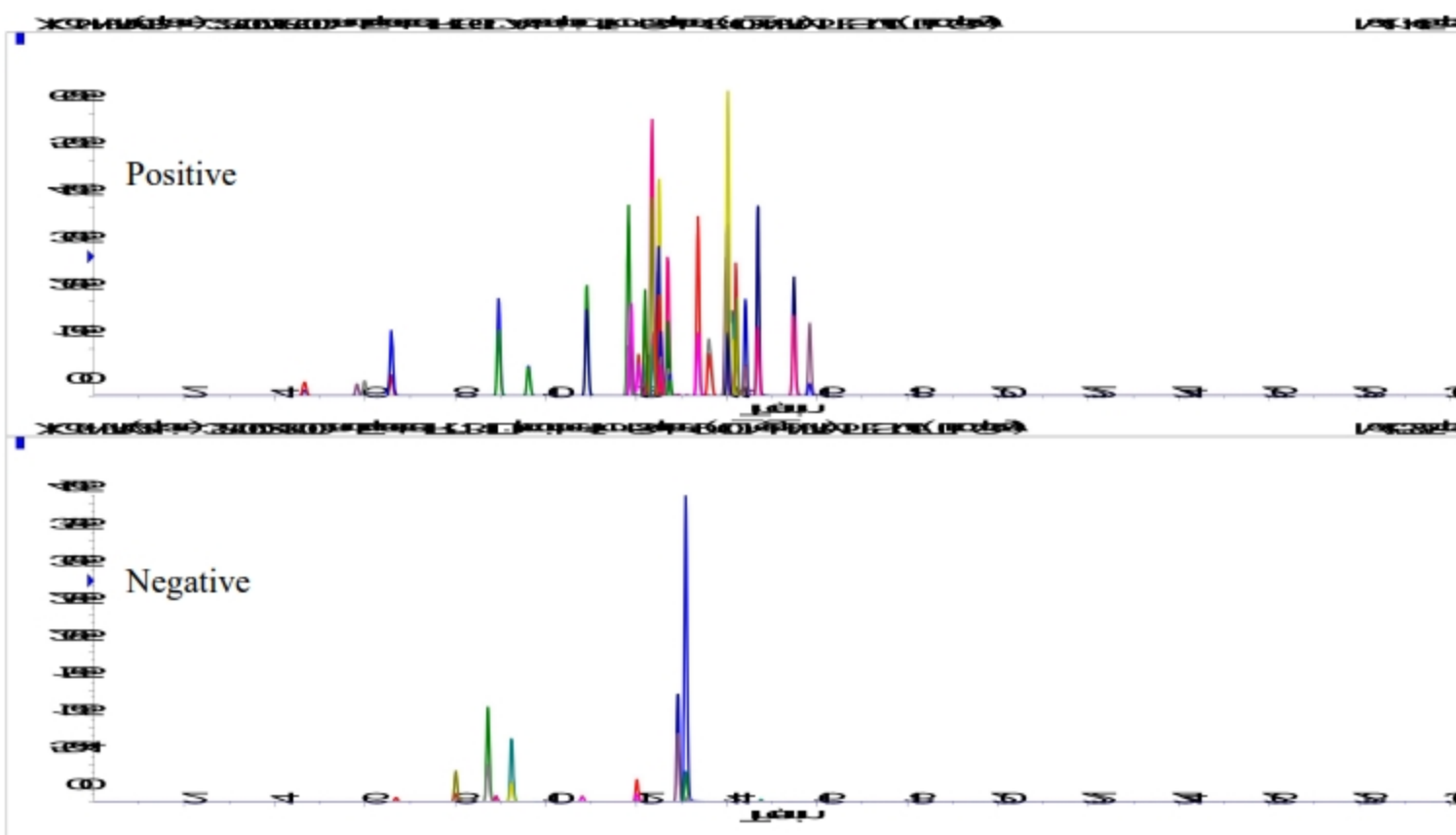


平成2年(1990年),日本环境部颁布了《高尔夫球场农药污染水防治暂行指导方针》,并于平成22年(2010年)9月29日发布了修订版(环水大土发第1009200001号),规定用LC/MS/MS法测定44种农药。这次我们将根据此测试方法介绍分析示例。

