

## Supporting Information

**General Chemistry.**  $^1\text{H}$  NMR spectra were recorded on a Varian XL-300 spectrometer. Chemical shifts for  $^1\text{H}$  NMR spectra are reported (in parts per million) relative to internal tetramethylsilane ( $\text{Me}_4\text{Si}$ ,  $\delta = 0.00$  ppm) with  $\text{CDCl}_3$  as solvent.  $^{13}\text{C}$  NMR spectra were recorded at 75 MHz. Chemical shifts for  $^{13}\text{C}$  NMR spectra are reported (in parts per million) relative to  $\text{CDCl}_3$  ( $\delta = 77.0$  ppm) or  $\text{C}_6\text{D}_6$  ( $\delta = 128.5$  ppm).  $^{31}\text{P}$  NMR spectra were recorded at 121 MHz, and chemical shifts reported (in parts per million) relative to external 85% phosphoric acid ( $\delta = 0.0$  ppm). Radial chromatography was carried out with a Harrison Associates Chromatotron using 1, 2, or 4 mm layers of silica gel 60 PF<sub>254</sub> containing gypsum (E. Merck). Ethyl acetate/hexanes mixtures were used as the eluent for chromatographic purifications. TLC plates were visualized by immersion in anisaldehyde stain (by volume: 93% ethanol, 3.5% sulfuric acid, 1% acetic acid, and 2.5% anisaldehyde) followed by heating. Organic solutions of products were dried over  $\text{MgSO}_4$ .

**Reagents and Solvents.** Palladium catalysts and ligands were purchased from Strem or Aldrich and used as received. N-Ethylpiperidinium hypophosphite and sodium hypophosphite hydrate were obtained from Aldrich and used as received. Triethylammonium hypophosphite was prepared according to : Stawinski, J.; Thelin, M.; Westman, E.; Zain, R. *J. Org. Chem.* **1990**, *55*, 3503. Ammonium hypophosphite was prepared as described in: Montchamp, J.-L.; Tian, F.; Frost, J. W. *J. Org. Chem.* **1995**, *60*, 6076. Tetrahydrofuran (THF) was distilled under  $\text{N}_2$  from sodium benzophenone ketyl, and used immediately. Benzene was distilled immediately before use, from calcium hydride under  $\text{N}_2$ . Anhydrous acetonitrile and DMF were obtained after drying over activated 3A molecular sieves, and were stored under  $\text{N}_2$ . Unless otherwise noted, HPLC grade acetonitrile and reagent grade DMF were used. Dioxane was dried over activated 4A molecular sieves, and stored under  $\text{N}_2$ . Pyridine and triethylamine were distilled from calcium hydride and stored under  $\text{N}_2$  over activated 4A molecular sieves.

**$^{31}\text{P}$  NMR Yield Measurements.** NMR yields were determined by integration of all the  $^{31}\text{P}$  signals. The extent of reduction was determined by integration of hypophosphite oxidation products ( $\text{MH}_2\text{PO}_3$ , and  $\text{M}_2\text{H}_2\text{P}_2\text{O}_5$ ), and in selected cases, the identity of the organic reduction products was checked by  $^1\text{H}$ -NMR and/or capillary GC.

**Anilinium Hypophosphite (4).** Aniline (196 g, 2.1 mol) was added over 30 min via an addition funnel, to an ice-cold aqueous solution of  $\text{H}_3\text{PO}_2$  (50 wt. %, 278 g, 2.1 mol). The light brown solution rapidly turned into a thick slurry. This was filtered and the off-white crystalline precipitate was washed with cold acetone. The filtrate was concentrated under reduced pressure, and a second crop of crystalline hypophosphite was obtained by adding acetone. (Note: if desired, a third crop can be collected similarly, or alternatively, the mother liquor is concentrated to dryness and dried in vacuo. This crop is very slightly impure but can still be used for the cross-coupling reaction.) The first two crops were combined and washed with ether, then dried in vacuo over  $\text{P}_2\text{O}_5$  for 24 h. Anilinium hypophosphite (304 g, 91%) was obtained as light yellow needles (mp 113-114°C). The X-ray crystallographic analysis of **4** was conducted directly on this material, and the structure has been deposited at the Cambridge Crystallographic Data Centre (deposition number CCDC 152350).  $^1\text{H}$  NMR ( $\text{D}_2\text{O}$ )  $\delta$  8.10-8.45 (br s, 3 H), 7.12 (d,  $J = 520$  Hz, 2 H), 7.0-7.4 (m, 5 H);  $^{31}\text{P}$  NMR ( $\text{D}_2\text{O}$ )  $\delta$  3.7 (t,  $J_{\text{PH}} = 520$  Hz).

This compound was reported previously: Schmidt, H. *Chem. Ber.* **1948**, *81*, 477.

### Representative Procedures (Table 2):

**(a) Preparation of Phenylphosphinic Acid using DMF as the Solvent (Entry 2).** A solution of iodobenzene (0.408 g, 2 mmol), anilinium hypophosphite (0.398 g, 2.5 mmol), triethylamine (0.606 g, 0.84 mL, 6 mmol), and palladium tetrakis(triphenylphosphine) (46 mg, 0.04 mmol) in DMF (10 mL) was heated at 85 °C for 6 h. The reaction mixture was concentrated under high vacuum, diluted in water, washed with  $\text{Et}_2\text{O}$ , and acidified with aqueous  $\text{KHSO}_4$  (1 M, saturated with NaCl). The resulting aqueous phase was extracted with ethyl acetate (3 x). The organic fractions were combined, dried over  $\text{MgSO}_4$ , filtered, and concentrated under vacuum to afford the title compound in 89 % yield.

**(b) Preparation of 4-Acetyl-Phenylphosphinic Acid using Acetonitrile as the Solvent (Entry 4).** A solution of 4-acetyliodobenzene (0.492 g, 2 mmol), anilinium hypophosphite (0.636 g, 4 mmol), triethylamine (0.606 g, 0.84 mL, 6 mmol), and palladium tetrakis(triphenylphosphine) (46 mg, 0.04 mmol) in acetonitrile (10 mL) was refluxed for 2 h. The reaction mixture was concentrated under vacuum, diluted in water, washed with Et<sub>2</sub>O, and acidified with aqueous KHSO<sub>4</sub> (1 M, saturated with NaCl). The resulting aqueous phase was extracted with ethyl acetate (3 x). The organic fractions were combined, dried over MgSO<sub>4</sub>, filtered, and concentrated under vacuum to afford the title compound in 74% yield.

**(c) Preparation of Butyl 2-Naphthyl-Phosphinate using an Orthosilicate-Mediated Esterification (Entry 16).** A solution of 2-bromonaphthalene (0.414 g, 2 mmol), anilinium hypophosphite (0.398 g, 2.5 mmol), triethylamine (0.606 g, 0.84 mL, 6 mmol), and palladium tetrakis(triphenylphosphine) (46 mg, 0.04 mmol) in DMF (10 mL) was refluxed for 24 h. The reaction mixture was concentrated under high vacuum, diluted in water, washed with Et<sub>2</sub>O, and acidified with aqueous KHSO<sub>4</sub> (1 M, saturated with NaCl). The resulting aqueous phase was extracted with ethyl acetate (3 x). The organic fractions were combined, dried over MgSO<sub>4</sub>, filtered, and concentrated under vacuum to afford crude 2-naphthyl phosphinic acid. This was diluted with toluene (10 mL). Tetrabutoxysilane (0.641 g, 0.71 mL, 2 mmol) was added and the reaction mixture was refluxed for 24 h, concentrated under high vacuum, diluted in ethyl acetate, washed with saturated aqueous NaHCO<sub>3</sub> and Saturated aqueous NaCl, dried over MgSO<sub>4</sub>, filtered and concentrated. Radial chromatography afforded the title compound in 71 % yield.

**Phenylphosphinic acid (Entry 2).** <sup>1</sup>H NMR (CDCl<sub>3</sub>) δ 11.5-11.8 (br s, 1 H), 7.7-7.85 (m, 2 H), 7.59 (d, *J* = 570 Hz, 1 H), 7.4-7.6 (m, 3 H); <sup>13</sup>C NMR (CDCl<sub>3</sub>) δ 132.8 (d, *J*<sub>PCCC</sub> = 3 Hz), 130.8 (d, *J*<sub>PC</sub> = 137 Hz), 130.7 (d, *J*<sub>PCCC</sub> = 12 Hz), 128.6 (d, *J*<sub>PCC</sub> = 14 Hz); <sup>31</sup>P NMR (CDCl<sub>3</sub>) δ 22.8 (dt, *J* = 570, 14 Hz). Phenylphosphinic acid is commercially available.

**2-Methyl-Phenylphosphinic acid (Entry 3).** <sup>1</sup>H NMR (CDCl<sub>3</sub>) δ 12.67 (br s, 1 H), 7.75 (dd, *J* = 16, 8 Hz, 1 H), 7.64 (d, *J* = 562 Hz, 1 H), 7.42 (dd, *J* = 8, 8 Hz, 1 H), 7.2-7.3 (m, 2 H), 2.55 (s, 3 H); <sup>13</sup>C NMR (CDCl<sub>3</sub>) δ 140.9 (d, *J*<sub>PCC</sub> = 12 Hz), 132.6 (d, *J*<sub>PCCC</sub> = 3 Hz), 131.2 (d, *J*<sub>PCCC</sub> = 12 Hz), 130.8 (d, *J*<sub>PCCC</sub> = 12 Hz), 129.0 (d, *J*<sub>PC</sub> = 135 Hz), 125.5 (d, *J*<sub>PCC</sub> = 14 Hz), 19.8 (d, *J*<sub>PCCC</sub> = 7 Hz); <sup>31</sup>P NMR (CDCl<sub>3</sub>) δ 23.3 (dd, *J* = 562, 12 Hz). This is a known compound: Michaelis, A.; Paneck, C. *Liebigs Ann. Chem.* **1882**, 212, 203. See also: Weil, T.; Prijs, B.; Erlenmeyer, H. *Helv. Chim. Acta* **1953**, 36, 1314.

**4-Acetyl-Phenylphosphinic acid (Entry 4).** <sup>1</sup>H NMR (CDCl<sub>3</sub>) δ 8.2-8.4 (br, 1 H), 8.02 (dd, *J* = 8, 3 Hz, 2 H), 7.86 (dd, *J* = 13, 8 Hz, 2 H), 7.63 (d, *J* = 578 Hz, 1 H), 2.63 (s, 3 H); <sup>13</sup>C NMR (CDCl<sub>3</sub>) δ 197.4, 140.3, 135.1 (d, *J*<sub>PC</sub> = 133 Hz), 131.1 (d, *J*<sub>PCCC</sub> = 13 Hz), 128.2 (d, *J*<sub>PCC</sub> = 14 Hz), 26.8; <sup>31</sup>P NMR (CDCl<sub>3</sub>) δ 22.0 (dt, *J* = 578, 13 Hz). This is a known compound: Bennett, S. N. L.; Hall, R. G. *J. Chem. Soc. Perkin Trans.1* **1995**, 9, 1145-1152.

**3-Methyl-Phenylphosphinic acid (Entry 5).** <sup>1</sup>H NMR (CDCl<sub>3</sub>) δ 12.6-12.8 (br s, 1 H), 7.5-7.7 (m, 2 H), 7.56 (d, *J* = 566 Hz, 1 H), 7.2-7.4 (m, 2 H), 2.33 (s, 3 H); <sup>13</sup>C NMR (CDCl<sub>3</sub>) δ 138.3 (d, *J*<sub>PCC</sub> = 14 Hz), 133.4, 131.1 (d, *J*<sub>PCCC</sub> = 12 Hz), 130.8 (d, *J*<sub>PC</sub> = 136 Hz), 128.4 (d, *J*<sub>PCC</sub> = 15 Hz), 127.7 (d, *J*<sub>PCCC</sub> = 12 Hz), 21.2; <sup>31</sup>P NMR (CDCl<sub>3</sub>) δ 22.4 (d, *J* = 566 Hz). This is a known compound: Michaelis, A. *Liebigs Ann. Chem.* **1896**, 293, 304.

**4-Methoxy-Phenylphosphinic acid (Entry 8).** <sup>1</sup>H NMR (CDCl<sub>3</sub>) δ 11.4-11.6 (br, 1 H), 7.69 (dd, *J* = 13, 9 Hz, 2 H), 7.56 (d, *J* = 567 Hz, 1 H), 6.94 (dd, *J* = 9, 2 Hz, 2 H), 3.83 (s, 3 H); <sup>13</sup>C NMR (CDCl<sub>3</sub>) δ 163.1 (d, *J*<sub>PCCC</sub> = 3 Hz), 132.8 (d, *J*<sub>PCCC</sub> = 13 Hz), 122.3 (d, *J*<sub>PC</sub> = 143 Hz), 114.1 (d, *J*<sub>PCC</sub> = 15 Hz); <sup>31</sup>P NMR (CDCl<sub>3</sub>) δ 19.9 (dt, *J* = 567, 13 Hz). This is a known compound: Herrin, T.R. et al. *J. Med. Chem.* **1977**, 20, 660-663; Tsvetkov et al.; *J. Gen. Chem. USSR (Engl. Transl.)* **1972**, 42, 761, 762.

**3-Chloro-Phenylphosphinic acid (Entry 10).**  $^1\text{H}$  NMR ( $\text{CDCl}_3$ )  $\delta$  12.6-12.8 (br s, 1 H), 7.6-7.8 (m, 2 H), 7.56 (d,  $J = 577$  Hz, 1 H), 7.5-7.55 (m, 1 H), 7.35-7.45 (m, 1 H);  $^{13}\text{C}$  NMR ( $\text{CDCl}_3$ )  $\delta$  134.9 (d,  $J_{\text{PCCC}} = 19$  Hz), 133.0, 132.9 (d,  $J_{\text{PC}} = 135$  Hz), 130.7 (d,  $J_{\text{PCC}} = 13$  Hz), 130.1 (d,  $J_{\text{PCC}} = 5$  Hz), 128.9 (d,  $J_{\text{PCC}} = 12$  Hz);  $^{31}\text{P}$  NMR ( $\text{CDCl}_3$ )  $\delta$  18.1 (d,  $J = 577$  Hz). This is a known compound: Quin; D. *J. Org. Chem.* **1962**, 27, 1012.

**Butyl 2-Naphthylphosphinate (Entry 16).**  $^1\text{H}$  NMR ( $\text{CDCl}_3$ )  $\delta$  8.35 (d,  $J = 16$  Hz, 1 H), 7.90 (d,  $J = 8$  Hz, 2 H), 7.83 (d,  $J = 8$  Hz, 1 H), 7.65-7.7 (m, 1 H), 7.66 (d,  $J = 564$  Hz, 1 H), 7.5-7.6 (m, 2 H), 4.0-4.15 (m, 2 H), 1.6-1.75 (m, 2 H), 1.38 (m, 2 H), 0.88 (t,  $J = 7$  Hz, 3 H);  $^{13}\text{C}$  NMR ( $\text{CDCl}_3$ )  $\delta$  135.1 (d,  $J = 2$  Hz), 133.3 (d,  $J = 12$  Hz), 132.2 (d,  $J = 15$  Hz), 128.8, 128.5 (d,  $J = 4$  Hz), 128.4, 127.7, 126.9, 126.7 (d,  $J = 132$  Hz), 124.9 (d,  $J = 12$  Hz), 65.6 (d,  $J = 7$  Hz), 32.3 (d,  $J = 6$  Hz), 18.6, 13.4;  $^{31}\text{P}$  NMR ( $\text{CDCl}_3$ )  $\delta$  25.5 (d,  $J = 564$  Hz). 2-Naphthylphosphinic acid is a known compound: Weil, T.; Prijs, B.; Erlenmeyer, H. *Helv. Chim. Acta* **1953**, 36, 1314.

**Benzylphosphinic acid (Entry 21).**  $^1\text{H}$  NMR ( $\text{CDCl}_3$ )  $\delta$  11.65 (br s, 1 H), 7.05-7.4 (m, 5 H), 6.89 (d,  $J = 560$  Hz, 1 H), 3.07 (d,  $J = 19$  Hz, 2 H);  $^{13}\text{C}$  NMR ( $\text{CDCl}_3$ )  $\delta$  129.7 (d,  $J_{\text{PCCC}} = 6$  Hz), 128.7 (d,  $J_{\text{PCCCC}} = 3$  Hz), 128.3 (d,  $J_{\text{PCC}} = 16$  Hz), 127.0 (d,  $J_{\text{PCCCC}} = 4$  Hz), 37.2 (d,  $J_{\text{PC}} = 88$  Hz);  $^{31}\text{P}$  NMR ( $\text{CDCl}_3$ )  $\delta$  34.8 (d,  $J = 560$  Hz). This is a known compound: see (a) Froestl, W.; Mickel, S. J.; von Sprecher, G.; Diel, P. J.; Hall, R. G.; Maier, L.; Strub, D.; Melillo, V.; Baumann, P. A.; Bernasconi, R.; Gentsch, C.; Hauser, K.; Jaekel, J.; Karlsson, G.; Klebs, K.; Maitre, L.; Marescaux, C.; Pozza, M. F.; Schmutz, M.; Steinmann, M. W.; van Riesen, H.; Vassout, A.; Mondadori, C.; Olpe, H.-R.; Waldmeier, P. C.; Bittiger, H. *J. Med. Chem.* **1995**, 38, 3313. (b) Boyd, E. A.; Regan, A. C. *Tetrahedron Lett.* **1994**, 35, 4223.

**4-Methoxy-Benzylphosphinic acid (Entry 22).**  $^1\text{H}$  NMR ( $\text{CDCl}_3$ )  $\delta$  11.4-11.8 (br s, 1 H), 7.13 (d,  $J = 7$  Hz, 2 H), 6.92 (d,  $J = 588$  Hz, 1 H), 6.84 (d,  $J = 7$  Hz, 2 H), 3.76 (s, 3 H), 3.05 (d,  $J = 17$  Hz, 2 H);  $^{13}\text{C}$  NMR ( $\text{CDCl}_3$ )  $\delta$  158.7 (d,  $J_{\text{PCCCC}} = 4$  Hz), 130.8 (d,  $J_{\text{PCCC}} = 6$  Hz), 121.5 (d,  $J_{\text{PCC}} = 7$  Hz), 114.2, 55.2, 36.3 (d,  $J_{\text{PC}} = 89$  Hz);  $^{31}\text{P}$  NMR ( $\text{CDCl}_3$ )  $\delta$  35.6 (dt,  $J = 588, 17$  Hz).

**4-Vinyl-Benzylphosphinic acid (Entry 23).**  $^1\text{H}$  NMR ( $\text{CDCl}_3$ )  $\delta$  9.9-10.2 (br s, 1 H), 7.33 (d,  $J = 7$  Hz, 2 H), 7.16 (d,  $J = 7$  Hz, 1 H), 6.92 (d,  $J = 559$  Hz, 1 H), 6.67 (dd,  $J = 17, 11$  Hz, 1 H), 5.71 (d,  $J = 17$  Hz, 1 H), 5.23 (d,  $J = 11$  Hz, 1 H), 3.07 (d,  $J = 18$  Hz, 2 H);  $^{13}\text{C}$  NMR ( $\text{CDCl}_3$ )  $\delta$  136.5 (d,  $J_{\text{PCCCC}} = 4$  Hz), 136.2, 130.1 (d,  $J_{\text{PCCC}} = 6$  Hz), 129.4 (d,  $J_{\text{PCC}} = 8$  Hz), 126.6 (d,  $J_{\text{PCCCC}} = 3$  Hz), 114.0, 37.3 (d,  $J_{\text{PC}} = 89$  Hz);  $^{31}\text{P}$  NMR ( $\text{CDCl}_3$ )  $\delta$  32.4 (dt,  $J = 559, 18$  Hz).

