

Supporting information

Three-component reaction of benzylamines, diethyl phosphite and triethyl orthoformate: Dependence of the reaction course on the structural features of the substrates and reaction conditions

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Science and Technology, Wybrzeże Wyspiańskiego 27, 50-370 Wrocław

³¹P NMR, ¹H NMR, ¹³C NMR and MS spectra for representative compounds and the mixture of reactions

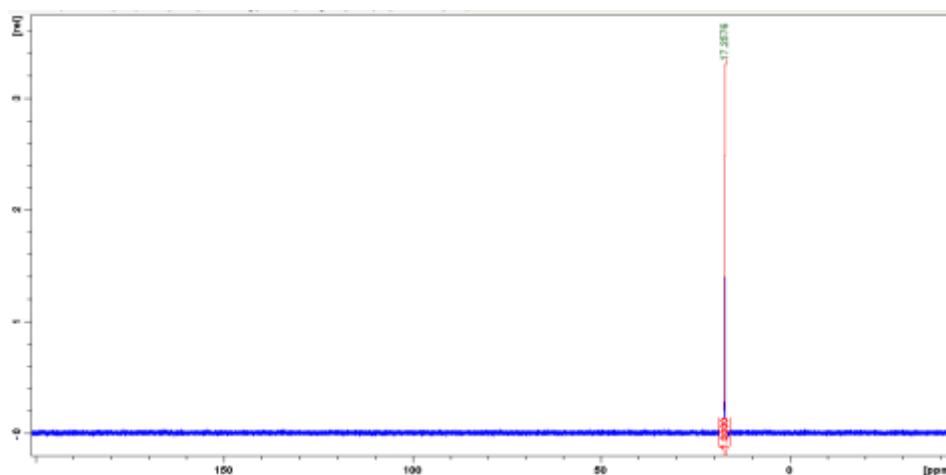
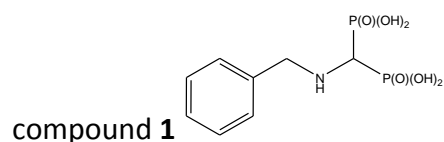


Figure S1. ³¹P NMR spectrum of compound **1**

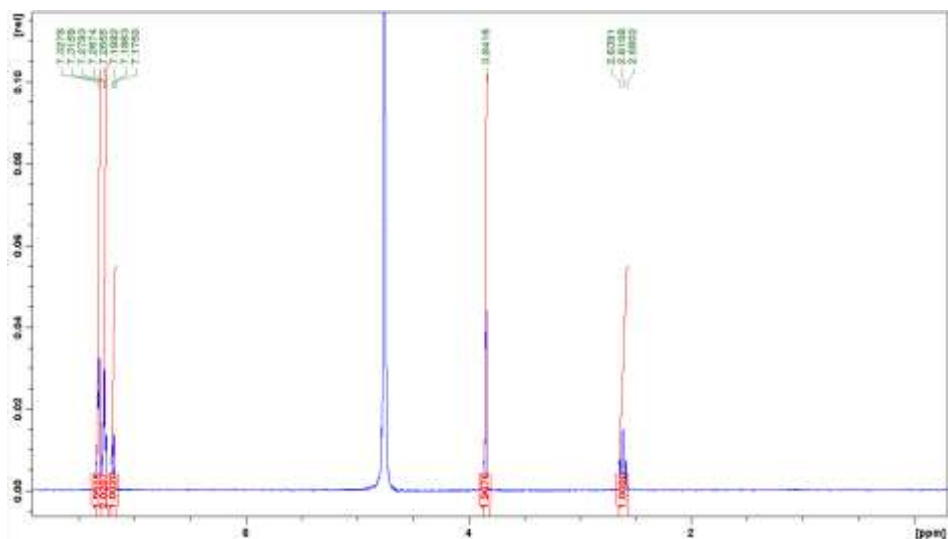


Figure S2. ^1H NMR spectrum of compound 1

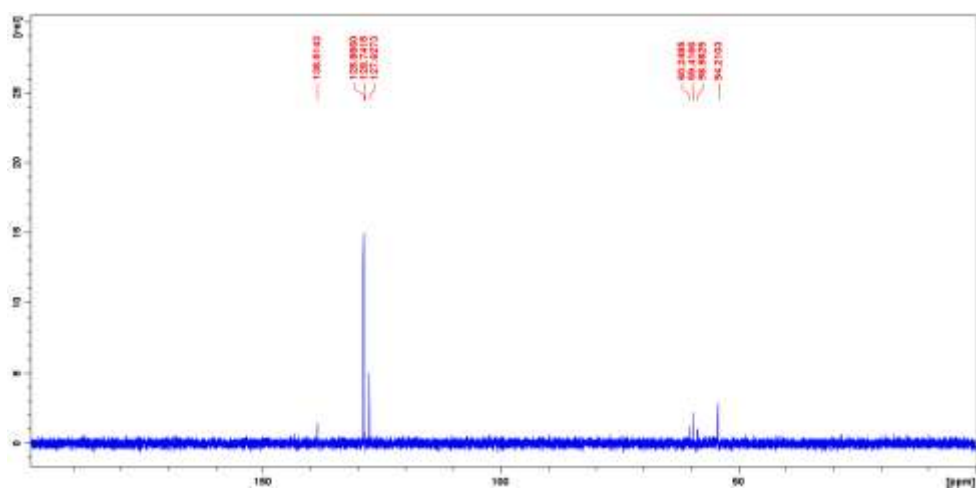


Figure S3. ^{13}C NMR spectrum of compound 1

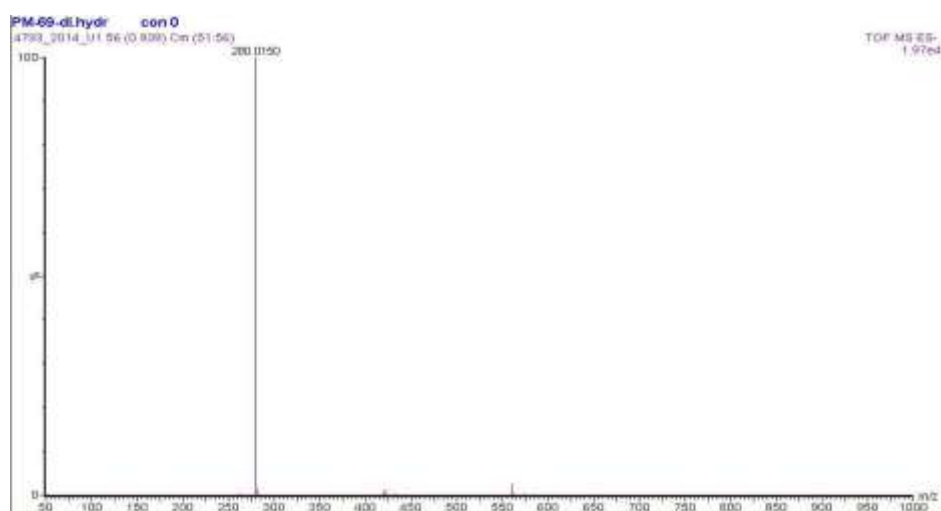


Figure S4. HRMS spectrum of compound 1

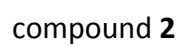
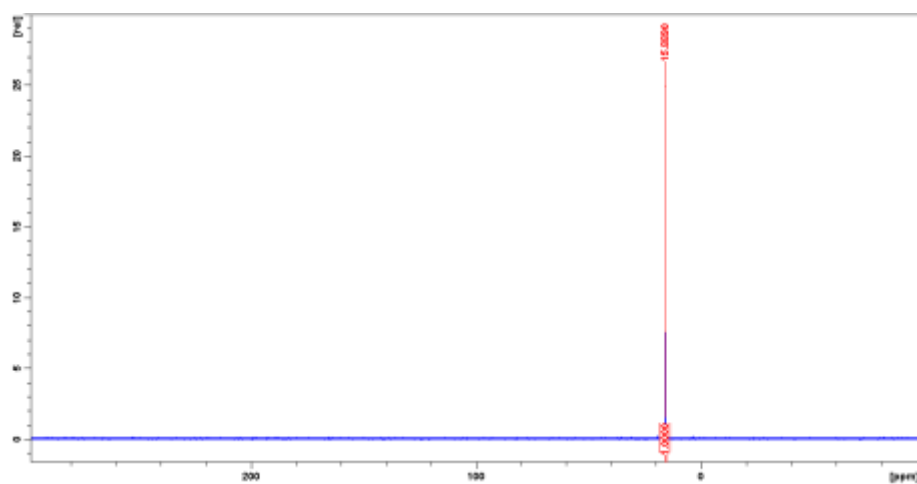
 ^{31}P NMR

Figure S5. ^{31}P NMR spectrum of compound **2**

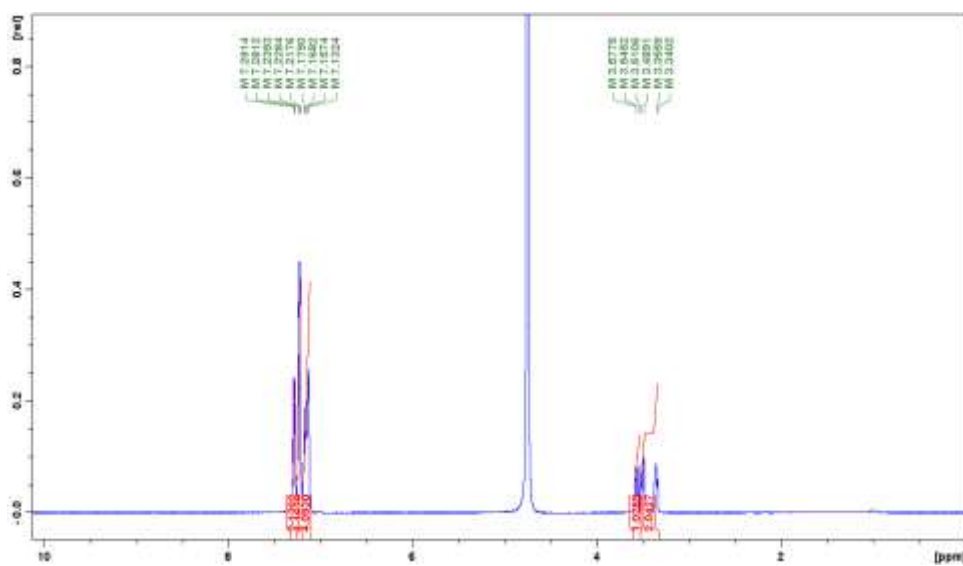


Figure S6. ^1H NMR spectrum of compound **2**

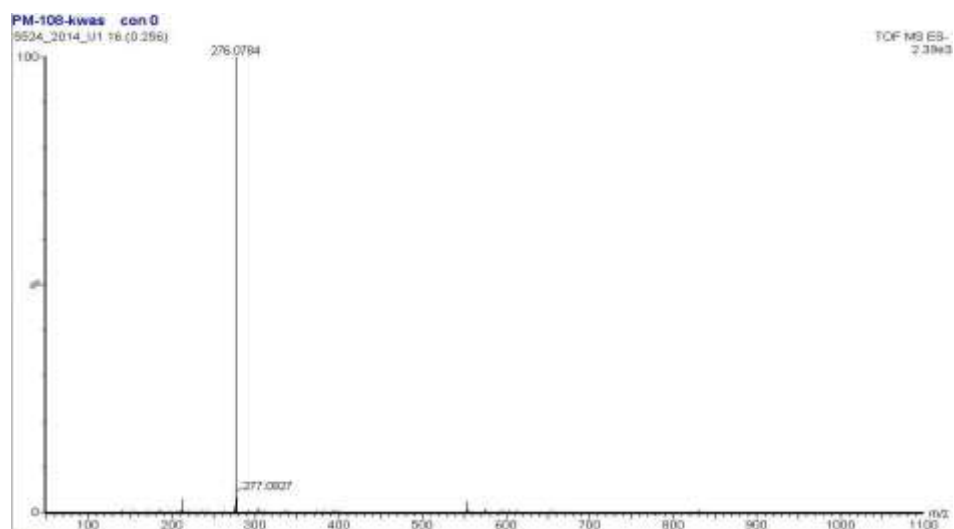


Figure S7. HRMS spectrum of compound **2**

mixture of compounds **1** and **2**

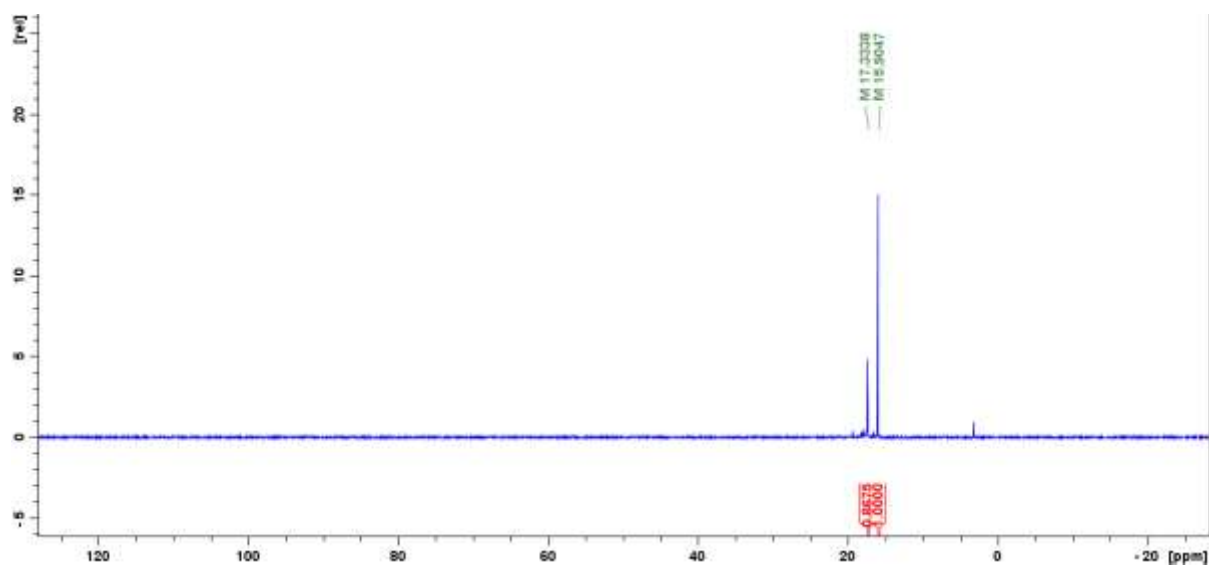
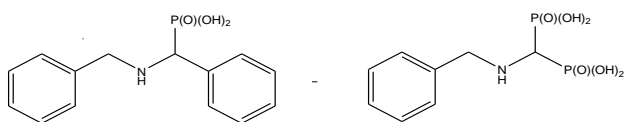
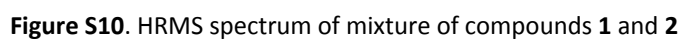
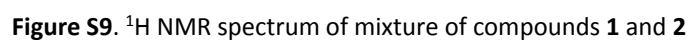


Figure S8. ^{31}P NMR spectrum of mixture of compounds **1** and **2**



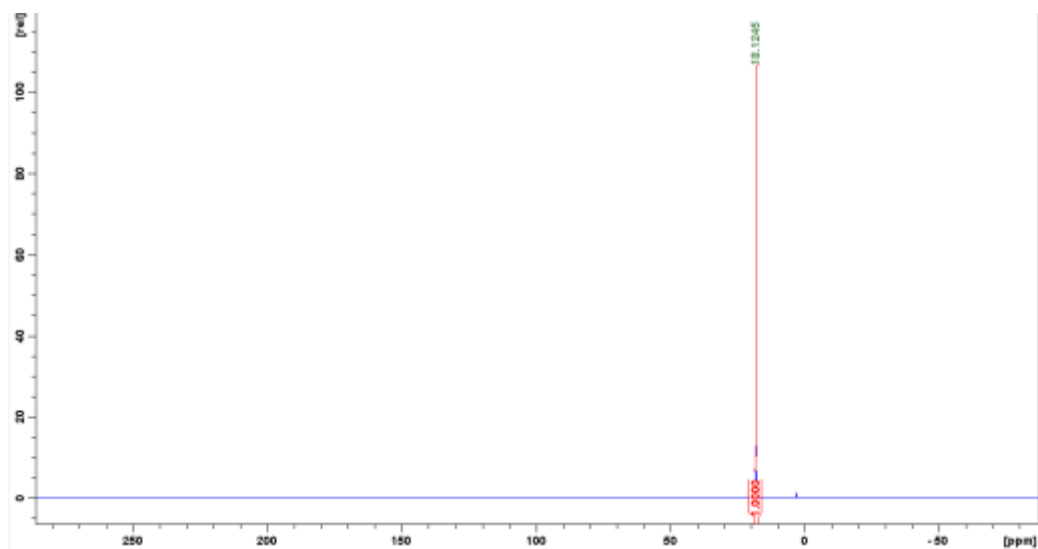
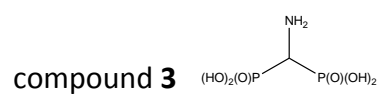


Figure S11. ^{31}P NMR spectrum of compound **3**

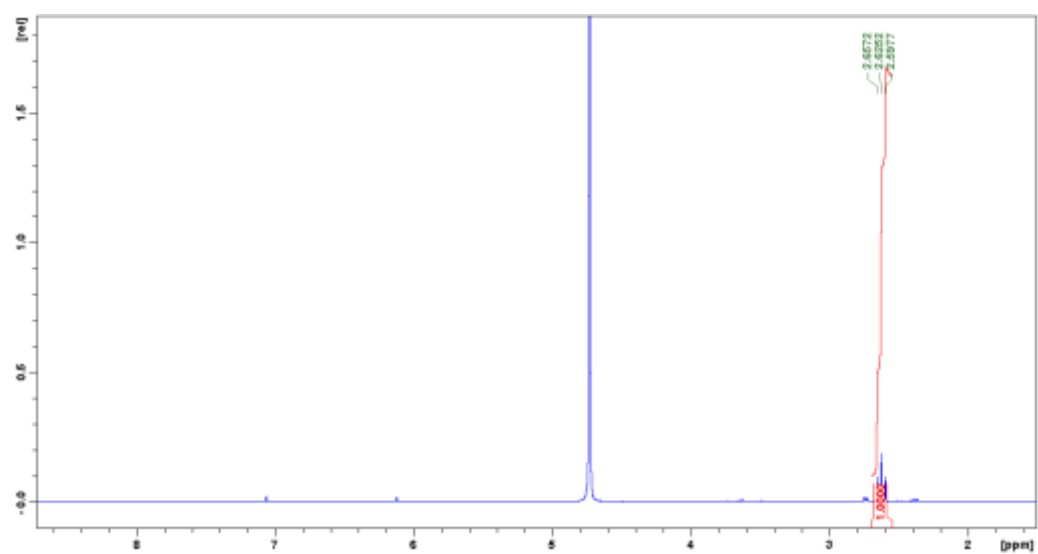


Figure S12. ^1H NMR spectrum of compound **3**



Figure S13. HRMS spectrum of compound **3**

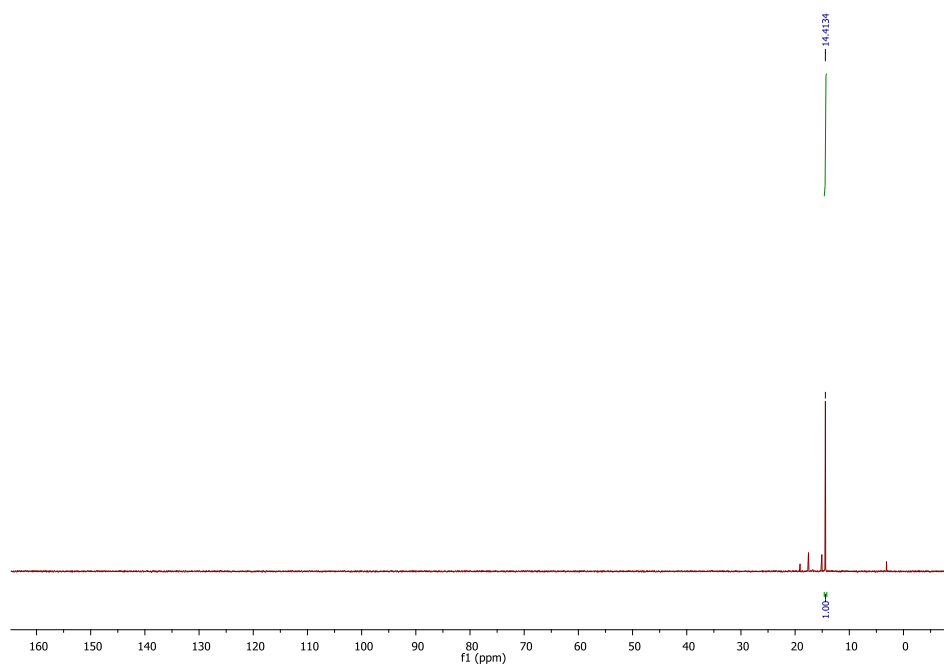
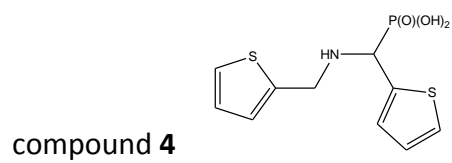