除了杀螟硫磷外,必须测量定量离子和定性离子,并且要求更高精度的分析。此次,使用了惰性高能得到良好峰形的InertSustain C18 和AB SCIEX公司的3200QTRAP®LC/MS/MS系统,并取得了良好的分析结果。



Components (ESI, Positive)	MRM (Q1/Q3)		R.T.
	Quantifier ion	Qualifier ion	
Thiamethoxam	292/132	292/211	4.7
Imidacloprid	256/175	256/209	5.8
Clothianidin	250/132	250/169	6.0
Acetamiprid	223/126	225/128	6.6
Ethoxysulfuron	399/261	399/218	9.0
Simazine	202/104	202/68	9.6
Metalaxyl	280/220	280/192	10.9
Azoxystrobin	404/372	404/329	11.8
Siduron	233/137	233/94	11.9
Flutolanil	324/242	324/262	12.2
Propyzamide	256/190	256/192	12.4
Mepronil	270/119	270/91	12.4
Isoprotiolane	291/231	291/189	12.5
Cafenstrole	351/100	351/72	12.5
Cumyluron	303/185	303/125	12.5
Cyproconazole	292/70	292/125	12.5
Simeconazole	294/73	294/70	12.7
Tetraconazol	372/159	372/70	12.7
Triflumizole metabolite	295/215	295/176	12.8
Tebuconazole	308/70	310/70	13.4
Propiconazole	342/159	344/161	13.6
Diazinon	305/169	305/97	14.0
Butamifos	333/180	333/96	14.0
Pencycuron	329/125	329/89	14.0
Difenoconazole	406/251	408/253	14.1
Isoxathion	314/105	314/97	14.2
Terbutcarb	278/222	278/166	14.2
Triflumizole	346/278	348/280	14.4
Oxazifluorfen	376/190	376/161	14.7
Pyributcarb	331/181	331/108	15.5
Pendimethalin	282/212	282/194	15.8

Components (ESI, Negative)	MRM (Q1/Q3)		R.T.
	Quantifier ion	Qualifier ion	
Flazasulfuron	406/251	406/154	6.7
Harosulfuron-methyl	433/252	433/78	8.0
Cafenstrole metabolite	250/186	250/67	8.7
Triclopyr	254/196	256/198	8.9
Mecoprop	213/141	215/143	9.3
Cyclosulfamuron	420/265	420/78	10.8
Boscalid	341/112	343/112	12.0
Thifluzamide	527/125	527/166	12.9
Iprodione	328/243	330/245	13.1
Tebufenozide	351/149	351/105	13.1
Bensulide	396/213	396/111	13.1
Dithiopyr	400/352	400/304	14.8

(Conc. of each compound: 100 μ g/L)

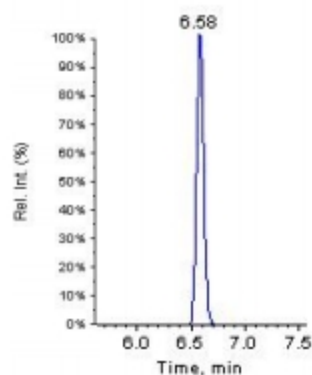
HPLC条件

色谱柱 : InertSustain C18 (3 μ m, 150 x 2.1 mm I.D.)
流动相 : A) 5 mM Ammonium acetate
 B) CH₃OH
 A / B = 80 / 20 - 13 min - 10 / 90 - 10 min - 10 / 90
 (平衡7 min), v/v
流速 : 0.25 mL/min
色谱柱温度 : 40 °C
检测器 : LC/MS/MS (3200 Q TRAP®: ESI, MRM)
注入量 : 5 μ L

