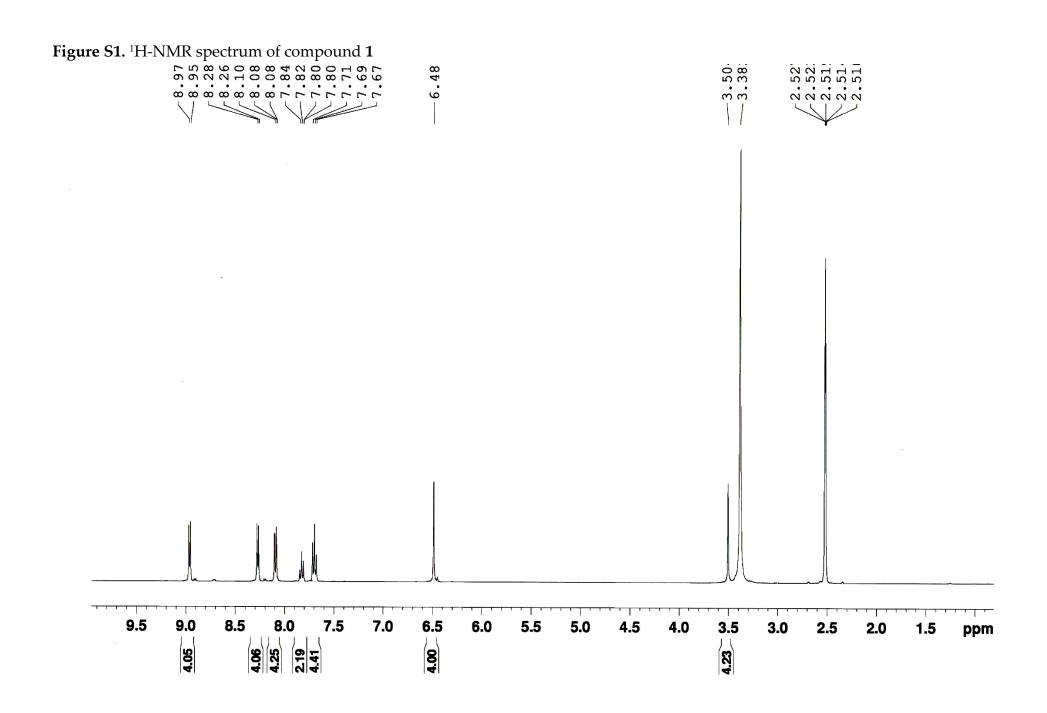
## Supplementary information for the manuscript

## Green accelerated synthesis of quaternary ammonium salts with antimicrobial activity and an assessment on their impact on seed germination

Aurel Tăbăcaru, Andreea Veronica Dediu (Botezatu), Georgiana Horincar, Bianca Furdui\* and Rodica Mihaela Dinică\*



**Figure S2.** <sup>13</sup>C-NMR spectrum of compound **1** 210 160 150 140 130 120 110 ppm

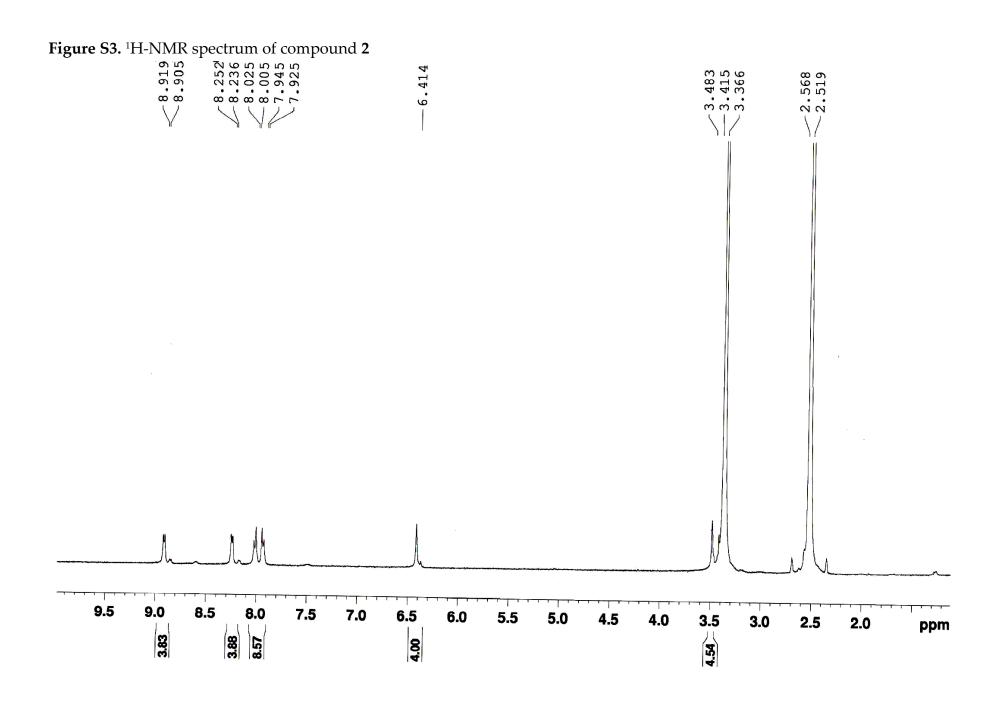
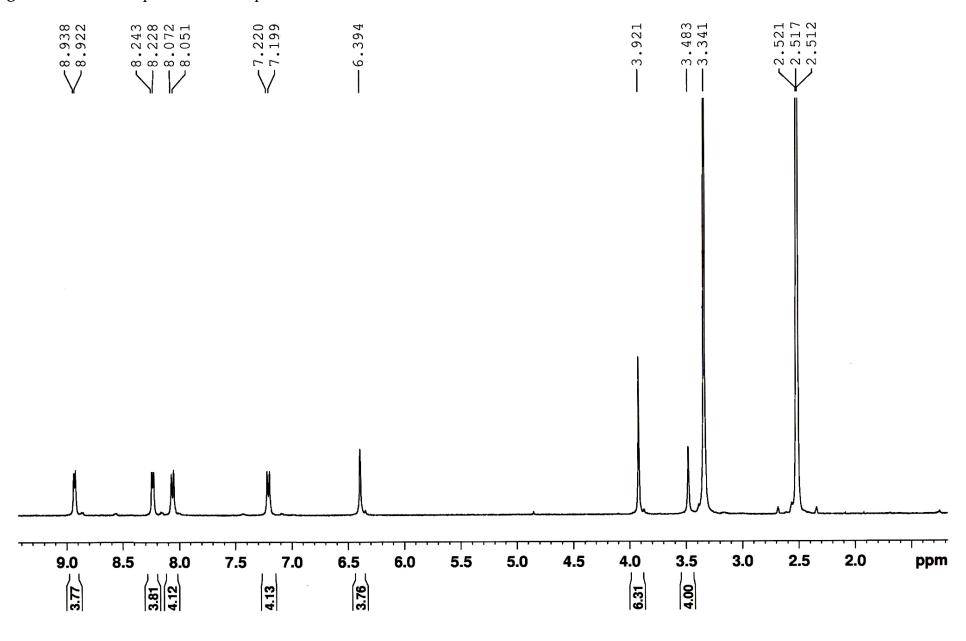


