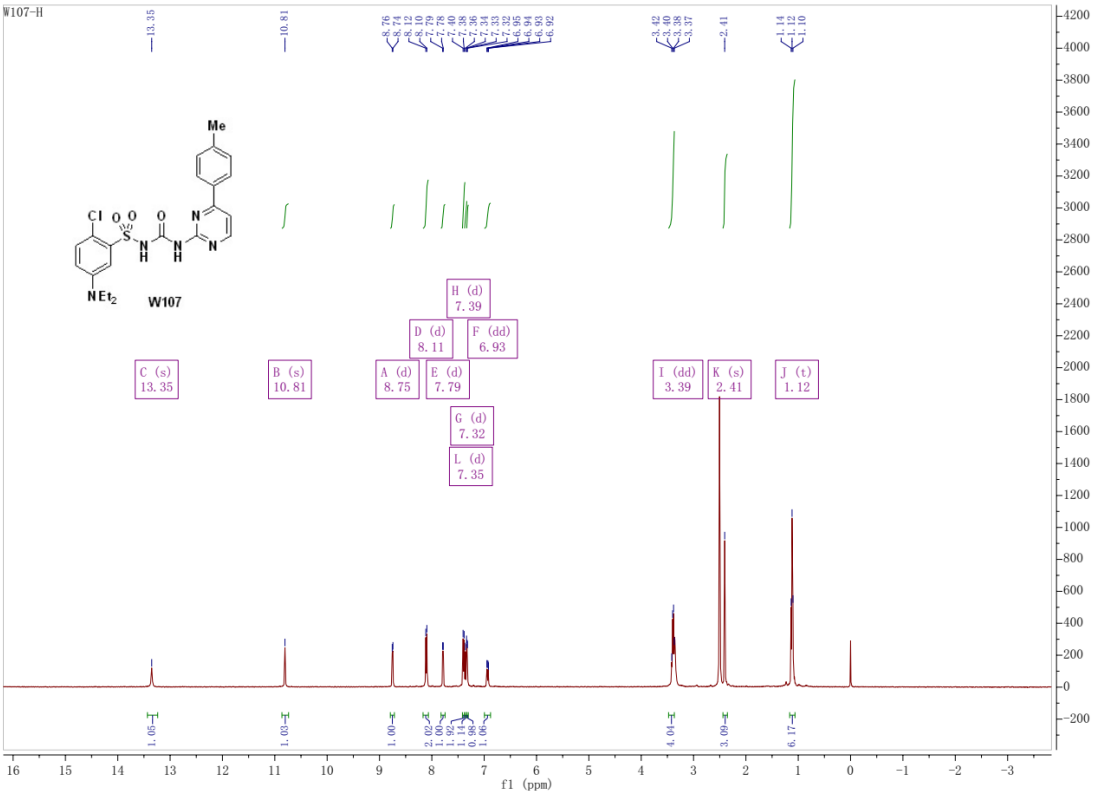
^{1}H NMR of W106



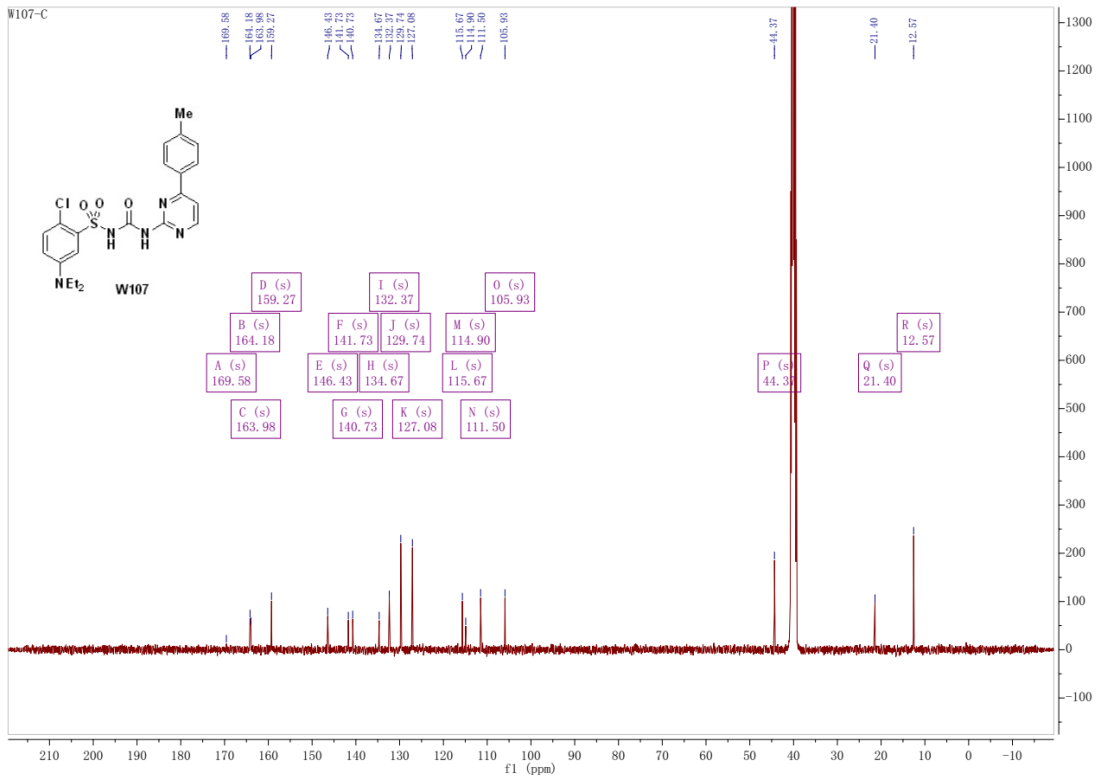
^{13}C NMR of W106



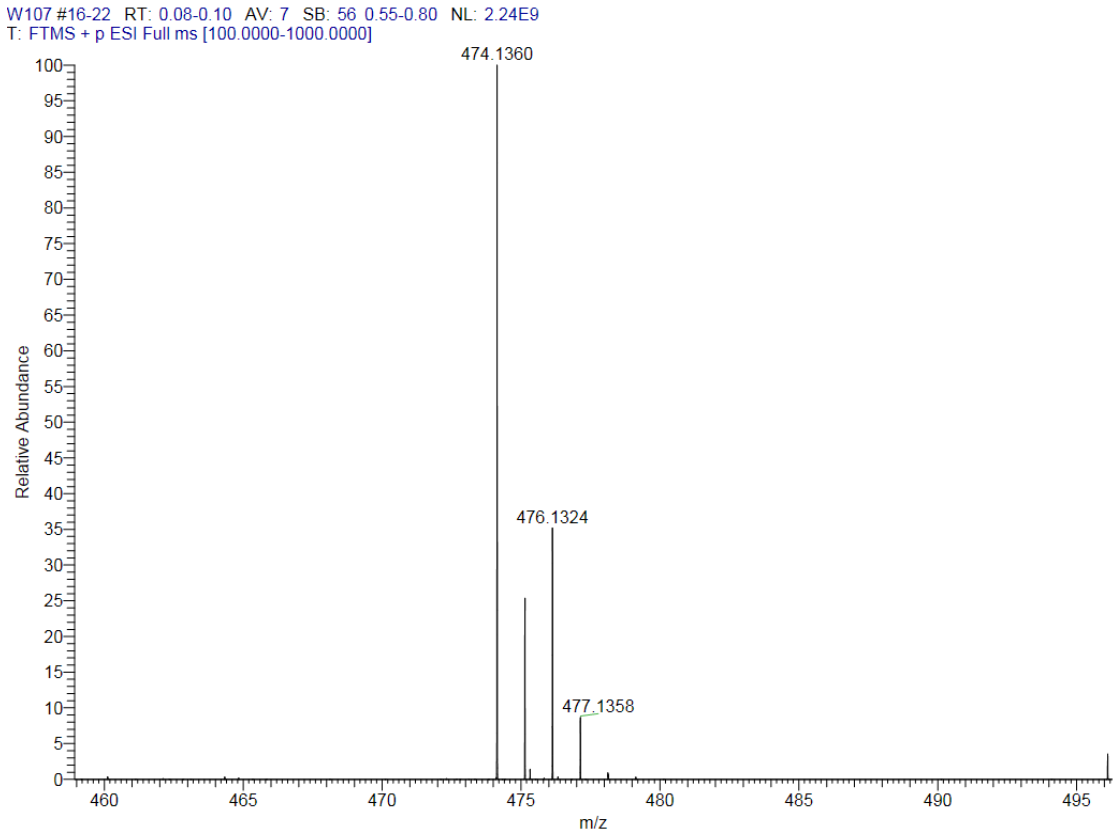
HRMS of W106