Figure S14. ^{31}P NMR spectrum of compound **4**

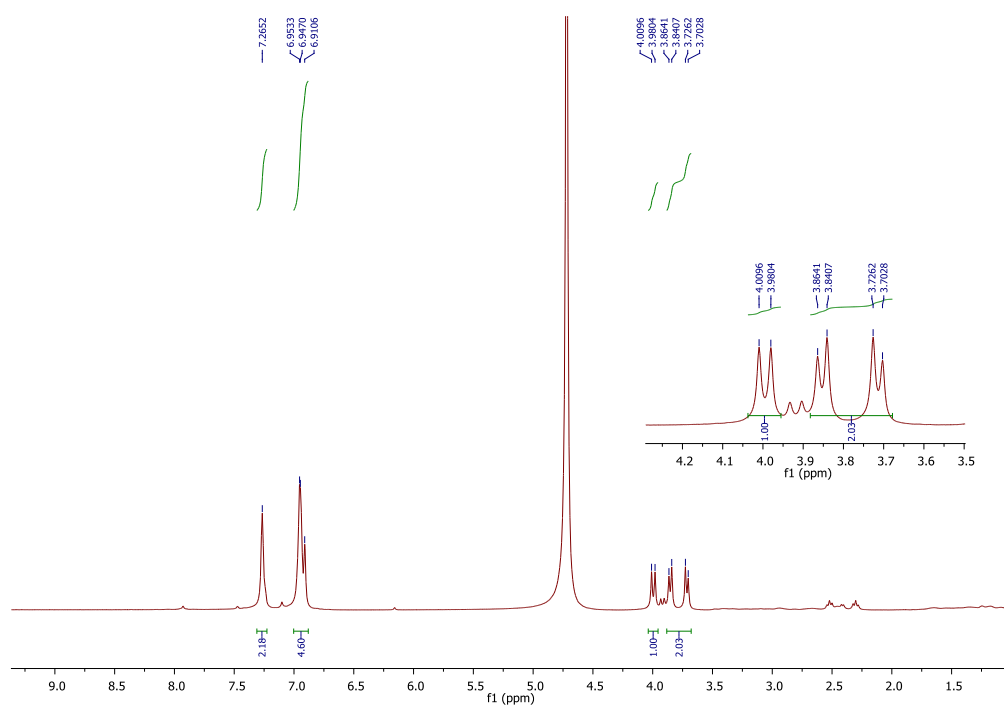


Figure S15. ¹H NMR spectrum of compound **4**

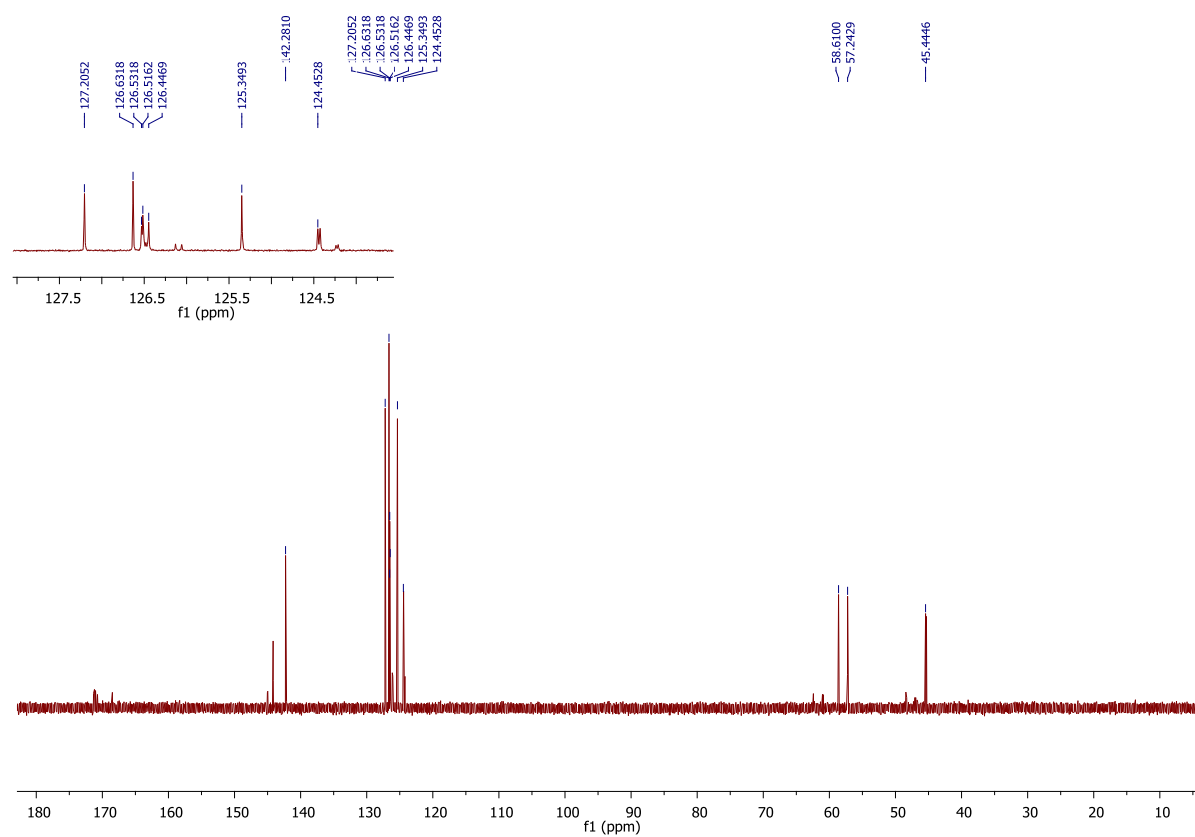


Figure S16. ¹³C NMR spectrum of compound **4**



Figure S17. HRMS spectrum of compound **4**

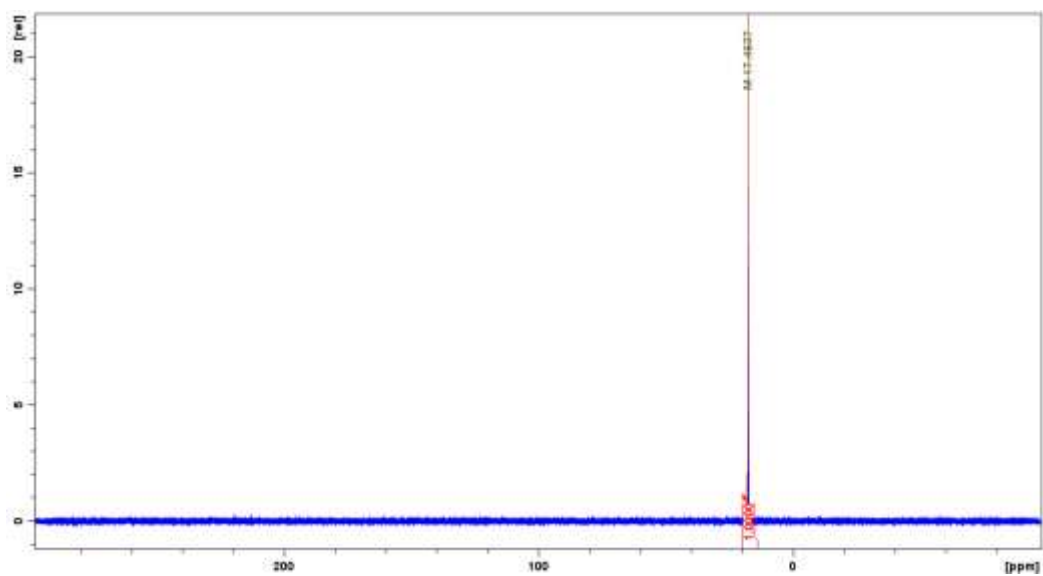
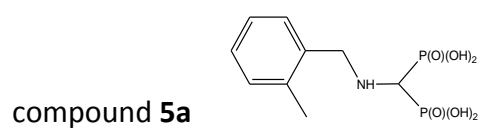


Figure S18. ^{31}P NMR spectrum of compound **5a**

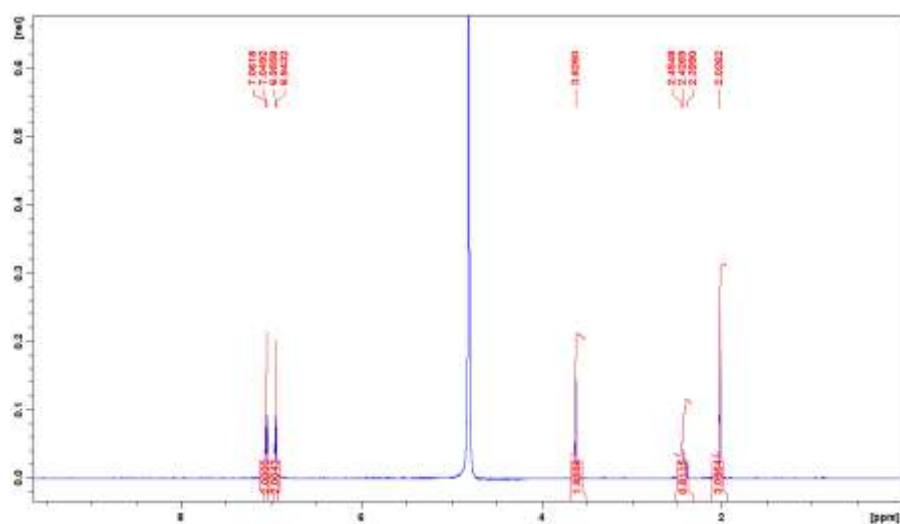


Figure S19. ^1H NMR spectrum of compound 5a

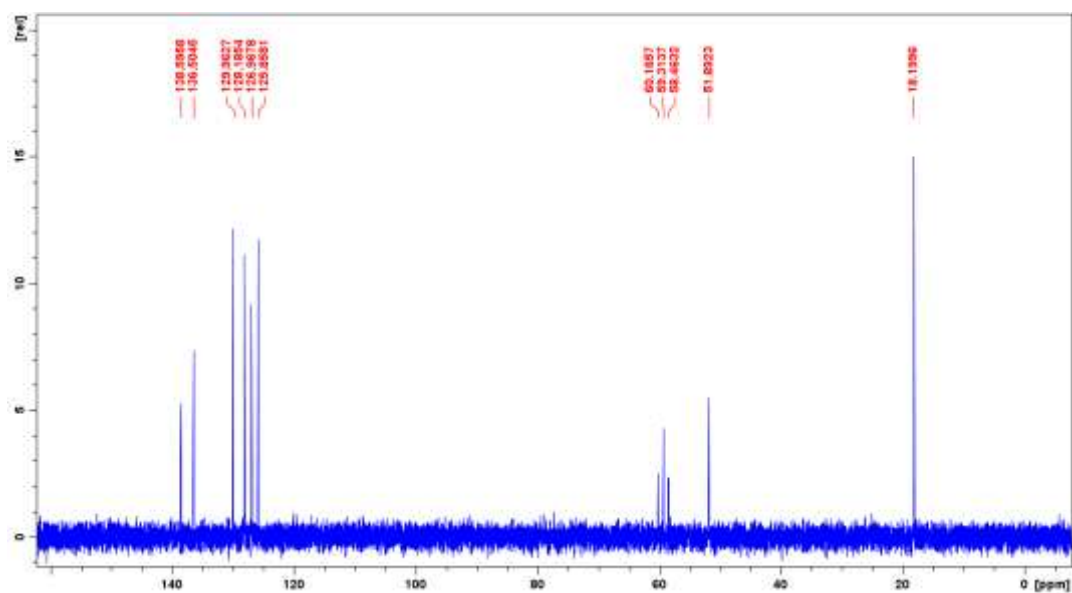


Figure S20. ^{13}C NMR spectrum of compound 5a

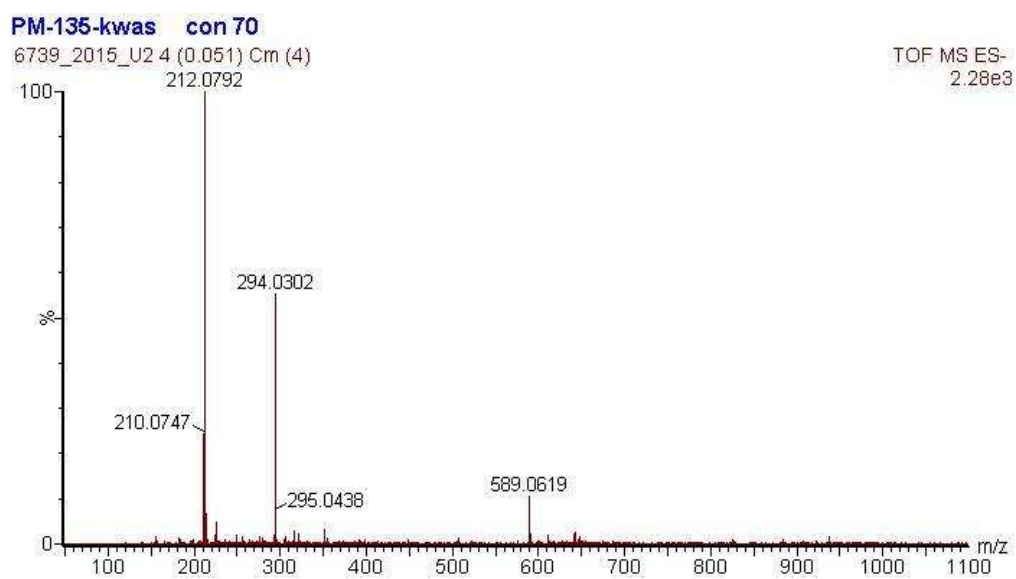


Figure S21. HRMS spectrum of compound **5a**

mixture of compounds **5a** and **6a**

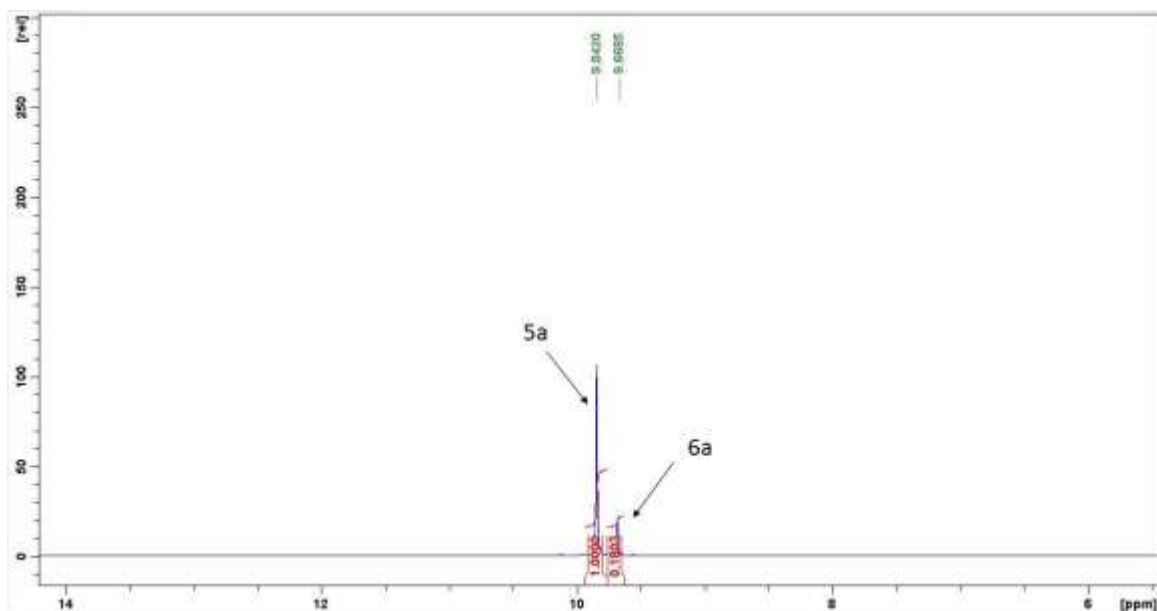
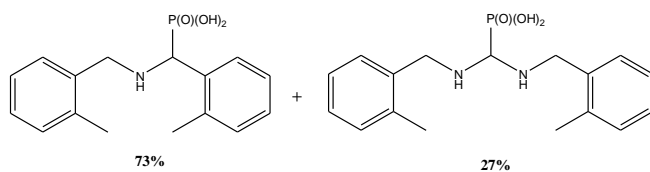


