Supporting Information

Ruthenium-Catalyzed *ortho*-Alkenylation of Phenylphosphine Oxides through Regio- and Stereoselective Alkyne Insertion into C–H Bond

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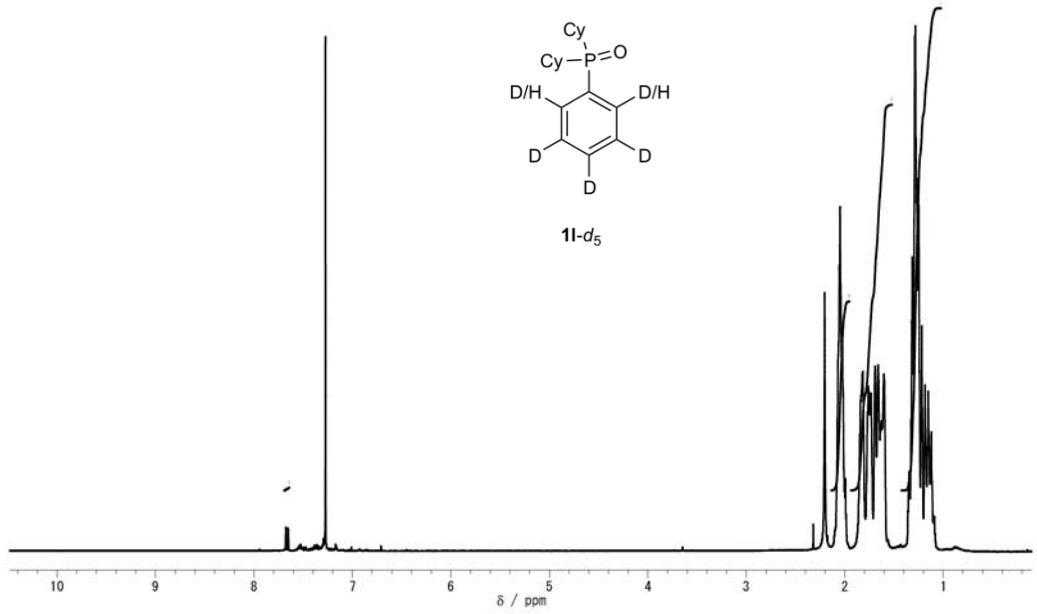
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[b] *JST, ACT-C, 4-1-8 Honcho, Kawaguchi, Saitama 332-0012, Japan*

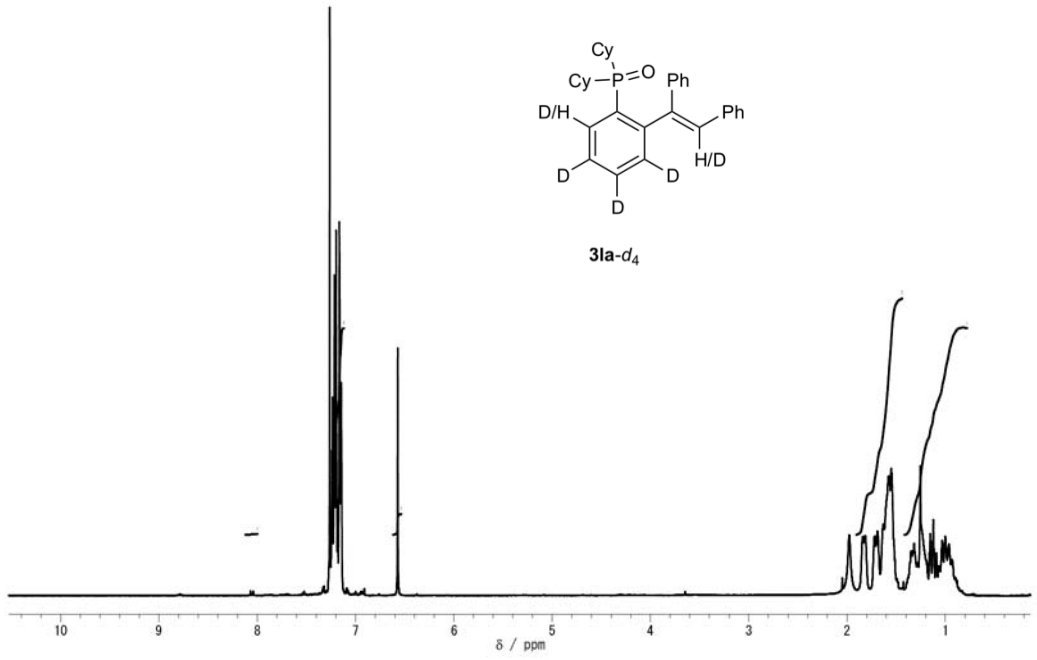
List of Contents for Experimental Section

^{1}H Spectra for Deuterium Experiments: S-2

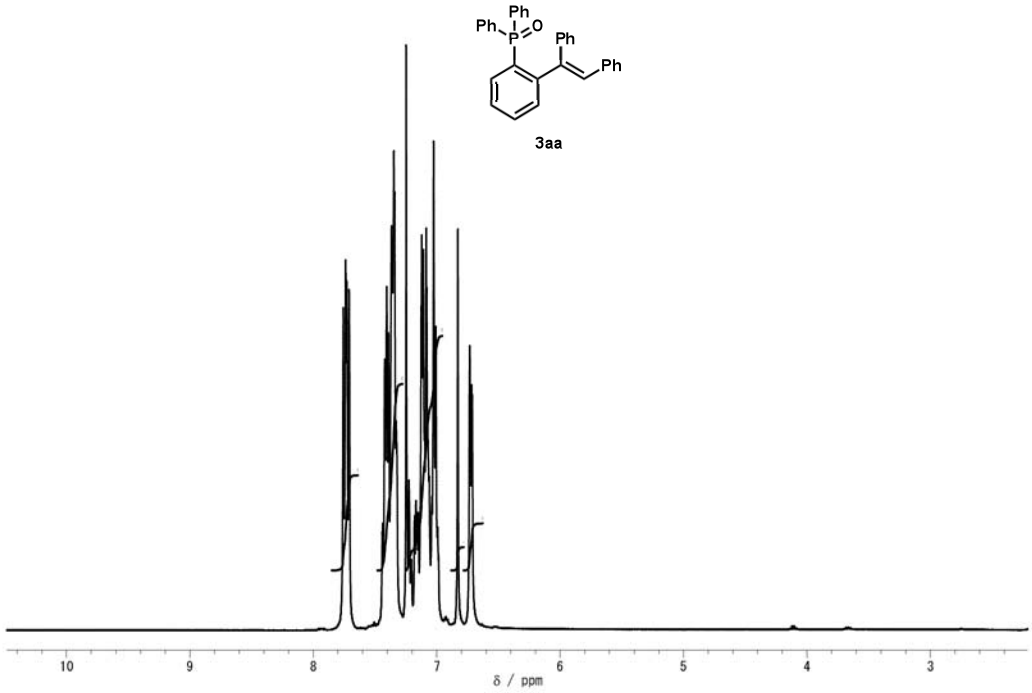
^{1}H and ^{13}C NMR Spectra of Products: S3 – S27



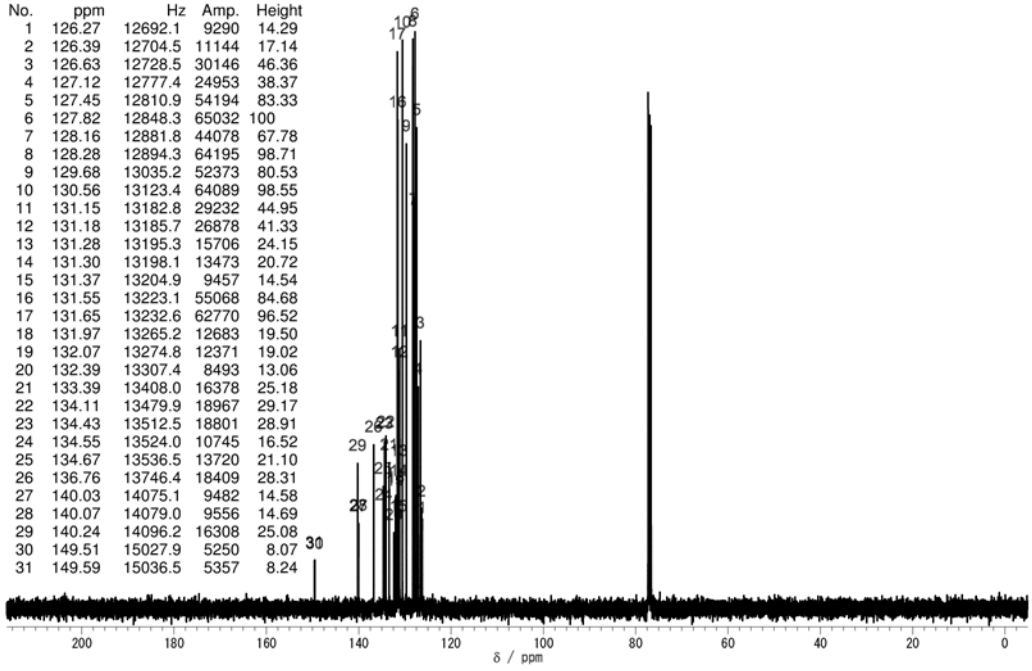
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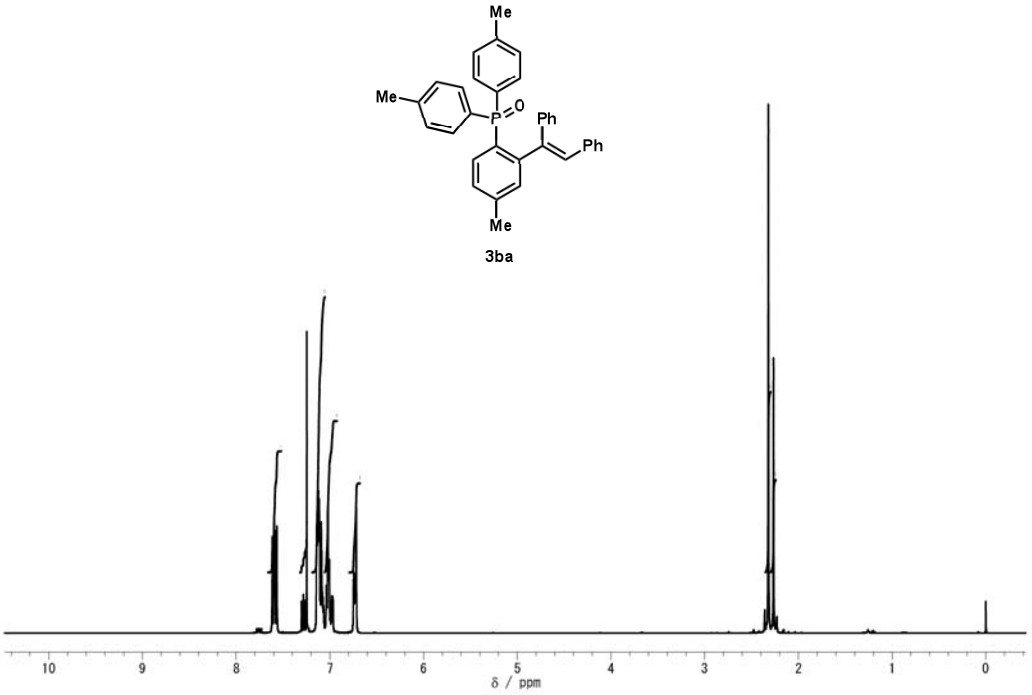


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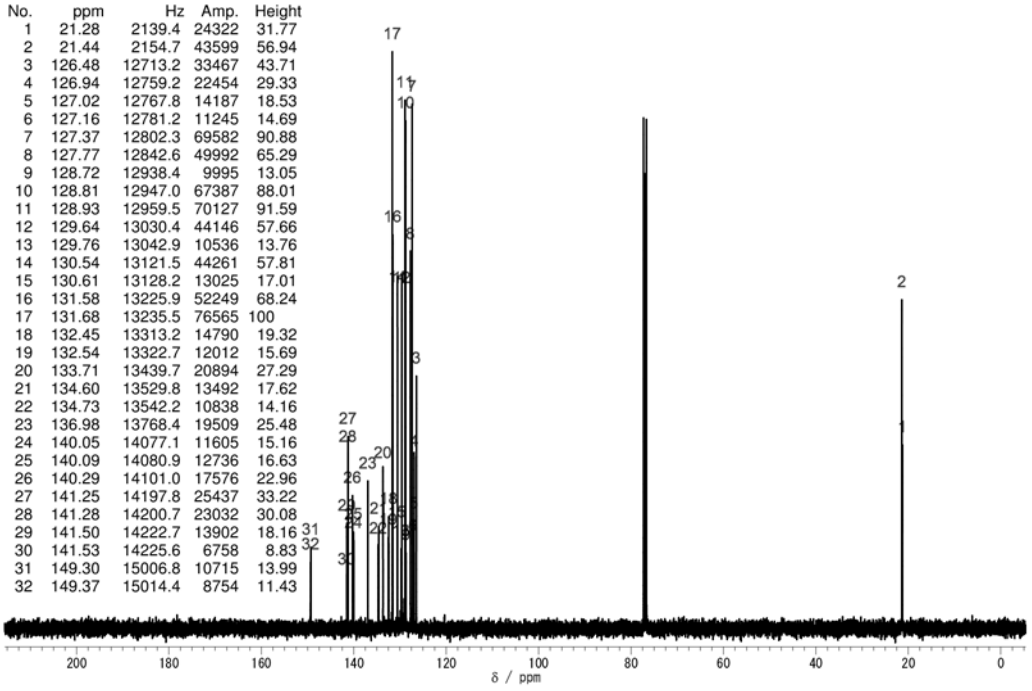
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5	127.45	12810.9	54194	83.33
6	127.82	12848.3	65032	100
7	128.16	12881.8	44078	67.78
8	128.28	12894.3	64195	98.71
9	129.68	13035.2	52373	80.53
10	130.56	13123.4	64089	98.55
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13	131.28	13195.3	15706	24.15
14	131.30	13198.1	13473	20.72
15	131.37	13204.9	9457	14.54
16	131.55	13223.1	55068	84.68
17	131.65	13232.6	62770	96.52
18	131.97	13265.2	12683	19.50
19	132.07	13274.8	12371	19.02
20	132.39	13307.4	8493	13.06
21	133.39	13408.0	16378	25.18
22	134.11	13479.9	18967	29.17
23	134.43	13512.5	18801	28.91
24	134.55	13524.0	10745	16.52
25	134.67	13536.5	13720	21.10
26	136.76	13746.4	18409	28.31
27	140.03	14075.1	9482	14.58
28	140.07	14079.0	9556	14.69
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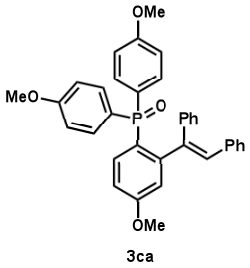




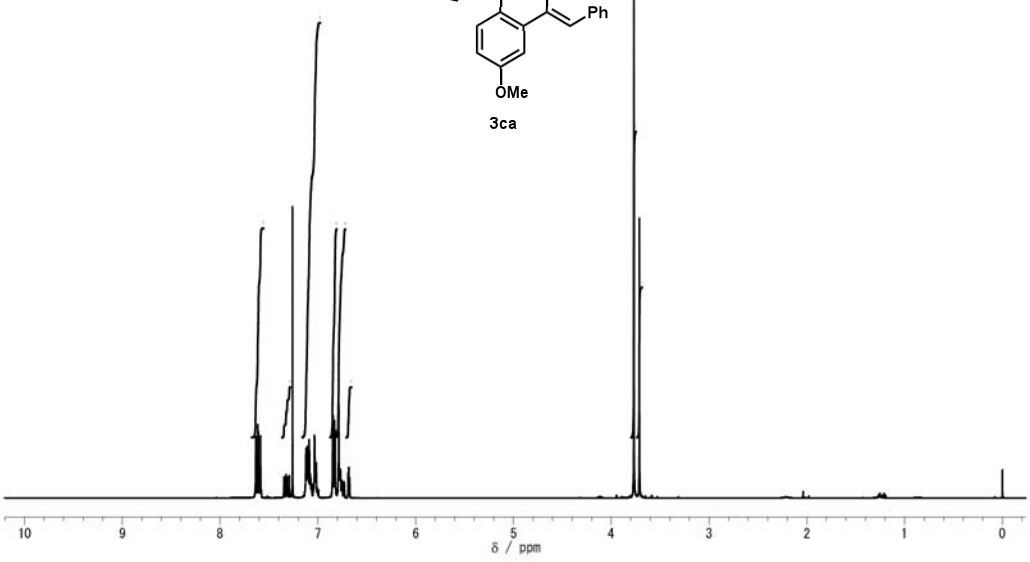
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7	127.37	12802.3	69582	90.88
8	127.77	12842.6	49992	65.29
9	128.72	12938.4	9995	13.05
10	128.81	12947.0	67387	88.01
11	128.93	12959.5	70127	91.59
12	129.64	13030.4	44146	57.66
13	129.76	13042.9	10536	13.76
14	130.54	13121.5	44261	57.81
15	130.61	13128.2	13025	17.01
16	131.58	13225.9	52249	68.24
17	131.68	13235.5	76565	100
18	132.45	13313.2	14790	19.32
19	132.54	13322.7	12012	15.69
20	133.71	13439.7	20894	27.29
21	134.60	13529.8	13492	17.62
22	134.73	13542.2	10838	14.16
23	136.98	13768.4	19509	25.48
24	140.05	14077.1	11605	15.16
25	140.09	14080.9	12736	16.63
26	140.29	14101.0	17576	22.96
27	141.25	14197.8	25437	33.22
28	141.28	14200.7	23032	30.08
29	141.50	14222.7	13902	18.16
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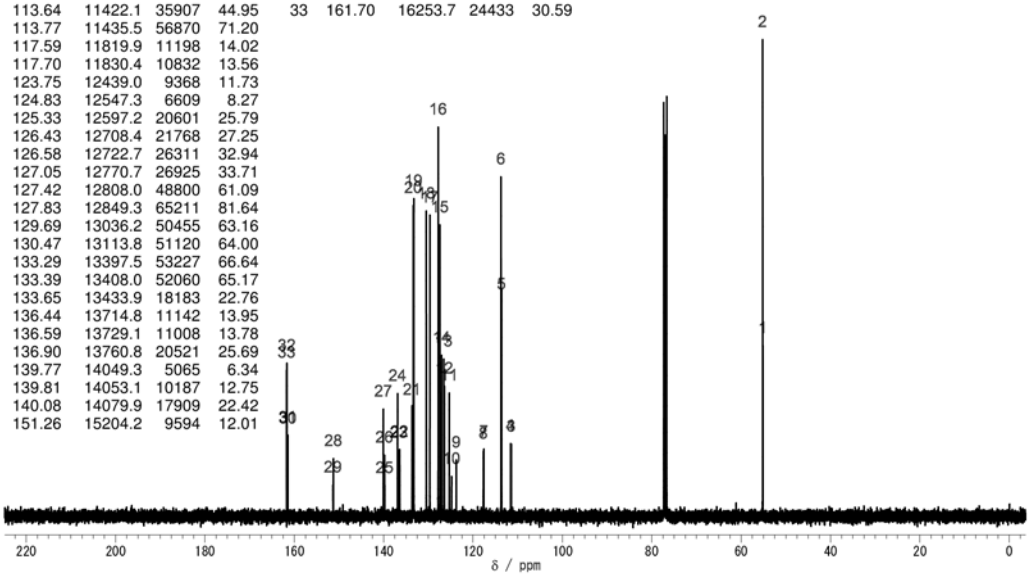