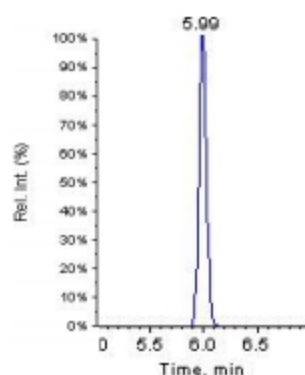
< Positive模式测量对象农药- 1 >

公布了以正模式(AZ顺序)测量的每种组分的色谱图。由于存在异构体, Cyproconazole和sideruron被分成两个峰。

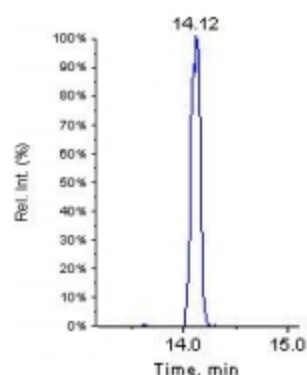
Acetamiprid



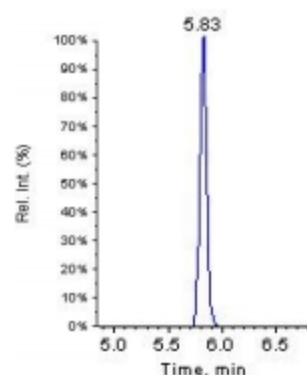
Clothianidin



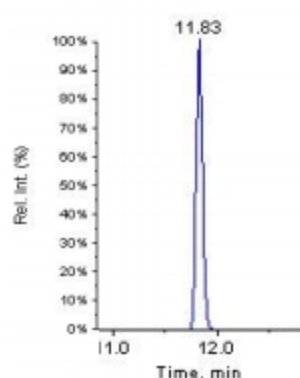
Difenoconazole



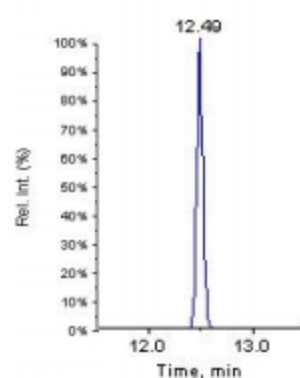
Imidacloprid



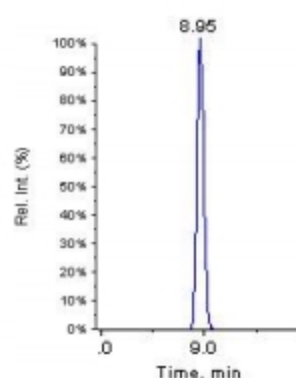
Azoxystrobin



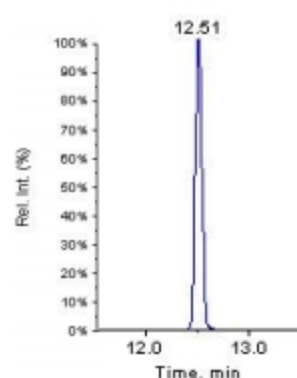
Cumyluron



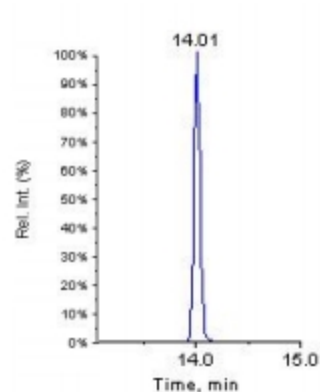
Ethoxysulfuron



Isoprothiolane

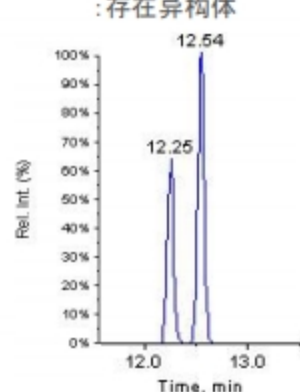


Butamifos

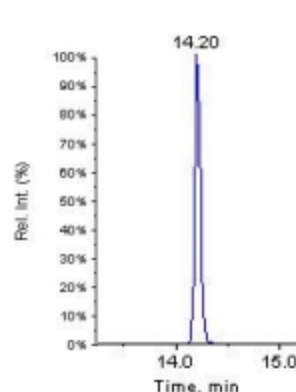