Figure S22. ^{31}P NMR spectrum of mixture of compounds **5a** and **6a**

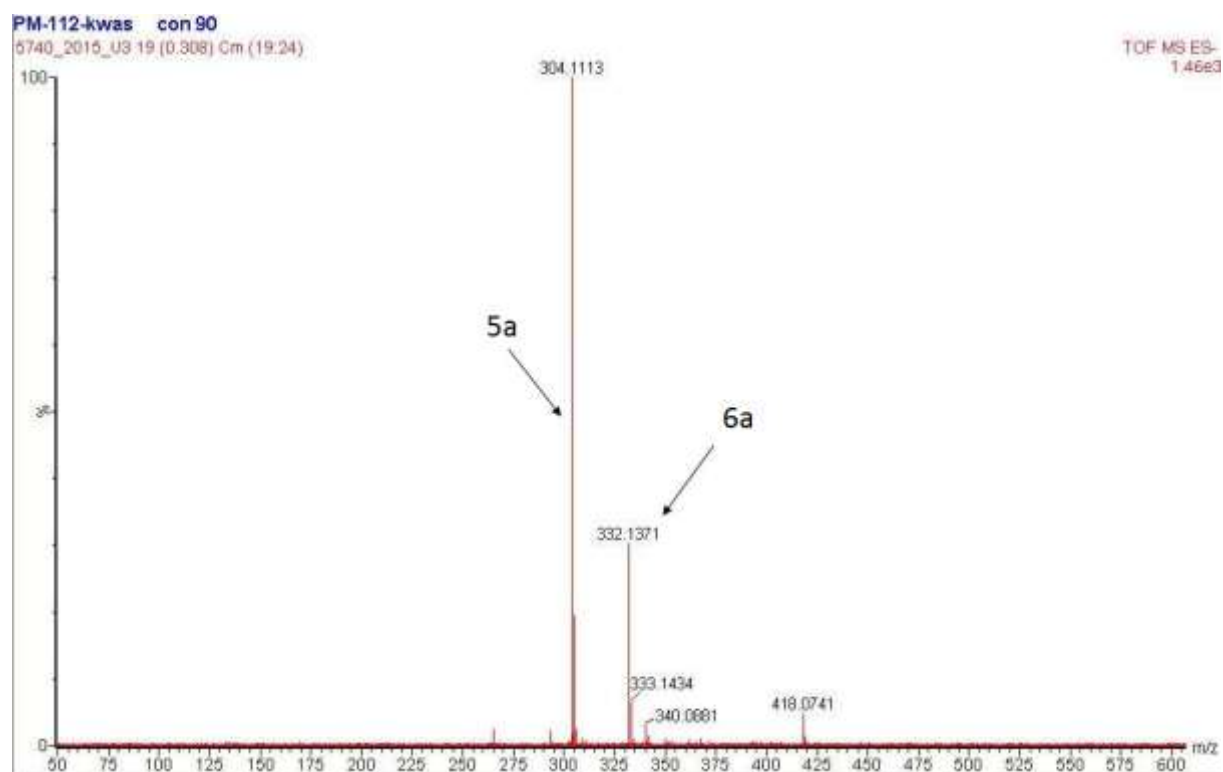


Figure S25. HRMS spectrum of mixture of compounds **5a** and **6a**

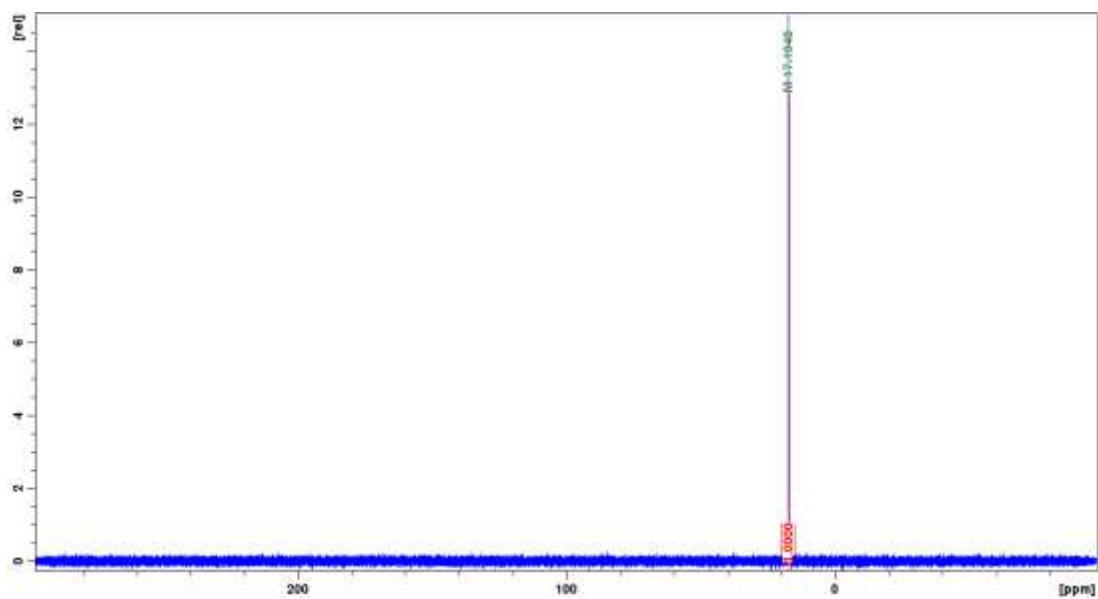
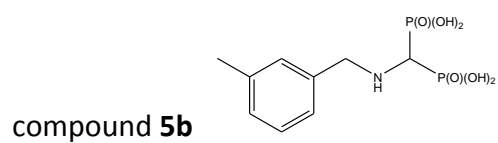


Figure S26. ^{31}P NMR spectrum of compounds **5b**

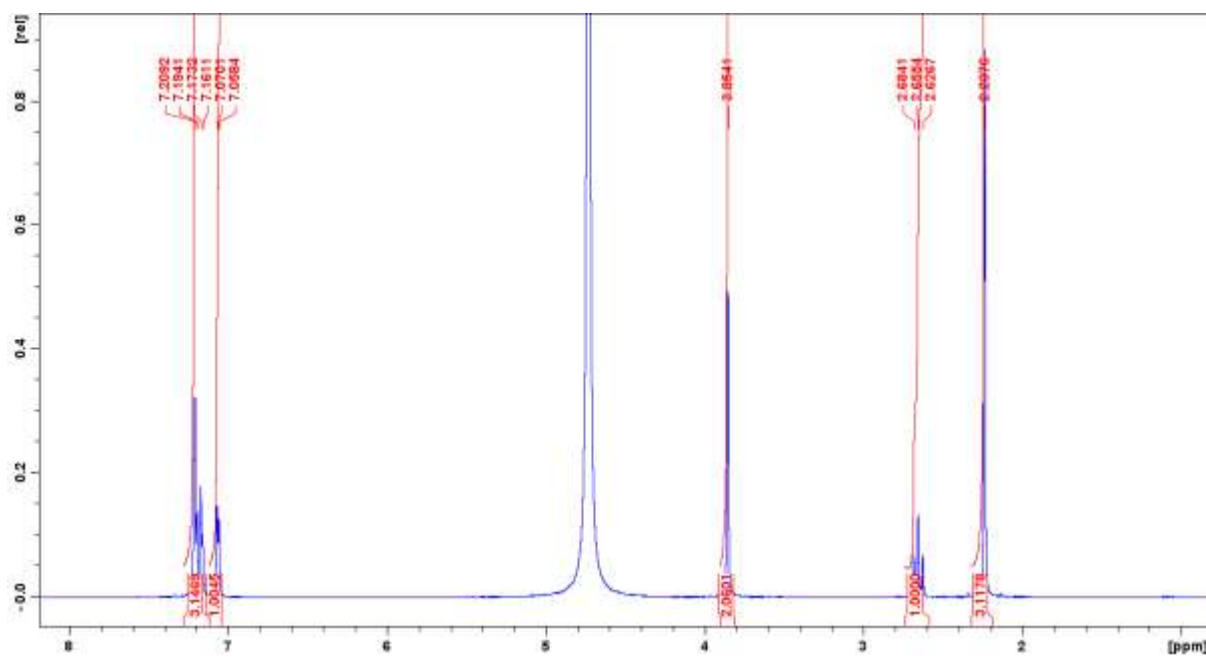


Figure S27. ¹H NMR spectrum of compounds **5b**

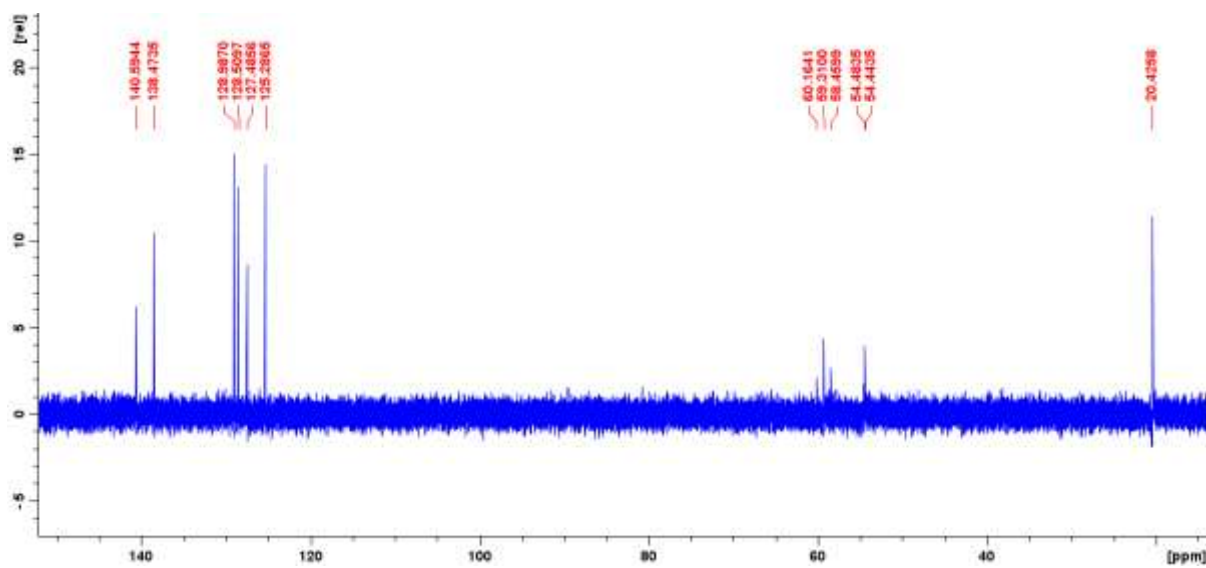


Figure S28. ¹³C NMR spectrum of compounds **5b**

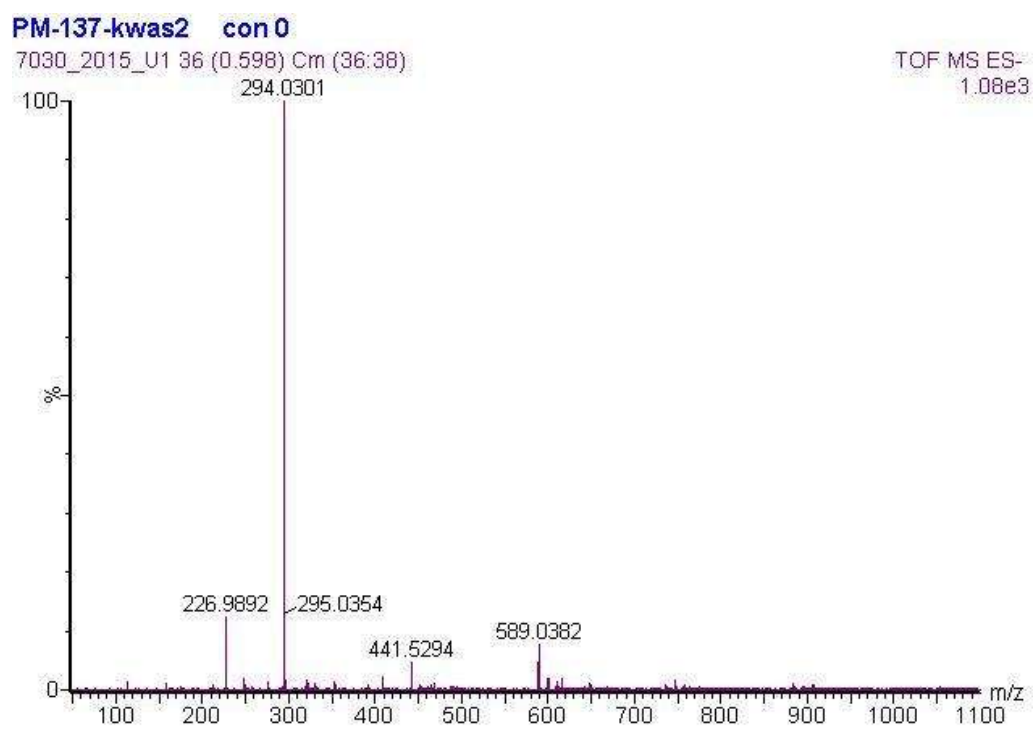


Figure S29. HRMS spectrum of compounds **5b**

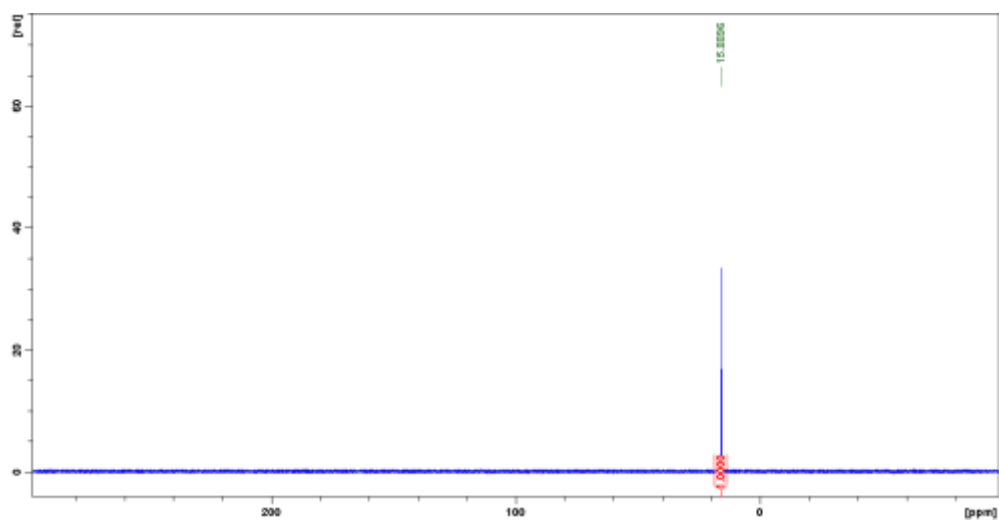
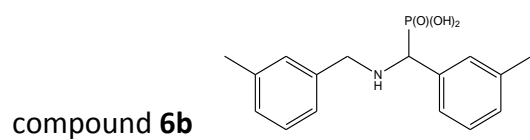