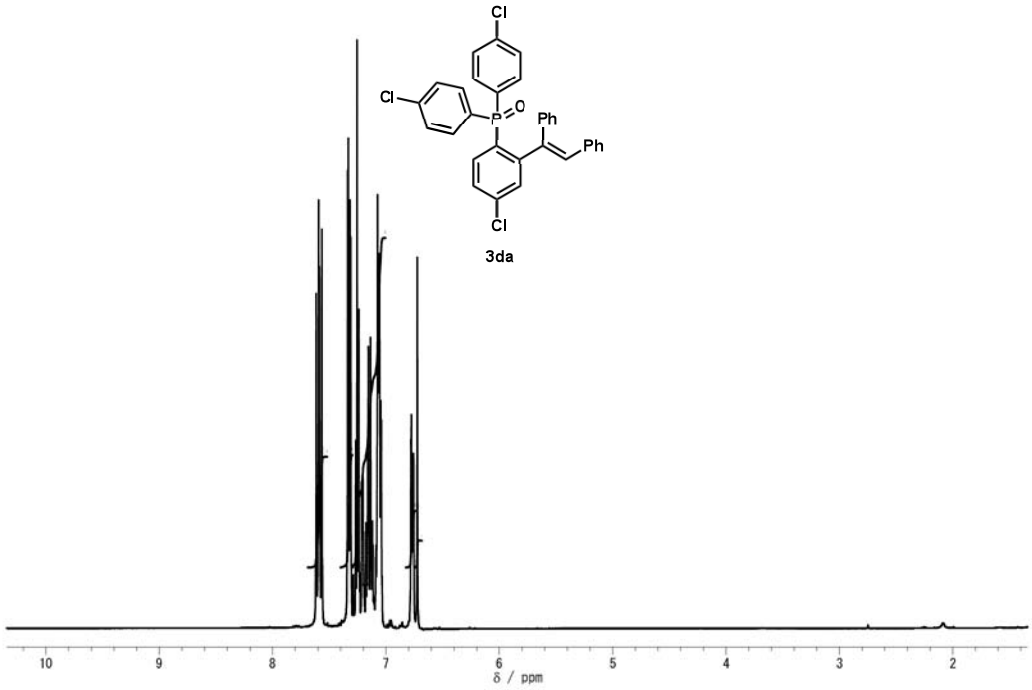


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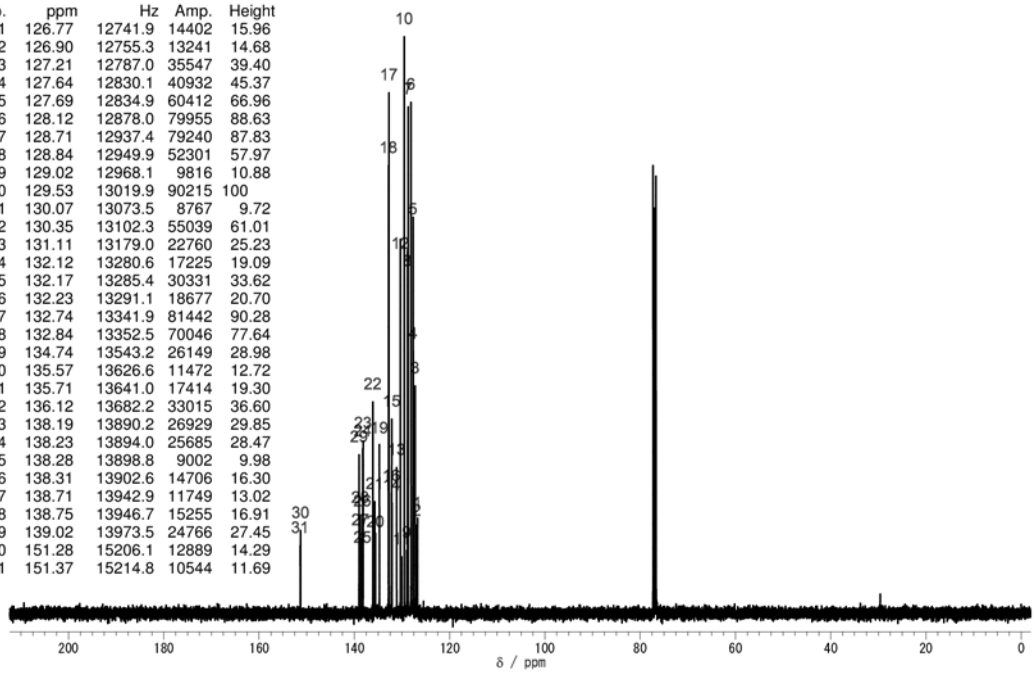
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3	111.46	11203.6	12038	15.07	31	161.48	16230.7	13546	16.96
4	111.59	11217.0	12121	15.17	32	161.68	16250.9	25617	32.07
5	113.64	11422.1	35907	44.95	33	161.70	16253.7	24433	30.59
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7	117.59	11819.9	11198	14.02					
8	117.70	11830.4	10832	13.56					
9	123.75	12439.0	9368	11.73					
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11	125.33	12597.2	20601	25.79					
12	126.43	12708.4	21768	27.25					
13	126.58	12722.7	26311	32.94					
14	127.05	12770.7	26925	33.71					
15	127.42	12808.0	48800	61.09					
16	127.83	12849.3	65211	81.64					
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18	130.47	13113.8	51120	64.00					
19	133.29	13397.5	53227	66.64					
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21	133.65	13433.9	18183	22.76					
22	136.44	13714.8	11142	13.95					
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25	139.77	14049.3	5065	6.34					
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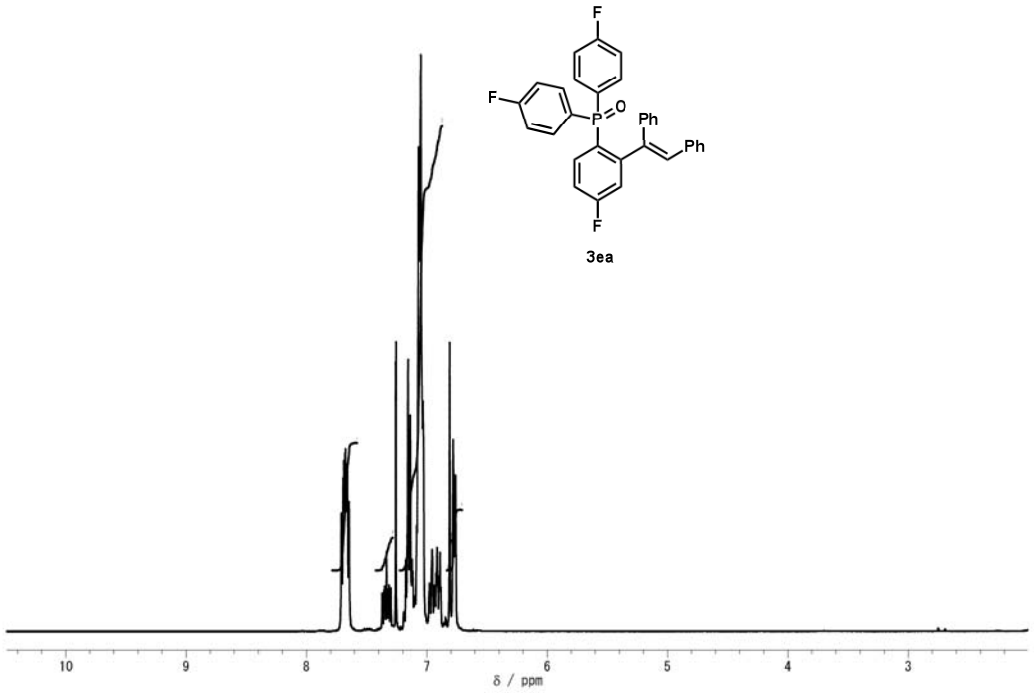




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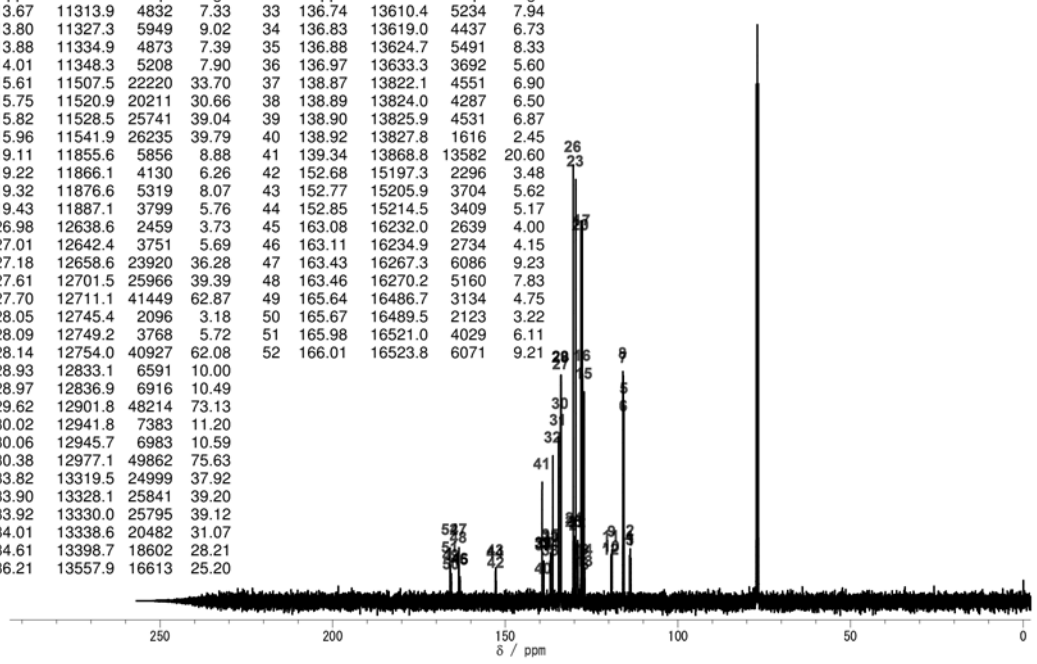
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18	132.84	13352.5	70046	77.64
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21	135.71	13641.0	17414	19.30
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23	138.19	13890.2	26929	29.85
24	138.23	13894.0	25685	28.47
25	138.28	13898.8	9002	9.98
26	138.31	13902.6	14706	16.30
27	138.71	13942.9	11749	13.02
28	138.75	13946.7	15255	16.91
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31	151.37	15214.8	10544	11.69

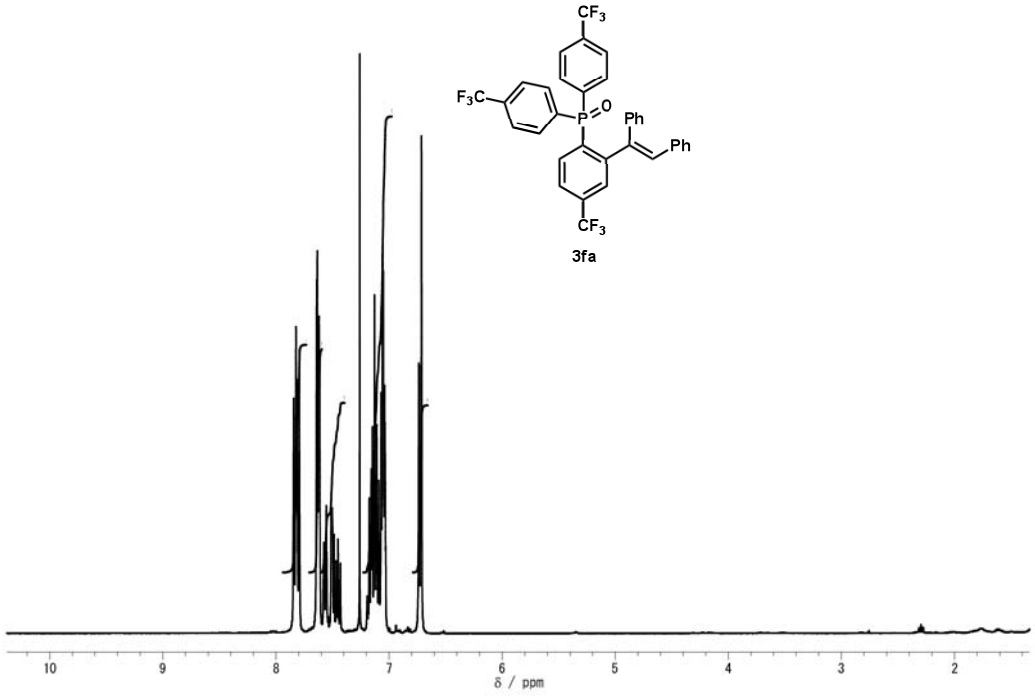




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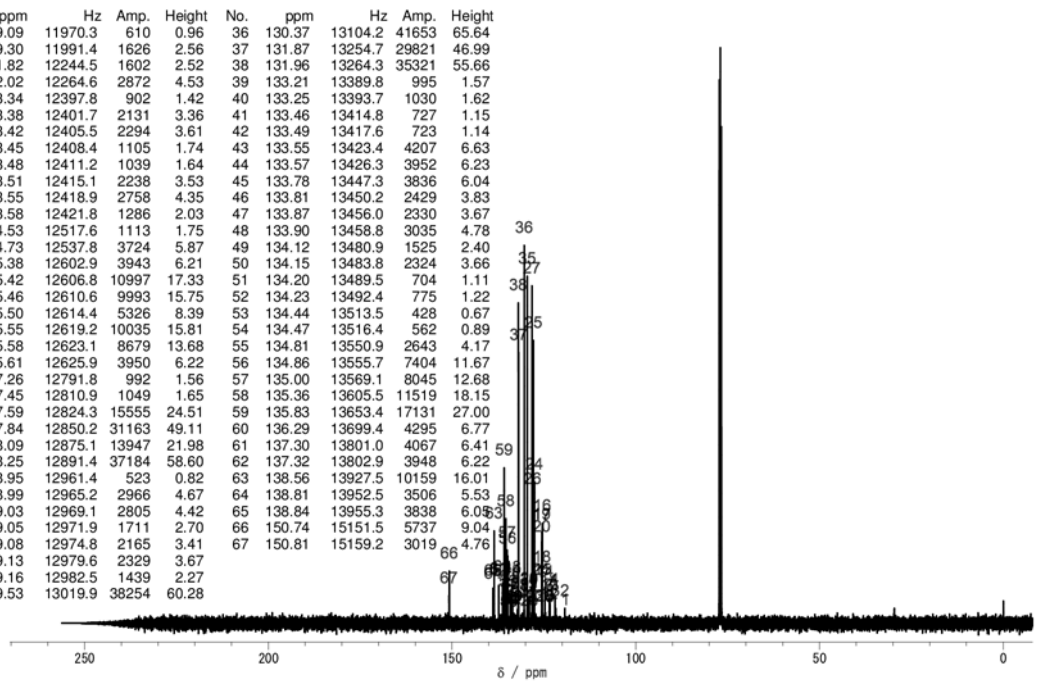
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3	113.88	11334.9	4873	7.39	35	136.88	13624.7	5491	8.33
4	114.01	11348.3	5208	7.90	36	136.97	13633.3	3692	5.60
5	115.61	11507.5	22220	33.70	37	138.87	13822.1	4551	6.90
6	115.75	11520.9	20211	30.66	38	138.89	13824.0	4287	6.50
7	115.82	11528.5	25741	39.04	39	138.90	13825.9	4531	6.87
8	115.96	11541.9	26235	39.79	40	138.92	13827.8	1616	2.45
9	119.11	11855.6	5856	8.88	41	139.34	13868.8	13582	20.60
10	119.22	11866.1	4130	6.26	42	152.68	15197.3	2296	3.48
11	119.32	11876.6	5319	8.07	43	152.77	15205.9	3704	5.62
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13	126.98	12638.6	2459	3.73	45	163.08	16232.0	2639	4.00
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15	127.18	12658.6	23920	36.28	47	163.43	16267.3	6086	9.23
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17	127.70	12711.1	41449	62.87	49	165.64	16486.7	3134	4.75
18	128.05	12745.4	2096	3.18	50	165.67	16489.5	2123	3.22
19	128.09	12749.2	3768	5.72	51	165.98	16521.0	4029	6.11
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24	130.02	12941.8	7383	11.20					
25	130.06	12945.7	6983	10.59					
26	130.38	12977.1	49862	75.63					
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28	133.90	13328.1	25841	39.20					
29	133.92	13330.0	25795	39.12					
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32	136.21	13557.9	16613	25.20					

