

Supporting information.

***trans*-[4-(Phenylthio)-2-phenyl-4-cyclohepten-1-yl]diphenylphosphine oxide (4b).** mp 146–149°C; ^1H NMR δ 1.24–2.83 (m, 8H), 5.93 (brt, 1H), 6.90–7.81 (m, 20H); IR (KBr) 1180 cm^{-1} (P=O), 1700 cm^{-1} (C=C); MS m/z 480 (M^+); HRMS calcd for $\text{C}_{31}\text{H}_{29}\text{OPS}$ 480.1675, found M^+ 480.1708.

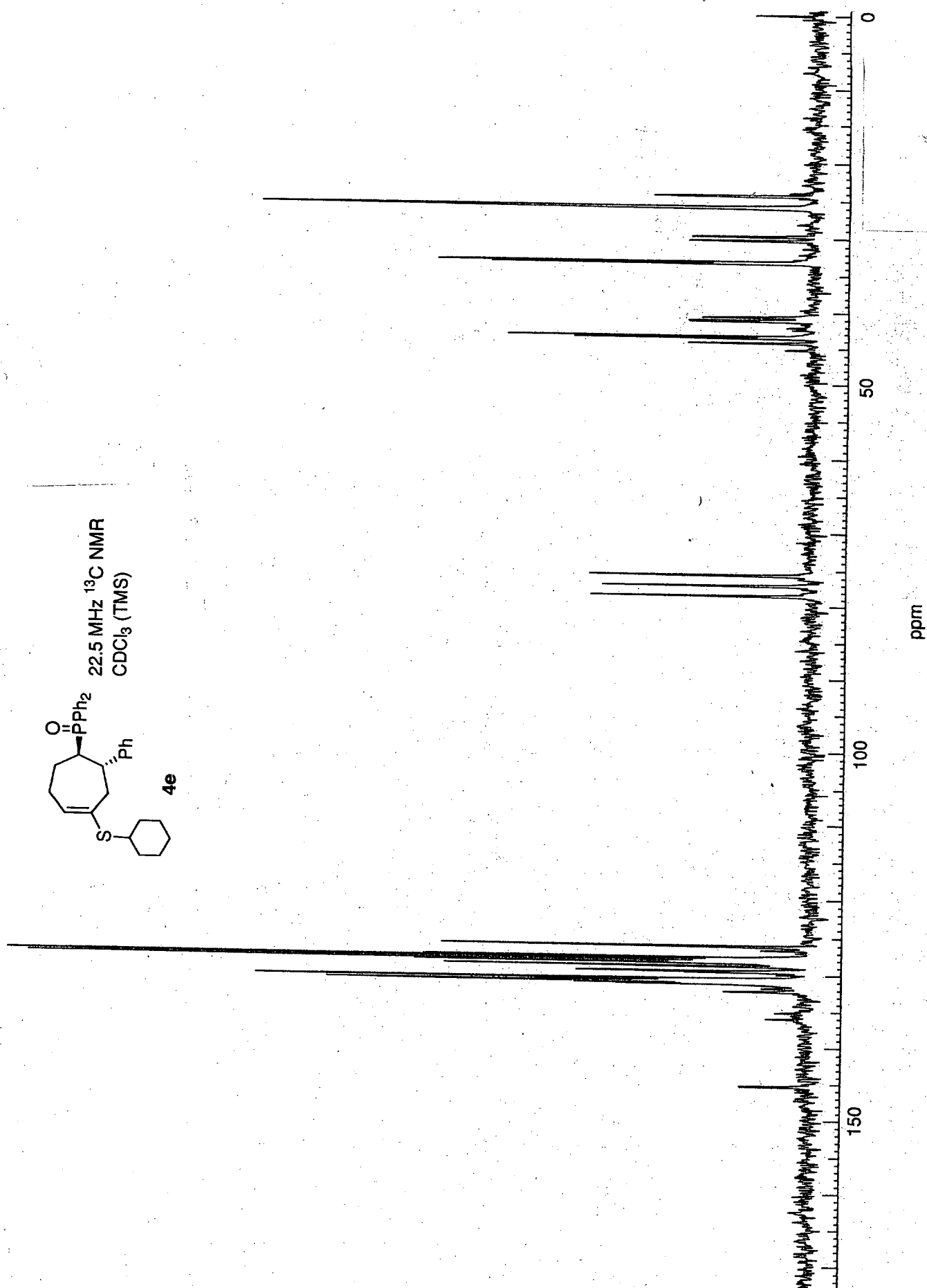
***trans*-[4-(*p*-Chlorophenylthio)-2-phenyl-4-cyclohepten-1-yl]diphenylphosphine oxide (4c).** mp 209–211°C; ^1H NMR δ 1.16–3.59 (m, 8H), 5.97 (brs, 1H), 6.78–7.88 (m, 19H); IR (KBr) 1180 cm^{-1} (P=O), 1700 cm^{-1} (C=C); MS m/z 514 (M^+); HRMS calcd for $\text{C}_{31}\text{H}_{29}\text{ClOPS}$ 514.1285, found M^+ 514.1297.

