

Fina Exploration Norway Inc.



May 1994

BA-94-1333-1

30 JUNI 1994

REGISTRERT

OLJEDIREKTORATET

GEOCHEMICAL CHARACTERISATION

OF CRUDE OIL FROM

WELL 7/8-3 (DST No. 1)

Fina Exploration Norway Inc.



The geochemical characterisation of the crude oil sample was performed by :

- 1) Geomark Research Inc., Houston, USA and
- 2) The Geochem Group Ltd., Chester, England.

The sample identification was :

Well	DST No.	Sample Identification		
		Fina	Geochem	Geomark
7/8-3	1	HA 565	8237-015	GNS 020

**GEOCHEMICAL CHARACTERIZATION OF
CRUDE OILS FROM THE NORTH SEA
FINAL REPORT**

**PREPARED FOR
FINA EXPLORATION & PRODUCTION COMPANY
BRUSSELS, BELGIUM**

**PREPARED BY
GEOMARK RESEARCH, INC
HOUSTON, TEXAS**

12 July 1993

APPENDIX A

Geochemical Summary Sheets



Oil Information Library System

9748 Whithorn Drive Houston, Texas 77095 Tel: (713) 856-9333 Fax: (713) 856-2987

GEOCHEMICAL SUMMARY SHEET

Country: Norway
Basin: North Sea
Field:
Well:

Depth:
Age:
Formation:

12-Jul-93
Sample ID: HA565
LAT:
LONG:

BULK PROPERTIES:

API Gravity:
% S:
ppm V:
ppm Ni:
% < C15: 28.6

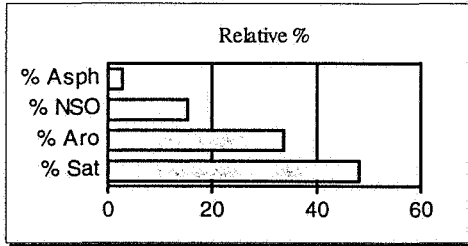
Stable Carbon Isotope Composition
delta per mil PDB

C15+ Saturate:
C15+ Aromatic:
Whole Crude:

Deuterium Composition
(S.M.O.W.) Whole Crude:

C15 + Composition

% Sat: 48.2
% Aro: 33.6
% NSO: 15.4
% Asph: 2.8
Sat/Aro= 1.43
n-Paraffin/Naphthene= 0.37



GAS CHROMATOGRAPHY:

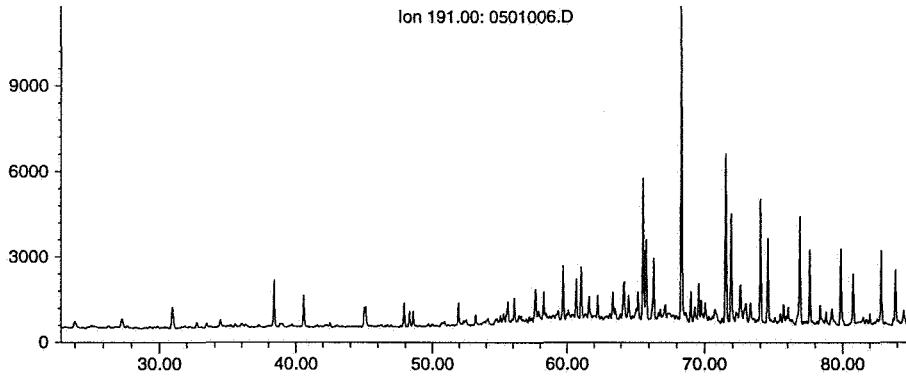
n-Paraffin Distribution

Pr/Ph: Pr/n-C17:
CPI: Ph/n-C18:
n-C27/n-C17:

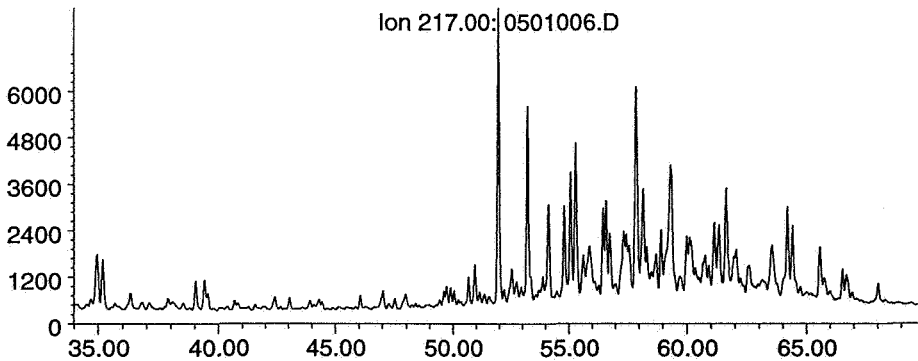
BIOMARKERS:

ppm C30 Hopane: 167

Terpanes



Steranes



Key Ratios

- C19/C23= 0.15
C22/C24= 0.23
C26/C25= 0.80
Tet/C23= 0.51
Ts/Tm= 1.05
C29D/H= 0.56
C27T/C27= 0.09
DM/H= 0.01
C28/H= 0.12
C30X/H= 0.20
C29/H= 0.71
OL/H= 0.01
GA/H= 0.03
C31S/H= 0.54
C35/C34= 0.96
Rear/Reg= 5.02
Ster/Hop= 1.17
C29 20S/R= 0.99
% C27= 32.8
% C28= 34.6
% C29= 32.6
(m/z = 218)

COMMENTS:

Sterane and Terpane Peak Identifications

Peak	Formula	MW	Sterane ID*
S1	C27H48	372	13 β , 17 α diacholestane (20S)
S2	C27H48	372	13 β , 17 α diacholestane (20R)
S3	C27H48	372	5 α cholestane (20S) + 5 β cholestane (20R)
S4	C27H48	372	5 α , 14 β , 17 β cholestane (20R) +
	C29H52	400	13 β , 17 α diastigmastane (20S)
S5 + S5B**	C27H48	372	5 α , 14 β , 17 β cholestane (20S)
S6	C27H48	372	5 α cholestane (20R)
S7	C29H52	400	diastigmastane
S8	C28H50	386	5 α ergostane (20S)
S9	C28H50	386	5 α , 14 β , 17 β ergostane (20R) + 5 β ergostane (20R)
S10 + S10B	C28H50	386	5 α , 14 β , 17 β ergostane (20S)
S11	C28H50	386	5 α ergostane (20R)
S12	C29H52	400	5 α stigmastane (20S)
S13	C29H52	400	5 α , 14 β , 17 β stigmastane (20R)
S14 + S14B	C29H52	400	5 α , 14 β , 17 β stigmastane (20S) + 5 β stigmastane (20R)
S15	C29H52	400	5 α stigmastane (20R)

*assumes 8 β ,9 α ,14 α ,17 α unless otherwise stated. dia=rearranged

**based on the 217 and 218 m/z mass chromatograms, respectively

Peak	Formula	MW	Terpane ID
C19	C19H34	262	tricyclic diterpane
C20	C20H36	276	tricyclic diterpane
C21	C21H38	290	tricyclic diterpane
C22	C22H40	304	tricyclic terpane
C23	C23H42	318	tricyclic terpane
C24	C24H44	332	tricyclic terpane
C25	C25H46	346	tricyclic terpane
TET	C24H42	330	teteracyclic terpane
C26	C26H48	360	tricyclic terpane
C28	C28H52	388	extended tricyclic terpane
C29	C29H54	402	extended tricyclic terpane
C30	C30H56	416	extended tricyclic terpane
Ts	C27H46	370	18 α , 21 β -22,29,30-trisnorhopane
C27T	C27H46	370	17 α ,18 α ,21 β -25,28,30-trisnorhopane
Tm	C27H46	370	17 α , 21 β -22,29,30-trisnorhopane
C28H	C28H48	384	17 α , 18 α , 21 β -28,30-bisnorhopane
C29H	C29H50	398	17 α , 21 β -30-norhopane
C29D	C29H50	398	18 α , 17 α methyl-28,30-dinorhopane
C30X	C30H52	412	17 α , 15 α -methyl-27-norhopane (diahopane)
C29M	C29H50	398	17 β , 21 α -30-normortane
OL	C30H52	412	oleanane
C30H	C30H52	412	17 α , 21 β hopane
C30M	C30H52	412	17 β , 21 α moretane
C31H	C31H54	426	17 α , 21 β -30-homohopane (22S + 22R)
GA	C30H52	412	gammacerane
C32H	C32H56	440	17 α , 21 β -bishomohopane (22S + 22R)
C33H	C33H58	454	17 α , 21 β -trishomohopane (22S + 22R)
C34H	C34H60	468	17 α , 21 β extended hopane (22S + 22R)
C35H	C35H62	482	17 α , 21 β extended hopane (22S + 22R)

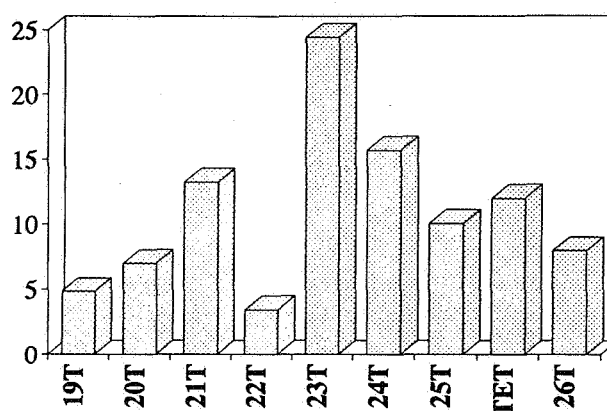
APPENDIX B

SATURATE BIOMARKER MASS FRAGMENTOGRAMS

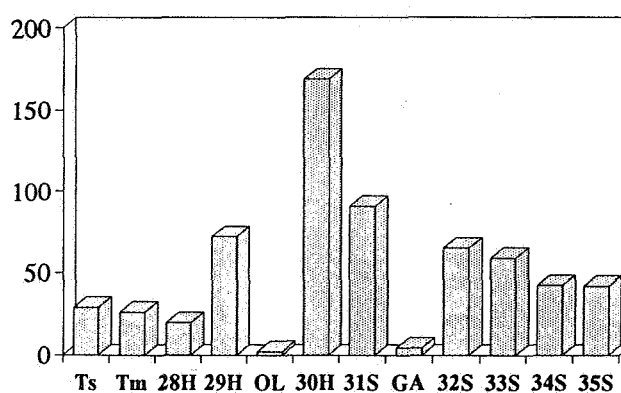
Biomarker Quantitation Report

Data File: 6501014.D
 Date File Acquired: 23 Jul 93 9:45 pm
 Acquisition Method: GMJULY22.M
 Sample Name: HA565
 Miscellaneous Info: 2.92 mg branched/cyclic hydrocarbon fraction

Peak#	m/z	Cpd.	RTmin.	Amount (ppm)	area	height
<i>Tricyclic Terpanes</i>						
1	191	C19T	44.90	4	5	
2	191	C20T	48.83	8	7	
3	191	C21T	52.95	12	13	
4	191	C22T	56.73	5	3	
5	191	C23T	61.02	25	24	
6	191	C24T	63.30	15	16	
7	191	C25R	67.87	10	10	
8	191	C25S	67.99	9	10	
9	191	TET	70.79	11	12	
10	191	C26S	71.22	6	8	
11	191	C26R	71.49	6	8	
TRICYCLICS				110	117	



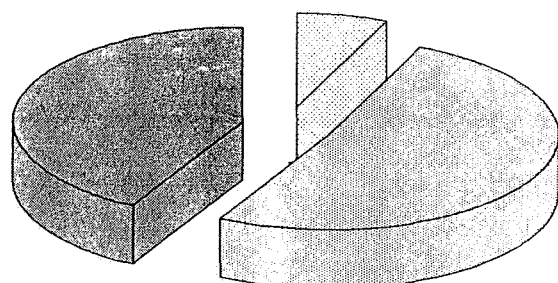
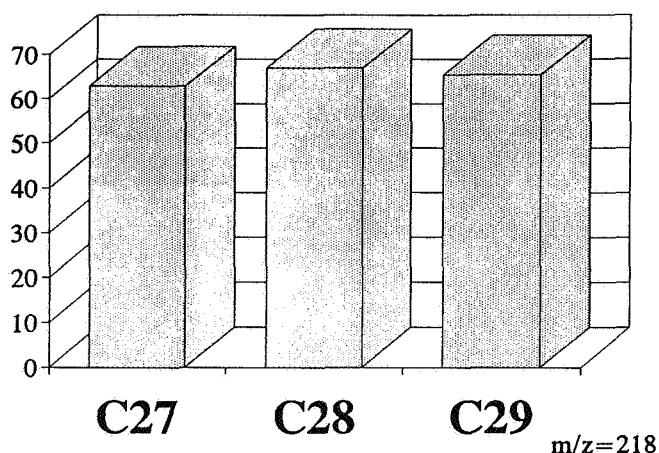
Peak#	m/z	Cpd.	RTmin.	Amount (ppm)	area	height
<i>Pentacyclic Terpanes</i>						
21	191	Ts	82.72	27	29	
22	177	C27T	83.15	4	5	
24	191	Tm	84.06	25	26	
29	177	C28DM	85.02	10	2	
34	191	C28H	87.23	25	20	
37	177	C29DM	87.86	0	0	
40	191	C29H	88.64	78	72	
41	191	C29D	88.85	43	44	
42	191	C30X	89.40	36	33	
43	191	OL	90.99	3	2	
44	191	C30H	91.38	173	169	
45	191	C30M	92.61	18	19	
46	191	C31S	94.55	99	91	
47	191	C31R	94.94	64	62	
48	191	GA	95.29	5	4	
49	191	C32S	97.04	73	65	
50	191	C32R	97.59	47	45	
51	191	C33S	99.93	73	59	
52	191	C33R	100.66	38	40	
53	191	C34S	102.90	48	42	
54	191	C34R	103.80	32	29	
55	191	C35S	105.84	43	42	
56	191	C35R	106.91	30	29	
PENTACYCLICS				994	931	



Biomarker Quantitation Report (cont.)

HA565

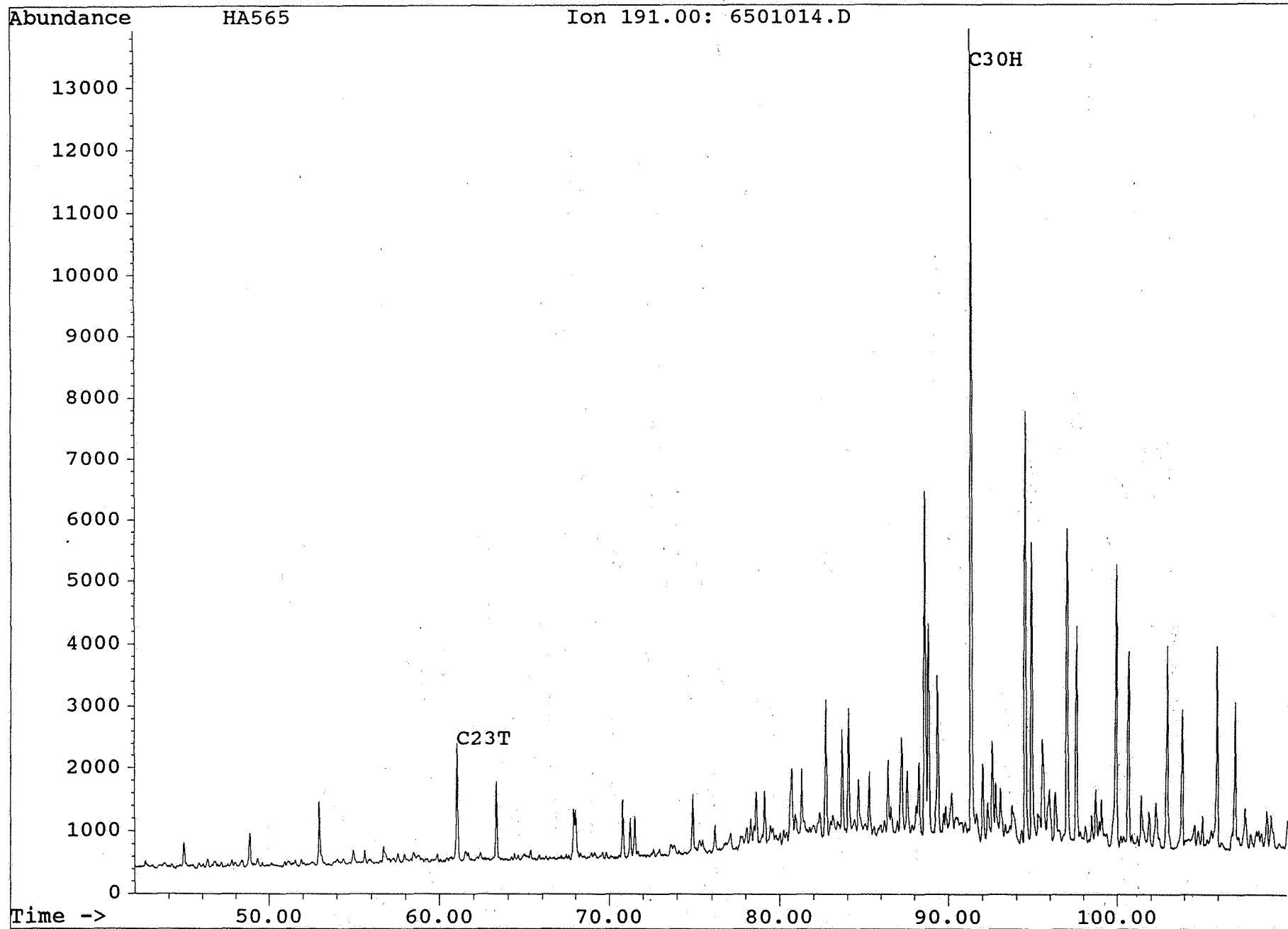
Peak#	m/z	Cpd.	RTmin.	Amount (ppm)	
		<i>Steranes</i>		area	height
12	217	S1	74.93	156	151
13	217	S2	76.20	110	100
14	217	S3	80.34	46	32
15	217	S4	80.89	139	99
16	218	S4B	80.87	104	89
17	217	S5	81.20	56	45
18	218	S5B	81.20	70	63
19	217	S6	81.94	31	30
20	217	S7	82.35	147	66
23	217	S8	83.93	8	10
25	217	S9	84.35	37	31
26	218	S9B	84.35	60	55
27	217	S10	84.67	55	48
28	218	S10B	84.65	76	67
30	217	S11	85.60	23	15
31	217	S12	86.57	57	27
32	217	S13	87.22	63	46
33	218	S13B	87.22	63	64
35	217	S14	87.43	43	38
36	218	S14B	87.43	75	66
38	221	ISTD	88.50	34	34
39	217	S15	88.60	31	28
STERANES				1004	764

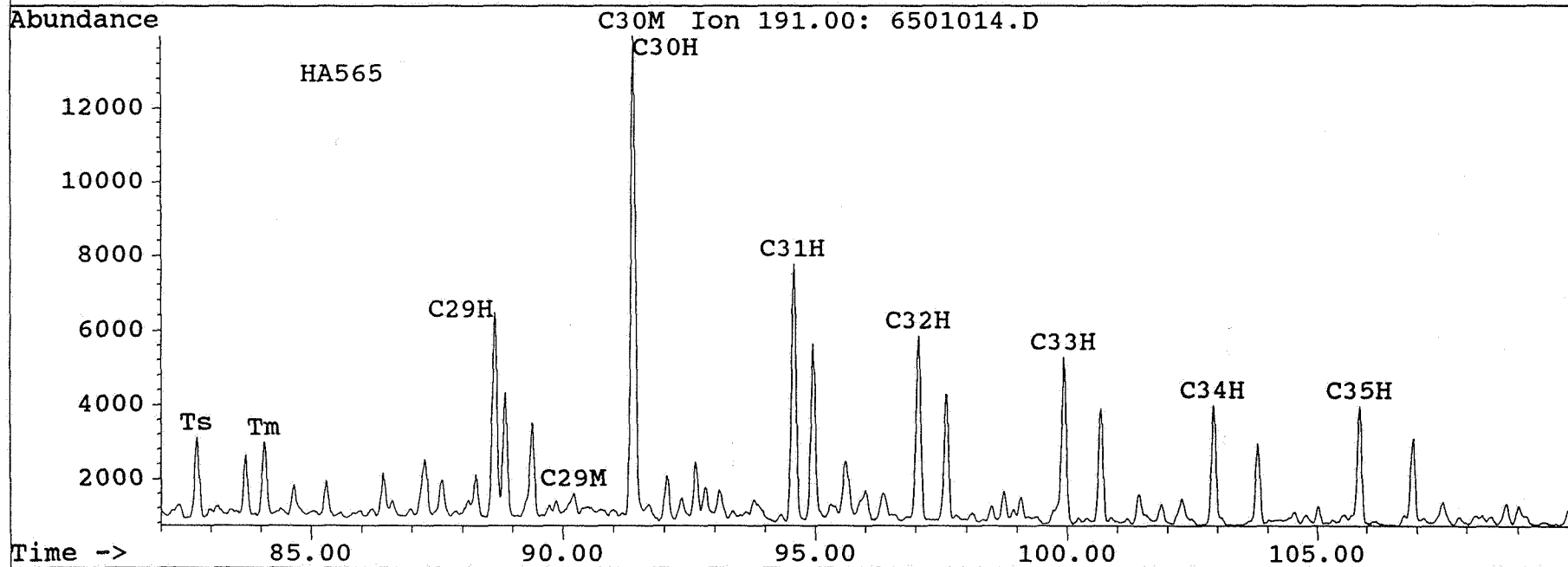
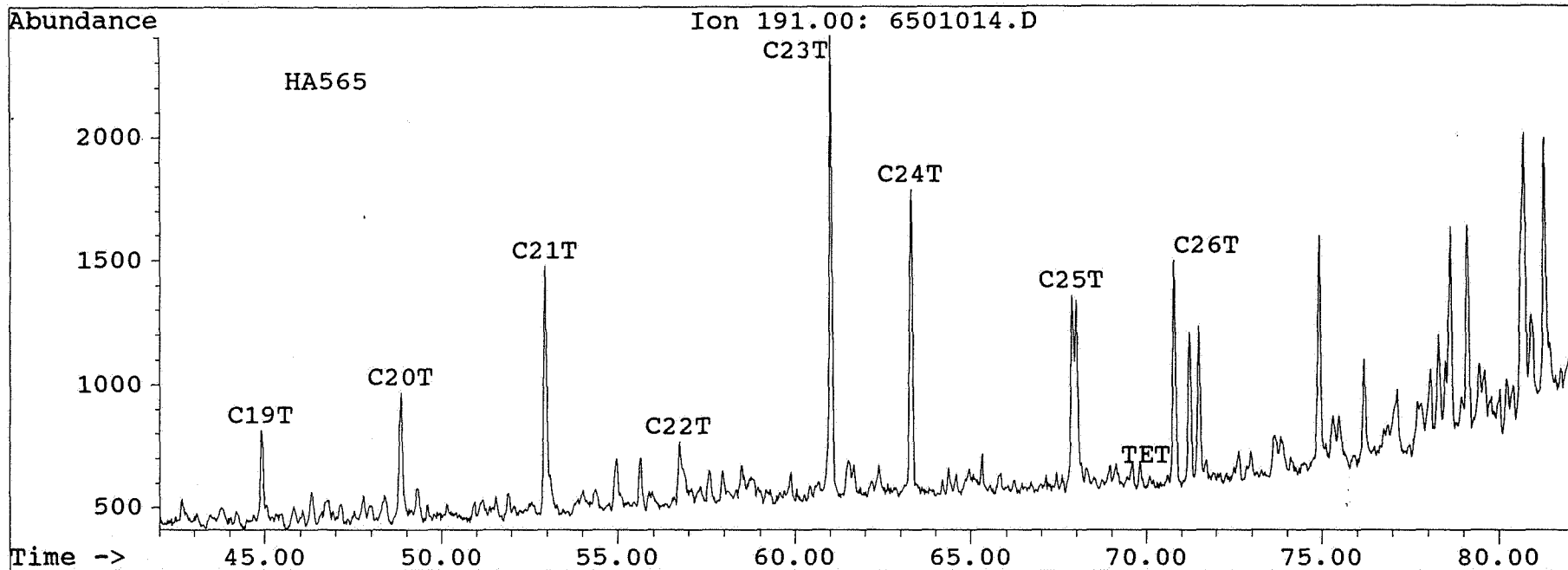