Figure S4. <sup>13</sup>C-NMR spectrum of compound 2 ppm

Figure S5. <sup>1</sup>H-NMR spectrum of compound 3



**Figure S6.** <sup>13</sup>C-NMR spectrum of compound **3** 

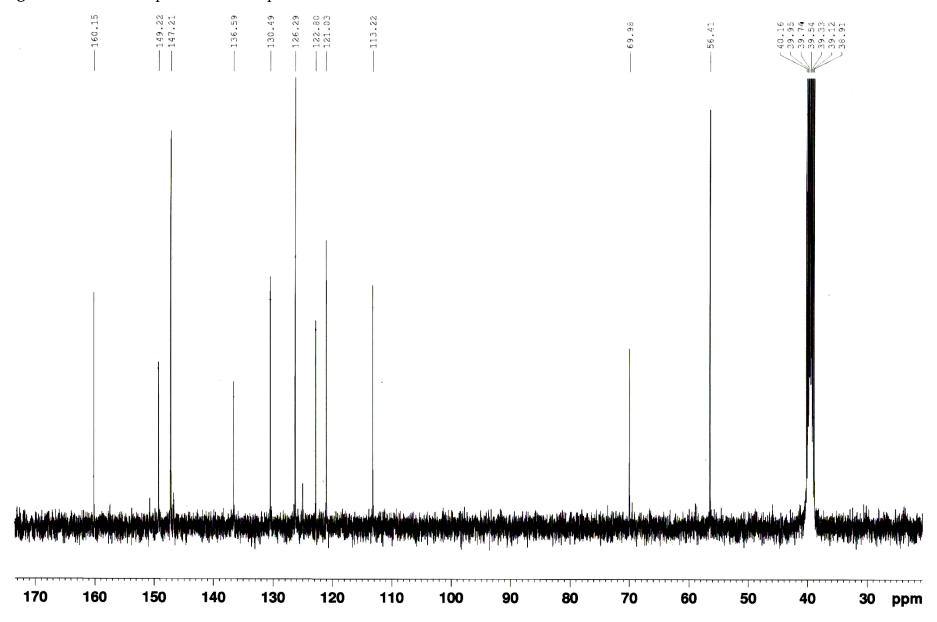


Figure S7. <sup>1</sup>H-NMR spectrum of compound 4

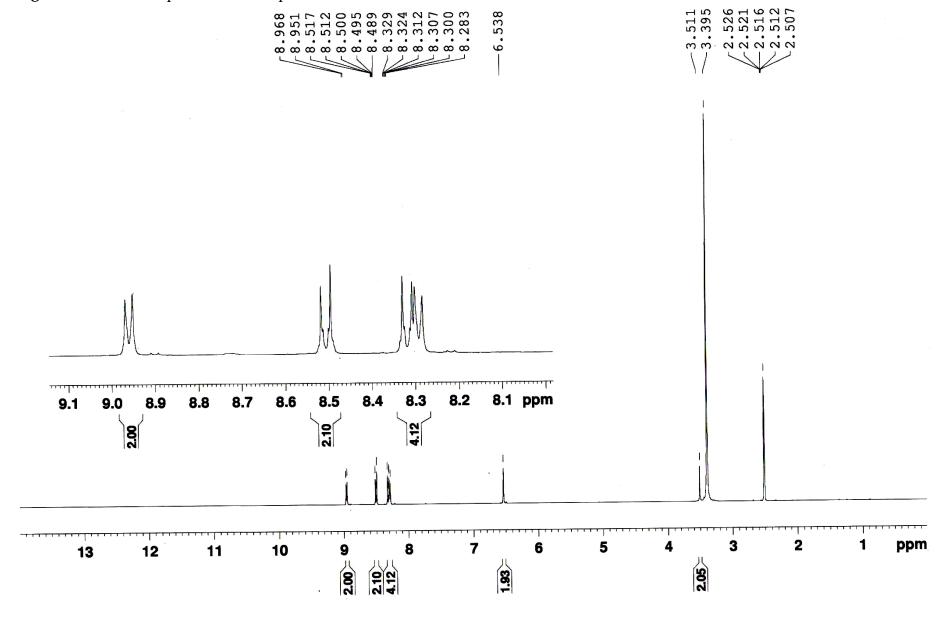


Figure S8.  $^{13}$ C-NMR spectrum of compound 4

70

20

ppm

210 200 190 180 170 160 150 140 130 120 110 100

Figure S9. <sup>1</sup>H-NMR spectrum of compound 5

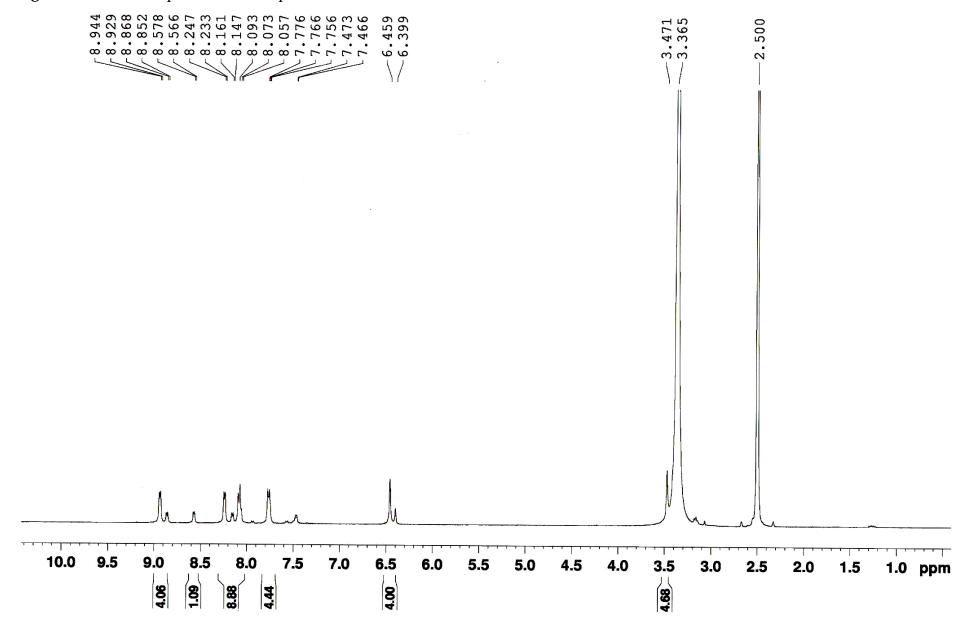


Figure S10. <sup>13</sup>C-NMR spectrum of compound 5

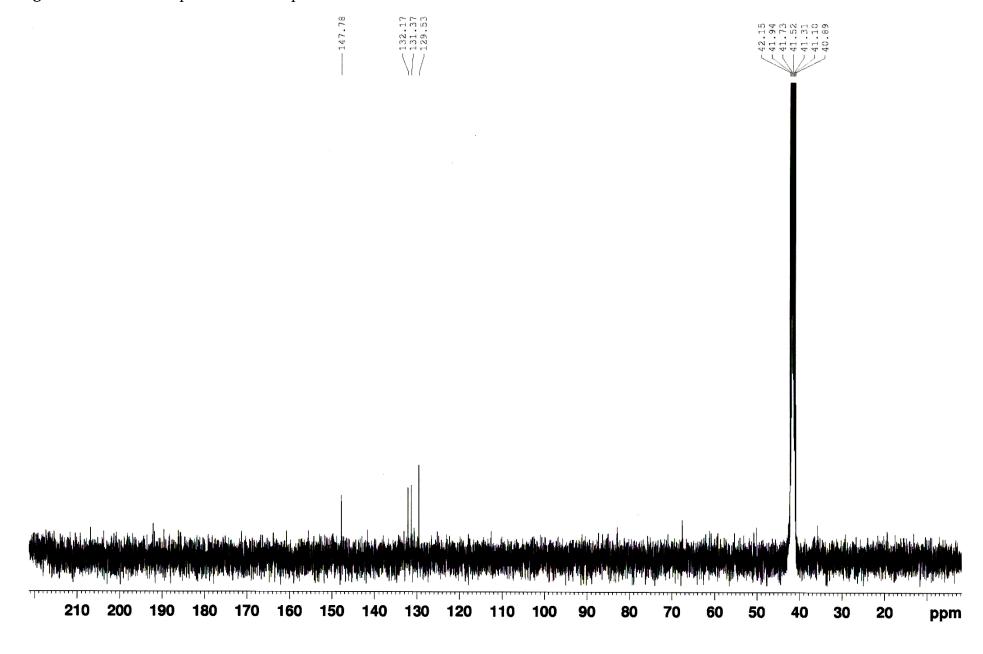
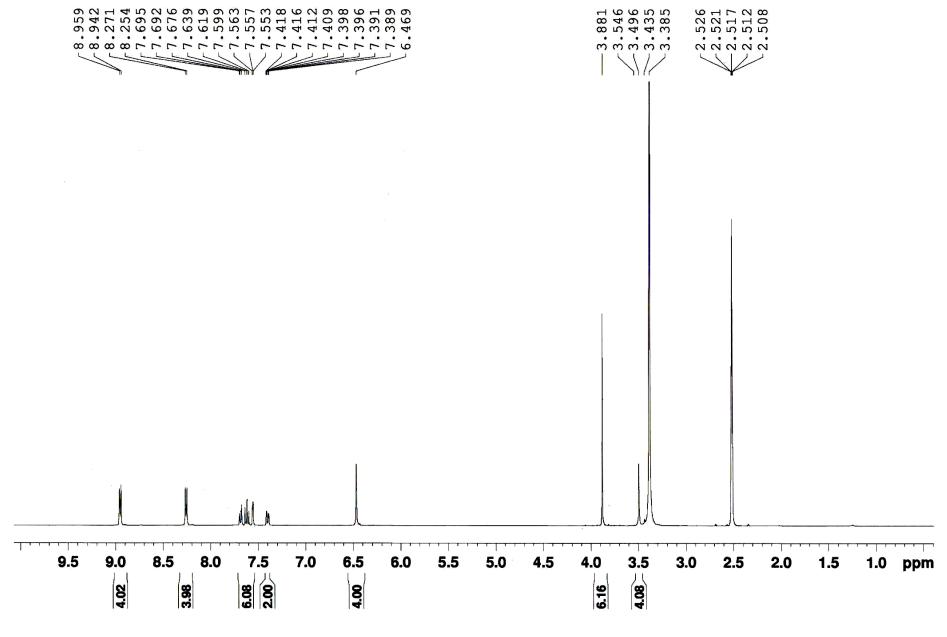