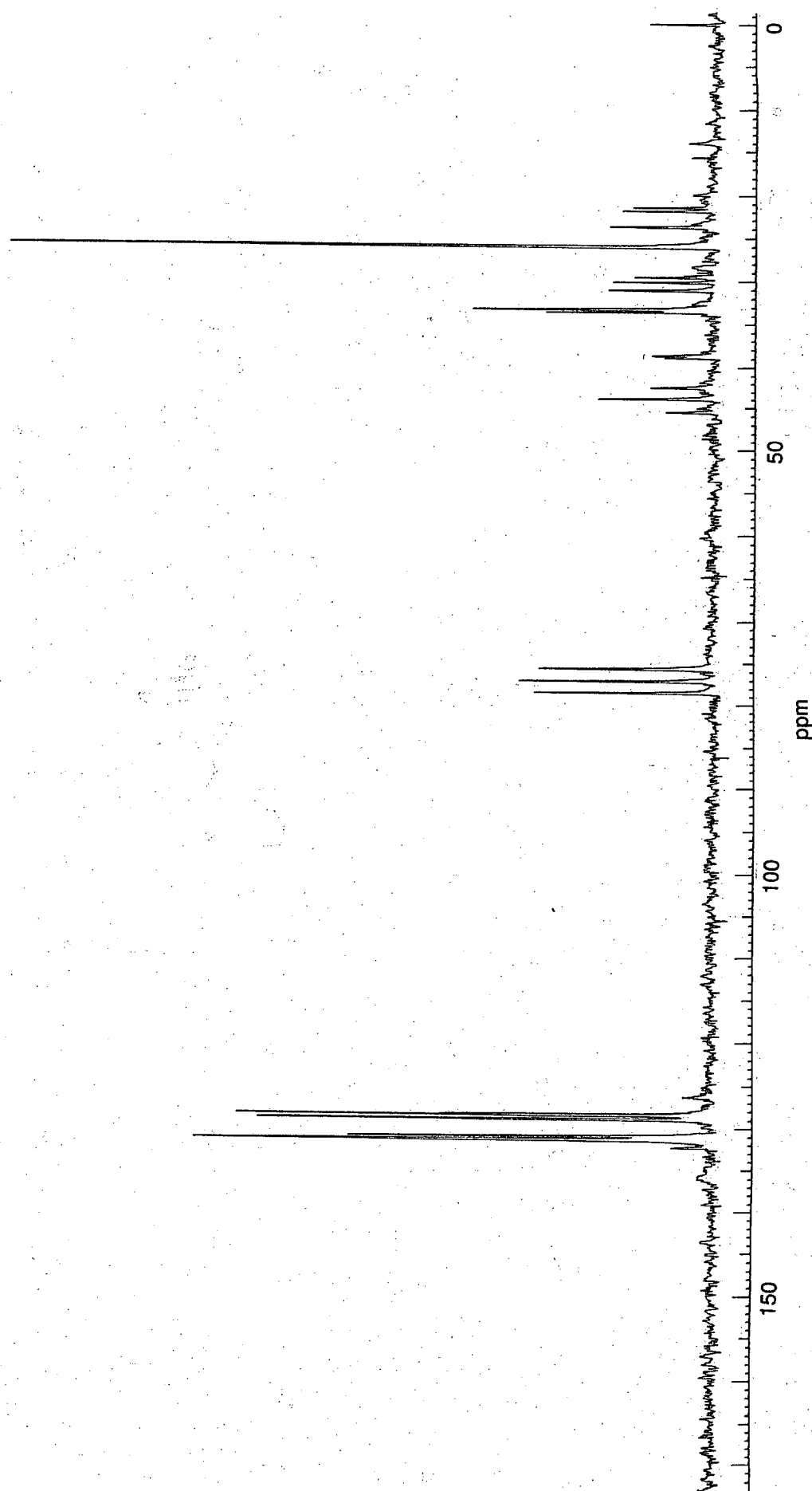
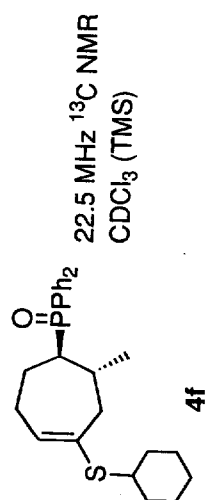
***trans*-[4-(Isopropylthio)-2-phenyl-4-cyclohepten-1-yl]diphenylphosphine oxide (4d).** mp 170–172°C; ^1H NMR δ 1.05–3.08 (m, 15H), 5.77 (brs, 1H), 6.95–7.88 (m, 15H); IR (KBr) 1180 cm^{-1} (P=O); MS m/z 446 (M^+); HRMS calcd for $\text{C}_{28}\text{H}_{31}\text{OPS}$ 446.1831, found M^+ 446.1811.