Figure S30. ^{31}P NMR spectrum of compounds **6b**

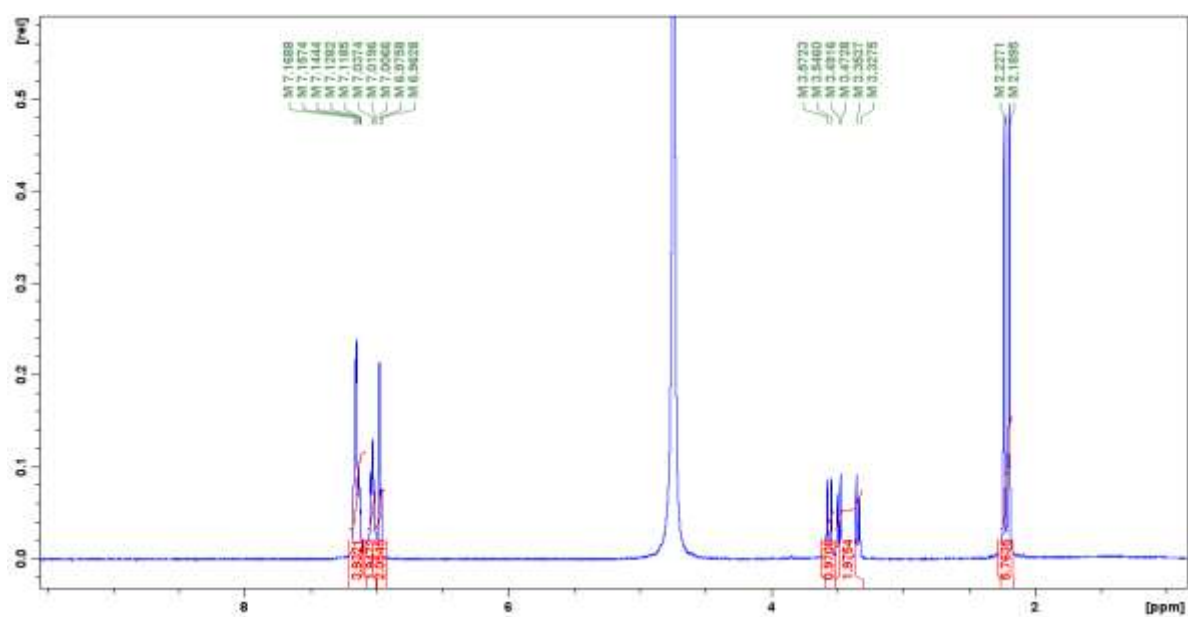


Figure S31. ¹H NMR spectrum of compounds **6b**

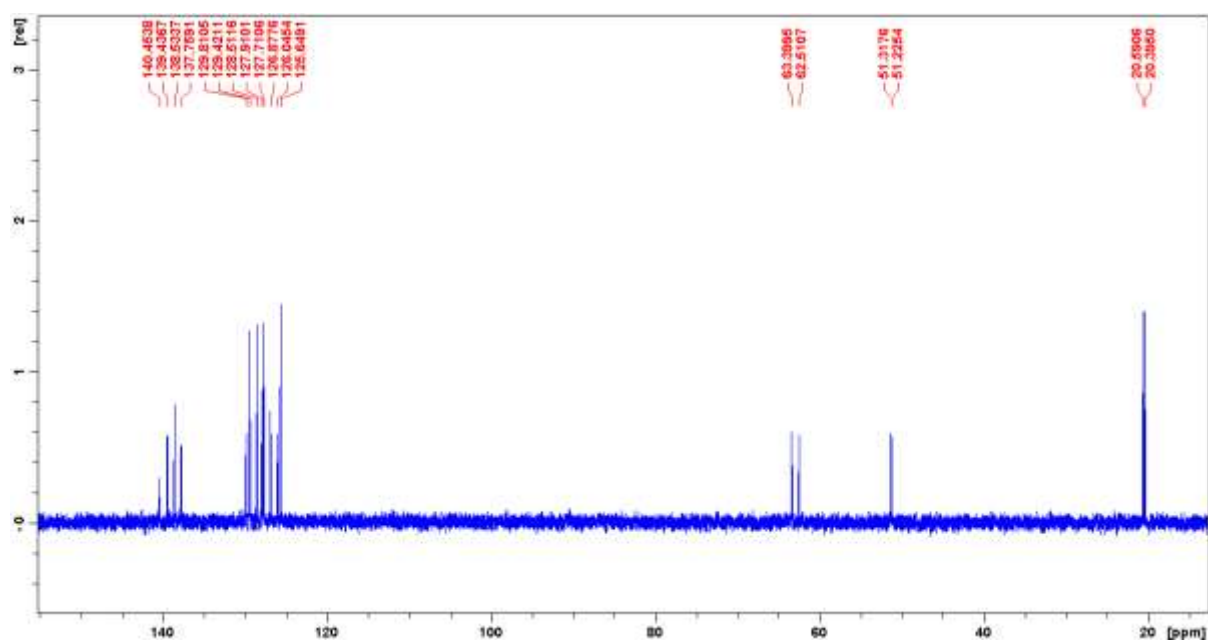


Figure S32. ¹³C NMR spectrum of compounds **6b**

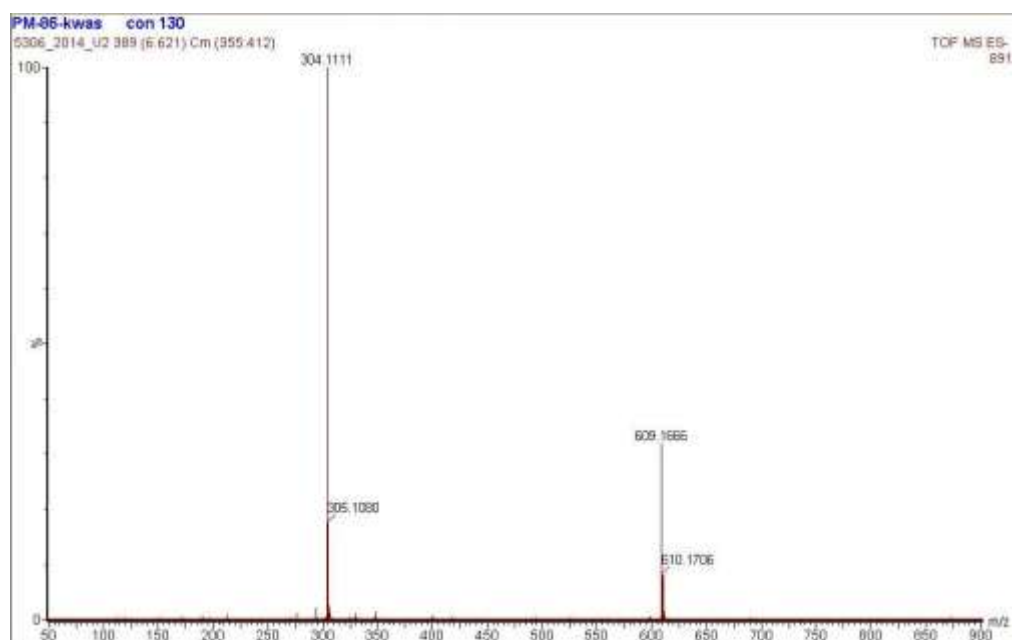


Figure S33. HRMS spectrum of compounds **6b**

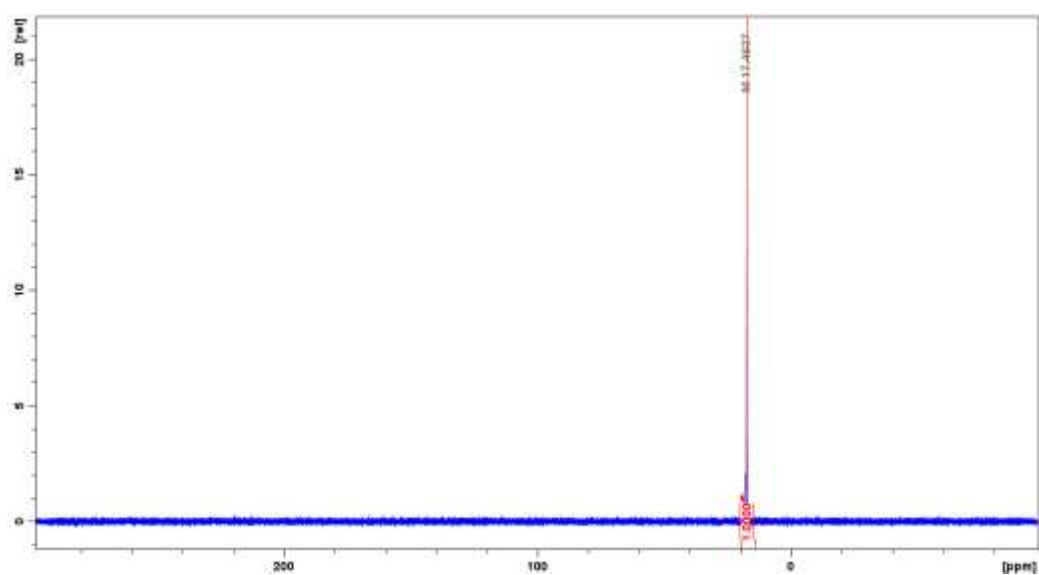
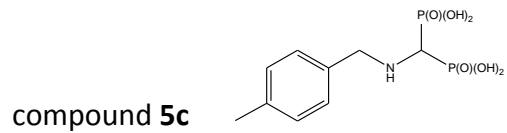


Figure S34. ^{31}P NMR spectrum of compounds **5c**

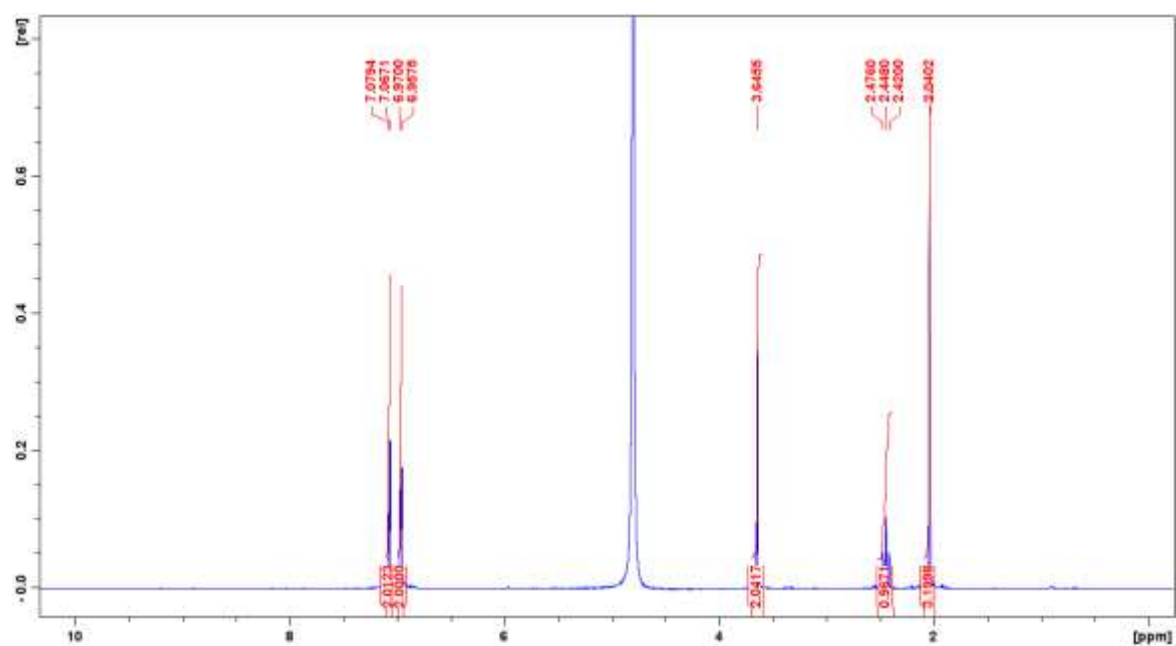


Figure S35. ¹H NMR spectrum of compounds **5c**

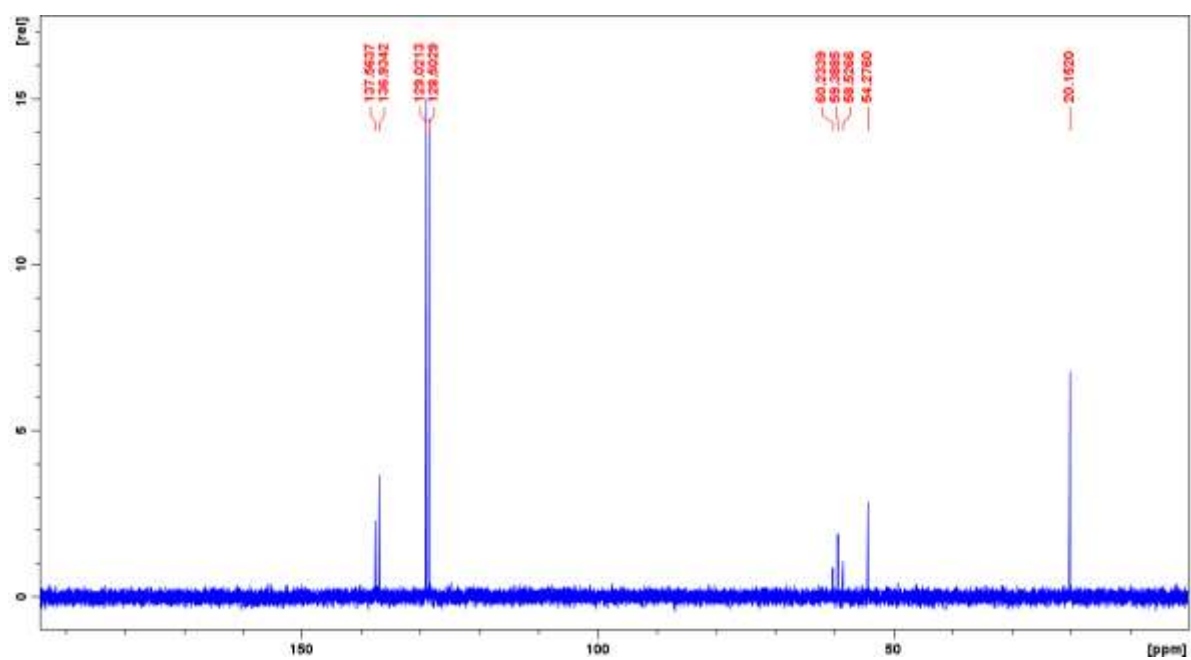


Figure S36. ¹³C NMR spectrum of compounds **5c**

PM-136-osad con 0

6737_2015_U2 18 (0.289) Cm (18:23)

TOF MS ES-
1.99e3

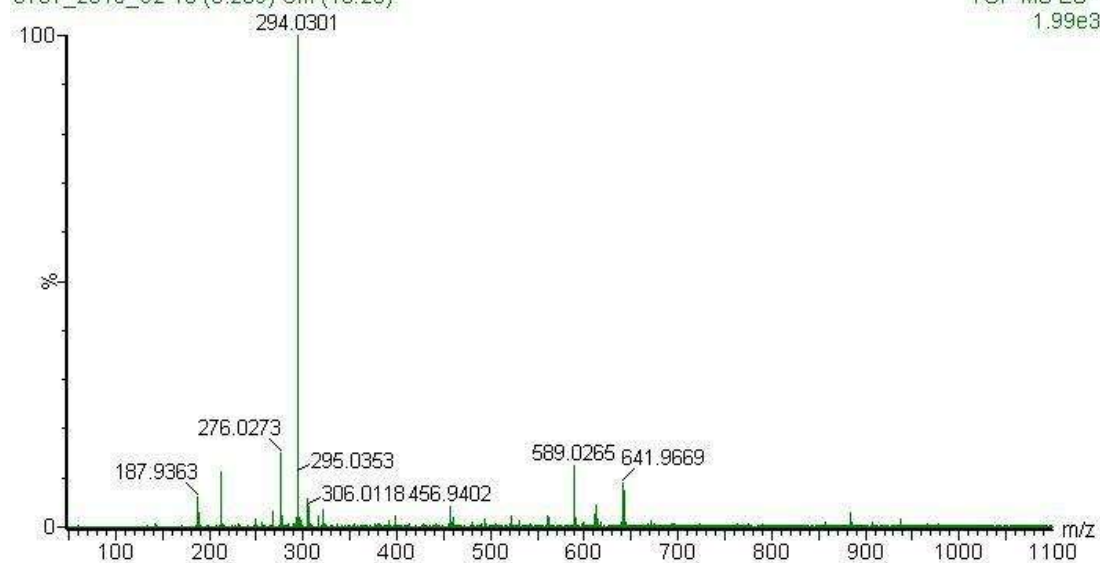


Figure S37. HRMS spectrum of compounds 5c

compound 6c

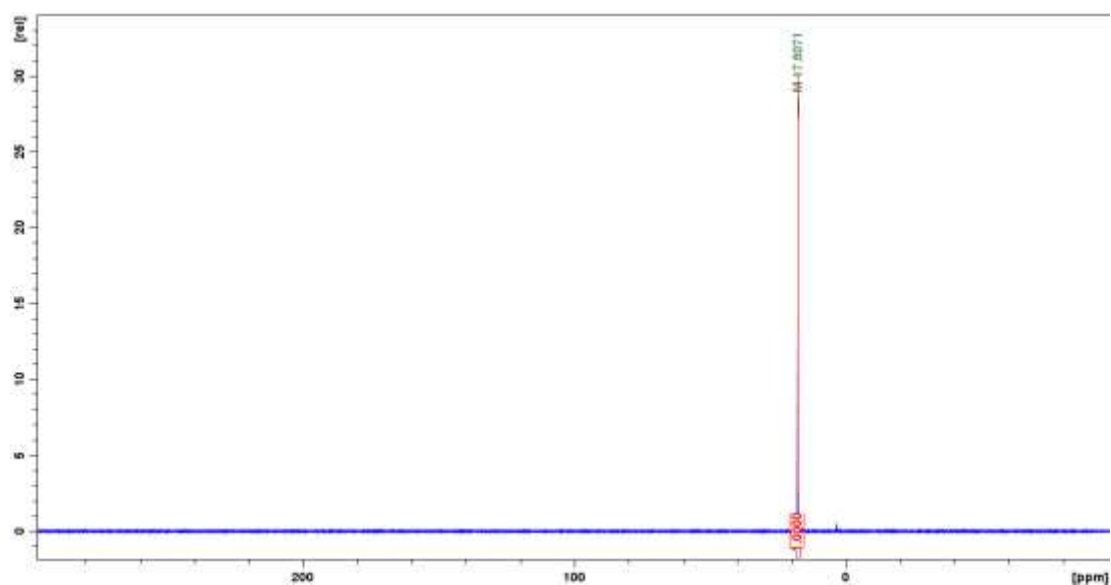
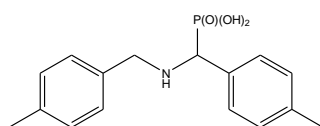


Figure S38. ^{31}P NMR spectrum of compounds 6c

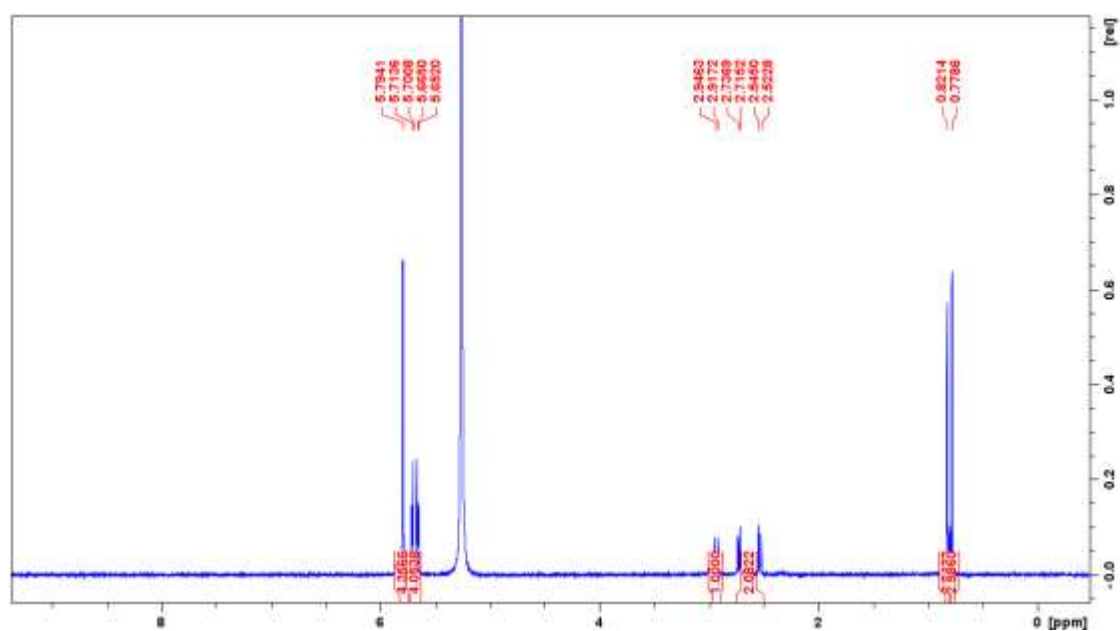


Figure S39. ¹H NMR spectrum of compounds 6c

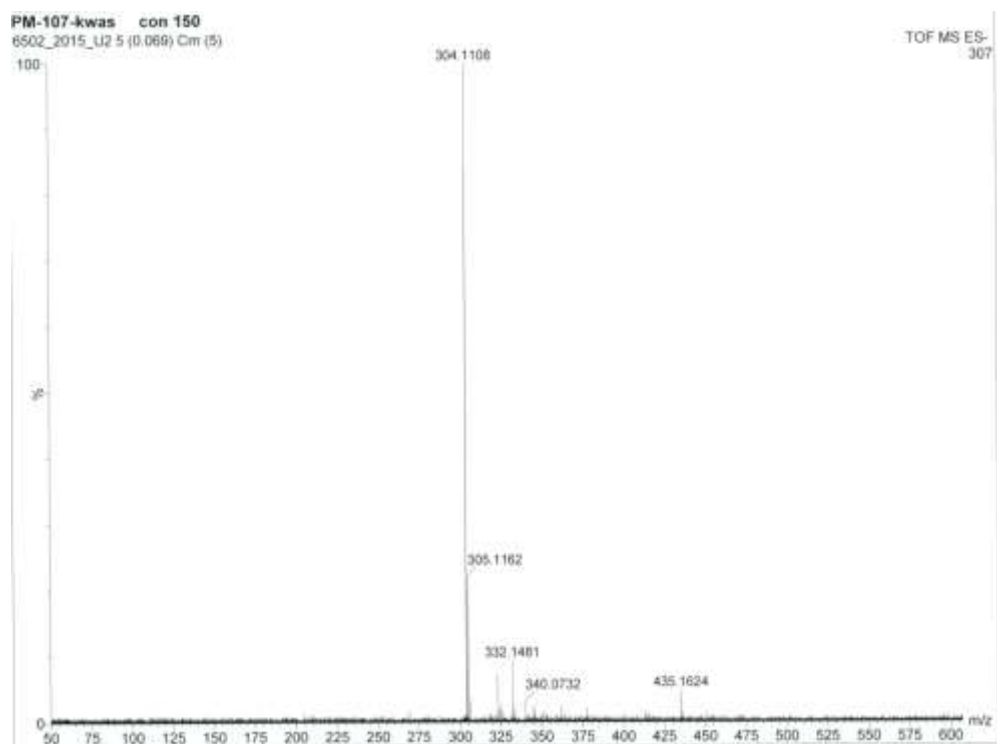


Figure S40. HRMS spectrum of compounds 6c

Mixture of **5c** and **6c**

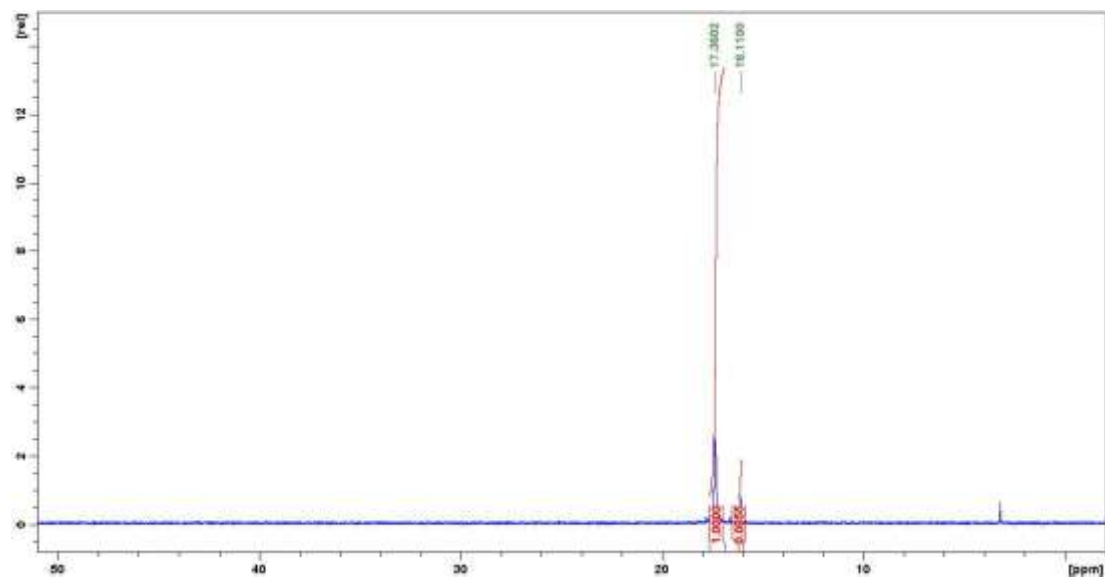
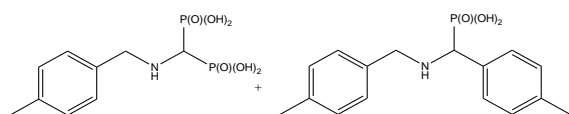