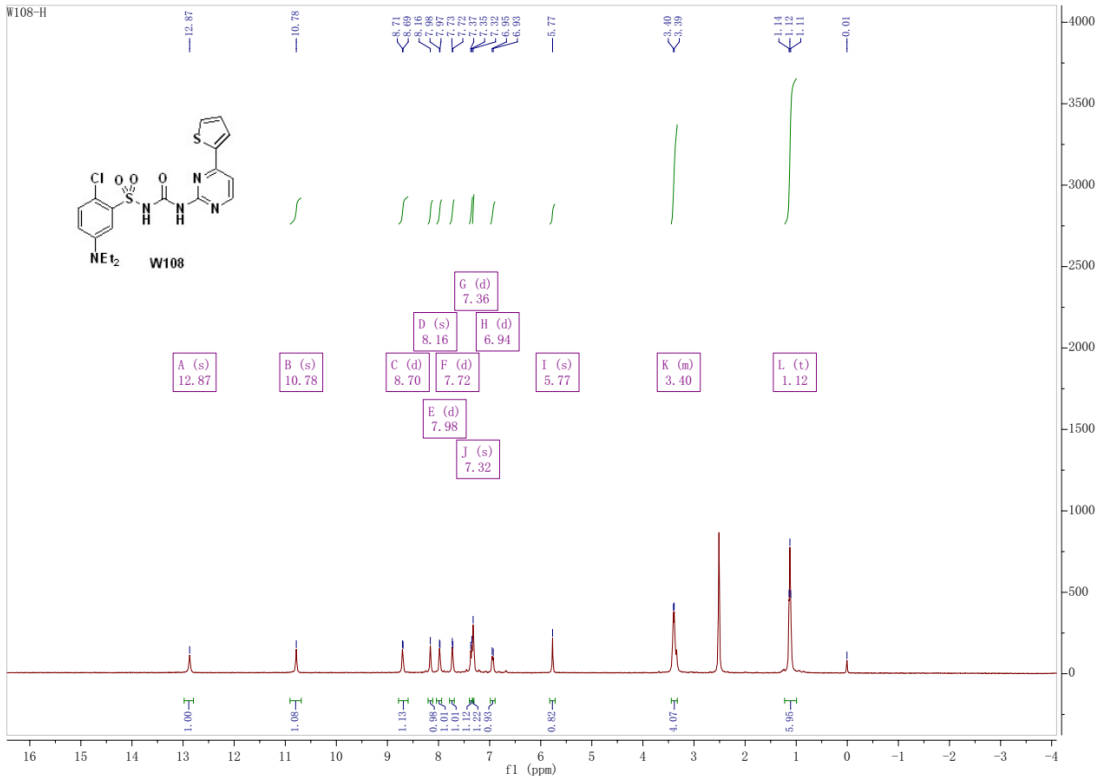
^{1}H NMR of W107



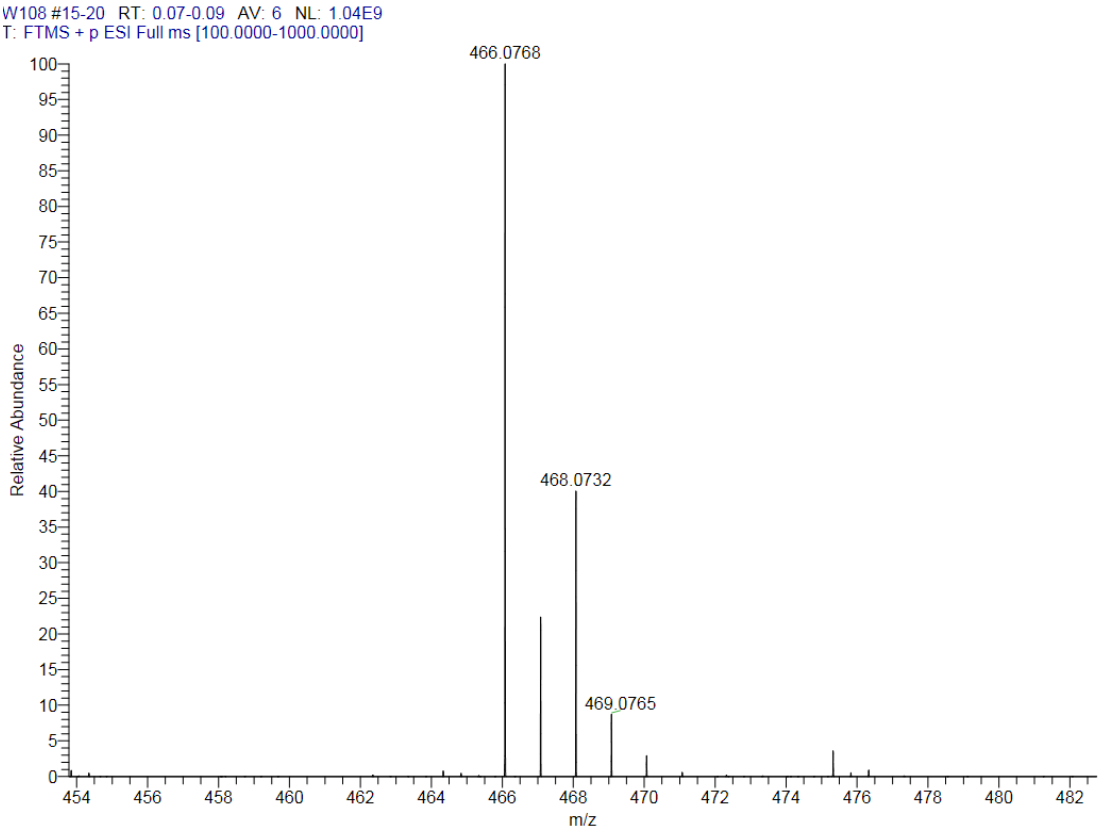
^{13}C NMR of W107



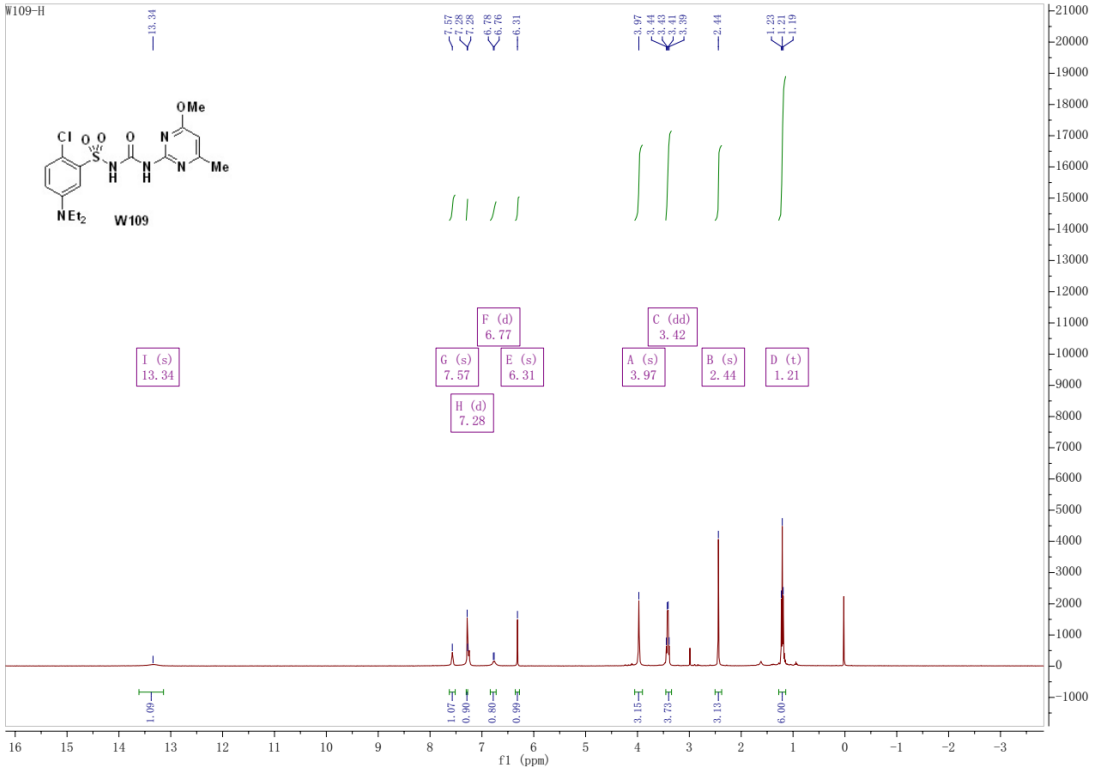