Cyproconazole

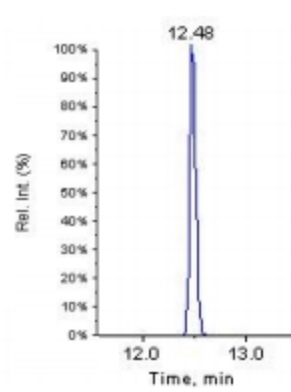
: 存在异构体



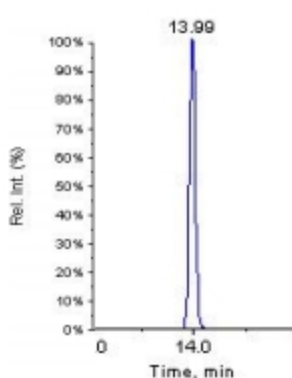
Isoxathion



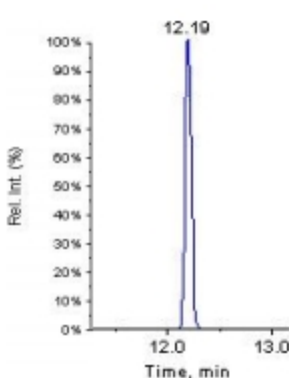
Cafenstrole



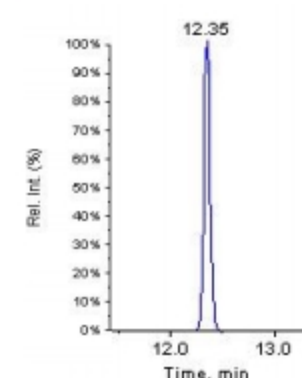
Diazinon



Flutolanil

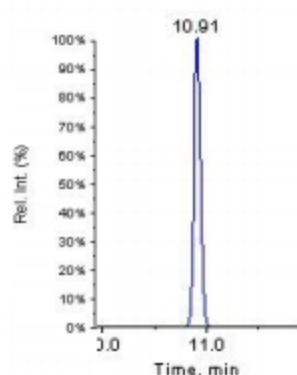


Mepronil

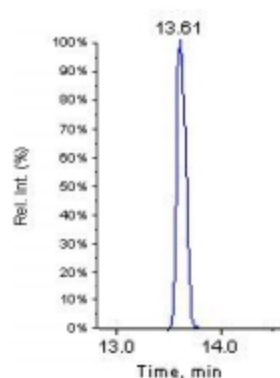


<Positive模式测量对象农药-2>

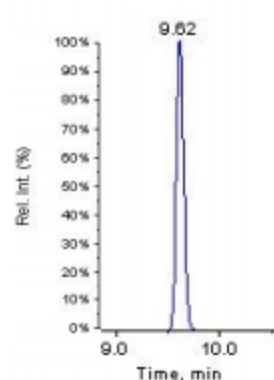
Metalaxyl



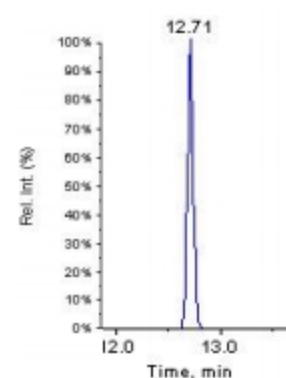
Propiconazole



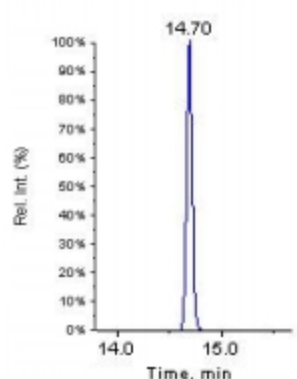
Simazine



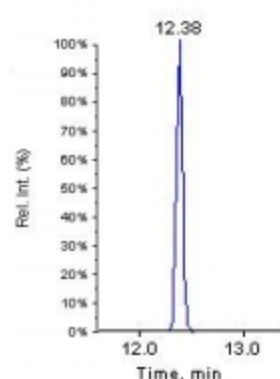
Tetraconazol



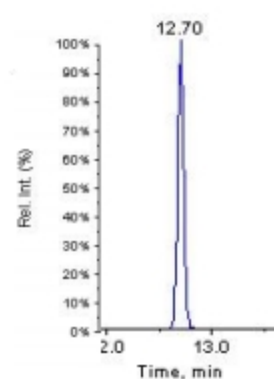