Figure S41. ^{31}P NMR spectrum of mixture of compounds **5c** and **6c**

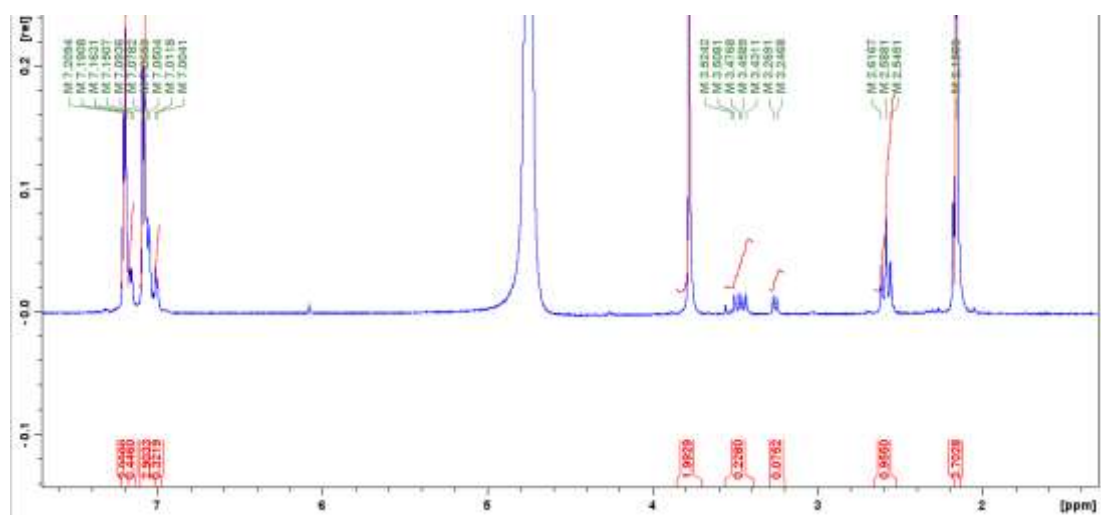


Figure S42. ^1H NMR spectrum of mixture of compounds **5c** and **6c**

compound **6d**

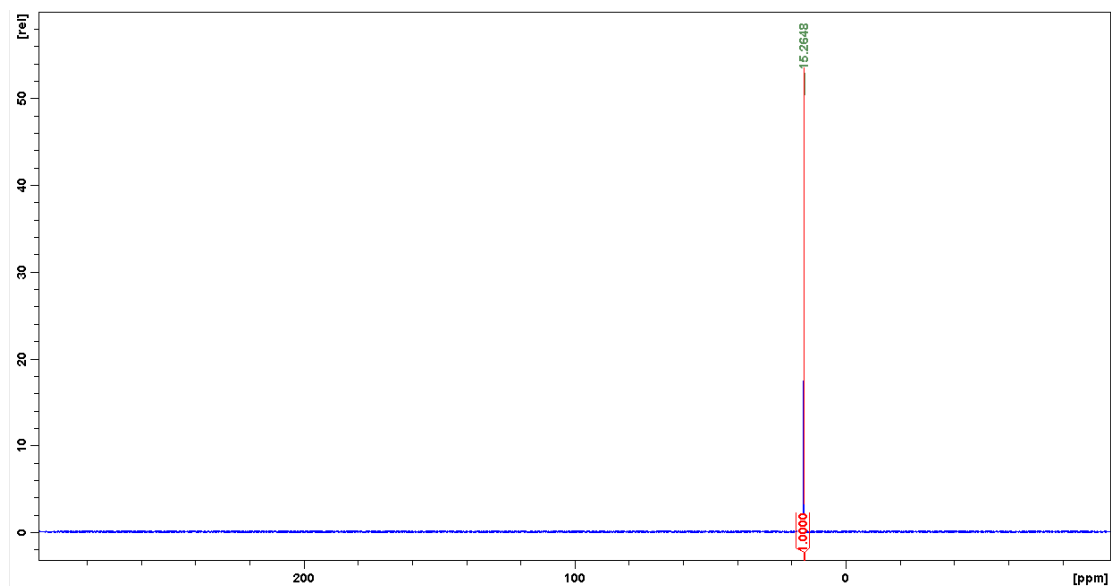
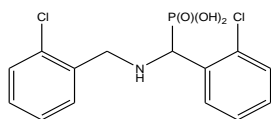


Figure S43. ^{31}P NMR spectrum of compounds **6d**

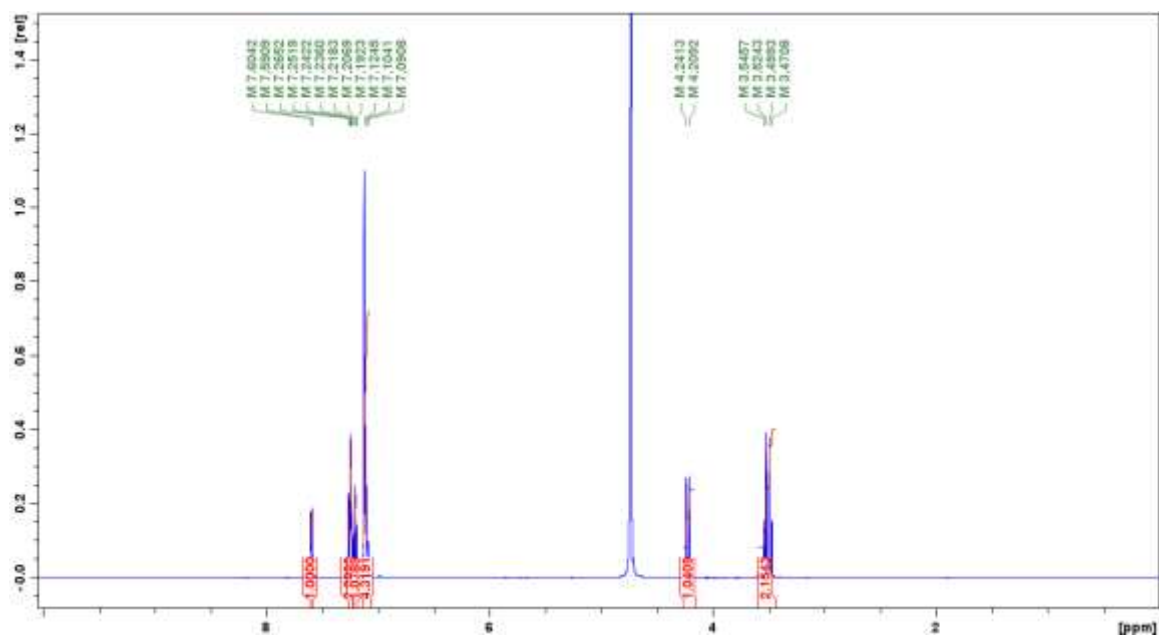


Figure S44. ^1H NMR spectrum of compounds **6d**

compound **6e**

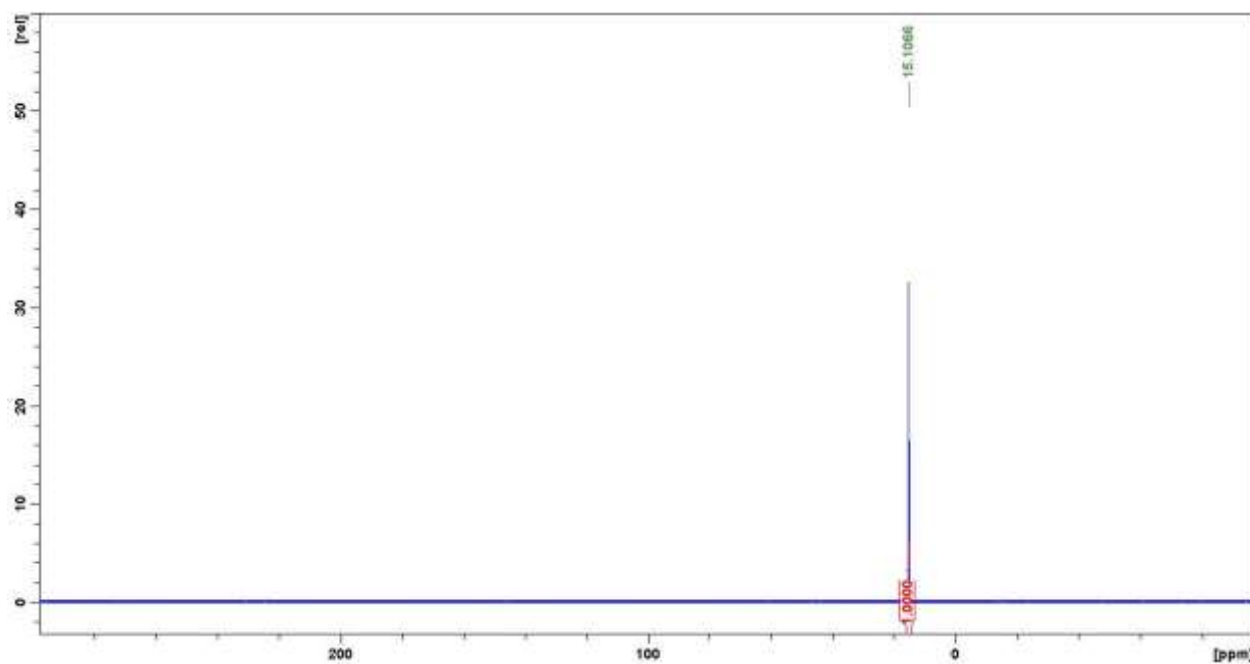
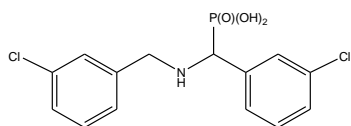


Figure S47. ^{31}P NMR spectrum of compounds **6e**

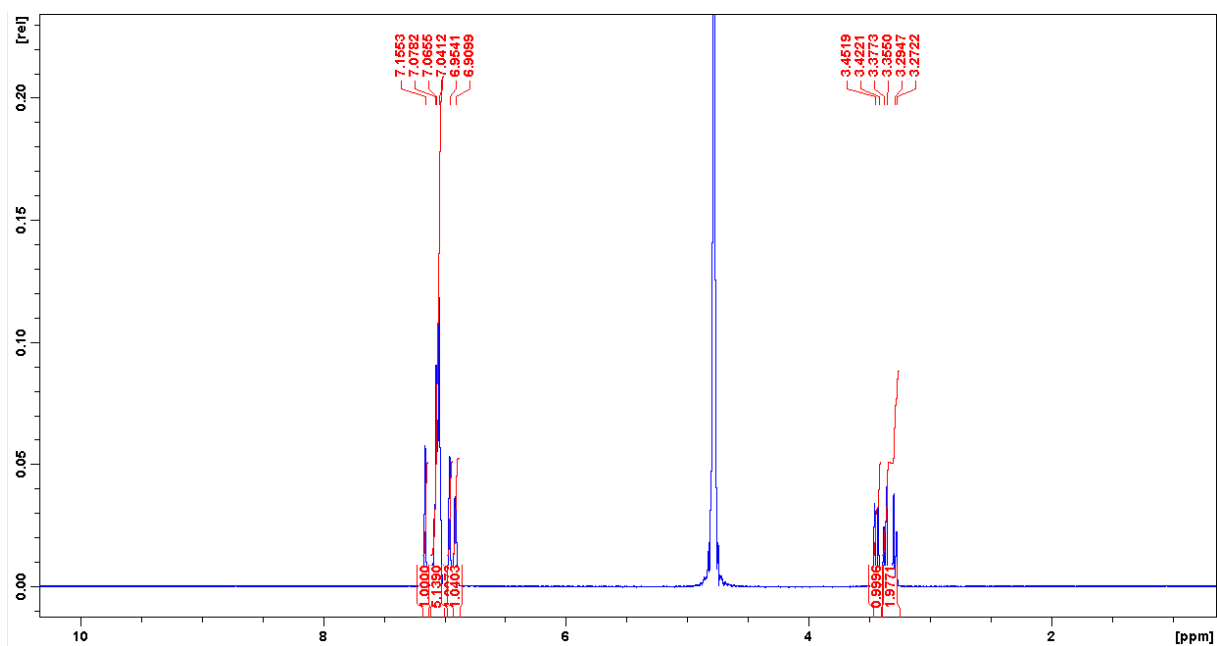


Figure S48. ^1H NMR spectrum of compounds **6e**

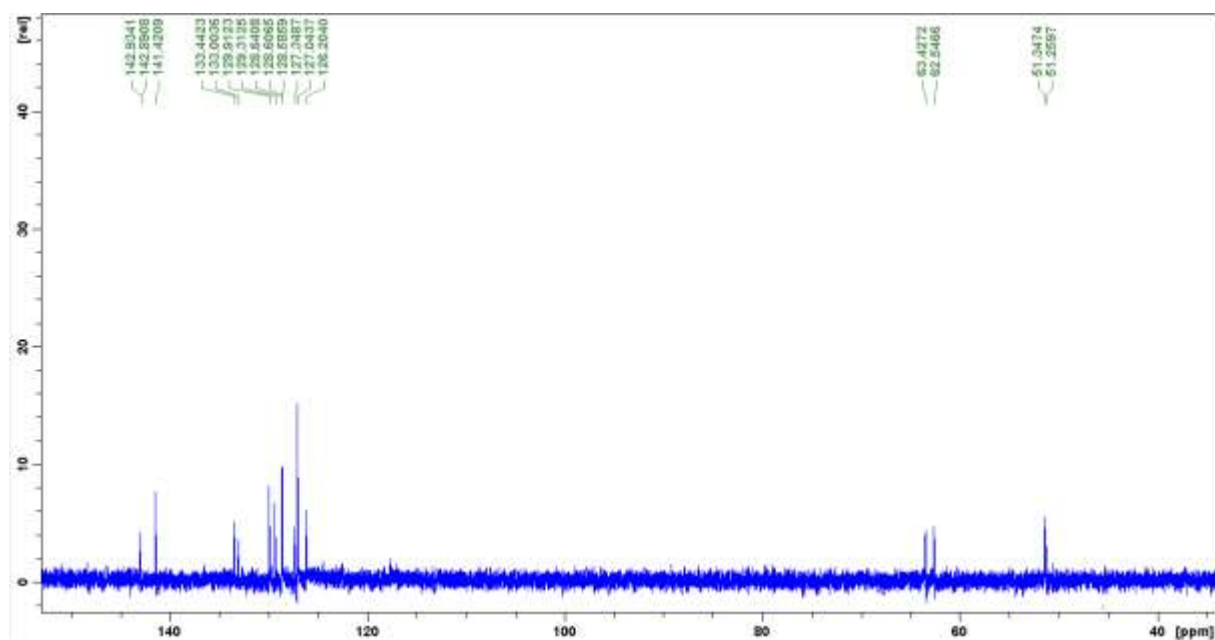


Figure S49. ¹³C NMR spectrum of compounds **6e**

PM-79-kwas con 0

7109_2015_U2 20 (0.325) Cm (18.23)

TOF MS ES-
1.44e3

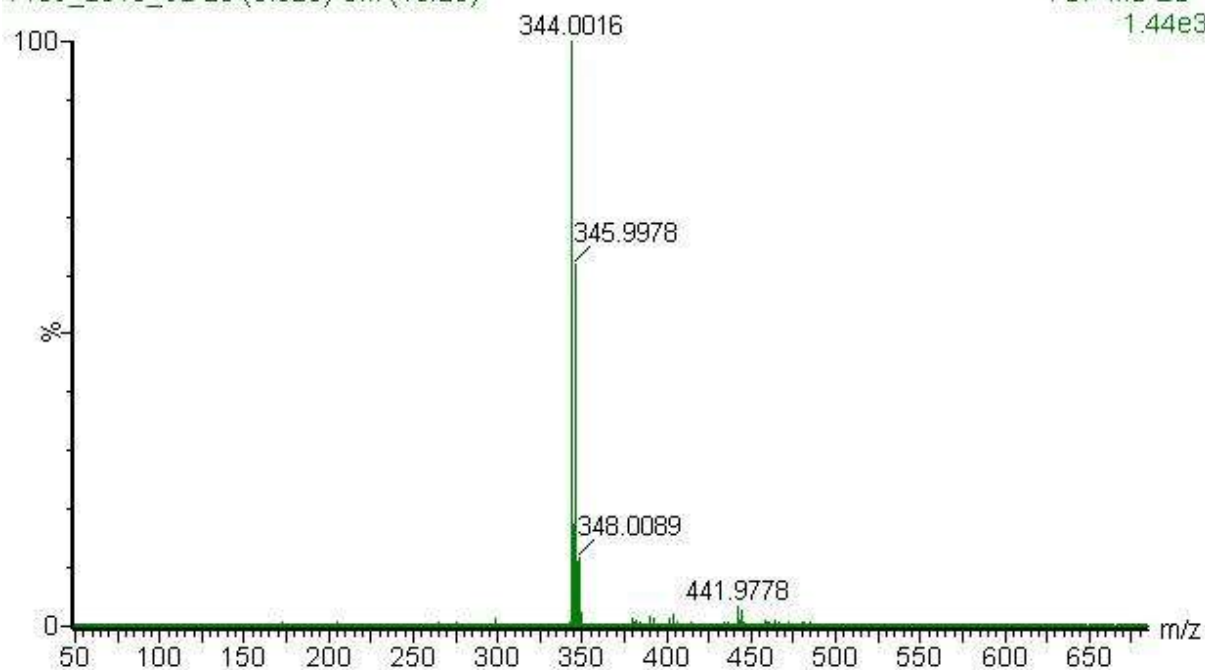


Figure S50. HRMS spectrum of compounds **6e**

mixture of compounds **5g**+**6g**

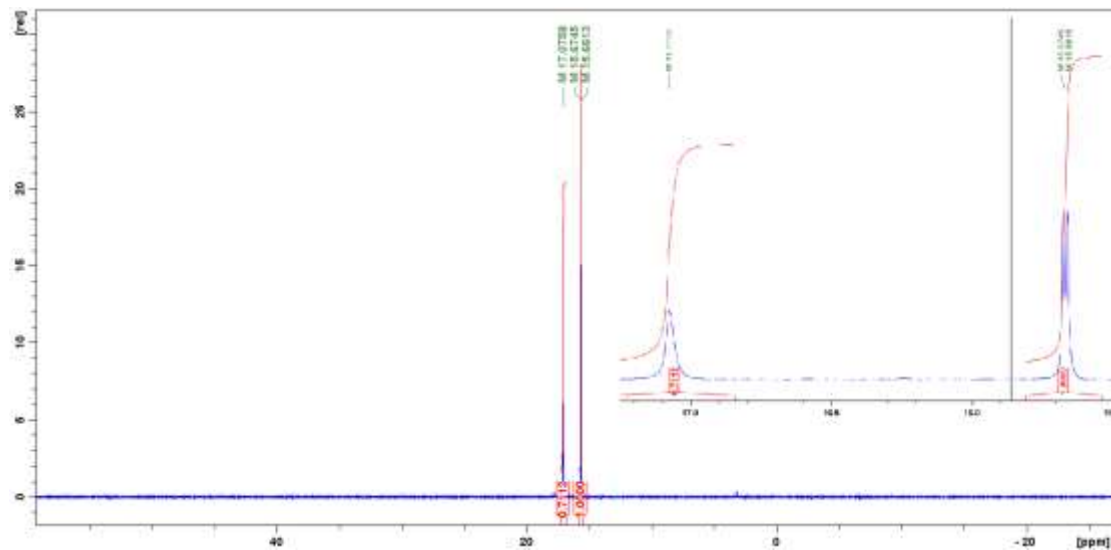
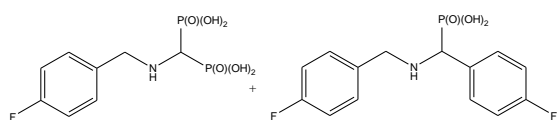