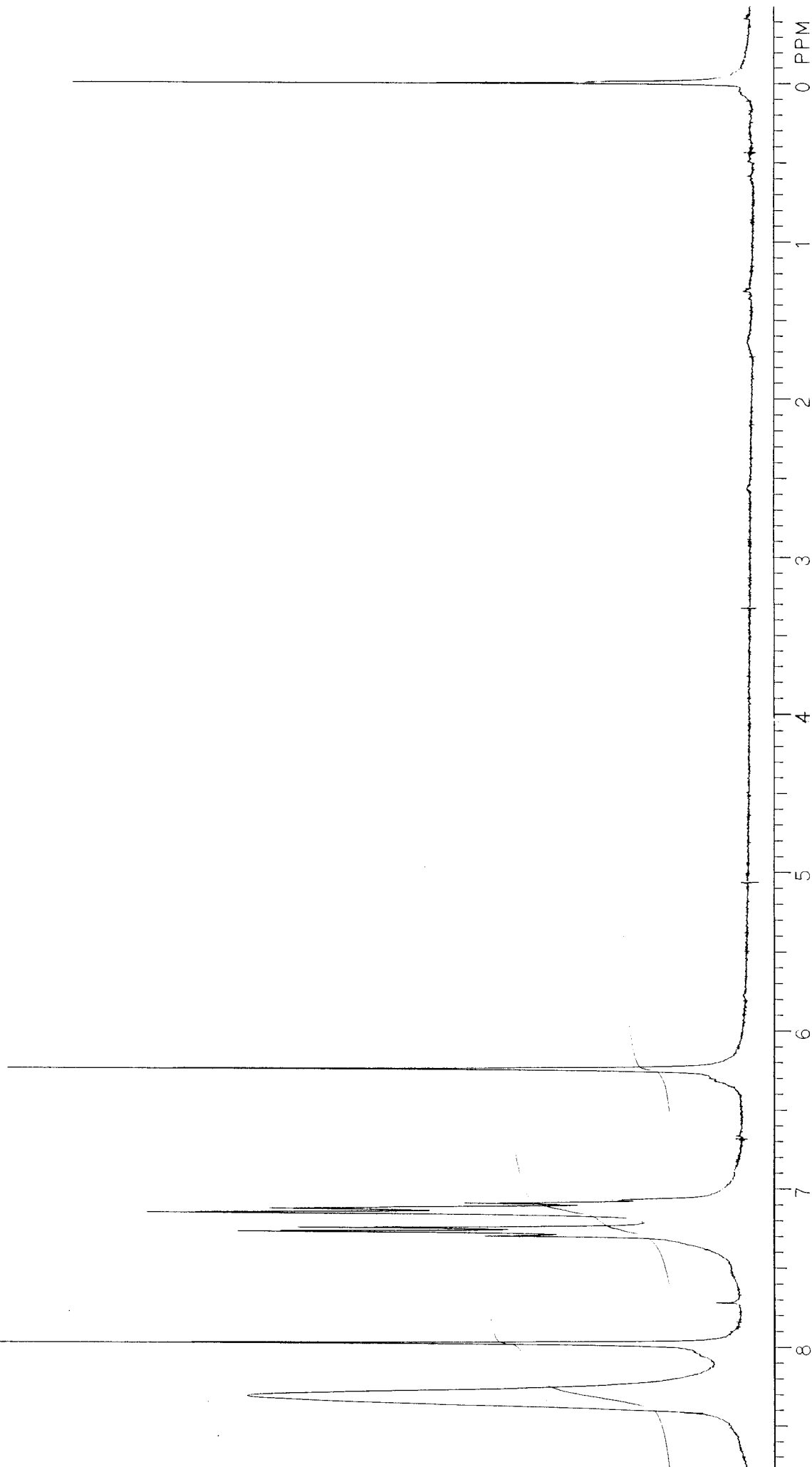
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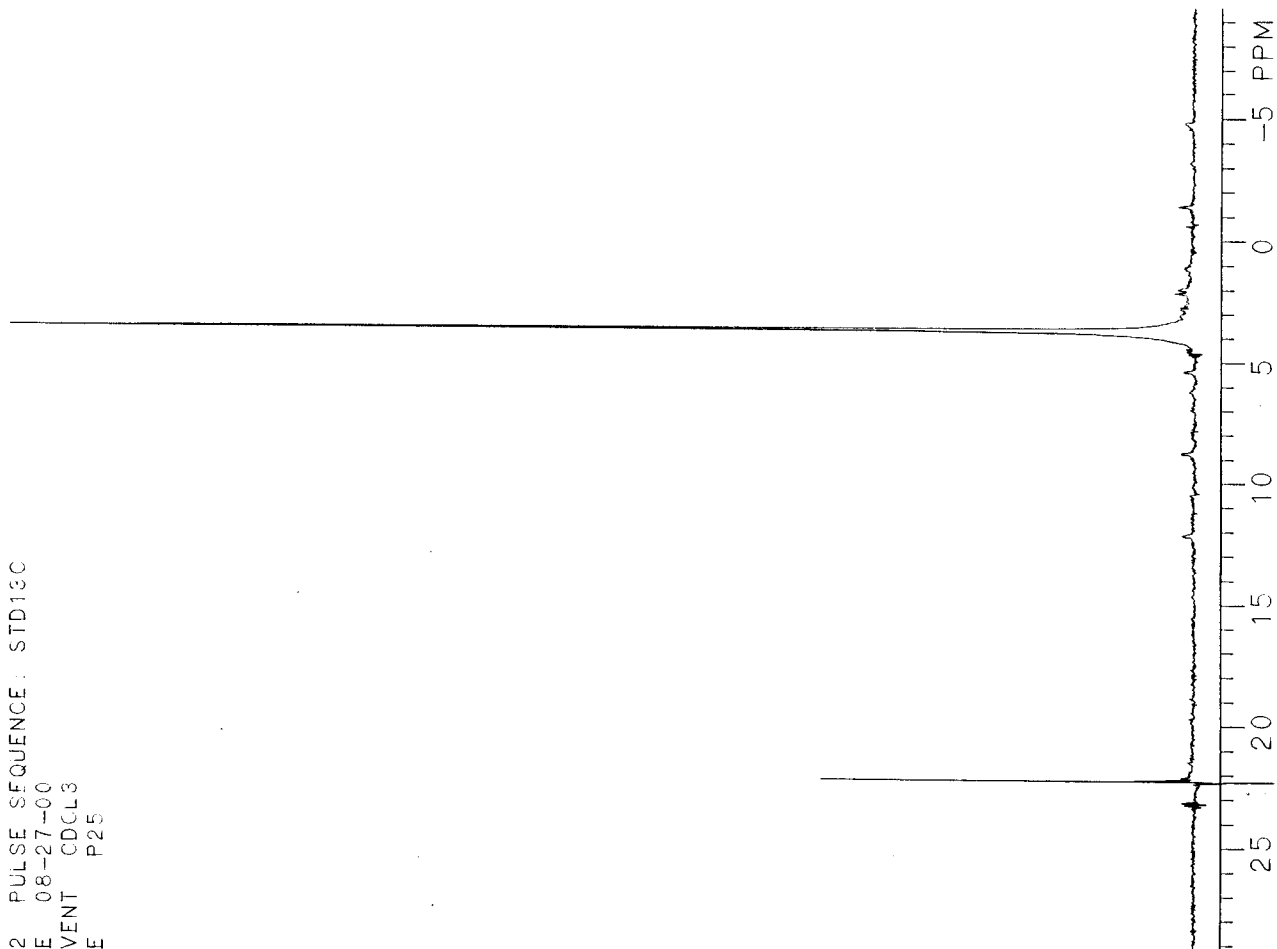
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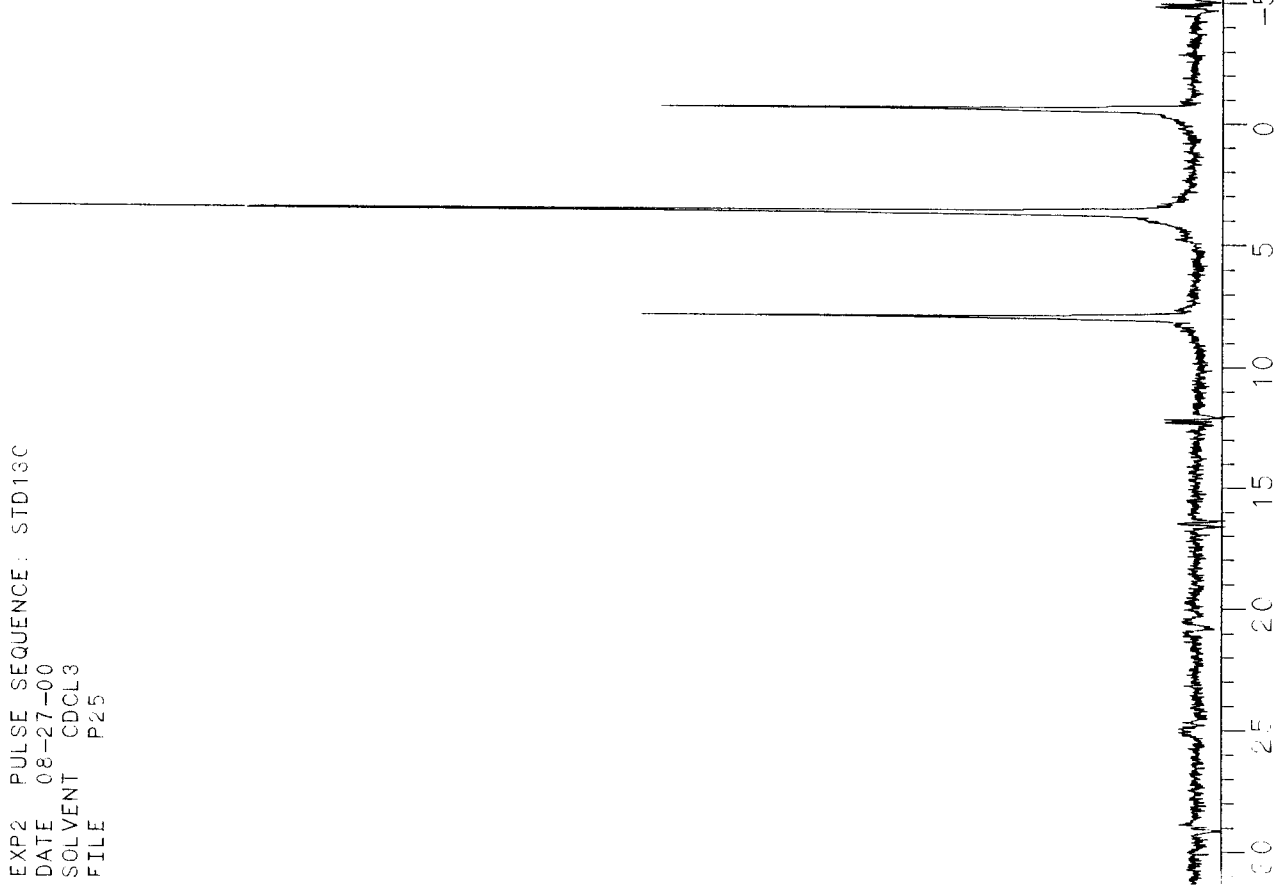
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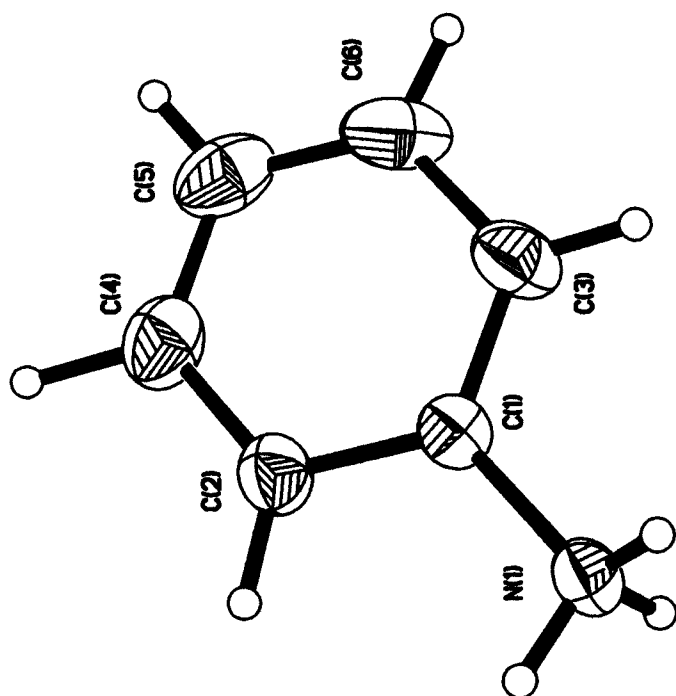
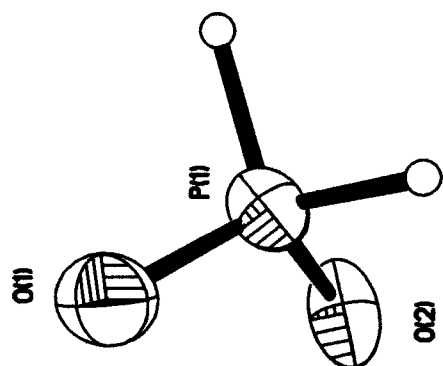
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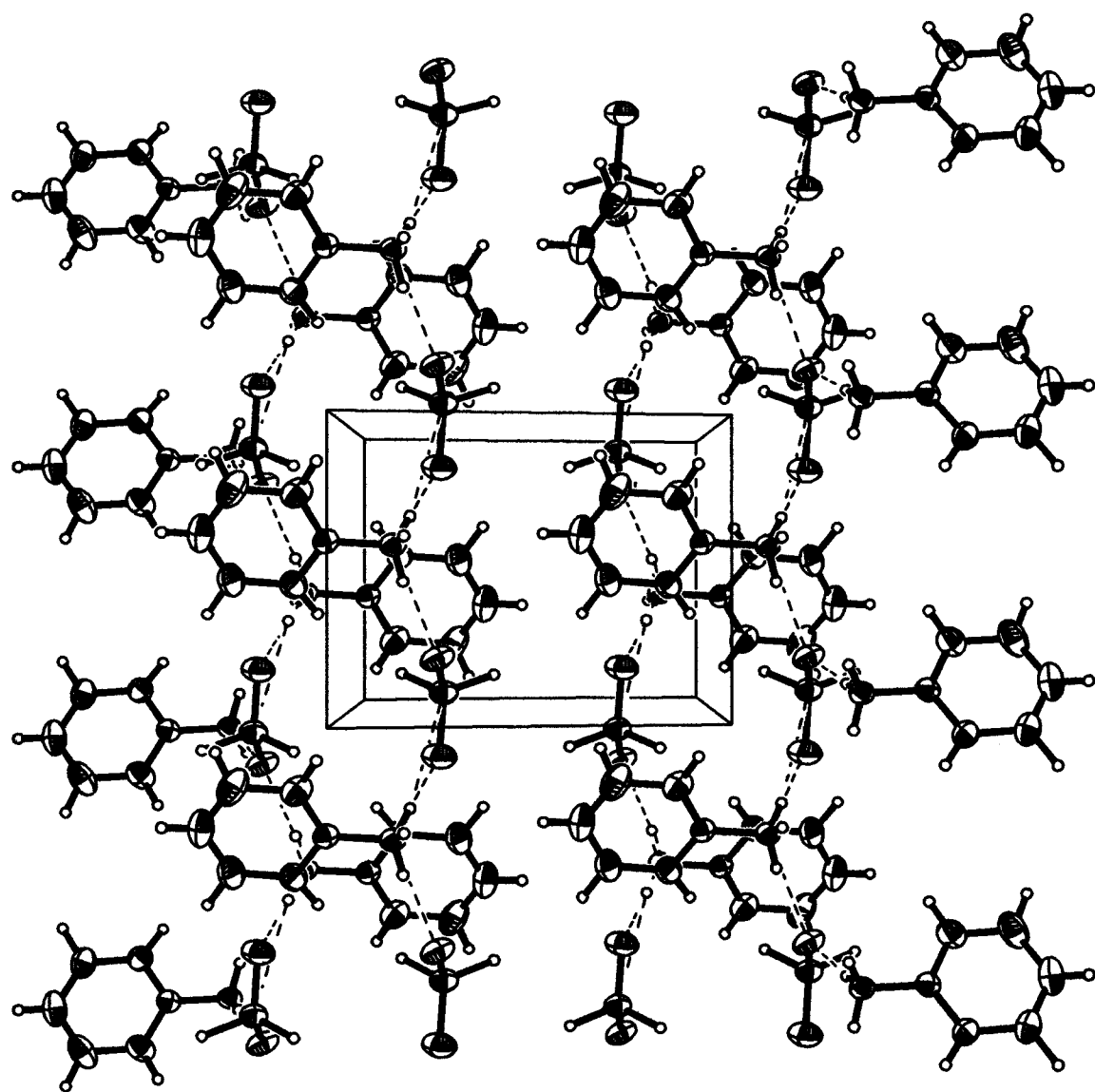


Table 1. Crystal data and structure refinement for Anilinium hypophosphite

Identification code	mm707m	
Empirical formula	C <sub>6</sub> H <sub>10</sub> N O <sub>2</sub> P	
Formula weight	159.12	
Temperature	299(2) K	
Wavelength	0.71073 Å	
Crystal system	Monoclinic	
Space group	P2(1)/n	
Unit cell dimensions	a = 8.550(6) Å	α = 90°.
	b = 6.560(5) Å	β = 102.385(14)°.
	c = 15.610(11) Å	γ = 90°.
Volume	855.1(10) Å <sup>3</sup>	
Z	4	
Density (calculated)	1.236 Mg/m <sup>3</sup>	
Absorption coefficient	0.267 mm <sup>-1</sup>	
F(000)	336	
Crystal size	0.02 x 0.17 x 0.37 mm <sup>3</sup>	
Theta range for data collection	2.52 to 28.79°.	
Index ranges	-11 ≤ h ≤ 8, -8 ≤ k ≤ 8, -18 ≤ l ≤ 19	
Reflections collected	4807	
Independent reflections	1988 [R(int) = 0.0856]	
Completeness to theta = 28.79°	89.0 %	
Absorption correction	Empirical	
Max. and min. transmission	0.4399 and 0.2095	
Refinement method	Full-matrix least-squares on F <sup>2</sup>	
Data / restraints / parameters	1988 / 0 / 101	
Goodness-of-fit on F <sub>2</sub>	0.973	
Final R indices [I > 2σ(I)]	R1 = 0.0534, wR2 = 0.1416	
R indices (all data)	R1 = 0.0945, wR2 = 0.1572	
Extinction coefficient	0.000(4)	
Largest diff. peak and hole	0.363 and -0.273 eÅ <sup>-3</sup>	



Table 2. Atomic coordinates ( $\times 10^4$ ) and equivalent isotropic displacement parameters ( $\text{\AA}^2 \times 10^3$ ) for Anilinium hypophosphite.  $U(\text{eq})$  is defined as one third of the trace of the orthogonalized  $U_{ij}$  tensor.

	x	y	z	$U(\text{eq})$
P(1)	2382(1)	5747(1)	9255(1)	56(1)
O(1)	2500(3)	3526(3)	9210(1)	80(1)
O(2)	2509(2)	6981(3)	8473(1)	70(1)
N(1)	11340(2)	5839(3)	6756(1)	50(1)
C(1)	9591(3)	5957(4)	6572(1)	46(1)
C(2)	8691(4)	4498(4)	6065(2)	61(1)
C(3)	7055(4)	4659(6)	5892(2)	77(1)
C(4)	6318(4)	6229(6)	6231(2)	81(1)
C(5)	7222(4)	7694(6)	6725(2)	86(1)
C(6)	8876(4)	7567(5)	6902(2)	69(1)

Table 3. Bond lengths [Å] and angles [°] for Anilinium hypophosphite.