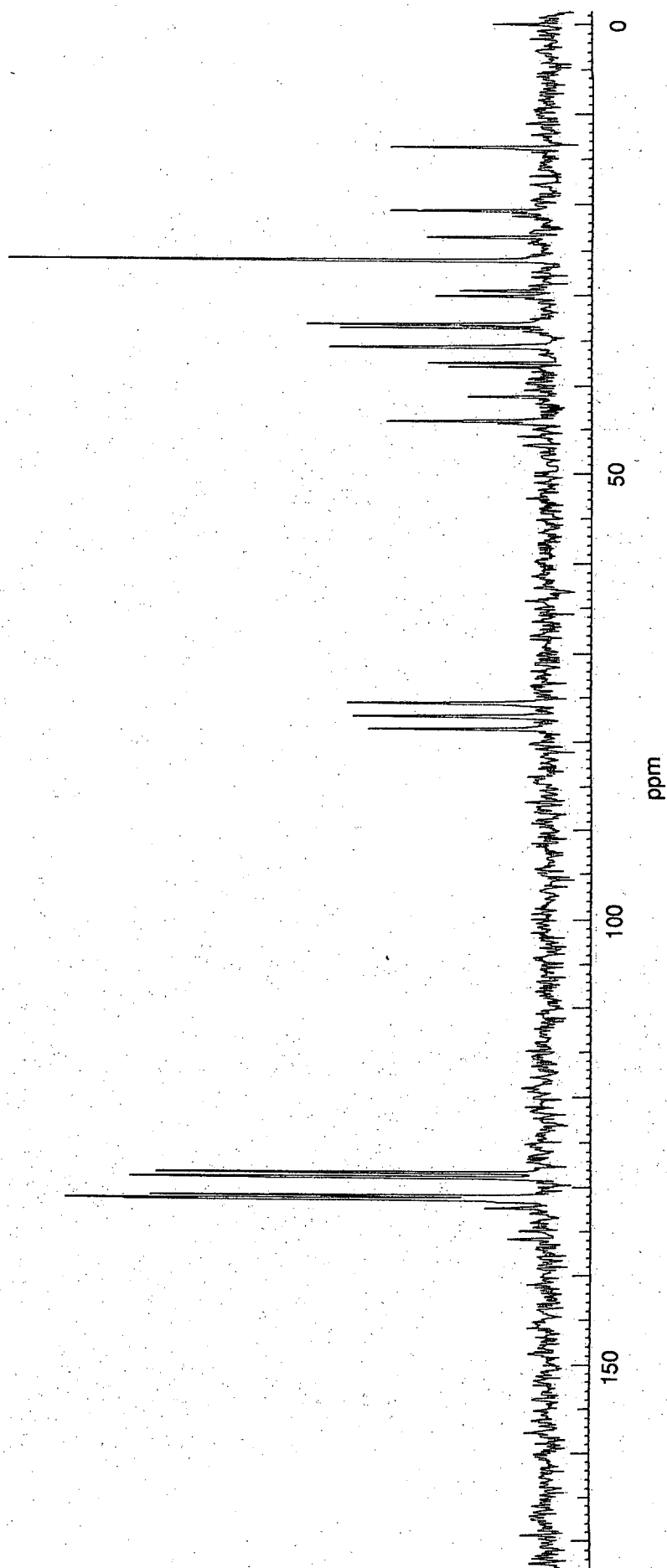
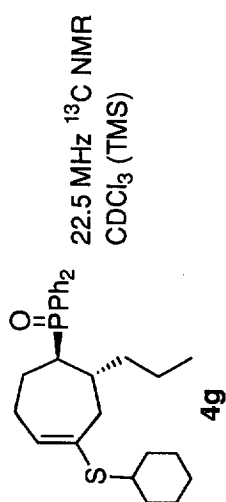
***trans*-[4-(Cyclohexylthio)-2-phenyl-4-cyclohepten-1-yl]diphenylphosphine oxide (4e).** mp 161–164°C; ^1H NMR δ 1.16–2.92 (m, 19H), 5.77 (brt, 1H), 6.96–7.88 (m, 15H); IR (KBr) 1180 cm^{-1} (P=O); MS(Fab) m/z 487 (M^++1); HRMS (Fab) calcd for $\text{C}_{31}\text{H}_{36}\text{OPS}$, $\text{M}+1$, 487.2224, found, M^++1 , 487.2286.

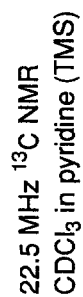
***trans*-[4-(Cyclohexylthio)-2-methyl-4-cyclohepten-1-yl]diphenylphosphine oxide (4f).** mp 147–150°C; ^1H NMR δ 0.97–3.27 (m, 22H), 5.71 (brs, 1H), 7.28–7.95 (m, 10H); IR (KBr) 1180 cm^{-1} (P=O), 1700 cm^{-1} (C=C); MS m/z 423 (M^+); HRMS(Fab) calcd for $\text{C}_{26}\text{H}_{33}\text{OPS}$, $\text{M}+1$, 425.2068, found, M^++1 , 425.2087.

***trans*-[4-(Cyclohexylthio)-2-propyl-4-cyclohepten-1-yl]diphenylphosphine oxide (4g).** mp 171–173°C; ^1H NMR δ 0.57–3.29 (m, 26H), 5.72 (brs, 1H), 7.27–7.95 (m, 10H); IR (KBr) 1180 cm^{-1} (P=O), 1700 cm^{-1} (C=C); MS m/z 452 (M^+); HRMS(Fab) calcd for $\text{C}_{28}\text{H}_{38}\text{OPS}$, $\text{M}+1$, 453.2381, found, M^++1 , 453.2377.