HRMS of W107



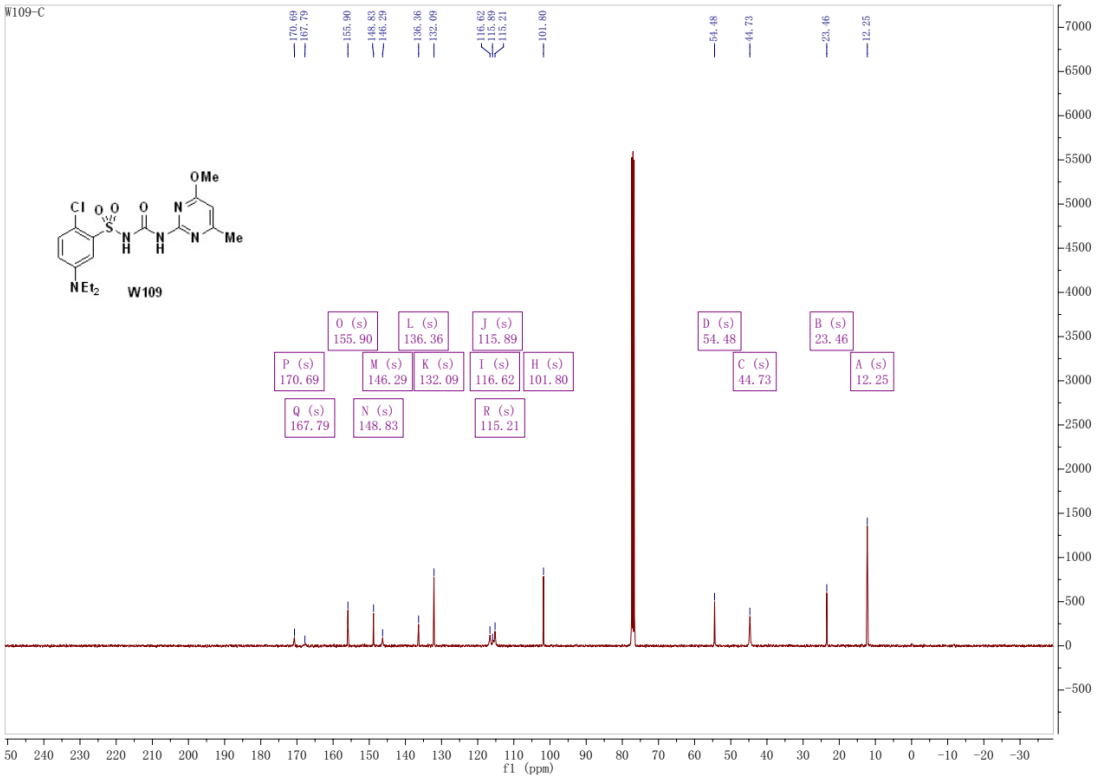
^{1}H NMR of W108



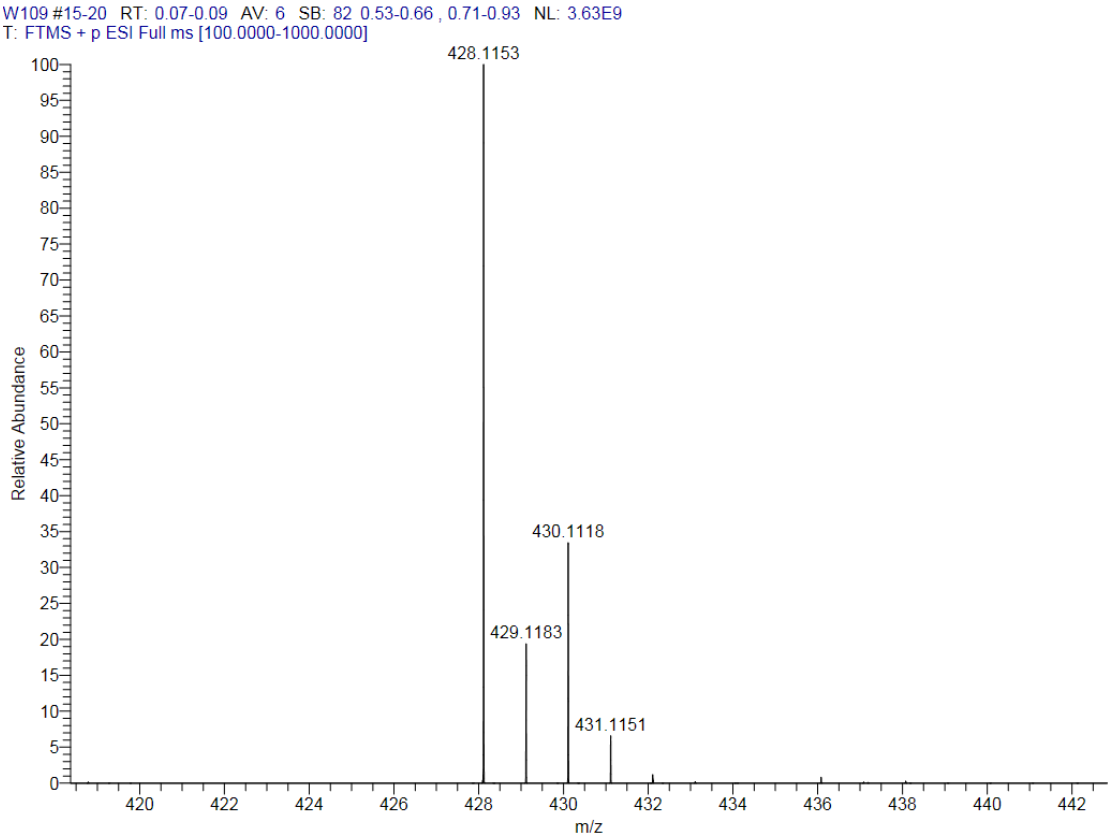
HRMS of W108



^{1}H NMR of W109



^{13}C NMR of W109