Figure S51. ³¹P NMR spectrum of mixture of compounds **5g** and **6g**

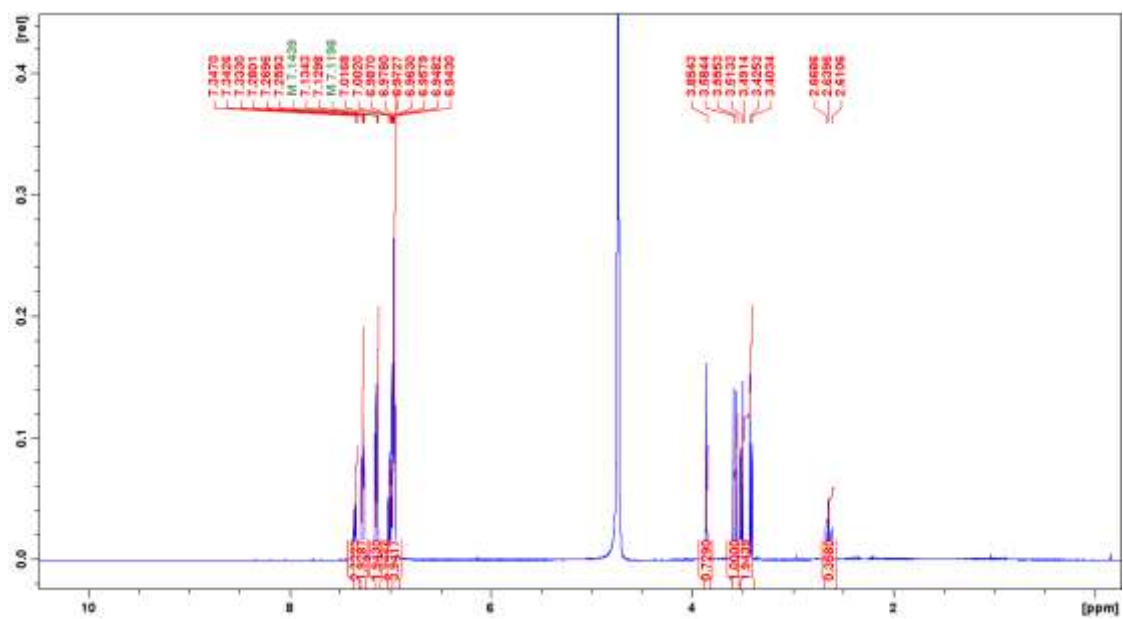


Figure S52. ¹H NMR spectrum of mixture of compounds **5g** and **6g**

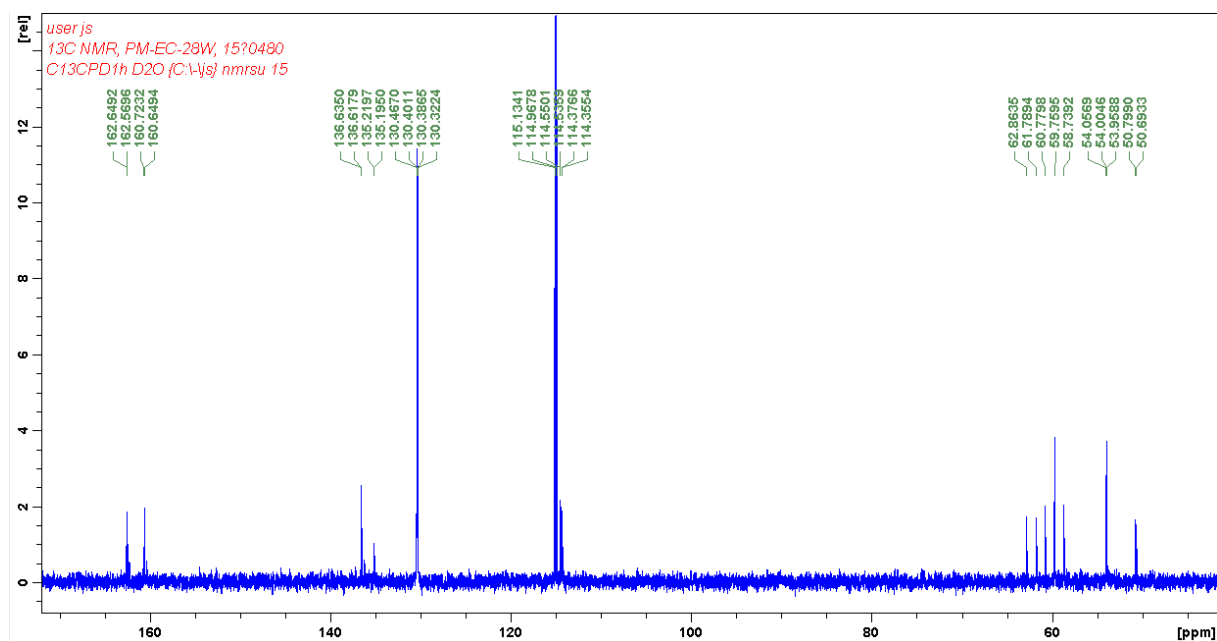


Figure S53. ¹³C NMR spectrum of mixture of compounds **5g** and **6g**

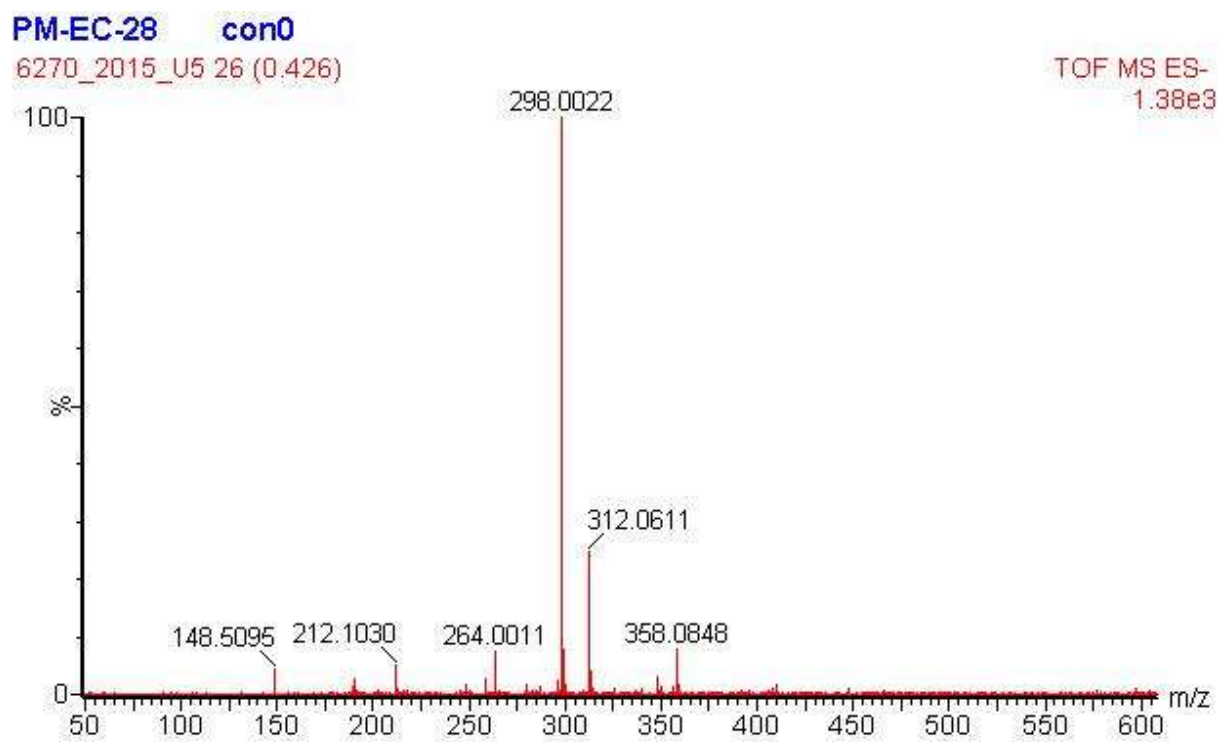


Figure S54. HRMS spectrum of mixture of compounds **5g** and **6g**

compound **5h**

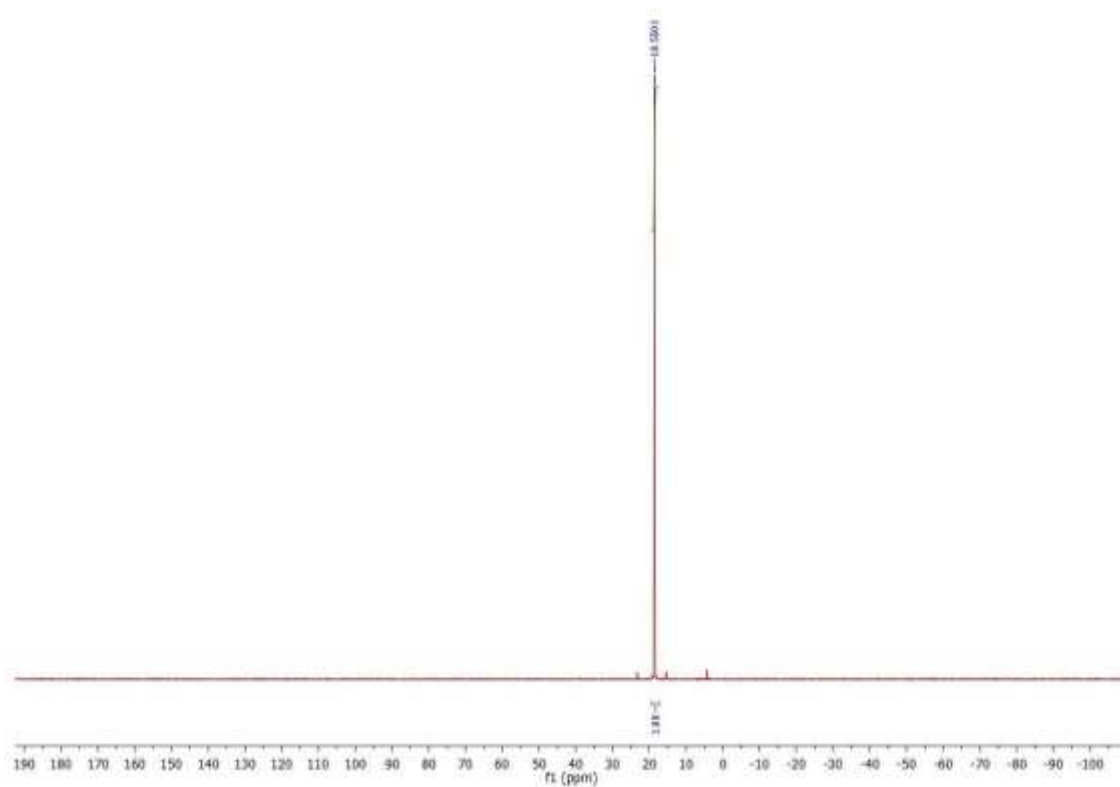
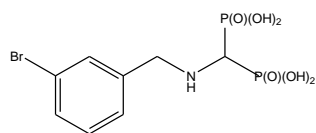