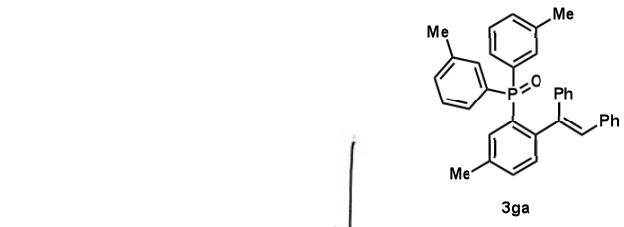




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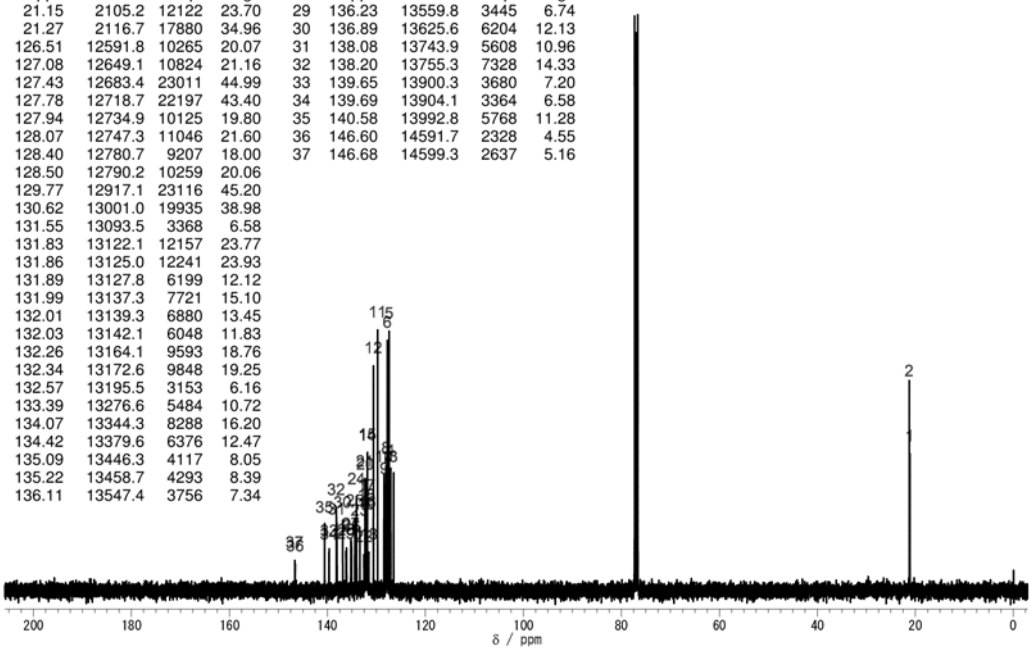
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3	121.82	12244.5	1602	2.52	38	131.96	13264.3	35321	55.66
4	122.02	12264.6	2872	4.53	39	133.21	13389.8	995	1.57
5	123.34	12397.8	902	1.42	40	133.25	13393.7	1030	1.62
6	123.38	12401.7	2131	3.36	41	133.46	13414.8	727	1.15
7	123.42	12405.5	2294	3.61	42	133.49	13417.6	723	1.14
8	123.45	12408.4	1105	1.74	43	133.55	13423.4	4207	6.63
9	123.48	12411.2	1039	1.64	44	133.57	13426.3	3952	6.23
10	123.51	12415.1	2238	3.53	45	133.78	13447.3	3836	6.04
11	123.55	12418.9	2758	4.35	46	133.81	13450.2	2429	3.83
12	123.58	12421.8	1286	2.03	47	133.87	13456.0	2330	3.67
13	124.53	12517.6	1113	1.75	48	133.90	13458.8	3035	4.78
14	124.73	12537.8	3724	5.87	49	134.12	13480.9	1525	2.40
15	125.38	12602.9	3943	6.21	50	134.15	13483.8	2324	3.66
16	125.42	12606.8	10997	17.33	51	134.20	13489.5	704	1.11
17	125.46	12610.6	9993	15.75	52	134.23	13492.4	775	1.22
18	125.50	12614.4	5326	8.39	53	134.44	13513.5	428	0.67
19	125.55	12619.2	10035	15.81	54	134.47	13516.4	562	0.89
20	125.58	12623.1	8679	13.68	55	134.81	13550.9	2643	4.17
21	125.61	12625.9	3950	6.22	56	134.86	13555.7	7404	11.67
22	127.26	12791.8	992	1.56	57	135.00	13569.1	8045	12.68
23	127.45	12810.9	1049	1.65	58	135.36	13605.5	11519	18.15
24	127.59	12824.3	15555	24.51	59	135.83	13653.4	17131	27.00
25	127.84	12850.2	31163	49.11	60	136.29	13699.4	4295	6.77
26	128.09	12875.1	13947	21.98	61	137.30	13801.0	4067	6.41
27	128.25	12891.4	37184	58.60	62	137.32	13802.9	3948	6.22
28	128.95	12961.4	523	0.82	63	138.56	13927.5	10159	16.01
29	128.99	12965.2	2966	4.67	64	138.81	13952.5	3506	5.53
30	129.03	12969.1	2805	4.42	65	138.84	13955.3	3838	6.05
31	129.05	12971.9	1711	2.70	66	150.74	15151.5	5737	9.04
32	129.08	12974.8	2165	3.41	67	150.81	15159.2	3019	4.76
33	129.13	12979.6	2329	3.67					
34	129.16	12982.5	1439	2.27					
35	129.53	13019.9	38254	60.28					

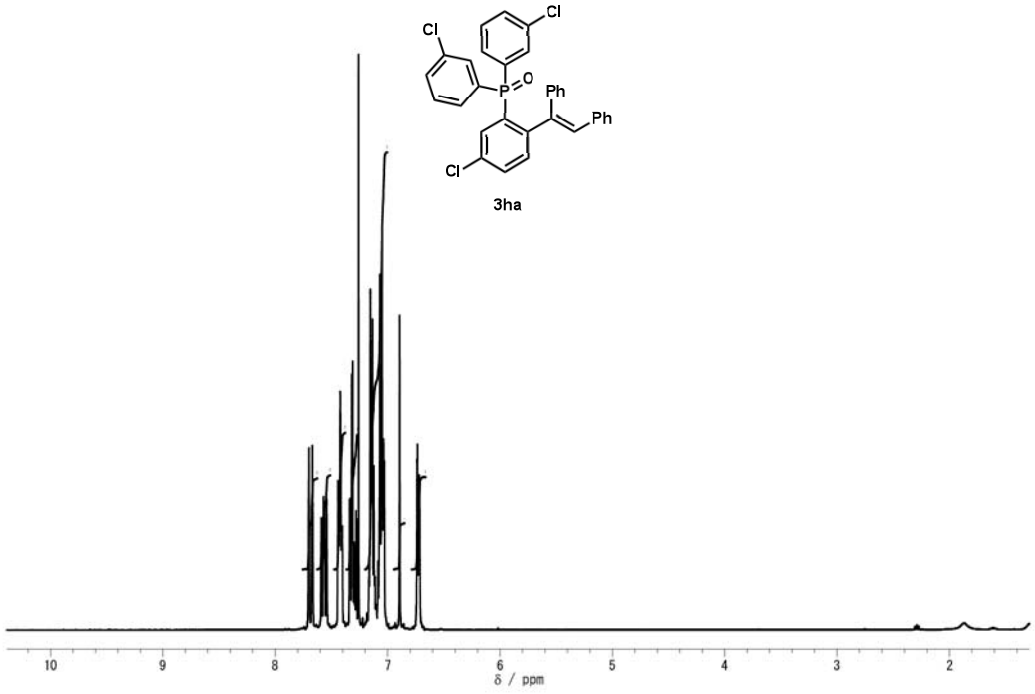




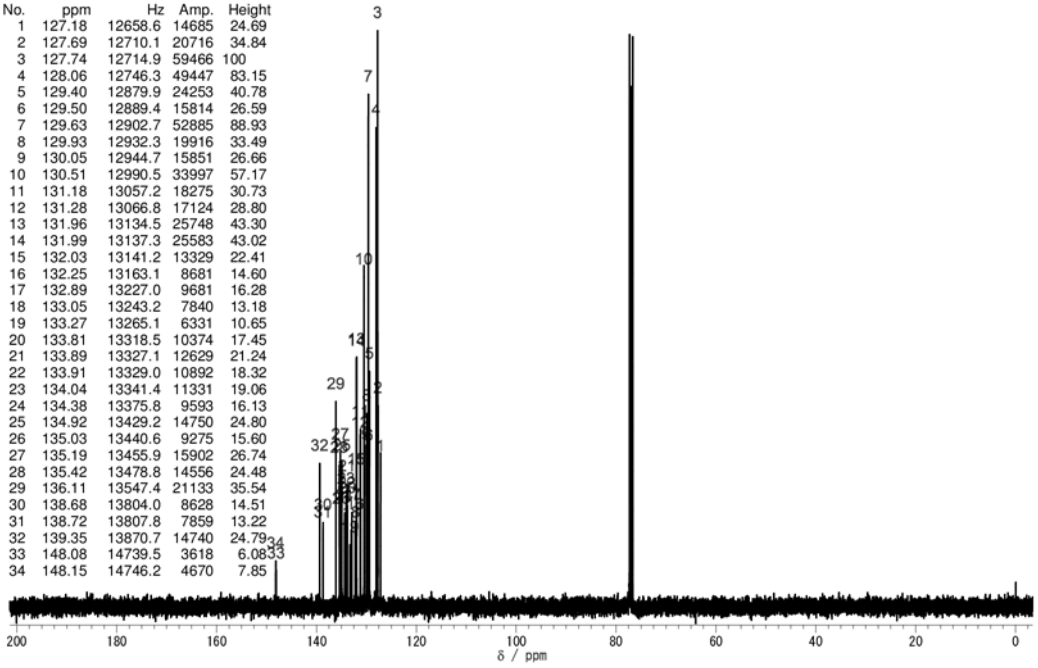
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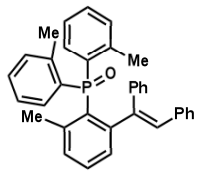
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3	126.51	12591.8	10265	20.07	31	138.08	13743.9	5608	10.96
4	127.08	12649.1	10824	21.16	32	138.20	13755.3	7328	14.33
5	127.43	12683.4	23011	44.99	33	139.65	13900.3	3680	7.20
6	127.78	12718.7	22197	43.40	34	139.69	13904.1	3364	6.58
7	127.94	12734.9	10125	19.80	35	140.58	13992.8	5768	11.28
8	128.07	12747.3	11046	21.60	36	146.60	14591.7	2328	4.55
9	128.40	12780.7	9207	18.00	37	146.68	14599.3	2637	5.16
10	128.50	12790.2	10259	20.06					
11	129.77	12917.1	23116	45.20					
12	130.62	13001.0	19935	38.98					
13	131.55	13093.5	3368	6.58					
14	131.83	13122.1	12157	23.77					
15	131.86	13125.0	12241	23.93					
16	131.89	13127.8	6199	12.12					
17	131.99	13137.3	7721	15.10					
18	132.01	13139.3	6880	13.45					
19	132.03	13142.1	6048	11.83					
20	132.26	13164.1	9593	18.76					
21	132.34	13172.6	9848	19.25					
22	132.57	13195.5	3153	6.16					
23	133.39	13276.6	5484	10.72					
24	134.07	13344.3	8288	16.20					
25	134.42	13379.6	6376	12.47					
26	135.09	13446.3	4117	8.05					
27	135.22	13458.7	4293	8.39					
28	136.11	13547.4	3756	7.34					



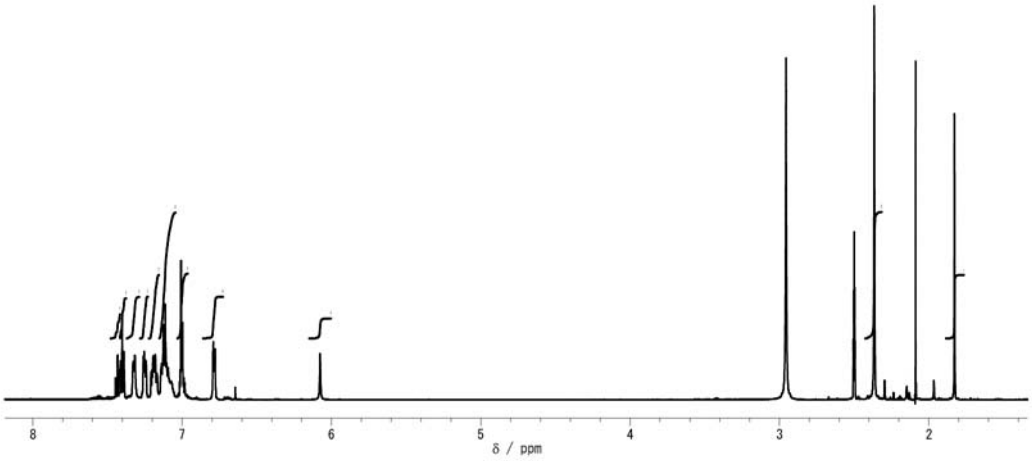


No.	ppm	Hz	Amp.	Height
1	127.18	12658.6	14685	24.69
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3	127.74	12714.9	59466	100
4	128.06	12746.3	49447	83.15
5	129.40	12879.9	24253	40.78
6	129.50	12889.4	15814	26.59
7	129.63	12902.7	52885	88.93
8	129.93	12932.3	19916	33.49
9	130.05	12944.7	15851	26.66
10	130.51	12990.5	33997	57.17
11	131.18	13057.2	18275	30.73
12	131.28	13066.8	17124	28.80
13	131.96	13134.5	25748	43.30
14	131.99	13137.3	25583	43.02
15	132.03	13141.2	13329	22.41
16	132.25	13163.1	8681	14.60
17	132.89	13227.0	9681	16.28
18	133.05	13243.2	7840	13.18
19	133.27	13265.1	6331	10.65
20	133.81	13318.5	10374	17.45
21	133.89	13327.1	12629	21.24
22	133.91	13329.0	10892	18.32
23	134.04	13341.4	11331	19.06
24	134.38	13375.8	9593	16.13
25	134.92	13429.2	14750	24.80
26	135.03	13440.6	9275	15.60
27	135.19	13455.9	15902	26.74
28	135.42	13478.8	14556	24.48
29	136.11	13547.4	21133	35.54
30	138.68	13804.0	8628	14.51
31	138.72	13807.8	7859	13.22
32	139.35	13870.7	14740	24.79
33	148.08	14739.5	3618	6.08
34	148.15	14746.2	4670	7.85

