Table Captions

Table S1. Chemicals used in this experiment.

Table S2. Design and results of response surface analysis test.

Table S3. Analysis of variance of the quadratic model.

Figure Captions

Figure S1. Gas chromatogram of the thiamethoxam degradation products at different time.

Figure S2. Mass spectrum of thiamethoxam and its intermediate products.

Table S1. Chemicals used in this experiment.

Drug names	Formula	CAS number	Purity(%)	Source
Ammonium ferrous sulfate	$Fe(NH_4)_2 \cdot (SO_4)_2 \cdot 6H_2O$	7783-85-9	≥99.5%	Sinopharm Chemical Reagents Co., Ltd. (China)
Aluminium potassium sulfate	$KAl(SO_4)_2 \cdot 12H_2O$	7784-24-9	≥99.5%	Sinopharm Chemical Reagents Co., Ltd. (China)
Silver sulfate	Ag_2SO_4	10294-26-5	≥99.7%	Sinopharm Chemical Reagents Co., Ltd. (China)
Potassium dichromate	$K_2Cr_2O_7$	7778-50-9	≥99.8%	Sinopharm Chemical Reagents Co., Ltd. (China)
Ferrous sulfate	$FeSO_4 \cdot 7H_2O$	7720-78-7	≥99.0%	Sinopharm Chemical Reagents Co., Ltd. (China)
1, 10-Phenanthroline	$C_{12}H_8N_2 \cdot H_2O$	66-71-7	≥99%	Sinopharm Chemical Reagents Co., Ltd. (China)
Hydrochloric acid	HCl	7647-01-0	36.0-38.0%	Jinshan Chemical Reagent Co., Ltd (China)
Sulfuric acid	H_2SO_4	7664-93-9	95.0~98.0%	Jinshan Chemical Reagent Co., Ltd (China)
Ammonium molybdate	$(NH_4)_6Mo_7O_{24} \cdot 4H_2O$	12054-85-2	≥99.0%	Kemi Ou Chemical Reagent Co., Ltd (China)
Sodium hydroxide	$NaOH$	1310-73-2	96.0%	Kemi Ou Chemical Reagent Co.,Ltd (China)
Mercuric sulfate	$HgSO_4$	7783-35-9	≥98.0%	Kemi Ou Chemical Reagent Co., Ltd (China)
Sodium chloride	$NaCl$	7647-14-5	≥99.5%	Kemi Ou Chemical Reagent Co., Ltd (China)

Table S2. Design and results of response surface analysis test.

Experiment number	A: Particle electrode amount (g/L)	B: Current density (A/m²)	C: Ozone concentration (g/h)	COD removal rate (%)
1	15	32	12	89.74
2	15	24	14	86.23
3	25	24	10	81.60
4	15	24	10	86.15
5	20	32	14	82.41
6	20	24	12	93.32
7	20	16	14	79.45
8	20	16	10	76.83
9	25	32	12	84.25
10	20	32	10	81.99
11	20	24	12	93.08
12	25	24	14	86.77
13	20	24	12	95.38
14	20	24	12	94.17
15	15	16	12	82.15
16	25	16	12	81.82
17	20	24	12	93.17

Table S3. Analysis of variance of the quadratic model.

Source	Sum of squares	df	Mean square	F-value	P-value	Significance value
Model	530.47	9	58.94	81.26	<0.0001	**
X_1: Particle electrode amount	12.10	1	12.10	16.69	0.0047	**
X_2: Current density	41.09	1	41.09	56.64	0.0001	**
X_3: Ozone concentration	8.59	1	8.59	11.84	0.0108	*
X_1X_2	6.68	1	6.68	9.21	0.0190	*
X_1X_3	6.48	1	6.48	8.93	0.0203	*
X_2X_3	1.21	1	1.21	1.67	0.2375	
X_1^2	20.00	1	20.00	27.57	0.0012	**
X_2^2	218.09	1	218.09	300.66	<0.0001	**
X_3^2	177.73	1	177.73	245.02	<0.0001	**
Residual	5.08	7	0.7254			
Lack of Fit	1.47	3	0.4904	0.5439	0.6779	
Pure Error	3.61	4	0.9016			
Cor Total	535.55	16				
R^2=0.9905	R^2_{Adj}=0.97 83	C.V.%= 0.9858				