Figure S55. ^{31}P NMR spectrum of compound **5h**

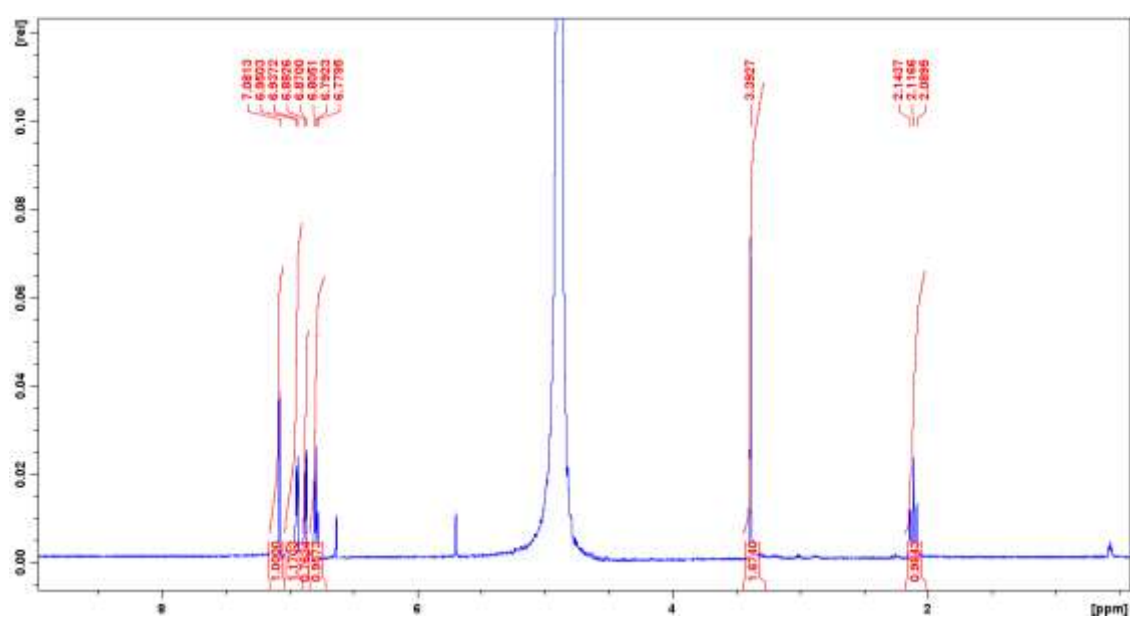


Figure S56. ^1H NMR spectrum of compound **5h**

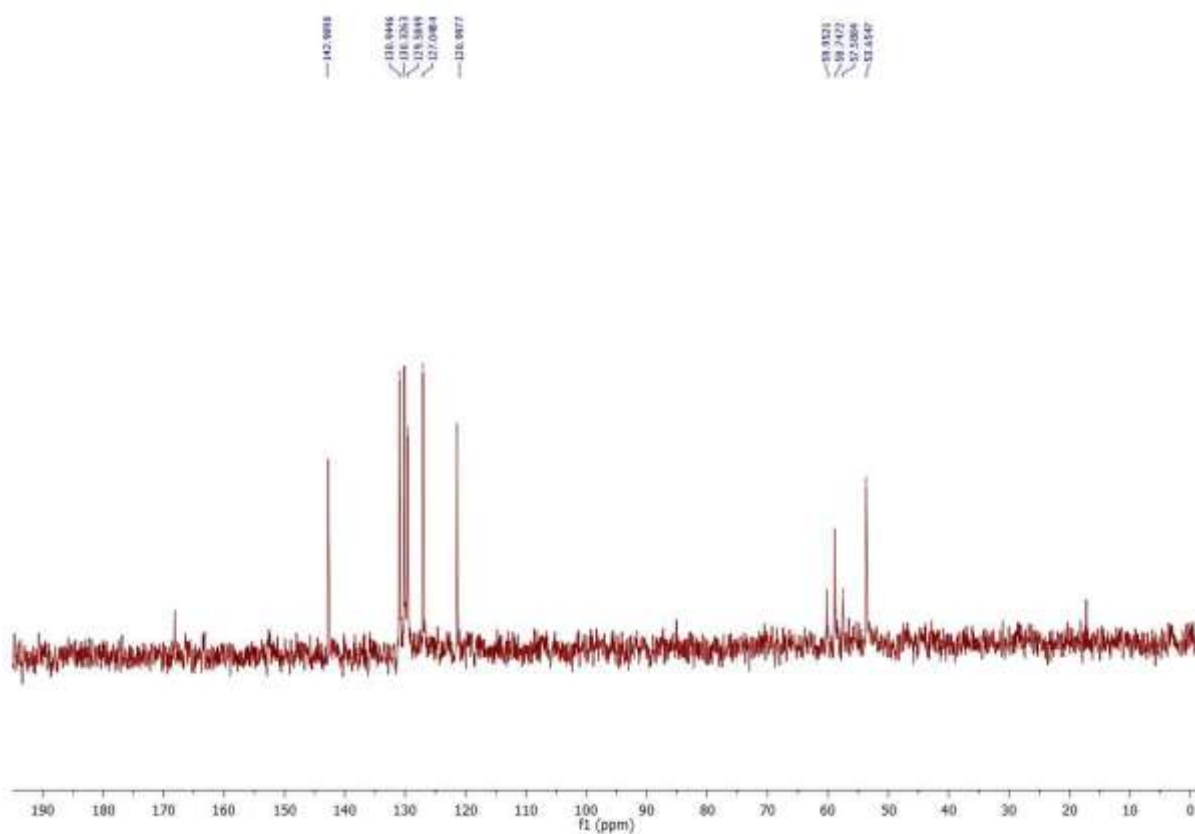


Figure S57. ^{13}C NMR spectrum of compound **5h**

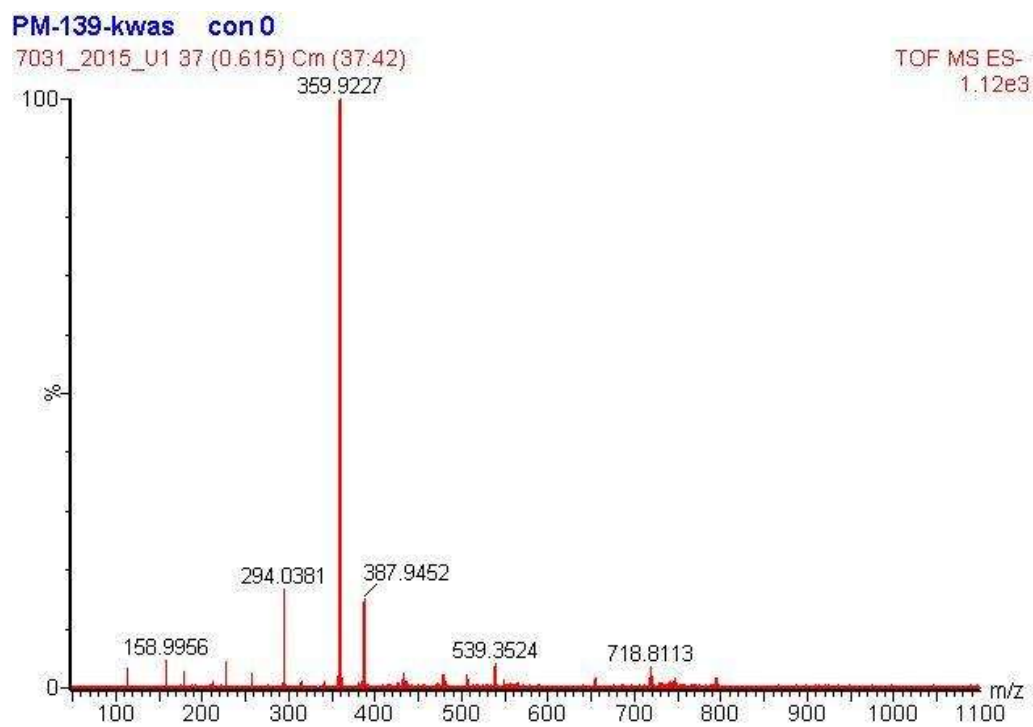


Figure S58. HRMS spectrum of compound **5h**

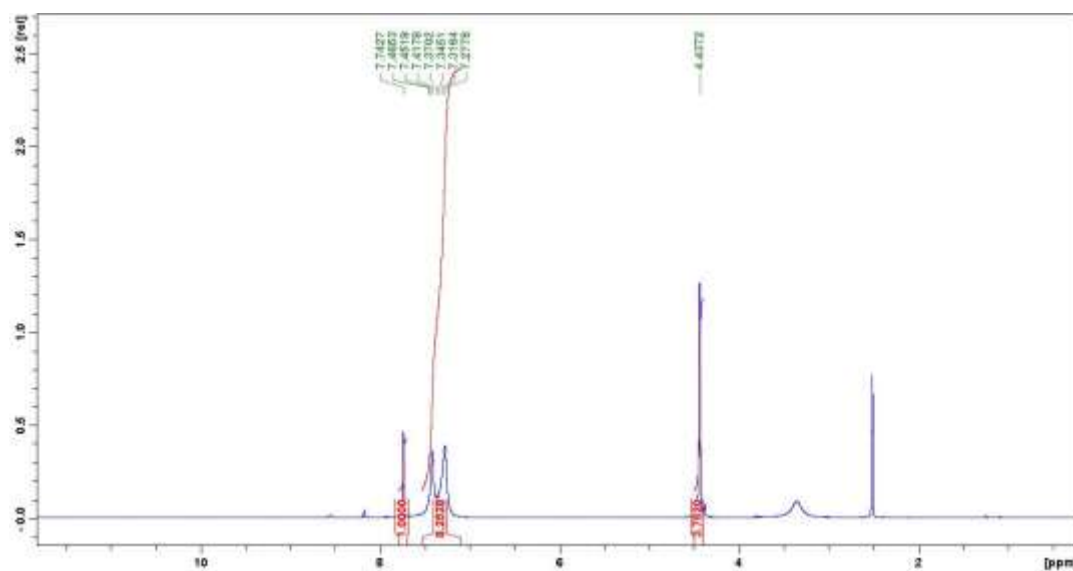
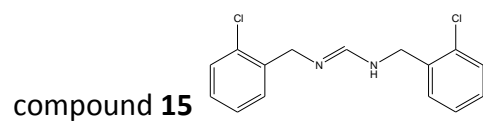


Figure S59. ^1H NMR spectrum of compound **15**

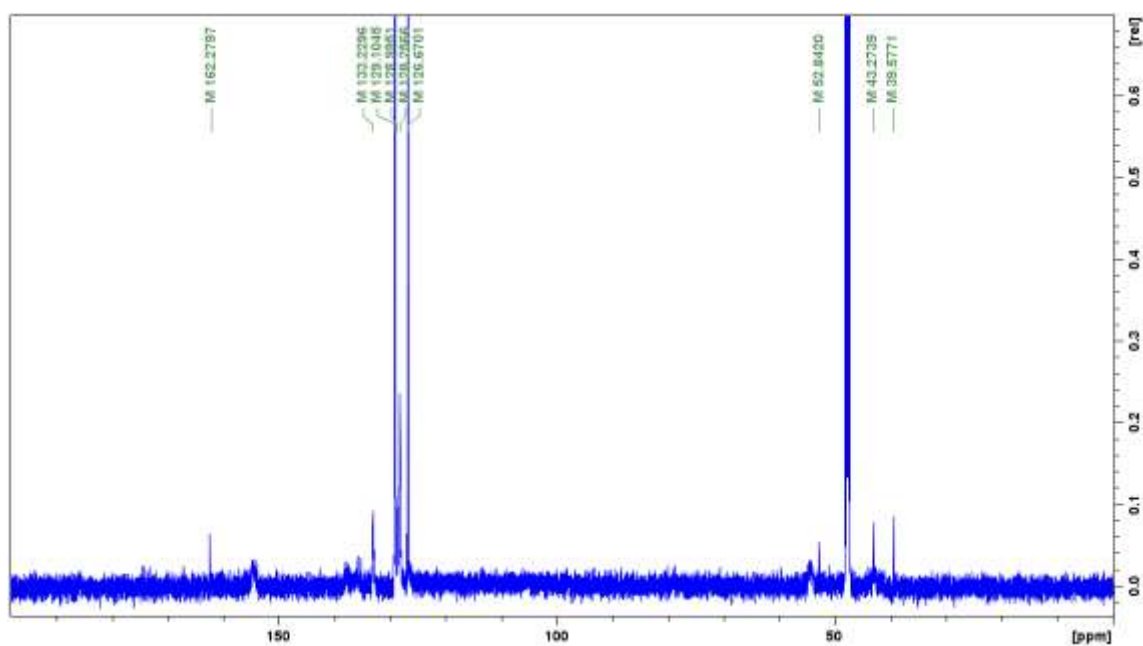
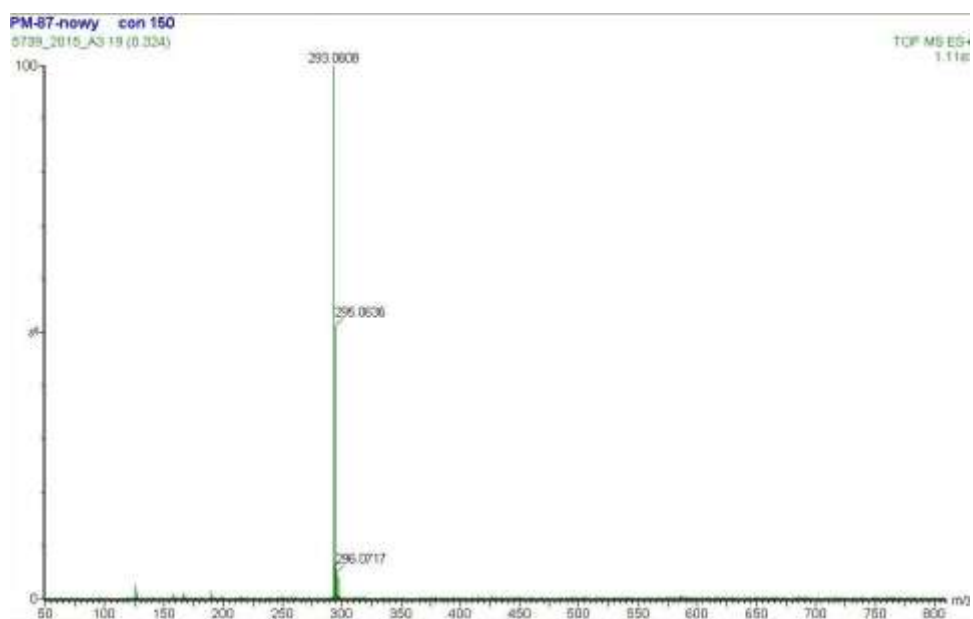
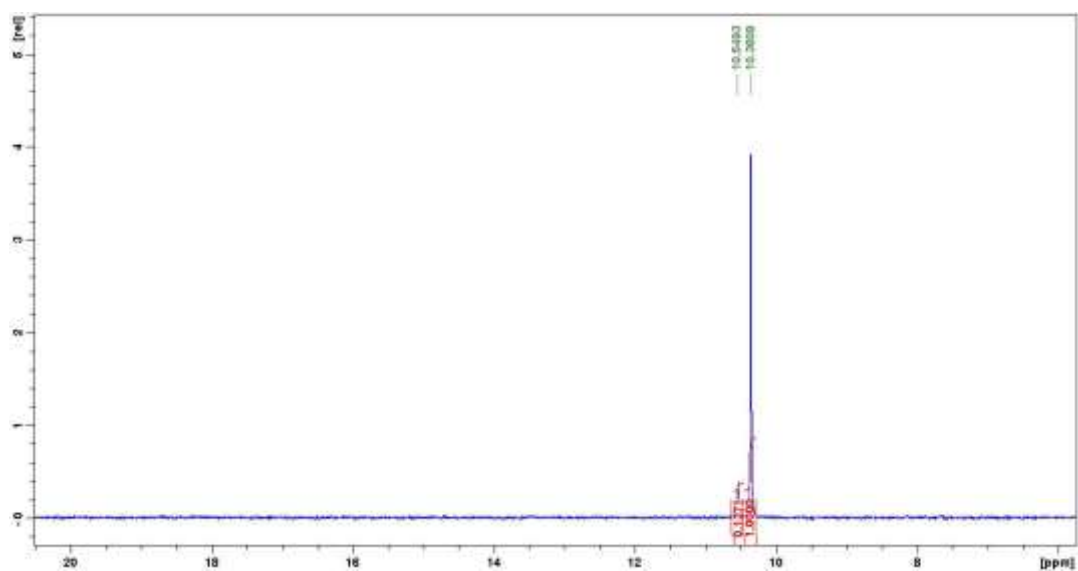
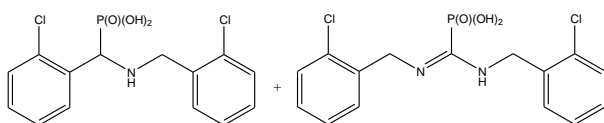
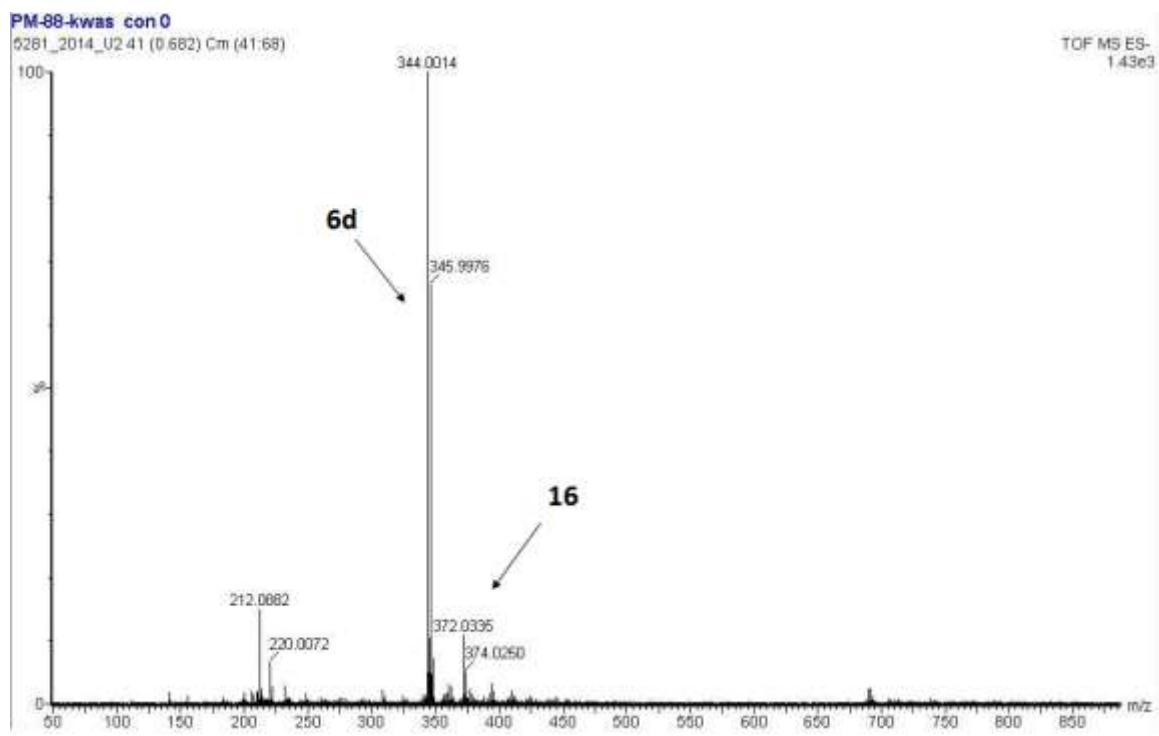