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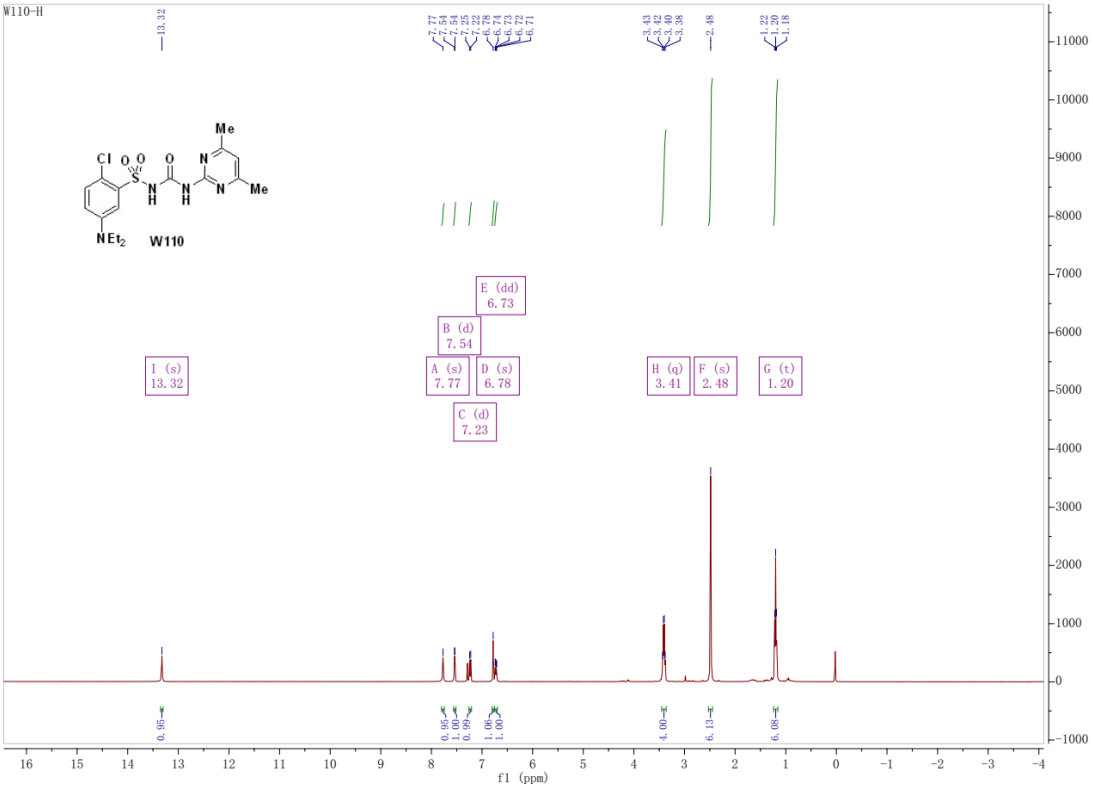
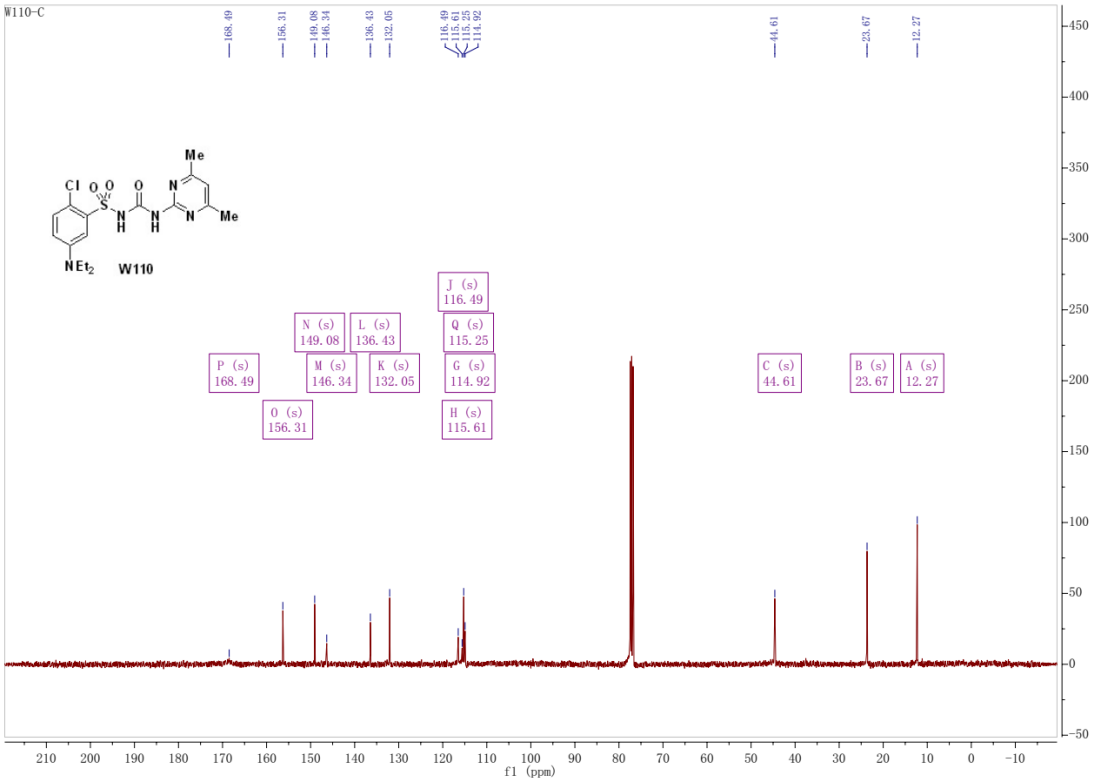
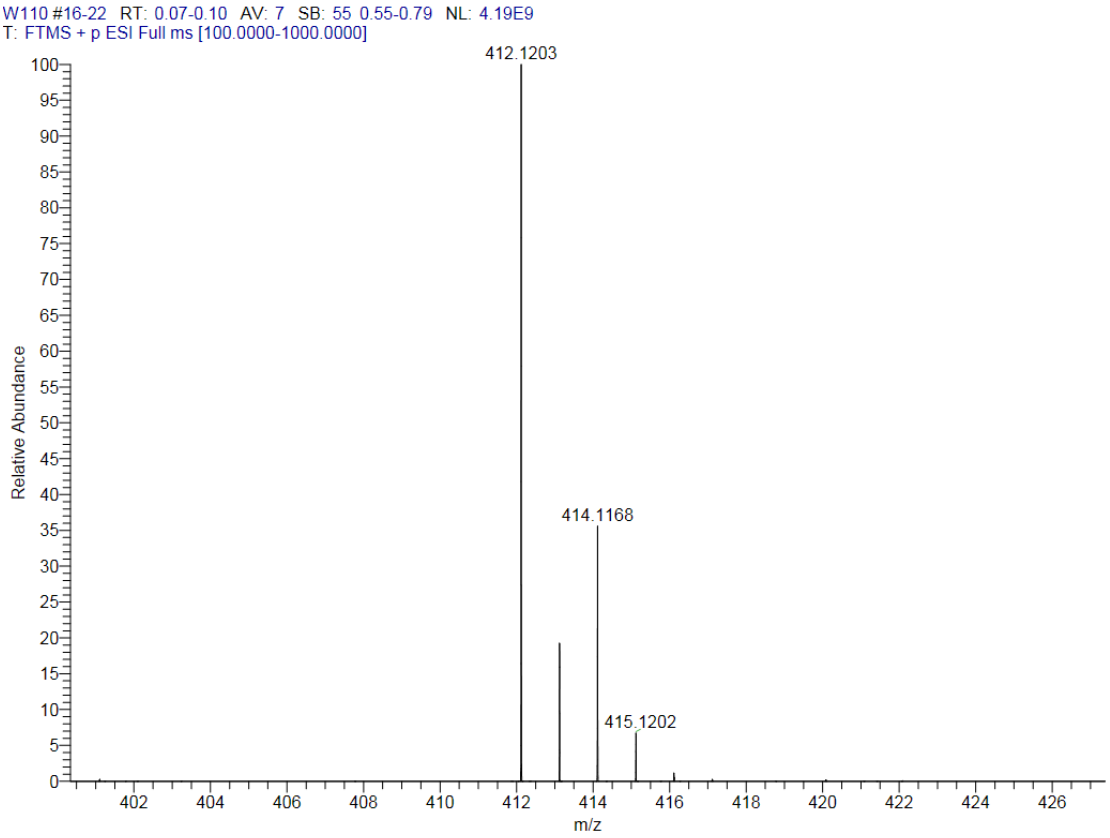