P(1)-O(1)	1.463(3)
P(1)-O(2)	1.488(2)
N(1)-C(1)	1.463(3)
C(1)-C(2)	1.369(4)
C(1)-C(6)	1.374(4)
C(2)-C(3)	1.371(5)
C(3)-C(4)	1.372(5)
C(4)-C(5)	1.364(5)
C(5)-C(6)	1.383(4)
O(1)-P(1)-O(2)	118.99(11)
C(2)-C(1)-C(6)	120.9(3)
C(2)-C(1)-N(1)	120.1(2)
C(6)-C(1)-N(1)	119.0(2)
C(1)-C(2)-C(3)	118.9(3)
C(2)-C(3)-C(4)	121.0(3)
C(5)-C(4)-C(3)	119.7(3)
C(4)-C(5)-C(6)	120.1(3)
C(1)-C(6)-C(5)	119.3(3)

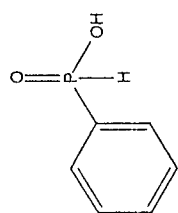
Symmetry transformations used to generate equivalent atoms:

Table 4. Anisotropic displacement parameters ( $\text{\AA}^2 \times 10^3$ ) for Anilinium hypophosphite. The anisotropic displacement factor exponent takes the form:  $-2\pi^2 [h^2 a^{*2} U_{11} + \dots + 2 h k a^* b^* U_{12}]$ 

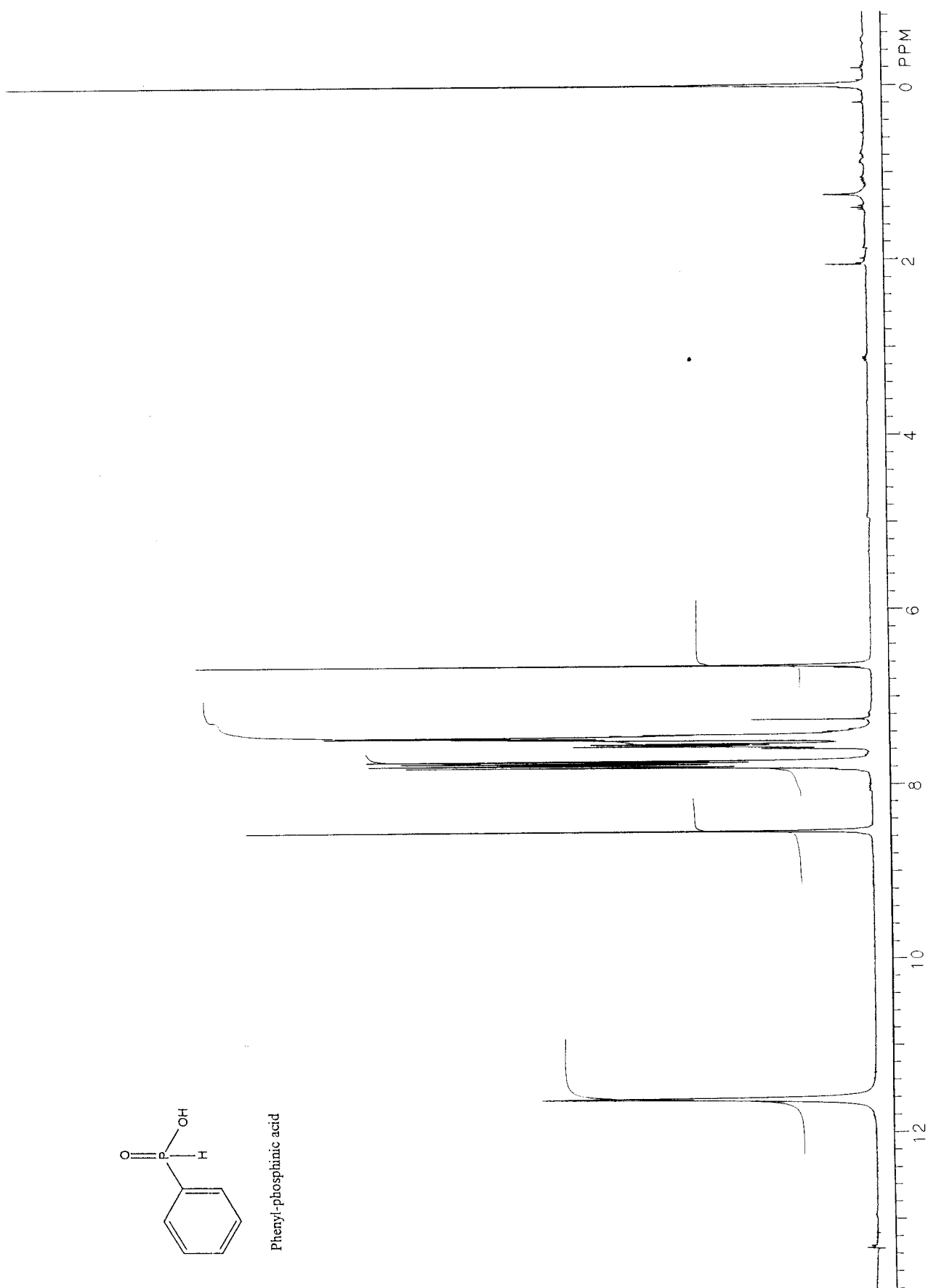
	U <sub>11</sub>	U <sub>22</sub>	U <sub>33</sub>	U <sub>23</sub>	U <sub>13</sub>	U <sub>12</sub>
P(1)	68(1)	48(1)	50(1)	-3(1)	10(1)	-1(1)
O(1)	105(2)	52(1)	94(2)	9(1)	47(1)	6(1)
O(2)	93(2)	52(1)	55(1)	5(1)	-8(1)	-20(1)
N(1)	55(2)	42(1)	49(1)	-3(1)	2(1)	2(1)
C(1)	52(2)	48(2)	37(1)	3(1)	3(1)	4(1)
C(2)	58(2)	59(2)	62(2)	-10(1)	3(1)	-4(1)
C(3)	58(2)	91(3)	73(2)	-5(2)	-4(2)	-11(2)
C(4)	54(2)	124(3)	62(2)	10(2)	9(2)	9(2)
C(5)	78(3)	118(3)	63(2)	-10(2)	15(2)	36(2)
C(6)	75(2)	72(2)	55(2)	-16(1)	5(1)	14(2)

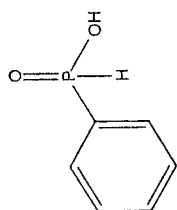
Table 5. Hydrogen coordinates (  $\times 10^4$  ) and isotropic displacement parameters ( $\text{\AA}^2 \times 10^3$ ) for Anilinium hypophosphite.

	x	y	z	U(eq)
H(1A)	11638	4592	6634	75
H(1B)	11730	6111	7320	75
H(1C)	11717	6745	6427	75
H(4)	9181	3415	5842	73
H(5)	6434	3688	5539	92
H(6)	5206	6296	6124	97
H(7)	6727	8779	6944	104
H(8)	9497	8561	7239	83
H(9)	1040(50)	6440(60)	9490(20)	129(13)
H(10)	3580(30)	6330(50)	9914(18)	84(9)

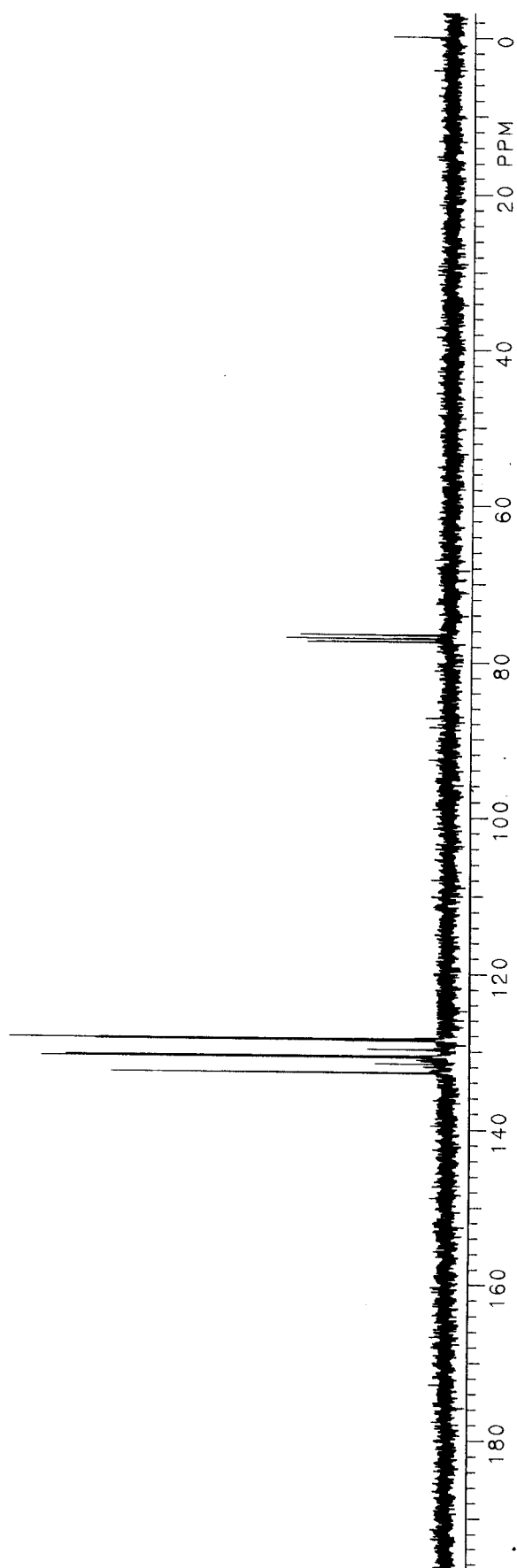


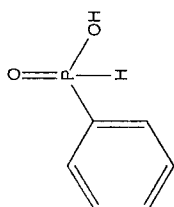
Phenyl-phosphinic acid



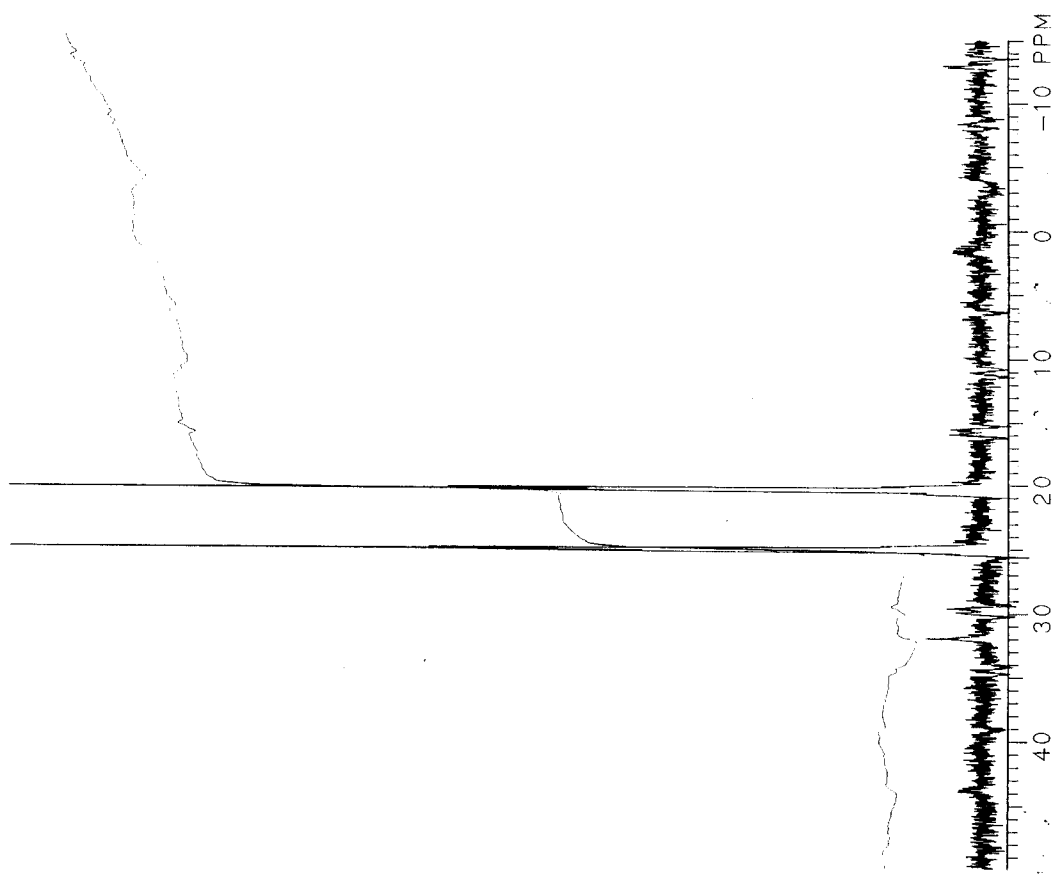
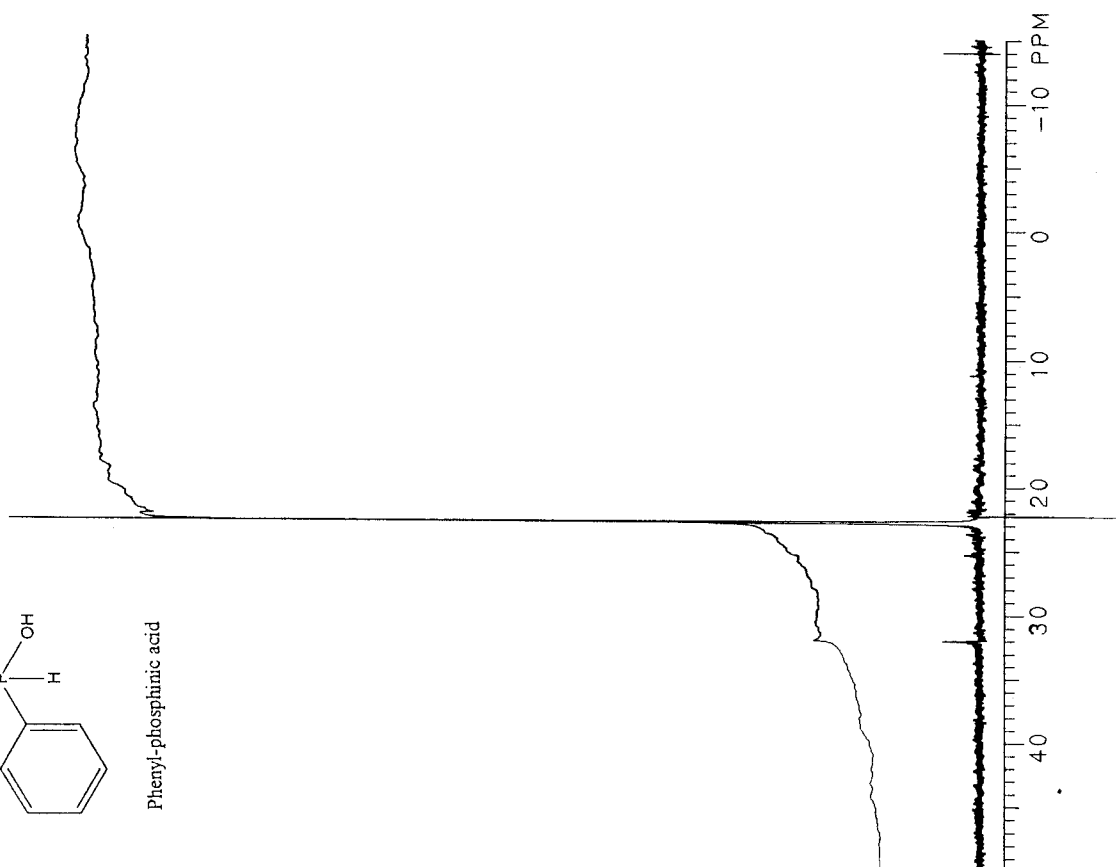


Phenyl-phosphinic acid

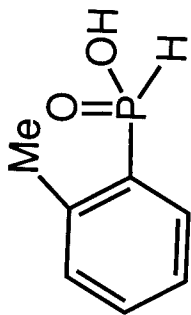




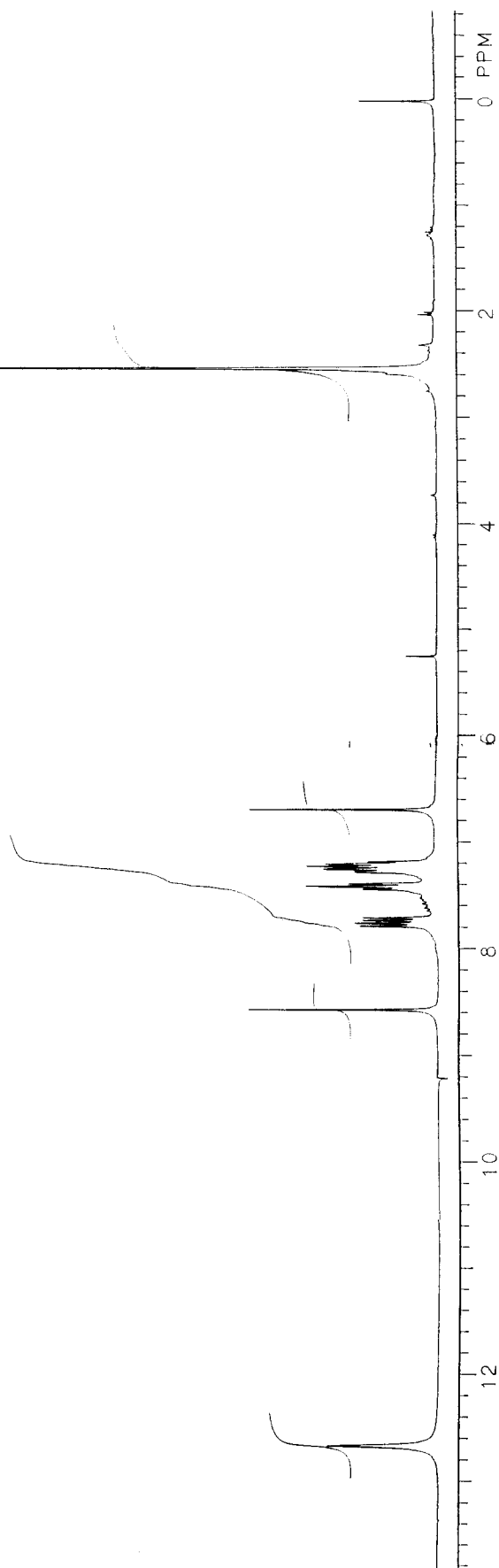
Phenyl-phosphinic acid



JLM II-324  
EXP1 PULSE SEQUENCE: STD1H  
DATE 08-10-00  
SOLVENT CDCL3  
FILE H

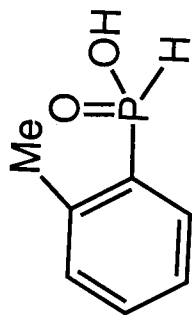


after extraction

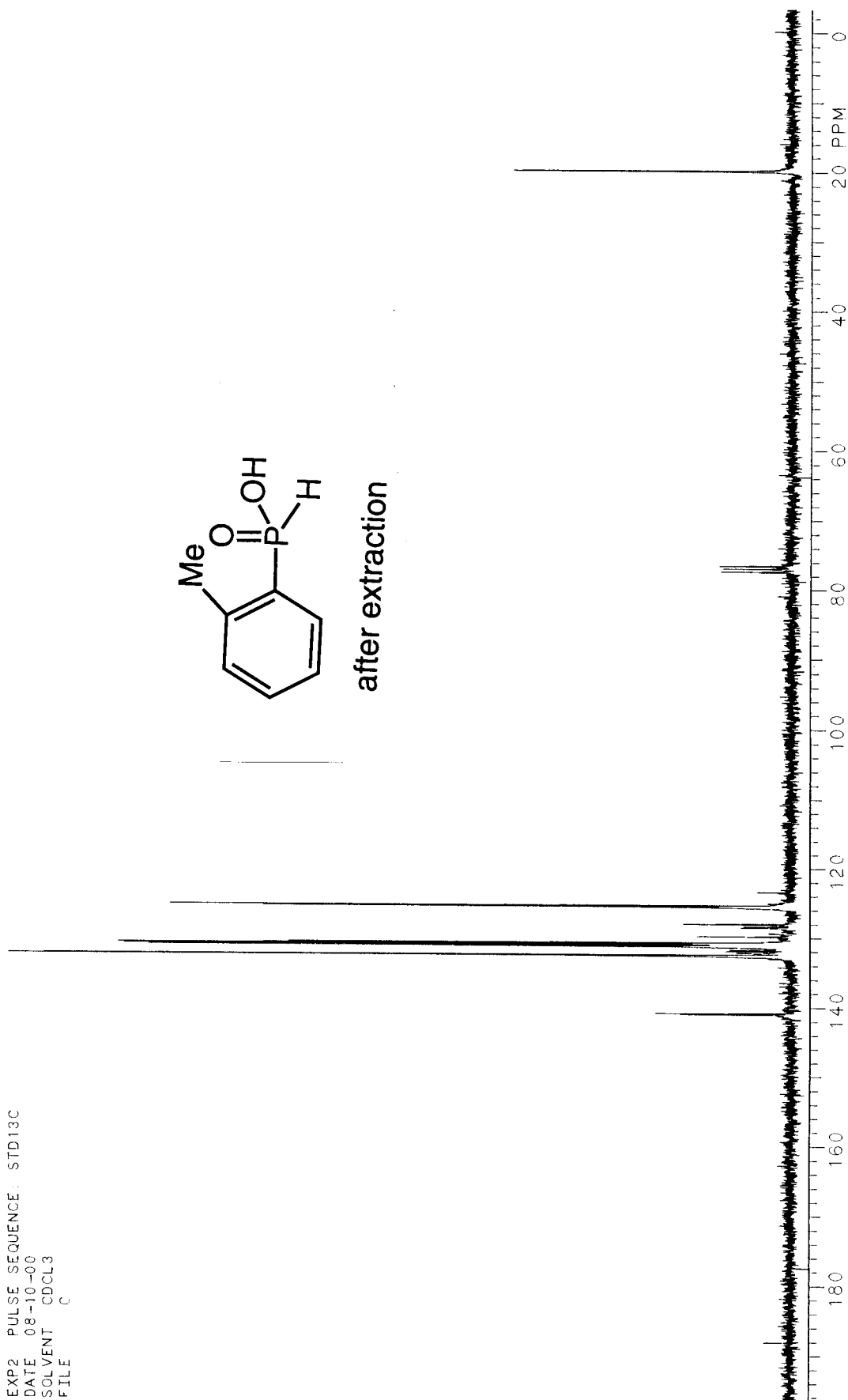


JLM II-324

EXP2 PULSE SEQUENCE: STD13C  
DATE 08-10-00  
SOLVENT CDCL3  
FILE C



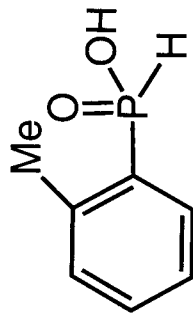
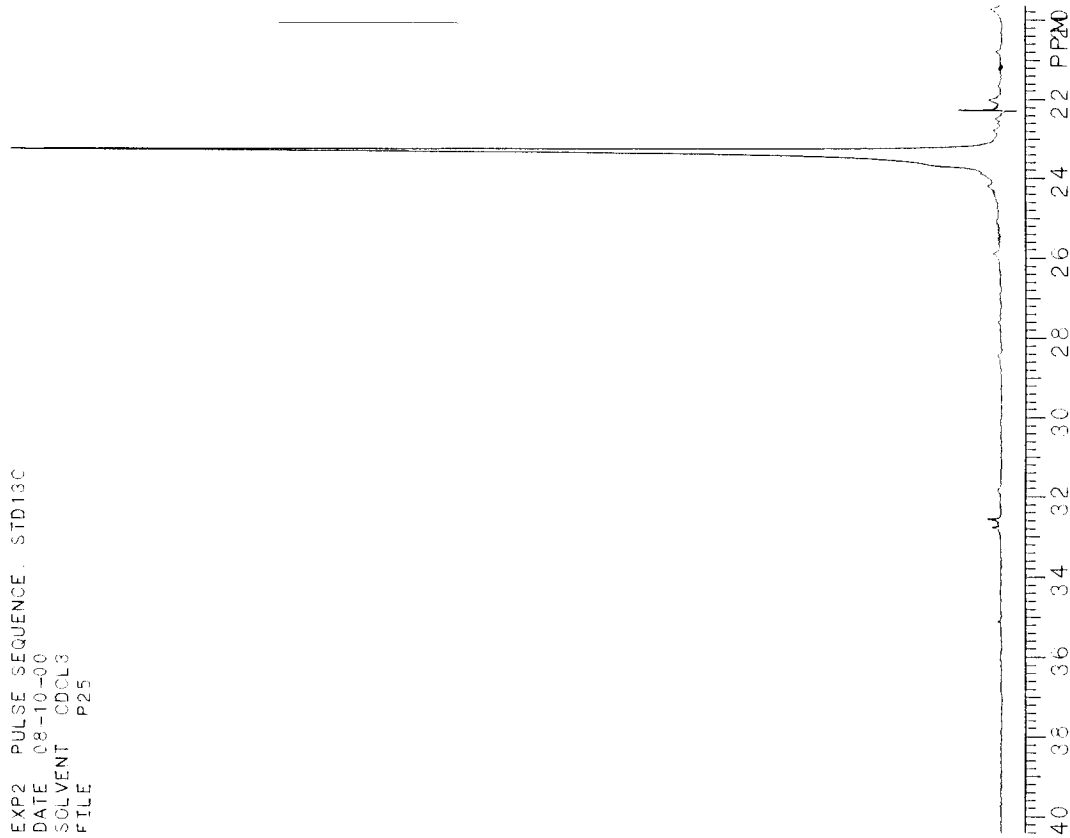
after extraction