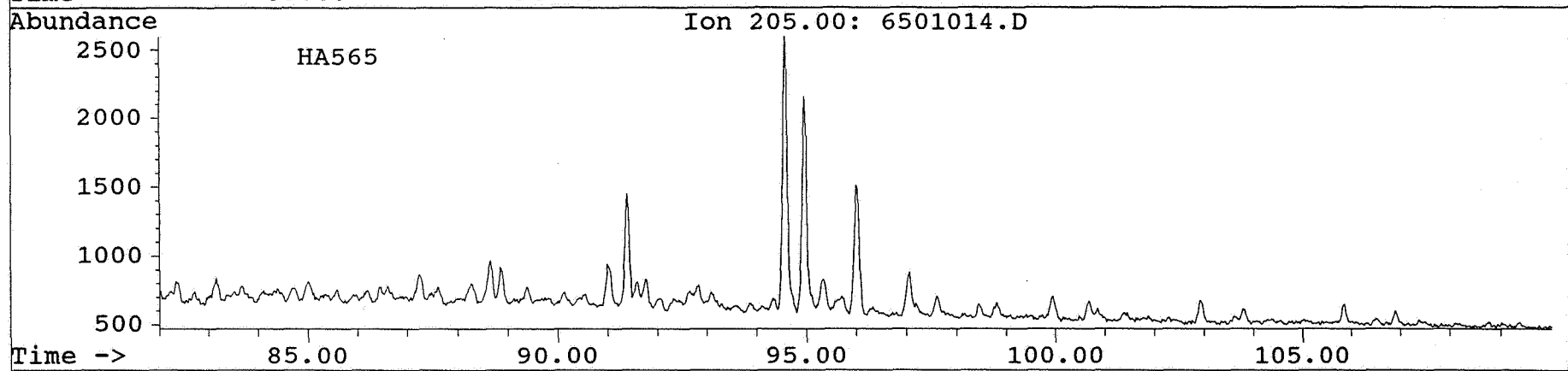
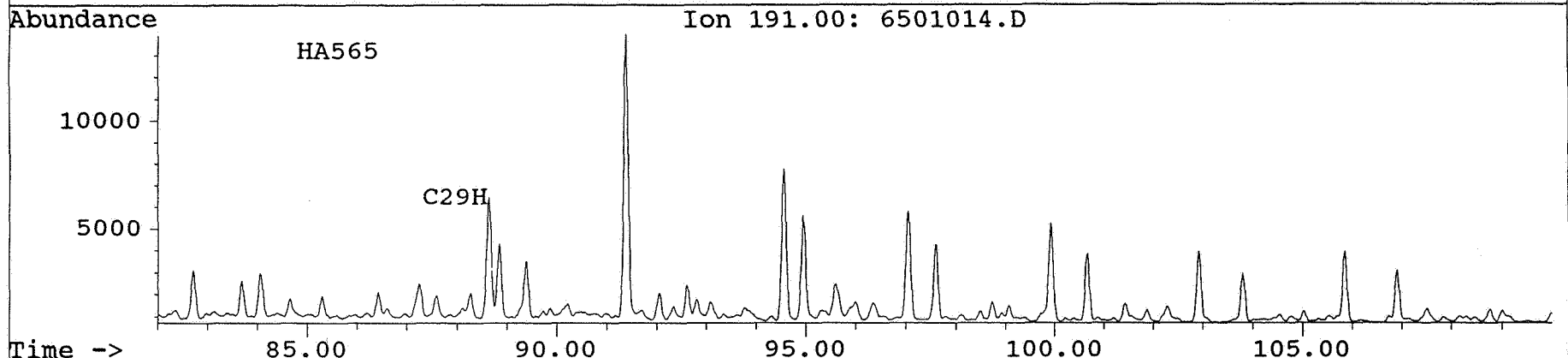
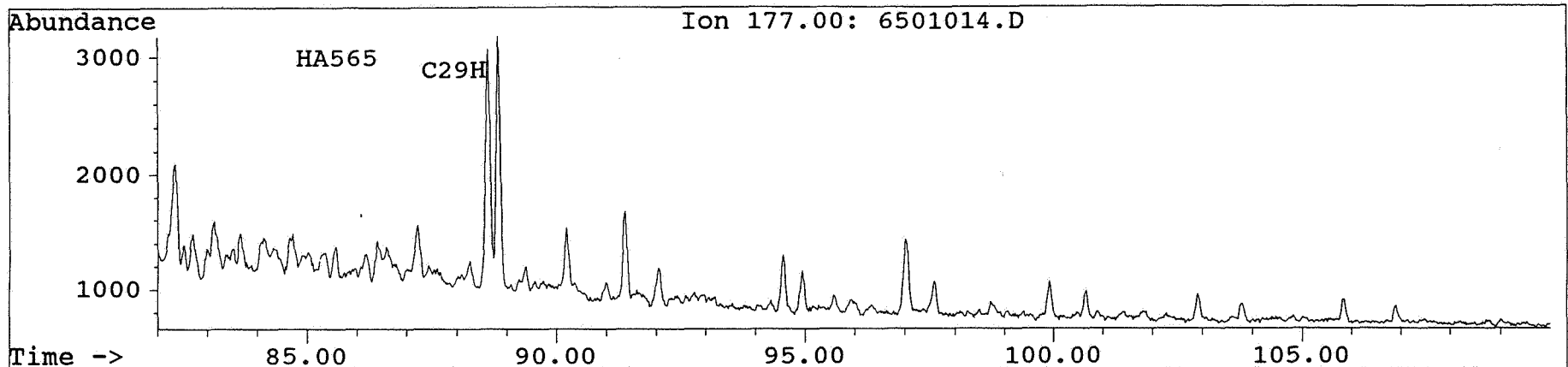
□ TRICYCLICS □ PENTACYCLICS □ STERANES

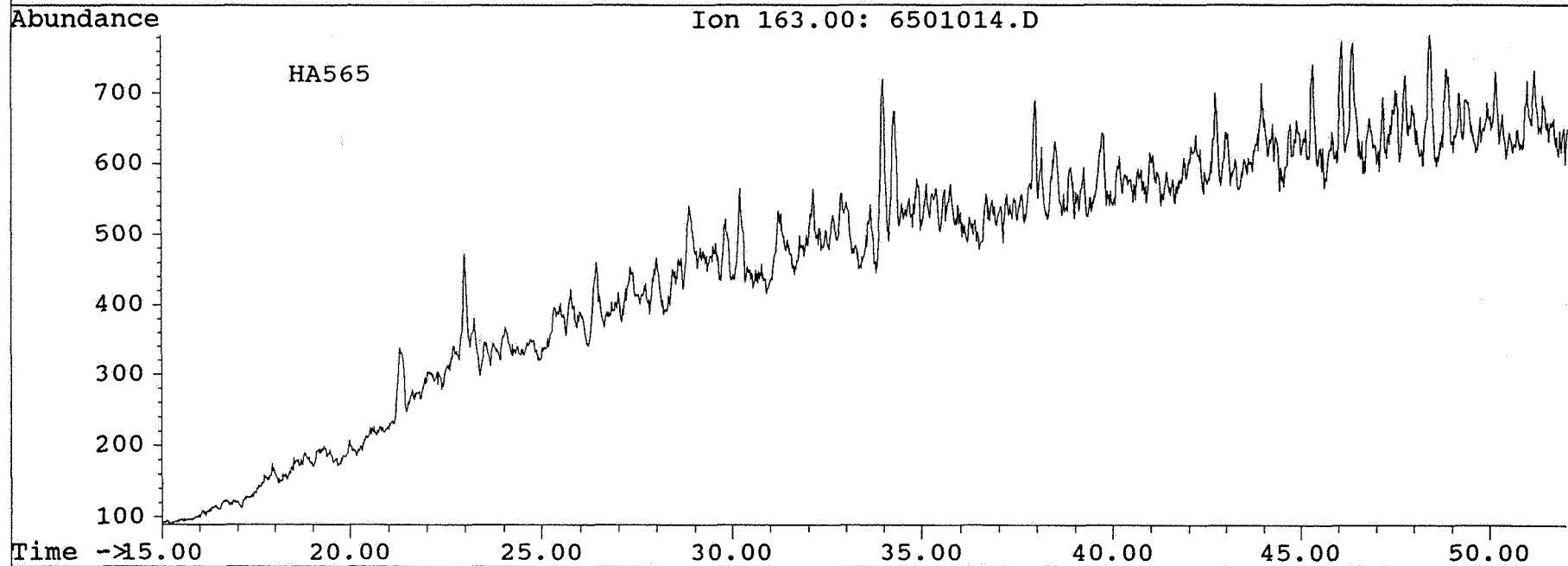
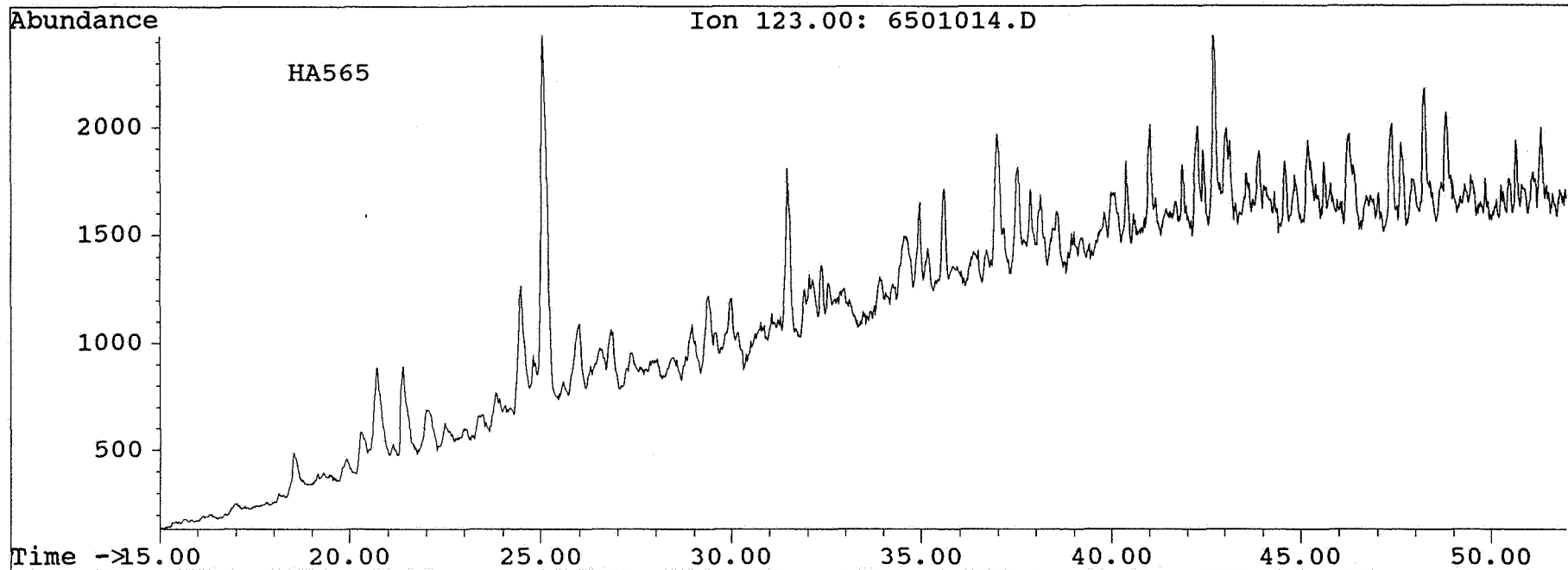
Key Ratios

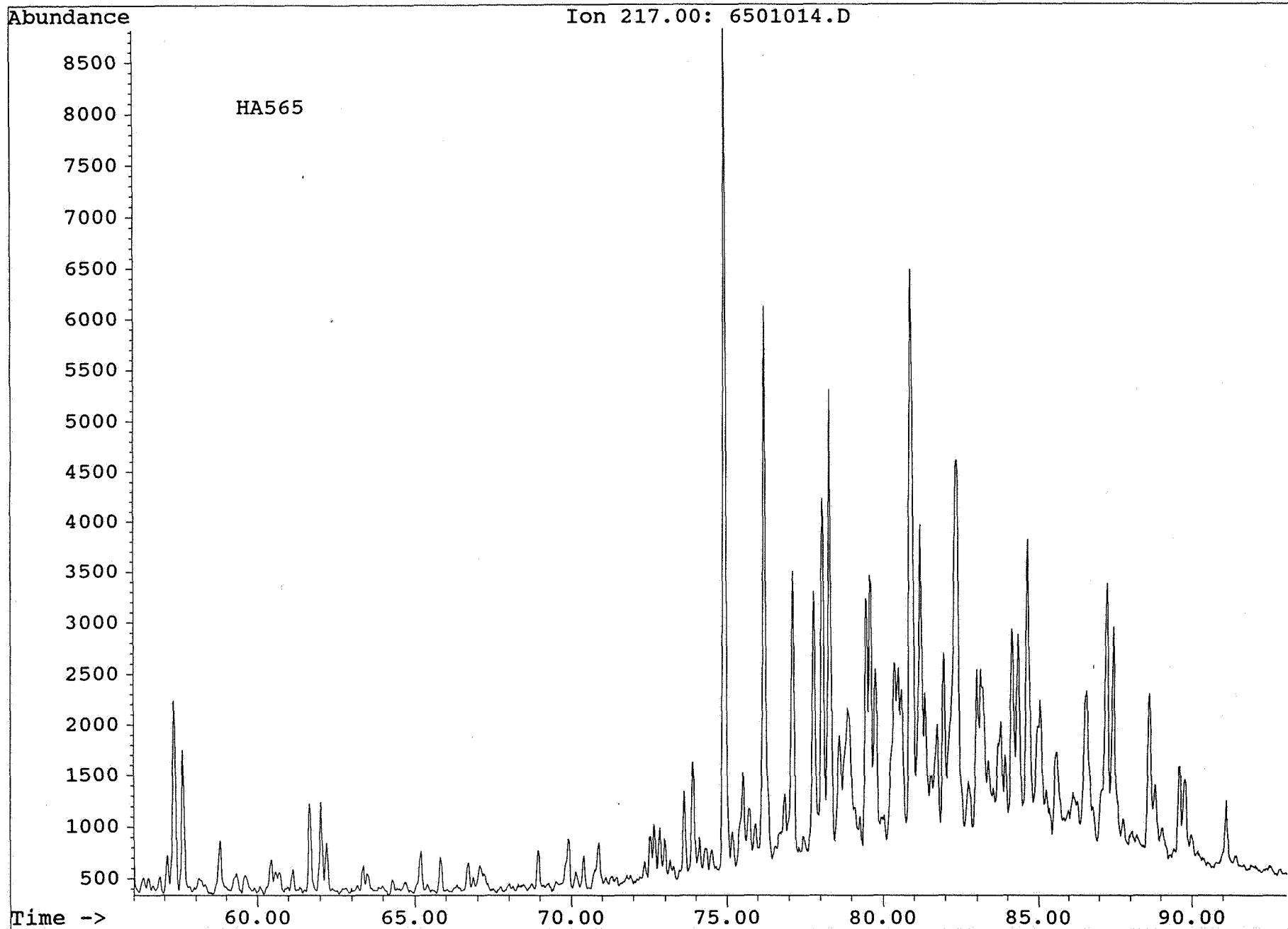
	area	ht.		area	ht.
C19/C23	0.16	0.20	Ts/Tm	1.08	1.11
C21/C23	0.50	0.54	29D/29	0.56	0.61
C22/C23	0.22	0.14	C27T/27	0.07	0.10
C24/C23	0.61	0.64	DM/H	0.00	0.00
C26/C25	0.69	0.80	C27/H	0.30	0.33
Tet/C23	0.44	0.49	C28/H	0.14	0.12
			X/H	0.21	0.20
S1/S6	5.04	4.96	C29/H	0.70	0.69
%C27	31	32	M/H	0.11	0.11
%C28	35	34	OL/H	0.02	0.01
%C29	34	34	GA/H	0.03	0.03
20S/20R	1.85	0.96	C31/H	0.57	0.54
S/T	1.01	0.82	C35/C34	0.88	0.99
			C23/H	0.14	0.14