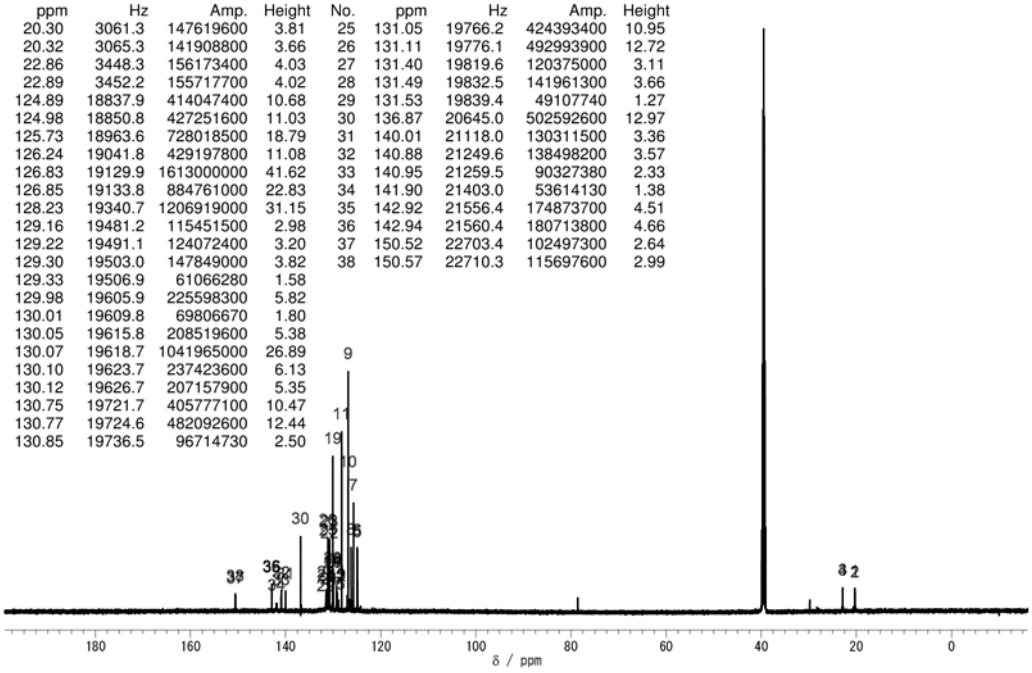


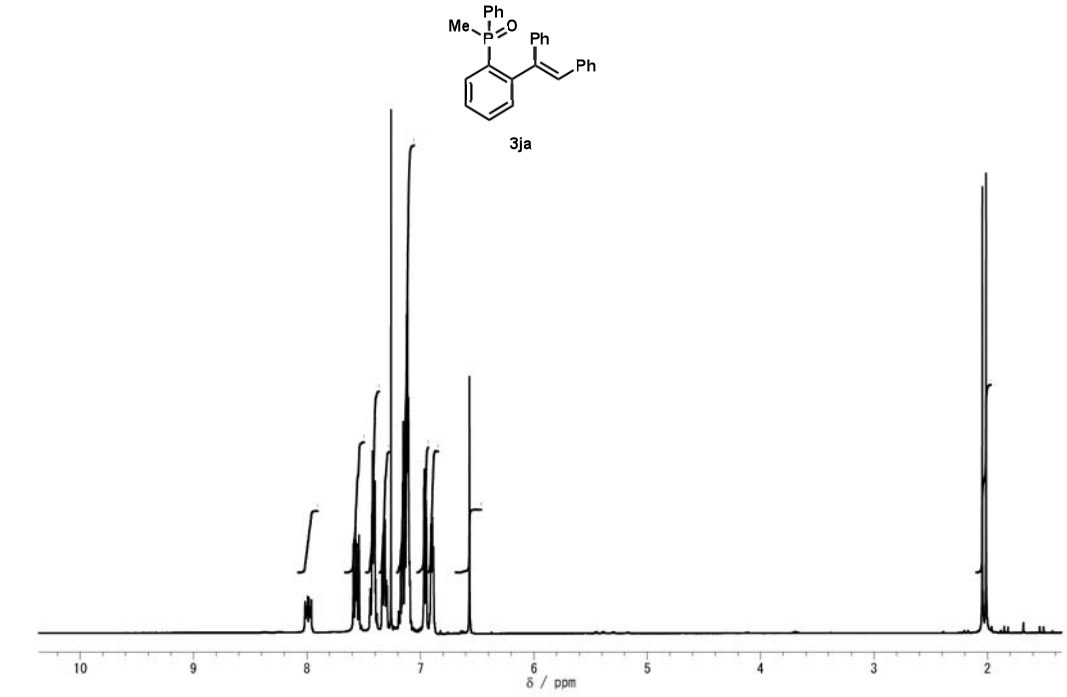


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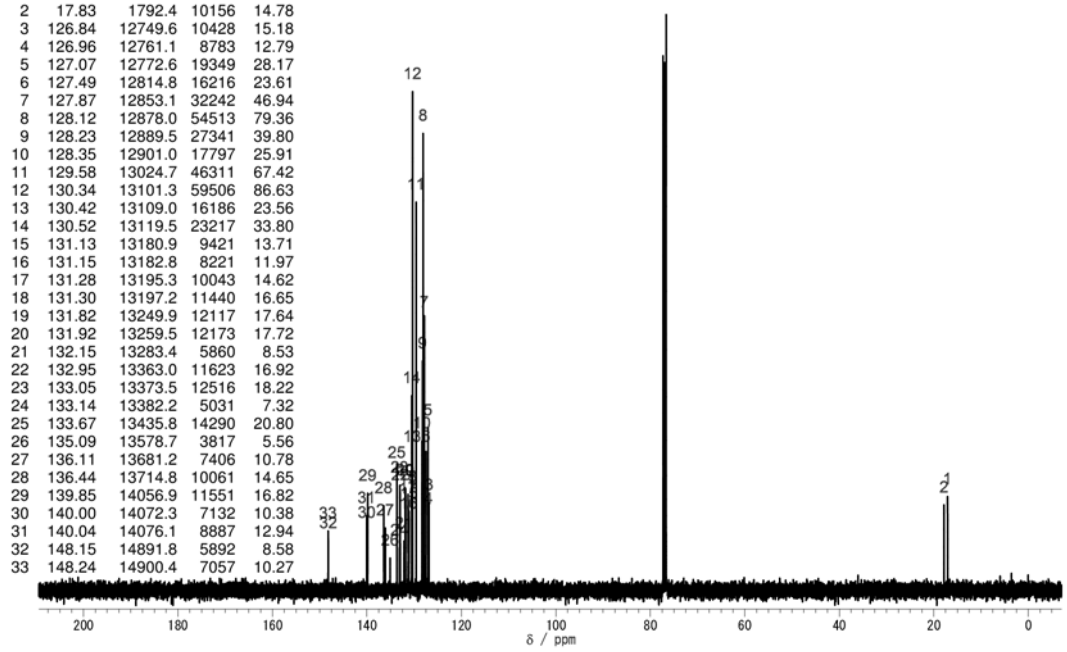


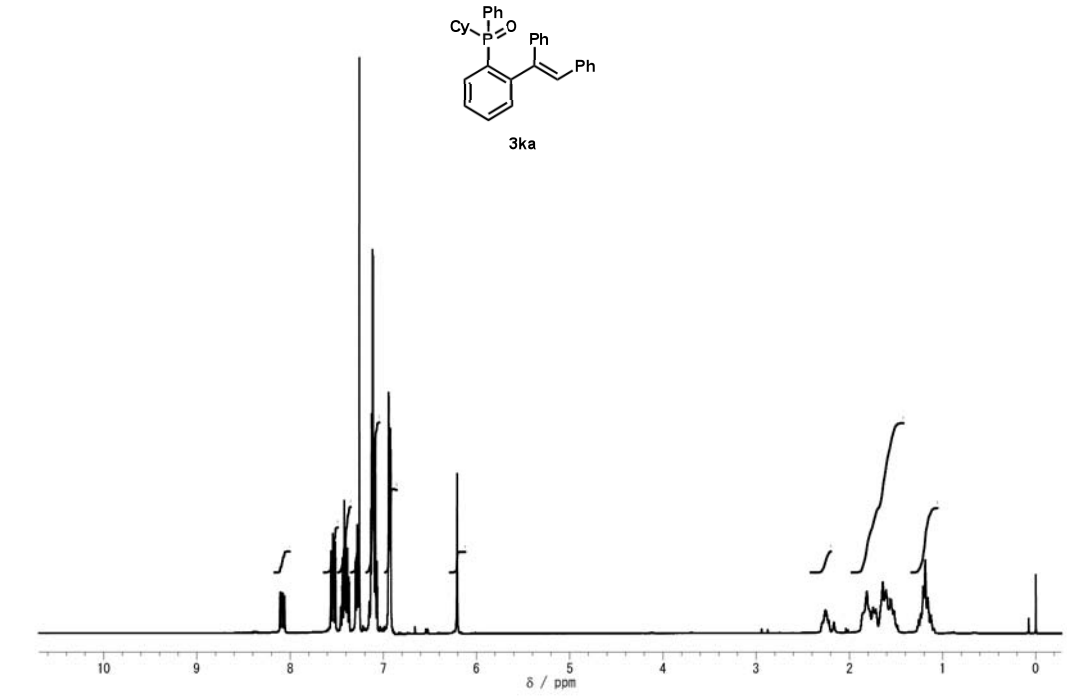
No.	ppm	Hz	Amp.	Height	No.	ppm	Hz	Amp.	Height
1	20.30	3061.3	147619600	3.81	25	131.05	19766.2	424393400	10.95
2	20.32	3065.3	141908800	3.66	26	131.11	19776.1	492993900	12.72
3	22.86	3448.3	156173400	4.03	27	131.40	19819.6	120375000	3.11
4	22.89	3452.2	155717700	4.02	28	131.49	19832.5	141961300	3.66
5	124.89	18837.9	414047400	10.68	29	131.53	19839.4	49107740	1.27
6	124.98	18850.8	427251600	11.03	30	136.87	20645.0	502592600	12.97
7	125.73	18963.6	728018500	18.79	31	140.01	21118.0	130311500	3.36
8	126.24	19041.8	429197800	11.08	32	140.88	21249.6	138498200	3.57
9	126.83	19129.9	1613000000	41.62	33	140.95	21259.5	90327380	2.33
10	126.85	19133.8	884761000	22.83	34	141.90	21403.0	53614130	1.38
11	128.23	19340.7	1206919000	31.15	35	142.92	21556.4	174873700	4.51
12	129.16	19481.2	115451500	2.98	36	142.94	21560.4	180713800	4.66
13	129.22	19491.1	124072400	3.20	37	150.52	22703.4	102497300	2.64
14	129.30	19503.0	147849000	3.82	38	150.57	22710.3	115697600	2.99
15	129.33	19506.9	61066280	1.58					
16	129.98	19605.9	225598300	5.82					
17	130.01	19609.8	69806670	1.80					
18	130.05	19615.8	208519600	5.38					
19	130.07	19618.7	1041965000	26.89					
20	130.10	19623.7	237423600	6.13					
21	130.12	19626.7	207157900	5.35					
22	130.75	19721.7	405777100	10.47					
23	130.77	19724.6	482092600	12.44					
24	130.85	19736.5	96714730	2.50					



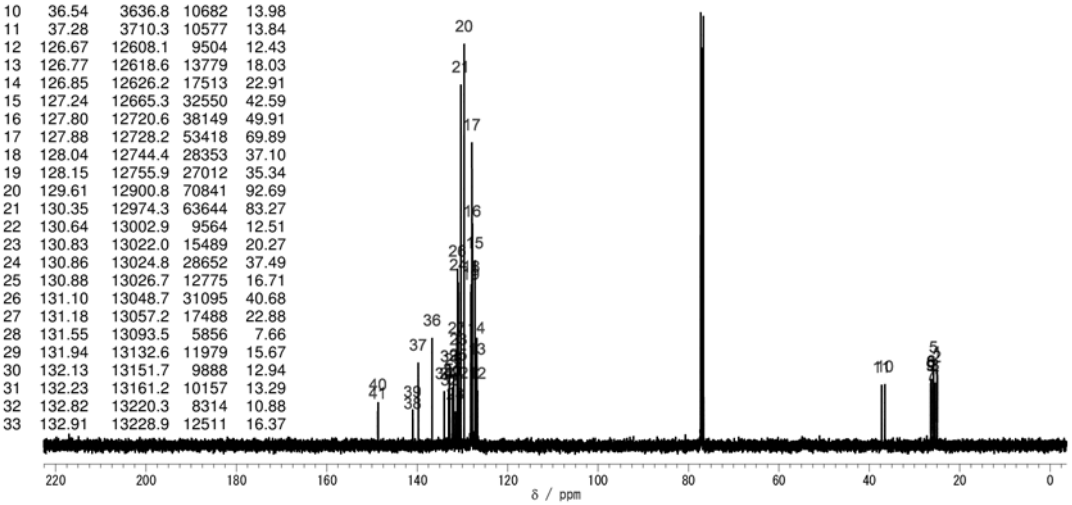


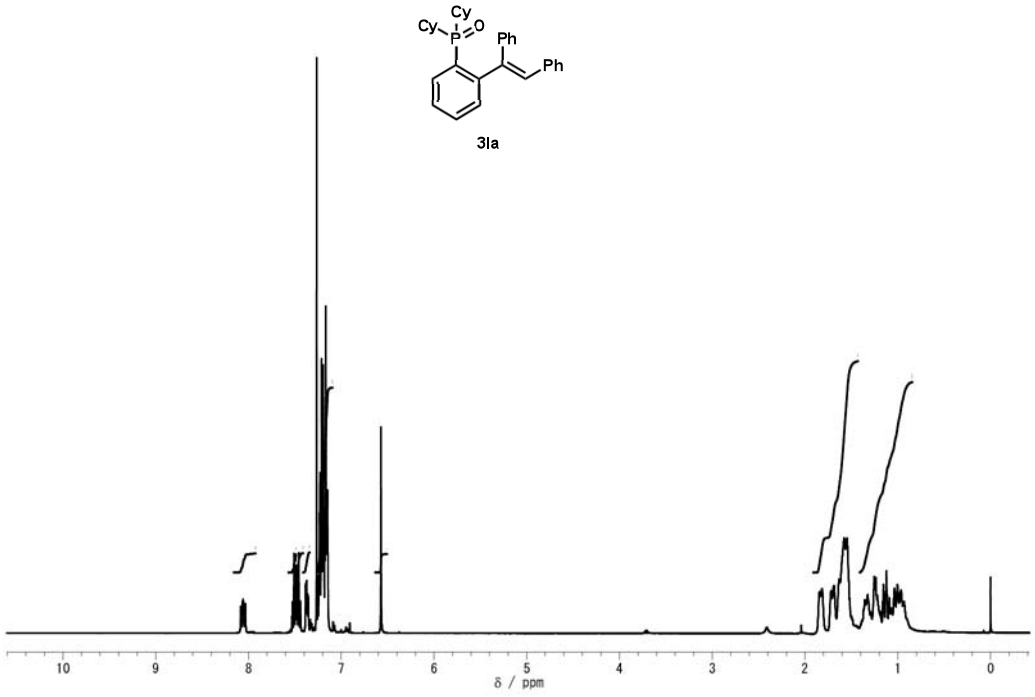
No.	ppm	Hz	Amp.	Height
1	17.09	1717.6	11153	16.24
2	17.83	1792.4	10156	14.78
3	126.84	12749.6	10428	15.18
4	126.96	12761.1	8783	12.79
5	127.07	12772.6	19349	28.17
6	127.49	12814.8	16216	23.61
7	127.87	12853.1	32242	46.94
8	128.12	12878.0	54513	79.36
9	128.23	12889.5	27341	39.80
10	128.35	12901.0	17797	25.91
11	129.58	13024.7	46311	67.42
12	130.34	13101.3	59506	86.63
13	130.42	13109.0	16186	23.56
14	130.52	13119.5	23217	33.80
15	131.13	13180.9	9421	13.71
16	131.15	13182.8	8221	11.97
17	131.28	13195.3	10043	14.62
18	131.30	13197.2	11440	16.65
19	131.82	13249.9	12117	17.64
20	131.92	13259.5	12173	17.72
21	132.15	13283.4	5860	8.53
22	132.95	13363.0	11623	16.92
23	133.05	13373.5	12516	18.22
24	133.14	13382.2	5031	7.32
25	133.67	13435.8	14290	20.80
26	135.09	13578.7	3817	5.56
27	136.11	13681.2	7406	10.78
28	136.44	13714.8	10061	14.65
29	139.85	14056.9	11551	16.82
30	140.00	14072.3	7132	10.38
31	140.04	14076.1	8887	12.94
32	148.15	14891.8	5892	8.58
33	148.24	14900.4	7057	10.27