Figure S60. ^{13}C NMR spectrum of compound **15**



mixture of compounds 6d and 16





S65. HRMS spectrum of *mixture of compounds 6d and 16*

compound **8**

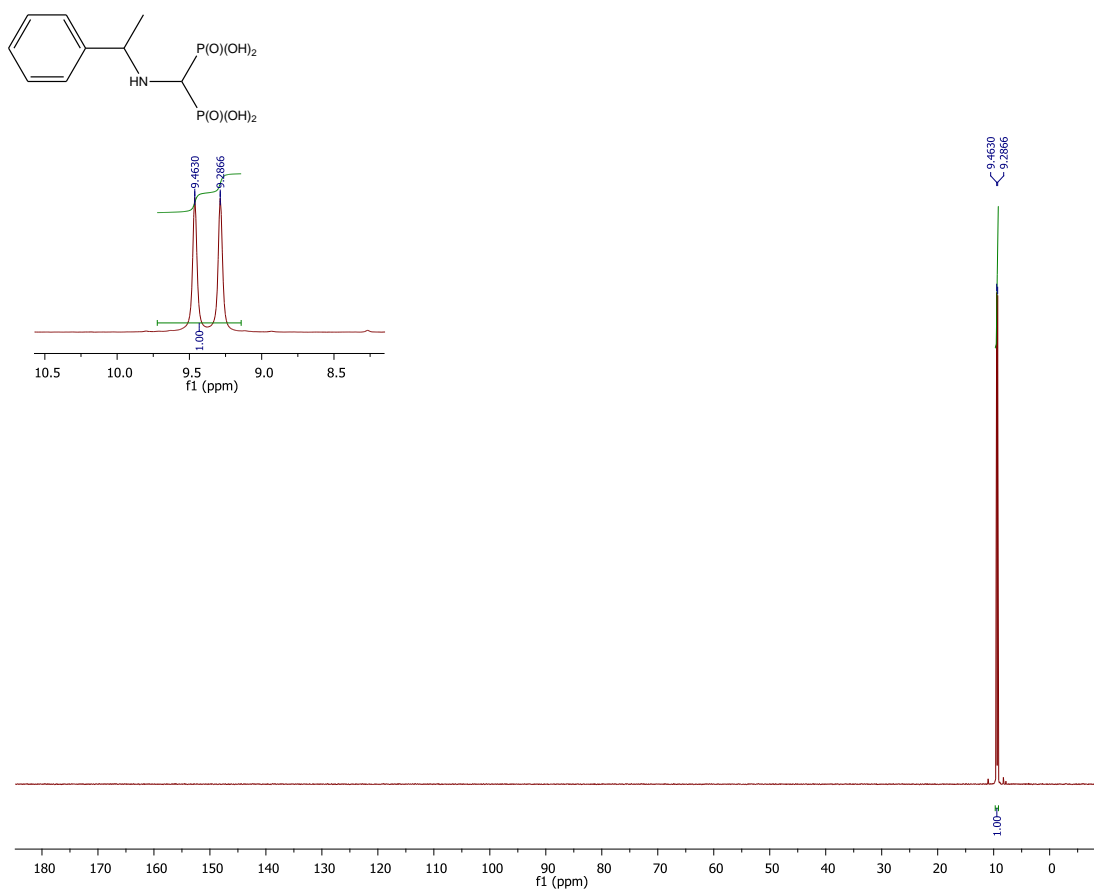


Figure S66. ^{31}P NMR spectrum of compound **8**

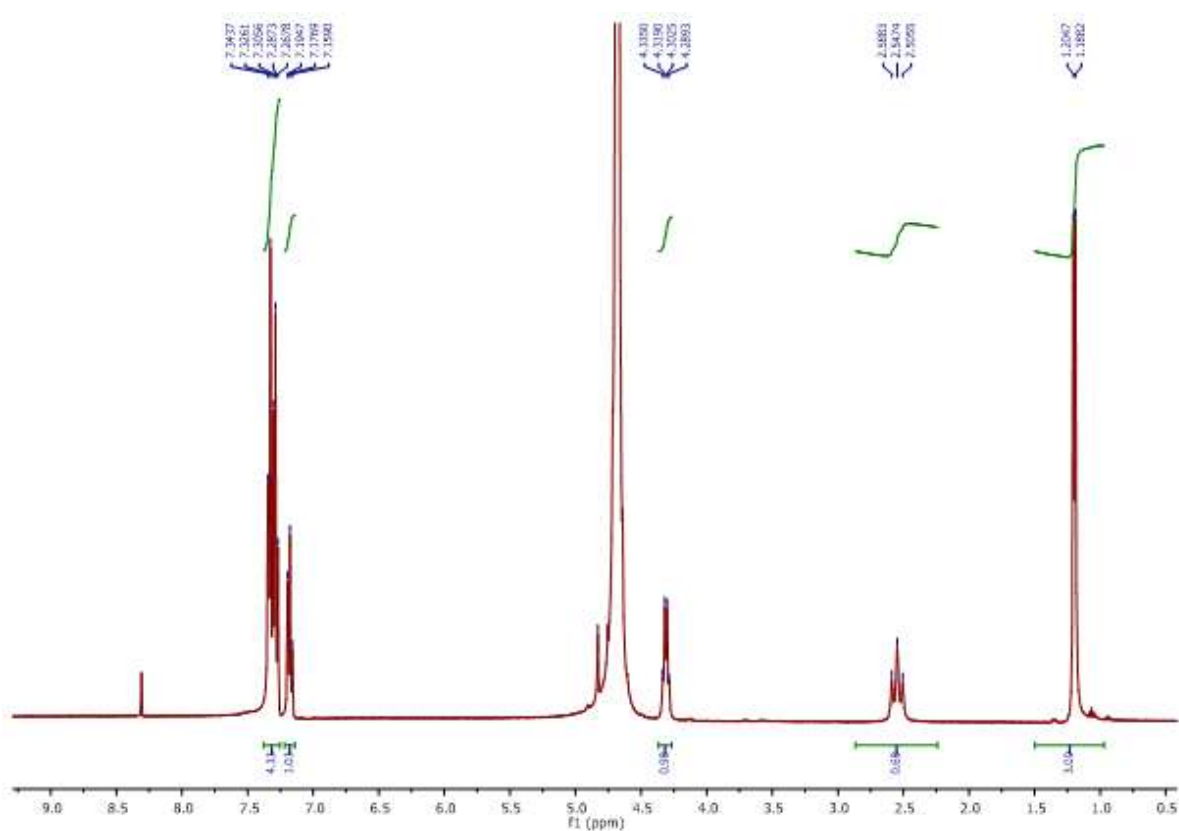


Figure S67. ¹H NMR spectrum of compound **8**

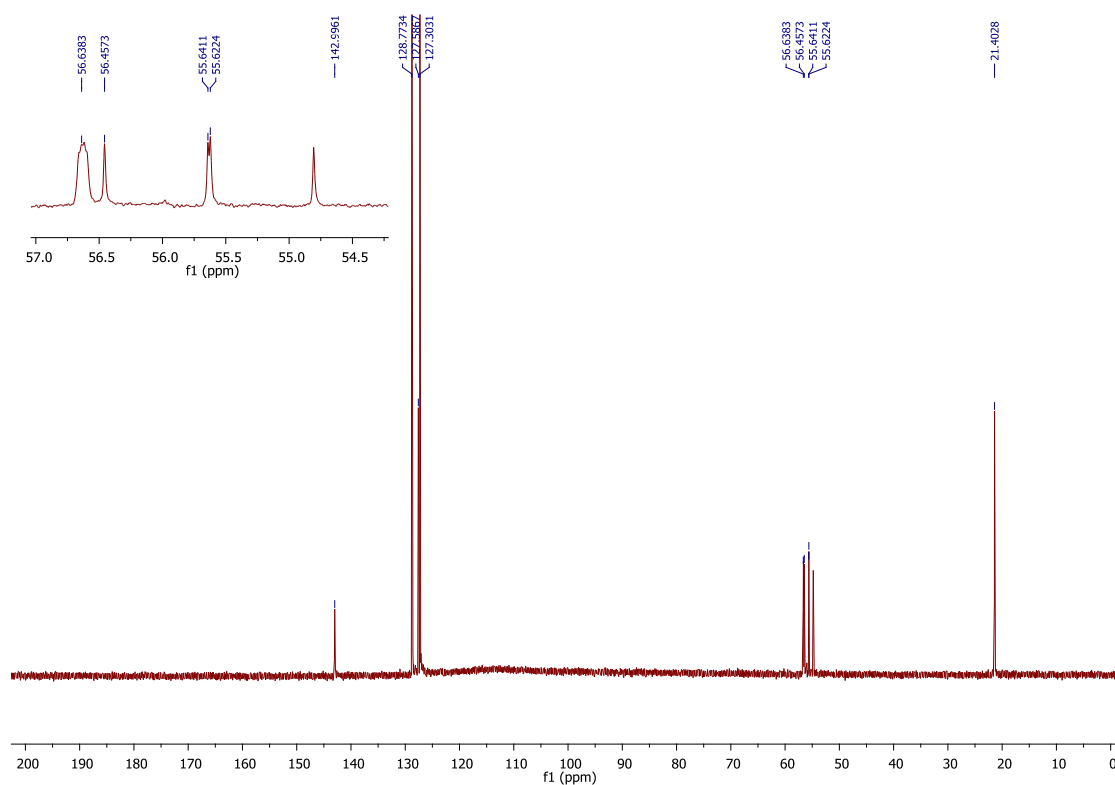


Figure S68. ¹³C NMR spectrum of compound **8**

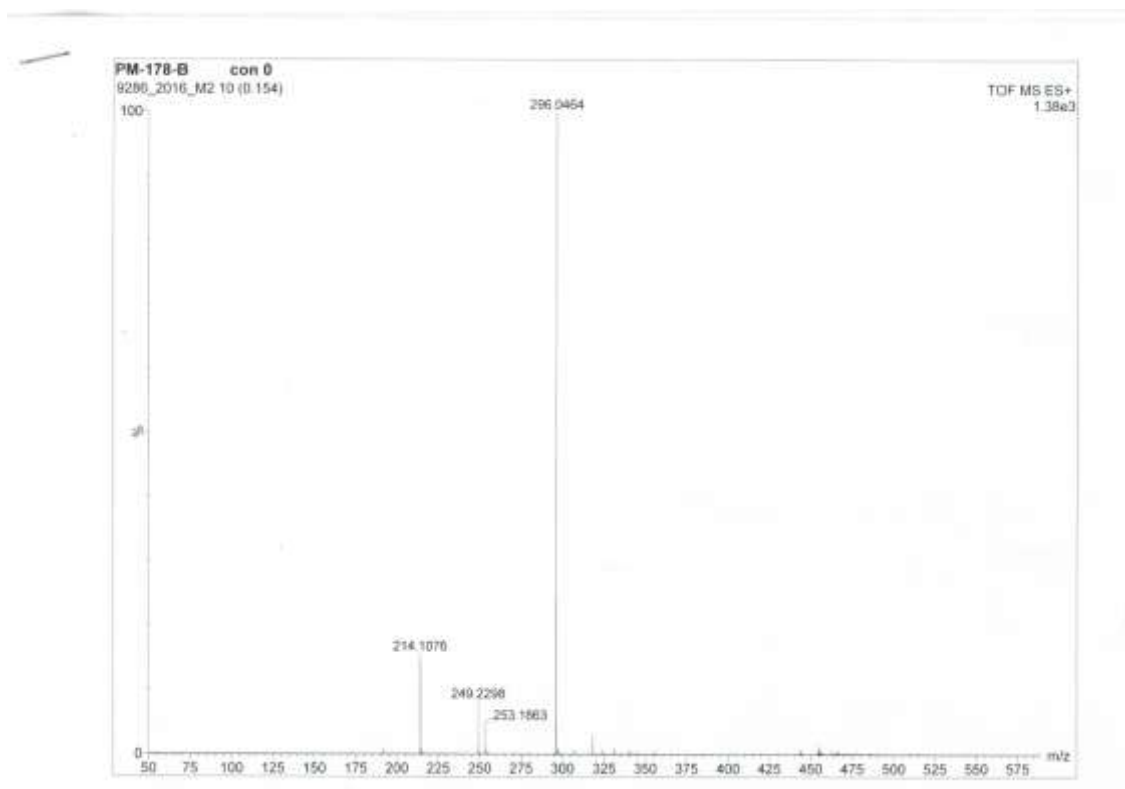


Figure S69. HRMS spectrum of compound **8**

mixture of compounds 9a and 10

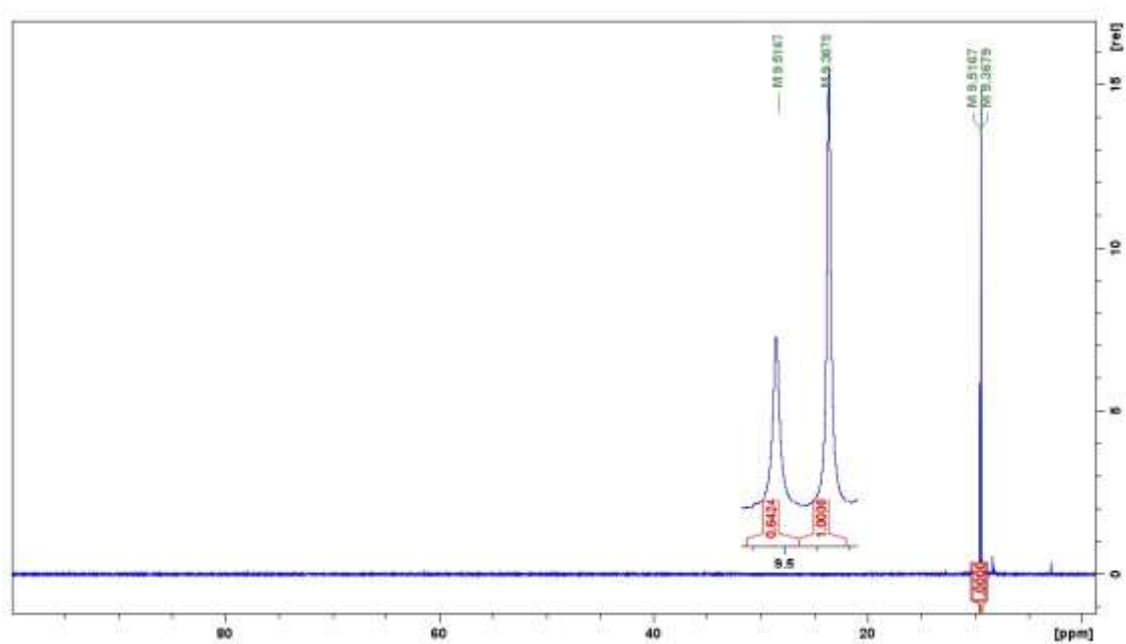
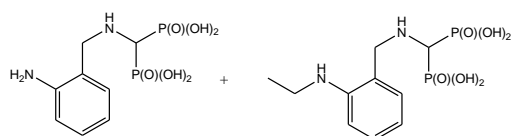


Figure S70. ^{31}P NMR spectrum of mixture of compounds **9a** and **10**

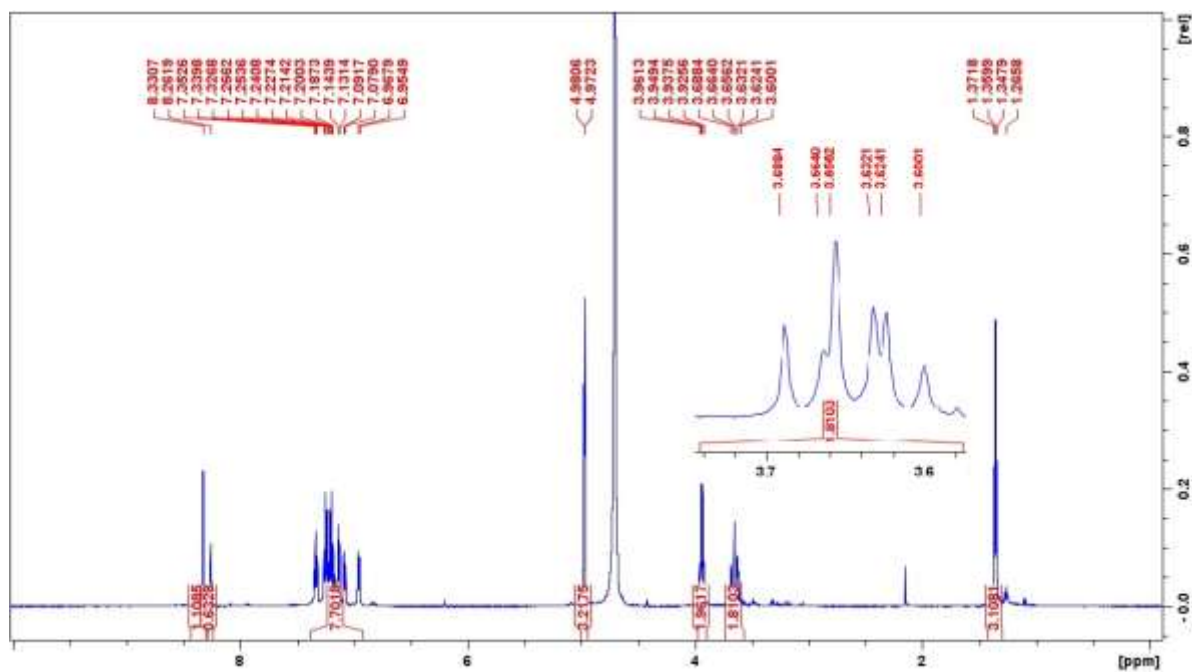


Figure S71. ¹H NMR spectrum of mixture of compounds **9a** and **10**

compound **9b**

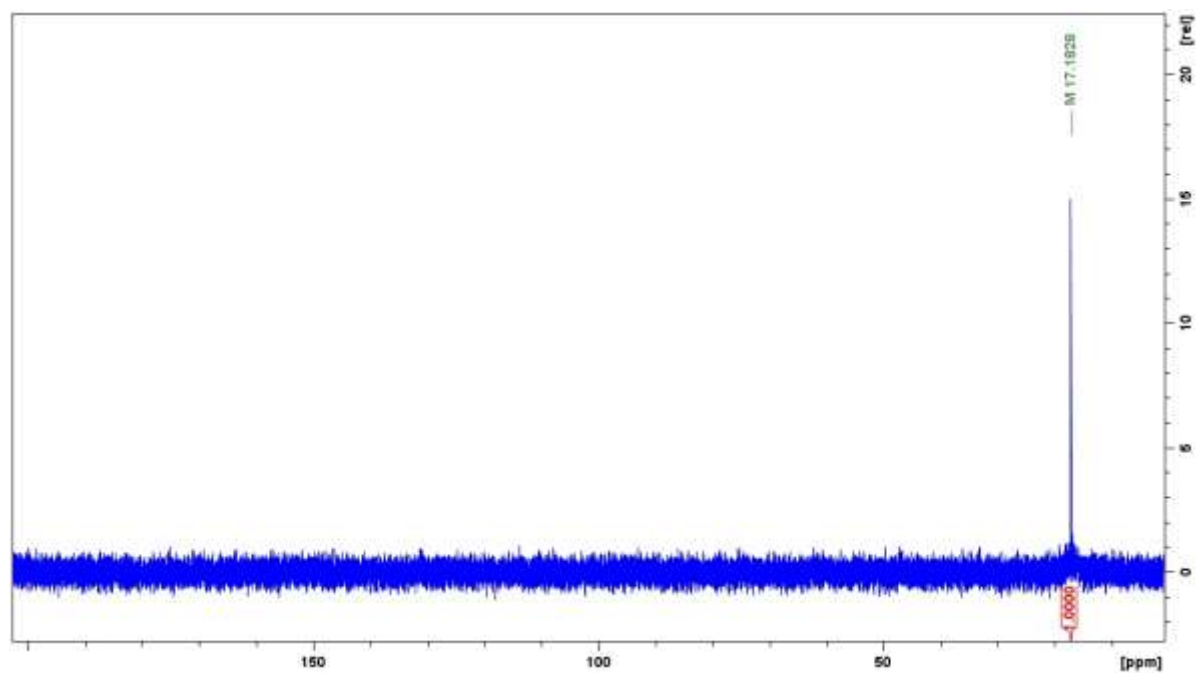
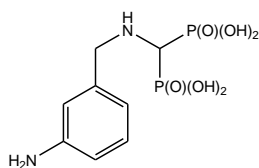


Figure S72. ³¹P NMR spectrum of mixture of compounds **9b**

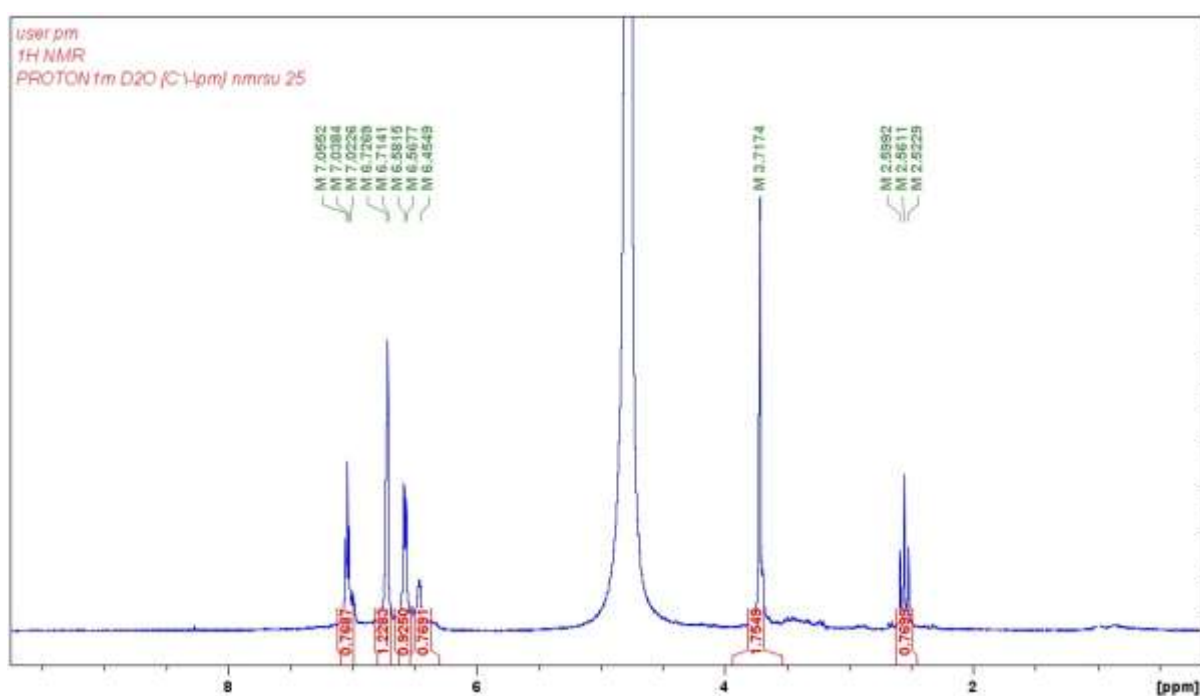


Figure S73. ¹H NMR spectrum of compound **9b**

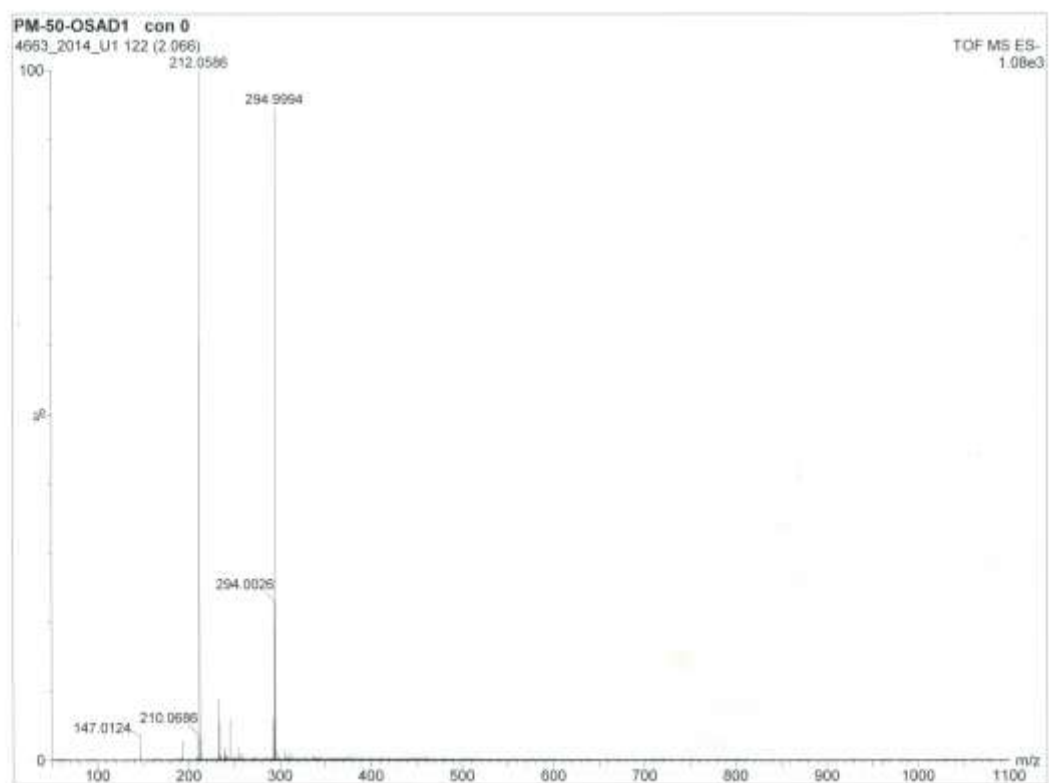


Figure S74. ¹H NMR spectrum of compound **9b**