

## Supporting Information

### Copper-catalyzed Synthesis of 1,3,5-Triarylpentane-1,5-diones from $\alpha,\beta$ -Unsaturated Ketones

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The IR,  $^1\text{H}$  NMR, and  $^{13}\text{C}$  NMR spectra for the products.

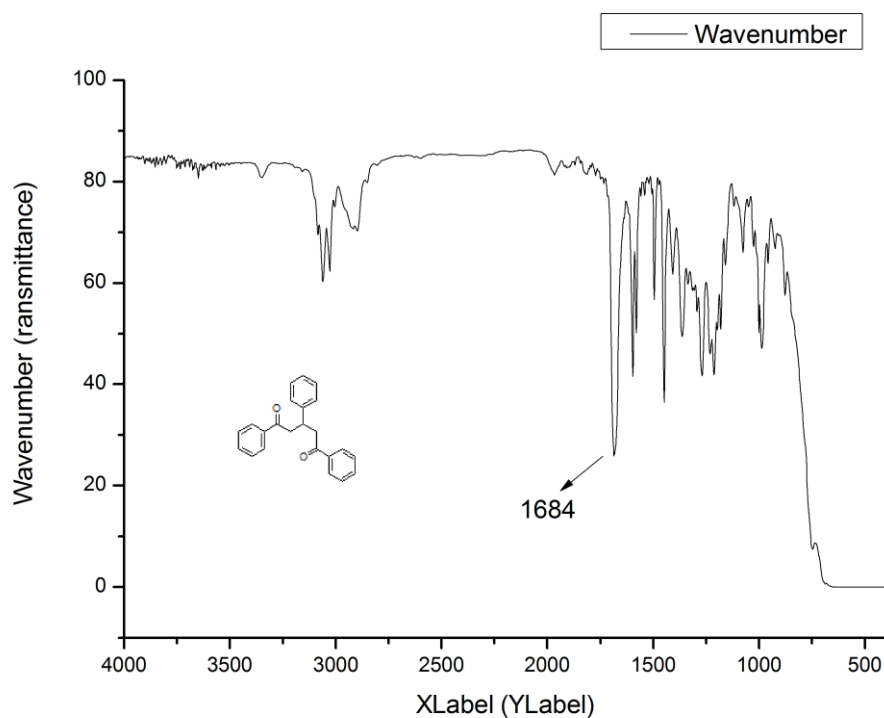


Fig 1. IR of 1,3,5-triphenyl-pentane-1,5-dione (2a)

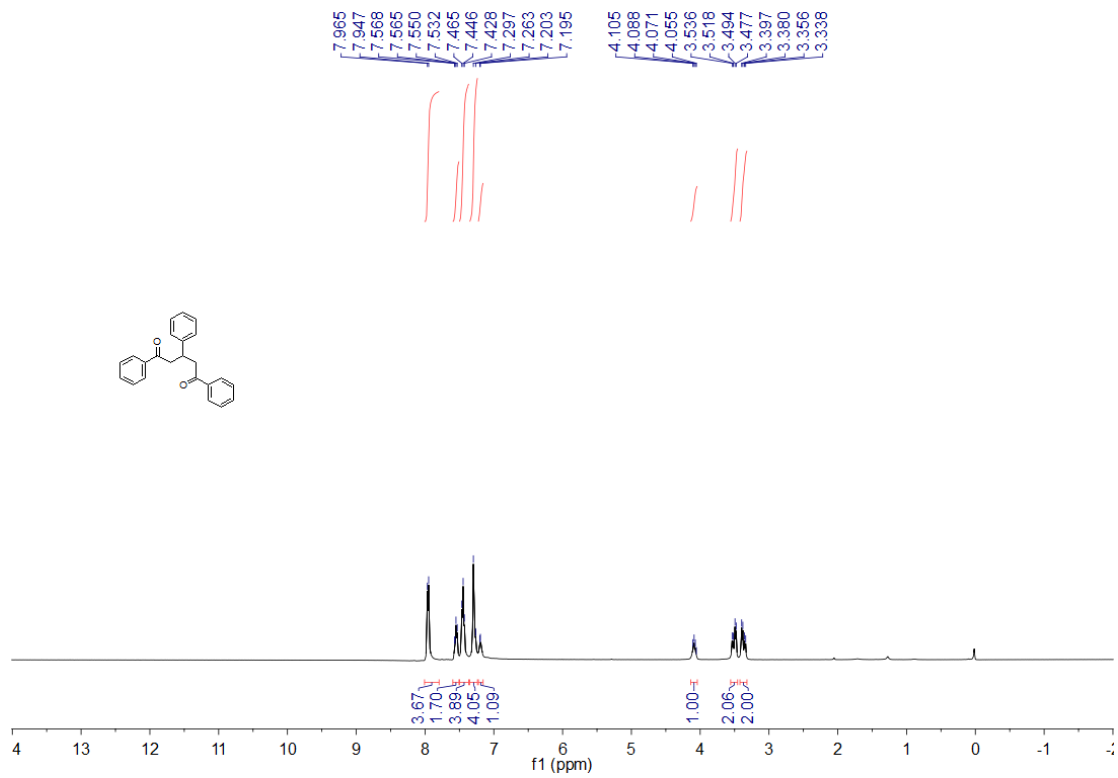


Fig 2. <sup>1</sup>H NMR of 1,3,5-triphenyl-pentane-1,5-dione (2a)

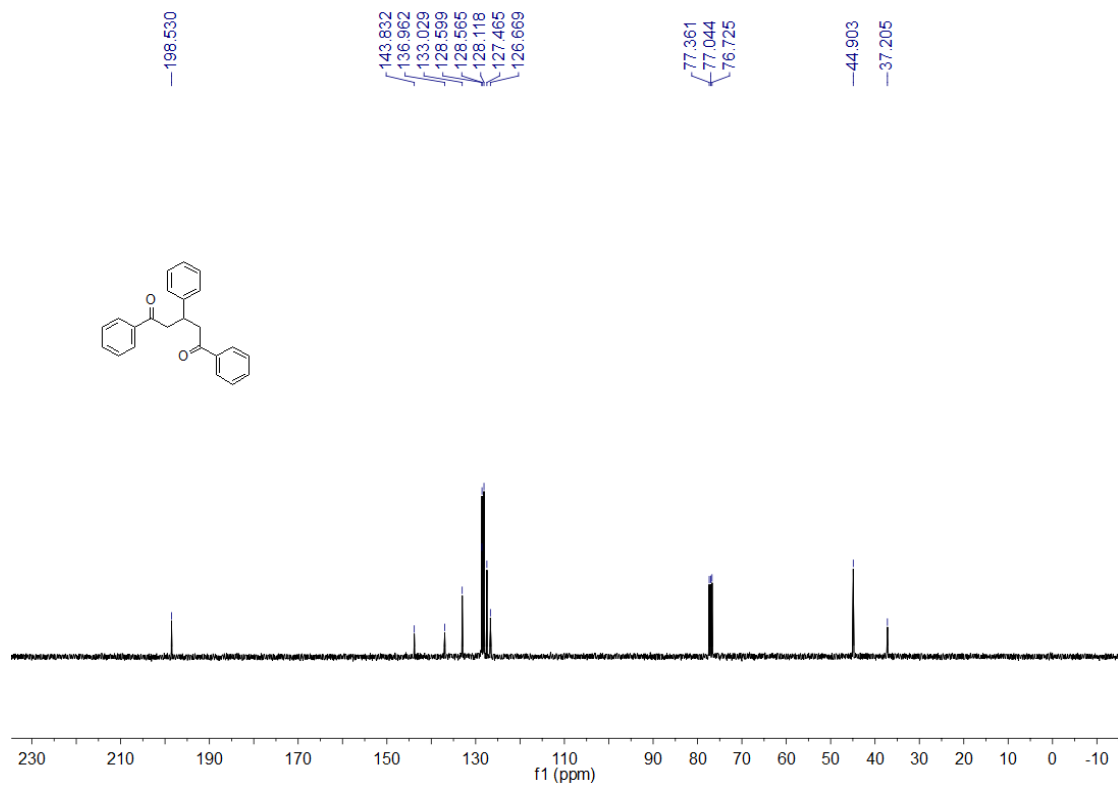


Fig 3. <sup>13</sup>C NMR of 1,3,5-triphenyl-pentane-1,5-dione (2a)