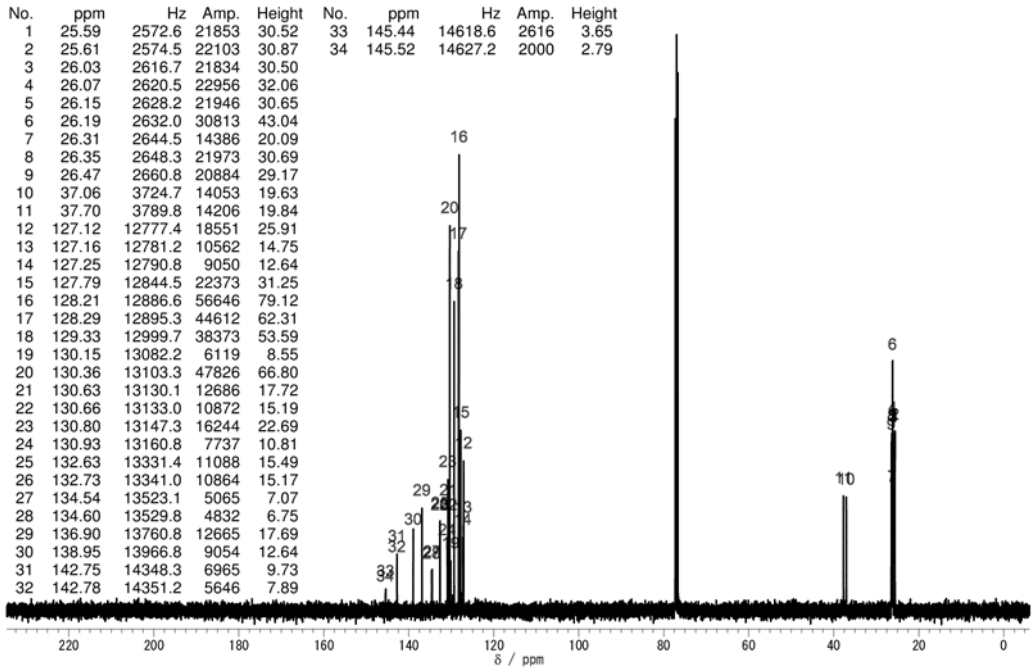


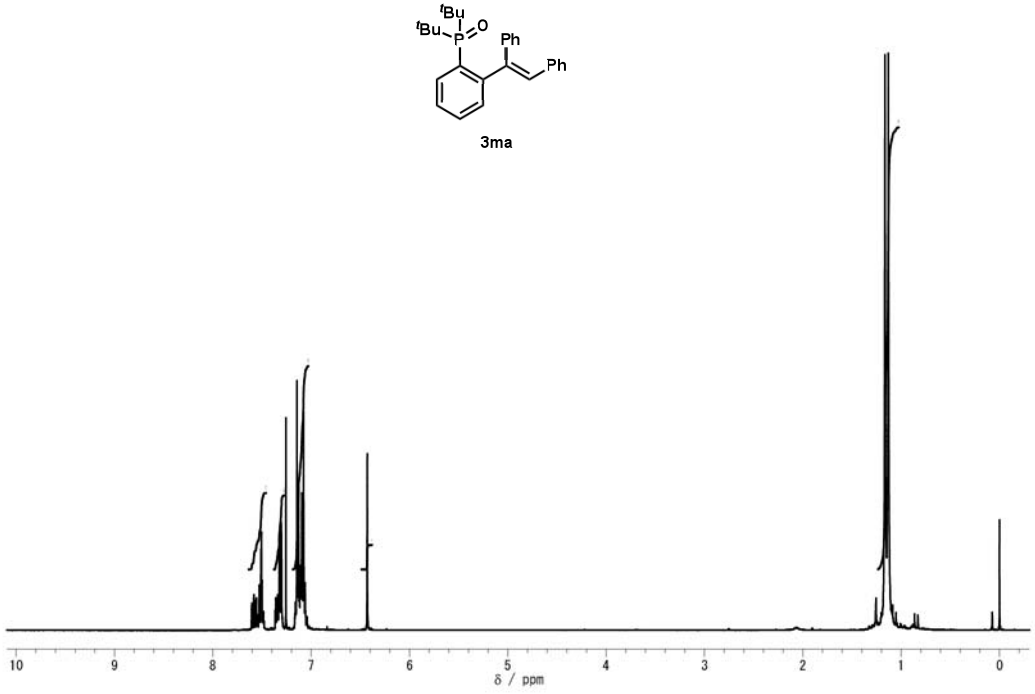
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2	25.01	2489.6	12431	16.27	35	134.03	13340.5	9456	12.37
3	25.43	2531.5	10943	14.32	36	136.69	13605.6	18854	24.67
4	25.46	2534.4	10328	13.51	37	139.77	13911.7	14500	18.97
5	25.79	2566.8	14116	18.47	38	140.97	14031.9	4189	5.48
6	26.24	2611.6	11628	15.21	39	141.00	14034.8	6212	8.13
7	26.28	2615.5	9196	12.03	40	148.63	14793.9	7493	9.80
8	26.37	2625.0	11470	15.01	41	148.71	14801.5	5976	7.82
9	26.42	2629.8	10923	14.29					
10	36.54	3636.8	10682	13.98					
11	37.28	3710.3	10577	13.84					
12	126.67	12608.1	9504	12.43					
13	126.77	12618.6	13779	18.03					
14	126.85	12626.2	17513	22.91					
15	127.24	12665.3	32550	42.59					
16	127.80	12720.6	38149	49.91					
17	127.88	12728.2	53418	69.89					
18	128.04	12744.4	28353	37.10					
19	128.15	12755.9	27012	35.34					
20	129.61	12900.8	70841	92.69					
21	130.35	12974.3	63644	83.27					
22	130.64	13002.9	9564	12.51					
23	130.83	13022.0	15489	20.27					
24	130.86	13024.8	28652	37.49					
25	130.88	13026.7	12775	16.71					
26	131.10	13048.7	31095	40.68					
27	131.18	13057.2	17488	22.88					
28	131.55	13093.5	5856	7.66					
29	131.94	13132.6	11979	15.67					
30	132.13	13151.7	9888	12.94					
31	132.23	13161.2	10157	13.29					
32	132.82	13220.3	8314	10.88					
33	132.91	13228.9	12511	16.37					



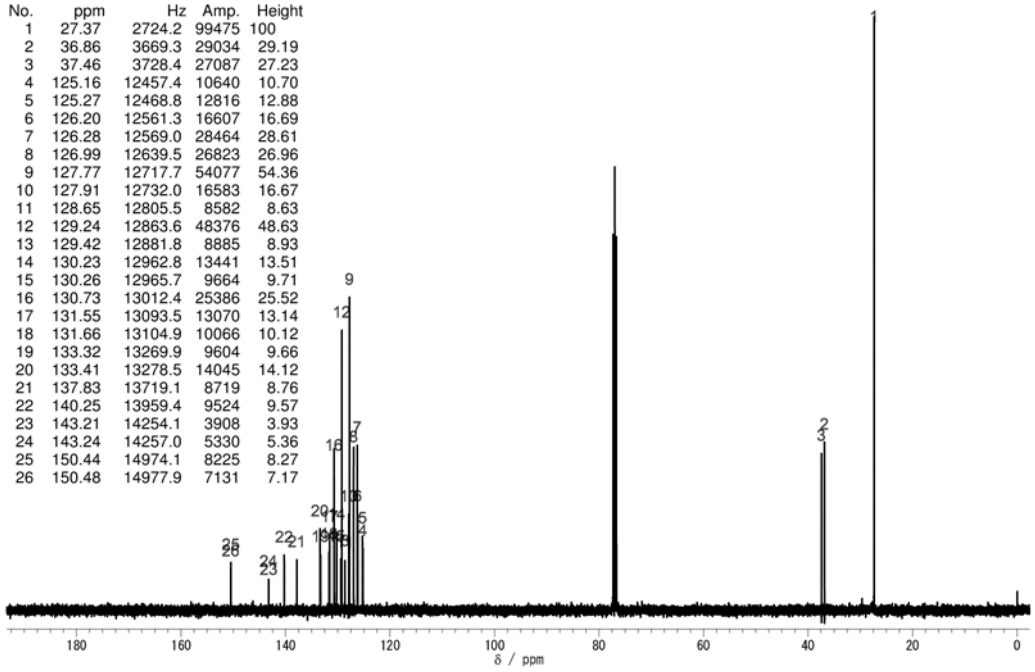


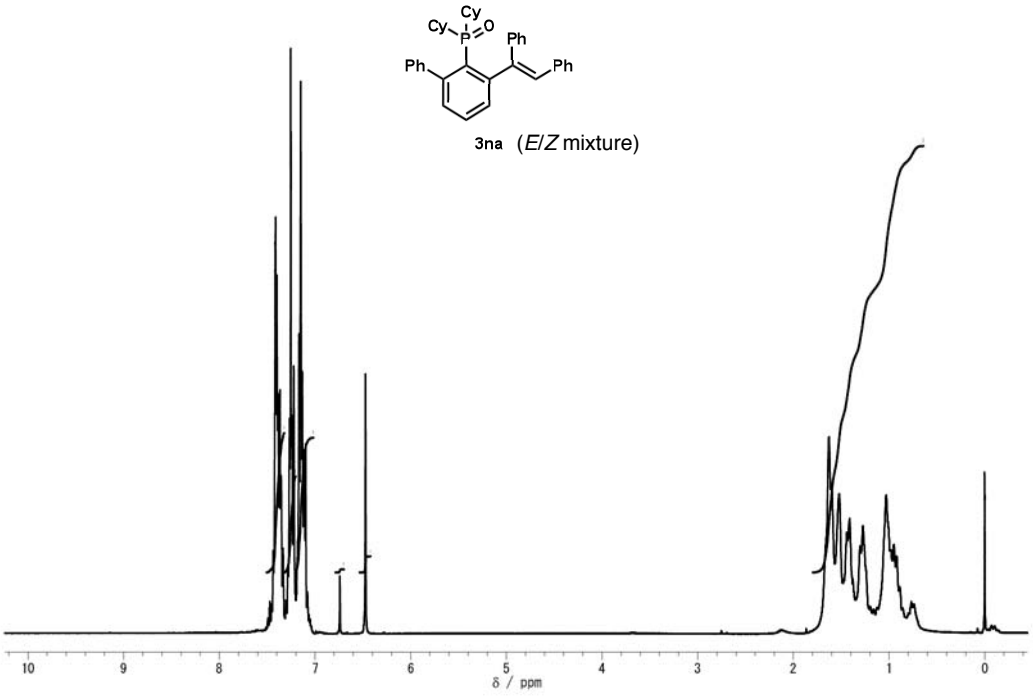
No.	ppm	Hz	Amp.	Height	No.	ppm	Hz	Amp.	Height
1	25.59	2572.6	21853	30.52	33	145.44	14618.6	2616	3.65
2	25.61	2574.5	22103	30.87	34	145.52	14627.2	2000	2.79
3	26.03	2616.7	21834	30.50					
4	26.07	2620.5	22956	32.06					
5	26.15	2628.2	21946	30.65					
6	26.19	2632.0	30813	43.04					
7	26.31	2644.5	14386	20.09					
8	26.35	2648.3	21973	30.69					
9	26.47	2660.8	20884	29.17					
10	37.06	3724.7	14053	19.63					
11	37.70	3789.8	14206	19.84					
12	127.12	12777.4	18551	25.91					
13	127.16	12781.2	10562	14.75					
14	127.25	12790.8	9050	12.64					
15	127.79	12844.5	22373	31.25					
16	128.21	12886.6	56646	79.12					
17	128.29	12895.3	44612	62.31					
18	129.33	12999.7	38373	53.59					
19	130.15	13082.2	6119	8.55					
20	130.36	13103.3	47826	66.80					
21	130.63	13130.1	12686	17.72					
22	130.66	13133.0	10872	15.19					
23	130.80	13147.3	16244	22.69					
24	130.93	13160.8	7737	10.81					
25	132.63	13331.4	11088	15.49					
26	132.73	13341.0	10864	15.17					
27	134.54	13523.1	5065	7.07					
28	134.60	13529.8	4832	6.75					
29	136.90	13760.8	12665	17.69					
30	138.95	13966.8	9054	12.64					
31	142.75	14348.3	6965	9.73					
32	142.78	14351.2	5646	7.89					





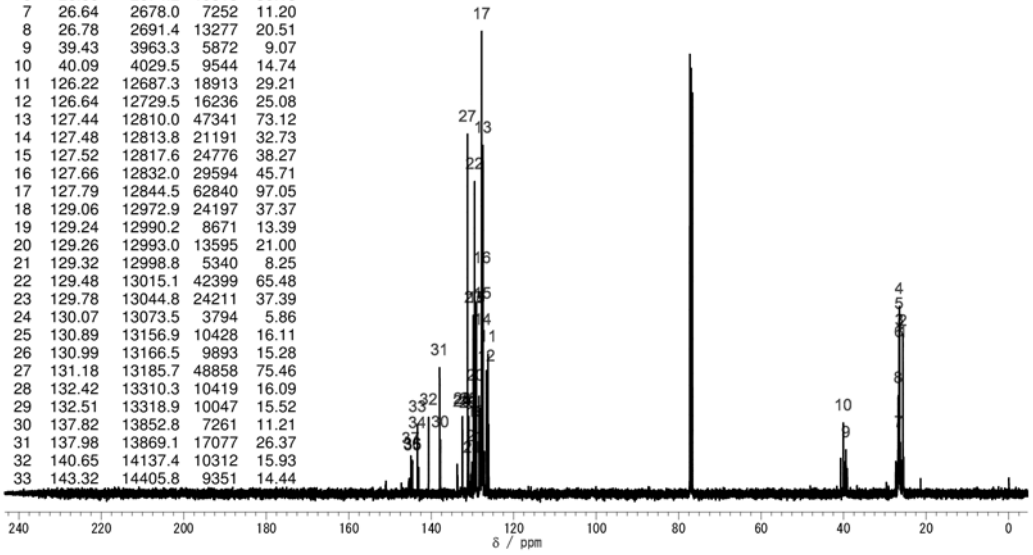
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2	36.86	3669.3	29034	29.19
3	37.46	3728.4	27087	27.23
4	125.16	12457.4	10640	10.70
5	125.27	12468.8	12816	12.88
6	126.20	12561.3	16607	16.69
7	126.28	12569.0	28464	28.61
8	126.99	12639.5	26823	26.96
9	127.77	12717.7	54077	54.36
10	127.91	12732.0	16583	16.67
11	128.65	12805.5	8582	8.63
12	129.24	12863.6	48376	48.63
13	129.42	12881.8	8885	8.93
14	130.23	12962.8	13441	13.51
15	130.26	12965.7	9664	9.71
16	130.73	13012.4	25386	25.52
17	131.55	13093.5	13070	13.14
18	131.66	13104.9	10066	10.12
19	133.32	13269.9	9604	9.66
20	133.41	13278.5	14045	14.12
21	137.83	13719.1	8719	8.76
22	140.25	13959.4	9524	9.57
23	143.21	14254.1	3908	3.93
24	143.24	14257.0	5330	5.36
25	150.44	14974.1	8225	8.27
26	150.48	14977.9	7131	7.17

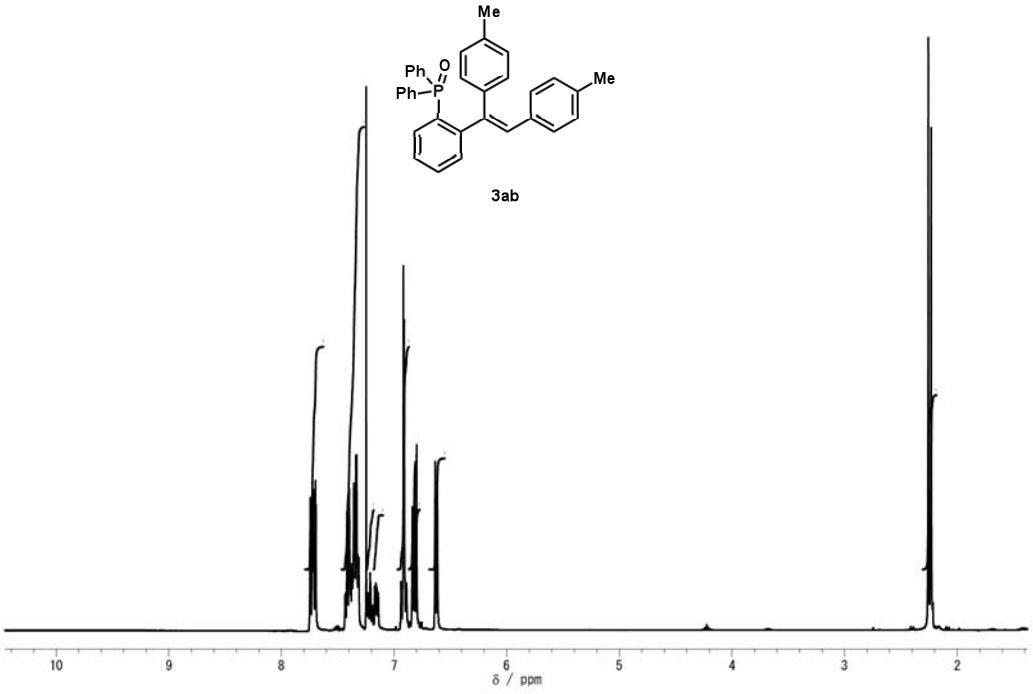




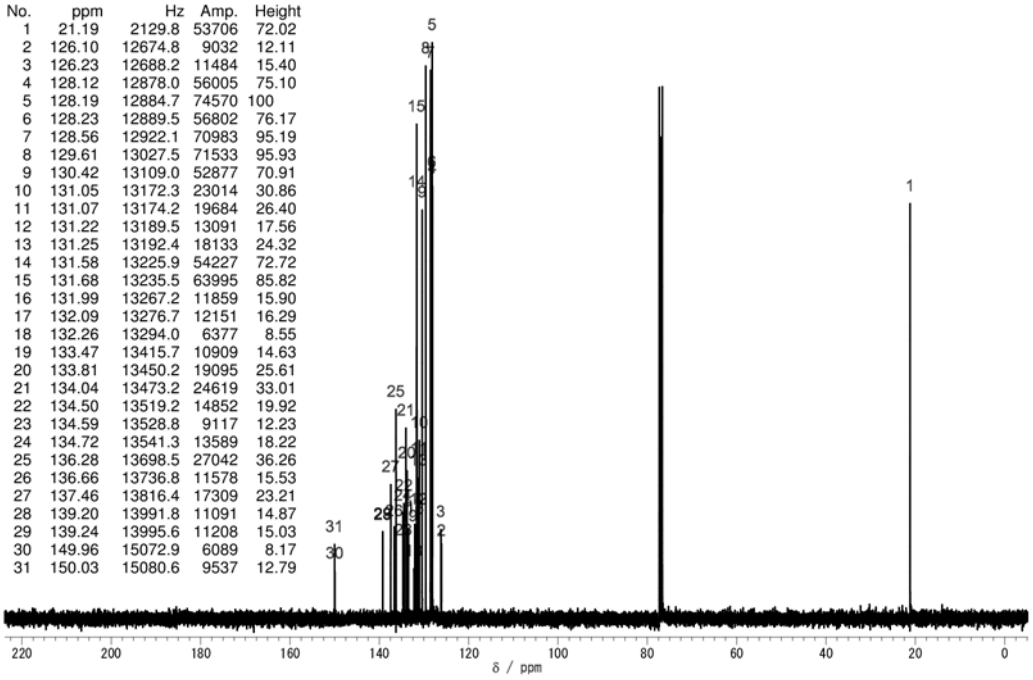
3na (*E*/*Z* mixture)