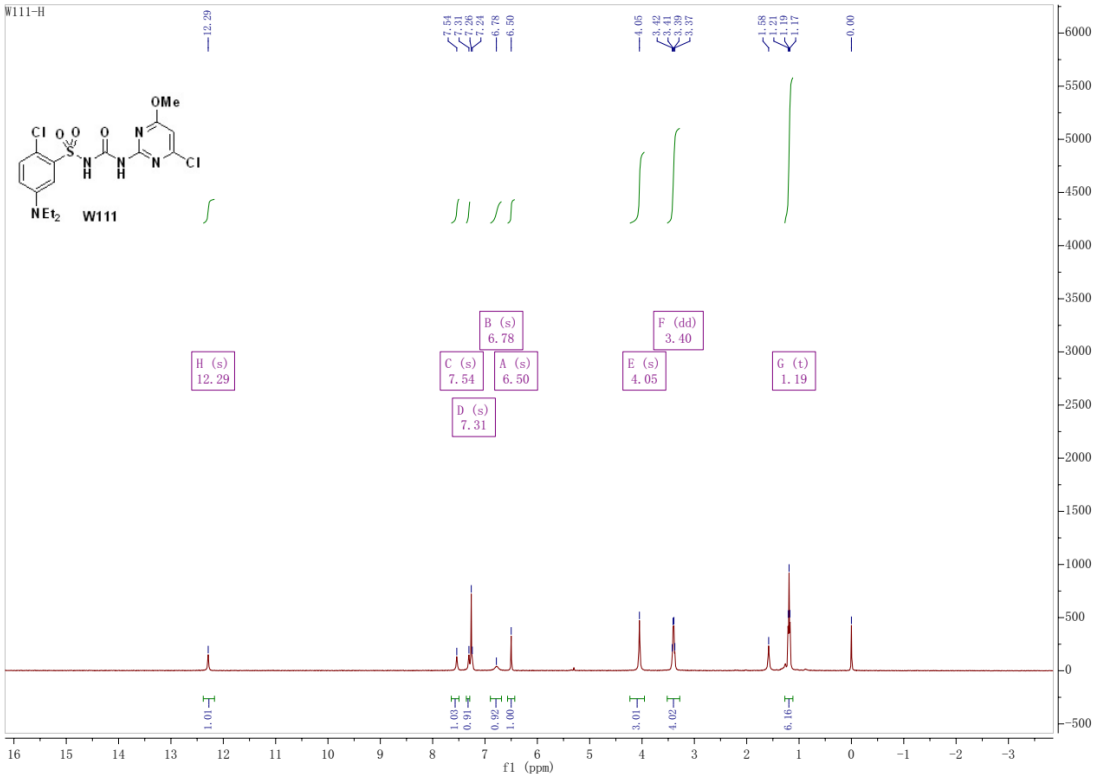
^{1}H NMR of W110



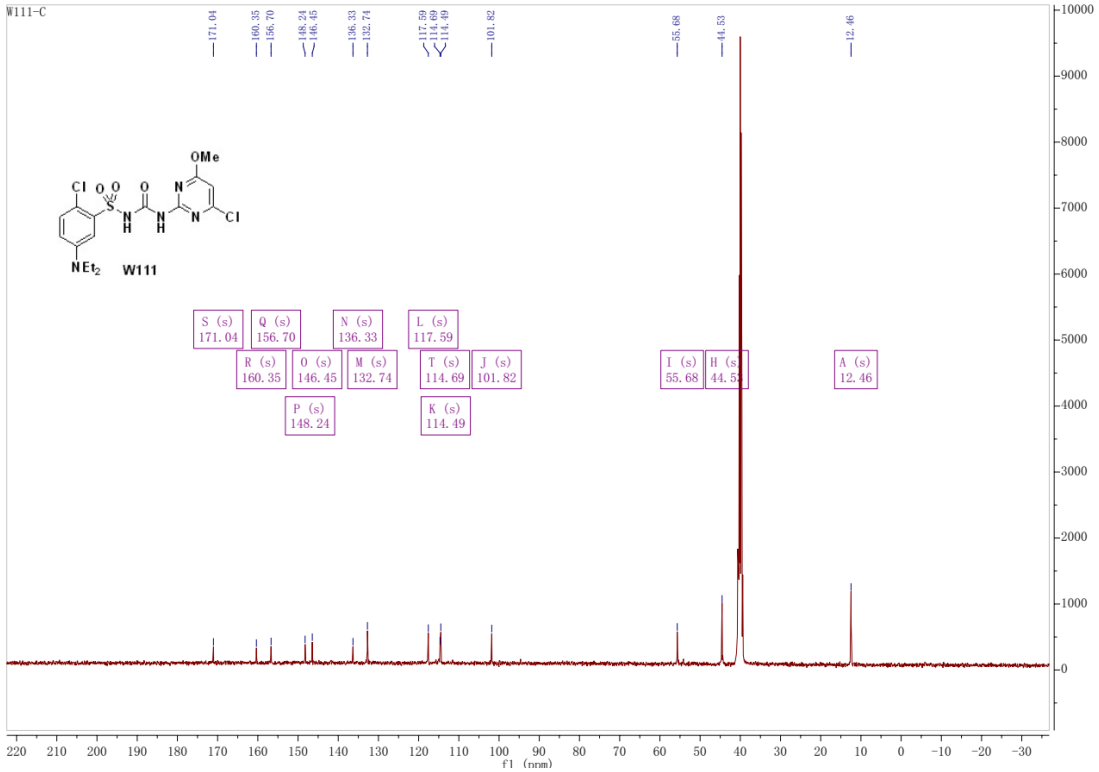
^{13}C NMR of W110



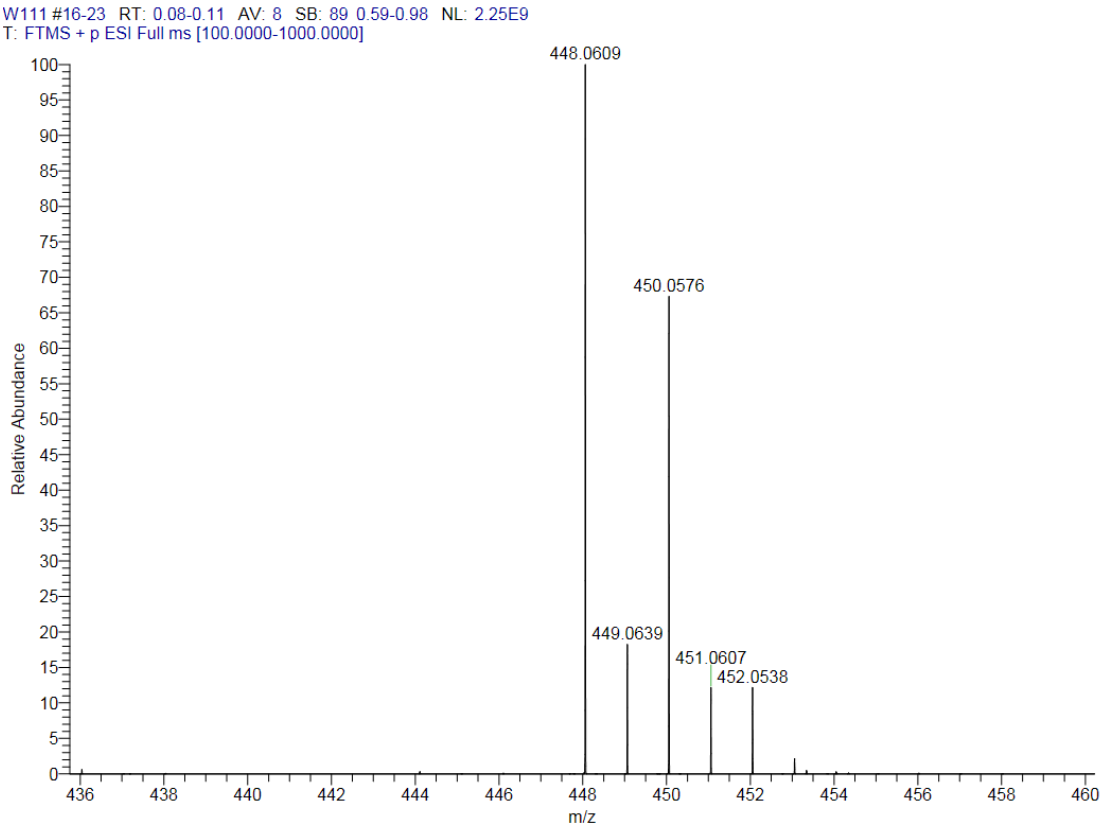
HRMS of W110



^{1}H NMR of W111



^{13}C NMR of W111


W111 #16-23 RT: 0.08-0.11 AV: 8 SB: 89 0.59-0.98 NL: 2.25E9
T: FTMS + p ESI Full ms [100.0000-1000.0000]
448.0609
450.0576
449.0639
451.0607
452.0538
Relative Abundance
m/z

HRMS of W111

SI2-Crystal data of compound W110（CCDC number 2142702）

Table S1. Crystal data of compound **W110**（CCDC number: 2142702）

Empirical formula	$C_{17}H_{22}ClN_5O_3S$
Formula weight	411.90
Temperature	113.15 K
Crystal system, Space group	Monoclinic, $P2_1/n$
μ(MoKα)	0.335 mm^{-1},
Unit cell dimensions	a = 7.8542(4) Å, b = 35.014(2) Å, c = 14.0334(12) Å; α = 90 º, β = 91.400(7) º, γ = 90 º
Calculated density	1.418 g/cm^3
Volume	3858.2(5) $Å^3$
Z	8
Absorption coefficient	0.335 mm^{-1}
F(000)	1728.0
Crystal size	0.23 x 0.16 x 0.120 mm
θ range for data collection	3.128 to 52.734 º
Index ranges	$-9\le h\le 9$; $-43\le k\le 43$; $0\le l\le 17$
Reflections collected/unique	7837 [$R_{(int)}$ = 0.0982]
Completeness to θ max	99.4 %
Data/restraints/parameters	7837/0/496
Goodness-of-fit on F^2	1.114
Final R indices [I>2sigma(I)]	R_1 = 0.1092, wR_2 = 0.2474
Final R indices [all data]	R_1 = 0.1517, wR_2 = 0.2695
R indices (all data)	R_1 = 0.0954, wR_2 = 0.1946
Extinction coefficient	n/a
Largest difference peak and hole(e/$Å^3$)	0.51 and -0.59

A suitable crystal was selected and obtained on a Rigaku Saturn 70 CCD diffractometer. The crystal was kept at 113.15 K during data collection. Using Olex2[1], the structure was solved with the ShelXT[2] structure solution program using Intrinsic Phasing and refined with the ShelXL[3] refinement package using Least Squares minimisation.

References

1. Dolomanov, O.V.; Bourhis, L.J.; Gildea, R.J; Howard, J.A.K.; Puschmann, H. OLEX2: A complete structure solution, refinement and analysis program. *J. Appl. Cryst.* **2009**, 42 (2), 339-341.
2. SHELDRICK, G.M. SHELXT - Integrated space-group and crystal-structure determination. *Acta Cryst.* **2015**, A71 (1), 3-8.
3. SHELDRICK, G.M. SHELXT - Integrated space-group and crystal-structure determination. *Acta Cryst*. **2015**, C71 (1), 3-8.

SI3-Soil degradation assay

Soil degradation research was conducted by the following steps.

Soil selection: The soil was derived from the upper-layer (0–25 cm) in fresh farm land, and air-dried in the shade, shifted through 2 mm sieve according to the Chinese National Standard GB/T 31270.1-2014.[1] The soil texture, pH value, organic matter, cation exchange capacity (CEC) and particle size analysis of tested alkaline soil were determined by Tianjin Institute of Agricultural Resources and Environment Science.

HPLC conditions: The target compounds were explored and standard curves were established according to the Chinese National Standard GB/T 16631-2008.[2] Chromatographically pure methanol, acetonitrile and ultrapure water (pH 3.0) were used as the mobile phase. The retention time should remain between 10-20 minutes.

Standard curve: The standard curves used for quantitative conversion were established with the injection volume of 10 μL at 20 °C. The concentration range of the standard curve was between 200 ug·mL^{-1} and 0.025 ug·mL^{-1} at 20 °C.

Measurement of the Recovery Rate: According to the Chinese National Standard GB/T 31270.1-2014, the Chinese Agricultural Industry Standard NY/T788-2004 and the Chinese Agricultural Industry Standard NY/T788-2018,[3-4] the concentration of the test compounds in 20 g of soil in a 100 mL conical flask were 5 mg·kg^{-1}, 2 mg·kg^{-1}g, and 0.5 mg·kg^{-1} (adjusted with an acetonitrile solution), respectively. Each concentration was repeated 5 times and recovery rate should range from 70% to 110% and guarantee the coefficient of variation <5% to ensure the reliability of the method. The analytical data for verification of recovery rates in various concentrations are listed in Table S2 and Table S3.

Table S2. Analytical data on the recovery rates of three concentrations (in soil with pH 5.46).