Oxaziclomefone



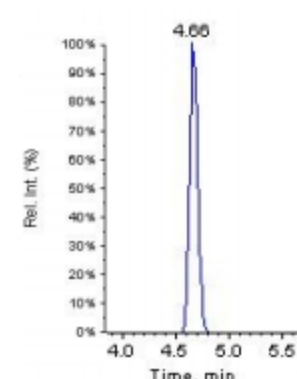
Propyzamide



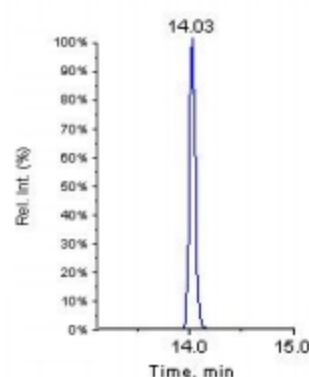
Simeconazole



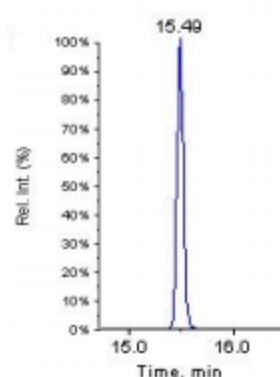
Thiamethoxyam



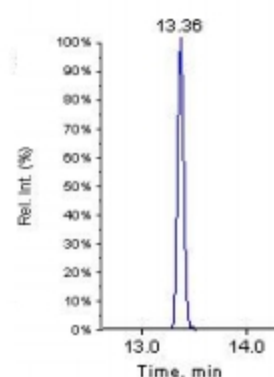
Pencycuron



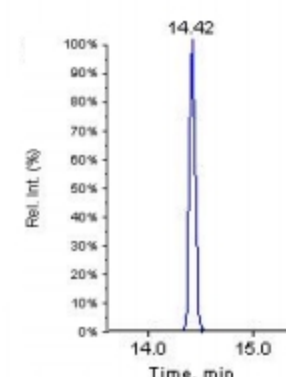
Pyributicarb



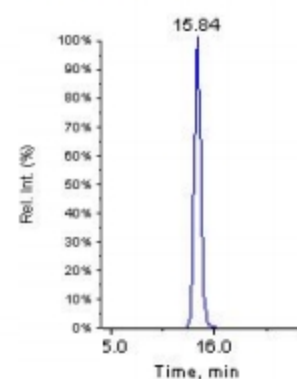
Tebuconazole



Triflumizole

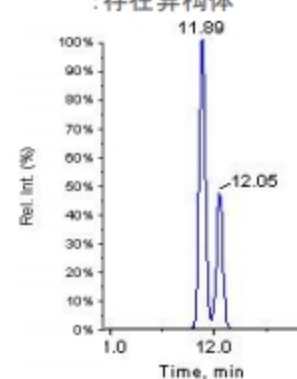


Pendimethalin

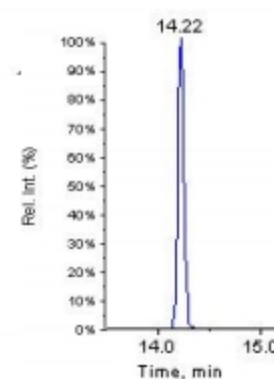


Siduron

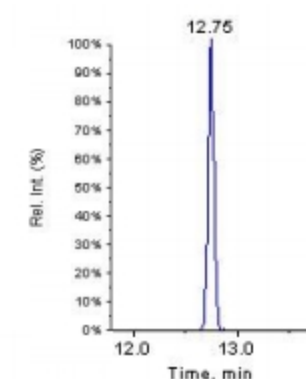
: 存在异构体



Terbucarb



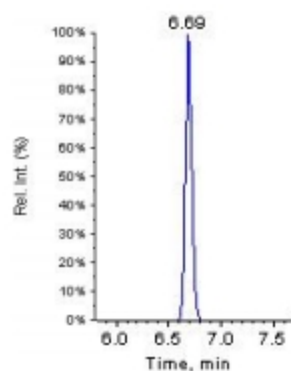
Triflumizole metabolite



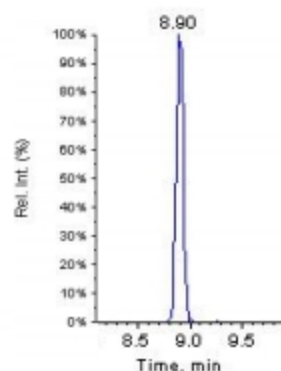