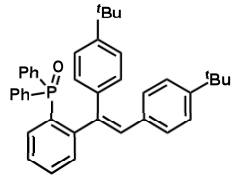
No.	ppm	Hz	Amp.	Height	No.	ppm	Hz	Amp.	Height
1	25.65	2578.3	19468	30.07	34	143.35	14408.7	7148	11.04
2	25.67	2580.2	21039	32.49	35	144.54	14528.5	4115	6.36
3	26.44	2657.9	21105	32.60	36	144.58	14532.3	4278	6.61
4	26.47	2660.8	25411	39.25	37	144.95	14569.7	5039	7.78
5	26.57	2670.3	23377	36.10					
6	26.60	2674.2	19518	30.15					
7	26.64	2678.0	7252	11.20					
8	26.78	2691.4	13277	20.51					
9	39.43	3963.3	5872	9.07					
10	40.09	4029.5	9544	14.74					
11	126.22	12687.3	18913	29.21					
12	126.64	12729.5	16236	25.08					
13	127.44	12810.0	47341	73.12					
14	127.48	12813.8	21191	32.73					
15	127.52	12817.6	24776	38.27					
16	127.66	12832.0	29594	45.71					
17	127.79	12844.5	62840	97.05					
18	129.06	12972.9	24197	37.37					
19	129.24	12990.2	8671	13.39					
20	129.26	12993.0	13595	21.00					
21	129.32	12998.8	5340	8.25					
22	129.48	13015.1	42399	65.48					
23	129.78	13044.8	24211	37.39					
24	130.07	13073.5	3794	5.86					
25	130.89	13156.9	10428	16.11					
26	130.99	13166.5	9893	15.28					
27	131.18	13185.7	48858	75.46					
28	132.42	13310.3	10419	16.09					
29	132.51	13318.9	10047	15.52					
30	137.82	13852.8	7261	11.21					
31	137.98	13869.1	17077	26.37					
32	140.65	14137.4	10312	15.93					
33	143.32	14405.8	9351	14.44					





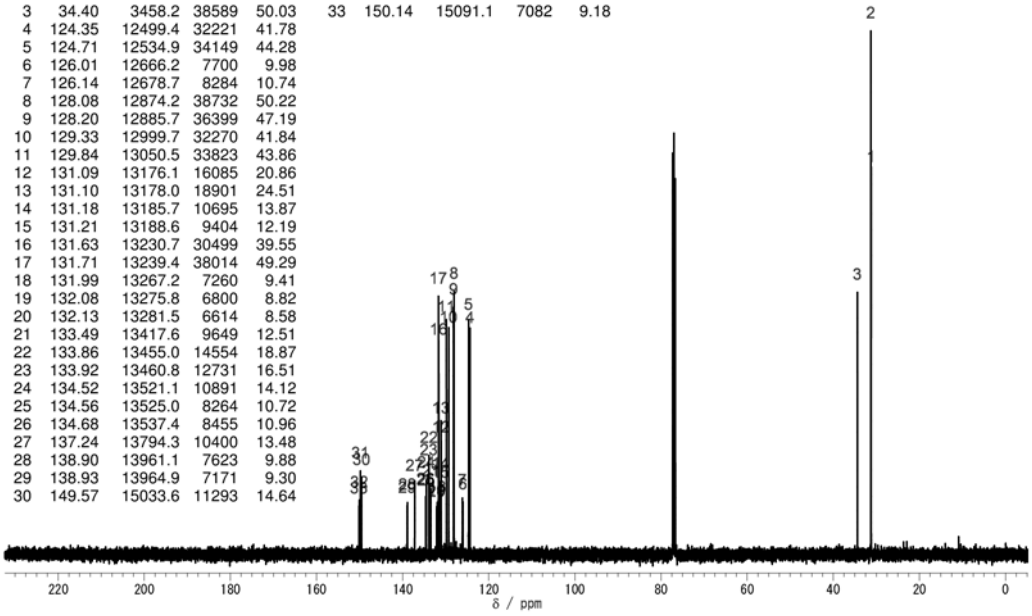
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3	126.23	12688.2	11484	15.40
4	128.12	12878.0	56005	75.10
5	128.19	12884.7	74570	100
6	128.23	12889.5	56802	76.17
7	128.56	12922.1	70983	95.19
8	129.61	13027.5	71533	95.93
9	130.42	13109.0	52877	70.91
10	131.05	13172.3	23014	30.86
11	131.07	13174.2	19684	26.40
12	131.22	13189.5	13091	17.56
13	131.25	13192.4	18133	24.32
14	131.58	13225.9	54227	72.72
15	131.68	13235.5	63995	85.82
16	131.99	13267.2	11859	15.90
17	132.09	13276.7	12151	16.29
18	132.26	13294.0	6377	8.55
19	133.47	13415.7	10909	14.63
20	133.81	13450.2	19095	25.61
21	134.04	13473.2	24619	33.01
22	134.50	13519.2	14852	19.92
23	134.59	13528.8	9117	12.23
24	134.72	13541.3	13589	18.22
25	136.28	13698.5	27042	36.26
26	136.66	13736.8	11578	15.53
27	137.46	13816.4	17309	23.21
28	139.20	13991.8	11091	14.87
29	139.24	13995.6	11208	15.03
30	149.96	15072.9	6089	8.17
31	150.03	15080.6	9537	12.79

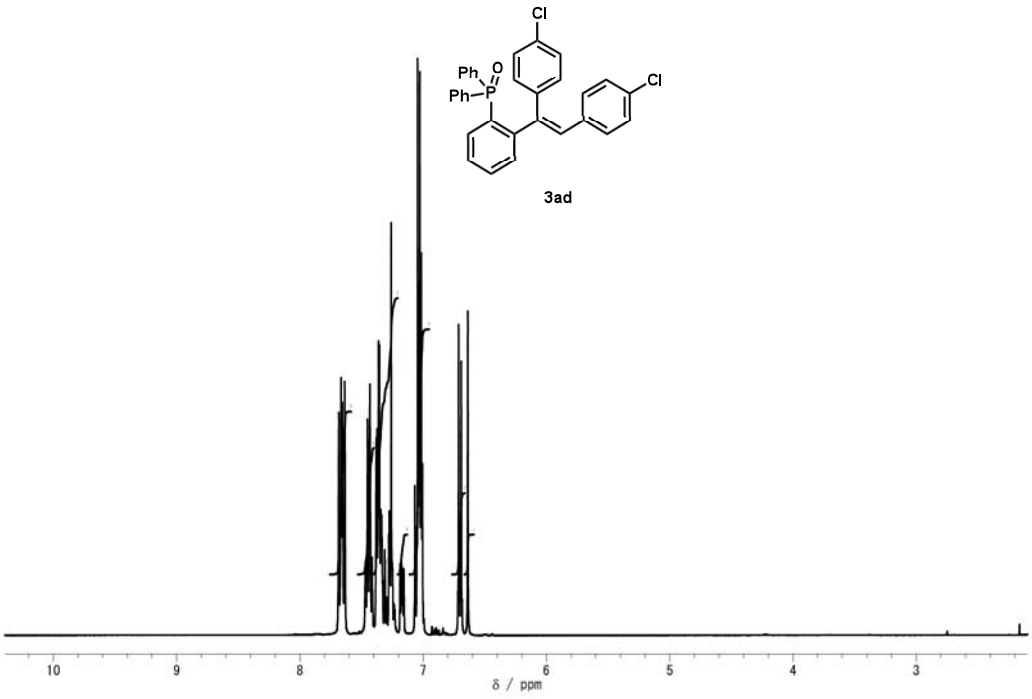




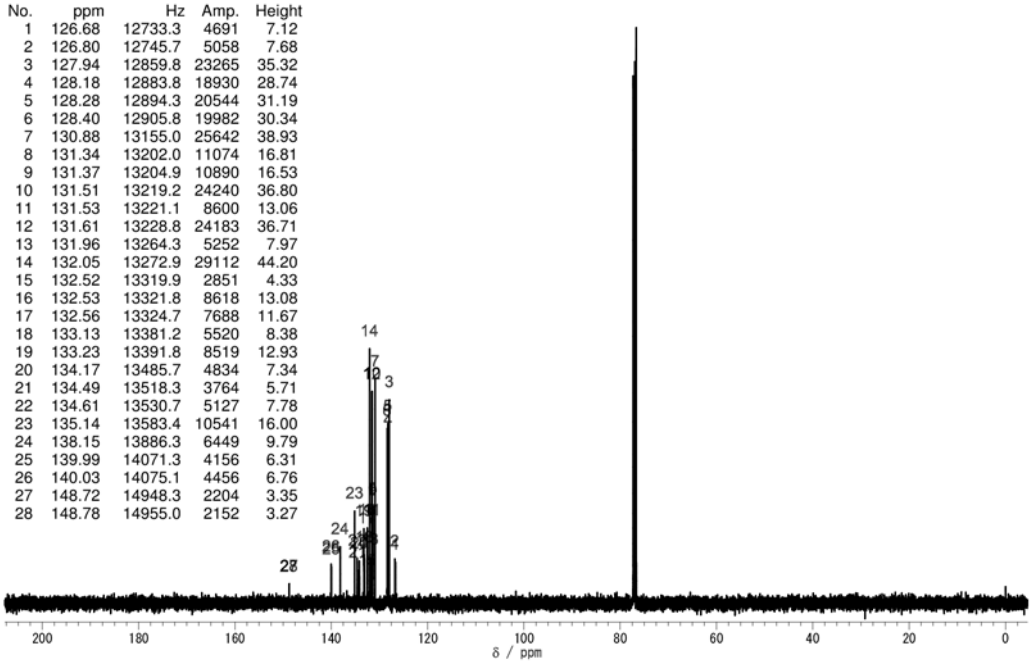
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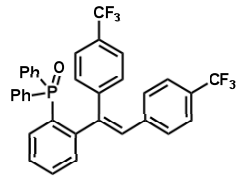
No.	ppm	Hz	Amp.	Height	No.	ppm	Hz	Amp.	Height
1	31.23	3139.0	55948	72.54	31	149.82	15059.5	12280	15.92
2	31.30	3145.7	77124	100	32	150.06	15083.4	7965	10.33
3	34.40	3458.2	38589	50.03	33	150.14	15091.1	7082	9.18
4	124.35	12499.4	32221	41.78					
5	124.71	12534.9	34149	44.28					
6	126.01	12666.2	7700	9.98					
7	126.14	12678.7	8284	10.74					
8	128.08	12874.2	38732	50.22					
9	128.20	12885.7	36399	47.19					
10	129.33	12999.7	32270	41.84					
11	129.84	13050.5	33823	43.86					
12	131.09	13176.1	16085	20.86					
13	131.10	13178.0	18901	24.51					
14	131.18	13185.7	10695	13.87					
15	131.21	13188.6	9404	12.19					
16	131.63	13230.7	30499	39.55					
17	131.71	13239.4	38014	49.29					
18	131.99	13267.2	7260	9.41					
19	132.08	13275.8	6800	8.82					
20	132.13	13281.5	6614	8.58					
21	133.49	13417.6	9649	12.51					
22	133.86	13455.0	14554	18.87					
23	133.92	13460.8	12731	16.51					
24	134.52	13521.1	10891	14.12					
25	134.56	13525.0	8264	10.72					
26	134.68	13537.4	8455	10.96					
27	137.24	13794.3	10400	13.48					
28	138.90	13961.1	7623	9.88					
29	138.93	13964.9	7171	9.30					
30	149.57	15033.6	11293	14.64					





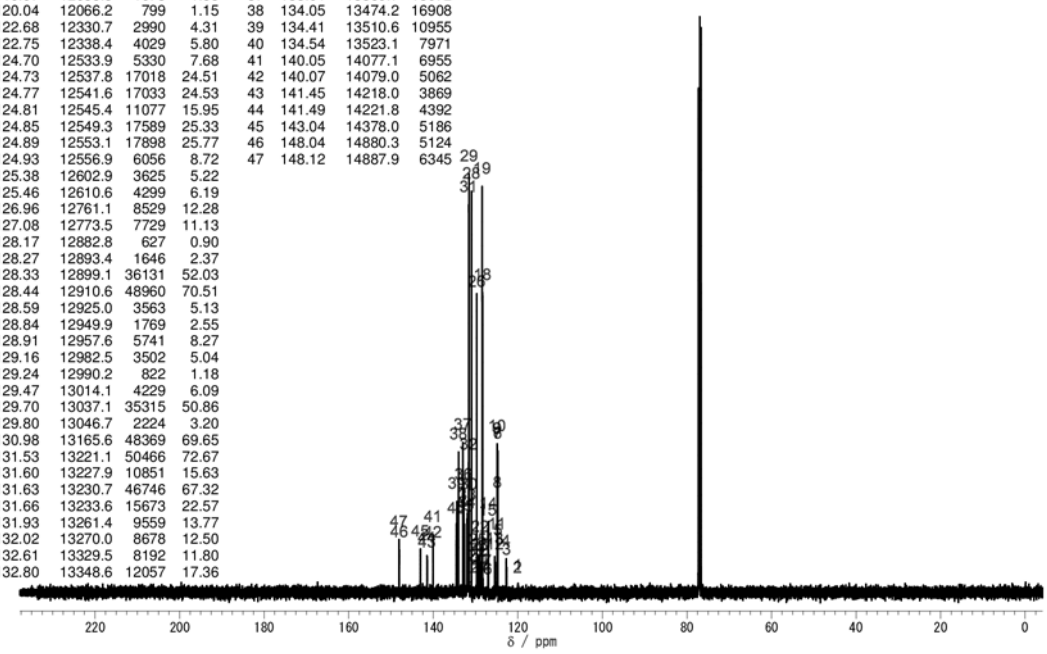
No.	ppm	Hz	Amp.	Height
1	126.68	12733.3	4691	7.12
2	126.80	12745.7	5058	7.68
3	127.94	12859.8	23265	35.32
4	128.18	12883.8	18930	28.74
5	128.28	12894.3	20544	31.19
6	128.40	12905.8	19982	30.34
7	130.88	13155.0	25642	38.93
8	131.34	13202.0	11074	16.81
9	131.37	13204.9	10890	16.53
10	131.51	13219.2	24240	36.80
11	131.53	13221.1	8600	13.06
12	131.61	13228.8	24183	36.71
13	131.96	13264.3	5252	7.97
14	132.05	13272.9	29112	44.20
15	132.52	13319.9	2851	4.33
16	132.53	13321.8	8618	13.08
17	132.56	13324.7	7688	11.67
18	133.13	13381.2	5520	8.38
19	133.23	13391.8	8519	12.93
20	134.17	13485.7	4834	7.34
21	134.49	13518.3	3764	5.71
22	134.61	13530.7	5127	7.78
23	135.14	13583.4	10541	16.00
24	138.15	13886.3	6449	9.79
25	139.99	14071.3	4156	6.31
26	140.03	14075.1	4456	6.76
27	148.72	14948.3	2204	3.35
28	148.78	14955.0	2152	3.27