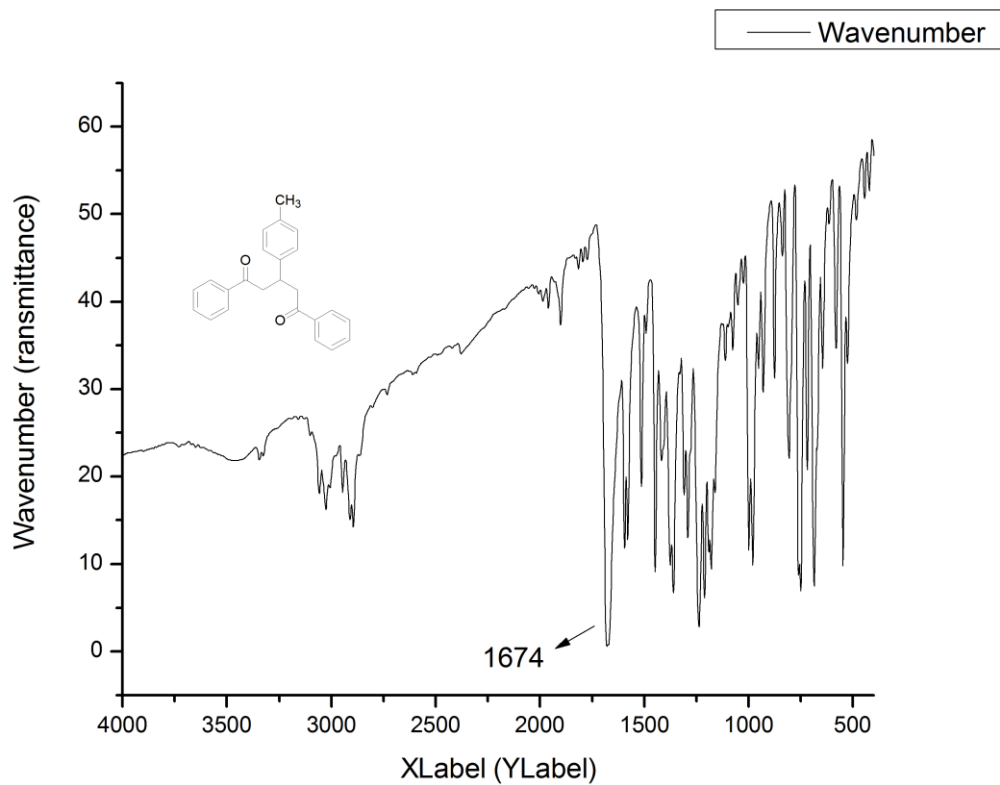


Fig 4. IR of 1,5-diphenyl-3-*p*-tolyl-pentane-1,5-dione (2b)

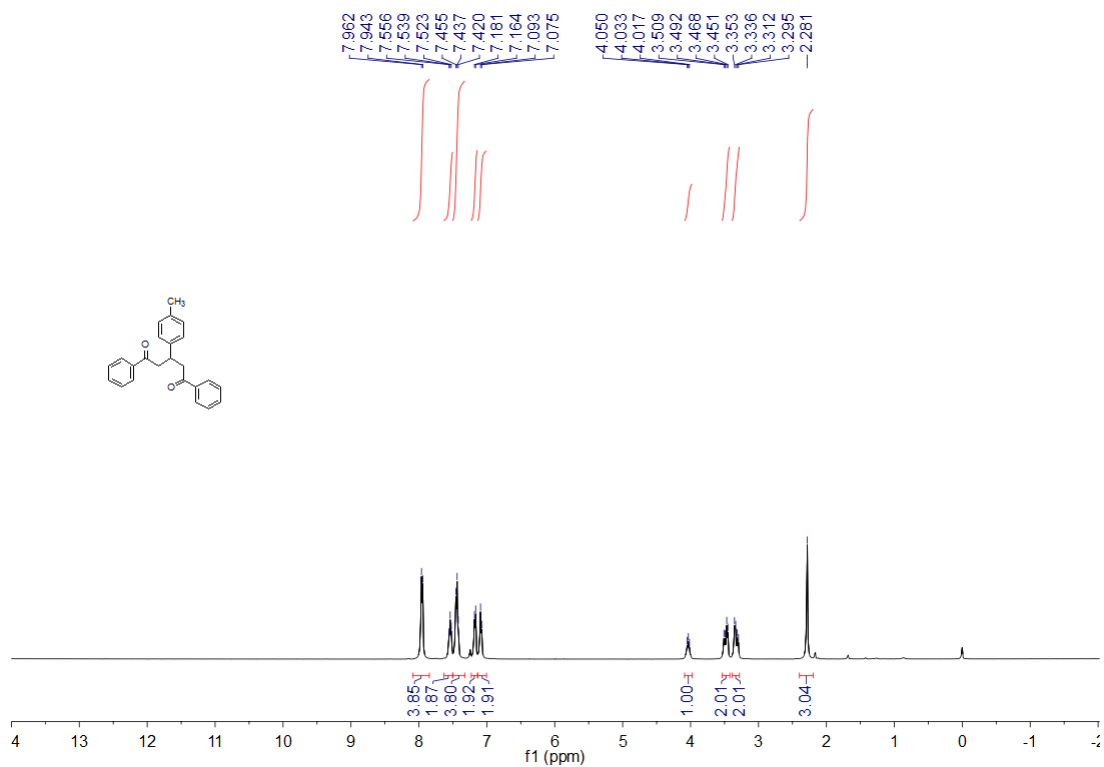


Fig 5.  $^1\text{H}$  NMR of 1,5-diphenyl-3-*p*-tolyl-pentane-1,5-dione (2b)