Figure S11. <sup>1</sup>H-NMR spectrum of compound 6



**Figure S12.** <sup>13</sup>C-NMR spectrum of compound **6** 

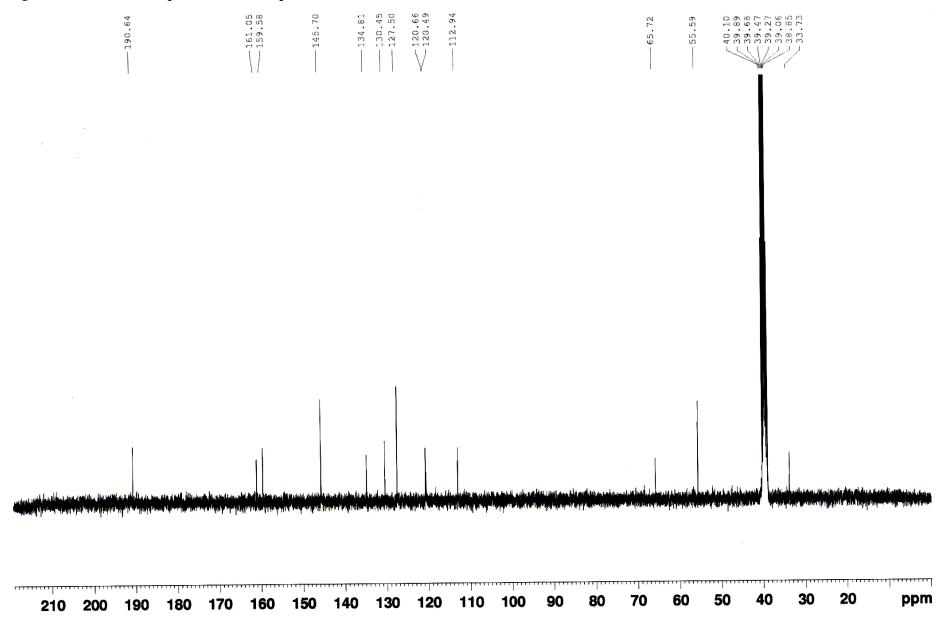


Figure S13. <sup>1</sup>H-NMR spectrum of compound 7 9.720 8.948 8.948 8.948 8.874 8.859 8.508 8.236 7.444 7.444 7.345 7.345 7.000 6.986 6.350 475 373 333 312 51 m m m m2 11 10 6 2 ppm 4.13 1.97 1.47 2.04 4.00