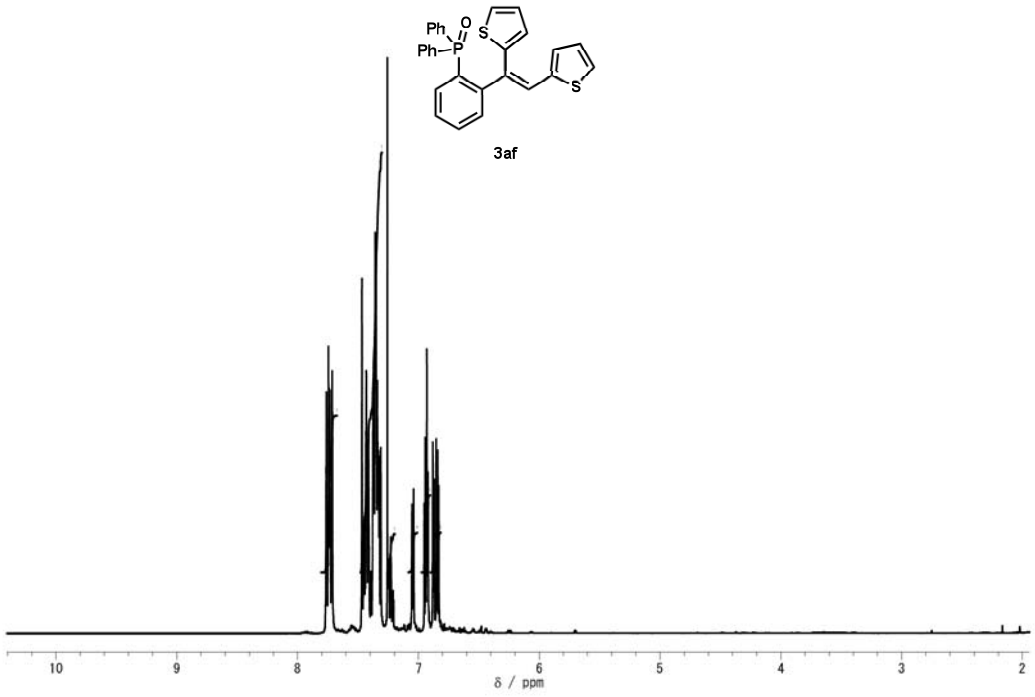




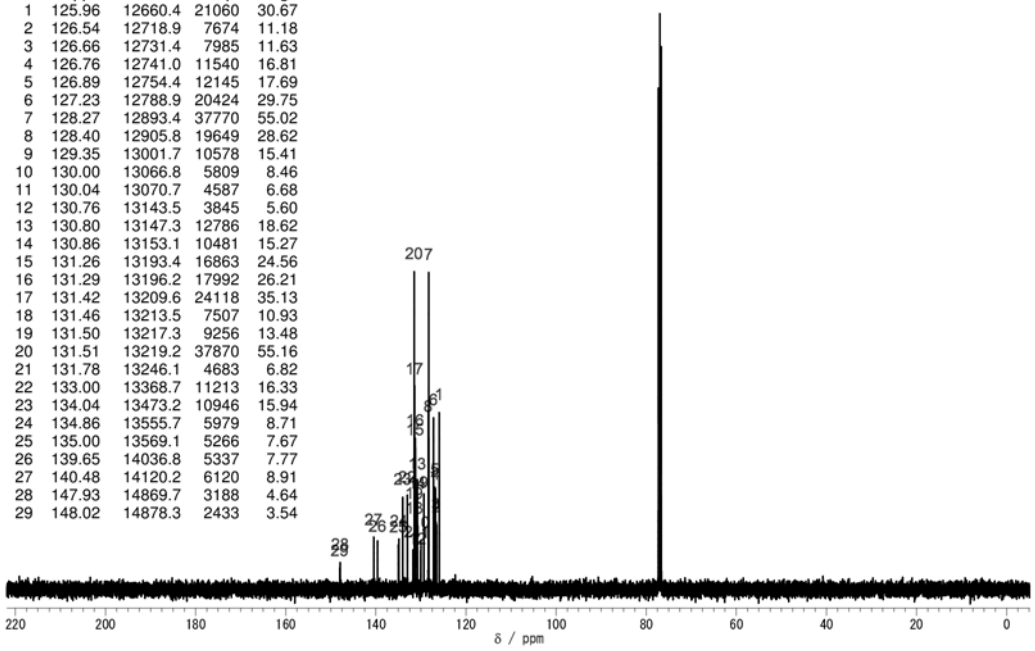
3ae

No.	ppm	Hz	Amp.	Height	No.	ppm	Hz	Amp.
1	119.97	12058.5	1073	1.55	37	133.01	13369.7	18072
2	120.04	12066.2	799	1.15	38	134.05	13474.2	16908
3	122.68	12330.7	2990	4.31	39	134.41	13510.6	10955
4	122.75	12338.4	4029	5.80	40	134.54	13523.1	7971
5	124.70	12533.9	5330	7.68	41	140.05	14077.1	6955
6	124.73	12537.8	17018	24.51	42	140.07	14079.0	5062
7	124.77	12541.6	17033	24.53	43	141.45	14218.0	3869
8	124.81	12545.4	11077	15.95	44	141.49	14221.8	4392
9	124.85	12549.3	17589	25.33	45	143.04	14378.0	5186
10	124.89	12553.1	17898	25.77	46	148.04	14880.3	5124
11	124.93	12556.9	6056	8.72	47	148.12	14887.9	6345
12	125.38	12602.9	3625	5.22				
13	125.46	12610.6	4299	6.19				
14	126.96	12761.1	8529	12.28				
15	127.08	12773.5	7729	11.13				
16	128.17	12882.8	627	0.90				
17	128.27	12893.4	1646	2.37				
18	128.33	12899.1	36131	52.03				
19	128.44	12910.6	48960	70.51				
20	128.59	12925.0	3563	5.13				
21	128.84	12949.9	1769	2.55				
22	128.91	12957.6	5741	8.27				
23	129.16	12982.5	3502	5.04				
24	129.24	12990.2	822	1.18				
25	129.47	13014.1	4229	6.09				
26	129.70	13037.1	35315	50.86				
27	129.80	13046.7	2224	3.20				
28	130.98	13165.6	48369	69.65				
29	131.53	13221.1	50466	72.67				
30	131.60	13227.9	10851	15.63				
31	131.63	13230.7	46746	67.32				
32	131.66	13233.6	15673	22.57				
33	131.93	13261.4	9559	13.77				
34	132.02	13270.0	8678	12.50				
35	132.61	13329.5	8192	11.80				
36	132.80	13348.6	12057	17.36				



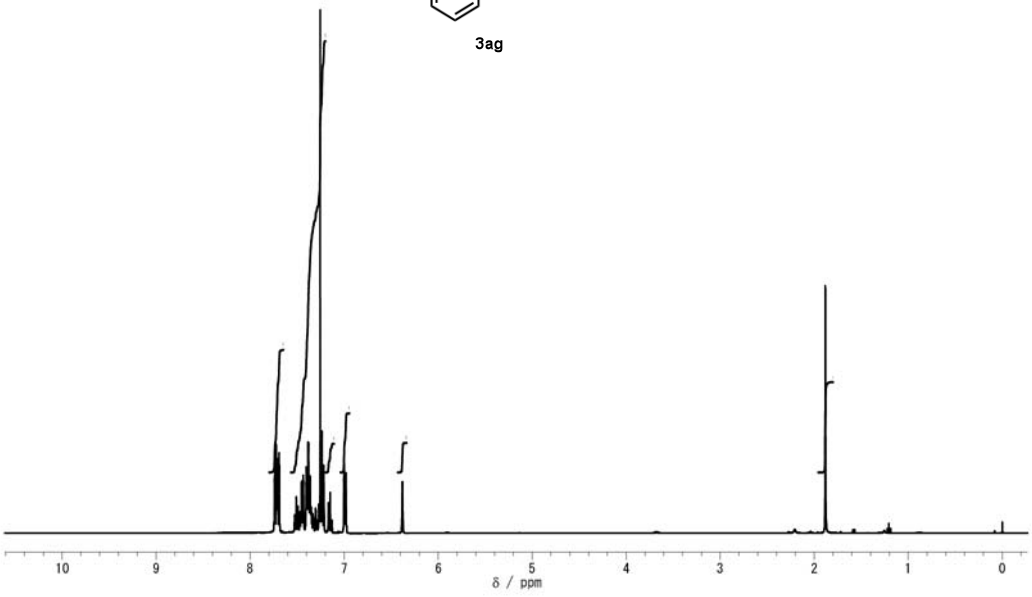


No.	ppm	Hz	Amp.	Height
1	125.96	12660.4	21060	30.67
2	126.54	12718.9	7674	11.18
3	126.66	12731.4	7985	11.63
4	126.76	12741.0	11540	16.81
5	126.89	12754.4	12145	17.69
6	127.23	12788.9	20424	29.75
7	128.27	12893.4	37770	55.02
8	128.40	12905.8	19649	28.62
9	129.35	13001.7	10578	15.41
10	130.00	13066.8	5809	8.46
11	130.04	13070.7	4587	6.68
12	130.76	13143.5	3845	5.60
13	130.80	13147.3	12786	18.62
14	130.86	13153.1	10481	15.27
15	131.26	13193.4	16863	24.56
16	131.29	13196.2	17992	26.21
17	131.42	13209.6	24118	35.13
18	131.46	13213.5	7507	10.93
19	131.50	13217.3	9256	13.48
20	131.51	13219.2	37870	55.16
21	131.78	13246.1	4683	6.82
22	133.00	13368.7	11213	16.33
23	134.04	13473.2	10946	15.94
24	134.86	13555.7	5979	8.71
25	135.00	13569.1	5266	7.67
26	139.65	14036.8	5337	7.77
27	140.48	14120.2	6120	8.91
28	147.93	14869.7	3188	4.64
29	148.02	14878.3	2433	3.54

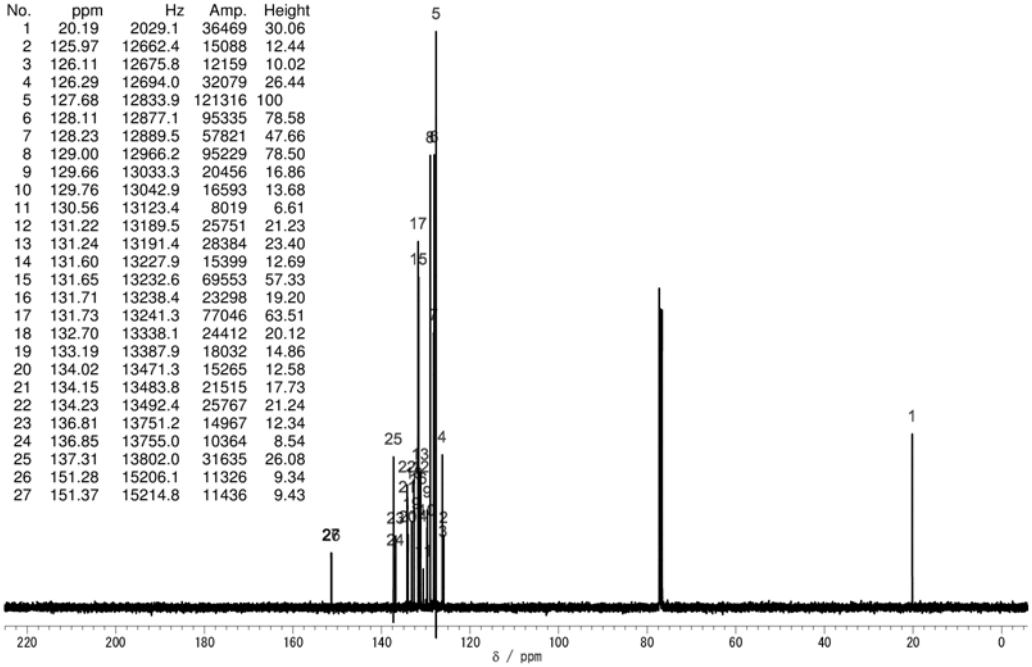


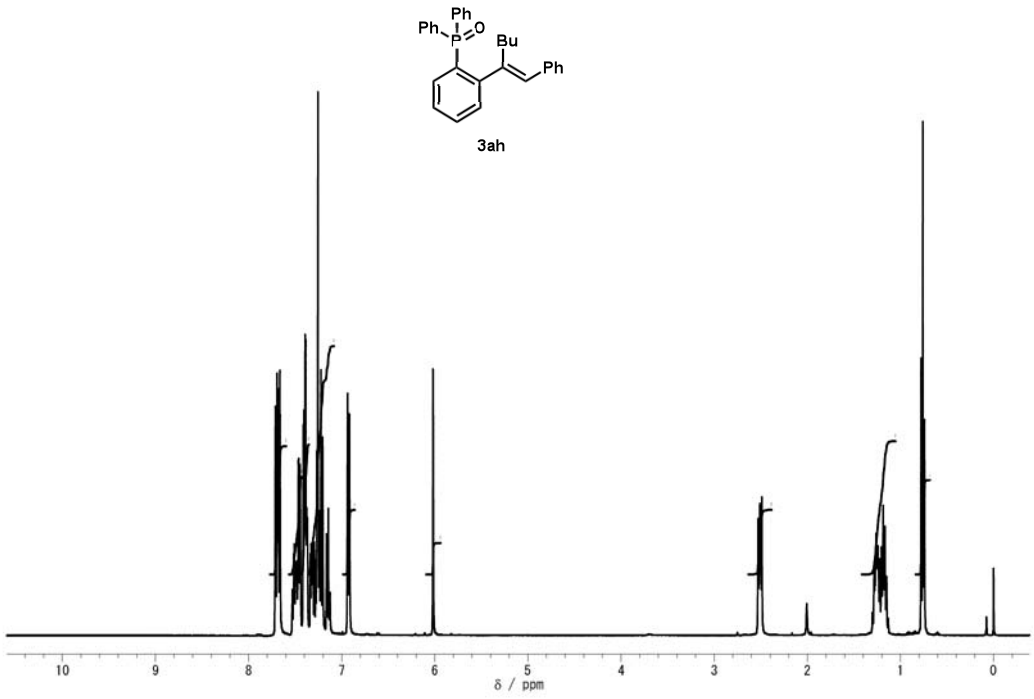


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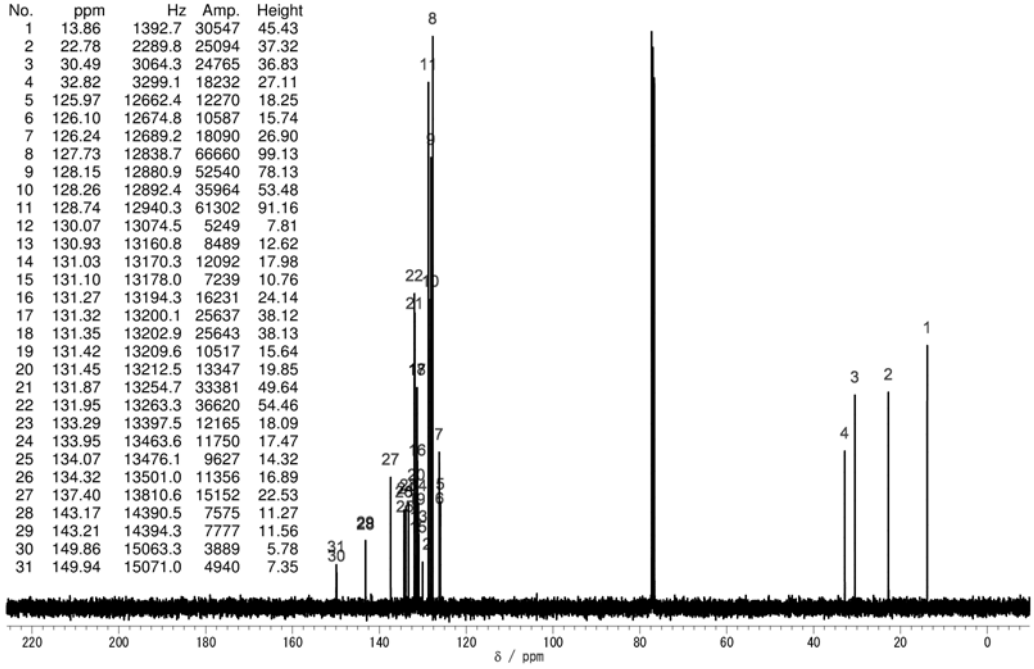


No.	ppm	Hz	Amp.	Height
1	20.19	2029.1	36469	30.06
2	125.97	12662.4	15088	12.44
3	126.11	12675.8	12159	10.02
4	126.29	12694.0	32079	26.44
5	127.68	12833.9	121316	100
6	128.11	12877.1	95335	78.58
7	128.23	12889.5	57821	47.66
8	129.00	12966.2	95229	78.50
9	129.66	13033.3	20456	16.86
10	129.76	13042.9	16593	13.68
11	130.56	13123.4	8019	6.61
12	131.22	13189.5	25751	21.23
13	131.24	13191.4	28384	23.40
14	131.60	13227.9	15399	12.69
15	131.65	13232.6	69553	57.33
16	131.71	13238.4	23298	19.20
17	131.73	13241.3	77046	63.51
18	132.70	13338.1	24412	20.12
19	133.19	13387.9	18032	14.86
20	134.02	13471.3	15265	12.58
21	134.15	13483.8	21515	17.73
22	134.23	13492.4	25767	21.24
23	136.81	13751.2	14967	12.34
24	136.85	13755.0	10364	8.54
25	137.31	13802.0	31635	26.08
26	151.28	15206.1	11326	9.34
27	151.37	15214.8	11436	9.43



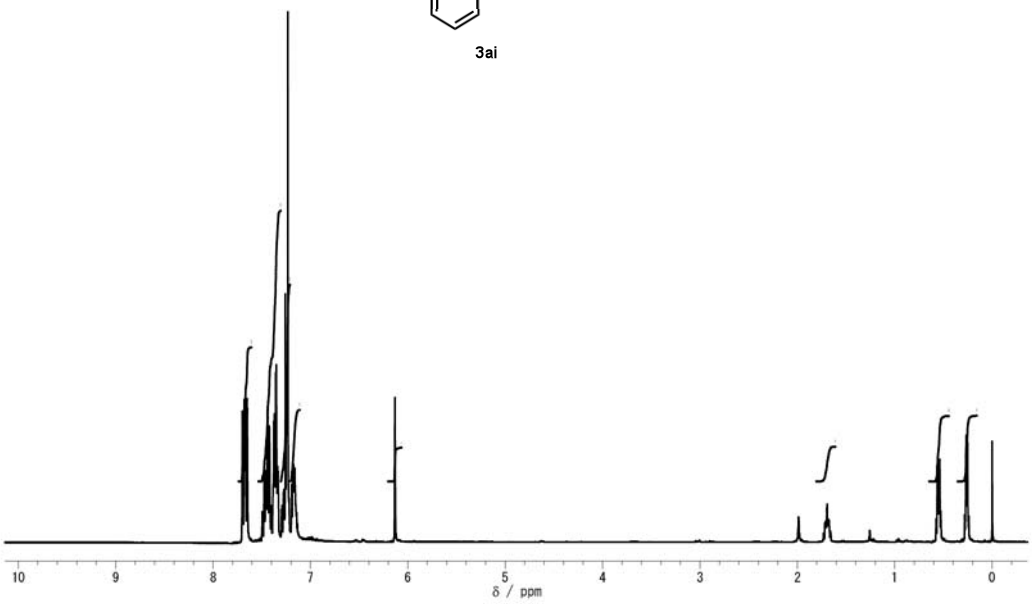


No.	ppm	Hz	Amp.	Height
1	13.86	1392.7	30547	45.43
2	22.78	2289.8	25094	37.32
3	30.49	3064.3	24765	36.83
4	32.82	3299.1	18232	27.11
5	125.97	12662.4	12270	18.25
6	126.10	12674.8	10587	15.74
7	126.24	12689.2	18090	26.90
8	127.73	12838.7	66660	99.13
9	128.15	12880.9	52540	78.13
10	128.26	12892.4	35964	53.48
11	128.74	12940.3	61302	91.16
12	130.07	13074.5	5249	7.81
13	130.93	13160.8	8489	12.62
14	131.03	13170.3	12092	17.98
15	131.10	13178.0	7239	10.76
16	131.27	13194.3	16231	24.14
17	131.32	13200.1	25637	38.12
18	131.35	13202.9	25643	38.13
19	131.42	13209.6	10517	15.64
20	131.45	13212.5	13347	19.85
21	131.87	13254.7	33381	49.64
22	131.95	13263.3	36620	54.46
23	133.29	13397.5	12165	18.09
24	133.95	13463.6	11750	17.47
25	134.07	13476.1	9627	14.32
26	134.32	13501.0	11356	16.89
27	137.40	13810.6	15152	22.53
28	143.17	14390.5	7575	11.27
29	143.21	14394.3	7777	11.56
30	149.86	15063.3	3889	5.78
31	149.94	15071.0	4940	7.35