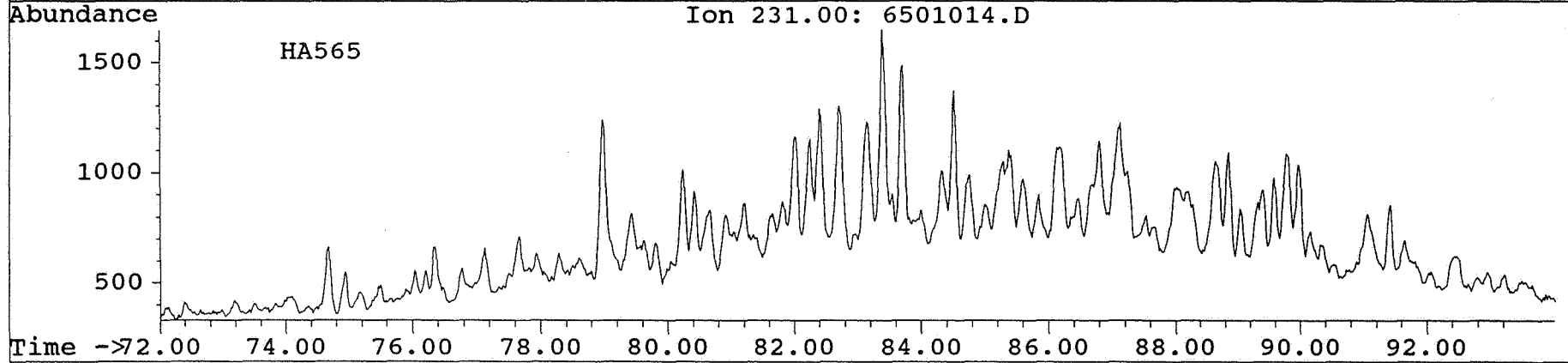
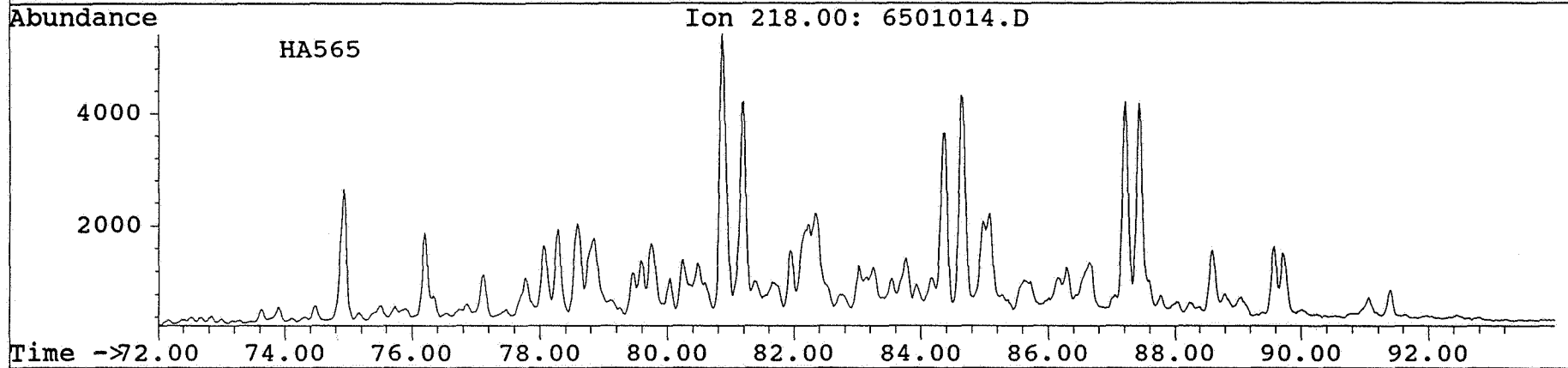
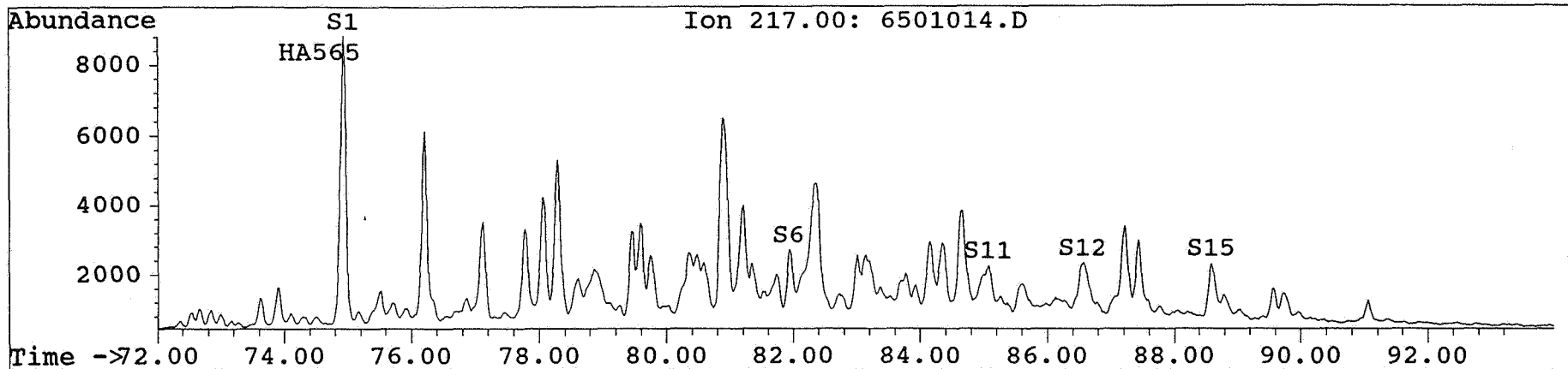










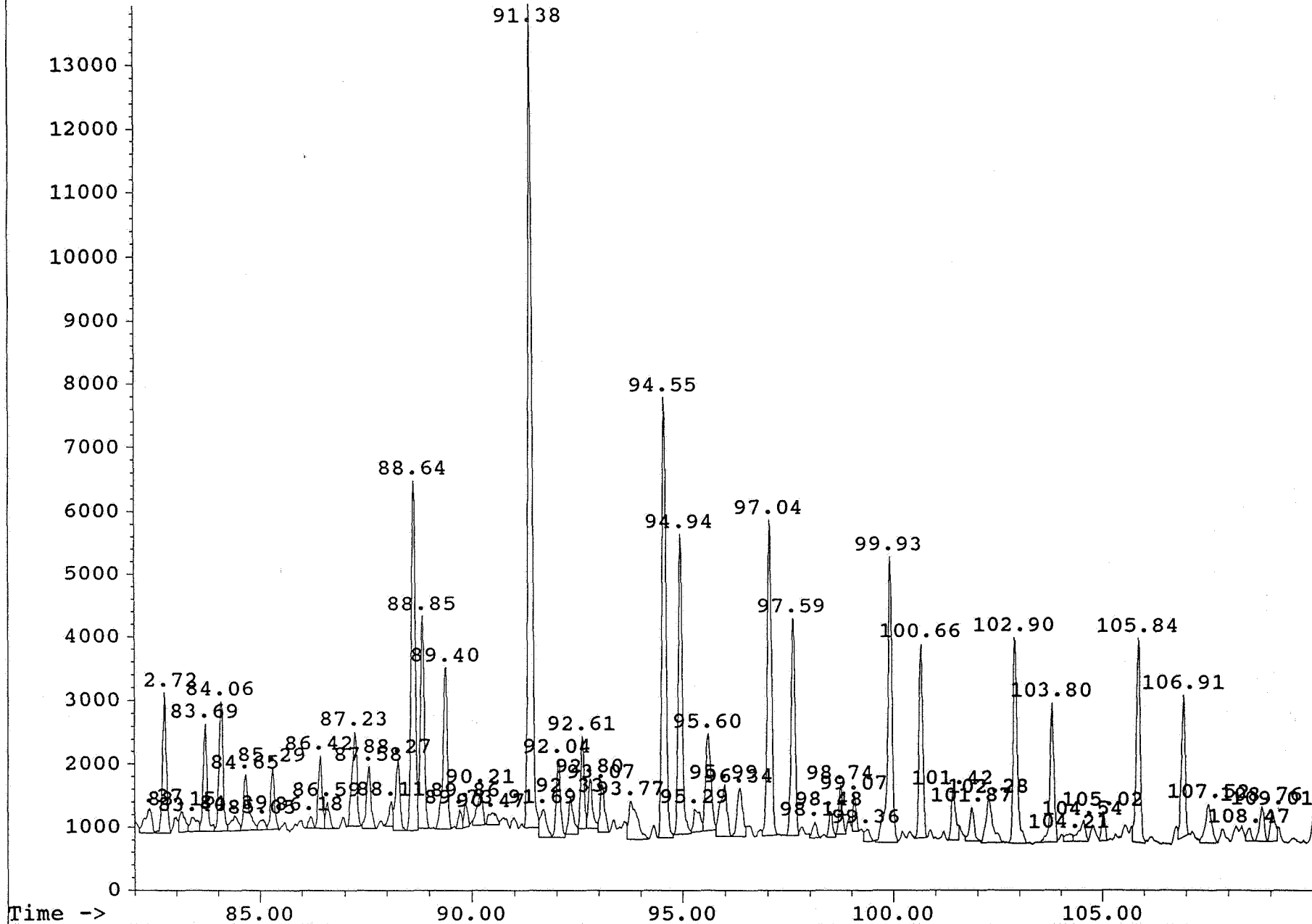


Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	82.368	RTE!	0.389	3491	82.116	82.505
2	82.719	RTE!	0.350	14223	82.505	82.855
3	83.147	RTE!	0.234	3114	83.050	83.283
4	83.400	RTE!	0.273	2808	83.283	83.556
5	83.692	RTE!	0.350	11170	83.556	83.906
6	84.062	RTE!	0.311	12914	83.906	84.218
7	84.393	RTE!	0.311	2885	84.218	84.529
8	84.646	RTE!	0.389	6325	84.529	84.918
9	85.054	RTE!	0.234	1685	84.918	85.152
10	85.288	RTE!	0.311	5009	85.152	85.463
11	86.183	RTE!	0.234	1251	86.047	86.281
12	86.417	RTE!	0.234	7093	86.281	86.514
13	86.592	RTE!	0.311	2787	86.514	86.826
14	87.234	RTE!	0.311	12274	87.059	87.371
15	87.585	RTE!	0.350	6224	87.410	87.760
16	88.110	RTE!	0.195	2521	87.955	88.149
17	88.266	RTE!	0.311	7817	88.149	88.461
18	88.636	RTE!	0.273	37081	88.461	88.733
19	88.850	RTE!	0.311	20022	88.733	89.045
20	89.395	RTE!	0.389	18108	89.123	89.512
21	89.726	RTE!	0.156	1728	89.629	89.784
22	89.862	RTE!	0.156	2197	89.784	89.940
23	90.213	RTE!	0.311	3759	90.018	90.329
24	90.465	RTE!	0.311	2532	90.329	90.641
25	91.380	RTE!	0.350	81900	91.225	91.575
26	91.692	RTE!	0.311	4505	91.575	91.886
27	92.042	RTE!	0.311	7472	91.886	92.198
28	92.334	RTE!	0.311	3623	92.198	92.509
29	92.607	RTE!	0.195	8668	92.509	92.704
30	92.801	RTE!	0.273	4294	92.704	92.976
31	93.074	RTE!	0.273	5886	92.976	93.249
32	93.774	RTE!	0.506	7409	93.677	94.183
33	94.553	RTE!	0.350	45786	94.417	94.767
34	94.942	RTE!	0.428	29761	94.767	95.195
35	95.293	RTE!	0.272	2673	95.195	95.468
36	95.604	RTE!	0.311	12453	95.468	95.779
37	95.993	RTE!	0.389	8423	95.779	96.169
38	96.344	RTE!	0.311	7047	96.169	96.480
39	97.044	RTE!	0.350	33844	96.869	97.220
40	97.589	RTE!	0.311	22497	97.414	97.726
41	98.115	RTE!	0.234	1694	97.998	98.232
42	98.485	RTE!	0.234	1633	98.387	98.621

44	0.009	RTE!	0.156	2938	0.010	99.166
45	99.361	RTE!	0.234	1661	99.283	99.516
46	99.925	RTE!	0.545	33909	99.555	100.100
47	100.665	RTE!	0.311	17945	100.490	100.801
48	101.424	RTE!	0.273	4618	101.268	101.541
49	101.871	RTE!	0.389	3018	101.696	102.086
50	102.280	RTE!	0.506	7896	102.086	102.592
51	102.903	RTE!	0.428	22373	102.747	103.176
52	103.798	RTE!	0.428	15008	103.487	103.915
53	104.207	RTE!	0.234	1456	104.071	104.305
54	104.538	RTE!	0.350	2472	104.305	104.655
55	105.025	RTE!	0.195	2639	104.927	105.122
56	105.842	RTE!	0.311	20154	105.706	106.017
57	106.913	RTE!	0.234	14003	106.796	107.030
58	107.516	RTE!	0.428	5405	107.302	107.730
59	108.470	RTE!	0.195	1307	108.392	108.587
60	108.762	RTE!	0.311	3168	108.587	108.898
61	109.015	RTE!	0.234	2868	108.898	109.132

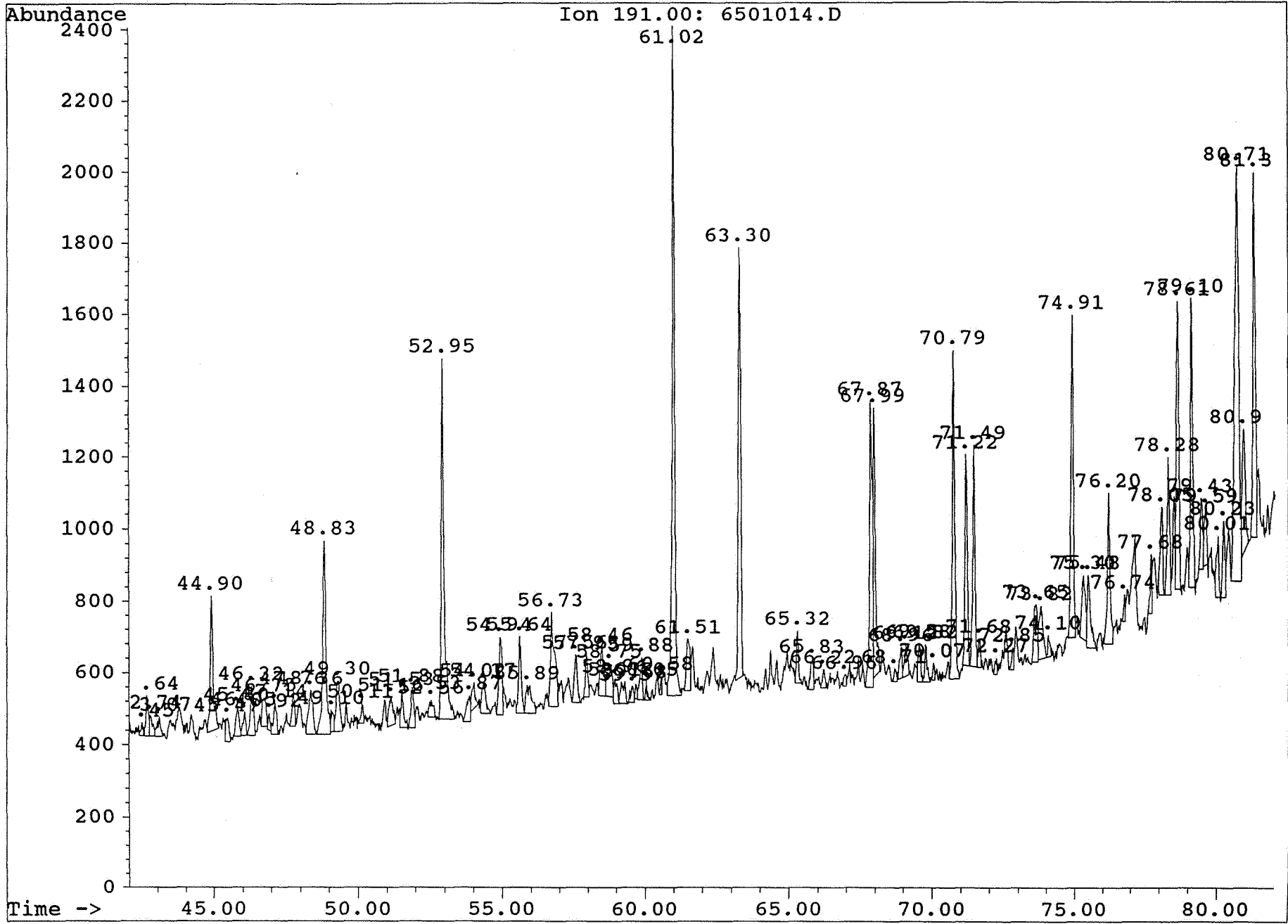
Abundance

Ion 191.00: 6501014.D



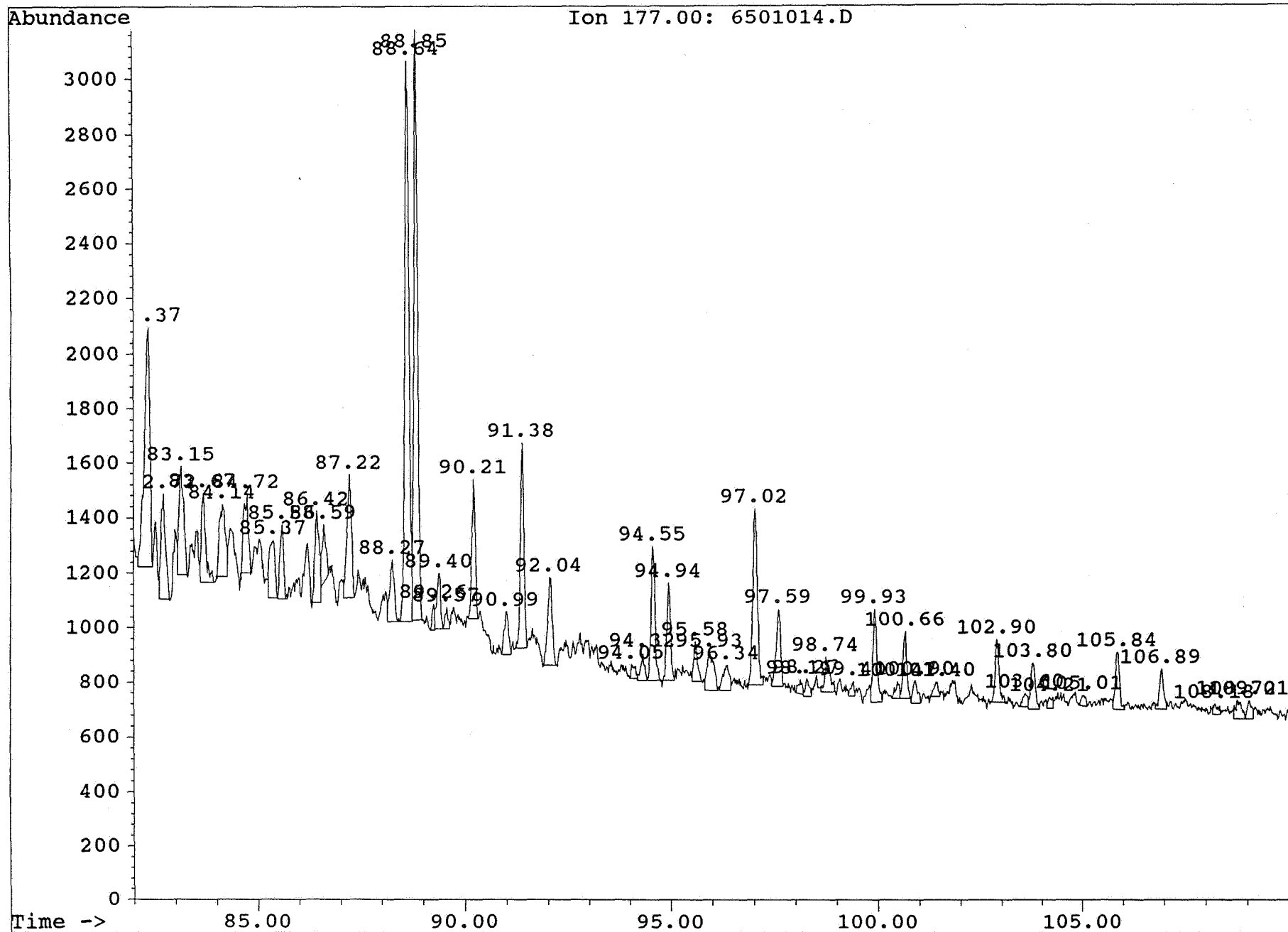
Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	42.450	RTE!	0.156	185.00	42.353	42.509
2	42.645	RTE!	0.156	666.00	42.548	42.703
3	42.742	RTE!	0.194	458.00	42.703	42.898
4	43.073	RTE!	0.272	434.00	42.898	43.170
5	44.901	RTE!	0.389	2231	44.765	45.154
6	45.465	RTE!	0.194	492.00	45.387	45.582
7	45.796	RTE!	0.233	623.00	45.698	45.932
8	46.049	RTE!	0.233	422.00	45.932	46.165
9	46.321	RTE!	0.272	1051	46.165	46.438
10	46.749	RTE!	0.233	749.00	46.632	46.865
11	46.924	RTE!	0.117	206.00	46.865	46.982
12	47.138	RTE!	0.311	179.00	46.982	47.293
13	47.760	RTE!	0.194	595.00	47.643	47.838
14	48.363	RTE!	0.350	1285	48.188	48.538
15	48.830	RTE!	0.506	4483	48.538	49.044
16	49.102	RTE!	0.117	331.00	49.044	49.160
17	49.296	RTE!	0.311	1271	49.160	49.472
18	50.113	RTE!	0.194	310.00	50.016	50.211
19	51.164	RTE!	0.272	241.00	51.028	51.300
20	51.533	RTE!	0.272	676.00	51.455	51.728
21	51.883	RTE!	0.272	295.00	51.728	52.000
22	52.564	RTE!	0.350	434.00	52.428	52.778
23	52.953	RTE!	0.583	7244	52.778	53.361
24	53.867	RTE!	0.272	666.00	53.634	53.906
25	54.023	RTE!	0.233	541.00	53.906	54.139
26	54.373	RTE!	0.311	752.00	54.256	54.567
27	54.937	RTE!	0.233	1608	54.801	55.034
28	55.637	RTE!	0.272	863.00	55.501	55.773
29	55.890	RTE!	0.389	1049	55.773	56.162
30	56.726	RTE!	0.311	2683	56.629	56.940
31	57.562	RTE!	0.311	424.00	57.446	57.757
32	57.951	RTE!	0.194	731.00	57.835	58.029
33	58.457	RTE!	0.233	1170	58.379	58.613
34	58.749	RTE!	0.272	1110	58.613	58.885
35	58.963	RTE!	0.195	525.00	58.885	59.079
36	59.177	RTE!	0.311	605.00	59.079	59.391
37	59.566	RTE!	0.233	319.00	59.391	59.624
38	59.682	RTE!	0.117	177.00	59.624	59.741
39	59.877	RTE!	0.233	189.00	59.741	59.974
40	60.052	RTE!	0.195	206.00	59.974	60.169
41	60.577	RTE!	0.078	182.00	60.519	60.596
42	61.024	RTE!	0.506	11403	60.791	61.297