<Negative 模式测定对象农药>

以负模式(AZ顺序)测量的每种组分的色谱图被公布。所有组件都获得了良好的峰形。

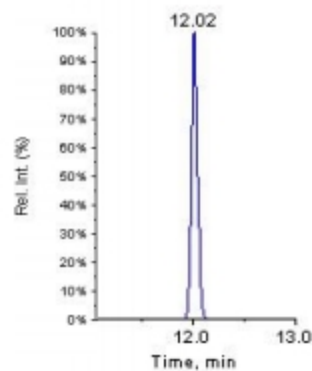
Flazasulfuron



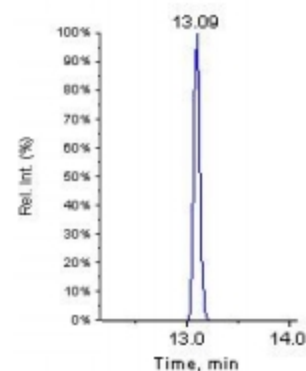
Triclopyr



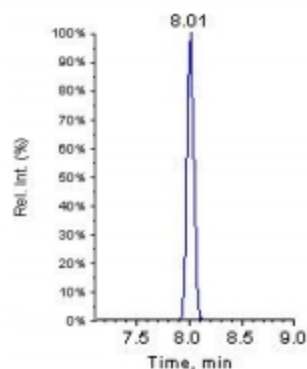
Boscalid



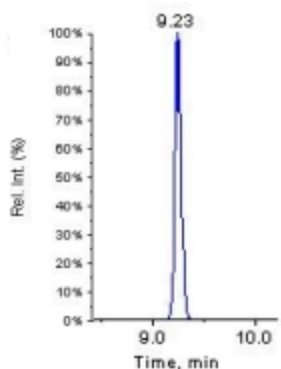
Tebufenozide



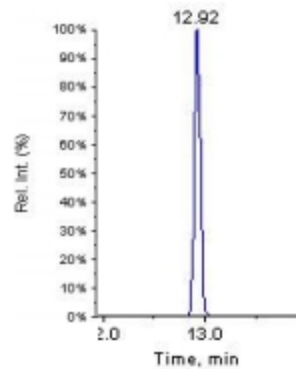
Harosulfuron-methyl



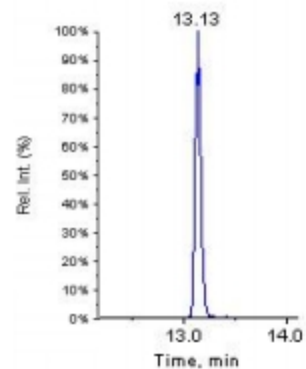
Mecoprop



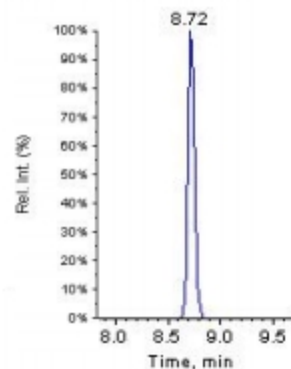
Thifluzamide



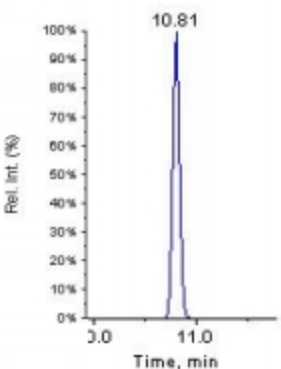
Bensulide



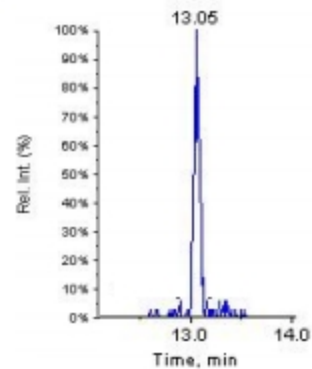
Cafenstrole metabolite



Cyclosulfamuron



Iprodione



Dithiopyr