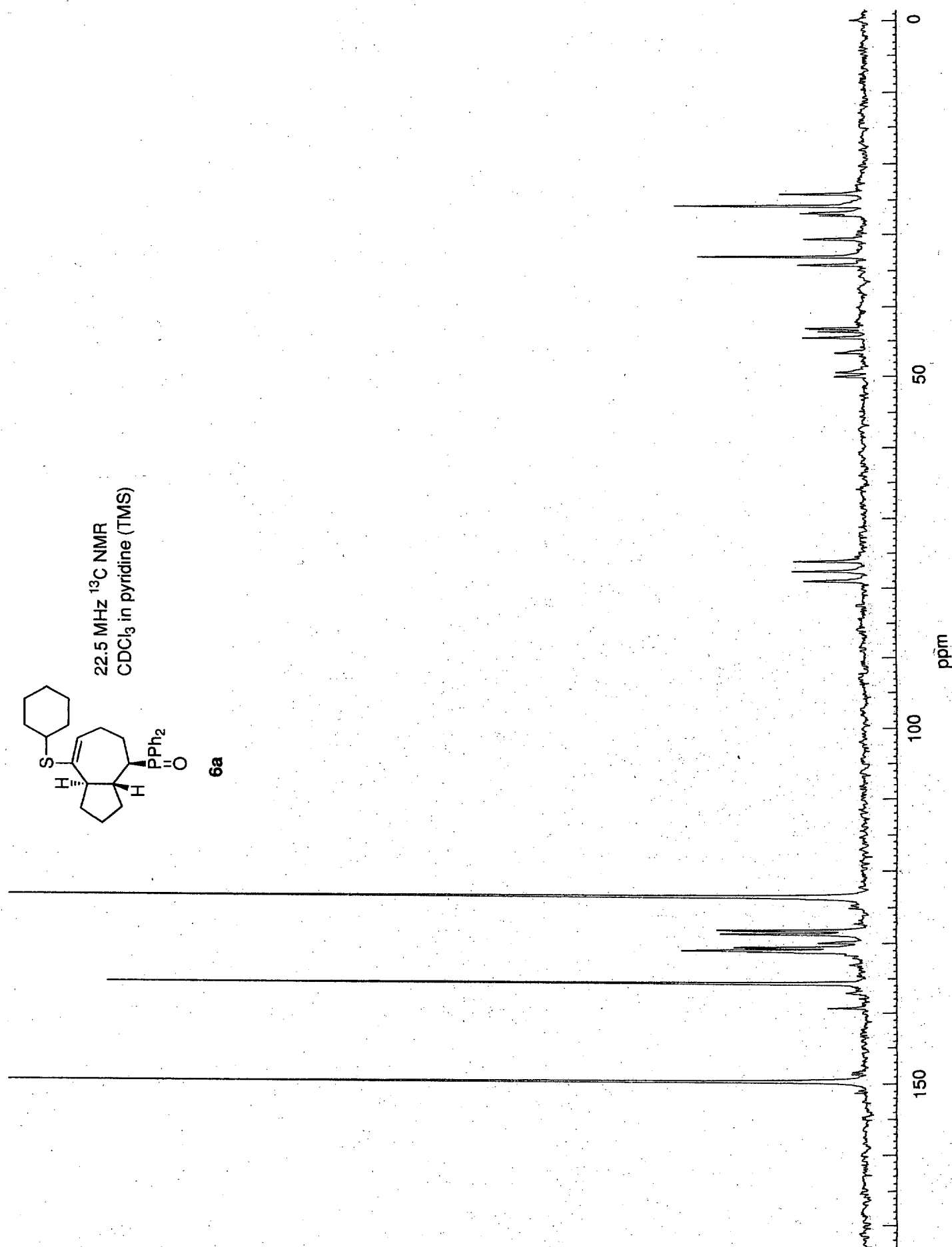


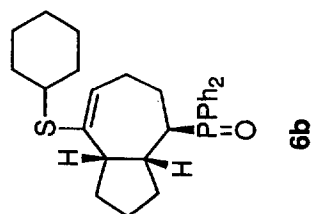




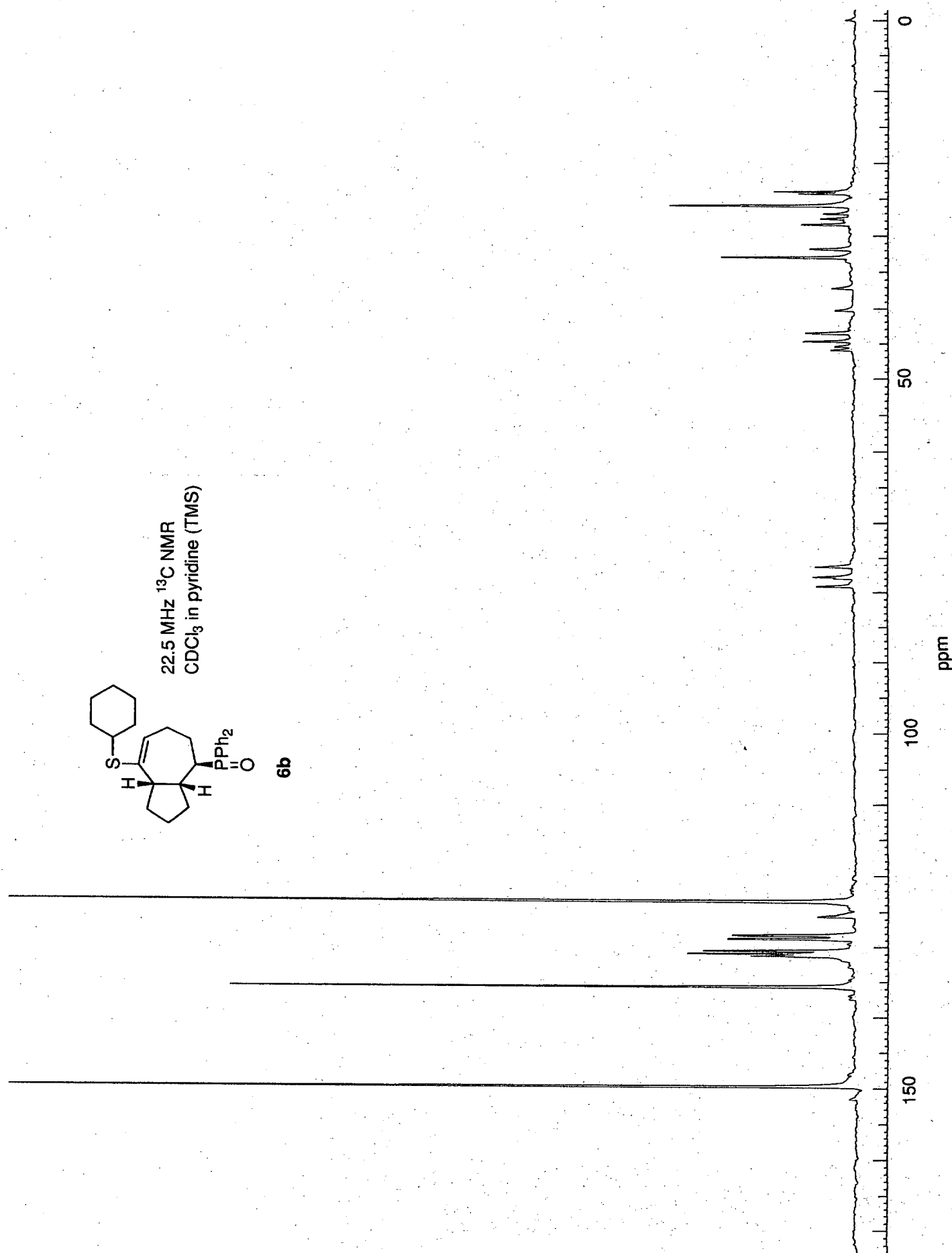


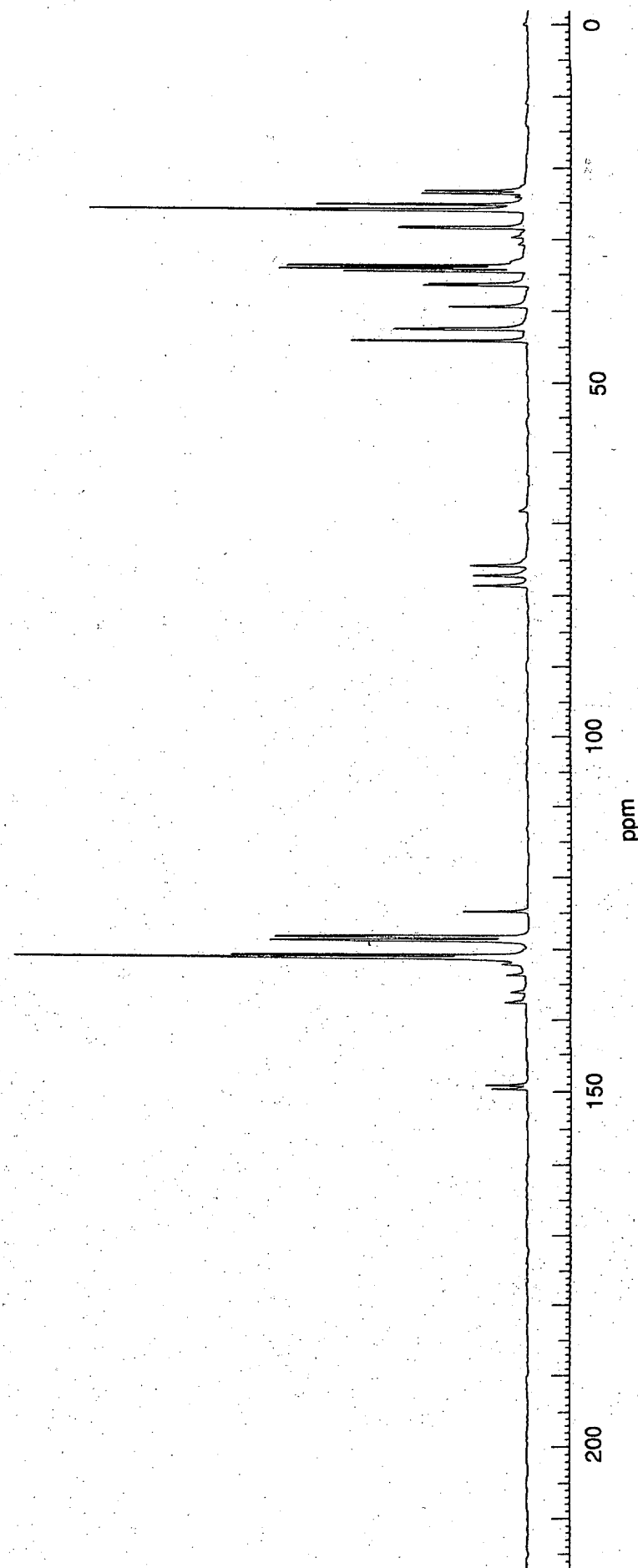
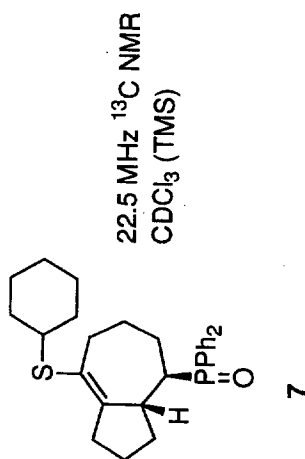
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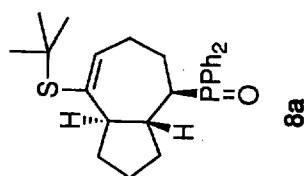