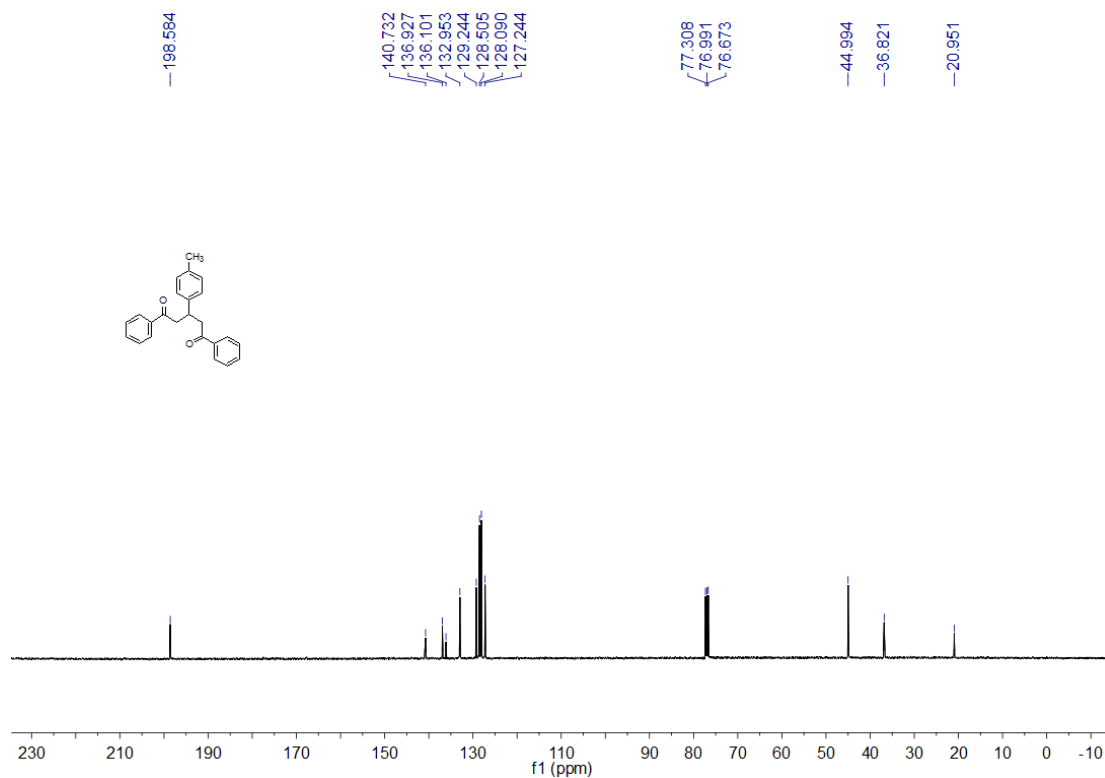


Fig 6.  $^{13}\text{C}$  NMR of 1,5-diphenyl-3-p-tolyl-pentane-1,5-dione (2b)

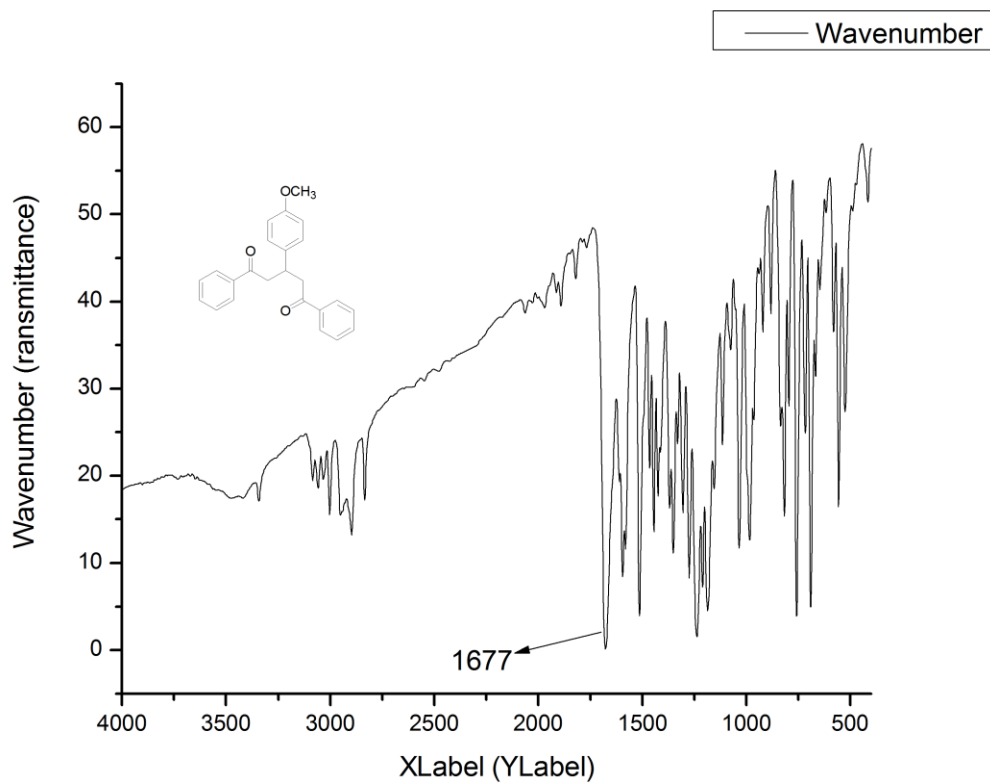


Fig 7. IR of 3-(4-methoxyphenyl)-1,5-diphenyl-pentane-1,5-dione (2c)

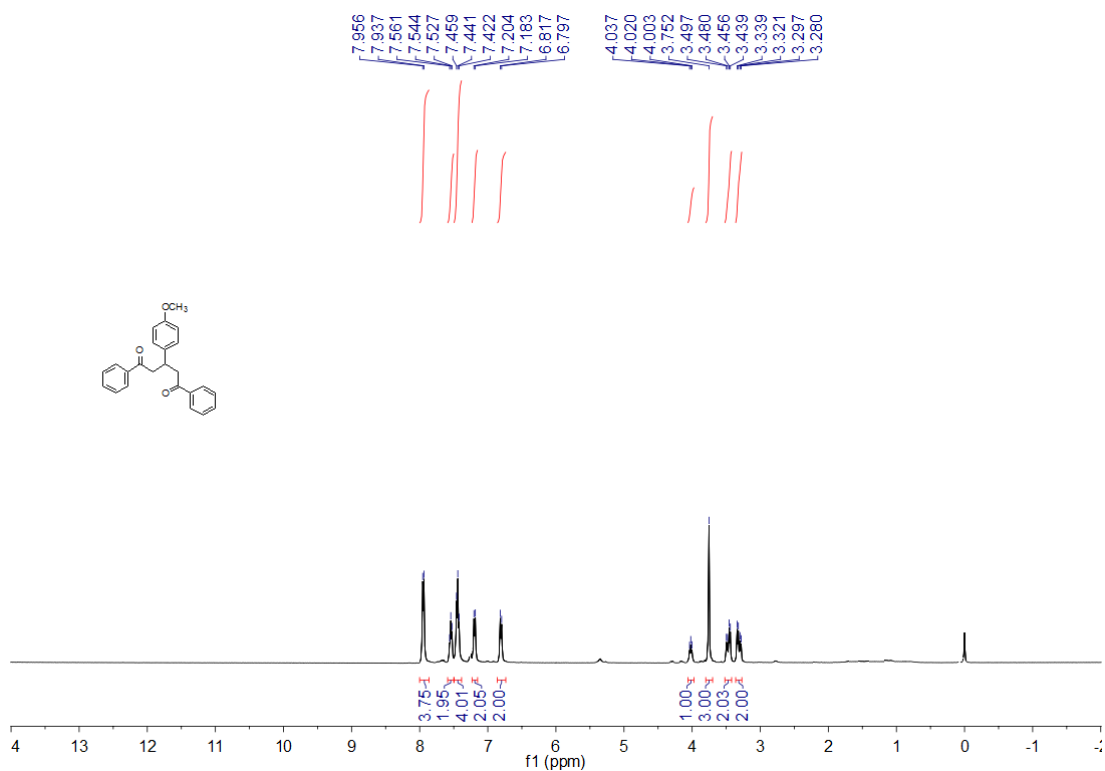


Fig 8. <sup>1</sup>H NMR of 3-(4-methoxyphenyl)-1,5-diphenyl-pentane-1,5-dione (2c)