Compound	HPLC Analysis Condition (Wavelength, Flow Rate, Mobile Phase (v:v))	Extraction Solvent (v:v)	Additive Concentration (mg·kg^{-1})	Average Recovery Rate (%)	Coefficient of Variation RSD (%)
W101（Chlorsulfuron）	235 nm, 0.80 mL·min^{-1}, CH_3OH: H_3PO_4 (aq) (pH 3.0) = 60: 40	CH_3COCH_3: CH_2Cl_2: H_3PO_4 (aq) (pH 2.0) = 40: 5: 5	5	89.61	1.23
			2	89.73	0.26
			0.5	88.30	1.84
W102	230 nm, 0.90 mL·min^{-1}, CH_3OH: H_3PO_4 (aq) (pH 3.0) = 74: 26	CH_3COCH_3: CH_2Cl_2: H_3PO_4 (aq) (pH 2.0) = 40: 5: 5	5	82.39	1.74
			2	76.27	1.57
			0.5	77.95	1.97
W103	230 nm, 0.80 mL·min^{-1}, CH_3OH: H_3PO_4 (aq) (pH 3.0) = 73: 27	CH_3COCH_3: CH_2Cl_2: H_3PO_4 (aq) (pH 2.0) = 40: 5: 5	5	84.62	2.73
			2	85.31	1.31
			0.5	94.73	0.38
W104	230 nm, 0.80 mL·min^{-1}, CH_3OH: H_3PO_4 (aq) (pH 3.0) = 73: 27	CH_3COCH_3: CH_2Cl_2: H_3PO_4 (aq) (pH 2.0) = 40: 5: 5	5	72.28	0.62
			2	70.60	0.34
			0.5	73.69	0.86
W105	230 nm, 0.90 mL·min^{-1}, CH_3OH: H_3PO_4 (aq) (pH 3.0) = 74: 26	CH_3COCH_3: CH_2Cl_2: H_3PO_4 (aq) (pH 2.0) = 40: 5: 5	5	74.33	1.08
			2	71.30	0.75
			0.5	74.13	2.19
W106	230 nm, 1.00 mL·min^{-1}, CH_3OH: H_3PO_4 (aq) (pH 3.0) = 79: 21	CH_3COCH_3: CH_2Cl_2: H_3PO_4 (aq) (pH 2.0) = 30: 10: 10	5	74.65	0.28
			2	72.93	1.09
			0.5	77.88	2.68
W107	230 nm, 1.00 mL·min^{-1}, CH_3OH:	CH_3COCH_3: CH_2Cl_2: H_3PO_4 (aq)	5	73.06	2.94

	H_3PO_4 (aq) (pH 3.0) = 82: 18	(pH 2.0) = 40: 10: 5	2	72.05	2.41
			0.5	79.57	2.30
W109	230 nm, 0.80 mL·min^{-1}, CH_3OH: H_3PO_4 (aq) (pH 3.0) = 78: 22	CH_3COCH_3: CH_2Cl_2: H_3PO_4 (aq) (pH 2.0) = 40: 10: 5	5	80.51	2.95
			2	81.98	2.29
			0.5	82.39	2.72
W110	230 nm, 0.80 mL·min^{-1}, CH_3OH: H_3PO_4 (aq) (pH 3.0) = 76: 24	CH_3COCH_3: CH_2Cl_2: H_3PO_4 (aq) (pH 2.0) = 40: 10: 5	5	74.02	0.29
			2	71.74	2.46
			0.5	79.10	2.67
W111	230 nm, 0.80 mL·min^{-1}, CH_3OH: H_3PO_4 (aq) (pH 3.0) = 79: 21	CH_3COCH_3: CH_2Cl_2: H_3PO_4 (aq) (pH 2.0) = 40: 5: 5	5	74.08	2.16
			2	76.15	0.21
			0.5	71.67	2.38

Table S3. Analytical data on the recovery rates of three concentrations (in soil with pH 8.39).

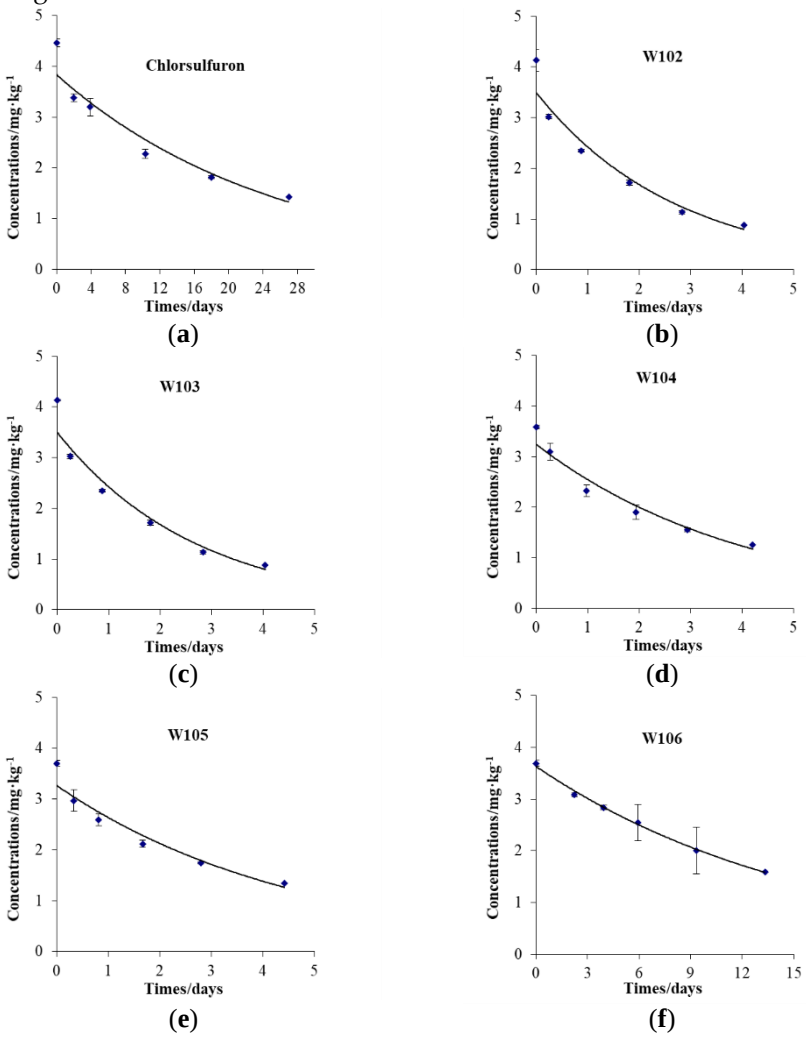
Compound	HPLC Analysis Condition (Wavelength, Flow Rate, Mobile Phase (v:v))	Extraction Solvent (v:v)	Additive Concentration (mg·kg^{-1})	Average Recovery Rate (%)	Coefficient of Variation RSD (%)
W101（Chlorsulfuron）	235 nm, 0.70 mL·min^{-1}, CH_3OH: H_3PO_4 (aq) (pH 3.0) = 62: 38	CH_3COCH_3: CH_2Cl_2: H_3PO_4 (aq) (pH 1.5): MeOH = 40: 5: 10: 10	5	86.54	0.38
			2	72.10	1.38
			0.5	73.72	2.82
W102	230 nm, 0.90 mL·min^{-1}, CH_3OH: H_3PO_4 (aq) (pH 3.0) = 74: 26	CH_3COCH_3: CH_2Cl_2: H_3PO_4 (aq) (pH 1.5) = 40: 5: 5	5	87.22	1.24
			2	86.57	1.22
			0.5	90.26	1.64
W103	230 nm, 0.80 mL·min^{-1}, CH_3OH: H_3PO_4 (aq) (pH 3.0) = 73: 27	CH_3COCH_3: CH_2Cl_2: H_3PO_4 (aq) (pH 1.5) = 40: 5: 5	5	80.37	2.16
			2	77.26	1.23
			0.5	80.61	1.99
W104	230 nm, 0.80 mL·min^{-1}, CH_3OH: H_3PO_4 (aq) (pH 3.0) = 73: 27	CH_3COCH_3: CH_2Cl_2: H_3PO_4 (aq) (pH 1.5) = 40: 5: 5	5	86.98	0.49
			2	87.70	1.12
			0.5	85.94	0.28
W105	230 nm, 0.90 mL·min^{-1}, CH_3OH: H_3PO_4 (aq) (pH 3.0) = 74: 26	CH_3COCH_3: CH_2Cl_2: H_3PO_4 (aq) (pH 1.5) = 40: 5: 5	5	92.01	2.44
			2	90.58	2.36
			0.5	87.68	2.55
W106	230 nm, 0.90 mL·min^{-1}, CH_3OH: H_3PO_4 (aq) (pH 3.0) = 80: 20	CH_3COCH_3: CH_2Cl_2: H_3PO_4 (aq) (pH 1.5) = 30: 10: 10	5	94.14	2.44
			2	91.54	0.30
			0.5	98.13	2.54
W109	230 nm, 0.80 mL·min^{-1}, CH_3OH: H_3PO_4 (aq) (pH 3.0) = 78: 22	CH_3COCH_3: CH_2Cl_2: H_3PO_4 (aq) (pH 1.5) = 40: 10: 5	5	96.86	1.71
			2	92.04	0.63
			0.5	93.64	1.84
W110	230 nm, 0.80 mL·min^{-1}, CH_3OH: H_3PO_4 (aq) (pH 3.0) = 76: 24	CH_3COCH_3: CH_2Cl_2: H_3PO_4 (aq) (pH 1.5) = 40: 10: 5	5	97.11	1.41
			2	92.48	1.40
			0.5	96.12	1.90
W111	230 nm, 0.80 mL·min^{-1}, CH_3OH: H_3PO_4 (aq) (pH 3.0) = 79: 21	CH_3COCH_3: CH_2Cl_2: H_3PO_4 (aq) (pH 1.5) = 40: 5: 5	5	90.99	0.67
			2	91.78	0.75
			0.5	90.60	2.74