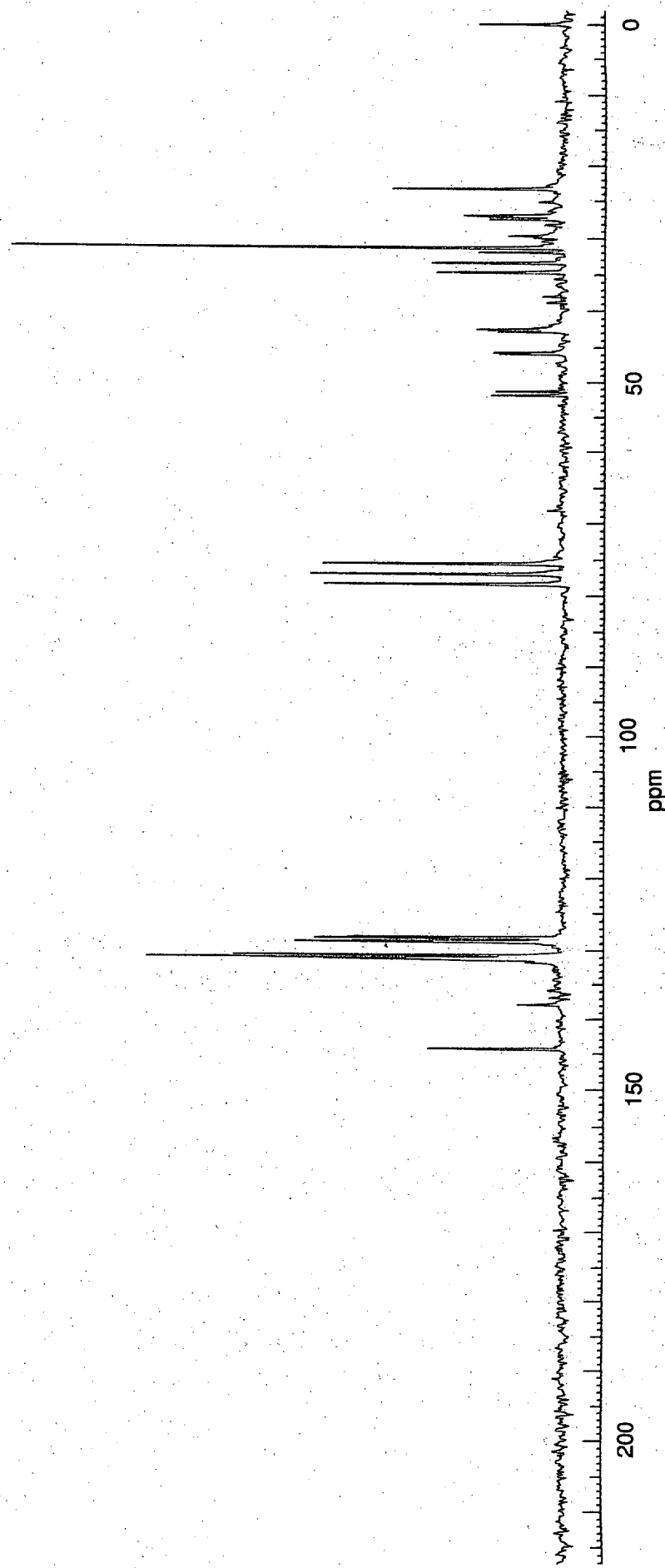
22.5 MHz ^{13}C NMR
 CDCl_3 in pyridine (TMS)

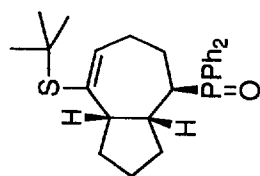






22.5 MHz ^{13}C NMR
 CDCl_3 (TMS)

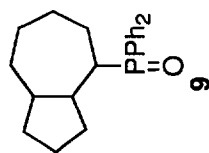




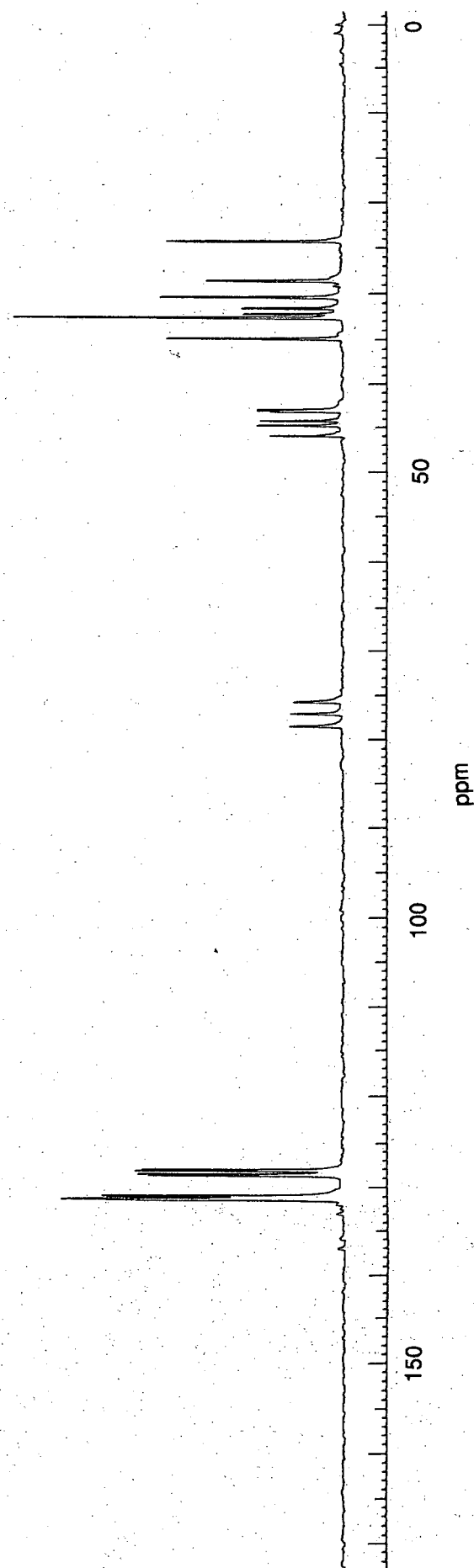
8b

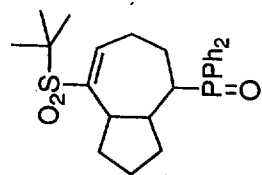
22.5 MHz ^{13}C NMR
 CDCl_3 (TMS)