Note: * Significant (P<0.05); ** Extremely significant (P<0.01).
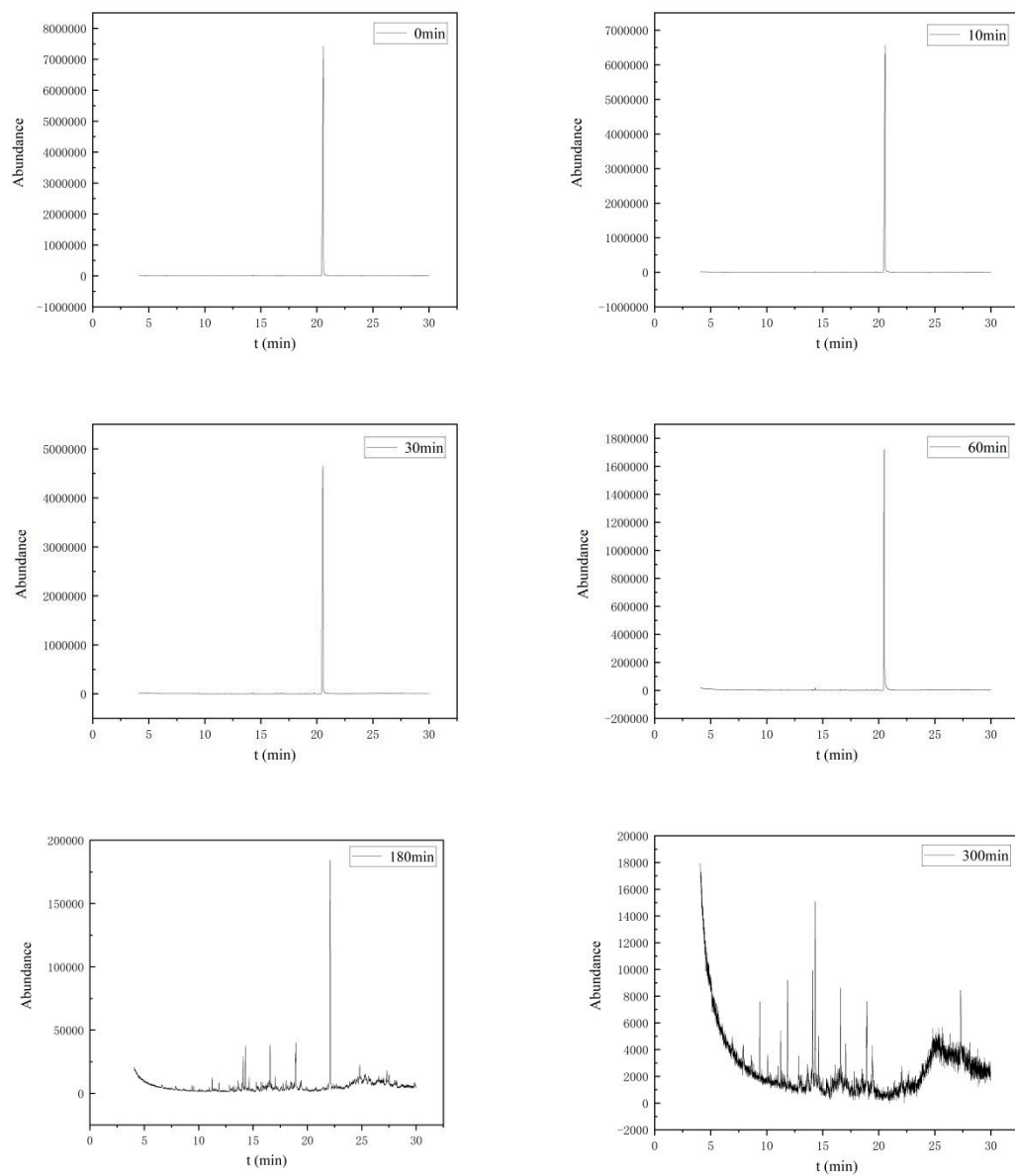
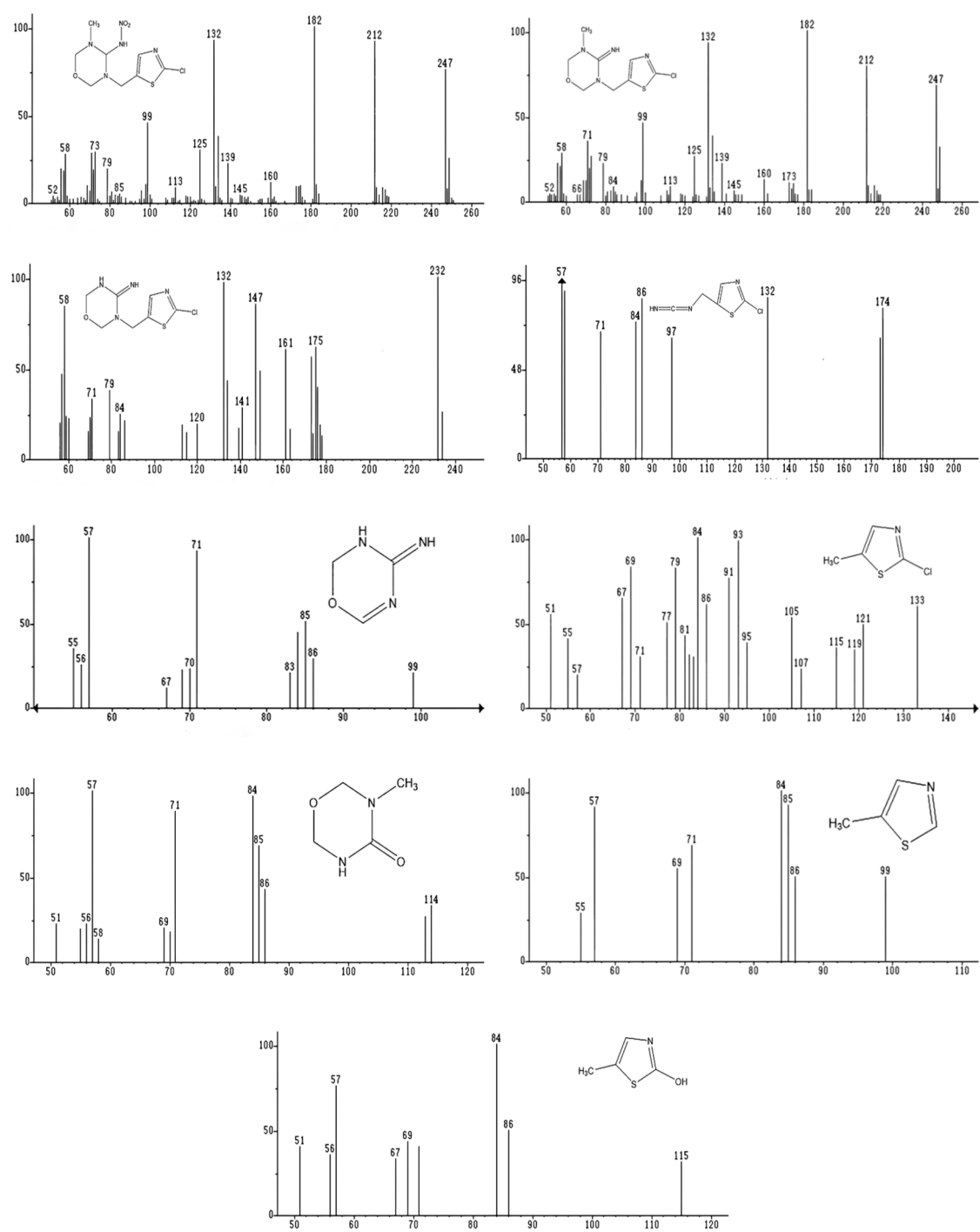**Figure S1.** Gas chromatogram of the thiamethoxam degradation products at different time

Figure S2. Mass spectrum of thiamethoxam and its intermediate products