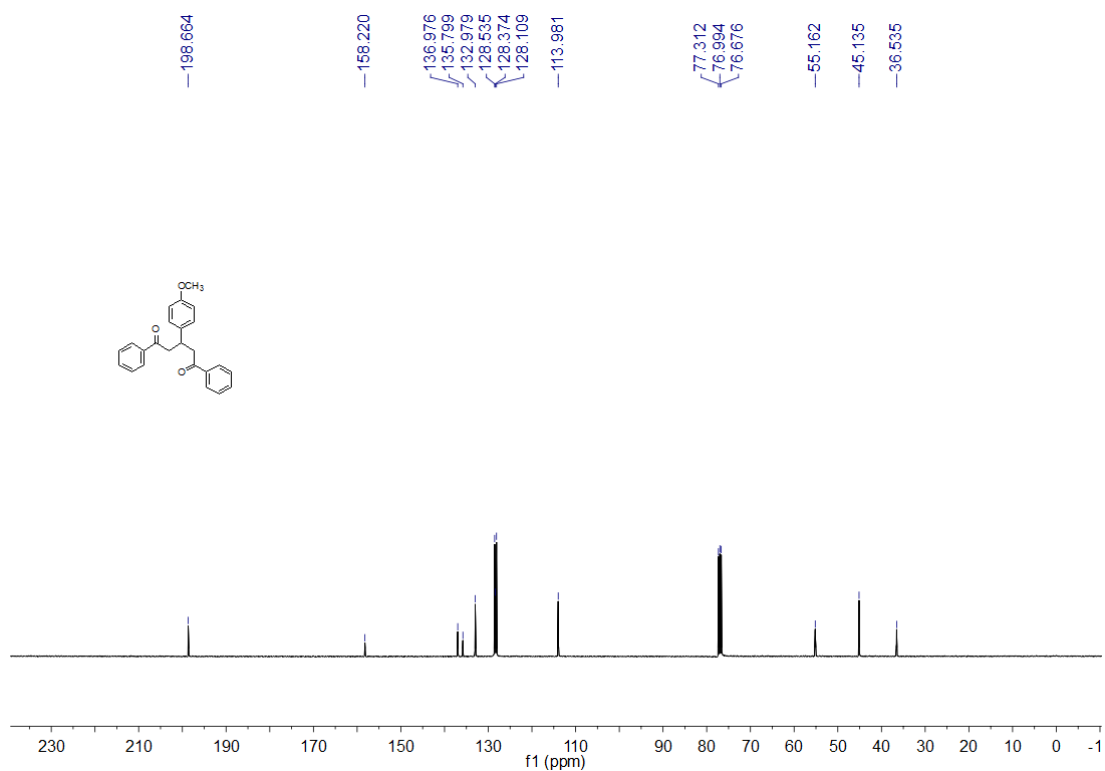


Fig 9. <sup>13</sup>C NMR of 3-(4-methoxyphenyl)-1,5-diphenyl-pentane-1,5-dione (2c)

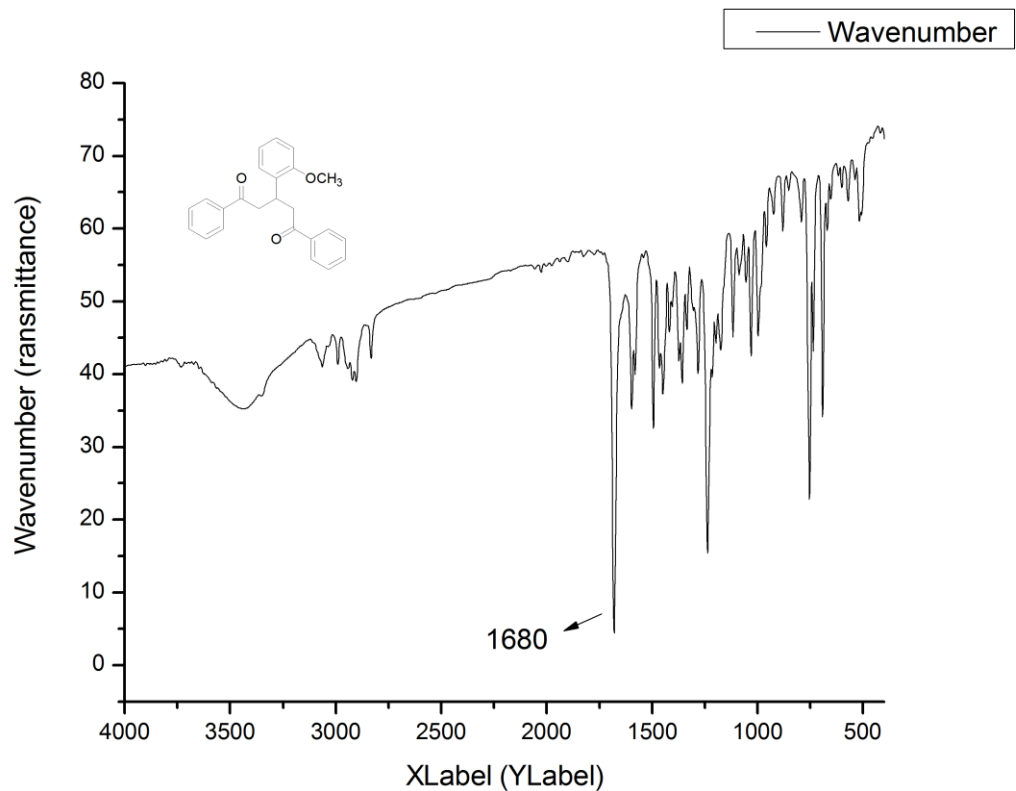


Fig 10. IR of 3-(2-methoxyphenyl)-1,5-diphenylpentane-1,5-dione (2d)

