

GCS+PSAミニカラムと溶出溶媒による回収率①

番号	化合物名	溶出溶媒 トルエン-アセトン-ヘキサン比率			
		(20/15/65)	(15/15/70)	(10/15/75)	(0/15/85)
		20%	15%	10%	0%
1	1-Naphthylacetamide	N.D.	N.D.	N.D.	N.D.
2	3-Hydroxycarbofuran	46.8	47.7	40.2	27.2
3	4,4'-Dichlorobenzoph	98.8	98.6	98.8	92.4
4	Acephate	LC	LC	LC	LC
5	Acetamidipride	LC	LC	LC	LC
6	Acetochlor	107.1	103.9	103.7	97.0
7	Acrinathrin	94.0	100.0	94.8	95.0
8	Alachlor	105.9	103.9	104.5	94.7
9	Allethrin-1,2	98.8	98.1	101.1	95.9
10	Allethrin-3,4	96.6	95.9	99.1	96.8
11	Ametryn	97.3	97.2	92.4	74.0
12	Anilofos	114.0	110.0	113.5	111.6
13	Aramite-3	101.9	97.7	98.7	93.8
14	Aramite-4	99.6	99.7	95.9	97.5
15	Atrazine	75.8	79.9	58.6	33.5
16	Azaconazole	97.5	97.9	89.4	67.4
17	Azinphos-Methyl	130.6	121.0	130.4	83.1
18	Benalaxyl	108.1	106.0	106.0	103.0
19	Bendiocarb	42.8	44.8	23.2	10.0
20	Benfluranlin	115.1	112.8	100.5	95.8
21	Benfuresate	103.9	102.1	100.3	84.4
22	Benoxacor	106.0	104.9	96.7	70.9
23	BHC-alpha	109.4	107.0	101.6	94.6
24	BHC-beta	105.5	103.5	99.1	93.2
25	BHC-delta	103.7	105.2	102.0	97.6
26	BHC-gamma	105.5	103.5	99.1	93.2
27	Bifenox	115.9	114.8	115.8	111.8
28	Bifenthrin	93.3	93.4	95.5	92.7
29	Bitertanol-1	120.0	116.7	118.0	106.7
30	Bitertanol-2	117.1	114.1	114.6	97.6

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		20%	15%	10%	0%
31	Bromacil	LC	LC	LC	LC
32	Bromobutide	104.1	102.3	103.8	96.7
33	Bromofos methyl	96.2	96.5	100.8	97.0
34	Bromophos-ethyl	91.9	93.1	99.3	94.0
35	Bromopropylate	102.9	98.1	102.6	100.0
36	Bupimate	105.8	102.3	103.0	100.4
37	Buprofezin	100.0	98.5	97.8	95.4
38	Butachlor	100.4	97.5	98.2	97.6
39	Butamifos	104.1	102.5	103.5	98.8
40	Butylate	112.6	159.5	48.0	50.7
41	Cadusafos	114.1	114.7	98.1	90.9
42	Cafenstrole	111.3	105.6	110.0	105.3
43	Captafol	LC	LC	LC	LC
44	Captan	77.9	-	62.7	37.1
45	Carbaril	59.5	66.3	41.8	19.9
46	Carbofuran	39.8	41.5	21.9	9.4
47	Carboxin	63.0	67.5	38.6	14.6
48	Carfentrazone ethyl	110.9	107.1	107.1	102.2
49	Chlorbenside	97.2	98.9	101.0	90.8
50	Chlorbufam	102.0	100.3	98.8	86.8
51	Chlorethoxyphos	102.9	109.6	80.7	80.1
52	Chlorfenapyr	98.8	94.5	96.3	94.2
53	Chlorfenson	100.4	99.4	99.7	95.4
54	Chlorfenvinphos-1	107.7	107.3	107.2	102.3
55	Chlorfenvinphos-2	107.2	105.2	101.5	102.9
56	Chlorobenzilate	104.7	101.4	102.8	99.3
57	Chloroneb	108.4	107.7	81.2	77.8
58	Chlorpropham	113.3	109.1	105.6	95.8
59	Chlorpyrifos	93.3	94.7	95.3	91.7
60	Chlorpyriphos-methyl	104.3	104.2	105.2	100.6