JLM II-324 DECOUPLED

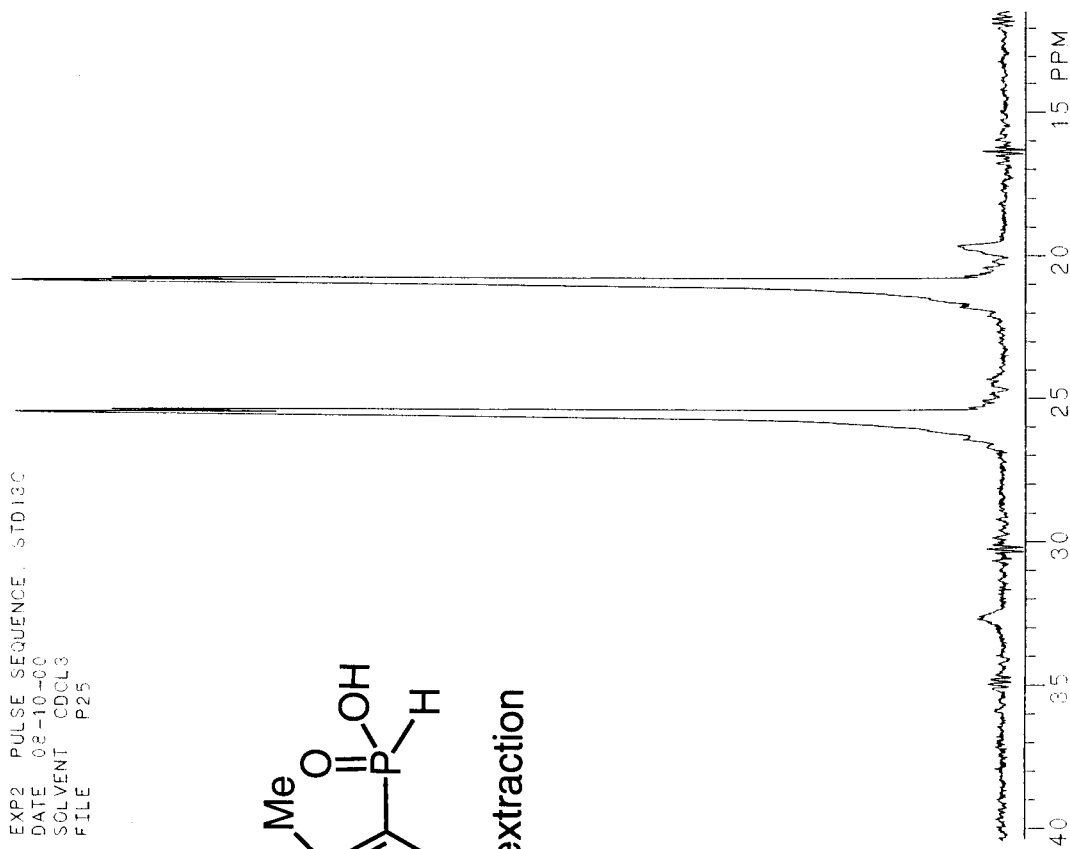
EXP2 PULSE SEQUENCE . STD13C  
DATE 08-10-00  
SOLVENT CDCL3  
FILE P25

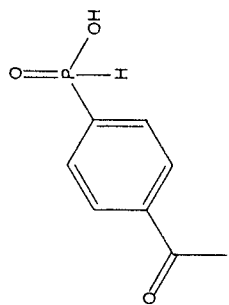


after extraction

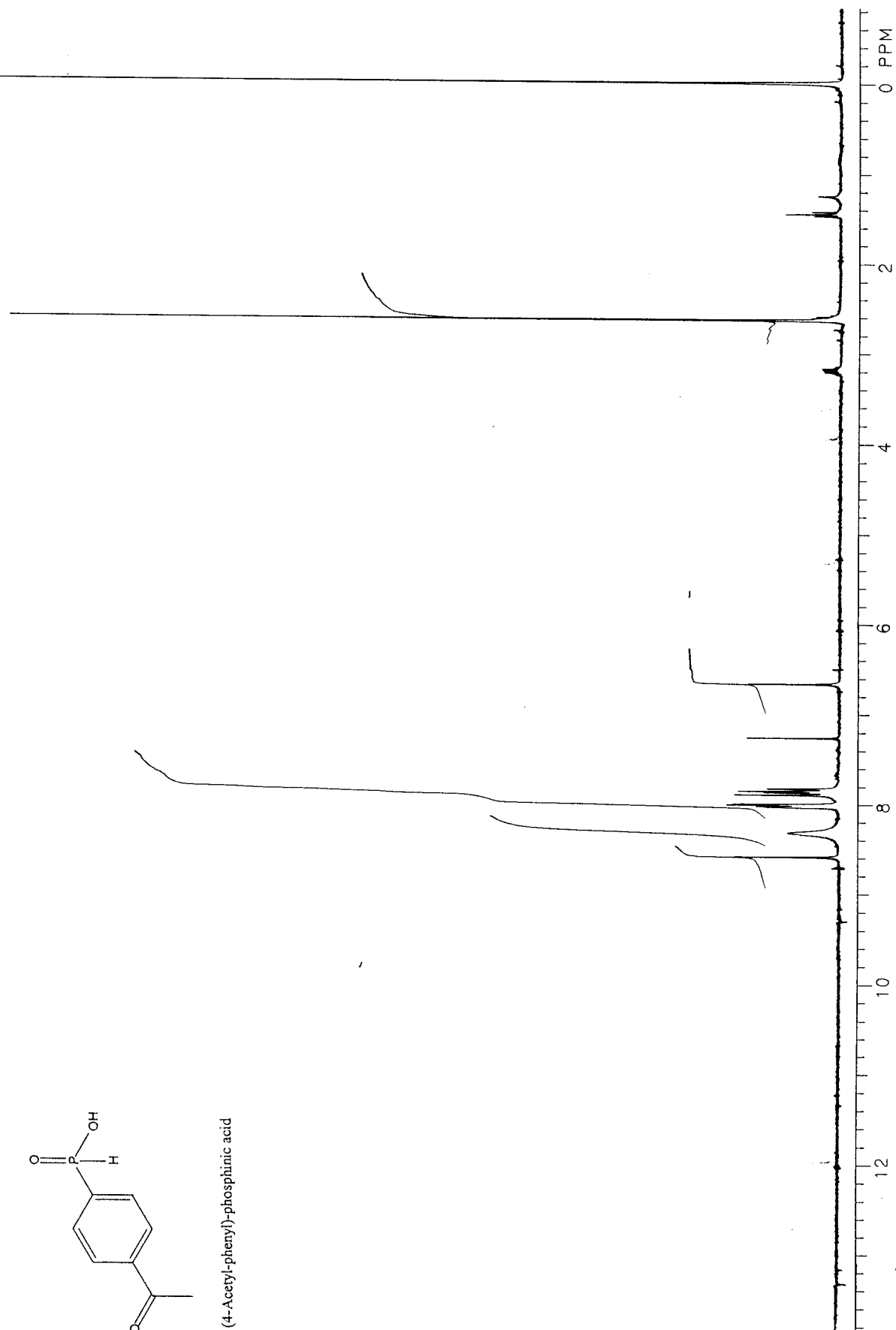
JLM II-324, COUPLED

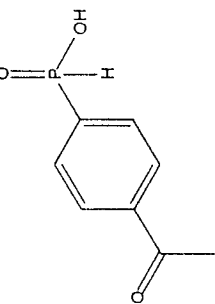
EXP2 PULSE SEQUENCE . STD13C  
DATE 08-10-00  
SOLVENT CDCL3  
FILE P25



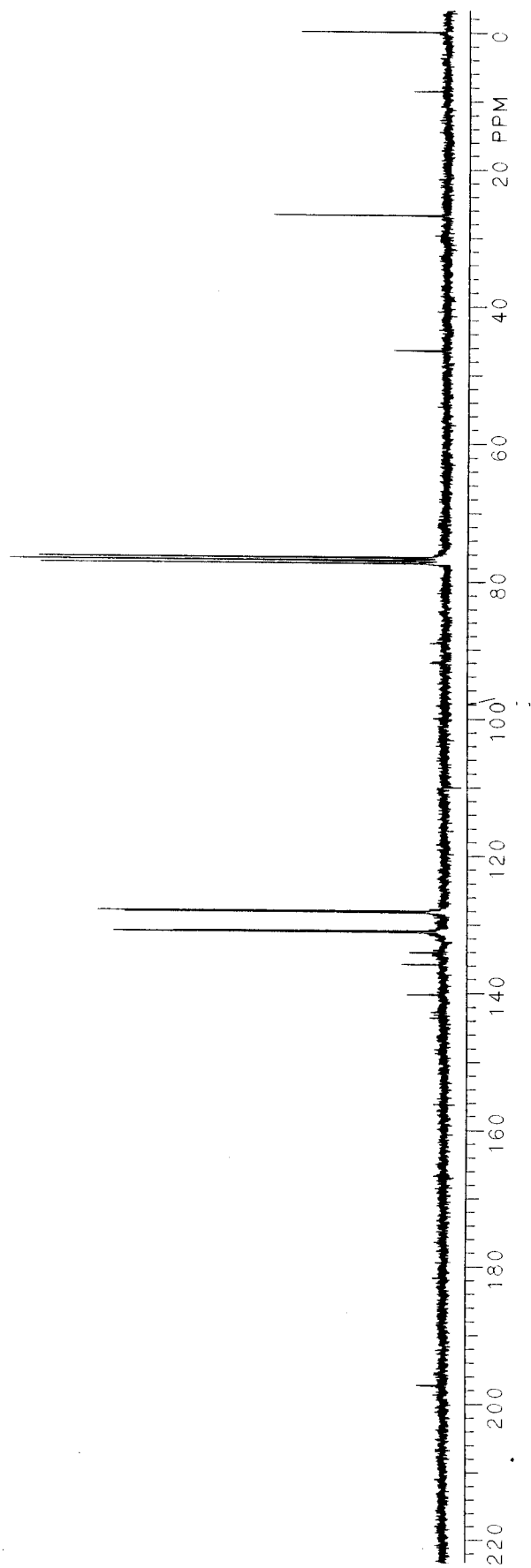


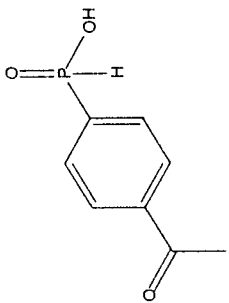
(4-Acetyl-phenyl)-phosphinic acid



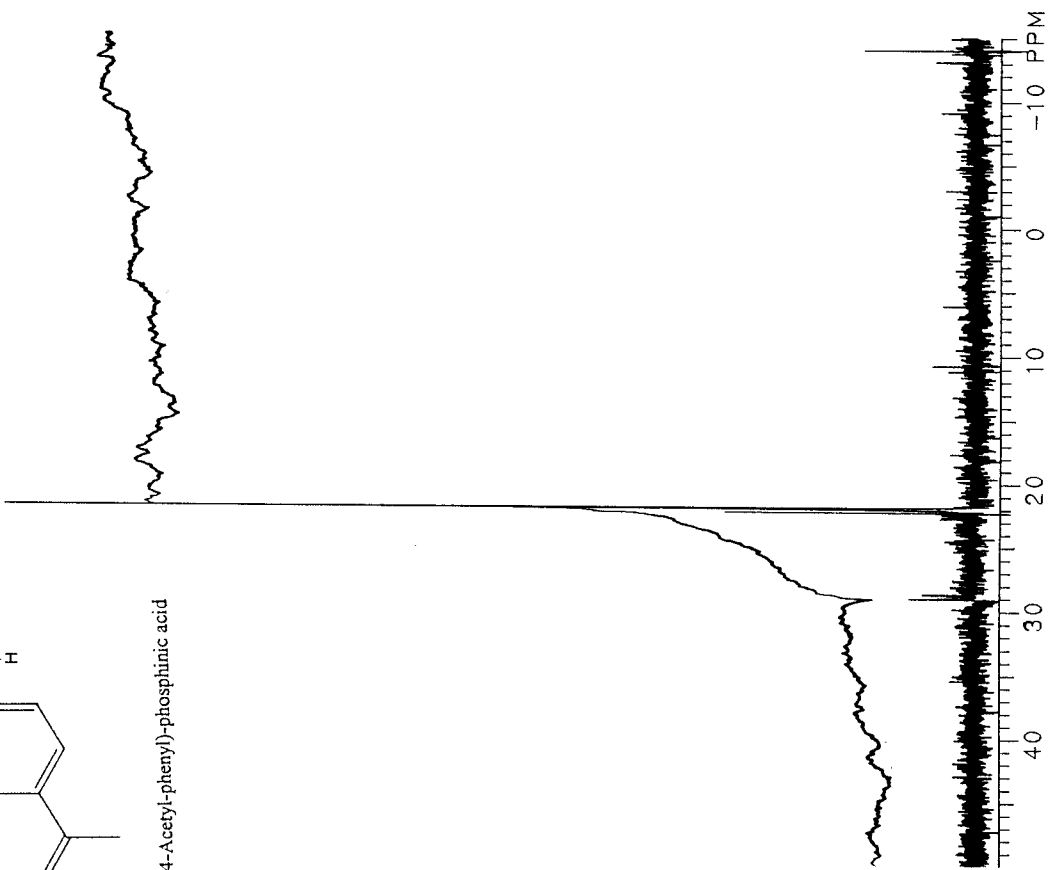
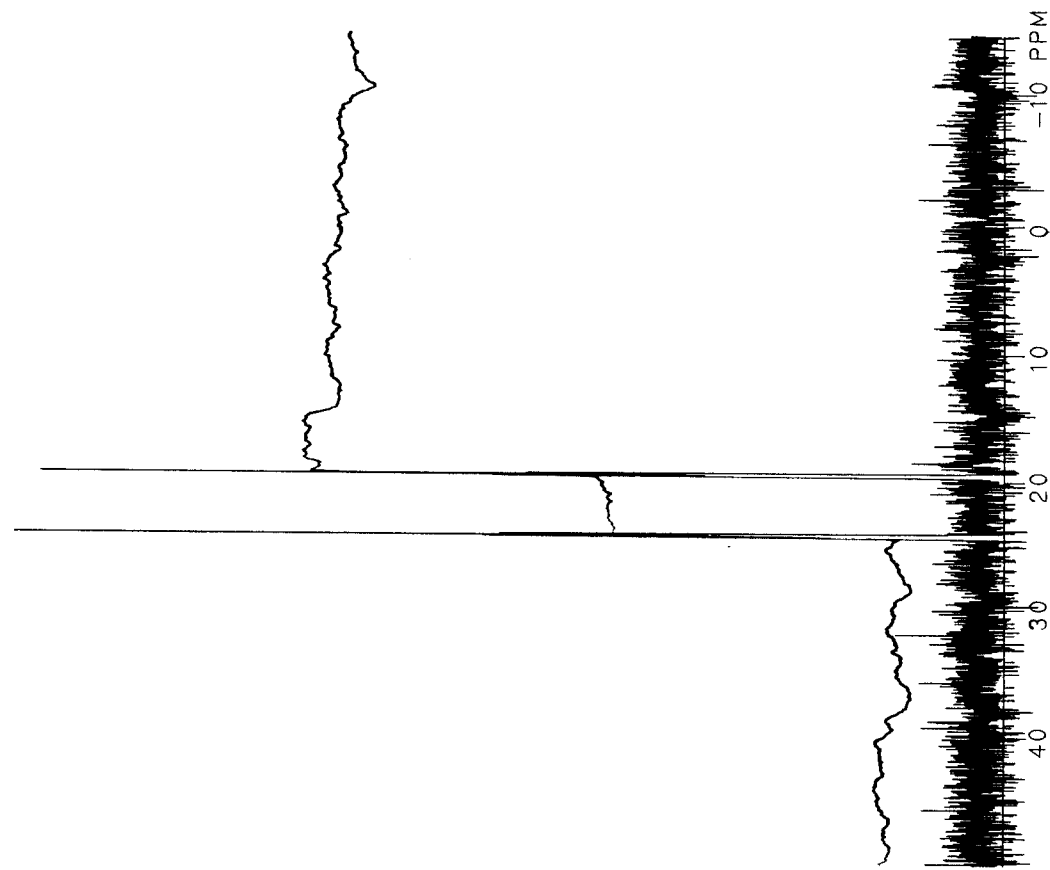