44	€ 300	RTE!	0.272	6136	.164	63.436
45	65.323	RTE!	0.233	742.00	65.225	65.459
46	65.828	RTE!	0.233	642.00	65.653	65.887
47	66.217	RTE!	0.194	315.00	66.120	66.315
48	66.956	RTE!	0.117	203.00	66.898	67.015
49	67.871	RTE!	0.272	4456	67.676	67.948
50	67.987	RTE!	0.233	4032	67.948	68.182
51	68.707	RTE!	0.156	214.00	68.648	68.804
52	68.960	RTE!	0.156	520.00	68.843	68.999
53	69.115	RTE!	0.233	632.00	68.999	69.232
54	69.582	RTE!	0.195	660.00	69.504	69.699
55	69.815	RTE!	0.272	665.00	69.699	69.971
56	70.068	RTE!	0.117	206.00	70.010	70.127
57	70.788	RTE!	0.350	5884	70.632	70.982
58	71.216	RTE!	0.233	3192	71.099	71.332
59	71.488	RTE!	0.272	2841	71.332	71.605
60	71.683	RTE!	0.156	425.00	71.605	71.761
61	72.267	RTE!	0.117	219.00	72.189	72.306
62	72.851	RTE!	0.156	355.00	72.734	72.889
63	73.649	RTE!	0.234	1581	73.512	73.746
64	73.824	RTE!	0.273	1367	73.746	74.018
65	74.096	RTE!	0.156	296.00	74.018	74.174
66	74.914	RTE!	0.272	5191	74.758	75.031
67	75.303	RTE!	0.234	603.00	75.186	75.420
68	75.478	RTE!	0.350	796.00	75.420	75.770
69	76.198	RTE!	0.311	2873	76.043	76.354
70	76.743	RTE!	0.117	349.00	76.666	76.782
71	77.678	RTE!	0.117	784.00	77.600	77.717
72	78.047	RTE!	0.234	444.00	77.950	78.184
73	78.281	RTE!	0.195	2310	78.184	78.378
74	78.612	RTE!	0.195	4533	78.534	78.729
75	79.098	RTE!	0.234	3873	79.001	79.235
76	79.429	RTE!	0.156	1141	79.352	79.507
77	79.585	RTE!	0.156	851.00	79.507	79.663
78	80.013	RTE!	0.156	878.00	79.936	80.091
79	80.227	RTE!	0.195	1374	80.091	80.286
80	80.714	RTE!	0.350	10487	80.481	80.831
81	80.928	RTE!	0.273	2519	80.831	81.103
82	81.298	RTE!	0.234	6231	81.142	81.376



Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	82.368	RTE!	0.350	7916	82.116	82.466
2	82.719	RTE!	0.234	2805	82.622	82.855
3	83.147	RTE!	0.273	1743	83.050	83.322
4	83.673	RTE!	0.350	957.00	83.595	83.945
5	84.140	RTE!	0.273	1197	83.984	84.257
6	84.724	RTE!	0.272	834.00	84.568	84.840
7	85.366	RTE!	0.234	641.00	85.230	85.463
8	85.580	RTE!	0.234	362.00	85.463	85.697
9	86.417	RTE!	0.234	2469	86.281	86.514
10	86.592	RTE!	0.195	1388	86.514	86.709
11	87.215	RTE!	0.273	3399	87.059	87.332
12	88.266	RTE!	0.311	429.00	88.149	88.461
13	88.636	RTE!	0.273	14284	88.461	88.733
14	88.850	RTE!	0.272	11945	88.733	89.006
15	89.259	RTE!	0.117	405.00	89.161	89.278
16	89.395	RTE!	0.195	1255	89.278	89.473
17	89.570	RTE!	0.156	387.00	89.473	89.629
18	90.213	RTE!	0.234	1579	90.096	90.329
19	90.991	RTE!	0.234	1126	90.874	91.108
20	91.380	RTE!	0.272	4501	91.225	91.497
21	92.042	RTE!	0.311	2435	91.886	92.198
22	94.047	RTE!	0.195	362.00	93.989	94.183
23	94.319	RTE!	0.234	617.00	94.183	94.417
24	94.553	RTE!	0.389	3174	94.417	94.806
25	94.942	RTE!	0.273	2234	94.806	95.079
26	95.585	RTE!	0.234	899.00	95.507	95.740
27	95.935	RTE!	0.350	692.00	95.818	96.169
28	96.344	RTE!	0.273	971.00	96.169	96.441
29	97.025	RTE!	0.350	4990	96.869	97.220
30	97.589	RTE!	0.273	2086	97.414	97.687
31	98.115	RTE!	0.195	337.00	97.998	98.193
32	98.271	RTE!	0.195	415.00	98.193	98.387
33	98.738	RTE!	0.350	1088	98.621	98.971
34	99.400	RTE!	0.156	286.00	99.283	99.439
35	99.925	RTE!	0.273	1446	99.828	100.100
36	100.470	RTE!	0.195	406.00	100.334	100.529
37	100.665	RTE!	0.273	1534	100.529	100.801
38	100.898	RTE!	0.234	655.00	100.801	101.035
39	101.404	RTE!	0.234	395.00	101.268	101.502
40	102.903	RTE!	0.428	721.00	102.747	103.176
41	103.604	RTE!	0.234	419.00	103.448	103.682
42	103.798	RTE!	0.273	458.00	103.682	103.954

44	10 005	RTE!	0.195	289.00	4.927	105.122
45	105.842	RTE!	0.272	601.00	105.745	106.017
46	106.893	RTE!	0.273	1030	106.757	107.030
47	108.178	RTE!	0.195	268.00	108.120	108.314
48	108.723	RTE!	0.272	667.00	108.626	108.898
49	109.015	RTE!	0.195	495.00	108.898	109.093

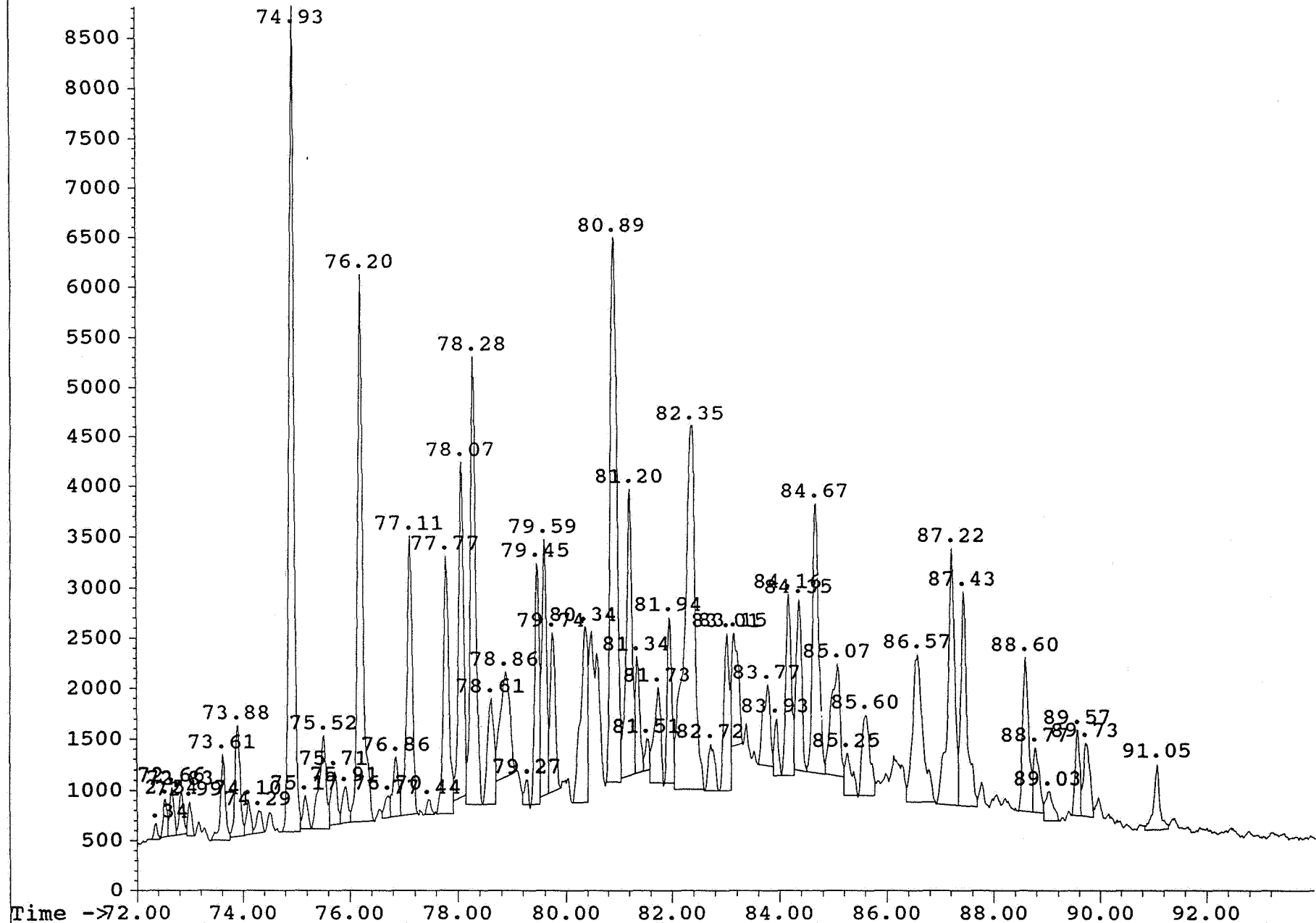


Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	72.344	RTE!	0.156	801.00	72.267	72.422
2	72.539	RTE!	0.156	1944	72.422	72.578
3	72.656	RTE!	0.156	2586	72.578	72.734
4	72.831	RTE!	0.195	1638	72.734	72.928
5	72.987	RTE!	0.156	974.00	72.928	73.084
6	73.610	RTE!	0.350	4831	73.396	73.746
7	73.882	RTE!	0.273	6692	73.746	74.018
8	74.096	RTE!	0.156	1926	74.018	74.174
9	74.291	RTE!	0.234	961.00	74.174	74.408
10	74.933	RTE!	0.350	51793	74.719	75.069
11	75.167	RTE!	0.195	2022	75.069	75.264
12	75.517	RTE!	0.350	7603	75.264	75.614
13	75.712	RTE!	0.195	3976	75.614	75.809
14	75.906	RTE!	0.195	1750	75.809	76.004
15	76.198	RTE!	0.428	37072	76.004	76.432
16	76.704	RTE!	0.156	1539	76.588	76.743
17	76.860	RTE!	0.195	4198	76.743	76.938
18	77.113	RTE!	0.311	19058	76.938	77.249
19	77.444	RTE!	0.195	871.00	77.366	77.561
20	77.775	RTE!	0.311	18048	77.600	77.911
21	78.067	RTE!	0.234	21078	77.911	78.145
22	78.281	RTE!	0.311	28996	78.145	78.456
23	78.612	RTE!	0.234	7036	78.456	78.690
24	78.865	RTE!	0.350	12853	78.690	79.040
25	79.274	RTE!	0.117	1094	79.196	79.313
26	79.449	RTE!	0.195	13923	79.313	79.507
27	79.585	RTE!	0.156	15198	79.507	79.663
28	79.741	RTE!	0.234	9419	79.663	79.897
29	80.344	RTE!	0.273	16299	80.130	80.403
30	80.889	RTE!	0.273	46212	80.753	81.026
31	81.201	RTE!	0.272	20449	81.026	81.298
32	81.337	RTE!	0.156	5956	81.298	81.454
33	81.512	RTE!	0.117	1641	81.454	81.571
34	81.726	RTE!	0.273	6634	81.571	81.843
35	81.940	RTE!	0.195	8610	81.843	82.038
36	82.349	RTE!	0.545	48174	82.038	82.583
37	82.719	RTE!	0.273	3650	82.583	82.855
38	83.011	RTE!	0.234	9493	82.855	83.089
39	83.147	RTE!	0.234	7186	83.089	83.322
40	83.770	RTE!	0.272	5639	83.595	83.867
41	83.926	RTE!	0.156	1326	83.867	84.023
42	84.159	RTE!	0.234	11354	84.023	84.257

44	.665	RTE!	0.350	19781	4.490	84.840
45	85.074	RTE!	0.350	10912	84.840	85.191
46	85.249	RTE!	0.273	2466	85.191	85.463
47	85.599	RTE!	0.311	8537	85.463	85.775
48	86.573	RTE!	0.545	19043	86.359	86.904
49	87.215	RTE!	0.428	21533	86.904	87.332
50	87.429	RTE!	0.350	15651	87.332	87.682
51	88.597	RTE!	0.273	10953	88.461	88.733
52	88.772	RTE!	0.195	4434	88.733	88.928
53	89.025	RTE!	0.273	2839	88.928	89.200
54	89.570	RTE!	0.195	5056	89.434	89.629
55	89.726	RTE!	0.234	6212	89.629	89.862
56	91.049	RTE!	0.428	4252	90.835	91.264

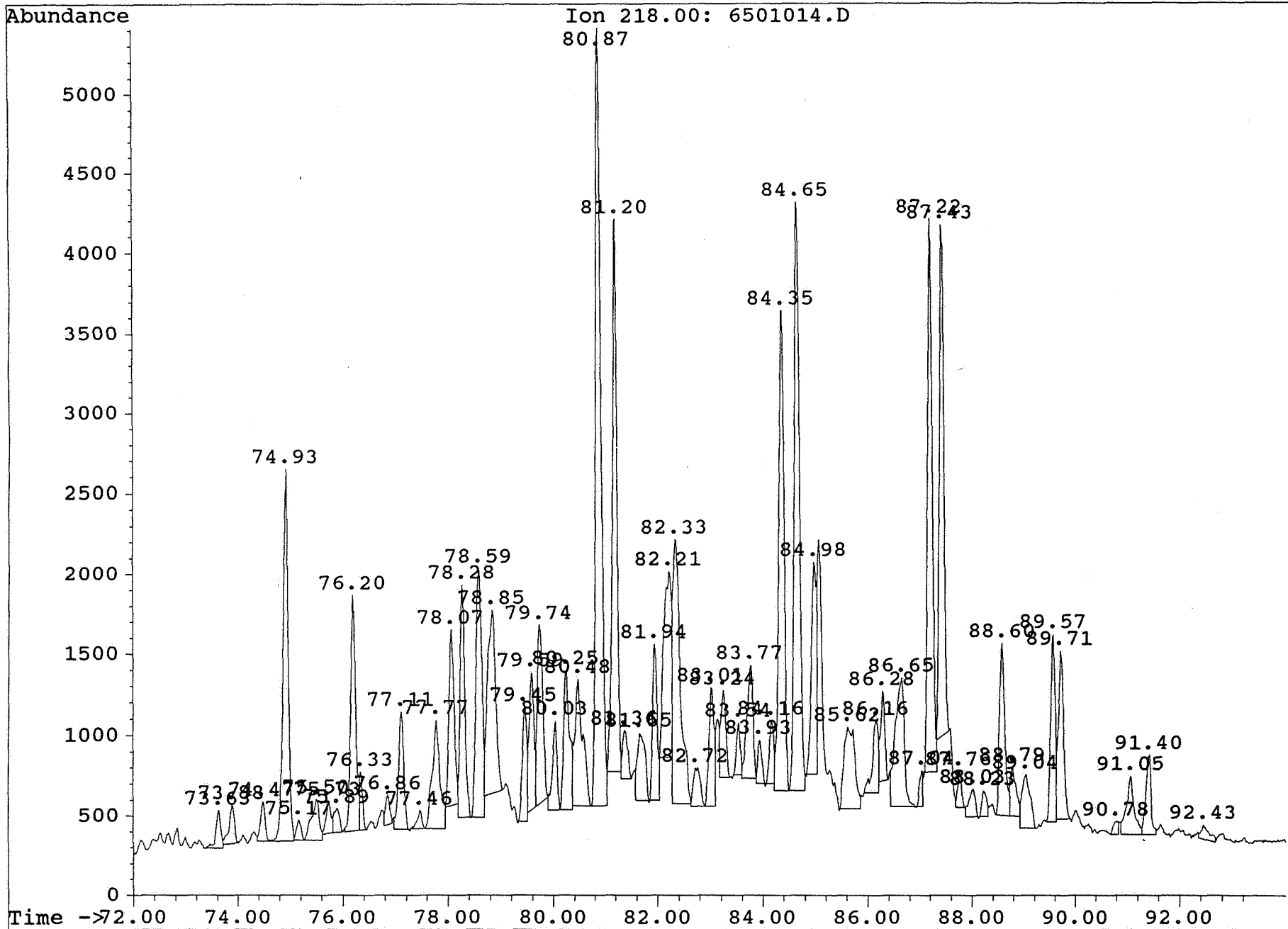
Abundance

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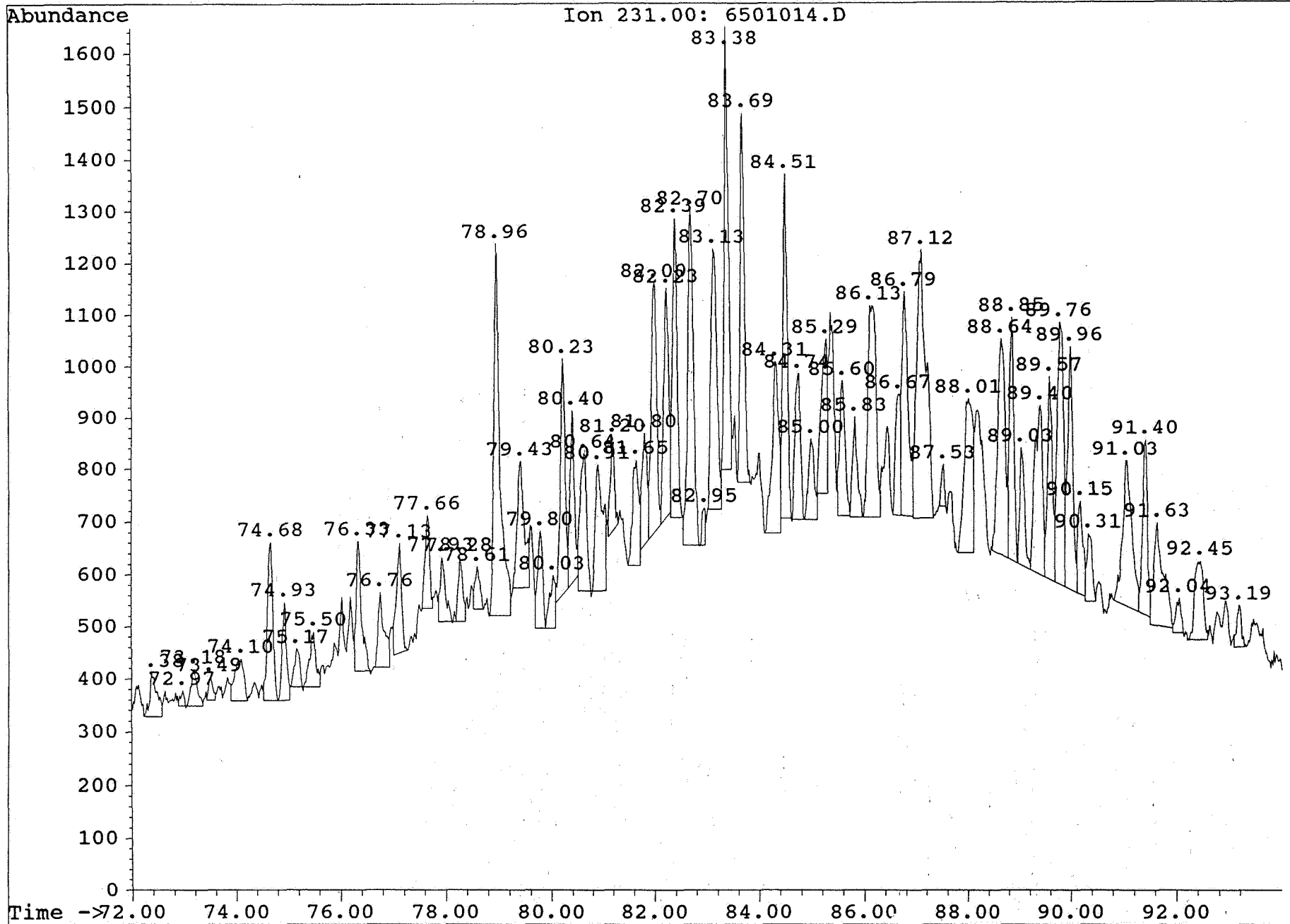
Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	73.629	RTE!	0.350	1566	73.357	73.707
2	73.882	RTE!	0.311	1415	73.707	74.018
3	74.466	RTE!	0.311	1109	74.369	74.680
4	74.933	RTE!	0.389	15709	74.680	75.069
5	75.167	RTE!	0.195	741.00	75.069	75.264
6	75.498	RTE!	0.350	2635	75.264	75.614
7	75.731	RTE!	0.195	747.00	75.614	75.809
8	75.887	RTE!	0.195	589.00	75.809	76.004
9	76.198	RTE!	0.273	9112	76.043	76.315
10	76.335	RTE!	0.117	1217	76.315	76.432
11	76.860	RTE!	0.156	1041	76.782	76.938
12	77.113	RTE!	0.273	4905	76.977	77.249
13	77.464	RTE!	0.234	725.00	77.327	77.561
14	77.775	RTE!	0.389	6224	77.561	77.950
15	78.067	RTE!	0.234	6515	77.950	78.184
16	78.281	RTE!	0.273	8676	78.184	78.456
17	78.592	RTE!	0.234	12213	78.456	78.690
18	78.846	RTE!	0.350	11905	78.690	79.040
19	79.449	RTE!	0.195	4374	79.313	79.507
20	79.585	RTE!	0.156	4454	79.507	79.663
21	79.741	RTE!	0.234	8331	79.663	79.897
22	80.033	RTE!	0.234	2563	79.897	80.130
23	80.247	RTE!	0.234	5955	80.130	80.364
24	80.481	RTE!	0.350	8274	80.364	80.714
25	80.870	RTE!	0.311	34608	80.714	81.026
26	81.201	RTE!	0.272	21931	81.026	81.298
27	81.356	RTE!	0.195	2030	81.298	81.493
28	81.648	RTE!	0.273	3526	81.571	81.843
29	81.940	RTE!	0.195	5187	81.843	82.038
30	82.213	RTE!	0.234	9603	82.038	82.271
31	82.330	RTE!	0.350	15617	82.271	82.622
32	82.719	RTE!	0.273	1559	82.622	82.894
33	83.011	RTE!	0.195	5086	82.894	83.089
34	83.244	RTE!	0.195	3423	83.167	83.361
35	83.536	RTE!	0.156	1612	83.439	83.595
36	83.770	RTE!	0.272	4643	83.595	83.867
37	83.926	RTE!	0.195	578.00	83.867	84.062
38	84.159	RTE!	0.156	2375	84.062	84.218
39	84.354	RTE!	0.273	21144	84.218	84.490
40	84.646	RTE!	0.311	25357	84.490	84.802
41	84.977	RTE!	0.234	7153	84.802	85.035
42	85.619	RTE!	0.389	7389	85.463	85.853