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		20%	15%	10%	0%
61	Chlorthal-dimethyl	100.2	100.4	99.7	98.7
62	Chlozolate	101.9	98.8	101.0	96.0
63	Cinidon-ethyl	100.2	92.9	88.2	37.7
64	Clomazone	107.2	105.7	96.0	72.4
65	Cyanazine	LC	LC	LC	LC
66	Cyanophos	106.5	103.9	100.0	79.1
67	Cyfluthrin-1	130.4	115.5	131.7	122.0
68	Cyfluthrin-2	94.7	99.5	95.0	96.2
69	Cyfluthrin-3	97.4	93.9	92.6	95.5
70	Cyfluthrin-4	107.8	84.6	103.2	102.5
71	Cyhalofop-butyl	105.7	103.5	103.9	100.7
72	Cyhalothrin-1	101.6	101.2	100.6	99.5
73	Cyhalothrin-2	106.4	98.7	103.6	100.7
74	Cypermethrin-1	98.4	95.7	99.7	96.0
75	Cypermethrin-2	92.8	91.2	95.1	89.4
76	Cypermethrin-3	99.9	99.4	102.0	96.5
77	Cypermethrin-4	96.0	93.5	95.2	90.1
78	Cyproconazole-1	99.9	103.8	97.7	88.0
79	Cyproconazole-2	77.9	74.1	76.0	71.3
80	DEF	98.8	99.4	98.6	95.8
81	Deltamethrin	83.4	-	87.8	88.8
82	Demeton-S-methyl	37.8	38.5	19.1	9.2
83	Diallate-1	110.3	111.5	94.1	90.6
84	Diallate-2	112.2	110.1	98.2	93.4
85	Diazinone	113.5	109.4	105.5	99.5
86	Dichlofenthion	97.3	98.8	95.7	90.4
87	Dichlofluanid	114.2	-	102.4	99.9
88	Dichlorvos	LC	LC	LC	LC
89	Diclocymet-1	93.3	90.9	90.3	87.4
90	Diclocymet-2	103.9	103.6	102.7	99.8

GCS+PSAミニカラムと溶出溶媒による回収率②

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		(20/15/65)	(15/15/70)	(10/15/75)	(0/15/85)
91	Diclofop-methyl	97.7	95.2	97.2	93.8
92	Dicloran	80.4	83.8	53.4	18.4
93	Dicrofos	LC	LC	LC	LC
94	Diethofencarb	88.2	86.0	84.9	74.8
95	Difenoconazole-1	98.1	96.7	100.7	91.4
96	Difenoconazole-2	102.4	98.9	101.0	97.7
97	Diflufenican	98.0	92.4	84.6	11.6
98	Dimepiperate	105.7	104.2	105.2	102.8
99	Dimethametryn	102.4	101.0	99.7	96.6
100	Dimethenamid	107.8	105.8	103.1	86.8
101	Dimethipin	LC	LC	LC	LC
102	Dimethoate	LC	LC	LC	LC
103	Dimethylvinphos-z	98.0	95.0	96.7	94.4
104	Dioxathion	115.4	109.2	111.7	110.5
105	Diphenamide	103.7	102.7	97.4	74.2
106	Disulfoton	118.4	117.8	113.5	109.3
107	Disulfoton sulfone	102.4	103.0	95.7	68.3
108	Edifenphos	106.2	101.8	103.8	104.9
109	Endosulfan	87.3	91.7	93.4	94.1
110	Endosulfan II	98.8	100.3	99.3	98.1
111	Endosulfan sulfate	106.3	107.0	104.7	108.0
112	EPN	112.2	98.4	112.1	103.8
113	Epoxiconazole	108.2	105.4	107.2	101.0
114	EPTC	121.7	187.7	45.0	49.6
115	Esprocarb	98.1	97.8	97.5	93.6
116	Ethalfuralin	111.0	112.5	100.3	98.7
117	Ethiofencarb	75.8	80.6	50.7	23.7
118	Ethion	106.5	105.1	108.8	104.6
119	Ethofumesate	101.7	99.9	100.1	91.4
120	Ethoprophos	117.7	113.6	99.4	91.4