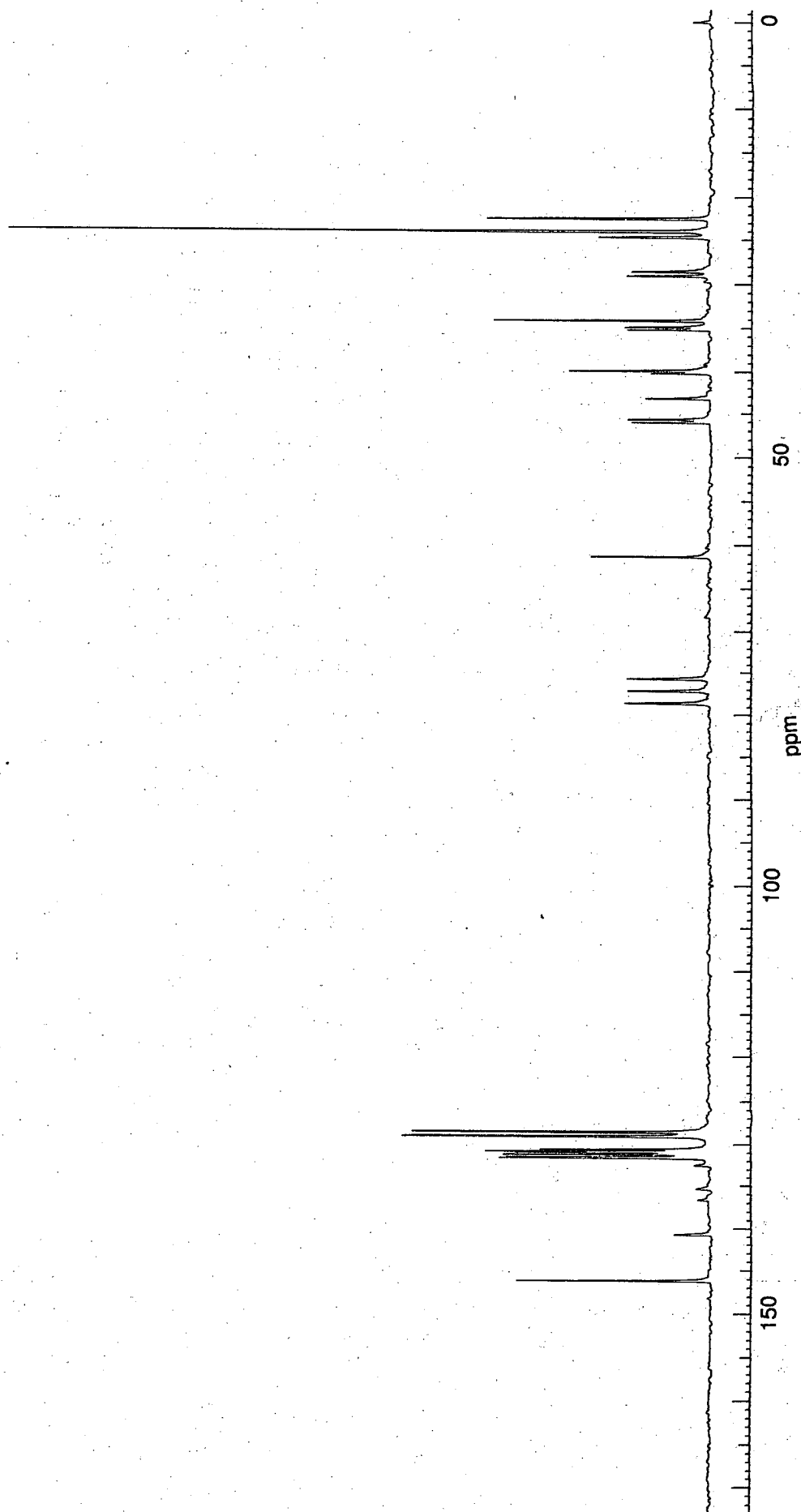
22.5 MHz ^{13}C NMR
 CDCl_3 (TMS)