44	.281	RTE!	0.195	2374	6.203	86.398
45	86.651	RTE!	0.506	8874	86.437	86.943
46	87.040	RTE!	0.117	1122	86.943	87.059
47	87.215	RTE!	0.273	20425	87.059	87.332
48	87.429	RTE!	0.234	17387	87.332	87.565
49	87.760	RTE!	0.195	1229	87.682	87.877
50	88.033	RTE!	0.234	1414	87.877	88.110
51	88.227	RTE!	0.156	1005	88.149	88.305
52	88.597	RTE!	0.273	7060	88.461	88.733
53	88.792	RTE!	0.195	1588	88.733	88.928
54	89.045	RTE!	0.311	3001	88.928	89.239
55	89.570	RTE!	0.195	6995	89.434	89.629
56	89.706	RTE!	0.273	6585	89.629	89.901
57	90.777	RTE!	0.156	588.00	90.680	90.835
58	91.049	RTE!	0.389	3190	90.874	91.264
59	91.400	RTE!	0.273	3519	91.264	91.536
60	92.431	RTE!	0.311	926.00	92.354	92.665



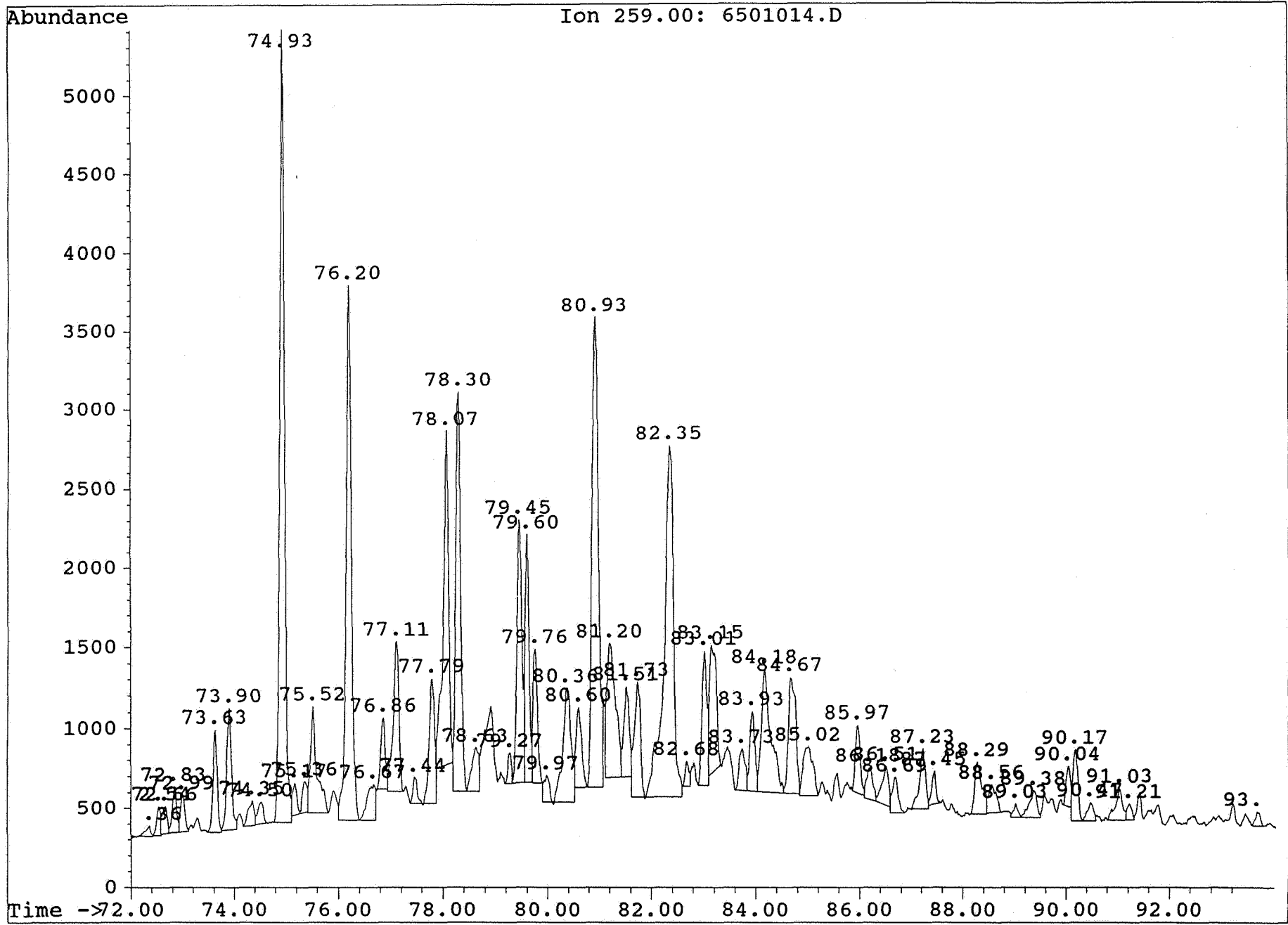
Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	72.383	RTE!	0.350	817.00	72.228	72.578
2	72.967	RTE!	0.156	128.00	72.889	73.045
3	73.181	RTE!	0.311	172.00	73.045	73.357
4	73.493	RTE!	0.156	252.00	73.434	73.590
5	74.096	RTE!	0.311	948.00	73.902	74.213
6	74.680	RTE!	0.273	2158	74.524	74.797
7	74.933	RTE!	0.234	663.00	74.797	75.031
8	75.167	RTE!	0.234	527.00	75.031	75.264
9	75.498	RTE!	0.350	432.00	75.264	75.614
10	76.335	RTE!	0.311	1233	76.276	76.588
11	76.763	RTE!	0.311	715.00	76.627	76.938
12	77.133	RTE!	0.272	853.00	77.016	77.288
13	77.658	RTE!	0.195	1076	77.561	77.756
14	77.931	RTE!	0.273	836.00	77.872	78.145
15	78.281	RTE!	0.234	149.00	78.145	78.378
16	78.612	RTE!	0.195	517.00	78.534	78.729
17	78.962	RTE!	0.389	6076	78.846	79.235
18	79.429	RTE!	0.311	1477	79.274	79.585
19	79.799	RTE!	0.195	1248	79.702	79.897
20	80.033	RTE!	0.195	780.00	79.897	80.091
21	80.227	RTE!	0.234	2153	80.091	80.325
22	80.403	RTE!	0.195	1315	80.325	80.519
23	80.636	RTE!	0.272	1601	80.519	80.792
24	80.909	RTE!	0.272	2565	80.792	81.064
25	81.201	RTE!	0.195	212.00	81.103	81.298
26	81.648	RTE!	0.234	867.00	81.493	81.726
27	81.804	RTE!	0.156	1464	81.726	81.882
28	81.999	RTE!	0.234	2686	81.882	82.116
29	82.232	RTE!	0.195	1977	82.116	82.310
30	82.388	RTE!	0.234	2670	82.310	82.544
31	82.699	RTE!	0.311	4987	82.544	82.855
32	82.952	RTE!	0.117	308.00	82.855	82.972
33	83.128	RTE!	0.273	3176	83.011	83.283
34	83.381	RTE!	0.195	4889	83.283	83.478
35	83.692	RTE!	0.234	3040	83.595	83.828
36	84.315	RTE!	0.311	1905	84.101	84.412
37	84.509	RTE!	0.195	3872	84.412	84.607
38	84.743	RTE!	0.272	1228	84.607	84.879
39	84.996	RTE!	0.234	348.00	84.879	85.113
40	85.288	RTE!	0.195	2369	85.113	85.308
41	85.599	RTE!	0.234	1072	85.502	85.736
42	85.833	RTE!	0.234	1174	85.736	85.969

44	670	RTE!	0.156	527.00	5.553	86.709
45	86.787	RTE!	0.234	2516	86.709	86.943
46	87.118	RTE!	0.389	6666	86.943	87.332
47	87.527	RTE!	0.117	308.00	87.449	87.565
48	88.013	RTE!	0.311	2450	87.799	88.110
49	88.636	RTE!	0.311	3374	88.461	88.772
50	88.850	RTE!	0.195	1981	88.772	88.967
51	89.025	RTE!	0.234	629.00	88.967	89.200
52	89.395	RTE!	0.273	3327	89.200	89.473
53	89.570	RTE!	0.195	1707	89.473	89.668
54	89.765	RTE!	0.195	4204	89.668	89.862
55	89.959	RTE!	0.234	2798	89.862	90.096
56	90.154	RTE!	0.156	1151	90.096	90.251
57	90.310	RTE!	0.195	227.00	90.251	90.446
58	91.030	RTE!	0.467	3379	90.796	91.264
59	91.400	RTE!	0.234	2230	91.264	91.497
60	91.633	RTE!	0.428	2470	91.497	91.925
61	92.042	RTE!	0.195	444.00	91.925	92.120
62	92.451	RTE!	0.350	1158	92.237	92.587
63	93.190	RTE!	0.195	478.00	93.093	93.288

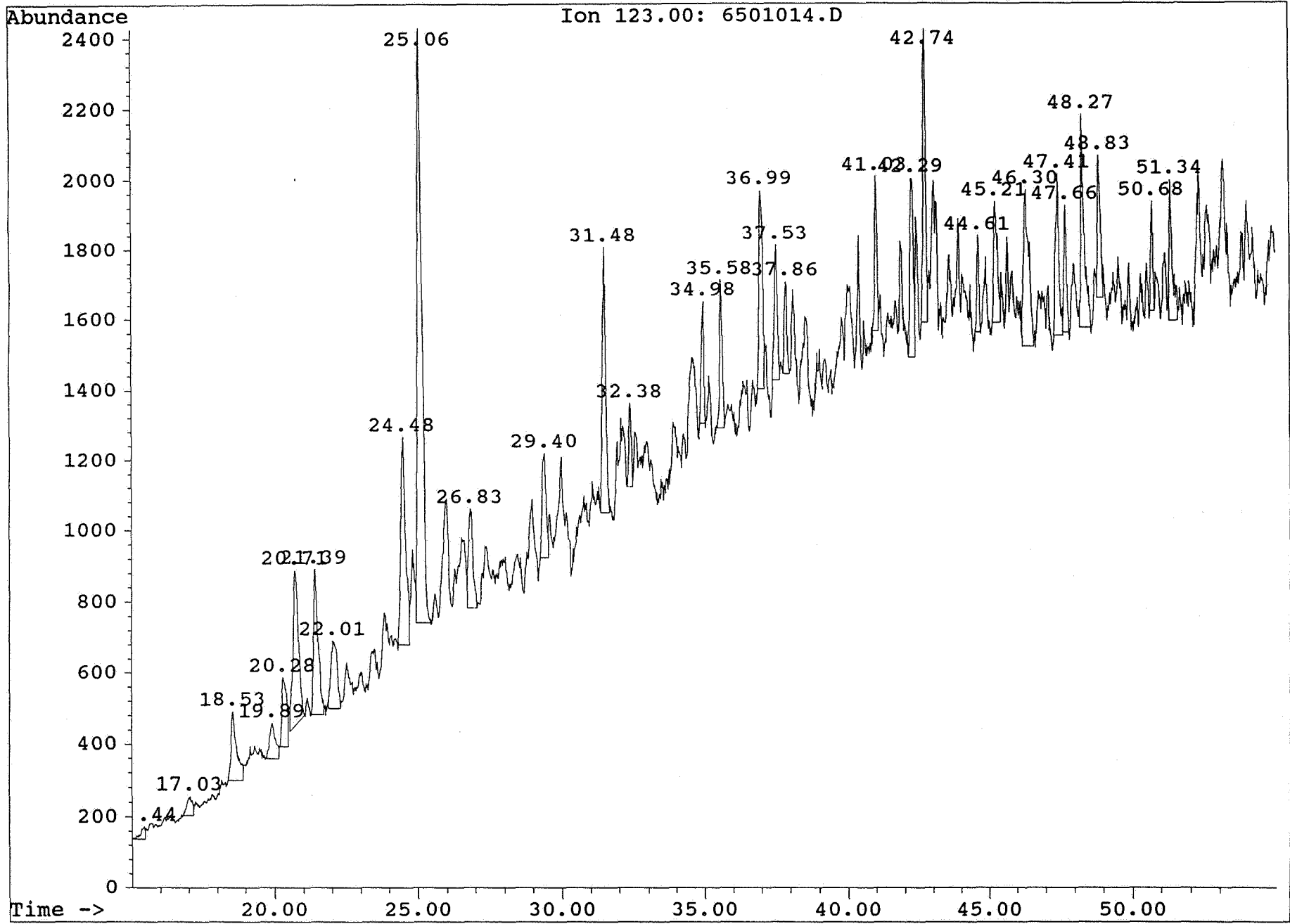


Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	72.364	RTE!	0.311	544.00	72.111	72.422
2	72.539	RTE!	0.156	955.00	72.422	72.578
3	72.656	RTE!	0.156	1178	72.578	72.734
4	72.831	RTE!	0.195	1227	72.734	72.928
5	72.987	RTE!	0.195	971.00	72.928	73.123
6	73.629	RTE!	0.273	3710	73.473	73.746
7	73.902	RTE!	0.311	4589	73.746	74.057
8	74.349	RTE!	0.234	1295	74.174	74.408
9	74.505	RTE!	0.234	1068	74.408	74.641
10	74.933	RTE!	0.350	30965	74.758	75.108
11	75.167	RTE!	0.156	503.00	75.108	75.264
12	75.361	RTE!	0.156	571.00	75.264	75.420
13	75.517	RTE!	0.389	5686	75.420	75.809
14	76.198	RTE!	0.389	23352	76.004	76.393
15	76.666	RTE!	0.311	2471	76.393	76.704
16	76.860	RTE!	0.234	2666	76.704	76.938
17	77.113	RTE!	0.311	6459	76.938	77.249
18	77.444	RTE!	0.234	1006	77.366	77.600
19	77.794	RTE!	0.273	4766	77.600	77.872
20	78.067	RTE!	0.311	14017	77.872	78.184
21	78.301	RTE!	0.273	16596	78.184	78.456
22	78.631	RTE!	0.234	1603	78.456	78.690
23	79.274	RTE!	0.117	895.00	79.196	79.313
24	79.449	RTE!	0.234	9926	79.313	79.546
25	79.605	RTE!	0.156	6980	79.546	79.702
26	79.760	RTE!	0.195	4828	79.702	79.897
27	79.974	RTE!	0.195	1176	79.897	80.091
28	80.364	RTE!	0.428	7405	80.091	80.519
29	80.597	RTE!	0.234	3600	80.519	80.753
30	80.928	RTE!	0.311	24561	80.753	81.064
31	81.201	RTE!	0.311	10015	81.103	81.415
32	81.512	RTE!	0.195	4122	81.415	81.609
33	81.726	RTE!	0.273	5109	81.609	81.882
34	82.349	RTE!	0.701	27466	81.882	82.583
35	82.680	RTE!	0.156	804.00	82.583	82.738
36	83.011	RTE!	0.195	4334	82.894	83.089
37	83.147	RTE!	0.234	6932	83.089	83.322
38	83.731	RTE!	0.234	2150	83.595	83.828
39	83.926	RTE!	0.195	3330	83.828	84.023
40	84.179	RTE!	0.506	9812	84.023	84.529
41	84.665	RTE!	0.311	7011	84.529	84.840
42	85.016	RTE!	0.350	3988	84.840	85.191

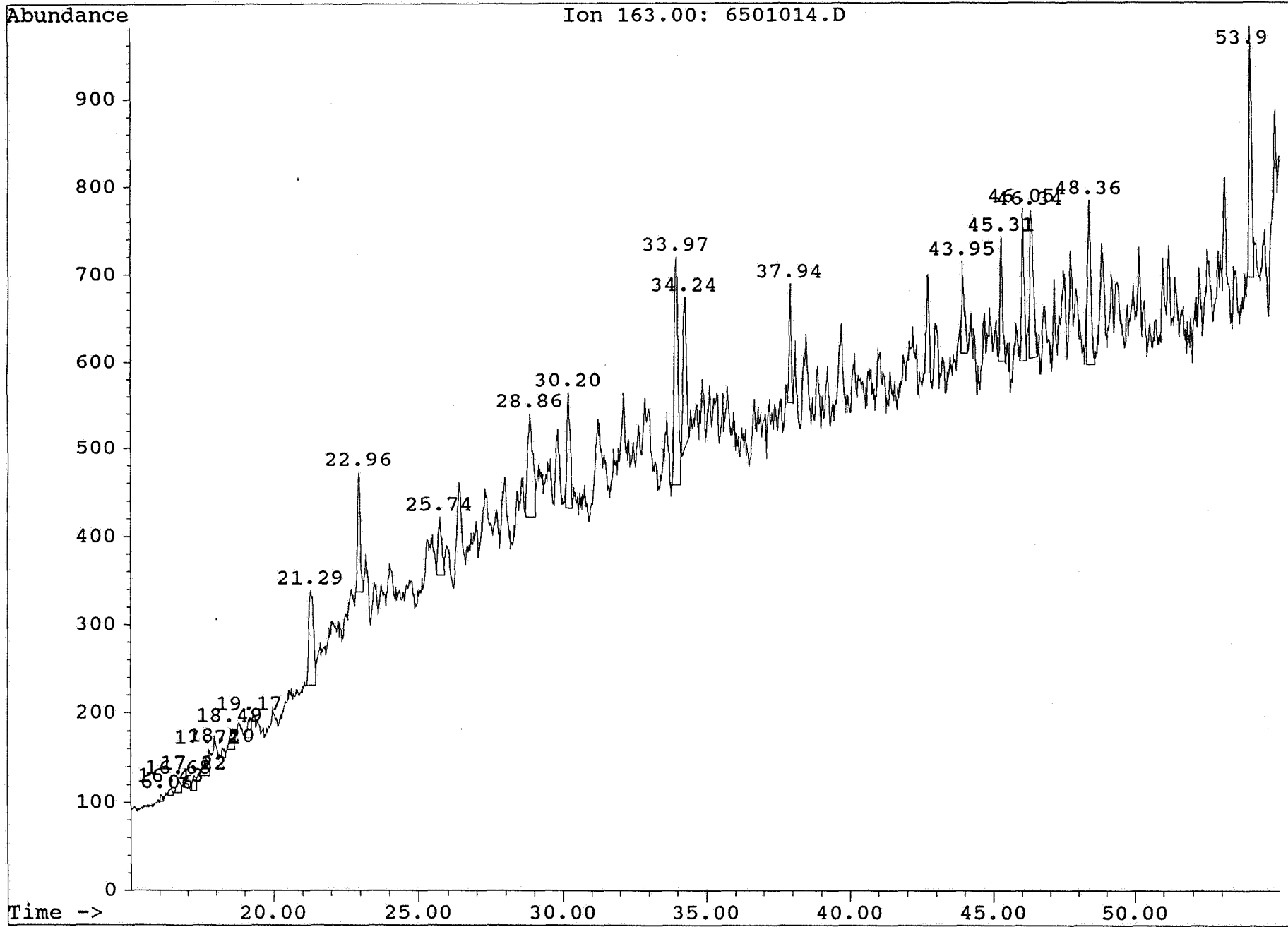
44	183	RTE!	0.234	1648	5.086	86.320
45	86.514	RTE!	0.273	2133	86.320	86.592
46	86.689	RTE!	0.273	1706	86.592	86.865
47	87.234	RTE!	0.350	3057	86.982	87.332
48	87.449	RTE!	0.234	509.00	87.332	87.565
49	88.286	RTE!	0.311	3259	88.149	88.461
50	88.558	RTE!	0.273	1835	88.461	88.733
51	89.025	RTE!	0.195	478.00	88.928	89.123
52	89.376	RTE!	0.389	1290	89.123	89.512
53	90.037	RTE!	0.156	1477	89.940	90.096
54	90.174	RTE!	0.234	2564	90.096	90.329
55	90.465	RTE!	0.234	950.00	90.329	90.563
56	91.030	RTE!	0.350	1306	90.796	91.147
57	91.205	RTE!	0.156	627.00	91.147	91.303
58	93.658	RTE!	0.234	634.00	93.560	93.794



Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	15.436	RTE!	0.389	369.00	15.086	15.475
2	17.030	RTE!	0.350	710.00	16.797	17.147
3	18.528	RTE!	0.545	2288	18.353	18.898
4	19.889	RTE!	0.428	1486	19.714	20.142
5	20.278	RTE!	0.311	2298	20.142	20.454
6	20.706	RTE!	0.506	5220	20.531	21.037
7	21.387	RTE!	0.428	3950	21.270	21.698
8	22.009	RTE!	0.428	2946	21.854	22.282
9	24.479	RTE!	0.389	6869	24.304	24.693
10	25.063	RTE!	0.545	18583	24.927	25.471
11	26.833	RTE!	0.350	3042	26.716	27.066
12	29.400	RTE!	0.272	1766	29.245	29.517
13	31.481	RTE!	0.311	4911	31.345	31.656
14	32.376	RTE!	0.195	1365	32.279	32.473
15	34.982	RTE!	0.194	2063	34.846	35.040
16	35.585	RTE!	0.233	2947	35.468	35.702
17	36.985	RTE!	0.233	4846	36.869	37.102
18	37.530	RTE!	0.233	2829	37.413	37.647
19	37.860	RTE!	0.233	1539	37.763	37.997
20	41.031	RTE!	0.194	2595	40.914	41.108
21	42.295	RTE!	0.233	2424	42.159	42.392
22	42.742	RTE!	0.233	3669	42.626	42.859
23	44.609	RTE!	0.156	1338	44.532	44.687
24	45.212	RTE!	0.272	1141	45.115	45.387
25	46.301	RTE!	0.389	5715	46.165	46.554
26	47.410	RTE!	0.311	1895	47.254	47.566
27	47.663	RTE!	0.233	2335	47.566	47.799
28	48.266	RTE!	0.389	5143	48.149	48.538
29	48.830	RTE!	0.233	2886	48.733	48.966
30	50.677	RTE!	0.156	1472	50.600	50.755
31	51.339	RTE!	0.311	3127	51.261	51.572