The extraction method: The regulation of 60% water holding capacity (4 mL) after the acetonitrile evaporated completely (about 5 min) was implemented and the soil samples were mixed well. Suitable extraction solvent was added into the flask and then was shook in the thermostatic oscillator for 3 h at 200 rpm/min. The samples were centrifuged at 6500 rpm in a Thermo Scientific centrifuge at 20℃ for 2 min. The supernatant liquid were combined and

concentrated. Then dichloromethane (30 mL×2) and 30 mL of HPLC grade water were used for the extraction of the residues. The organic phase were combined and dried by anhydrous sodium sulfate. And then the mixture were filtered and concentrated at 25℃. The concentrated samples were dissolved into 10 mL acetonitrile and shook in oscillator at room temperature for 1 h. The solutions were filtered through millipore filter (organic, nylon-66, 0.22 μm) for HPLC analysis.

Cultivation of samples and management: Each sample with its concentration at 5 mg/kg was added, 60% water holding capacity was then regulated. The sealed soil samples were cultivated in a biochemical incubator at 25±1℃ and 80% humidity in the dark. The degradation curves followed the first order kinetic equation $Ct = C_0 \times e^{-kt}$. DT_{50} were calculated according to the formula: $DT_{50} = \ln 2/k$ and the statistical analysis was also guaranteed by the triplicated data.

The degradation curve of W-series compounds in acidic and alkaline soil are shown in Figure S1 and Figure S2.



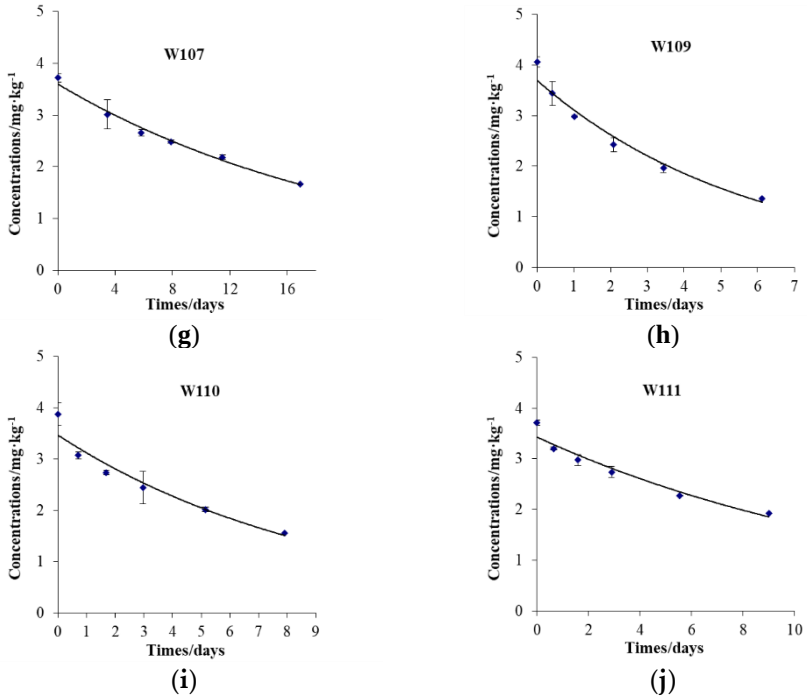


Figure S1. Degradation curve of target compounds (acidic soil, pH 5.46).

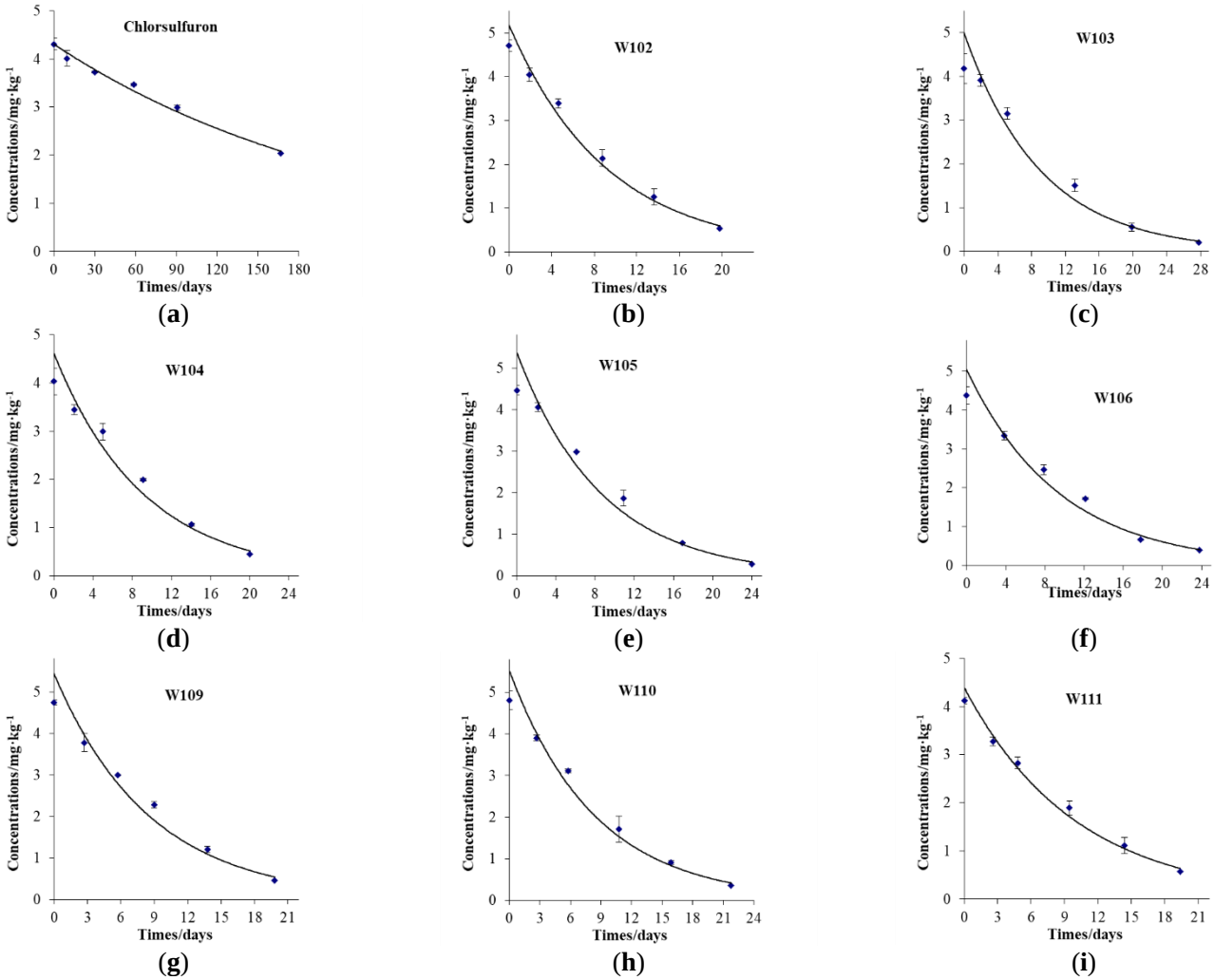


Figure S2. Degradation curve of target compounds (alkaline soil, pH 8.39).

References

1. The Institute for the Control of Agrochemicals under the Ministry of Agriculture. *Chinese National Standard GB/T 31270.1-2014. Test Guidelines on Environmental Safety Assessment for Chemical Pesticides—Part 1: Transformation in Soils;* Oct 10, **2014**.
2. National Chemical Standardization Technical Committee. *Chinese National Standard GB/T 16631-2008. General rules for high performance liquid chromatography*; Jun 18, **2008**.
3. Ministry of Agriculture, Pesticide Testing Center. *Chinese Agricultural Industry Standard NY/T 788-2004. Guideline on pesticide residue trials*; Apr 16, **2004**.
4. Ministry of Agriculture, Pesticide Testing Center. *Chinese Agricultural Industry Standard NY/T 788-2018. Guideline on pesticide residue trials*; July 27, **2018**.