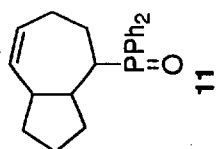




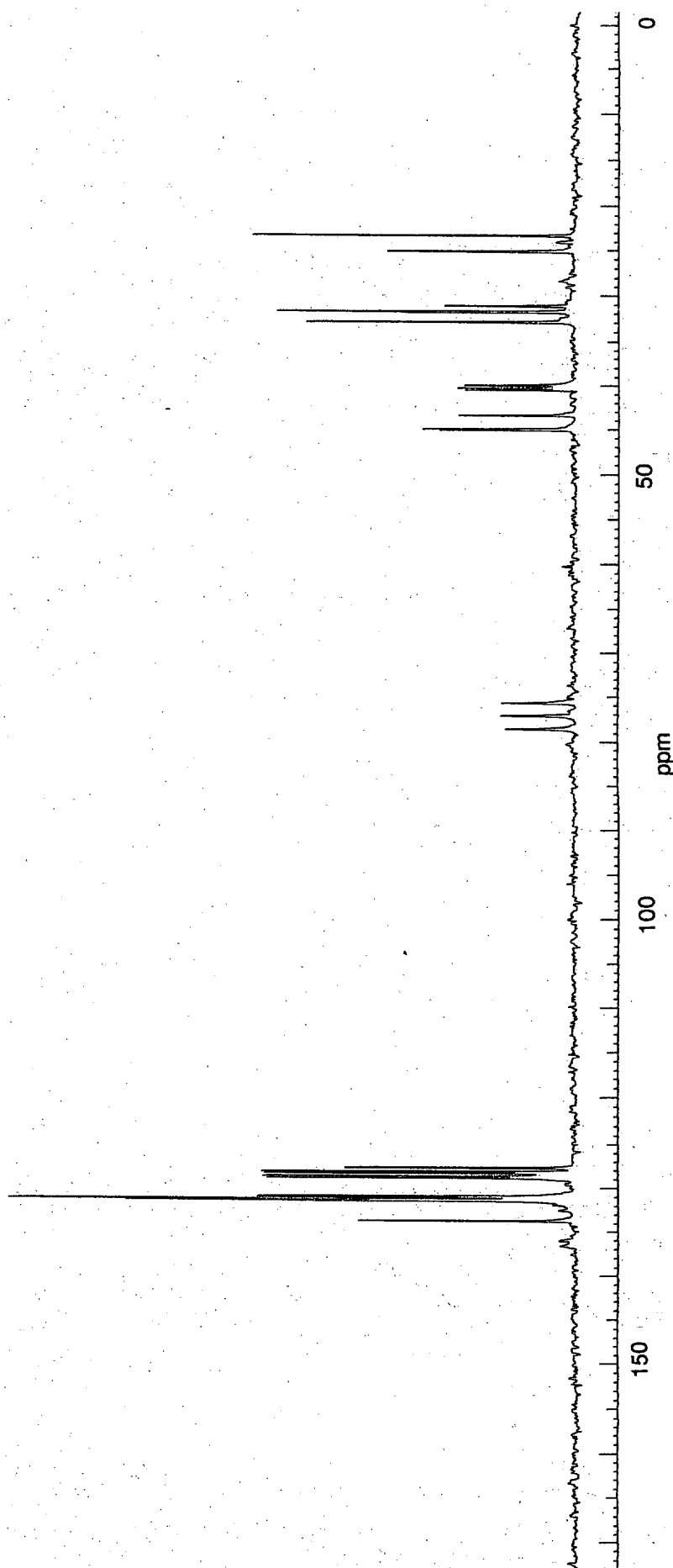
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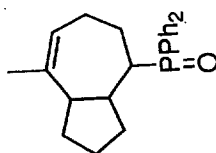
22.5 MHz ^{13}C NMR
 CDCl_3 (TMS)





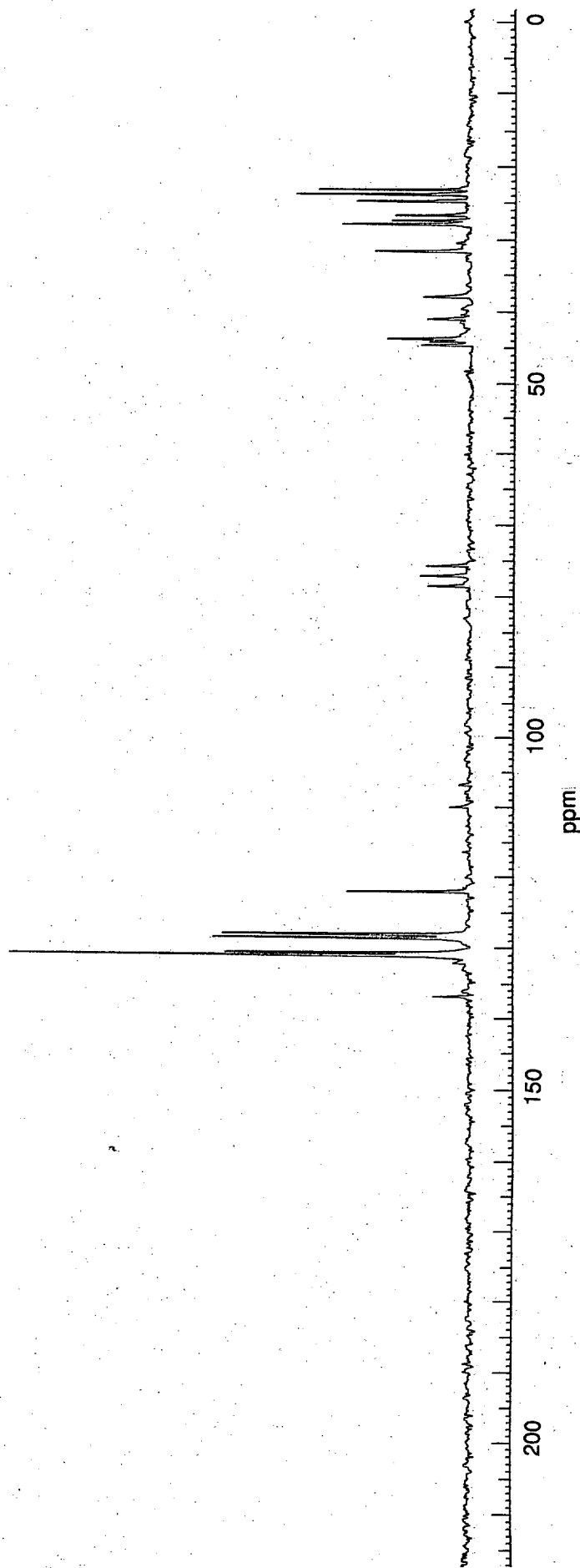
22.5 MHz ^{13}C NMR
 CDCl_3 (TMS)

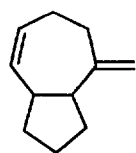




12

22.5 MHz ^{13}C NMR
 CDCl_3 (TMS)





14

22.5 MHz ^{13}C NMR
 CDCl_3 (TMS)