**Figure S14.** <sup>13</sup>C-NMR spectrum of compound 7

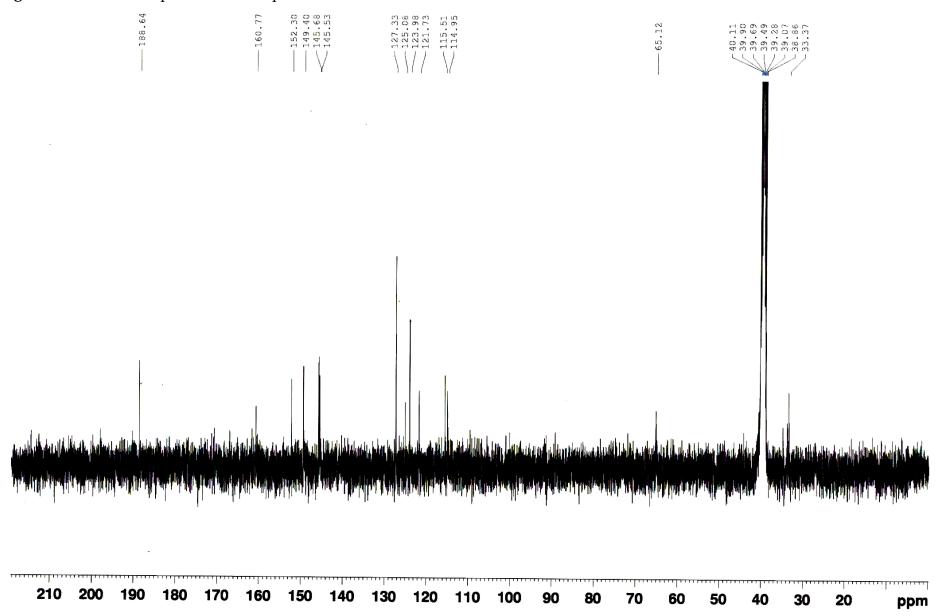


Figure S15. <sup>1</sup>H-NMR spectrum of compound 8

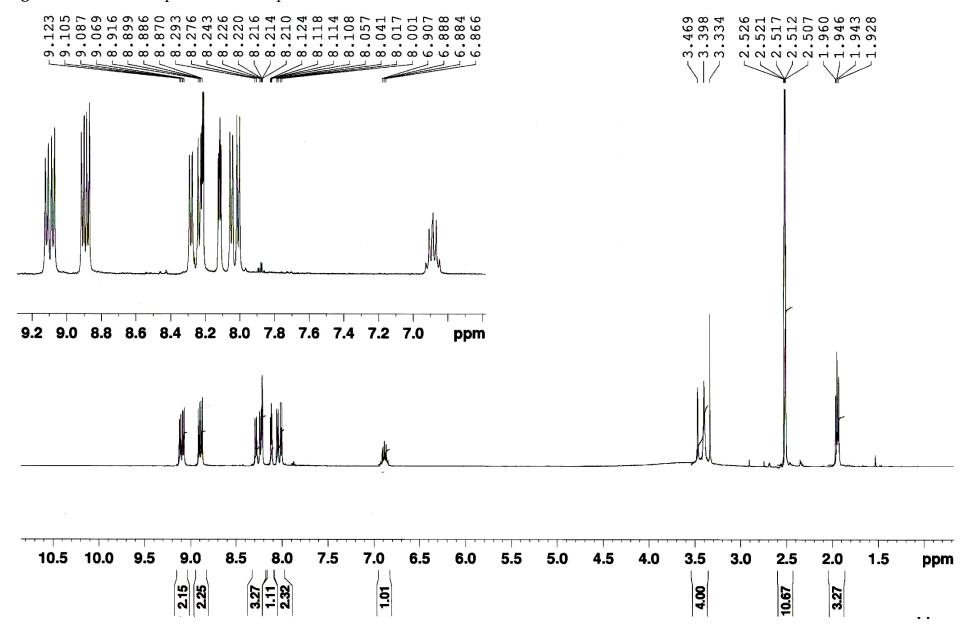


Figure S16. <sup>13</sup>C-NMR spectrum of compound 8

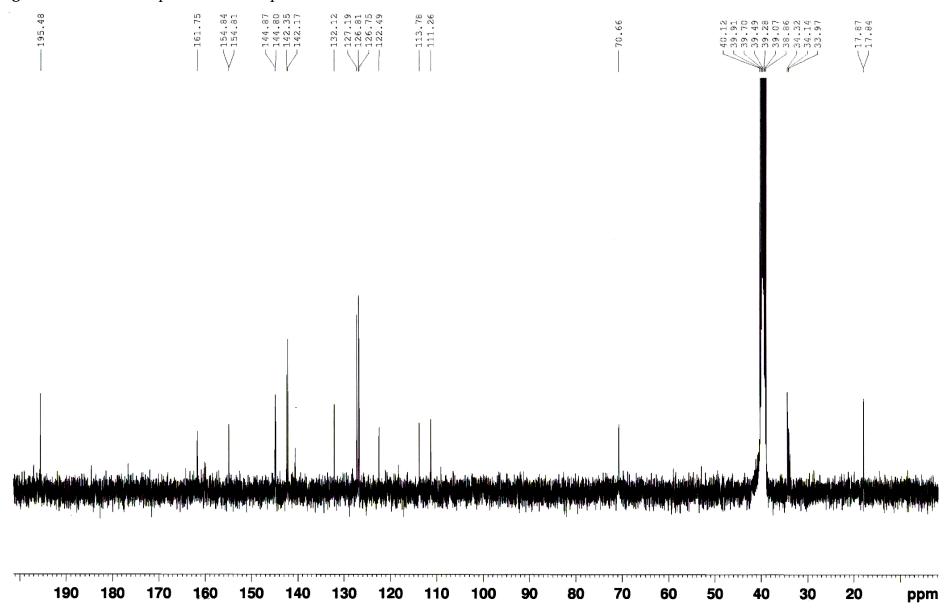


Figure S17. <sup>1</sup>H-NMR spectrum of compound 9

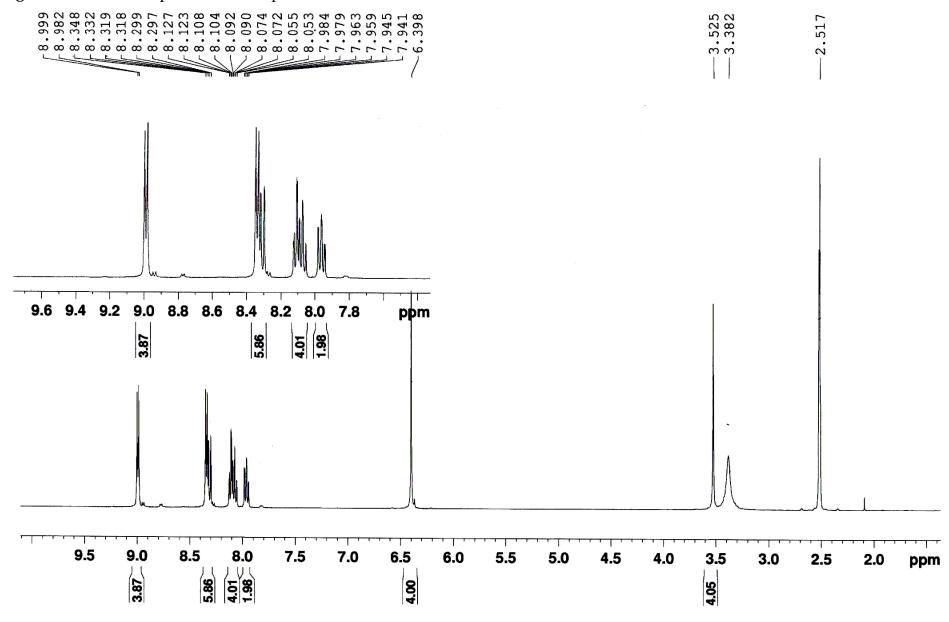
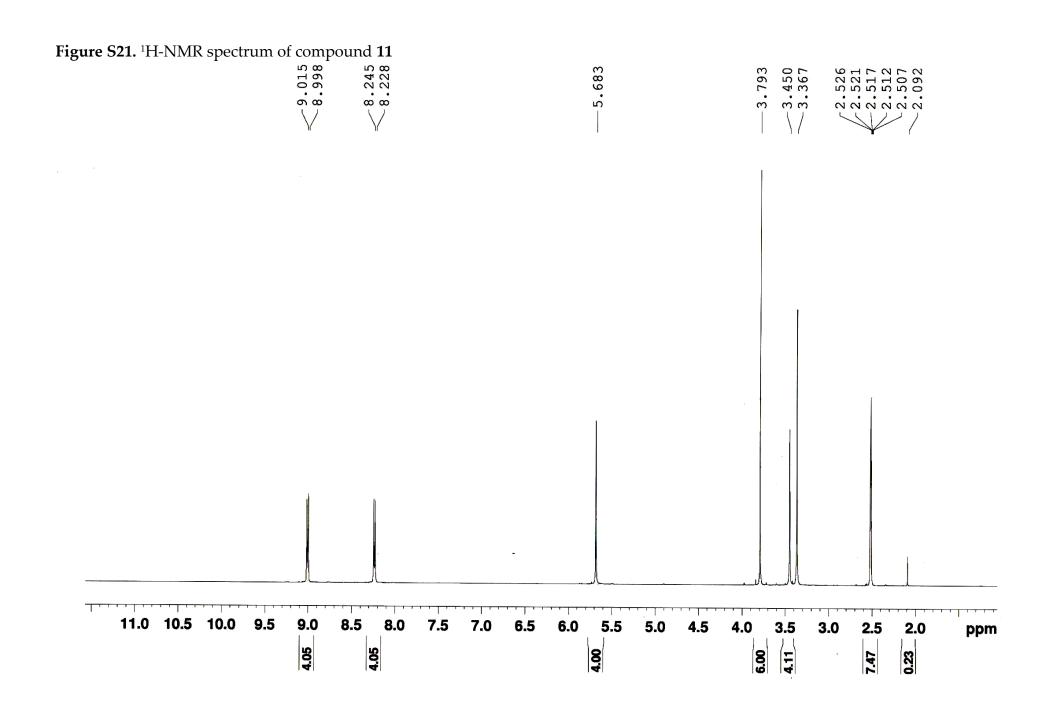


Figure S18. <sup>13</sup>C-NMR spectrum of compound 9 134.68 133.25 131.24 128.88 127.84 127.84 40.14 39.93 39.93 39.52 39.52 39.10 38.89

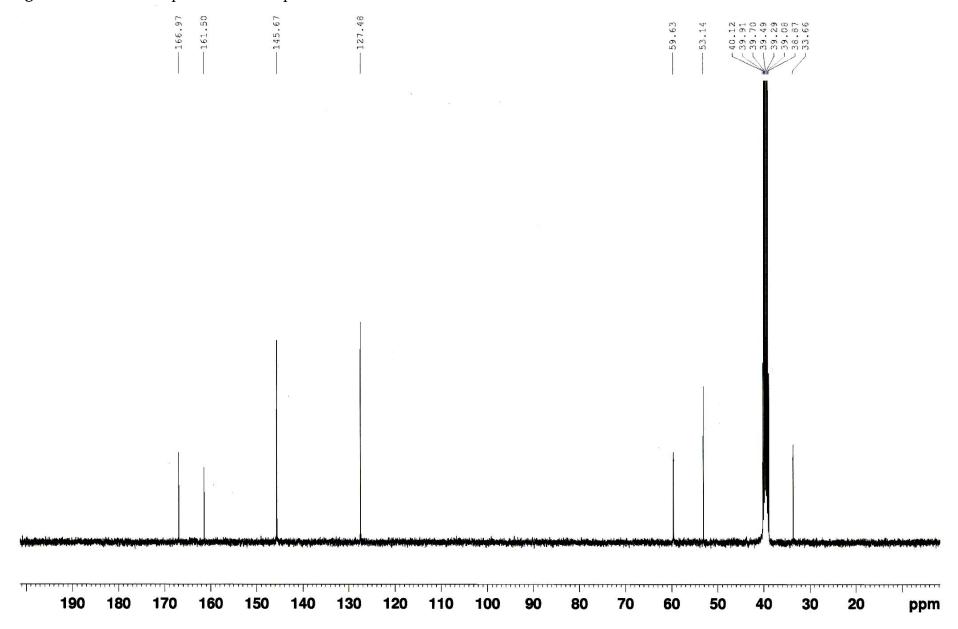