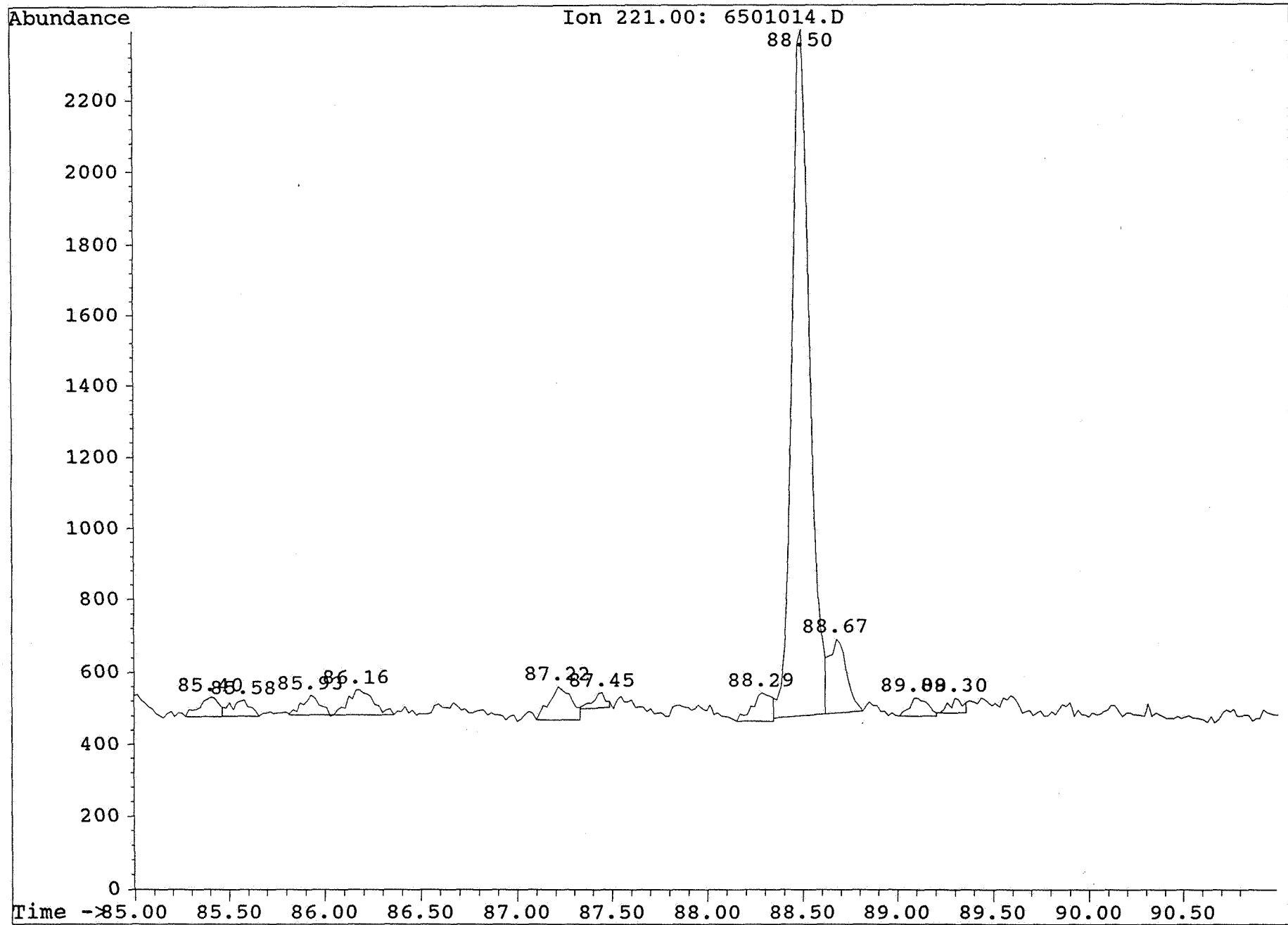


Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	16.058	RTE!	0.117	39.00	16.019	16.136
2	16.427	RTE!	0.194	65.00	16.291	16.486
3	16.680	RTE!	0.272	149.00	16.525	16.797
4	17.225	RTE!	0.195	147.00	17.108	17.303
5	17.711	RTE!	0.350	319.00	17.419	17.770
6	18.197	RTE!	0.156	67.00	18.159	18.314
7	18.489	RTE!	0.272	215.00	18.353	18.625
8	19.170	RTE!	0.195	183.00	19.014	19.209
9	21.290	RTE!	0.311	893.00	21.154	21.465
10	22.962	RTE!	0.233	897.00	22.865	23.099
11	25.744	RTE!	0.272	150.00	25.627	25.899
12	28.856	RTE!	0.350	1491	28.700	29.050
13	30.197	RTE!	0.233	1000.00	30.100	30.334
14	33.971	RTE!	0.311	2392	33.796	34.107
15	34.243	RTE!	0.272	853.00	34.146	34.418
16	37.938	RTE!	0.195	82.00	37.841	38.036
17	43.948	RTE!	0.233	670.00	43.870	44.104
18	45.310	RTE!	0.233	171.00	45.193	45.426
19	46.049	RTE!	0.233	371.00	45.932	46.165
20	46.340	RTE!	0.311	716.00	46.243	46.554
21	48.363	RTE!	0.272	703.00	48.266	48.538
22	53.984	RTE!	0.233	924.00	53.867	54.100



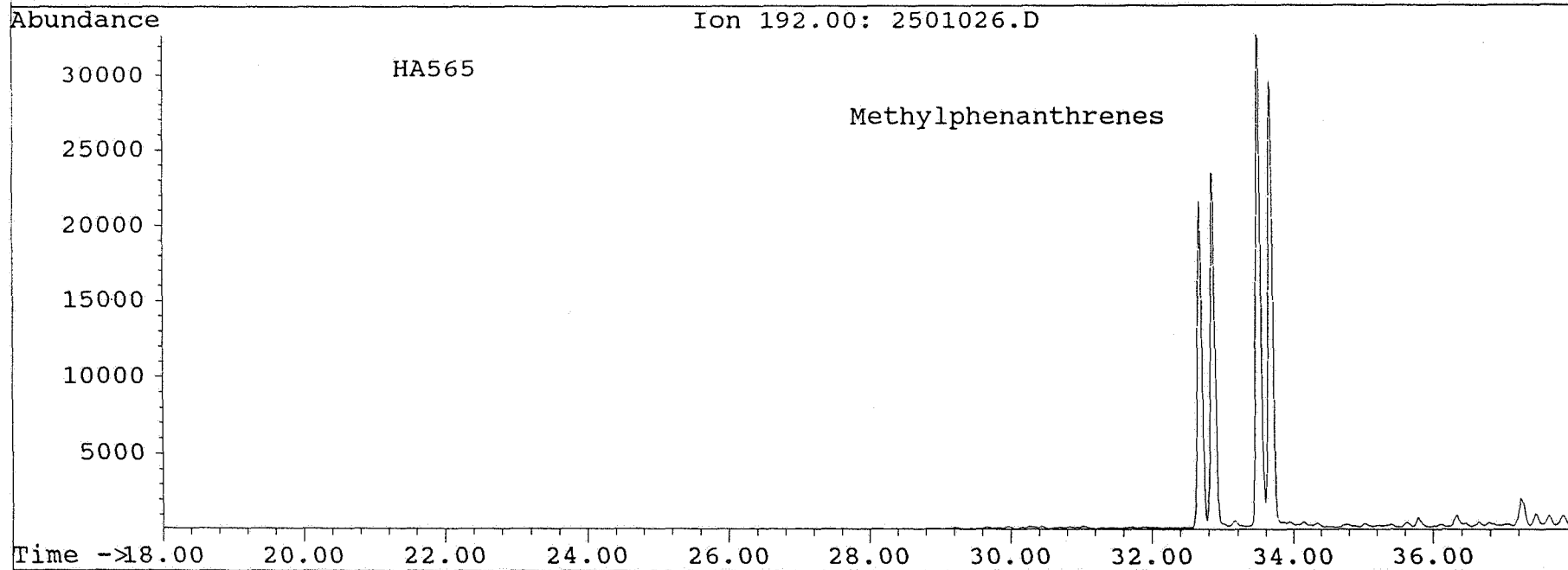
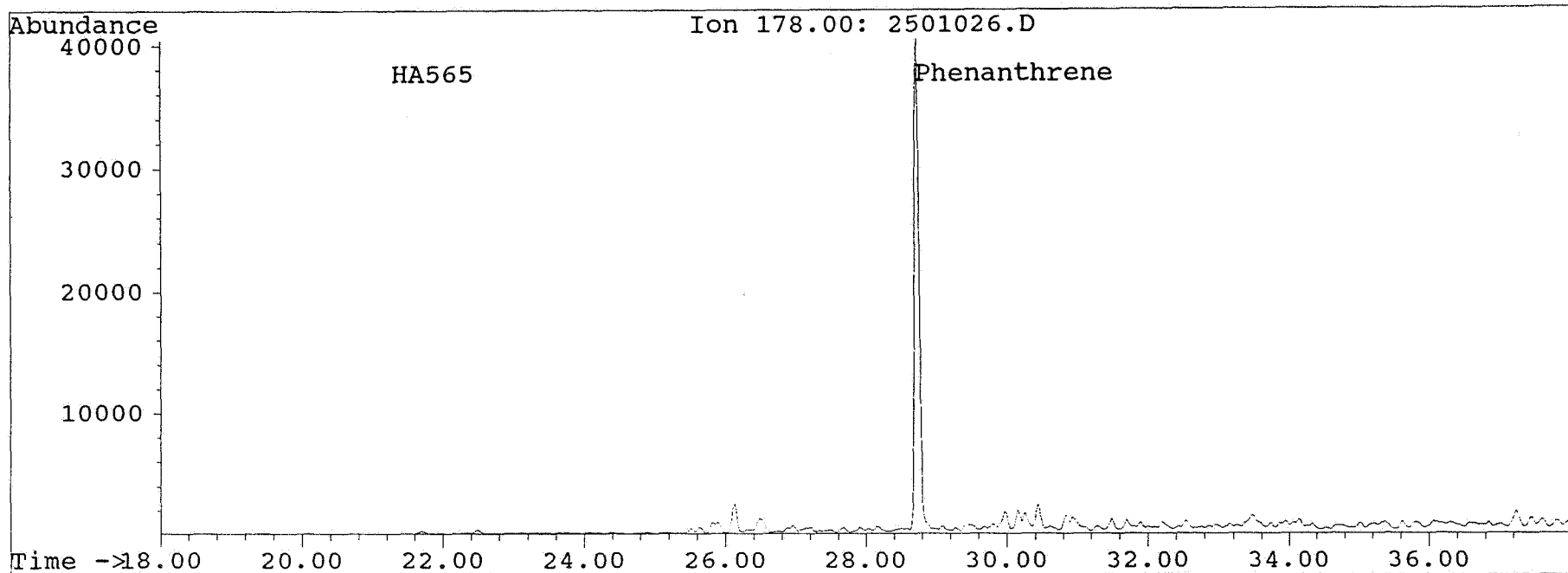
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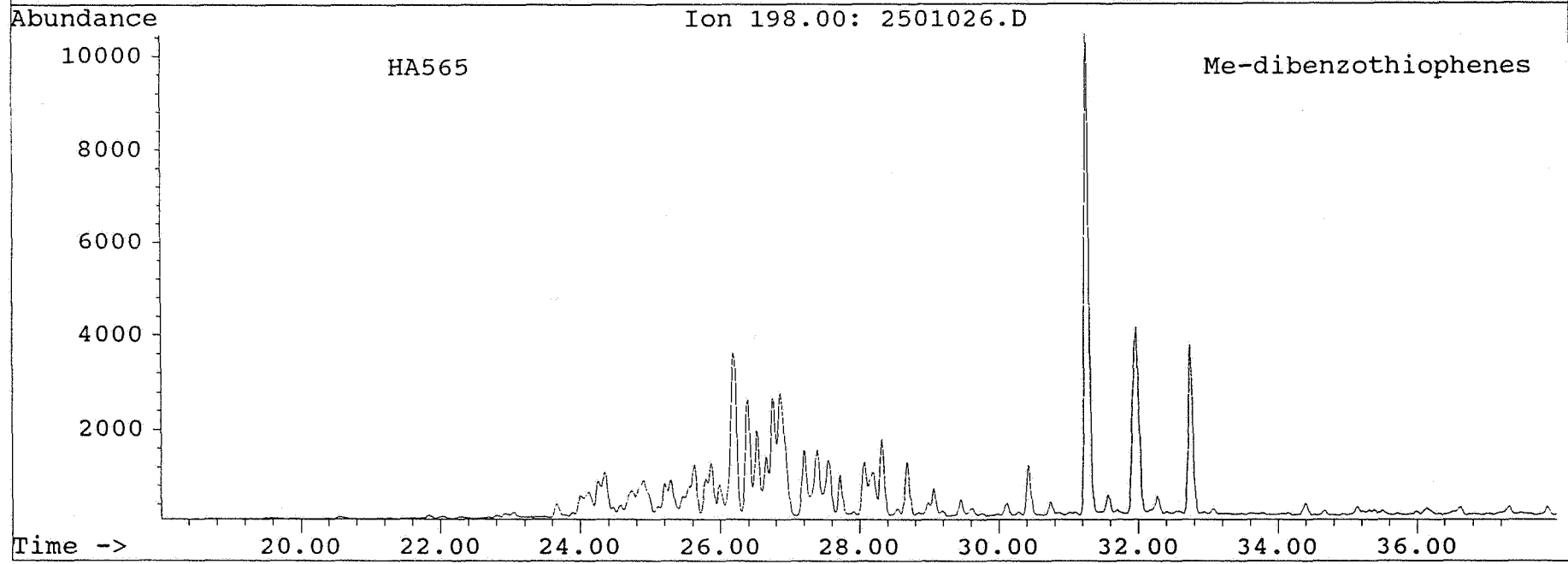
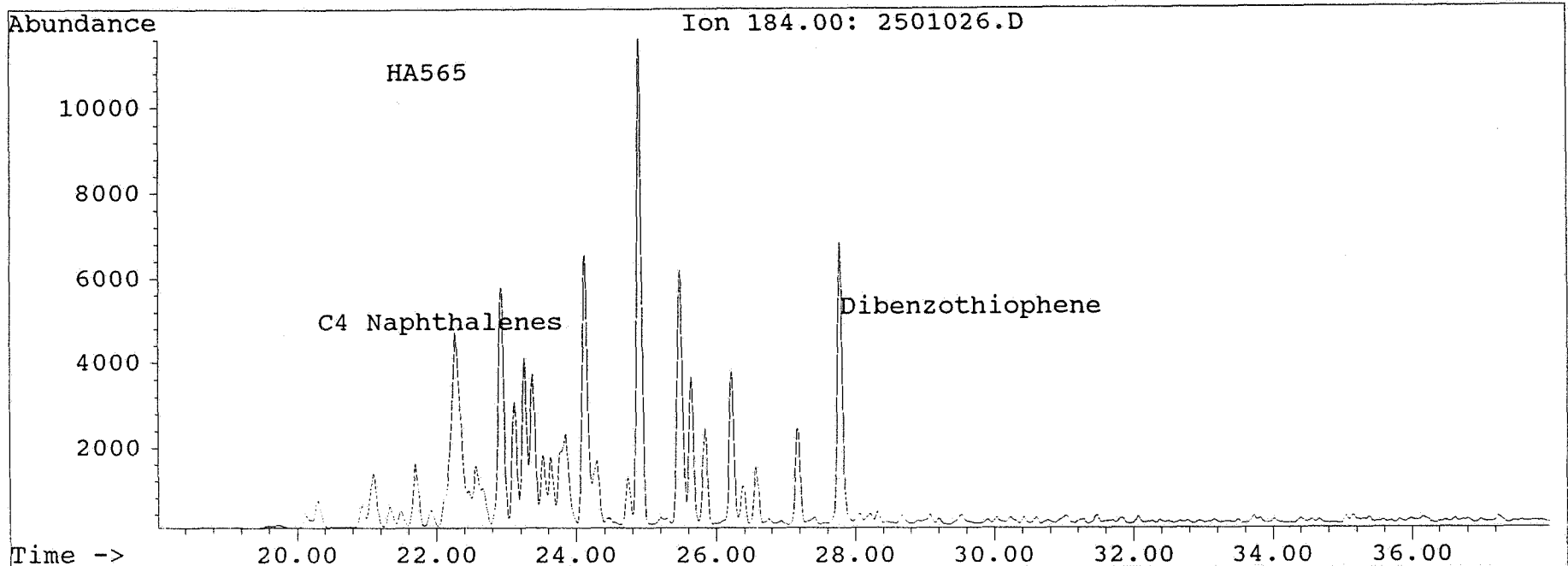
Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	85.405	RTE!	0.195	398.00	85.269	85.463
2	85.580	RTE!	0.195	310.00	85.463	85.658
3	85.930	RTE!	0.234	343.00	85.814	86.047
4	86.164	RTE!	0.311	642.00	86.047	86.359
5	87.215	RTE!	0.234	770.00	87.098	87.332
6	87.449	RTE!	0.156	204.00	87.332	87.488
7	88.286	RTE!	0.195	564.00	88.149	88.344
8	88.500	RTE!	0.273	12553	88.344	88.617
9	88.675	RTE!	0.195	665.00	88.617	88.811
10	89.084	RTE!	0.195	331.00	89.006	89.200
11	89.298	RTE!	0.156	209.00	89.200	89.356