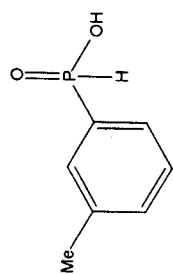
(4-Acetyl-phenyl)-phosphinic acid



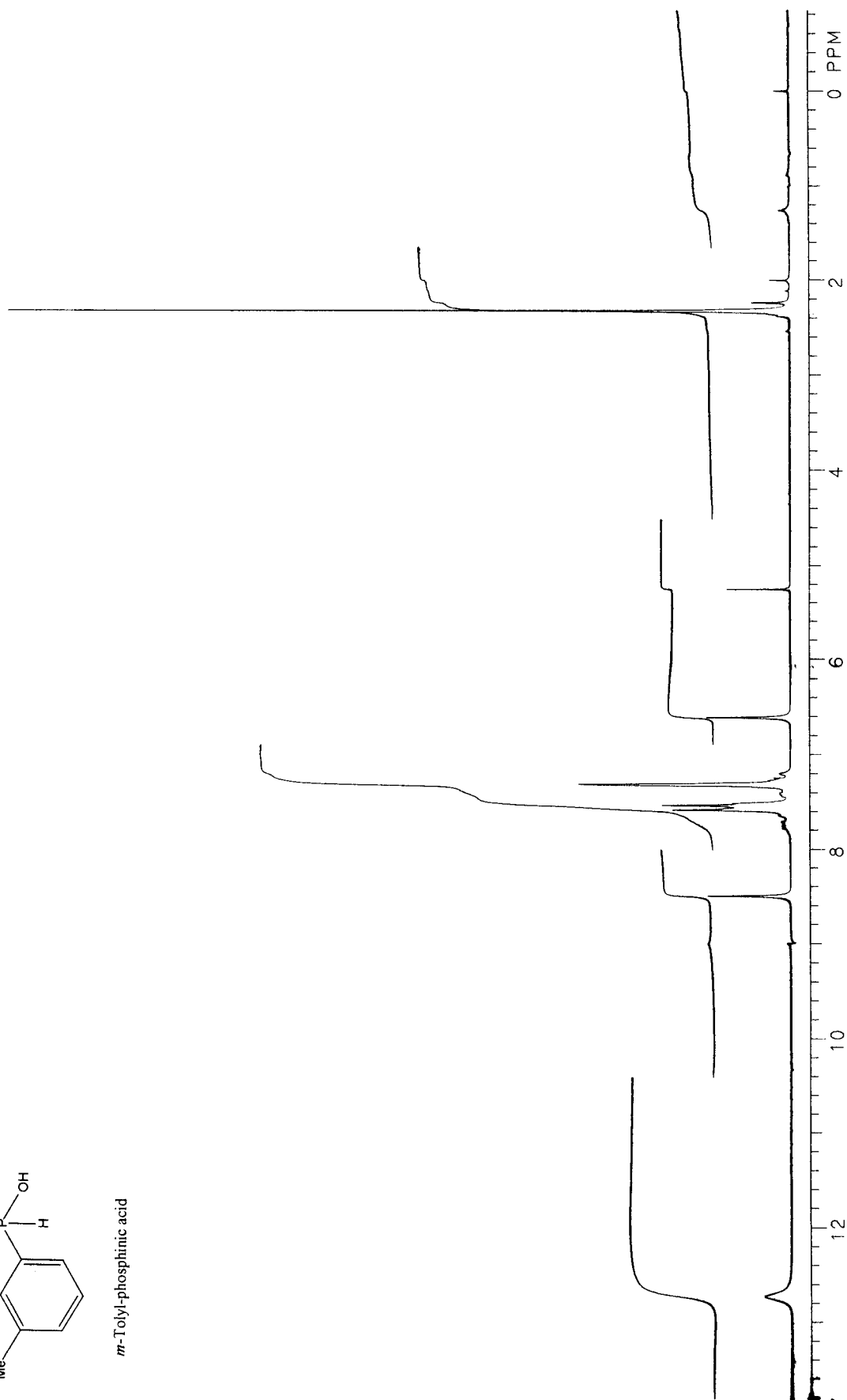


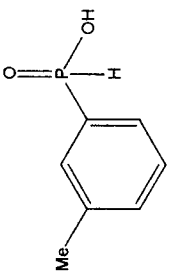
(4-Acetyl-phenyl)-phosphinic acid



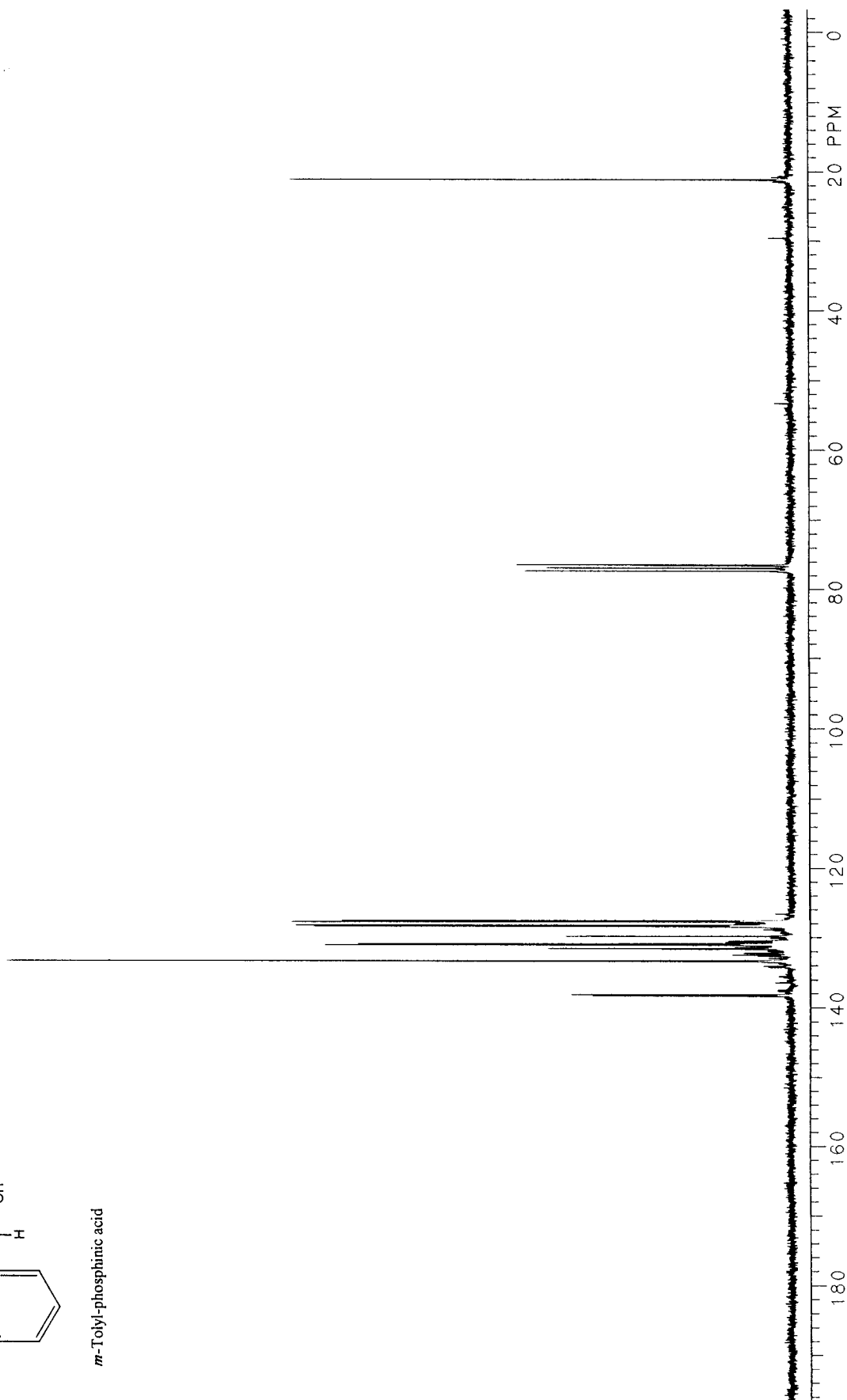


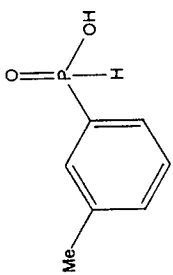
*m*-Tolyl-phosphinic acid



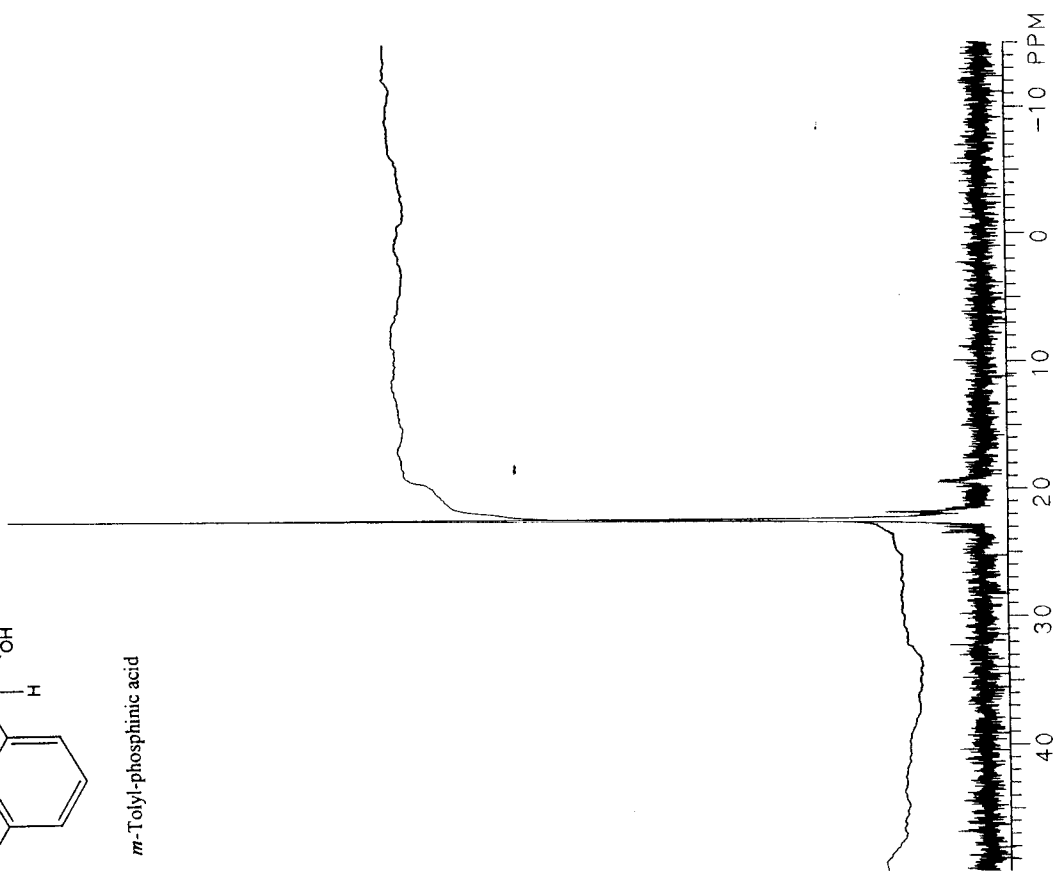
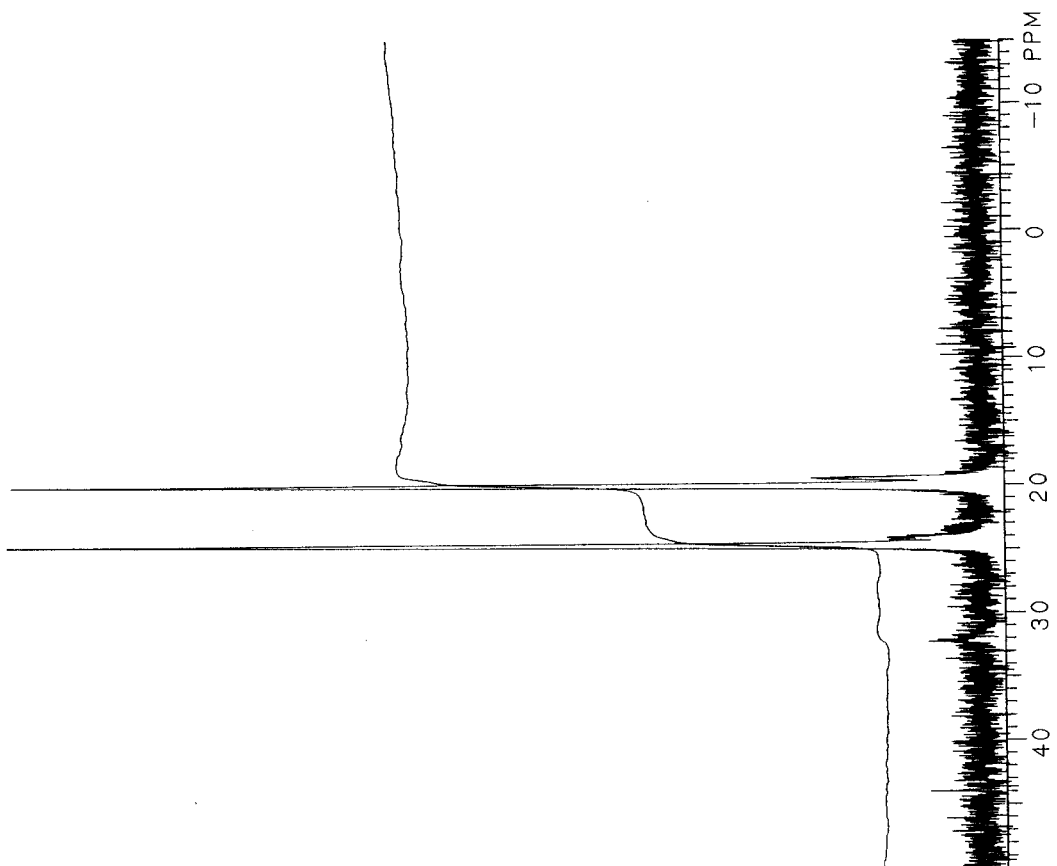


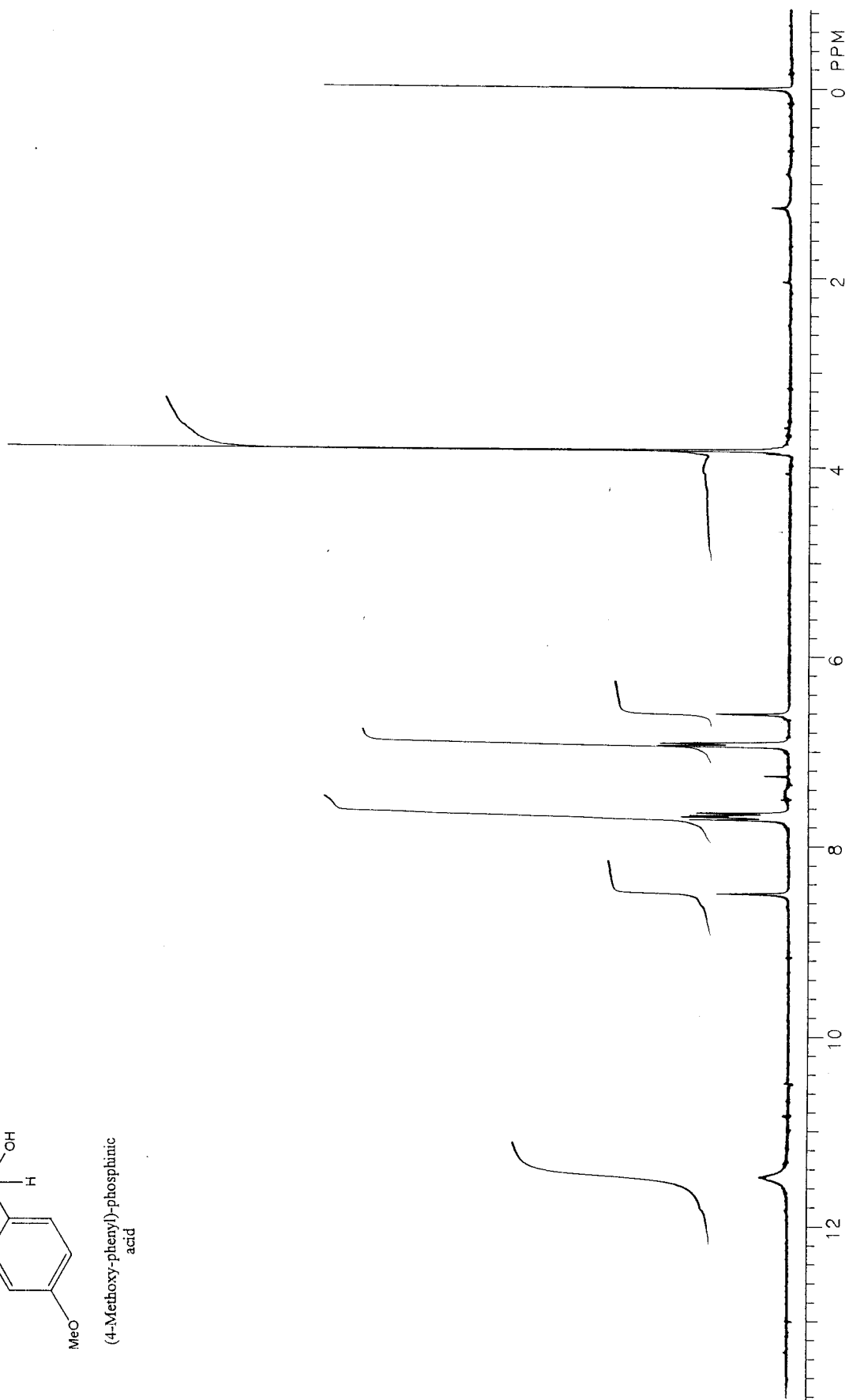
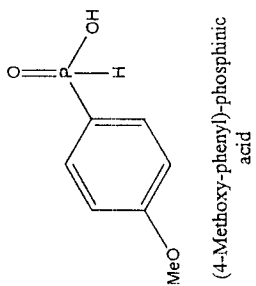
*m*-Tolyl-phosphinic acid



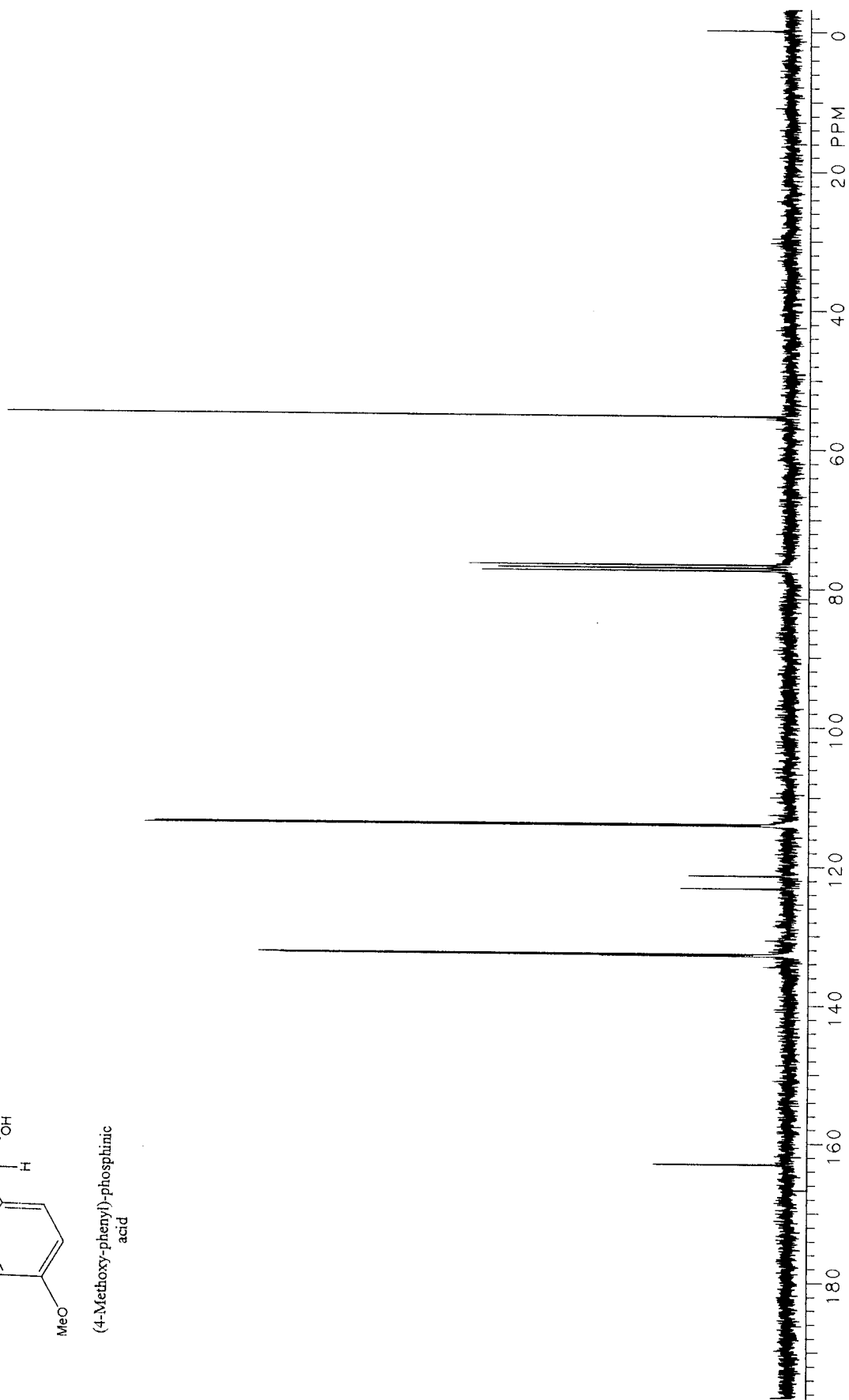
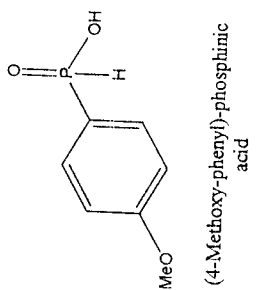