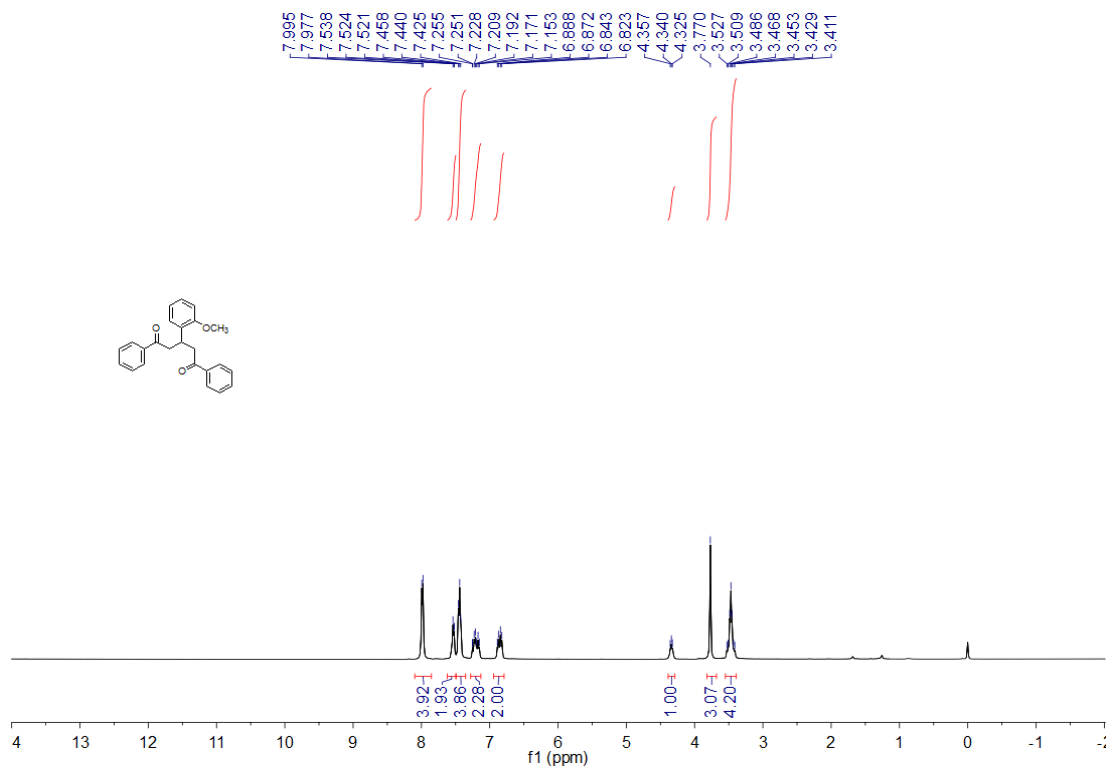


Fig 11. <sup>1</sup>H NMR of 3-(2-methoxyphenyl)-1,5-diphenylpentane-1,5-dione (2d)

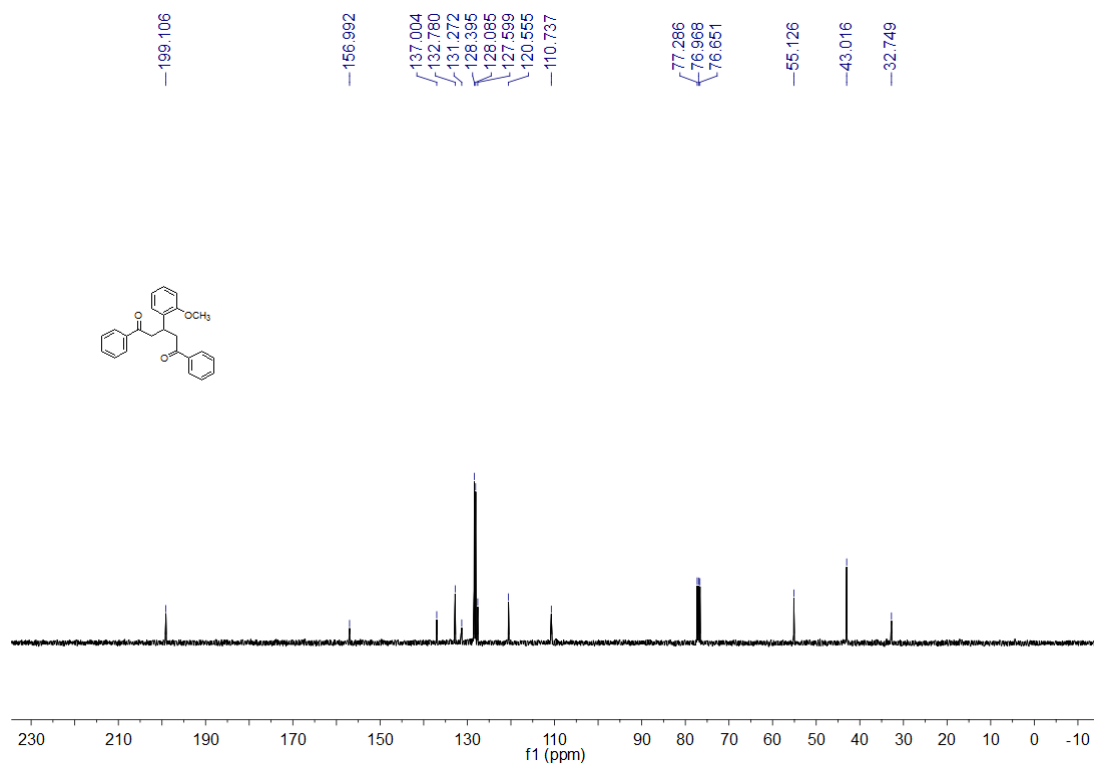


Fig 12.  $^{13}\text{C}$  NMR of 3-(2-methoxyphenyl)-1,5-diphenylpentane-1,5-dione (2d)

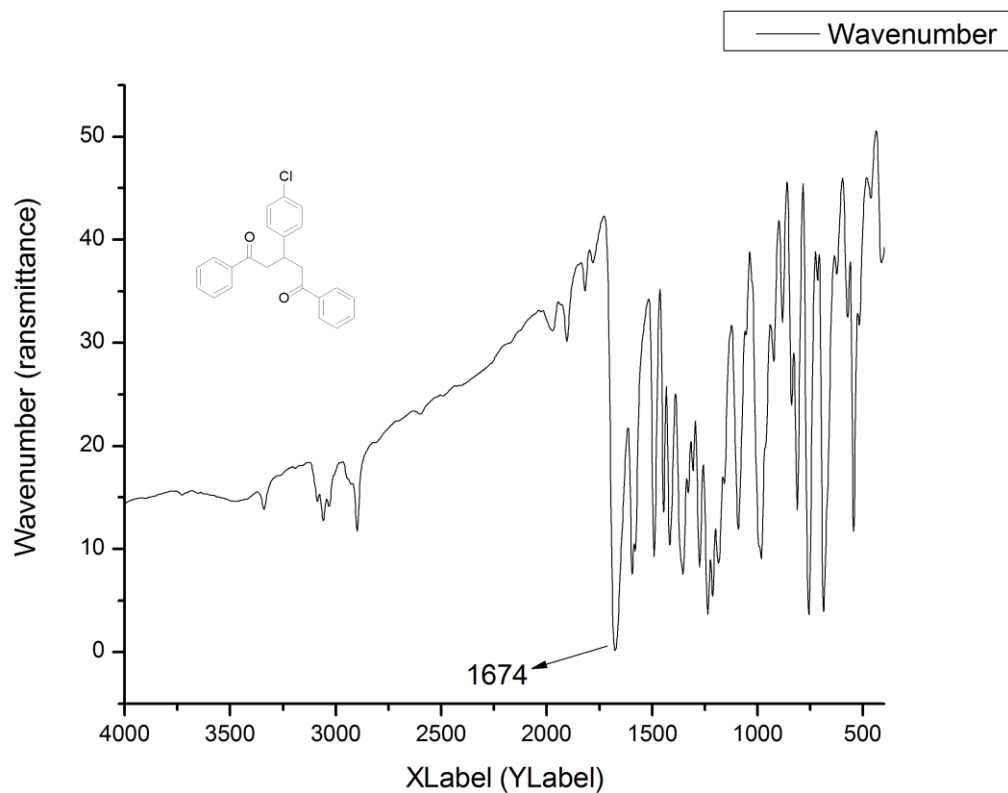


Fig 13. IR of 3-(4-chloro-phenyl)-1,5-diphenylpentane-1,5-dione (2e)