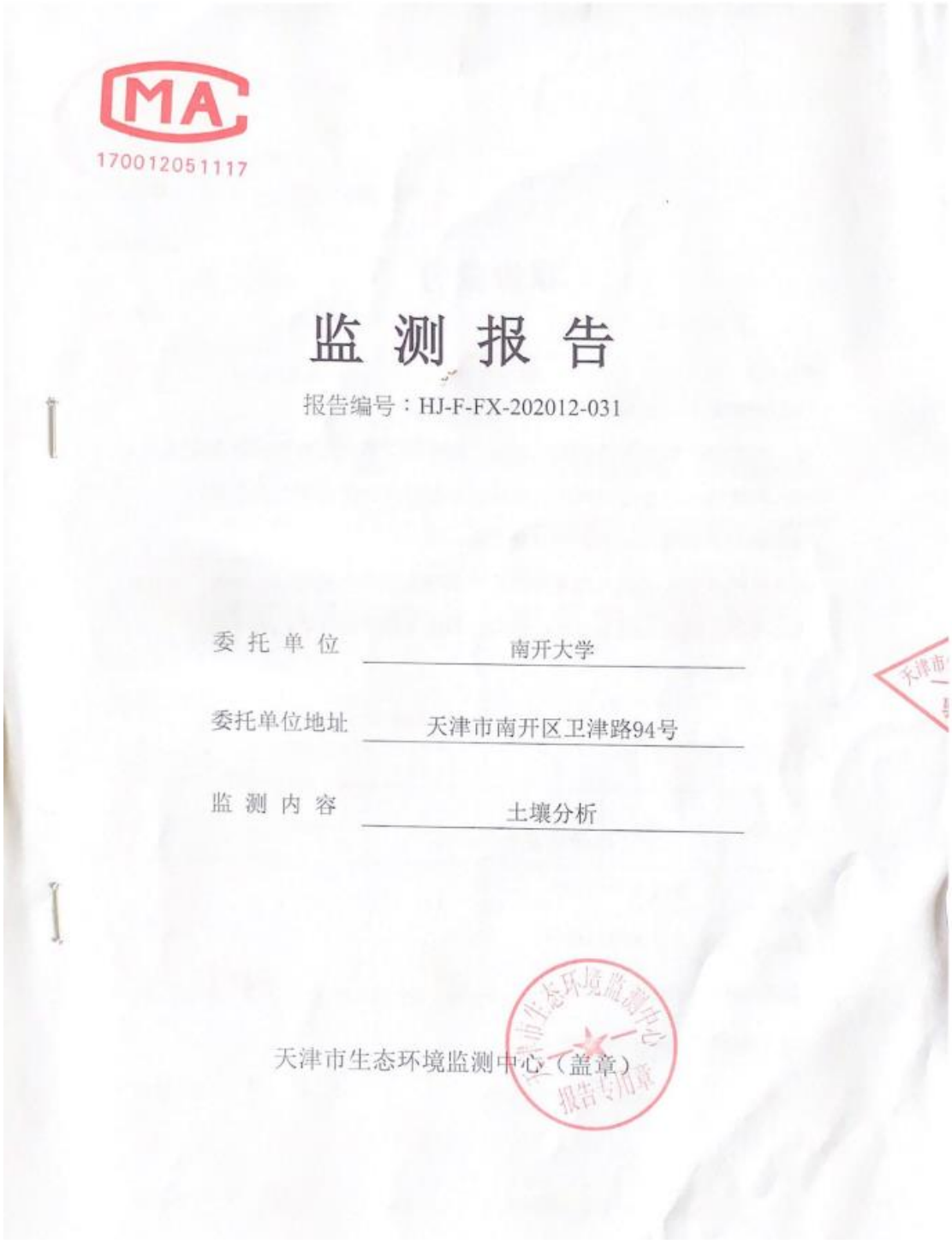
SI4-Report of soil analysis in English

Tianjin Institude of Agriculture Resource and Environment

Analysis Report

Rwquester	Nankai University	Report number	HJ-F-FX-202012-013
Sample name	Soil samples	Date of receipt	December 3th, 2020
		Date of report	January 6th, 2021
Analysis items	Mechancal composition,pH,Organic matter,Cation exchange capacity		
Number of samples		Soil 1	Soil 2
pH		8.39	5.46
Cation exchange capacity ($cmol^+/kg$)		7.3	14.4
Organic matter(g/kg)		19.4	8.37
Sample status		Brown ,lupm	Brown ,lupm
Mechancal composition	Texture class(g/kg)		
Soil 1	1-2mm(g/kg)		7.95
	0.5-1mm(g/kg)		24.6
	0.25-0.5mm(g/kg)		23.3
	0.05-0.02mm(g/kg)		79.0
	0.02-0.002mm(g/kg)		286
	＜0.02mm(g/kg)		282
	0.25-0.05mm(g/kg)		297
	2.0-0.05mm(g/kg)		353
	0.05-0.002mm(g/kg)		365
Soil 2	1-2mm(g/kg)		0.750
	0.5-1mm(g/kg)		3.81
	0.25-0.5mm(g/kg)		7.08
	0.05-0.02mm(g/kg)		125
	0.02-0.002mm(g/kg)		179
	＜0.02mm(g/kg)		105
	0.25-0.05mm(g/kg)		579
	2.0-0.05mm(g/kg)		591
	0.05-0.002mm(g/kg)		304

SI5-Report of soil analysis in Chinese



CMA
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监 测 报 告

报告编号：HJ-F-FX-202012-031

委 托 单 位　南开大学

委托单位地址　天津市南开区卫津路94号

监 测 内 容　土壤分析

天津市生态环境监测中心（盖章）

报告说明

1、报告无本中心报告专用章、骑缝章无效。

2、对于非本中心人员采集的样品，结果仅对客户送检样品结果负责。

3、对现场不可复现的样品，仅对采样所代表的时间和空间负责。

4、未经书面授权，不得部分复制本报告。

5、未经本中心同意，该监测报告不得用于商业性宣传。

6、因客户提供的信息有误，影响监测结果的有效性时，造成的一切后果与本中心无关。

地　　址：天津市南开区复康路19号

电　　话：022-87671699

传　　真：022-87671699

邮政编码：300191

电子邮箱：temcjcglb@tj.gov.cn

送检日期：2020年12月3日

分析日期：2020年12月07日-2020年12月08日

方法和仪器：

项目	方法及依据	仪器名称、型号和编号
pH值	土壤 pH值的测定 电位法（HJ 962-2018）	SevenExcellence S500-k pH（酸度）计(B546705501) CPA225D型 电子分析天平(24190372)
有机质	土壤检测 第6部分：土壤有机质的测定 NY/T1121.6-2006	滴定管(滴定管-分-02) BSA124S型 电子分析天平(29490274)
阳离子交换量	土壤 阳离子交换量的测定 三氯化六氨合钴浸提 分光光度法（HJ 889-2017）	DR6000 双光束紫外可见分光光度计(1492931) OHAOS AR2140 电子天平(1201310779)
机械组成（质地）	森林土壤颗粒组成（机械组成）的测定密度计法（LY/T 1225-1999）	TM-85土壤密度计(341) BSA124S型 电子分析天平(29490274)

项目及结果：

结果 项目（单位） 样品名称	pH值（无量纲）	阳离子交换量（$cmol^+$/kg）	有机质（g/kg）	机械组成（质地）	样品状态描述
土1	8.39	7.3	19.4	粘壤土	褐色块状
土2	5.46	14.4	8.37	砂质壤土	褐色块状

备注：
1. 监测方法为客户指定。
2. 样品名称为客户提供信息，中心对此真实性不承担责任。

编制人：[illegible]　　审核人：[illegible]

签发人：[illegible]　　签发日期：2021年1月6日

附表

样品名称	土壤机械组成（各粒级含量）	
土1	1-2mm 粒级含量（g/kg）	7.95
	0.5-1mm 粒级含量（g/kg）	24.6
	0.25-0.5mm 粒级含量（g/kg）	23.3
	粉（砂）粒 0.05-0.02mm 粒级含量（g/kg）	79.0
	粉（砂）粒 0.02-0.002mm粒级含量（g/kg）	286
	粘粒<0.002mm粒级含量（g/kg）	282
	细砂+极细砂0.25-0.05mm粒级含量（g/kg）	297
	砂粒2.0-0.05mm粒级含量（g/kg）	353
	粉(砂)粒0.05-0.002mm粒级含量（g/kg）	365
土2	1-2mm 粒级含量（g/kg）	0.750
	0.5-1mm 粒级含量（g/kg）	3.81
	0.25-0.5mm 粒级含量（g/kg）	7.08
	粉（砂）粒 0.05-0.02mm 粒级含量（g/kg）	125
	粉（砂）粒 0.02-0.002mm粒级含量（g/kg）	179
	粘粒<0.002mm粒级含量（g/kg）	105
	细砂+极细砂0.25-0.05mm粒级含量（g/kg）	579
	砂粒2.0-0.05mm粒级含量（g/kg）	591
	粉(砂)粒0.05-0.002mm粒级含量（g/kg）	304