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		(20/15/65)	(15/15/70)	(10/15/75)	(0/15/85)
121	Etofenprox	92.1	92.7	94.9	91.3
122	Etoazole	97.4	96.1	97.7	95.6
123	Etrimfos	105.5	103.7	101.1	94.8
124	Fenamidone	106.2	104.9	104.5	97.1
125	Fenamiphos	102.8	102.0	100.8	95.6
126	Fenarimol	103.0	101.7	104.0	98.5
127	Fenbuconazole	105.1	102.7	104.1	86.8
128	Fenchlorphos	95.4	95.9	99.4	95.8
129	Fenitrothion	105.8	104.6	105.8	100.8
130	Fenobucarb	110.9	107.0	98.7	76.4
131	Fenothiocarb	104.4	102.1	102.7	96.9
132	Fenoxanil	104.2	104.1	100.3	96.1
133	Fenpropathrin	97.6	94.9	97.4	94.3
134	Fenpropemorph	101.2	100.9	100.3	95.6
135	Fensulfothion	114.1	113.8	111.3	90.3
136	Fenthion	107.8	105.9	105.5	103.5
137	Fenvalerate-1	91.0	94.9	93.4	92.1
138	Fenvalerate-2	104.2	92.7	106.7	98.7
139	FIPRONIL	100.2	96.9	97.1	96.1
140	Flamprop-methyl	108.6	104.8	109.0	105.4
141	Fluacrypyrim	105.9	105.1	104.9	101.3
142	Flucythrinate-1	98.6	97.1	96.0	96.3
143	Flucythrinate-2	103.6	100.3	100.7	99.6
144	Fludioxonil	92.1	94.9	93.5	94.9
145	Flufenpyl-ethyl	108.4	106.5	105.6	99.3
146	Flumiclorac-pentyl	106.7	99.5	102.8	96.7
147	Flumioxazin	110.9	108.4	110.3	98.1
148	Fluquinconazole	105.6	102.7	103.4	95.7
149	Fluridone	96.6	92.6	89.2	42.3
150	Flusilazole	104.9	103.6	104.3	100.7

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		(20/15/65)	(15/15/70)	(10/15/75)	(0/15/85)
151	Fluthiacet-methyl	101.2	97.8	99.2	53.4
152	Flutolanil	105.3	105.2	105.3	98.3
153	Flutriafol	95.4	97.3	84.0	49.4
154	Fluvalinate-1	92.0	87.3	93.4	93.5
155	Fluvalinate-2	91.3	87.9	93.9	94.0
156	Formothion	LC	LC	LC	LC
157	Fosthiazate-1	86.0	90.4	66.9	37.3
158	Fosthiazate-2	88.5	91.7	70.4	42.1
159	Halfenprox	90.3	91.4	95.6	92.5
160	Hexaconazole	106.1	105.5	107.0	102.5
161	Hexazinone	LC	LC	LC	LC
162	Imazamethabenz meth	39.6	41.1	25.3	13.3
163	Imibenconazole	103.0	91.3	87.4	23.0
164	Imibenconazole-des-	LC	LC	LC	LC
165	Iprobenfos	107.0	104.1	102.3	98.0
166	Iprodione	103.1	100.2	101.7	94.8
167	Isazophos	107.0	105.4	103.4	99.8
168	Isofenphos	101.8	100.5	101.7	98.4
169	Isofenphos P=O	107.6	105.8	105.4	97.6
170	Isoprocarbe	89.2	89.7	61.9	31.8
171	Isoprothiolane	109.3	105.3	106.3	101.6
172	Isoxathion	98.3	93.9	95.0	93.2
173	Isoxathion-ox	103.4	95.5	100.5	94.8
174	Kresoxim-methyl	105.4	103.1	103.2	100.0
175	Lenacil	59.1	63.9	40.8	22.3
176	Malathion	112.1	105.9	104.4	103.6
177	Mecarbam	105.5	101.2	102.1	97.9
178	Mefenacet	109.6	107.3	107.0	96.2
179	Mefenpyr-diethyl	111.2	106.4	108.3	102.7
180	Mepronil	112.1	108.5	108.4	99.8