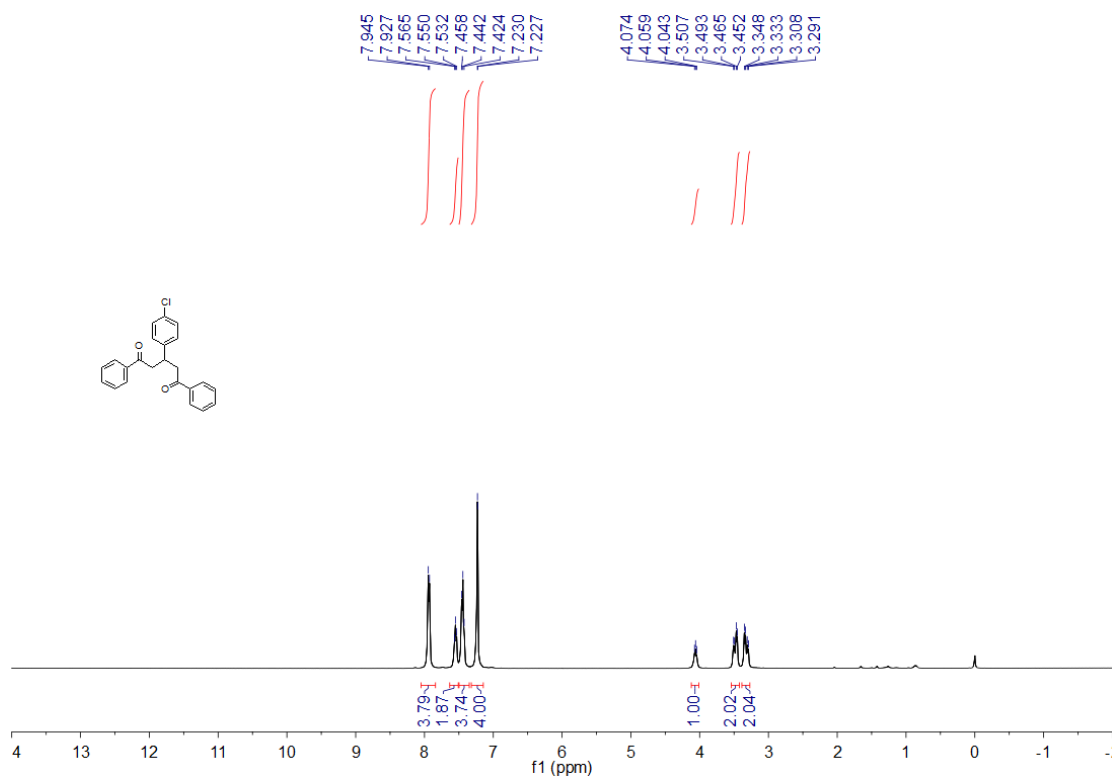


Fig 14. <sup>1</sup>H NMR of 3-(4-chlorophenyl)-1,5-diphenylpentane-1,5-dione (2e)

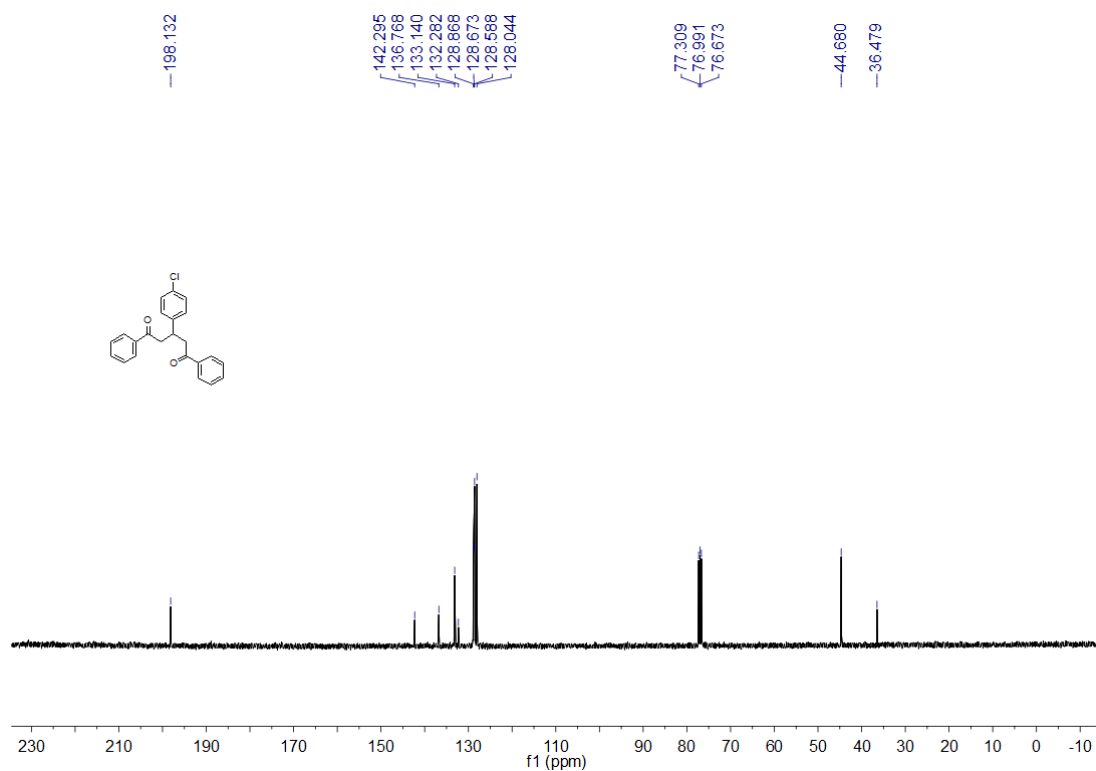


Fig 15. <sup>13</sup>C NMR of 3-(4-chlorophenyl)-1,5-diphenylpentane-1,5-dione (2e)



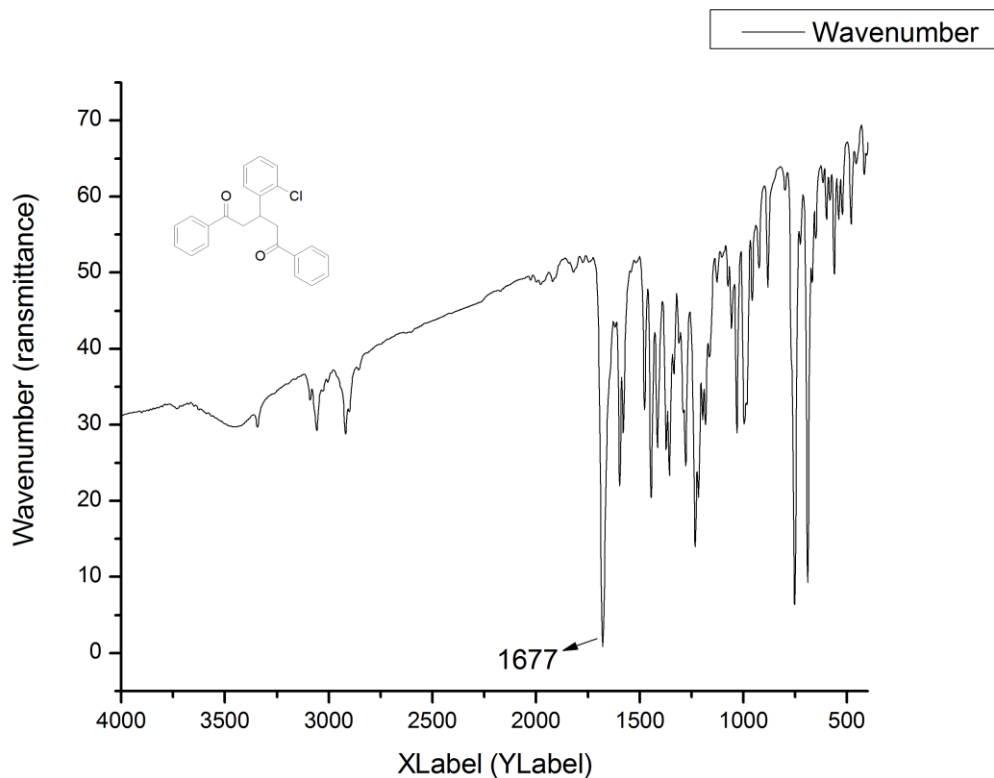


Fig 16. IR of 3-(2-chloro-phenyl)-1,5-diphenylpentane-1,5-dione (2f)