ppm

Figure S19. <sup>1</sup>H-NMR spectrum of compound 10 488 347 190 526 521 517 512 518 508 (1)1)1)1)1)1)1)1)1)1 e000000 9.2 9.0 8.8 8.6 8.4 8.2 7.8 8.0 7.0 ppm 4.00 3.98 1.99 2.00 1.97 2.00 9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 2.5 2.0 1.5 ppm 3.0 66. 8.8 2.00 3.92 9.00 3.93 1.92

**Figure S20.** <sup>13</sup>C-NMR spectrum of compound **10** 180 170 160 150 140 130 120 110 100 80 70 ppm



**Figure S22.** <sup>13</sup>C-NMR spectrum of compound **11** 



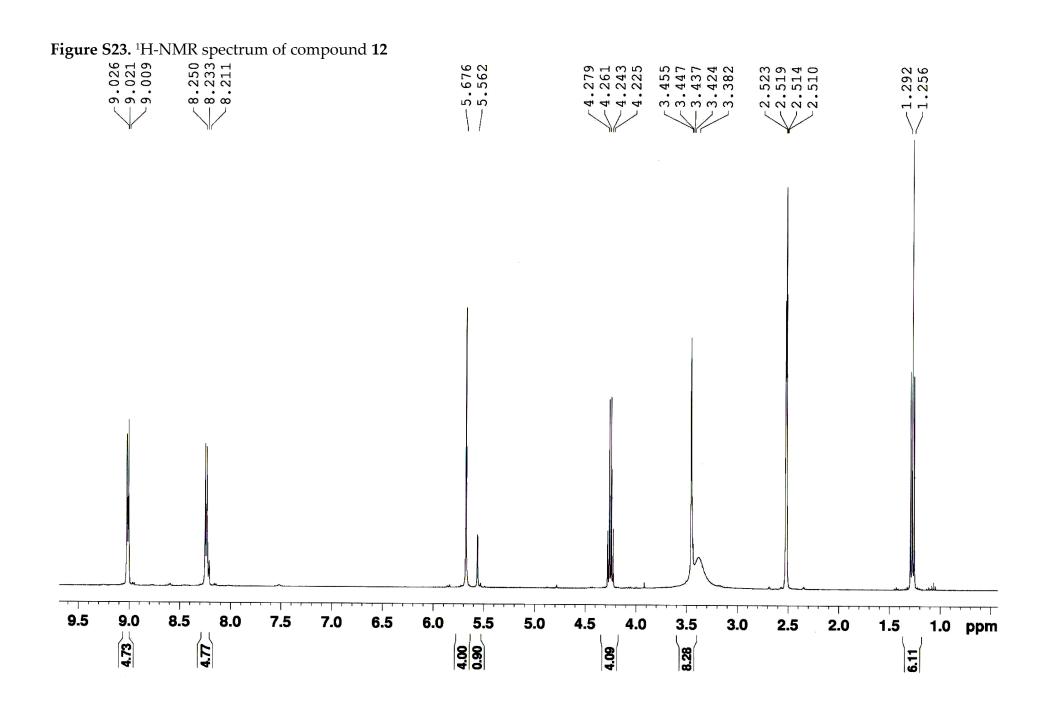
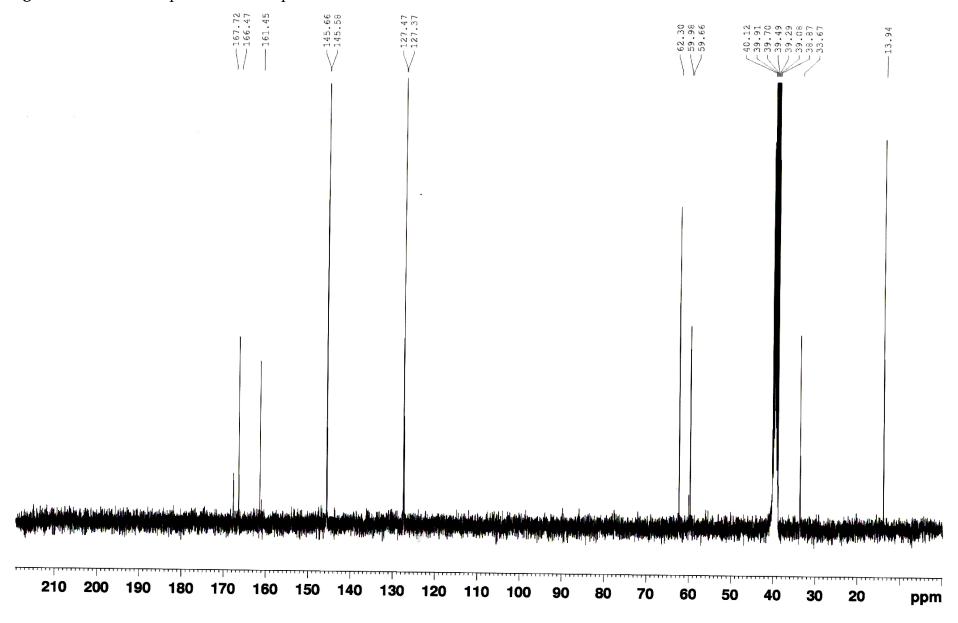
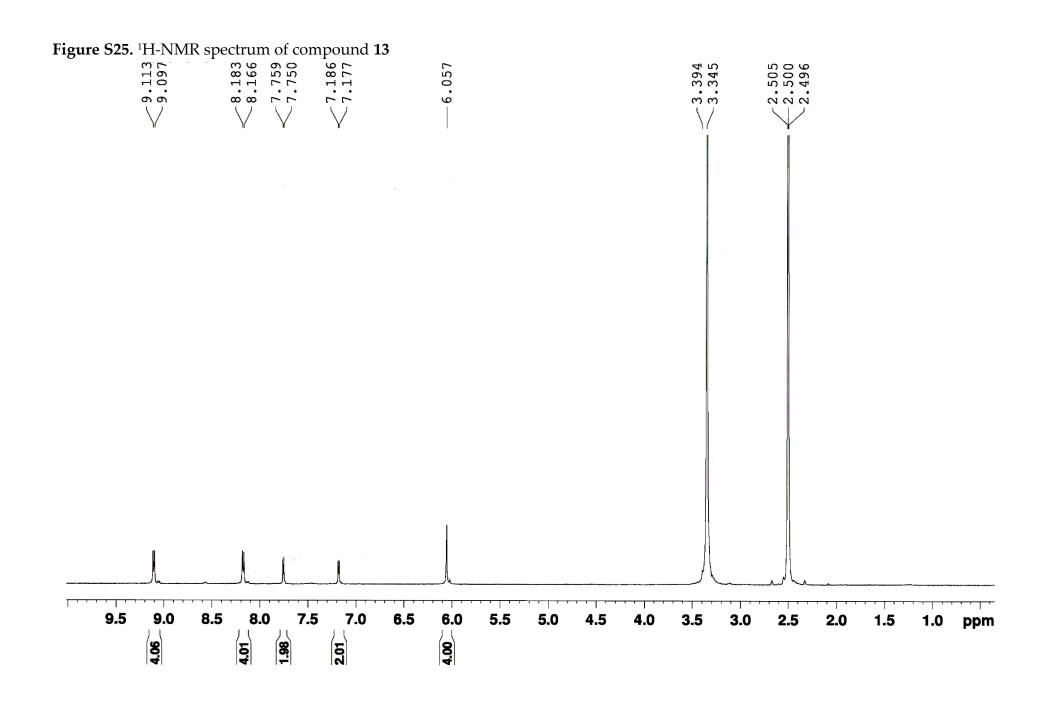