GCS+PSAミニカラムと溶出溶媒による回収率③

番号	化合物名	溶出溶媒 トルエン-アセトン-ヘキサン比率			
		(20/15/65)	(15/15/70)	(10/15/75)	(0/15/85)
		20%	15%	10%	0%
181	Metalaxyl	96.1	98.2	85.2	56.2
182	Methamidophos	LC	LC	LC	LC
183	Methidathion	110.2	106.0	103.0	77.8
184	Methiocarb	103.9	93.7	102.1	87.7
185	Methoprene-1	99.9	98.9	99.1	93.1
186	Methoprene-2	97.0	101.6	101.3	90.1
187	Methoxychlor	89.8	75.7	86.6	83.1
188	Metolachlor	105.2	102.5	102.7	97.3
189	Metominostrobin	104.7	104.9	100.9	76.6
190	Metominostrobin-z	98.6	99.7	85.3	52.6
191	Mevinphos	LC	LC	LC	LC
192	Monocrotophos	LC	LC	LC	LC
193	Myclobutanil	102.6	101.5	102.2	98.0
194	Napropamide	104.2	101.8	102.5	98.3
195	Nitrothal-isopropyl	112.8	114.6	115.9	108.3
196	Norflurazon	96.6	96.4	87.3	48.9
197	Oryzalin	71.1	53.0	68.0	31.1
198	Oxadiazone	99.9	99.3	99.5	96.6
199	Oxadixyl	LC	LC	LC	LC
200	Oxyfluorfen	100.3	99.6	101.2	98.2
201	p,p'-DDD	97.7	98.3	100.5	99.2
202	p,p'-DDE	88.5	90.8	93.6	90.8
203	Paclobutrazol	108.4	107.2	106.8	97.4
204	Parathion	108.2	107.1	104.5	99.3
205	Parathion-methyl	115.6	114.2	116.5	105.7
206	Penconazole	104.3	102.8	102.8	100.2
207	Pendimethalin	99.4	103.2	104.2	98.8
208	Permethrin-cis	99.5	99.3	101.4	97.7
209	Permethrin-trans	98.3	98.1	100.7	97.4
210	Perthane	90.3	91.5	93.4	90.8

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		(20/15/65)	(15/15/70)	(10/15/75)	(0/15/85)
		20%	15%	10%	0%
211	Phenothrin-1	96.6	98.9	99.9	97.8
212	Phenothrin-2	94.0	94.3	96.6	93.9
213	Phenthoate	111.4	86.4	109.2	109.8
214	Phorate	121.6	120.8	107.2	101.1
215	Phosalone	112.2	107.6	112.5	67.5
216	Phosmet	115.5	111.9	115.8	79.4
217	Phosphamidon	40.1	41.8	24.5	14.7
218	Phthalide	97.2	94.1	88.4	53.2
219	Picolinafen	100.6	95.7	91.4	9.9
220	Piperonyl butoxide	102.6	100.0	101.2	97.8
221	Piperophos	108.1	105.1	103.8	99.5
222	Pirimicarb	36.9	37.4	23.1	13.7
223	Pirimiphos methyl	100.9	101.8	103.9	99.4
224	Pretilachlor	104.4	103.0	104.0	99.1
225	Procymidone	100.1	99.2	98.7	93.1
226	Profenofos	104.5	105.2	105.5	101.8
227	Prohydrojasmon-1	110.1	106.0	102.7	98.4
228	Prohydrojasmon-2	104.8	103.0	102.6	89.6
229	Prometryn	103.3	101.8	100.6	94.9
230	Propachlor	100.3	98.8	71.0	41.3
231	Propanil	101.1	101.2	92.7	60.9
232	Propaphos	109.0	108.0	107.2	102.7
233	Propargite(BPPS)	93.5	89.8	91.7	92.0
234	Propazine	102.9	101.7	94.3	81.1
235	Propiconazole-1	113.1	110.1	111.3	107.8
236	Propiconazole-2	109.0	106.1	107.1	104.5
237	Propoxur	LC	LC	LC	LC
238	Propyzamide	100.3	97.8	97.2	81.9
239	Prothiophos	92.4	95.5	97.5	95.1
240	Pyraclofos	104.5	101.2	104.5	71.0