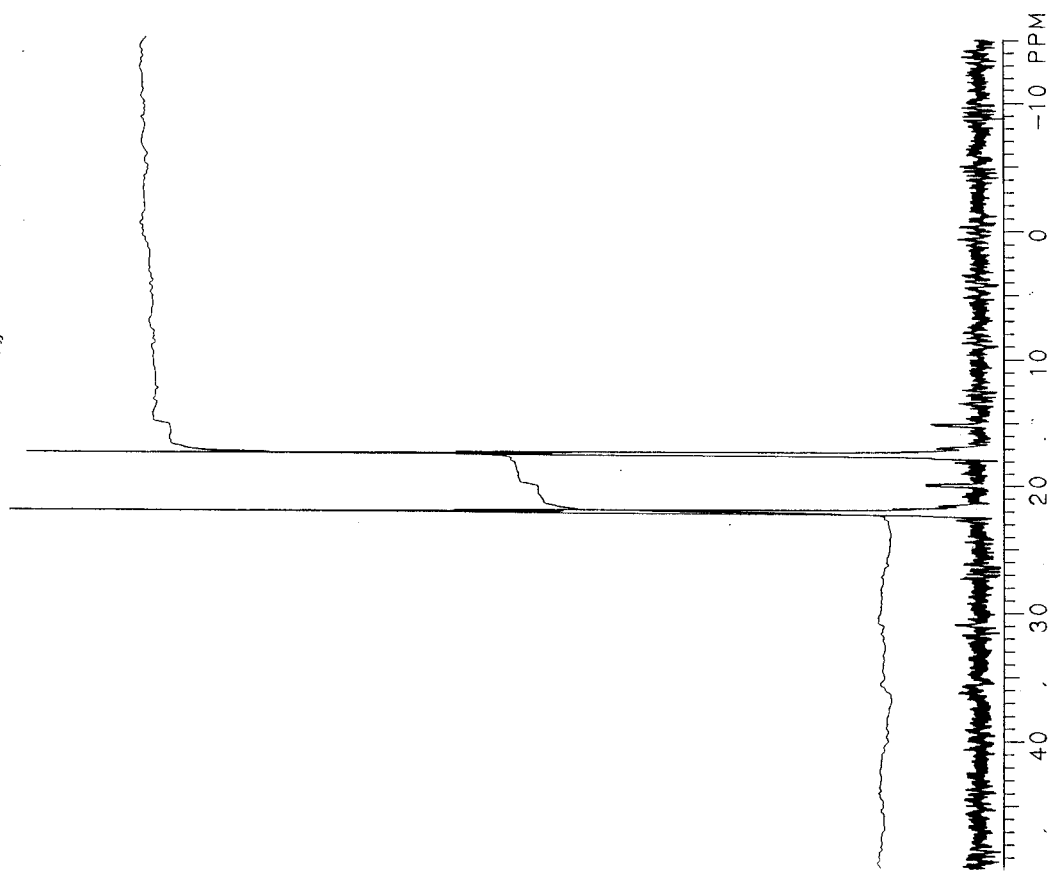
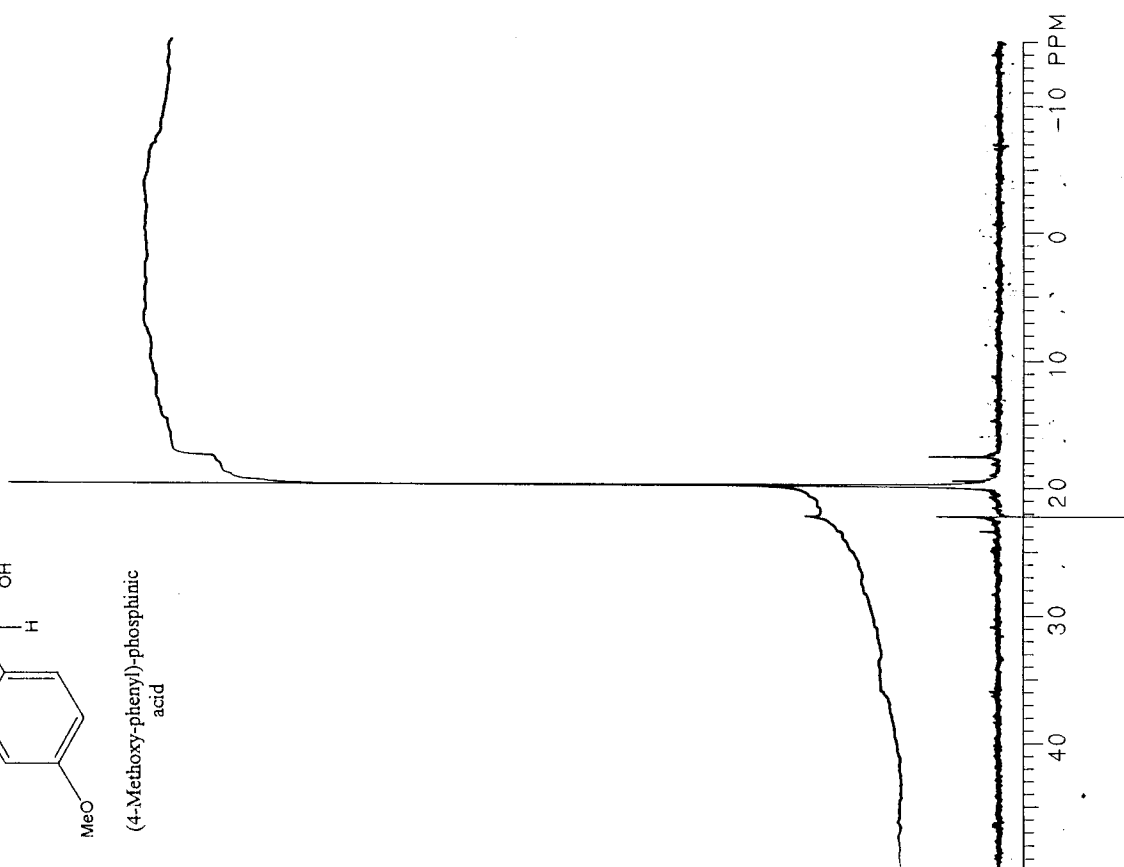
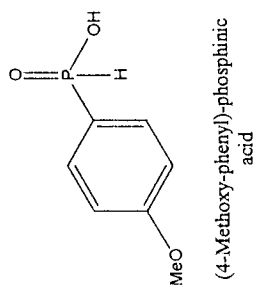
*m*-Tolyl-phosphinic acid

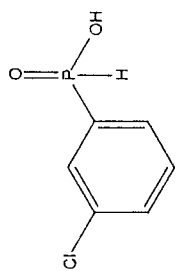




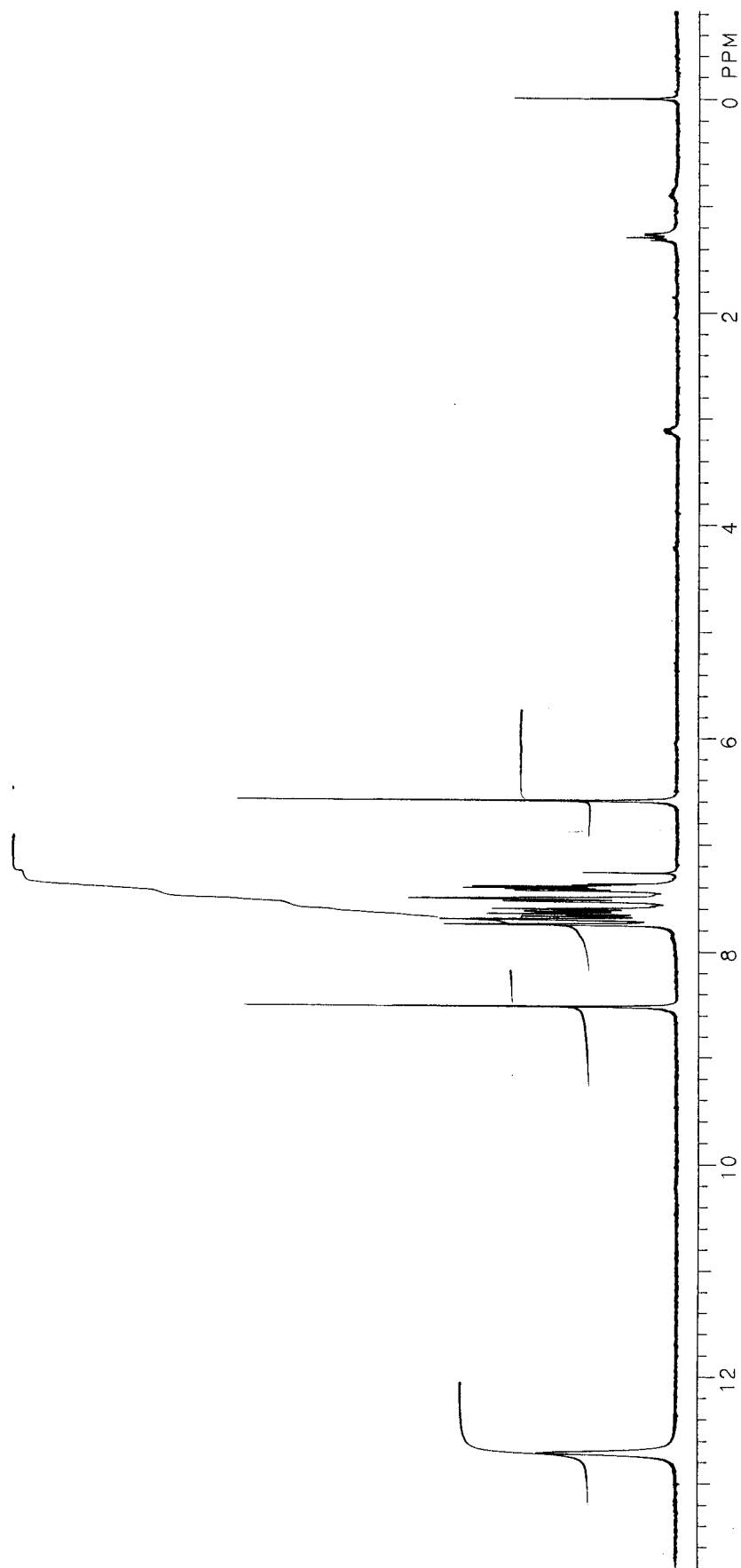


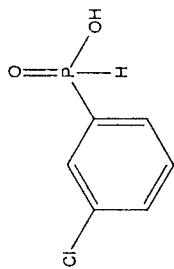




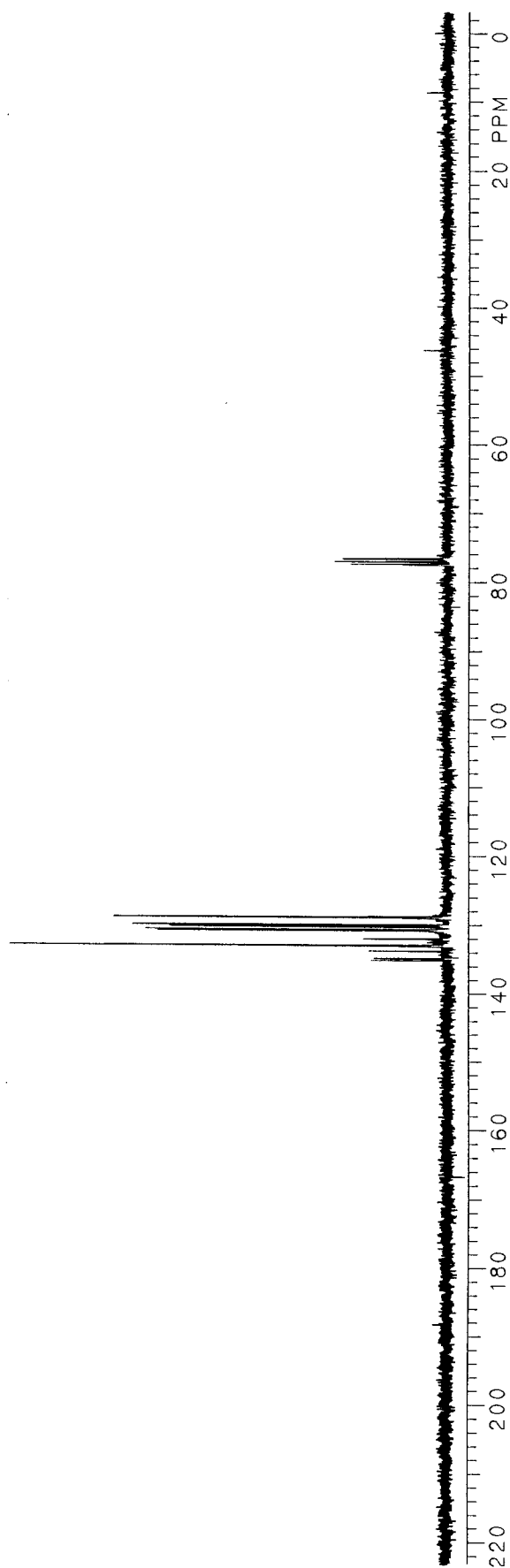


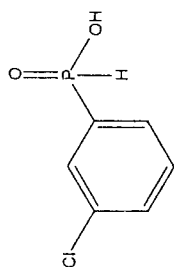
(3-Chloro-phenyl)-phosphinic acid



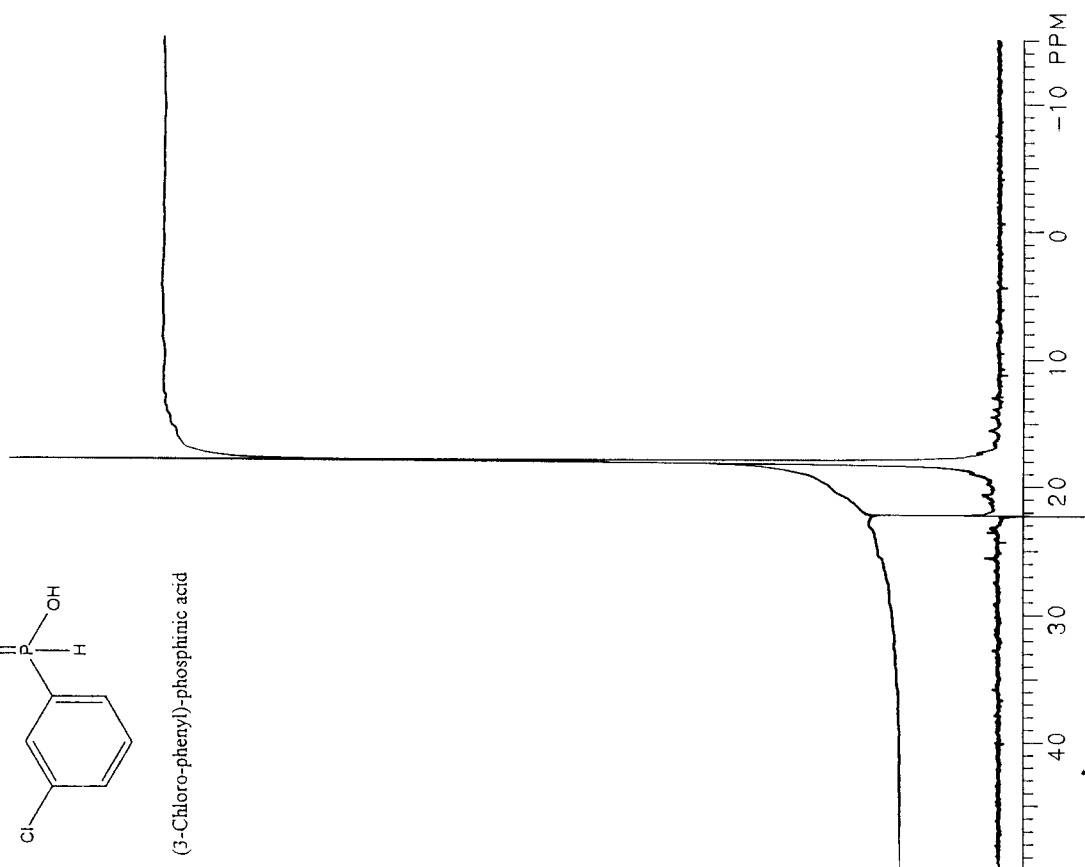
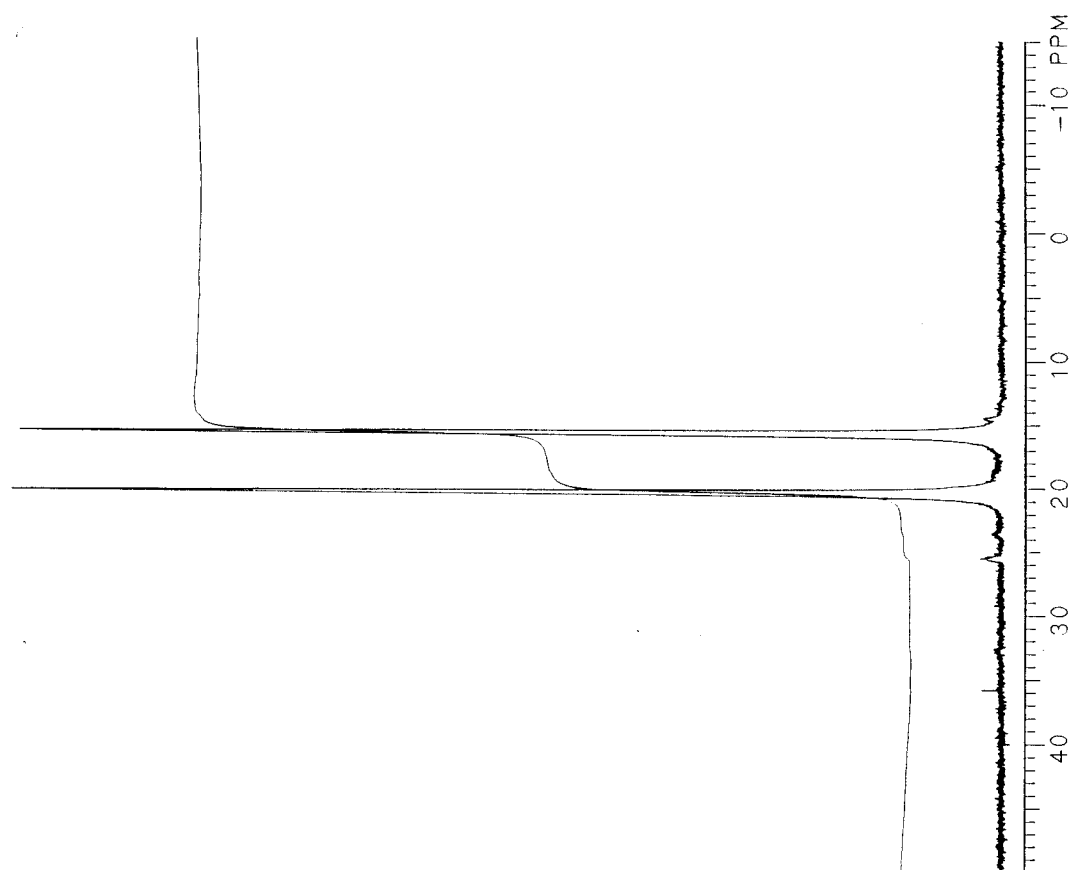