Figure S24. <sup>13</sup>C-NMR spectrum of compound 12





**Figure S26.** <sup>13</sup>C-NMR spectrum of compound **13** 210 ppm

Figure S27. <sup>1</sup>H-NMR spectrum of compound 14 8.225 8.209 8.083 8.065 7.874 7.853 7.853 7.583 7.583 7.5492 8.961 8.904 8.888 6.276 3.476 2.523 2.519 2.515 2.052 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 ppm 2.38 4.72 2.54 4.00

**Figure S28.** <sup>13</sup>C-NMR spectrum of compound **14** 

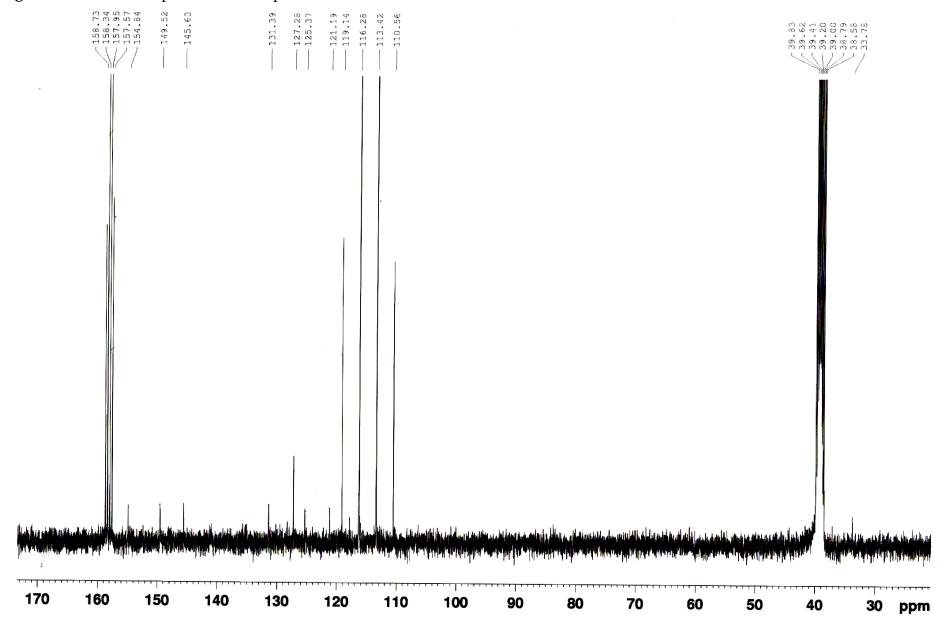
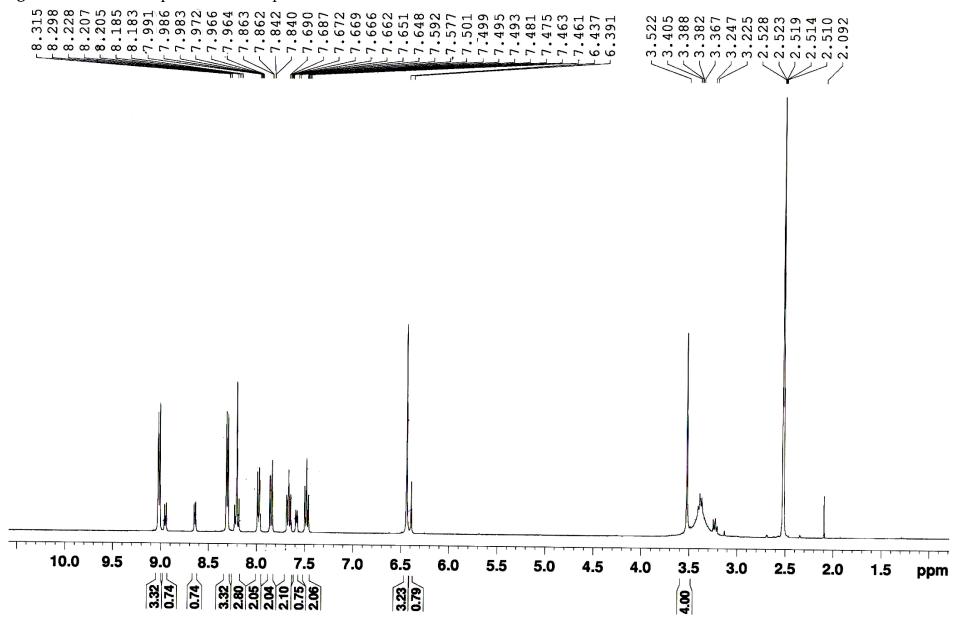