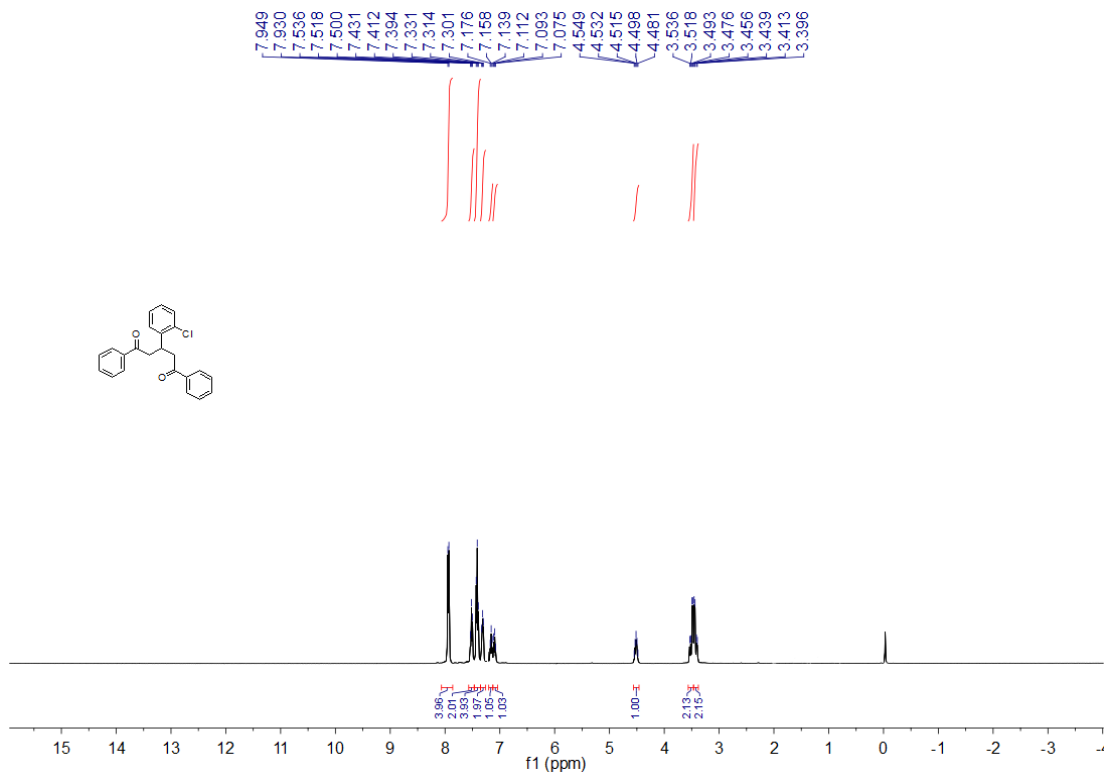


Fig 17. <sup>1</sup>H NMR of 3-(2-chloro-phenyl)-1,5-diphenylpentane-1,5-dione (2f)

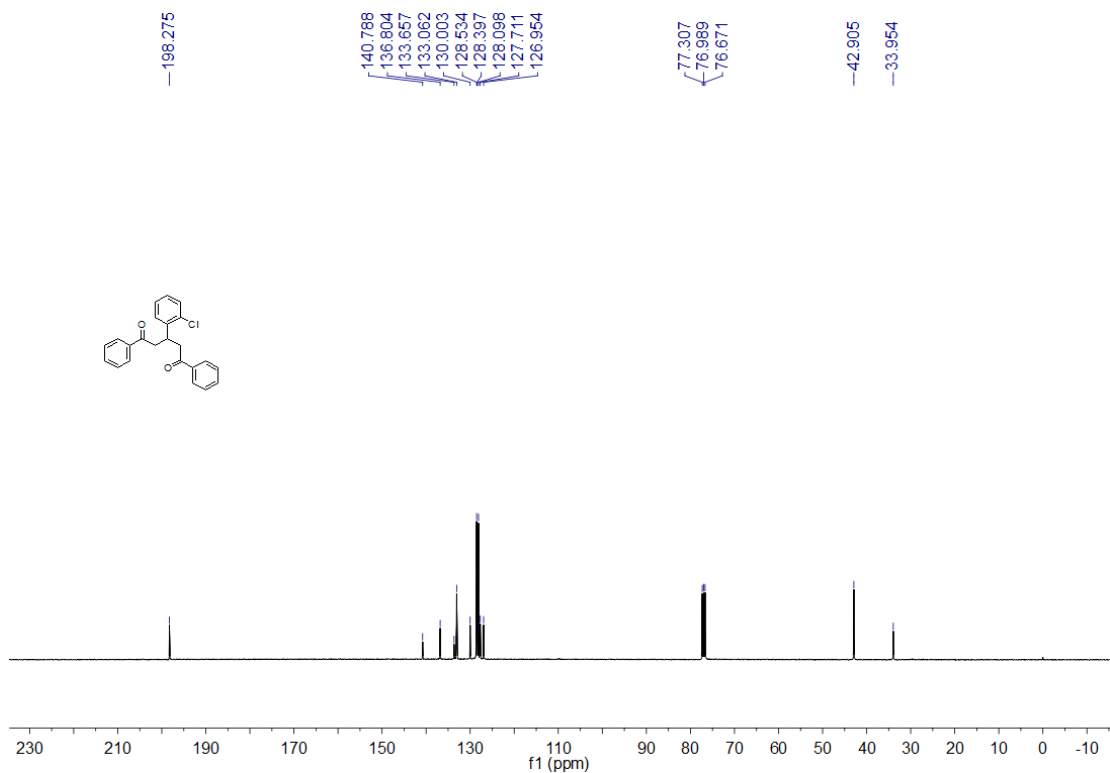


Fig 18. <sup>13</sup>C NMR of 3-(2-chlorophenyl)-1,5-diphenylpentane-1,5-dione (2f)