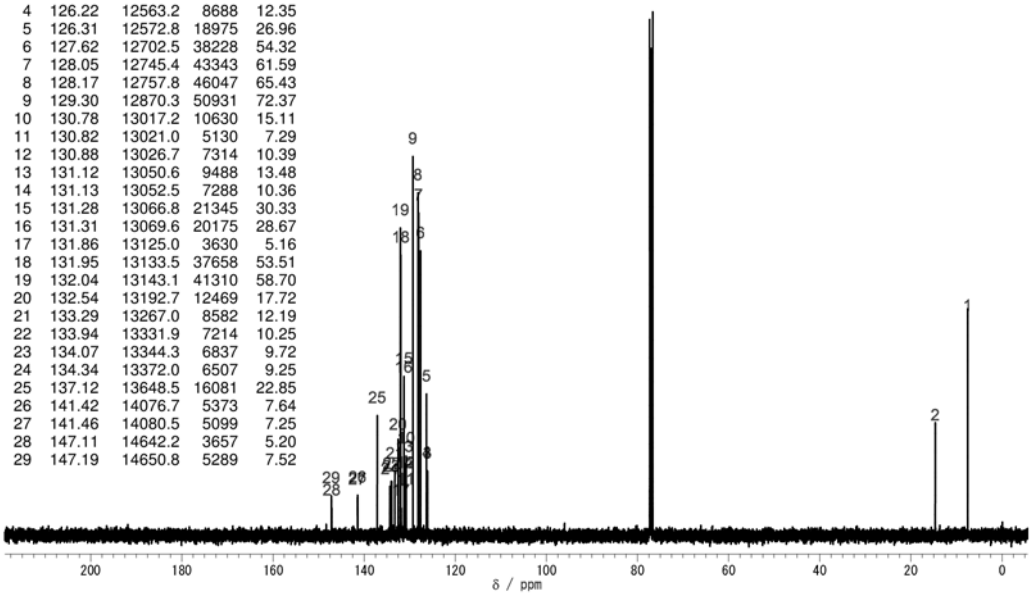


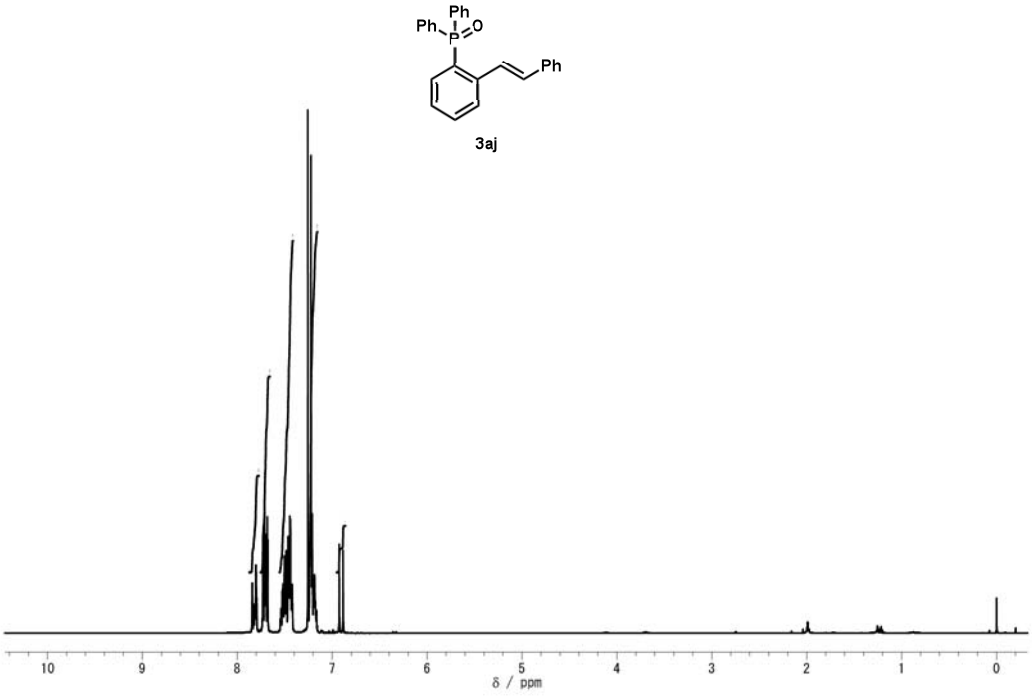


3ai

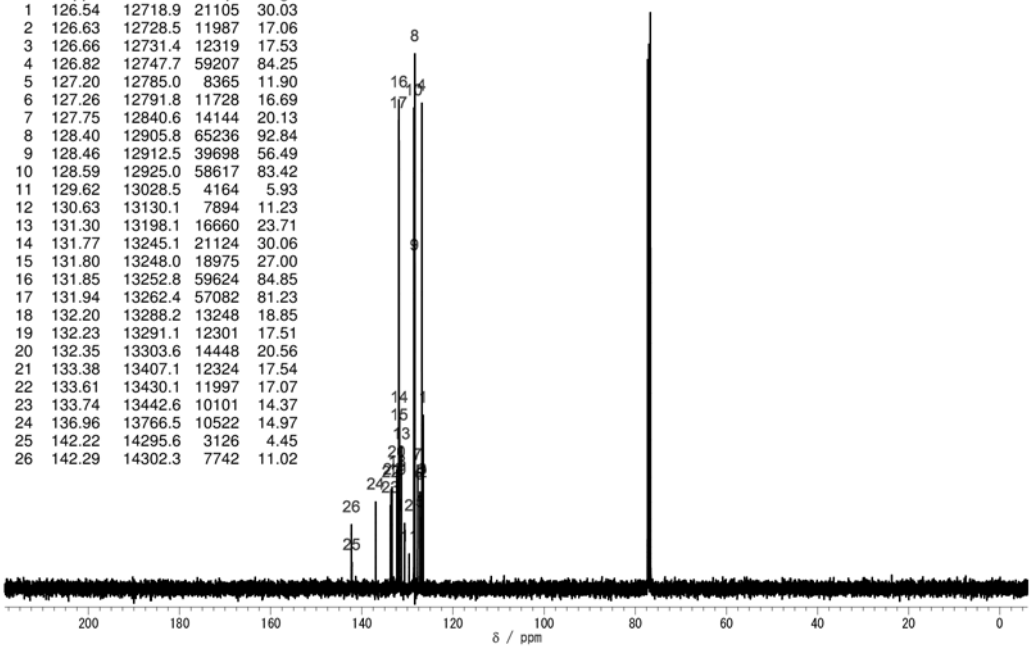


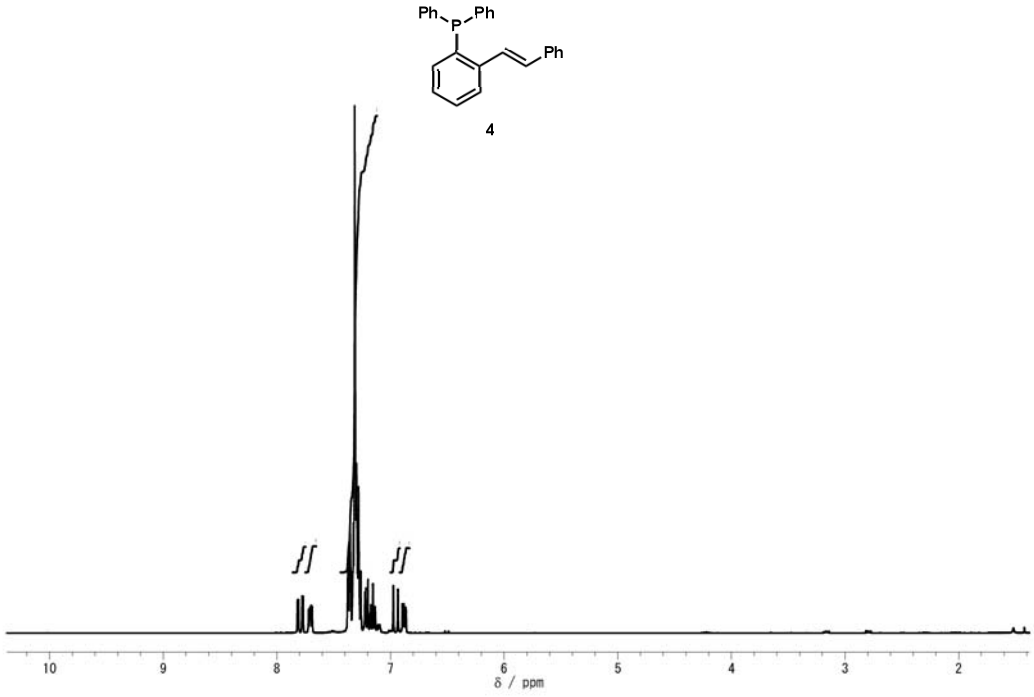
No.	ppm	Hz	Amp.	Height
1	7.55	752.0	28476	40.46
2	14.66	1459.6	13725	19.50
3	126.09	12550.8	8619	12.25
4	126.22	12563.2	8688	12.35
5	126.31	12572.8	18975	26.96
6	127.62	12702.5	38228	54.32
7	128.05	12745.4	43343	61.59
8	128.17	12757.8	46047	65.43
9	129.30	12870.3	50931	72.37
10	130.78	13017.2	10630	15.11
11	130.82	13021.0	5130	7.29
12	130.88	13026.7	7314	10.39
13	131.12	13050.6	9488	13.48
14	131.13	13052.5	7288	10.36
15	131.28	13066.8	21345	30.33
16	131.31	13069.6	20175	28.67
17	131.86	13125.0	3630	5.16
18	131.95	13133.5	37658	53.51
19	132.04	13143.1	41310	58.70
20	132.54	13192.7	12469	17.72
21	133.29	13267.0	8582	12.19
22	133.94	13331.9	7214	10.25
23	134.07	13344.3	6837	9.72
24	134.34	13372.0	6507	9.25
25	137.12	13648.5	16081	22.85
26	141.42	14076.7	5373	7.64
27	141.46	14080.5	5099	7.25
28	147.11	14642.2	3657	5.20
29	147.19	14650.8	5289	7.52



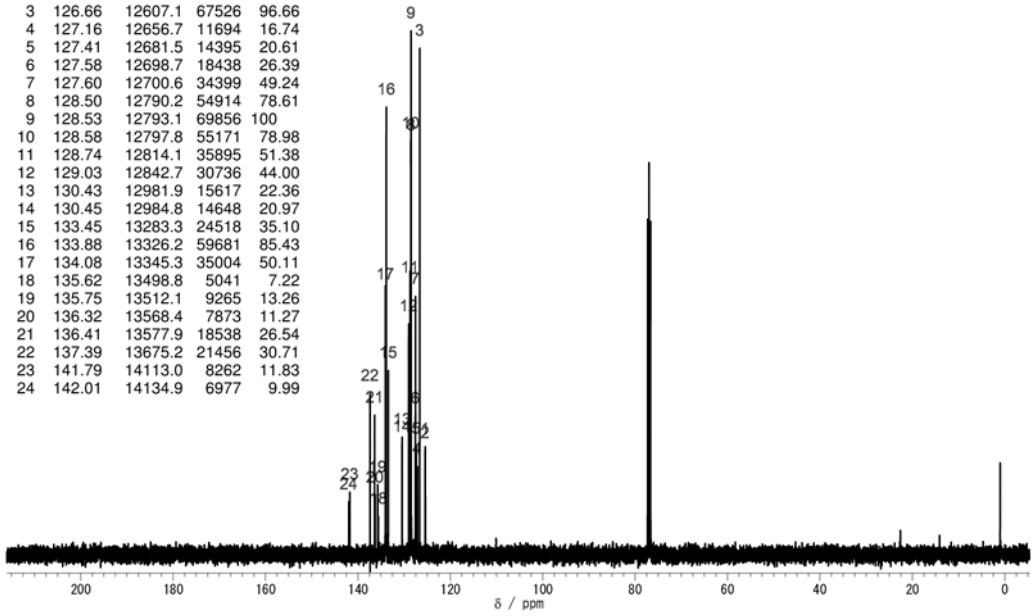


No.	ppm	Hz	Amp.	Height
1	126.54	12718.9	21105	30.03
2	126.63	12728.5	11987	17.06
3	126.66	12731.4	12319	17.53
4	126.82	12747.7	59207	84.25
5	127.20	12785.0	8365	11.90
6	127.26	12791.8	11728	16.69
7	127.75	12840.6	14144	20.13
8	128.40	12905.8	65236	92.84
9	128.46	12912.5	39698	56.49
10	128.59	12925.0	58617	83.42
11	129.62	13028.5	4164	5.93
12	130.63	13130.1	7894	11.23
13	131.30	13198.1	16660	23.71
14	131.77	13245.1	21124	30.06
15	131.80	13248.0	18975	27.00
16	131.85	13252.8	59624	84.85
17	131.94	13262.4	57082	81.23
18	132.20	13288.2	13248	18.85
19	132.23	13291.1	12301	17.51
20	132.35	13303.6	14448	20.56
21	133.38	13407.1	12324	17.54
22	133.61	13430.1	11997	17.07
23	133.74	13442.6	10101	14.37
24	136.96	13766.5	10522	14.97
25	142.22	14295.6	3126	4.45
26	142.29	14302.3	7742	11.02





No.	ppm	Hz	Amp.	Height
1	125.42	12484.1	14320	20.50
2	125.46	12487.9	13796	19.75
3	126.66	12607.1	67526	96.66
4	127.16	12656.7	11694	16.74
5	127.41	12681.5	14395	20.61
6	127.58	12698.7	18438	26.39
7	127.60	12700.6	34399	49.24
8	128.50	12790.2	54914	78.61
9	128.53	12793.1	69856	100
10	128.58	12797.8	55171	78.98
11	128.74	12814.1	35895	51.38
12	129.03	12842.7	30736	44.00
13	130.43	12981.9	15617	22.36
14	130.45	12984.8	14648	20.97
15	133.45	13283.3	24518	35.10
16	133.88	13326.2	59681	85.43
17	134.08	13345.3	35004	50.11
18	135.62	13498.8	5041	7.22
19	135.75	13512.1	9265	13.26
20	136.32	13568.4	7873	11.27
21	136.41	13577.9	18538	26.54
22	137.39	13675.2	21456	30.71
23	141.79	14113.0	8262	11.83
24	142.01	14134.9	6977	9.99





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No.	ppm	Hz	Amp.	Height	No.	ppm	Hz	Amp.
1	13.66	1374.4	234159200	41.11	25	133.69	13450.9	92276000
2	19.03	1915.1	275952900	48.45	26	146.10	14699.5	71307060
3	29.63	2981.0	107282200	18.83	27	146.18	14707.5	67491610
4	29.68	2986.1	101591700	17.84	28	172.94	17399.8	131021600
5	30.55	3073.4	268720100	47.18				
6	35.62	3584.0	182438200	32.03				
7	64.09	6448.0	239019300	41.96				
8	125.61	12638.1	90671880	15.92				
9	125.73	12650.5	113722900	19.96				
10	128.45	12923.4	415282800	72.91				
11	128.57	12935.9	444069000	77.96				
12	130.49	13128.8	53453530	9.38				
13	130.92	13172.1	105185000	18.47				
14	131.02	13182.4	98141040	17.23				
15	131.50	13230.8	51526950	9.05				
16	131.77	13258.0	225477300	39.58				
17	131.80	13260.9	204573500	35.91				
18	131.86	13266.8	462367000	81.17				
19	131.95	13276.3	417406000	73.28				
20	132.18	13299.0	117448600	20.62				
21	132.21	13302.0	114984700	20.19				
22	132.46	13326.9	105195400	18.47				
23	133.49	13430.3	105407100	18.51				
24	133.57	13438.4	102933600	18.07				