Figure S29. <sup>1</sup>H-NMR spectrum of compound 15



**Figure S30.** <sup>13</sup>C-NMR spectrum of compound **15** 

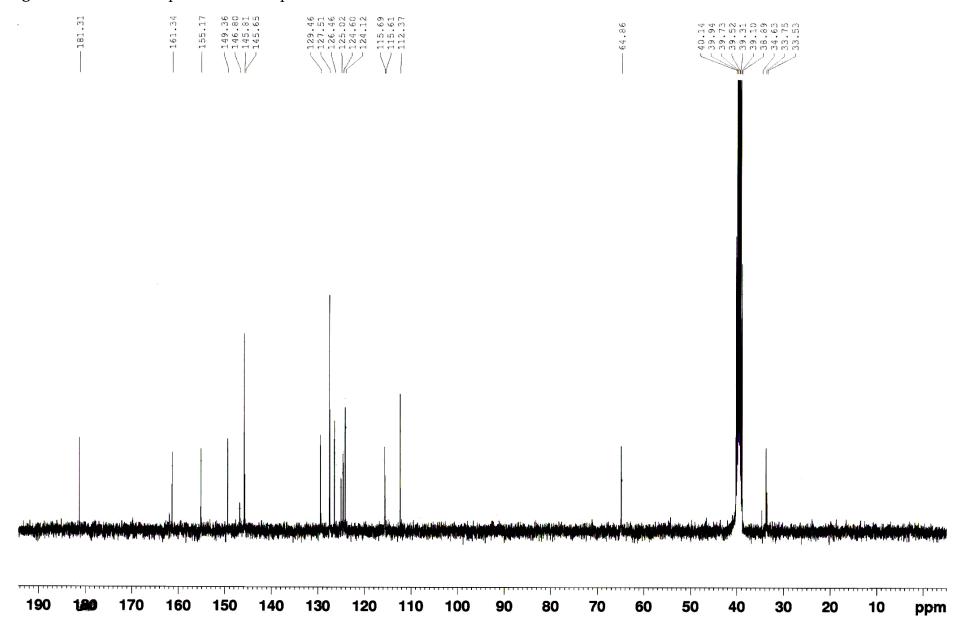


Figure S31. FTIR spectrum of compound 1

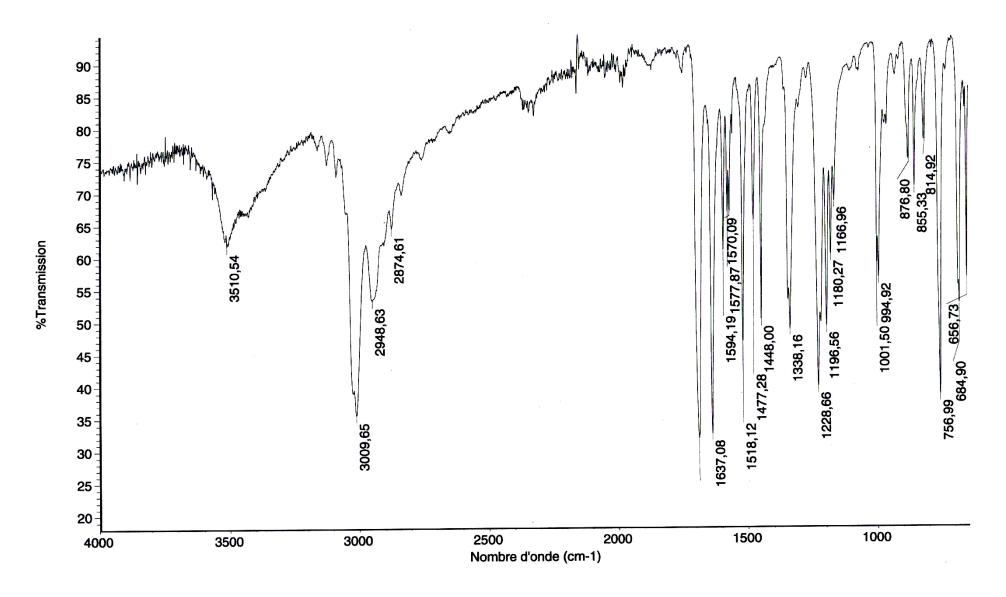


Figure S32. FTIR spectrum of compound 2

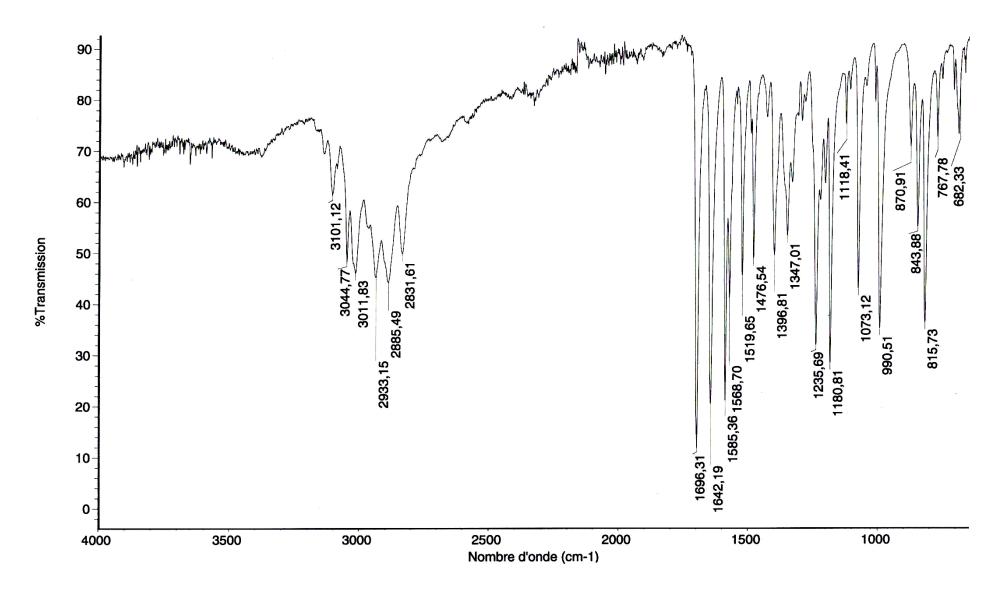


Figure S33. FTIR spectrum of compound 3

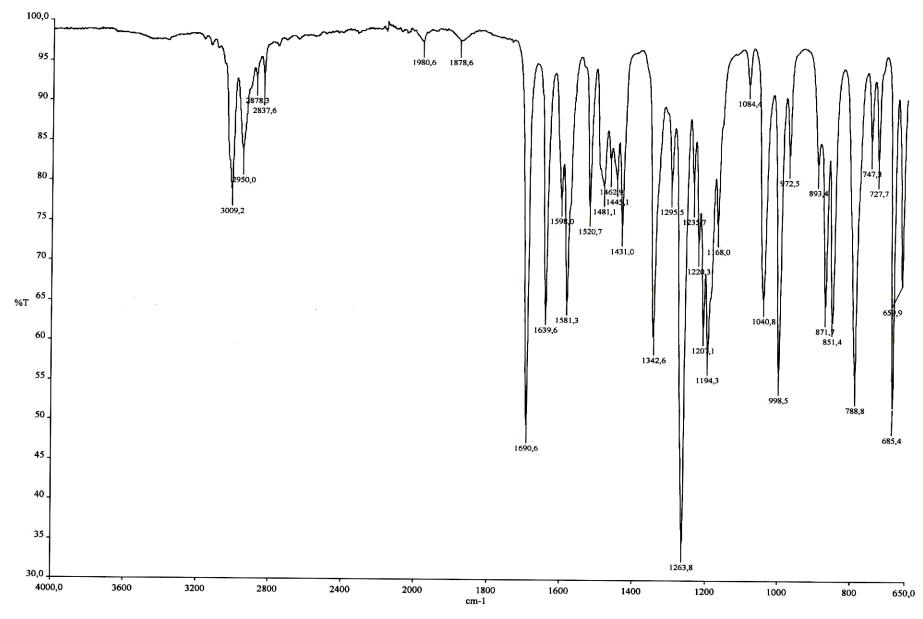


Figure S34. FTIR spectrum of compound 4

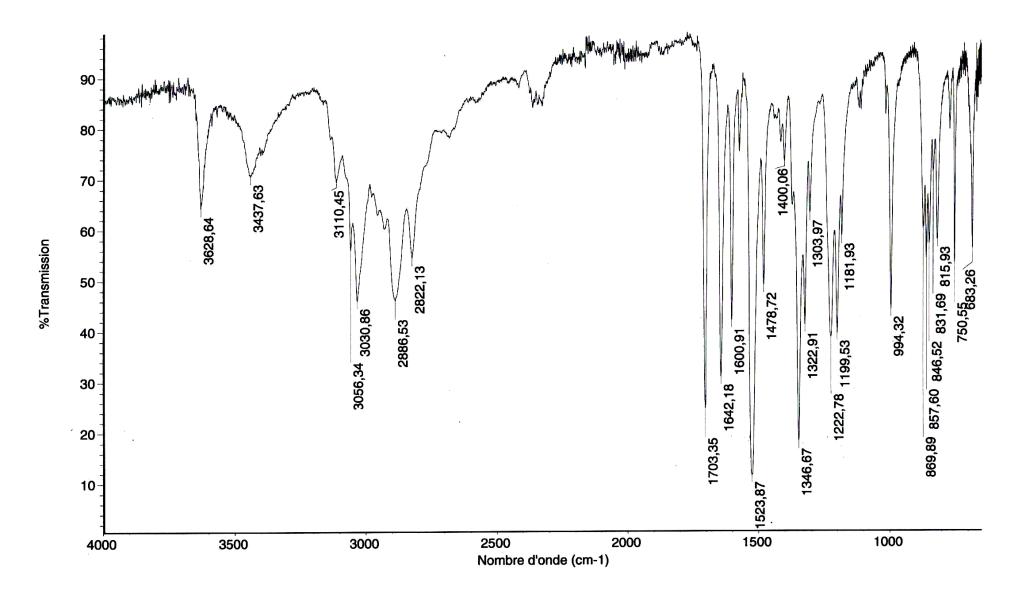


Figure S35. FTIR spectrum of compound 5

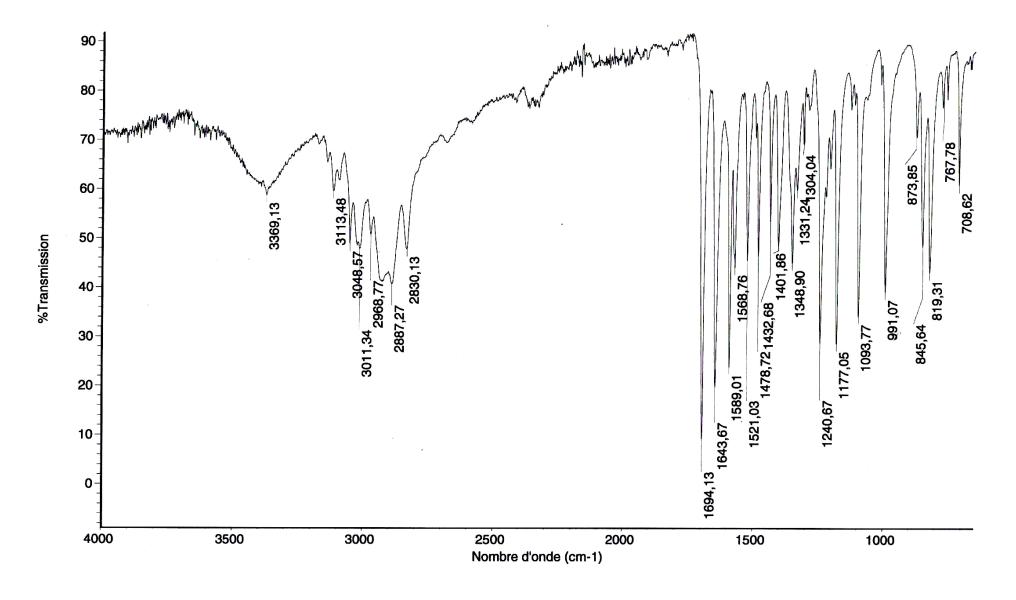
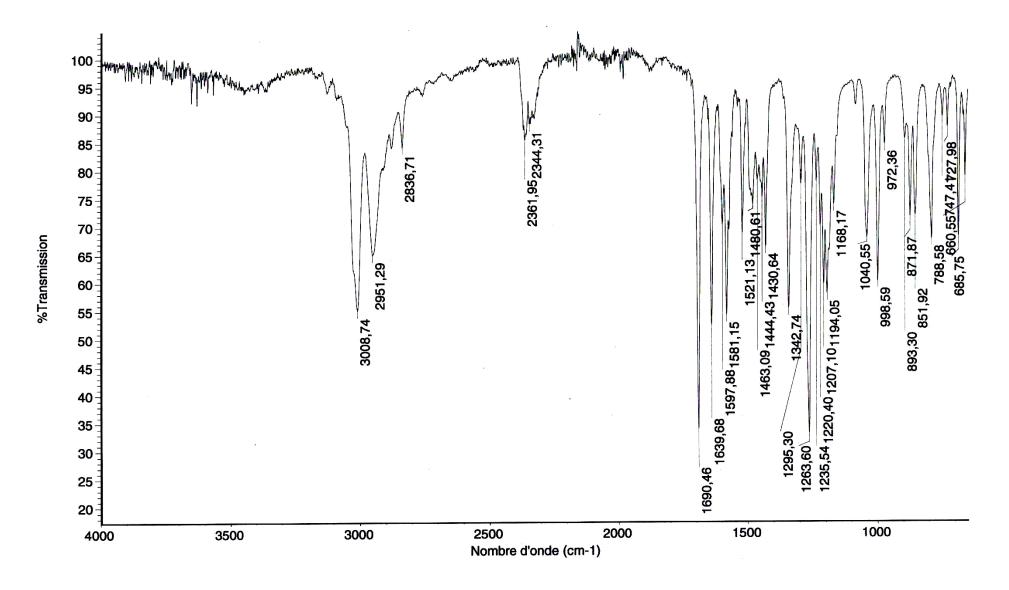