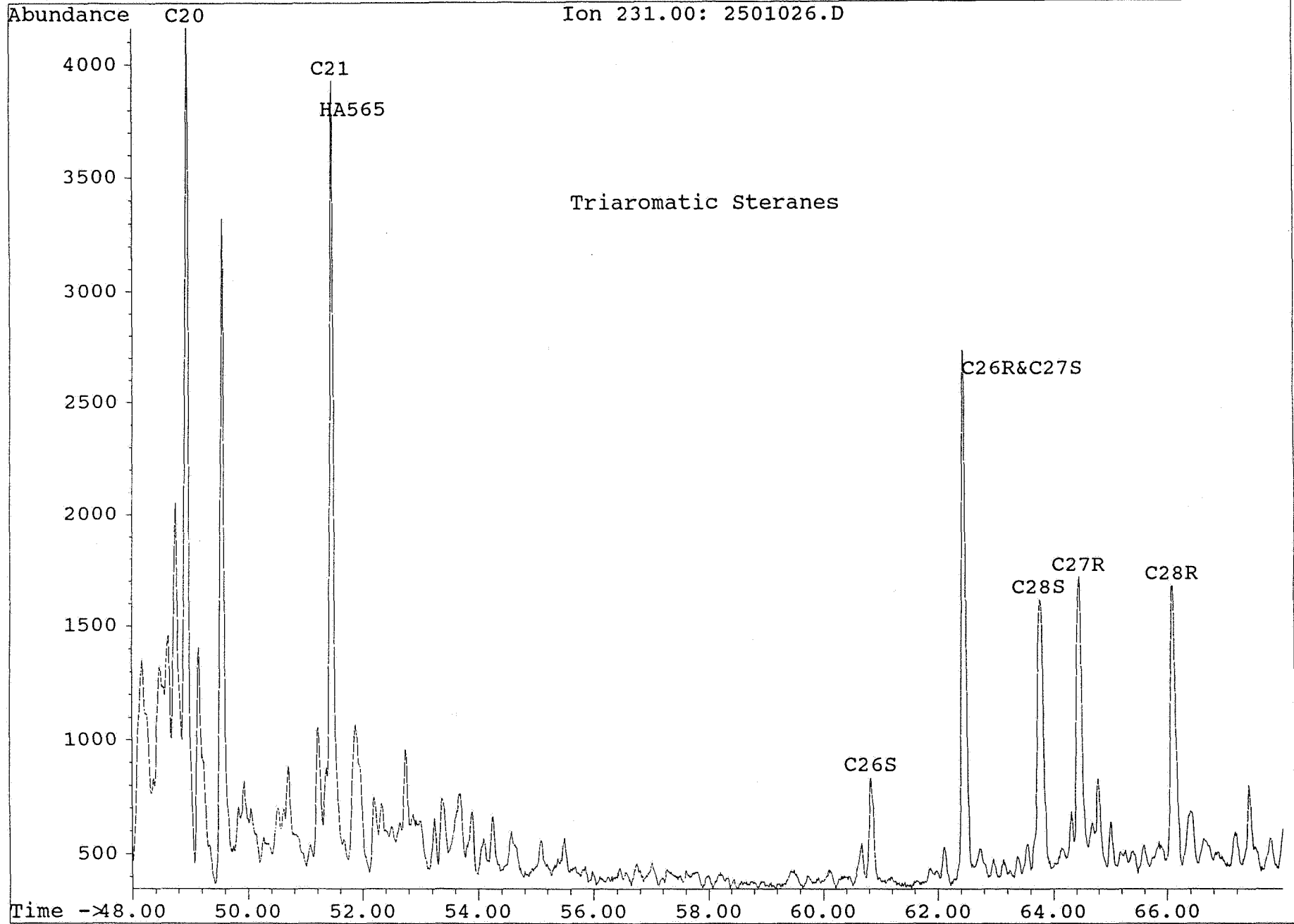


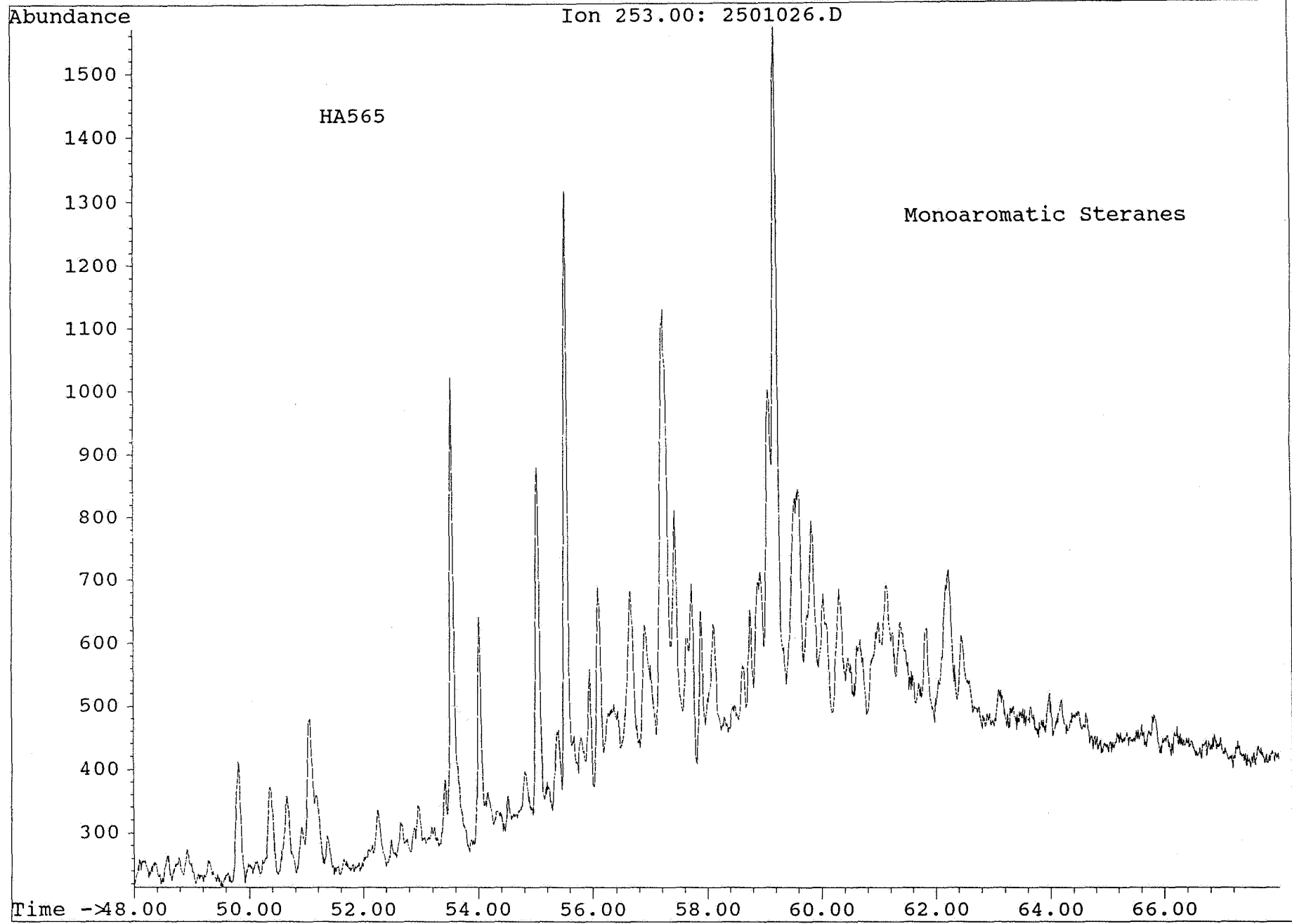
APPENDIX C

C15+ Aromatic Biomarker Mass Fragmentograms and Peak Areas









Abundance

Ion 170.00: 2501026.D

HA565

C3 Naphthalenes

Time ->

16.00

18.00

20.00

22.00

24.00

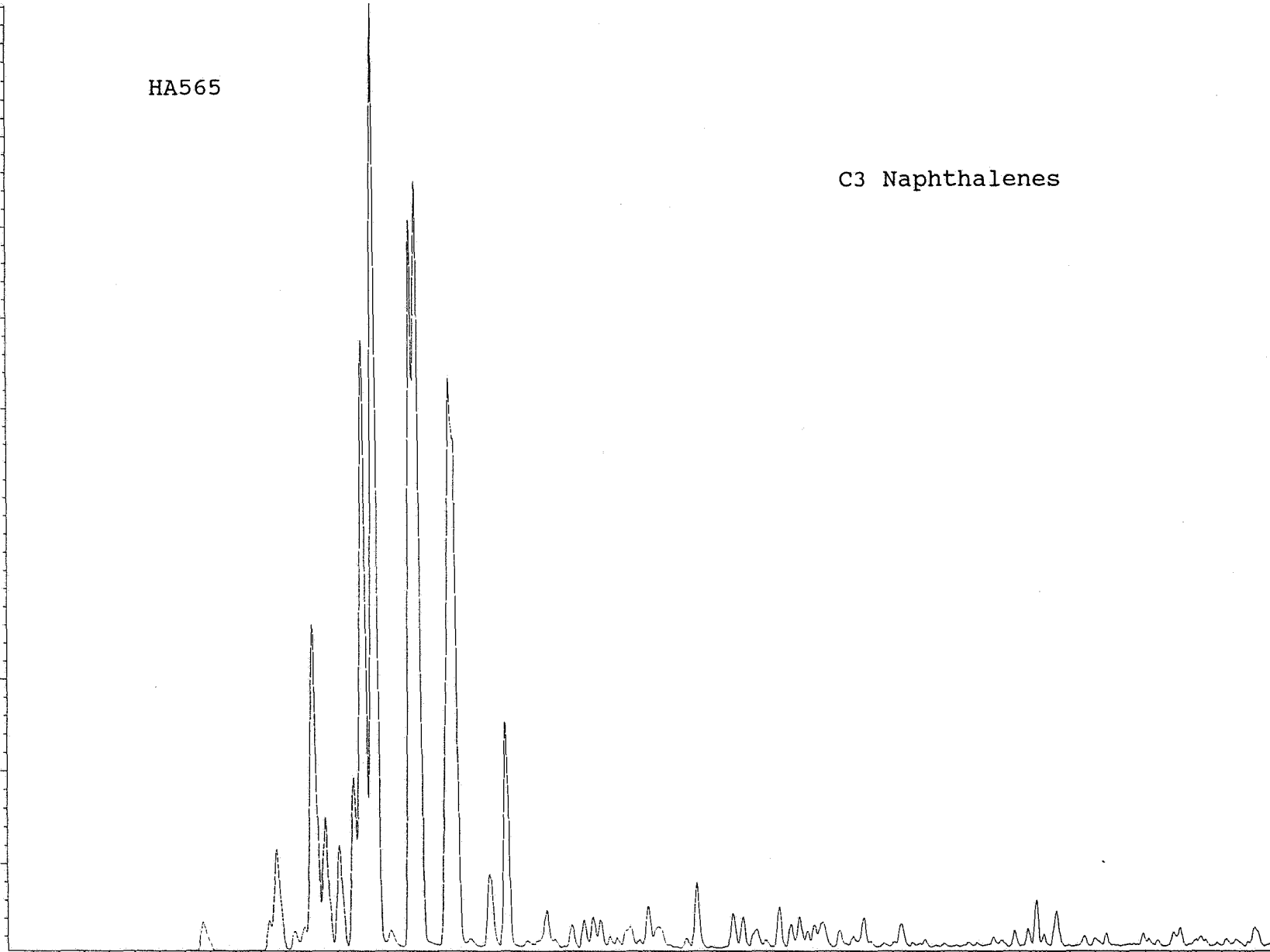
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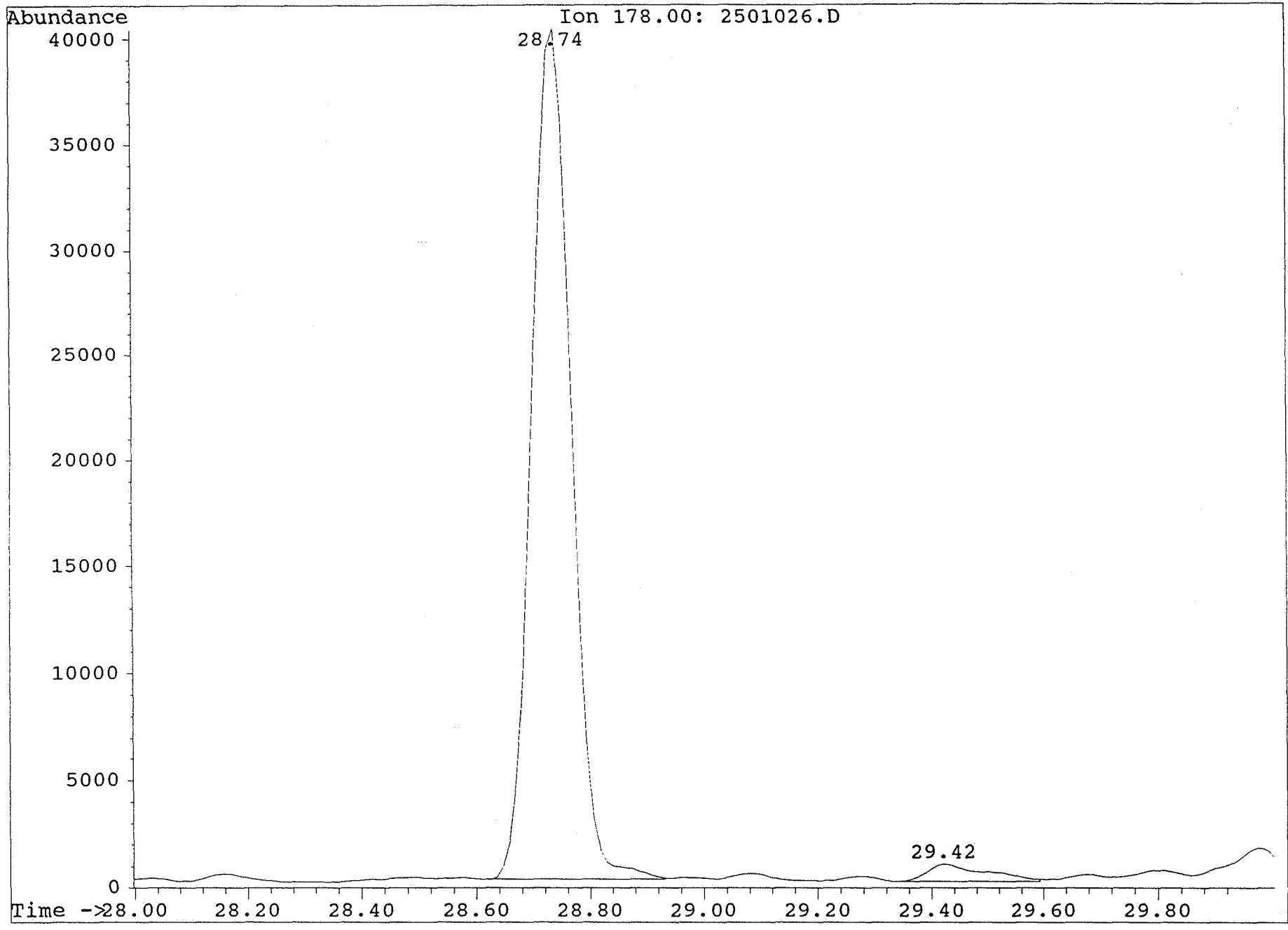
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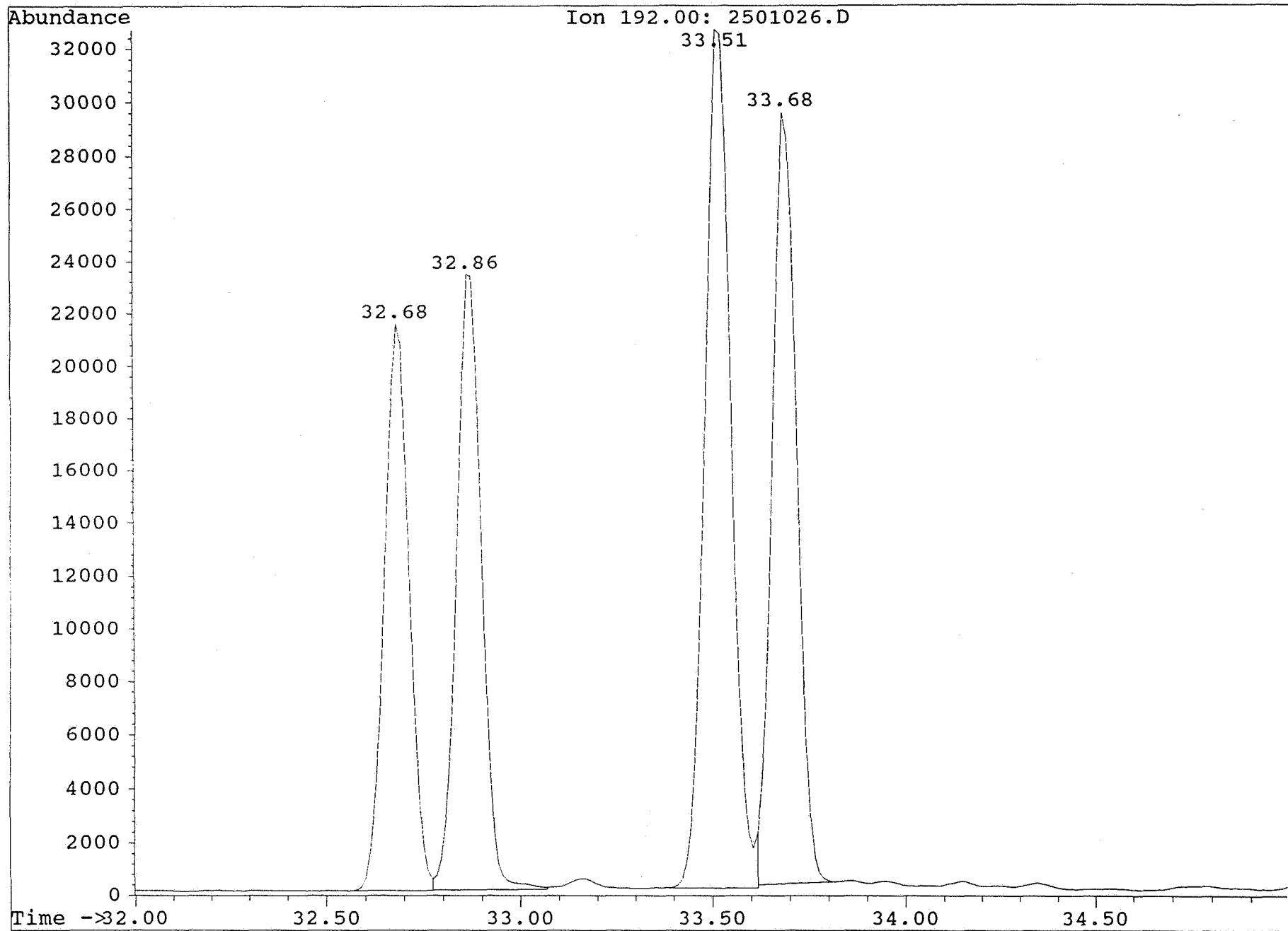


Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	28.738	RTE!	0.319	192963	28.613	28.932
2	29.422	RTE!	0.251	6003	29.342	29.593

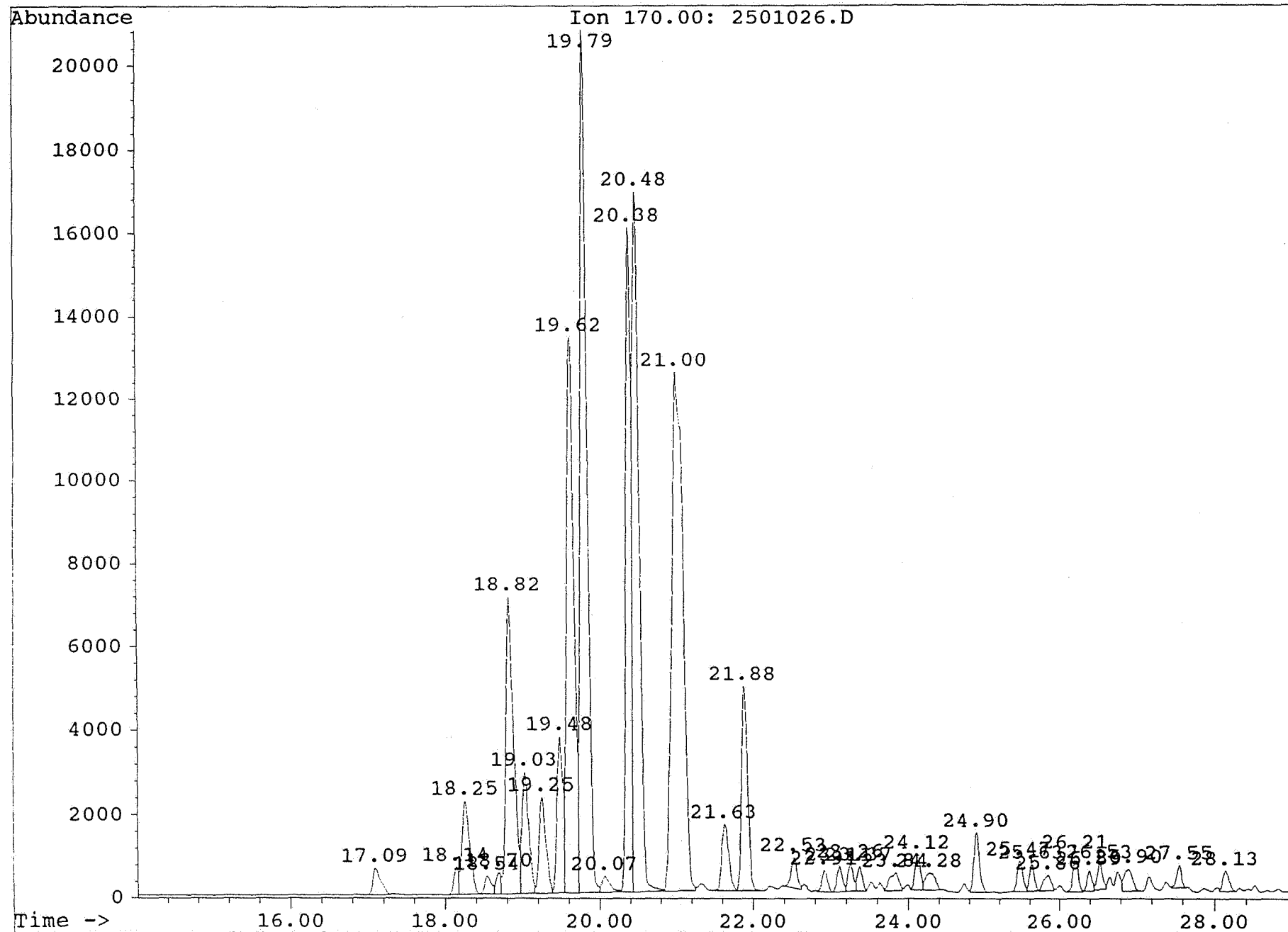


HA565

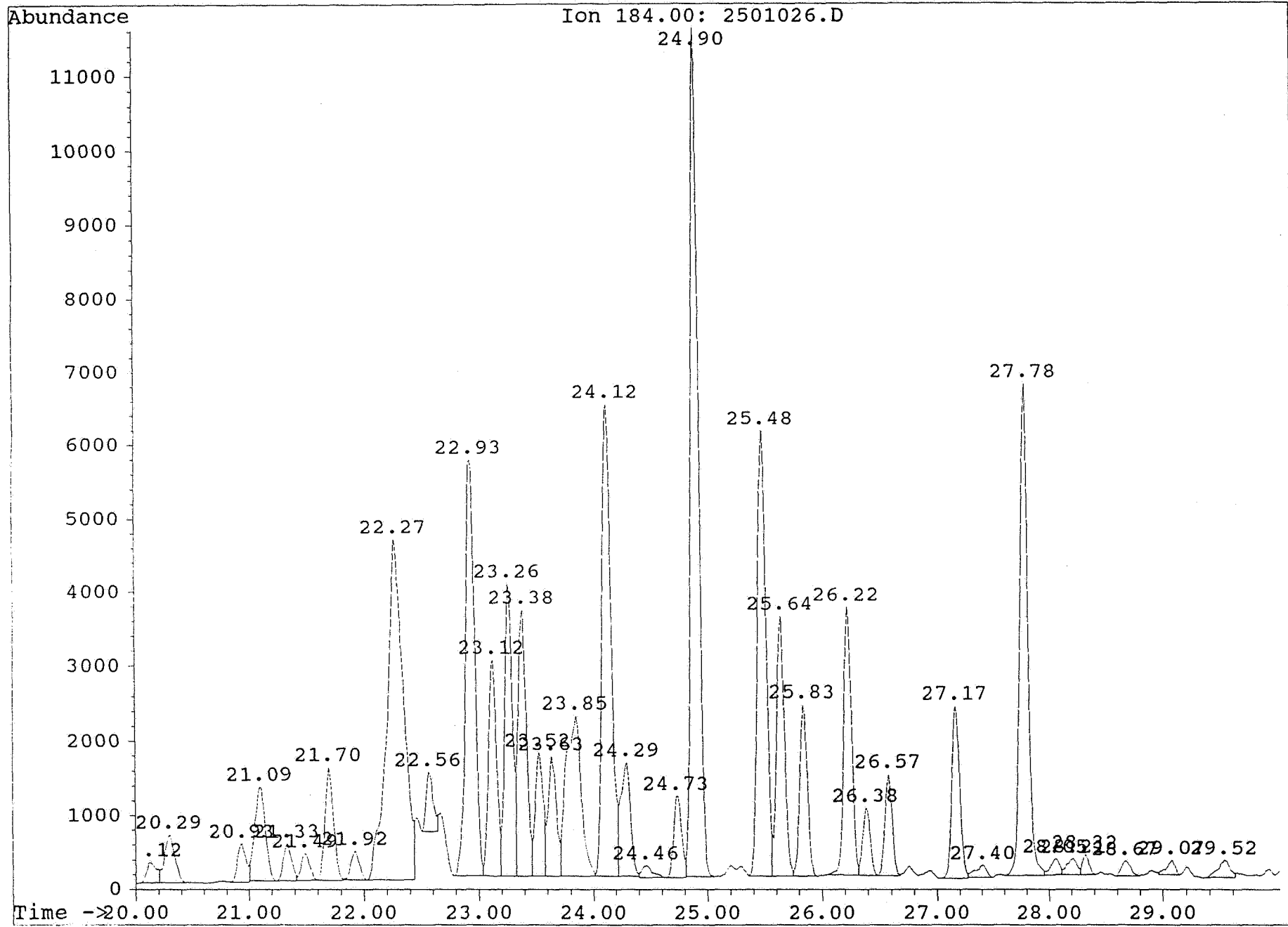
Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	32.681	RTE!	0.205	95938	32.567	32.773
2	32.864	RTE!	0.296	104662	32.773	33.069
3	33.513	RTE!	0.228	152511	33.388	33.616
4	33.684	RTE!	0.205	127292	33.616	33.821



Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	17.091	RTE!	0.296	4558	16.989	17.285
2	18.140	RTE!	0.160	2949	18.015	18.174
3	18.254	RTE!	0.274	15457	18.174	18.448
4	18.539	RTE!	0.182	2483	18.448	18.630
5	18.698	RTE!	0.091	2293	18.630	18.721
6	18.824	RTE!	0.251	48190	18.721	18.972
7	19.029	RTE!	0.182	17516	18.972	19.154
8	19.245	RTE!	0.228	14434	19.154	19.382
9	19.485	RTE!	0.160	19612	19.382	19.542
10	19.621	RTE!	0.182	86133	19.542	19.724
11	19.792	RTE!	0.274	125302	19.724	19.998
12	20.066	RTE!	0.274	2782	19.998	20.271
13	20.385	RTE!	0.160	73282	20.271	20.431
14	20.476	RTE!	0.387	99154	20.431	20.818
15	21.000	RTE!	0.433	126643	20.818	21.251
16	21.627	RTE!	0.274	10241	21.502	21.775
17	21.878	RTE!	0.365	26590	21.775	22.140
18	22.527	RTE!	0.205	3891	22.413	22.618
19	22.915	RTE!	0.205	2391	22.824	23.029
20	23.109	RTE!	0.160	2774	23.029	23.188
21	23.257	RTE!	0.137	3016	23.188	23.325
22	23.371	RTE!	0.137	2430	23.325	23.462
23	23.838	RTE!	0.228	3536	23.690	23.918
24	24.123	RTE!	0.160	4480	24.032	24.191
25	24.282	RTE!	0.228	3673	24.191	24.419
26	24.898	RTE!	0.251	7433	24.807	25.057
27	25.468	RTE!	0.205	3700	25.354	25.559
28	25.627	RTE!	0.160	3011	25.559	25.718
29	25.855	RTE!	0.205	2627	25.718	25.923
30	26.208	RTE!	0.228	4056	26.083	26.311
31	26.391	RTE!	0.137	2186	26.311	26.448
32	26.527	RTE!	0.160	2858	26.448	26.607
33	26.904	RTE!	0.228	4088	26.812	27.040
34	27.553	RTE!	0.182	2163	27.451	27.633
35	28.134	RTE!	0.182	2656	28.066	28.248

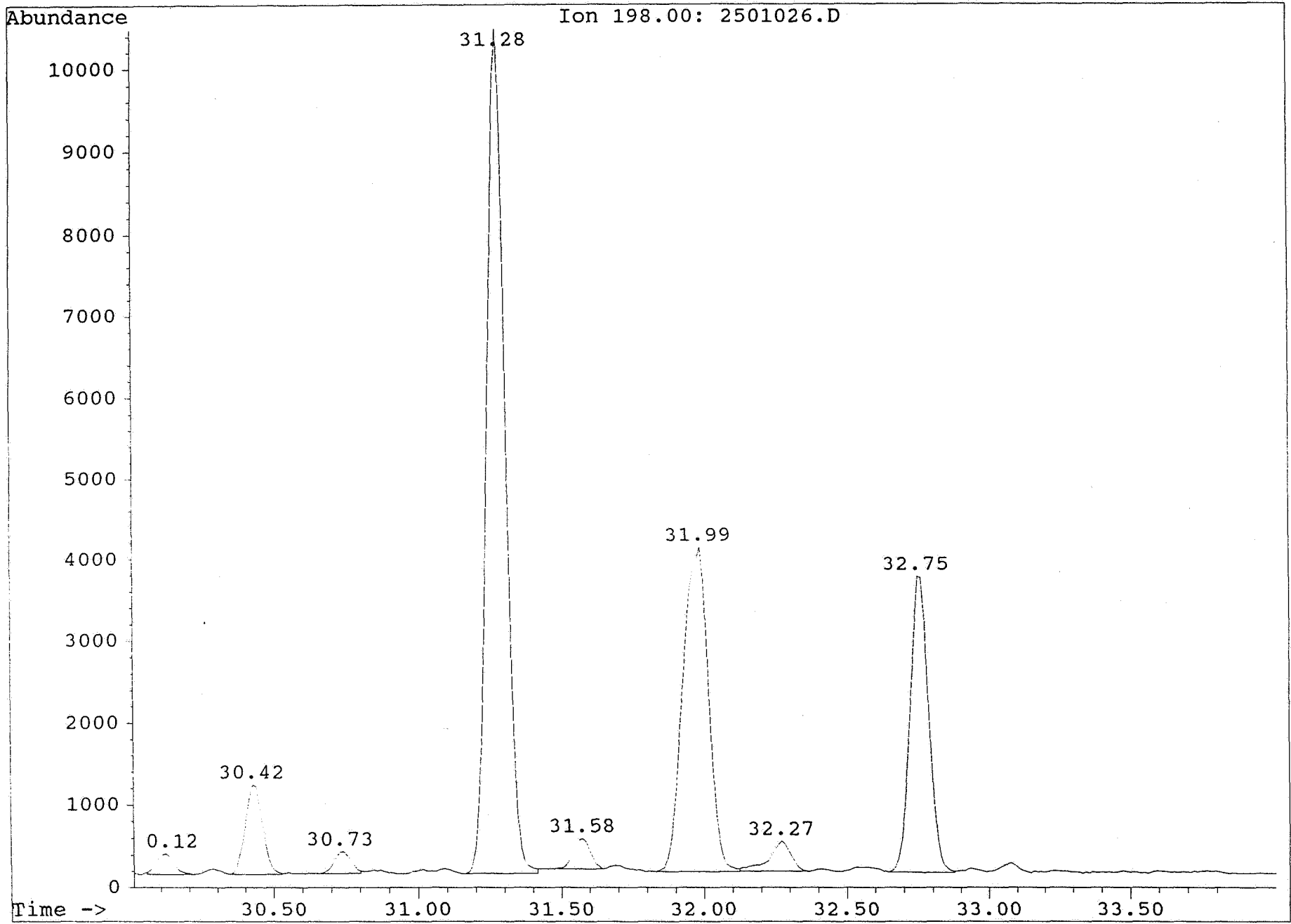


Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	20.123	RTE!	0.160	1665	20.043	20.203
2	20.294	RTE!	0.319	4024	20.203	20.522
3	20.932	RTE!	0.182	2600	20.818	21.000
4	21.092	RTE!	0.228	8264	21.000	21.228
5	21.331	RTE!	0.182	2434	21.228	21.411
6	21.490	RTE!	0.182	1749	21.411	21.593
7	21.695	RTE!	0.228	7779	21.593	21.821
8	21.923	RTE!	0.205	1904	21.821	22.026
9	22.265	RTE!	0.410	45540	22.026	22.436
10	22.562	RTE!	0.137	2888	22.505	22.641
11	22.926	RTE!	0.251	31182	22.778	23.029
12	23.120	RTE!	0.160	13867	23.029	23.188
13	23.257	RTE!	0.137	18167	23.188	23.325
14	23.382	RTE!	0.137	17482	23.325	23.462
15	23.519	RTE!	0.114	7851	23.462	23.576
16	23.633	RTE!	0.137	7785	23.576	23.713
17	23.849	RTE!	0.296	19762	23.713	24.009
18	24.123	RTE!	0.205	35079	24.009	24.214
19	24.294	RTE!	0.182	8804	24.214	24.396
20	24.465	RTE!	0.228	1007	24.396	24.624
21	24.727	RTE!	0.182	5201	24.624	24.807
22	24.898	RTE!	0.251	54634	24.807	25.057
23	25.479	RTE!	0.205	31800	25.354	25.559
24	25.638	RTE!	0.182	16598	25.559	25.741
25	25.832	RTE!	0.205	10571	25.741	25.946
26	26.220	RTE!	0.274	17075	26.037	26.311
27	26.379	RTE!	0.160	4154	26.311	26.470
28	26.573	RTE!	0.205	5934	26.470	26.676
29	27.166	RTE!	0.228	11173	27.040	27.268
30	27.405	RTE!	0.228	985.00	27.268	27.496
31	27.781	RTE!	0.342	32930	27.610	27.952
32	28.054	RTE!	0.160	1247	27.952	28.112
33	28.214	RTE!	0.160	1185	28.112	28.271
34	28.317	RTE!	0.137	898.00	28.271	28.408
35	28.670	RTE!	0.205	1143	28.590	28.795
36	29.069	RTE!	0.182	1027	28.955	29.137
37	29.525	RTE!	0.251	1623	29.365	29.616



HA565

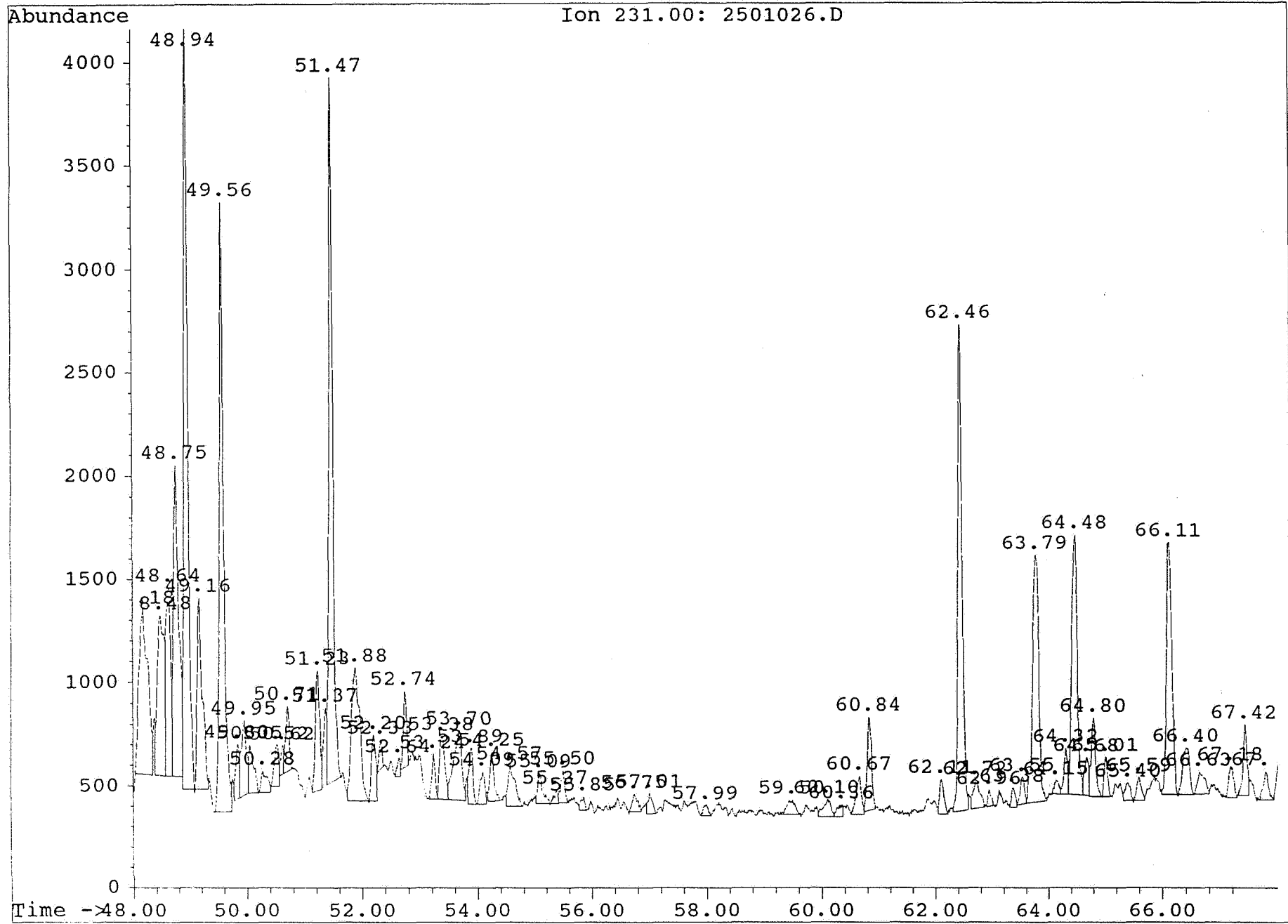
Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	30.117	RTE!	0.160	1078	30.049	30.208
2	30.425	RTE!	0.182	4563	30.345	30.528
3	30.733	RTE!	0.160	1117	30.642	30.801
4	31.280	RTE!	0.251	45736	31.166	31.416
5	31.576	RTE!	0.160	1509	31.485	31.644
6	31.986	RTE!	0.296	24319	31.827	32.123
7	32.271	RTE!	0.228	1965	32.123	32.351
8	32.750	RTE!	0.228	16162	32.647	32.875



HA565

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	48.180	RTE!	0.296	8192	48.044	48.340
2	48.477	RTE!	0.182	5857	48.385	48.568
3	48.636	RTE!	0.114	4995	48.568	48.682
4	48.750	RTE!	0.182	8992	48.682	48.864
5	48.944	RTE!	0.205	17699	48.864	49.069
6	49.160	RTE!	0.251	5532	49.069	49.320
7	49.559	RTE!	0.319	15018	49.411	49.730
8	49.833	RTE!	0.091	1150	49.776	49.867
9	49.947	RTE!	0.160	1976	49.867	50.026
10	50.049	RTE!	0.182	977.00	50.026	50.209
11	50.277	RTE!	0.205	769.00	50.209	50.414
12	50.516	RTE!	0.160	729.00	50.414	50.573
13	50.619	RTE!	0.068	473.00	50.573	50.642
14	50.710	RTE!	0.137	1374	50.642	50.779
15	51.234	RTE!	0.160	3137	51.143	51.303
16	51.371	RTE!	0.091	983.00	51.303	51.394
17	51.474	RTE!	0.251	15742	51.394	51.645
18	51.884	RTE!	0.387	6303	51.736	52.123
19	52.203	RTE!	0.137	1714	52.123	52.260
20	52.328	RTE!	0.114	490.00	52.260	52.374
21	52.636	RTE!	0.091	330.00	52.579	52.670
22	52.739	RTE!	0.137	1508	52.670	52.807
23	53.240	RTE!	0.160	590.00	53.149	53.308
24	53.377	RTE!	0.182	1979	53.308	53.491
25	53.696	RTE!	0.296	3009	53.491	53.787
26	53.890	RTE!	0.160	994.00	53.833	53.992
27	54.095	RTE!	0.160	918.00	53.992	54.152
28	54.254	RTE!	0.205	1226	54.175	54.380
29	54.573	RTE!	0.274	1656	54.494	54.767
30	55.086	RTE!	0.228	910.00	55.018	55.246
31	55.371	RTE!	0.160	302.00	55.246	55.405
32	55.496	RTE!	0.182	483.00	55.405	55.588
33	55.850	RTE!	0.137	296.00	55.770	55.907
34	56.750	RTE!	0.205	556.00	56.659	56.864
35	57.012	RTE!	0.160	537.00	56.955	57.115
36	57.992	RTE!	0.182	300.00	57.890	58.072
37	59.496	RTE!	0.342	676.00	59.303	59.645
38	60.100	RTE!	0.274	778.00	59.941	60.214
39	60.363	RTE!	0.160	395.00	60.214	60.374
40	60.670	RTE!	0.228	912.00	60.511	60.739
41	60.841	RTE!	0.205	2439	60.739	60.944
42	62.106	RTE!	0.182	923.00	62.038	62.220

44	62.22	RTE!	0.228	1138	630	62.858
45	62.961	RTE!	0.114	317.00	62.904	63.018
46	63.383	RTE!	0.137	451.00	63.314	63.451
47	63.553	RTE!	0.160	684.00	63.451	63.611
48	63.793	RTE!	0.365	9032	63.611	63.975
49	64.146	RTE!	0.160	382.00	64.066	64.226
50	64.317	RTE!	0.137	986.00	64.226	64.363
51	64.477	RTE!	0.251	8142	64.363	64.613
52	64.682	RTE!	0.114	990.00	64.613	64.727
53	64.796	RTE!	0.205	2032	64.727	64.932
54	65.012	RTE!	0.160	818.00	64.932	65.092
55	65.400	RTE!	0.160	527.00	65.320	65.479
56	65.593	RTE!	0.205	627.00	65.479	65.684
57	66.106	RTE!	0.274	7775	65.981	66.254
58	66.403	RTE!	0.274	1899	66.254	66.528
59	66.630	RTE!	0.251	650.00	66.551	66.801
60	67.177	RTE!	0.205	931.00	67.075	67.280
61	67.417	RTE!	0.182	1669	67.303	67.485
62	67.770	RTE!	0.251	579.00	67.667	67.918



HA565

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	48.773	RTE!	0.182	156.00	48.659	48.841
2	49.115	RTE!	0.137	87.00	49.069	49.206
3	49.286	RTE!	0.137	168.00	49.206	49.343
4	49.810	RTE!	0.205	1057	49.707	49.913
5	50.368	RTE!	0.319	933.00	50.186	50.505
6	50.665	RTE!	0.319	867.00	50.505	50.824
7	50.915	RTE!	0.137	343.00	50.824	50.961
8	51.063	RTE!	0.182	1116	50.961	51.143
9	51.360	RTE!	0.137	214.00	51.303	51.439
10	52.237	RTE!	0.228	537.00	52.169	52.397
11	52.647	RTE!	0.137	243.00	52.579	52.716
12	53.194	RTE!	0.160	167.00	53.149	53.308
13	53.422	RTE!	0.114	413.00	53.354	53.468
14	53.548	RTE!	0.296	3390	53.468	53.764
15	54.026	RTE!	0.205	1565	53.947	54.152
16	54.813	RTE!	0.205	161.00	54.744	54.949
17	55.041	RTE!	0.205	2435	54.949	55.155
18	55.200	RTE!	0.137	211.00	55.155	55.291
19	55.405	RTE!	0.160	782.00	55.291	55.451
20	55.542	RTE!	0.182	4092	55.451	55.633
21	55.952	RTE!	0.137	742.00	55.884	56.021
22	56.100	RTE!	0.182	1735	56.021	56.203
23	56.271	RTE!	0.091	250.00	56.203	56.294
24	56.659	RTE!	0.228	1596	56.568	56.796
25	56.910	RTE!	0.274	1232	56.841	57.115
26	57.251	RTE!	0.251	5779	57.115	57.365
27	57.445	RTE!	0.205	1894	57.365	57.571
28	57.650	RTE!	0.091	216.00	57.593	57.685
29	57.741	RTE!	0.137	964.00	57.685	57.821
30	57.890	RTE!	0.137	1096	57.821	57.958
31	58.118	RTE!	0.205	902.00	58.049	58.254
32	58.630	RTE!	0.114	296.00	58.573	58.687
33	58.756	RTE!	0.137	272.00	58.687	58.824
34	58.938	RTE!	0.182	1035	58.824	59.006
35	59.086	RTE!	0.137	2053	59.006	59.143
36	59.223	RTE!	0.182	4981	59.143	59.326
37	59.553	RTE!	0.182	1852	59.394	59.576
38	59.838	RTE!	0.182	886.00	59.781	59.964
39	60.043	RTE!	0.205	1312	59.987	60.192
40	60.317	RTE!	0.205	1375	60.214	60.420
41	60.625	RTE!	0.068	114.00	60.579	60.648
42	61.012	RTE!	0.228	908.00	60.830	61.058

44	61 .4	RTE!	0.228	493.00	€ 764	61.992
45	62.243	RTE!	0.274	1825	62.106	62.380
46	63.998	RTE!	0.137	259.00	63.930	64.066

Abundance

Ion 253.00: 2501026.D