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		20%	15%	10%	0%
241	Pyraflufen-ethyl	103.5	100.5	100.4	97.6
242	Pyrazophos	108.5	100.5	103.4	70.7
243	Pyributicarb	101.0	99.7	100.8	97.9
244	Pyridaben	100.9	97.3	98.2	95.0
245	Pyridafenthion	121.7	115.1	120.3	112.0
246	Pyrifenoxy-1	97.5	95.2	97.1	96.5
247	Pyrifenoxy-2	100.4	97.4	99.6	97.7
248	Pyrimethanil	92.3	84.3	73.3	11.8
249	Pyrimidifen	94.7	89.3	85.7	44.0
250	Pyriminobac-methyl-1	105.2	102.1	101.4	88.5
251	Pyriminobac-methyl-2	102.2	100.3	101.7	95.7
252	Pyriproxyfen	99.6	98.5	100.1	96.0
253	Pyroquilon	LC	LC	LC	LC
254	Quinoclamine	N.D.	N.D.	N.D.	N.D.
255	Quinolophos	103.7	102.8	101.2	97.4
256	Quinomethionate	58.9	48.8	39.8	5.0
257	Quinoxifen	94.2	93.0	95.9	59.5
258	Quintozen	99.7	103.8	95.2	90.8
259	Resmethrin-1	93.8	93.2	96.7	95.2
260	Resmethrin-2	94.9	95.3	97.7	95.7
261	Silafluofen	75.6	73.4	84.3	78.2
262	Simazin	LC	LC	LC	LC
263	Simetryn	64.7	66.3	46.1	19.7
264	Spirodiclofen	92.1	94.5	94.4	93.9
265	Spiroxamine-1	98.9	95.4	97.5	90.9
266	Spiroxamine-2	96.5	93.9	96.7	88.4
267	TCMTB	104.9	98.1	101.2	80.2
268	Tebuconazole	105.7	104.4	106.0	98.6
269	Tebufenpyrad	100.8	98.0	96.6	92.6
270	Tecnazene	102.9	111.4	82.4	82.2

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		(20/15/65)	(15/15/70)	(10/15/75)	(0/15/85)
		20%	15%	10%	0%
271	Tefluthrine	97.5	97.7	98.1	92.5
272	Terbacil	93.6	93.1	90.7	86.0
273	Terbufos	112.7	113.3	106.0	100.9
274	Terbutryn	100.9	98.5	100.4	96.2
275	Tetrachlorvinphos	107.0	104.9	106.2	104.5
276	Tetraconazole	105.9	104.6	102.0	97.9
277	Tetradifon	97.9	98.5	100.4	96.2
278	Thenylchlor	112.2	108.8	110.6	107.6
279	Thiobencarb	100.7	99.5	100.9	95.4
280	Thiometon	126.4	125.9	116.2	111.3
281	Tolclofos-methyl	102.4	102.0	102.6	99.4
282	Tolfenpyrad	99.0	97.0	98.7	92.3
283	Toriadimefon	95.4	93.6	94.2	88.0
284	Triadimenol-1	109.5	105.0	117.0	104.2
285	Triadimenol-2	103.1	100.3	98.8	91.3
286	Triallate	102.0	103.7	100.2	92.3
287	Triazophos	116.5	112.8	115.9	110.6
288	Tricyclazole	N.D.	N.D.	N.D.	N.D.
289	Trifloxystrobin	109.9	107.0	108.1	105.2
290	Trifluralin	115.2	111.7	100.2	93.5
291	Trifluzamide	100.7	91.9	92.6	73.9
292	Uniconazole	107.5	104.2	107.0	97.2
293	Vinclozoline	108.9	106.7	105.5	100.7
294	XMC	63.1	67.8	37.4	17.0
295	Zoxamide	110.3	104.1	113.5	109.4

試料：ほうれん草

添加濃度：試料中0.05ppm（分取後に添加）

GCS+PSAミニカラムと溶出溶媒による回収率分布

表1 ほうれん草を用いたGCS+PSAミニカラムと溶出溶媒トルエン-アセトン-ヘキサンによる回収率分布

回収率 %以上 - %未満	溶出溶媒トルエン-アセトン-ヘキサン比率 下(トルエン含有率%)			
	(20/15/65)	(15/15/70)	(10/15/75)	(0/15/85)
30 - 50	7	11	9	13
50 - 70	5	13	7	10
70 - 120	224	216	249	231
120 -	38	28	3	1

(単位: 成分)