Figure S36. FTIR spectrum of compound 6



**Figure S37.** FTIR spectrum of compound 7

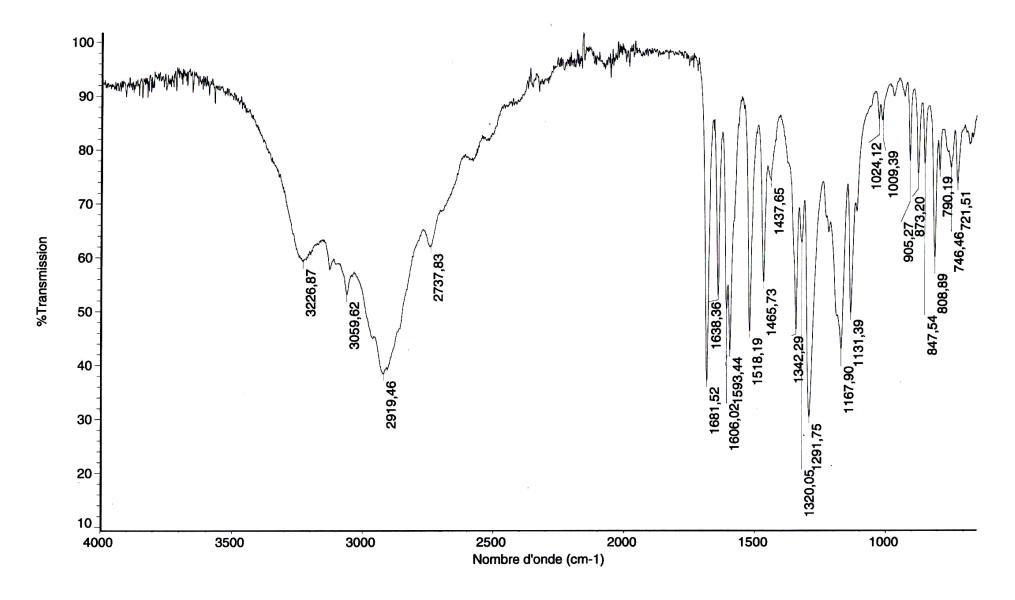


Figure S38. FTIR spectrum of compound 8

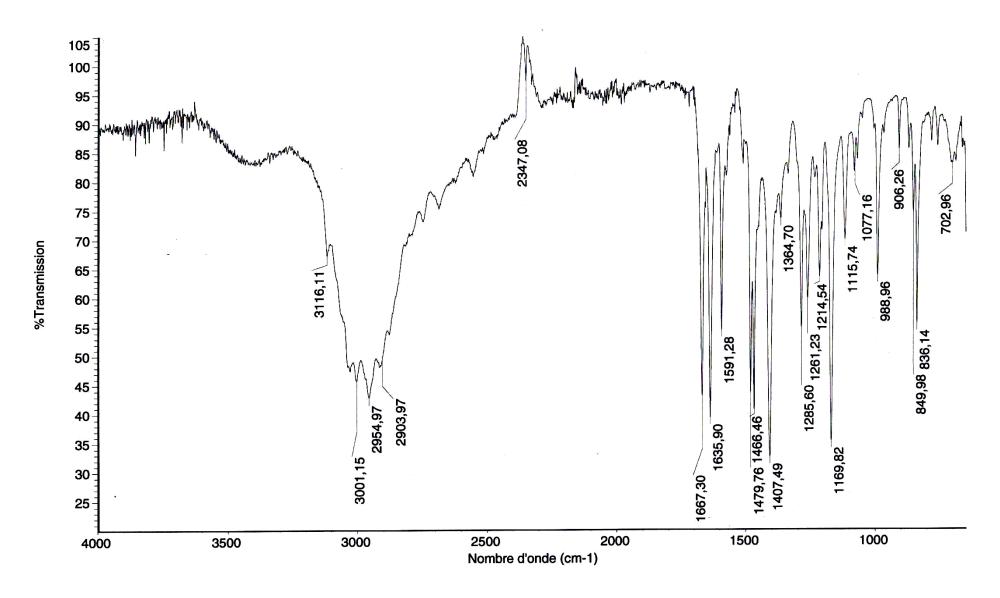


Figure S39. FTIR spectrum of compound 9

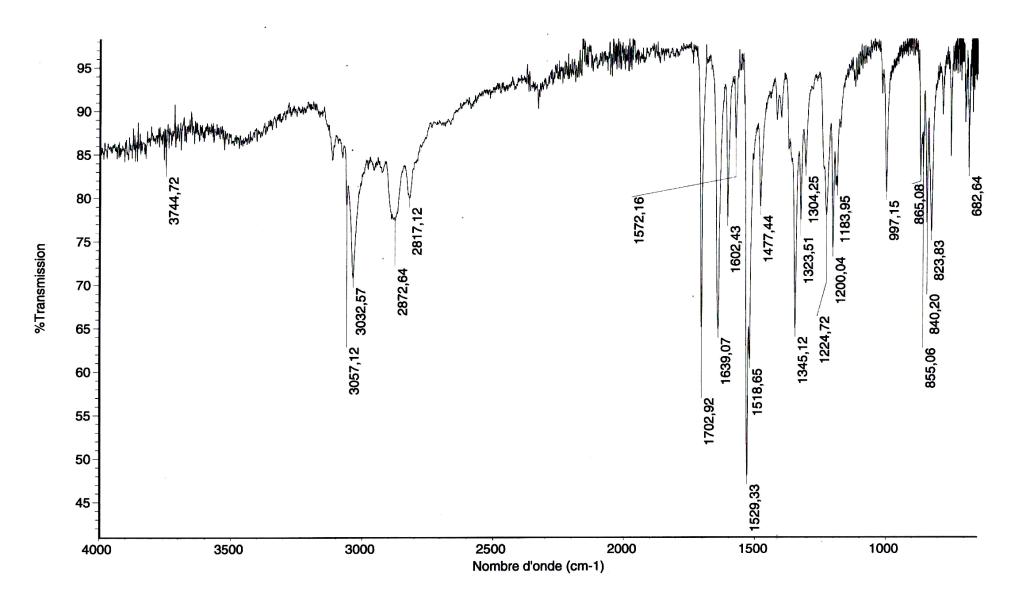


Figure S40. FTIR spectrum of compound 10

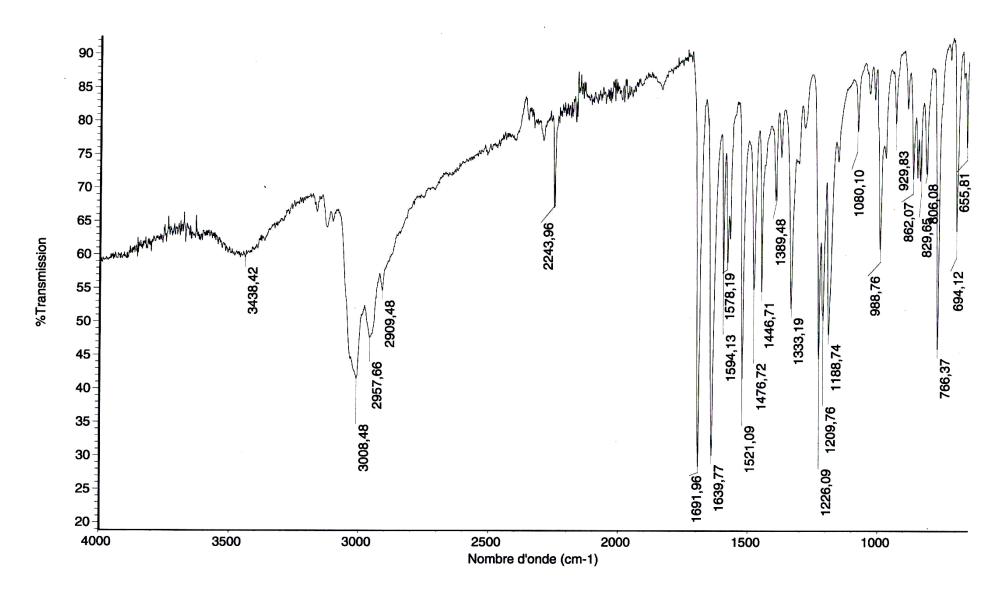


Figure S41. FTIR spectrum of compound 11

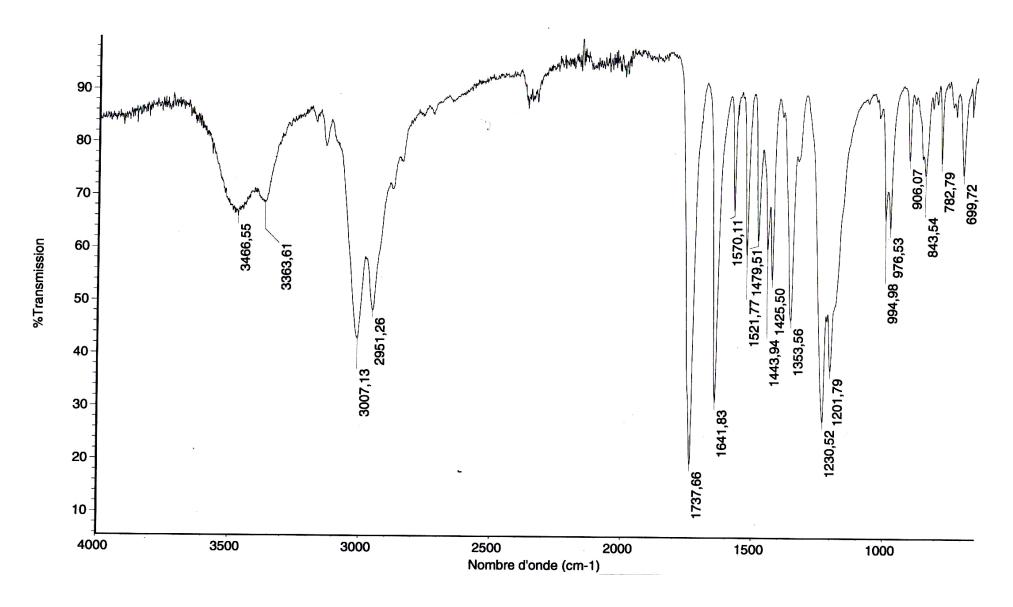


Figure S42. FTIR spectrum of compound 12

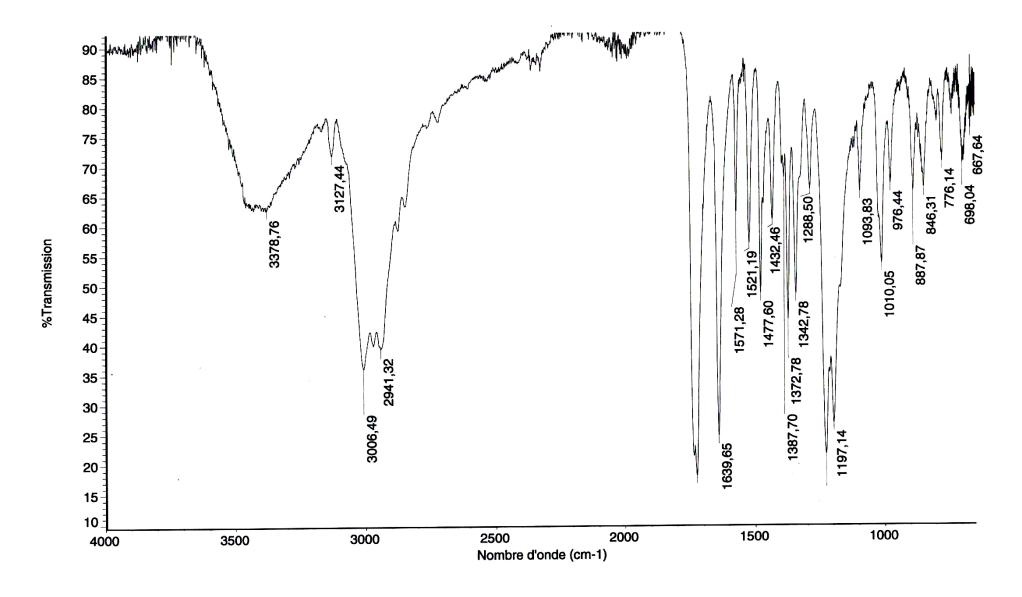


Figure S43. FTIR spectrum of compound 13

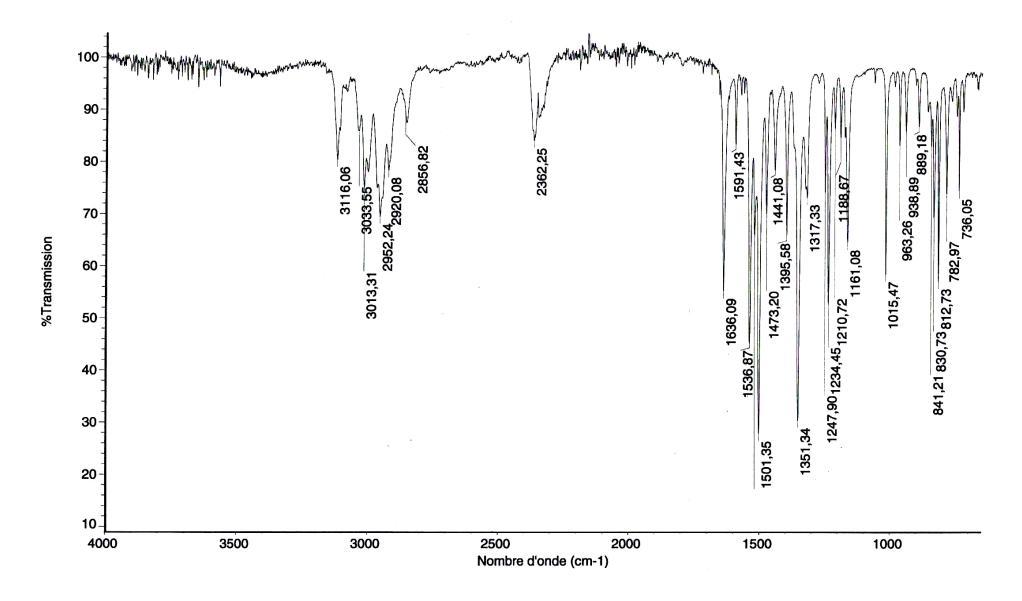


Figure S44. FTIR spectrum of compound 14

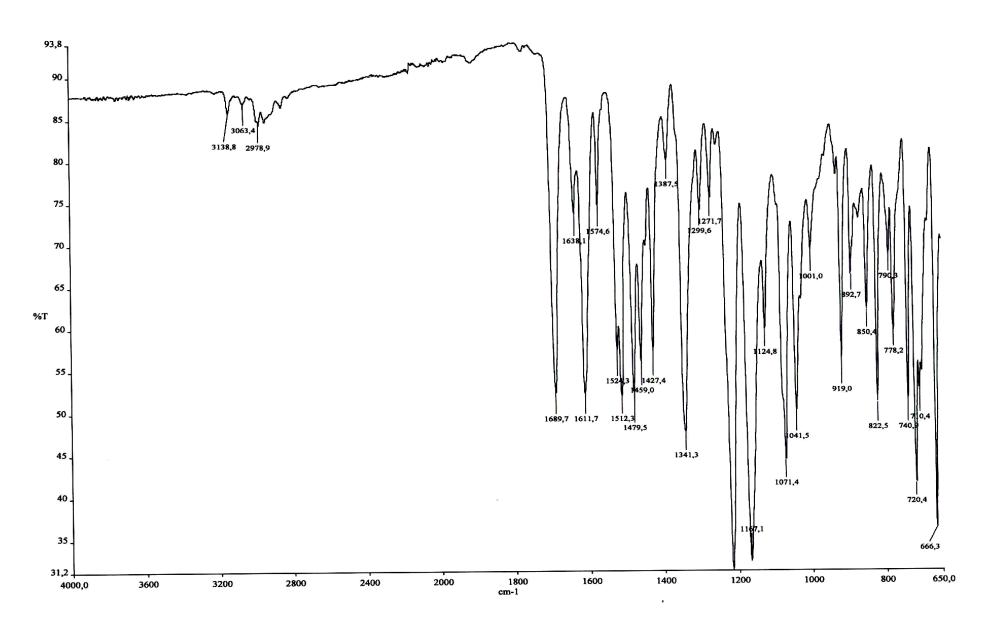


Figure S45. FTIR spectrum of compound 15