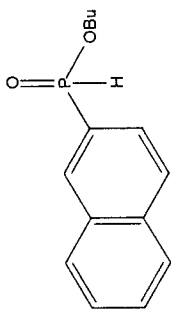
(3-Chloro-phenyl)-phosphinic acid



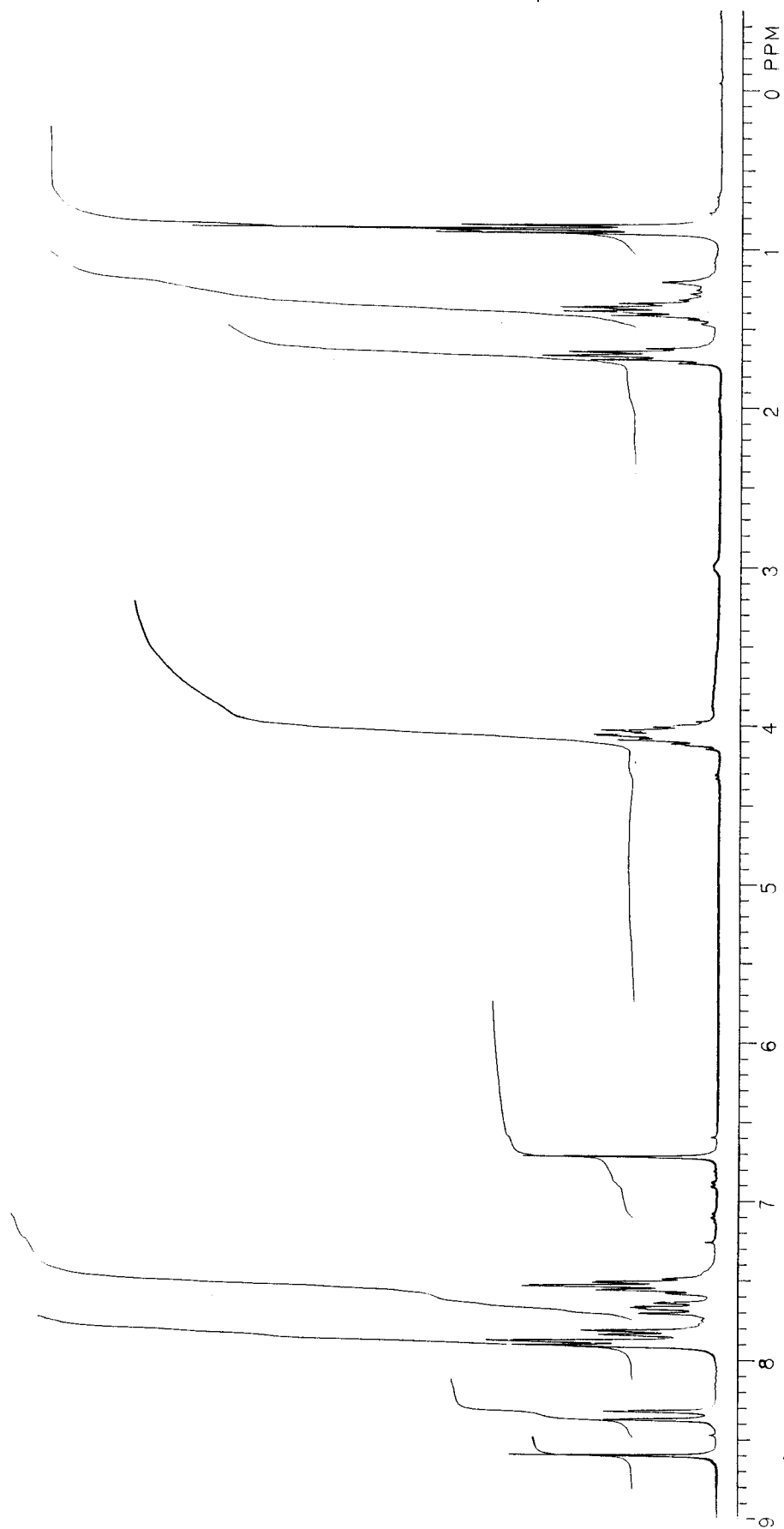


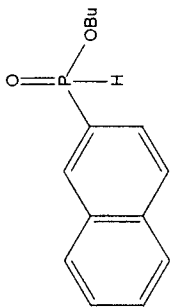
(3-Chloro-phenyl)-phosphinic acid



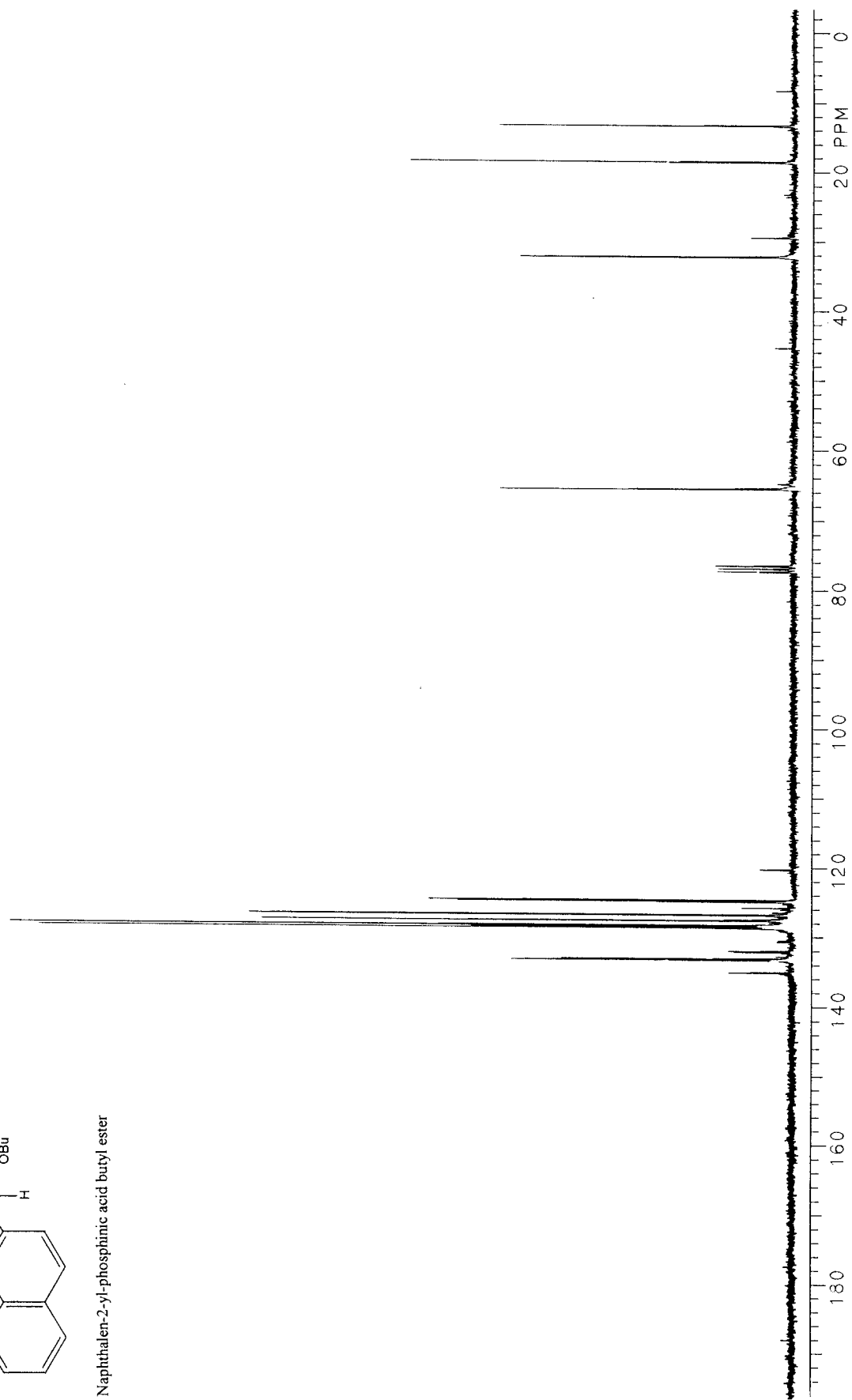


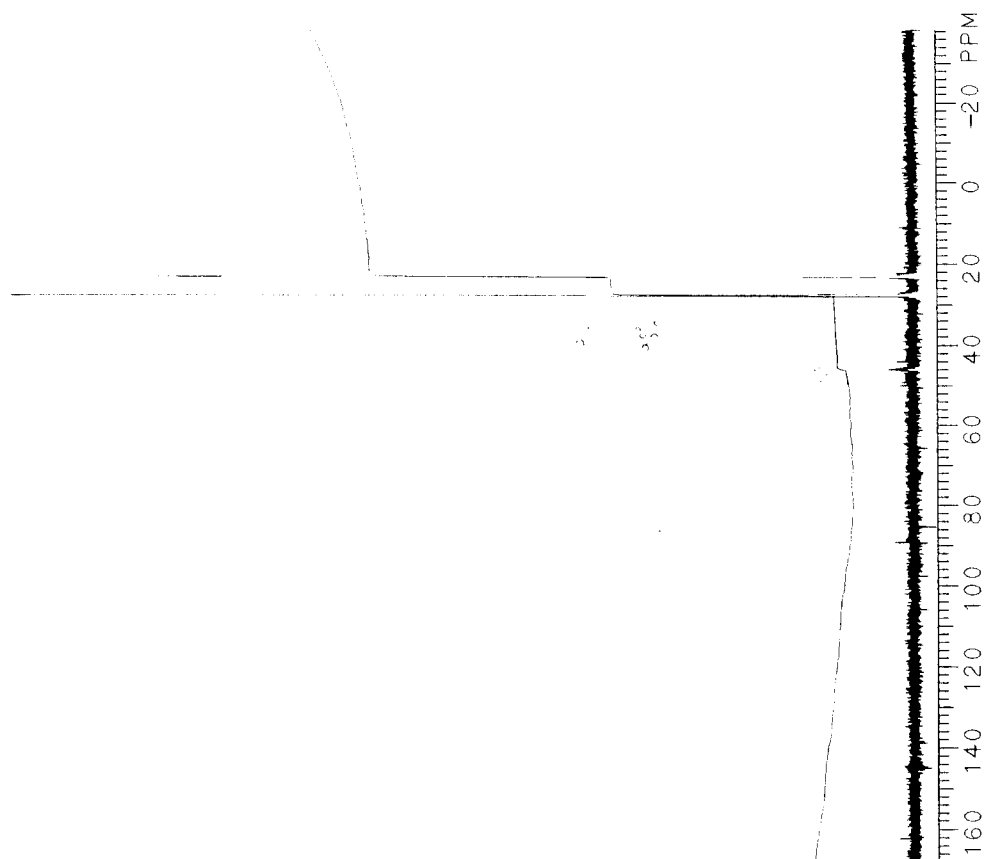
Naphthalen-2-yl-phosphinic acid butyl ester





Naphthalen-2-yl-phosphinic acid butyl ester

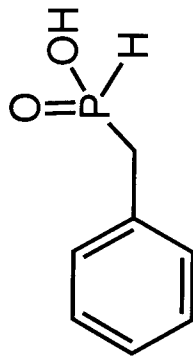




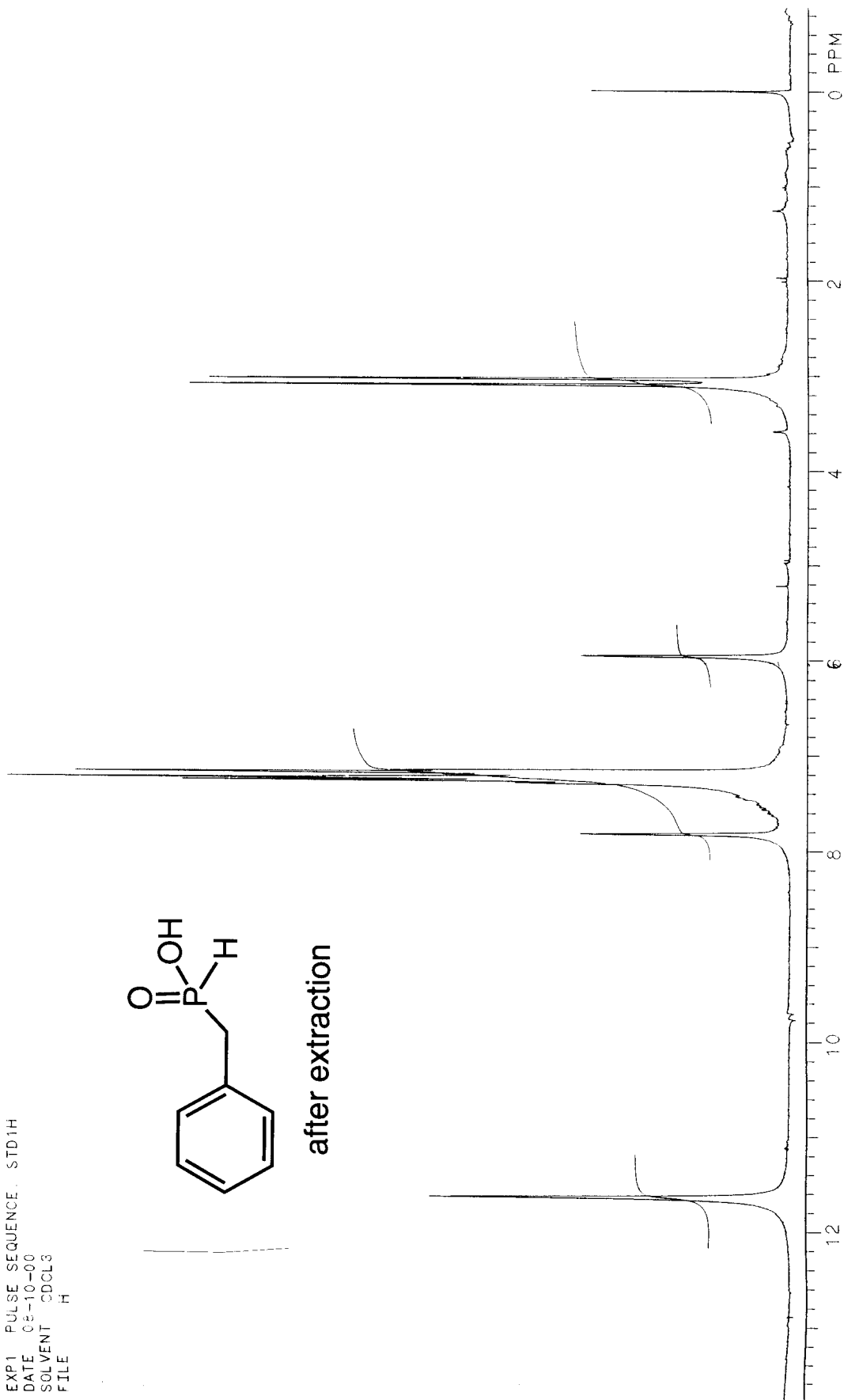


JLM II-325

EXP1 PULSE SEQUENCE. STD1H  
DATE 08-10-00  
SOLVENT CDCL3  
FILE H

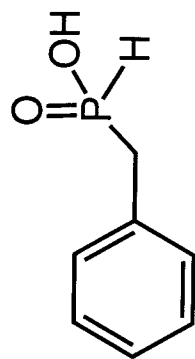


after extraction

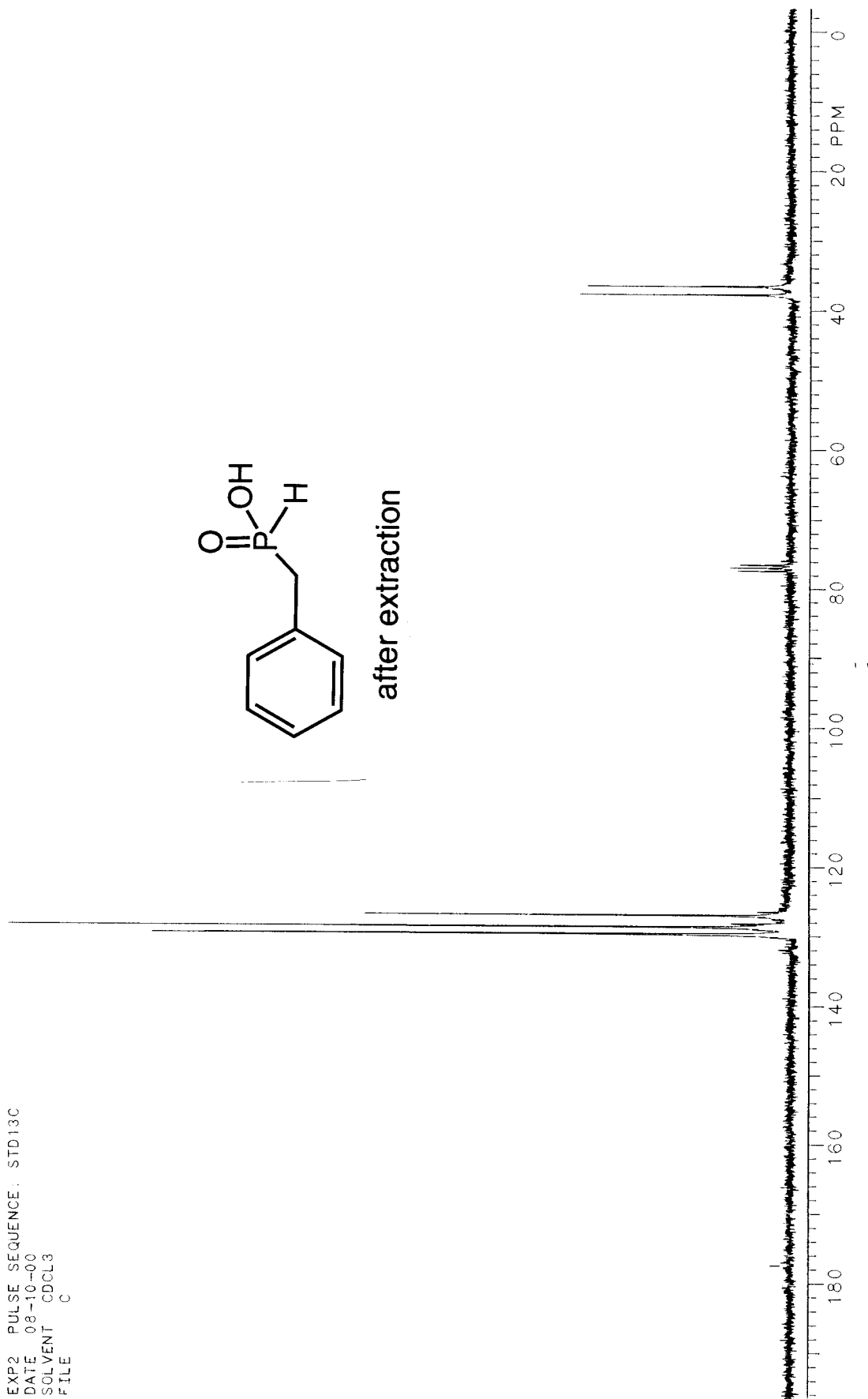


JLM II-325

EXP2 PULSE SEQUENCE. STD13C  
DATE 08-10-00  
SOLVENT CDCL3  
FILE C

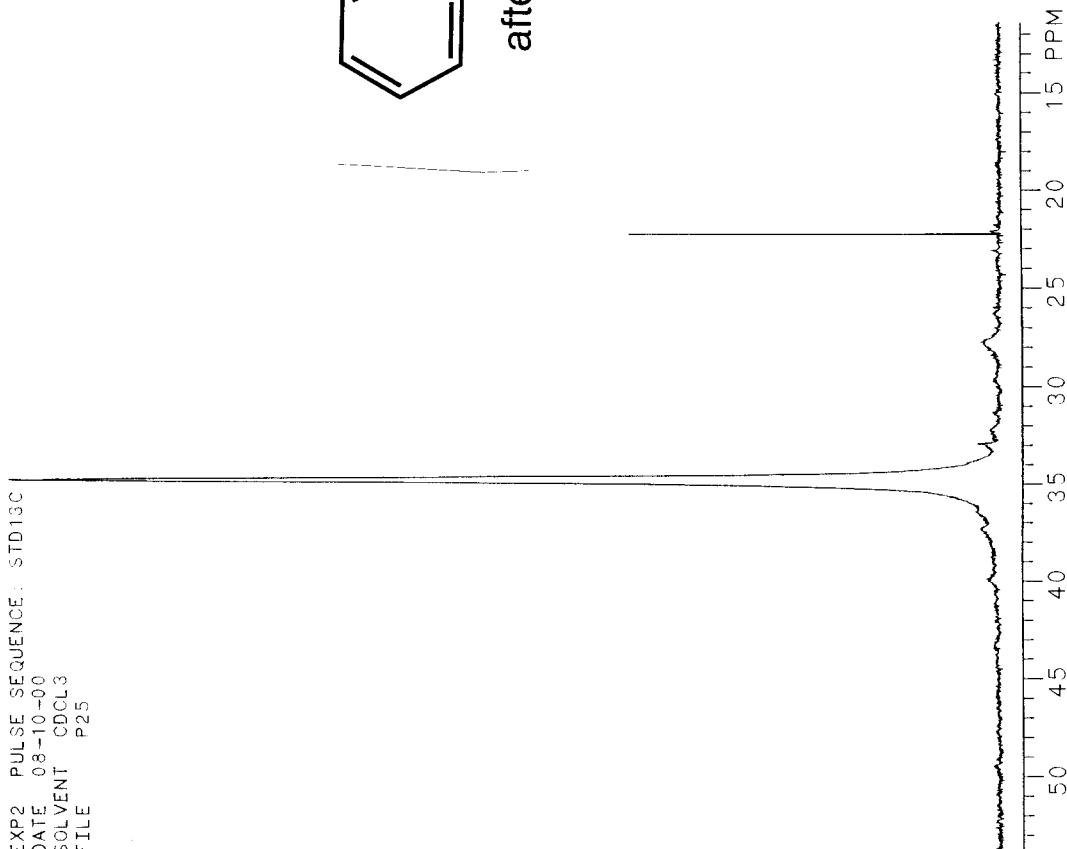


after extraction



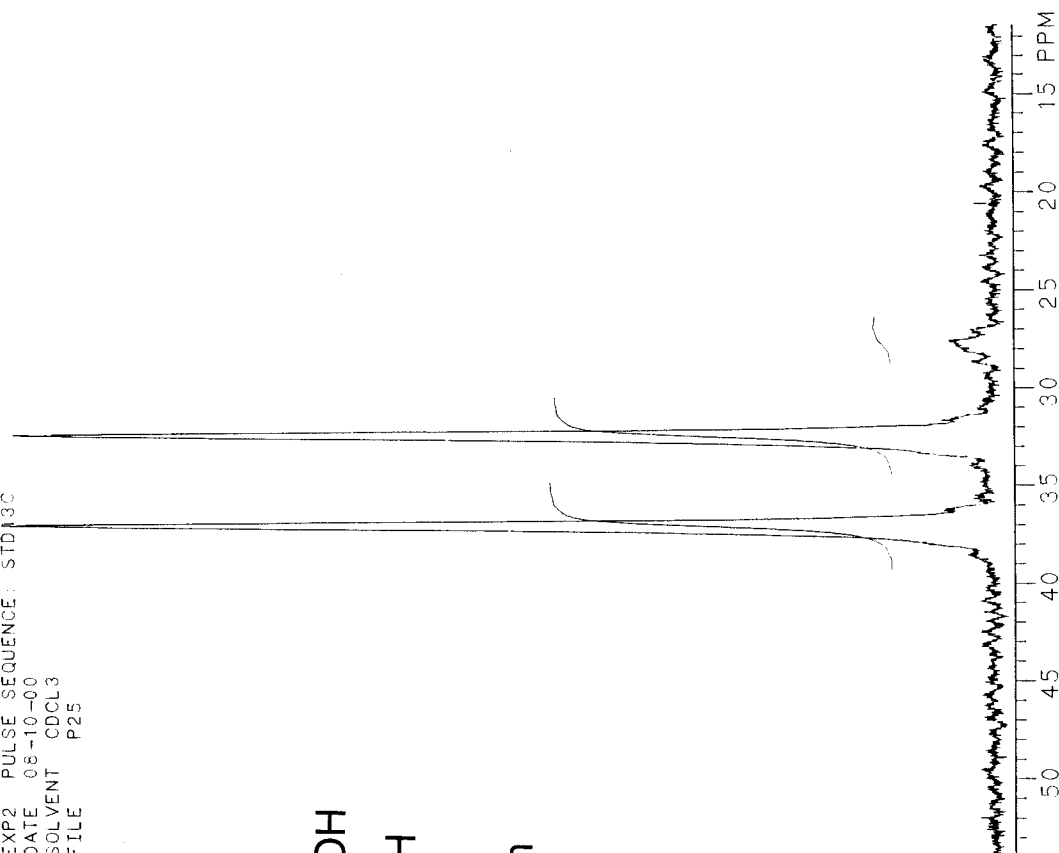
JLM II-325 DECOUPLED

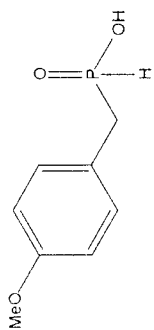
EXP2 PULSE SEQUENCE: STD13C  
DATE 08-10-00  
SOLVENT CDCL3  
FILE P25



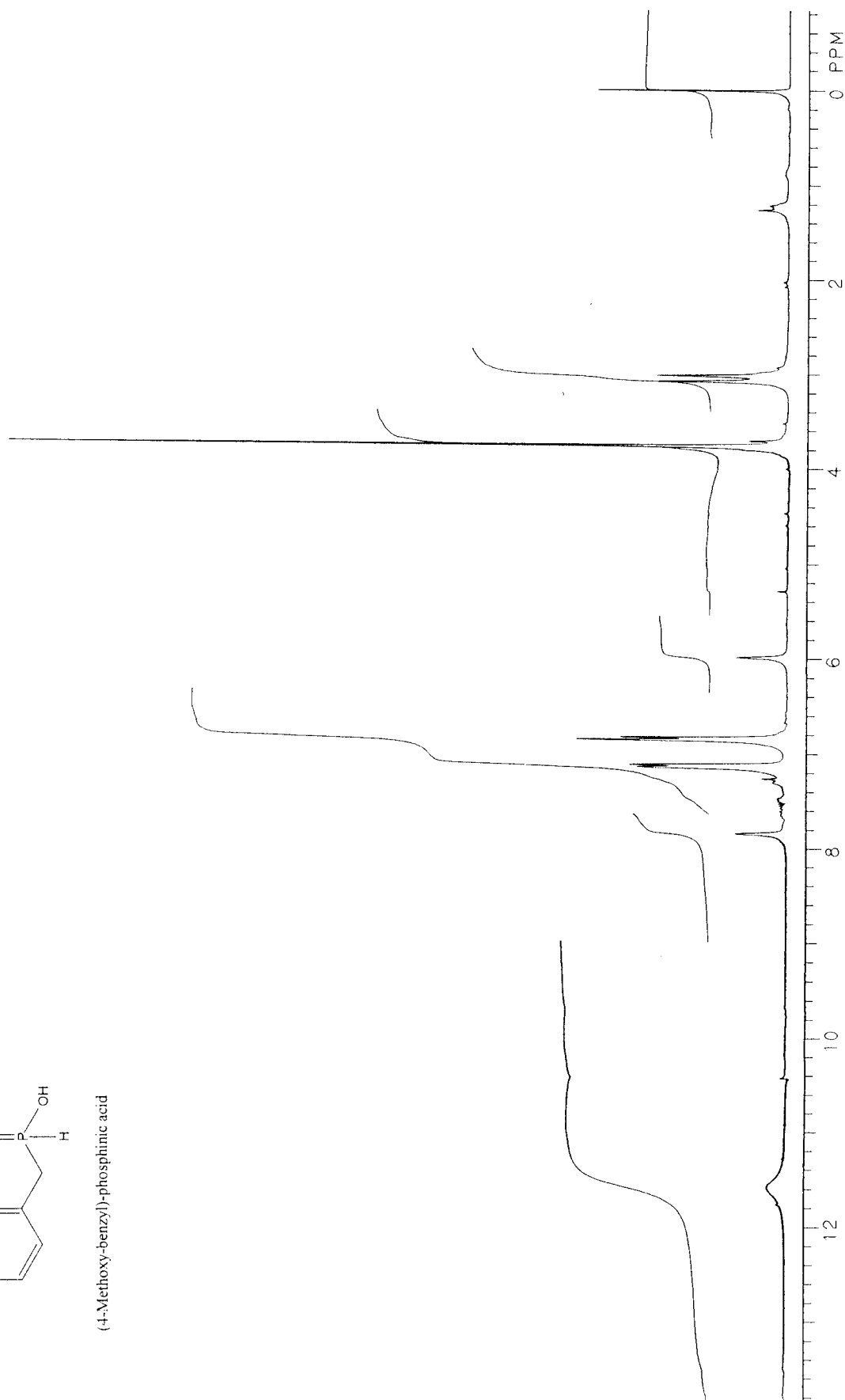
JLM II-325. COUPLED

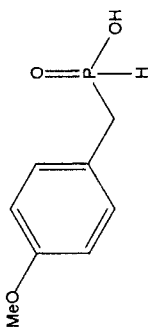
EXP2 PULSE SEQUENCE: STD13C  
DATE 08-10-00  
SOLVENT CDCL3  
FILE P25



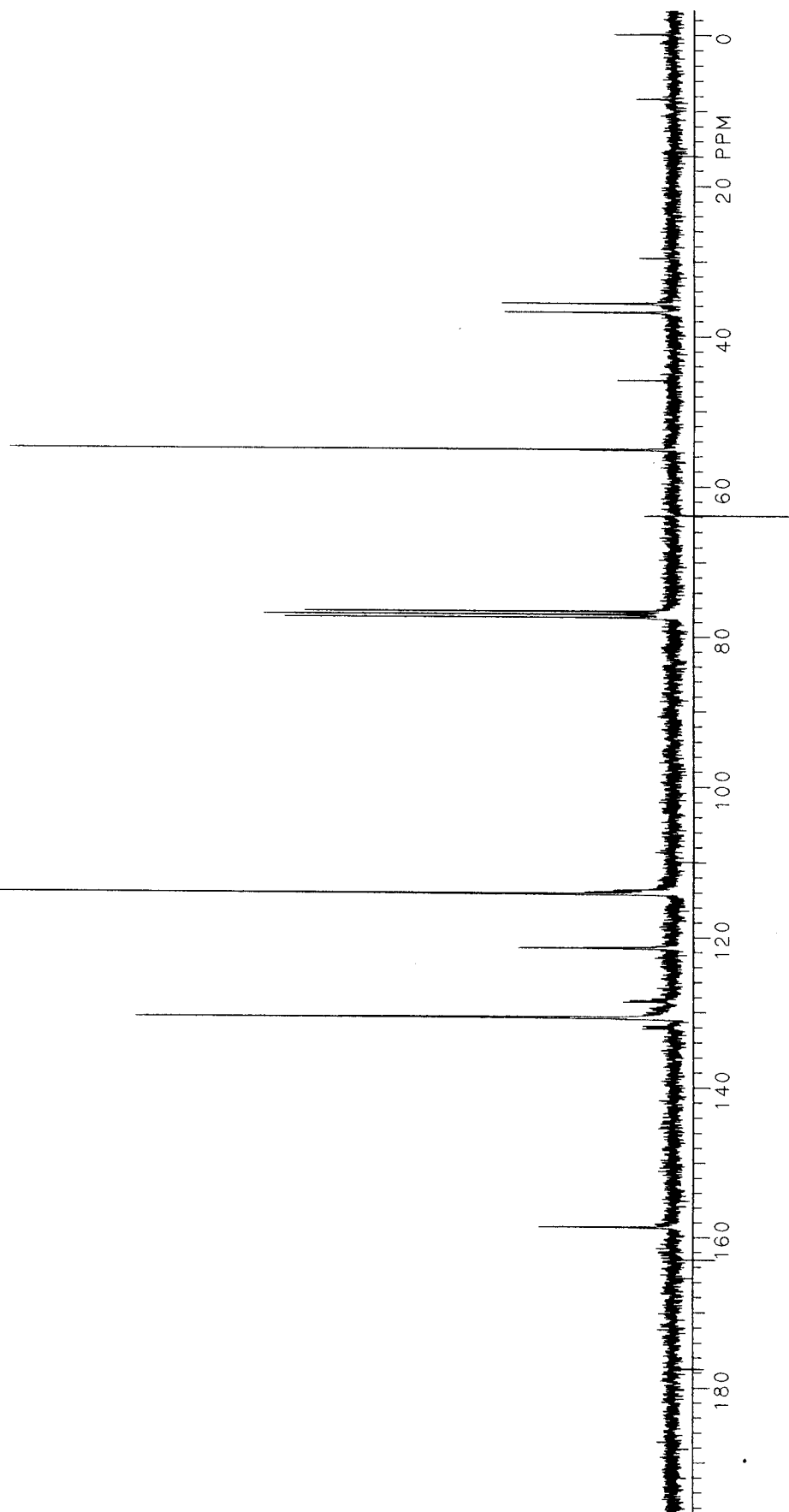


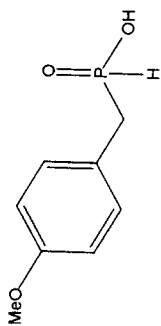
(4-Methoxy-benzyl)-phosphinic acid



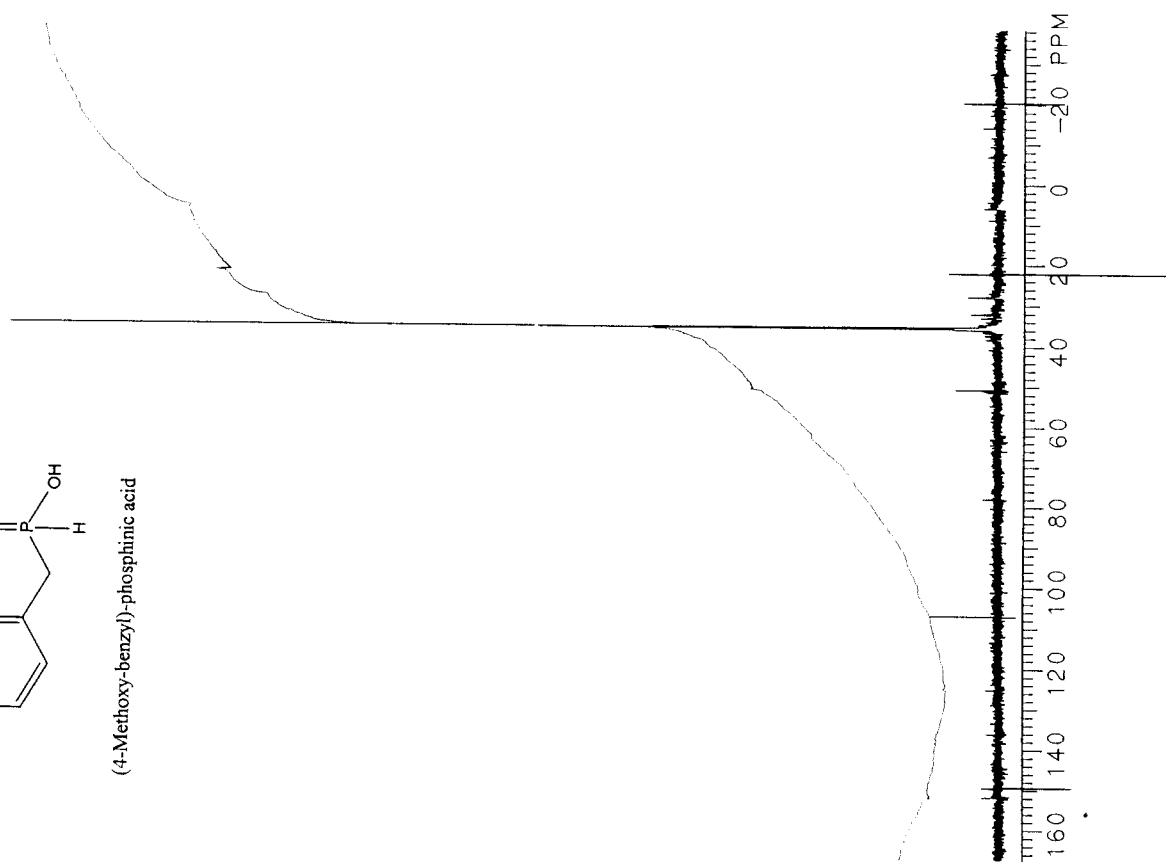


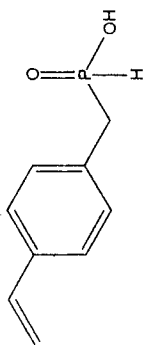
(4-Methoxy-benzyl)-phosphinic acid



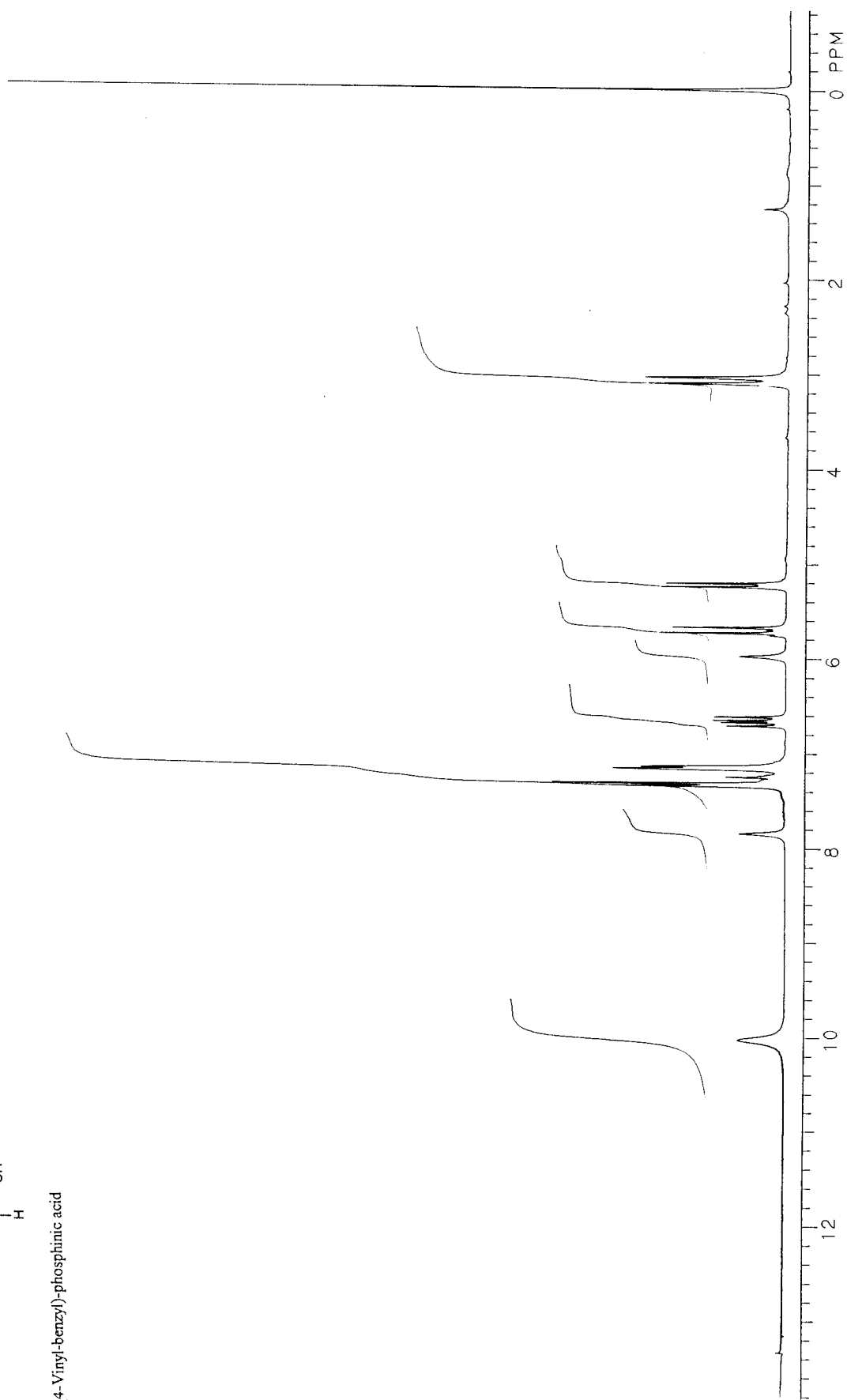


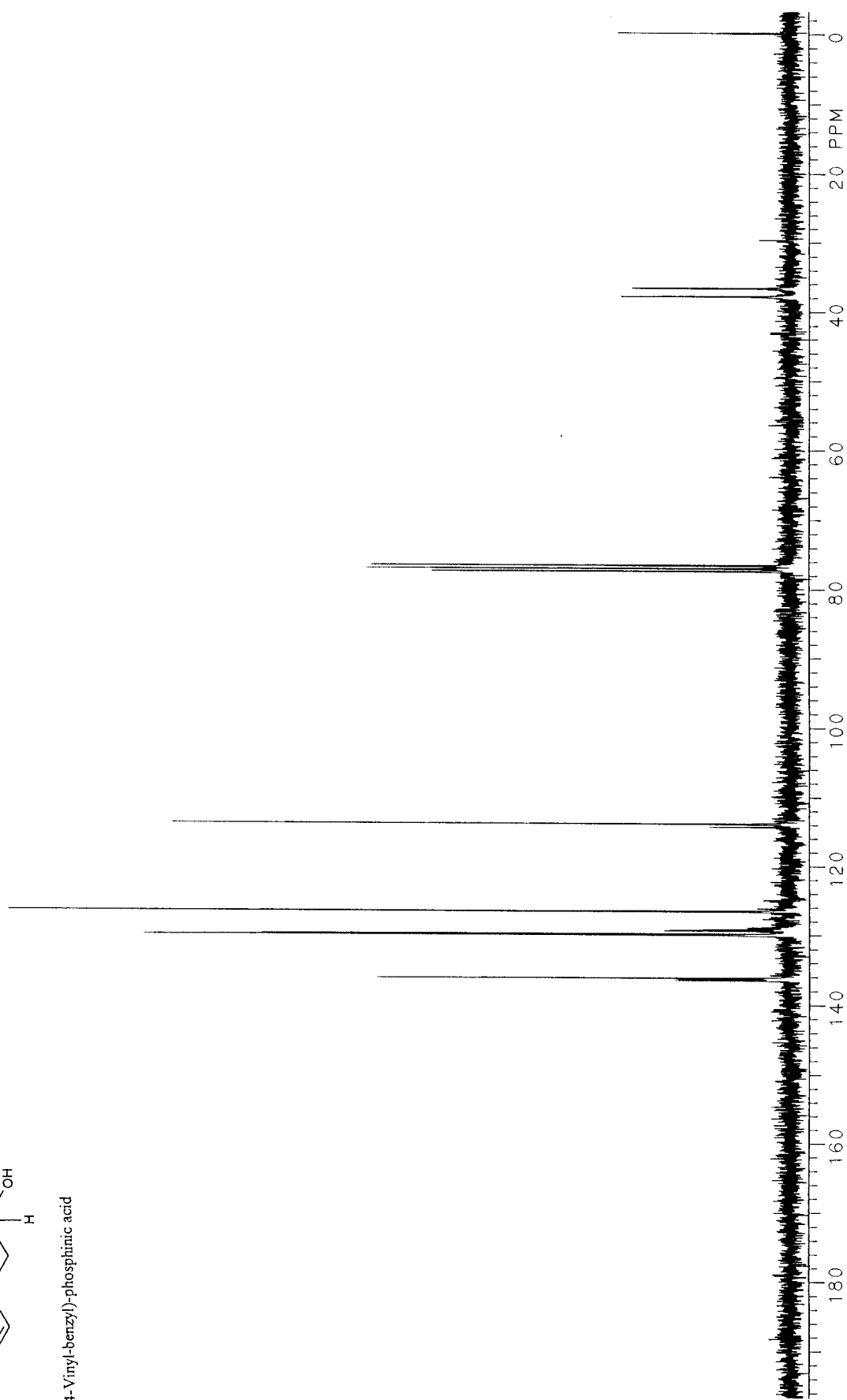
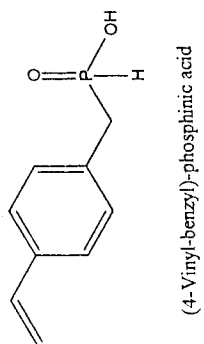
(4-Methoxy-benzyl)-phosphinic acid



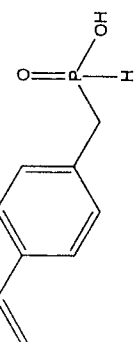


(4-Vinyl-benzyl)-phosphinic acid









(4-Vinyl-benzyl)-phosphinic acid