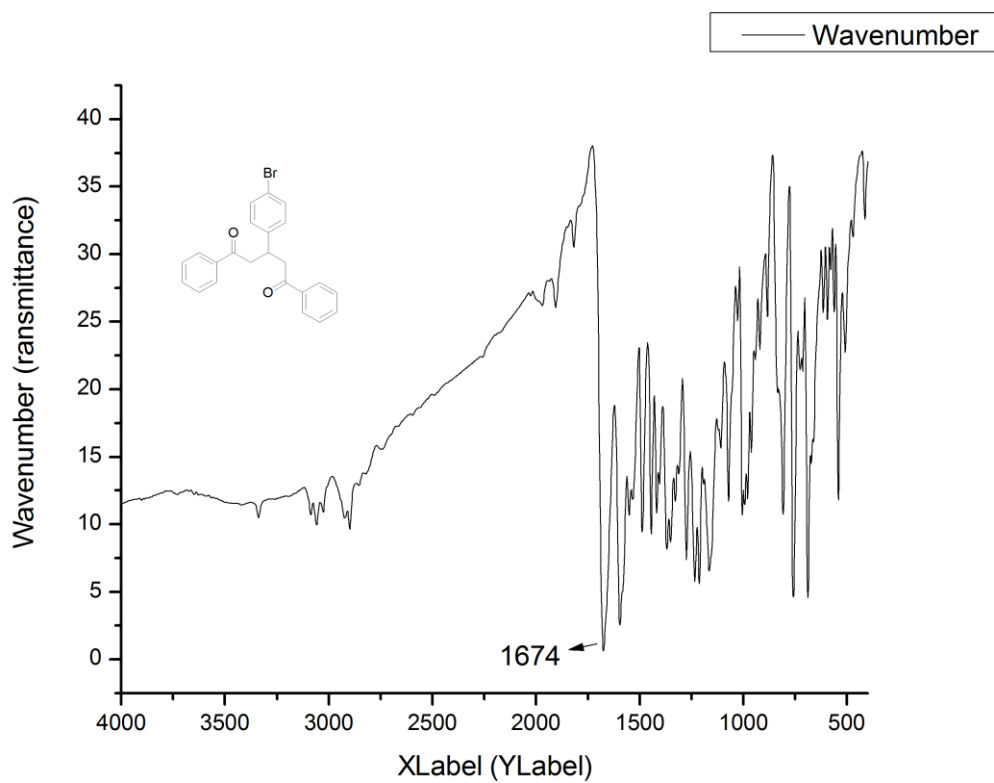


Fig 19. IR of 3-(4-bromophenyl)-1,5-diphenylpentane-1,5-dione (2g)

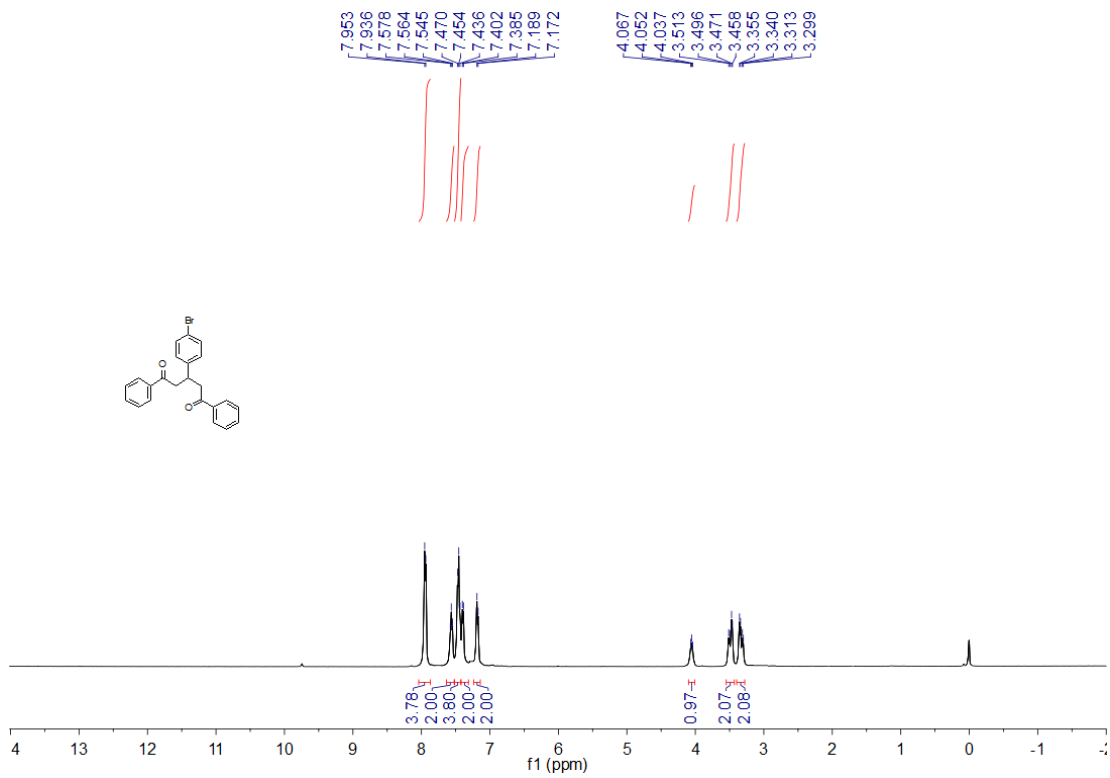


Fig 20. <sup>1</sup>H NMR of 3-(4-bromophenyl)-1,5-diphenylpentane-1,5-dione (2g)

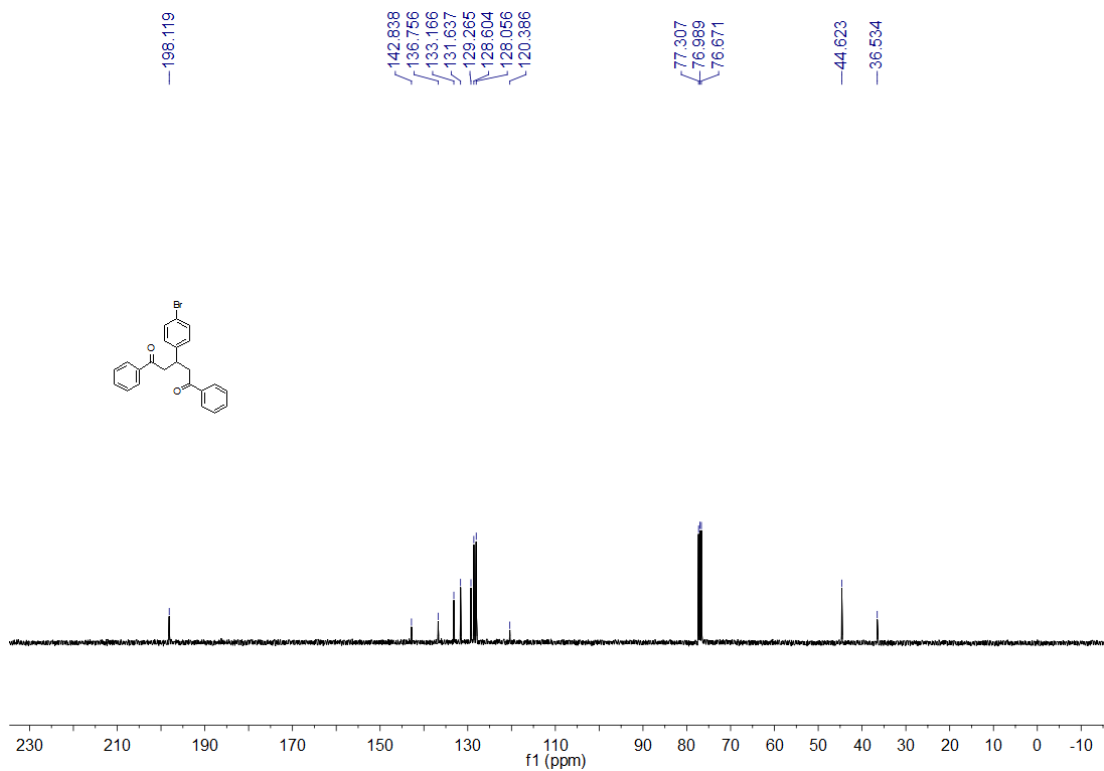


Fig 21. <sup>13</sup>C NMR of 3-(4-bromophenyl)-1,5-diphenylpentane-1,5-dione (2g)

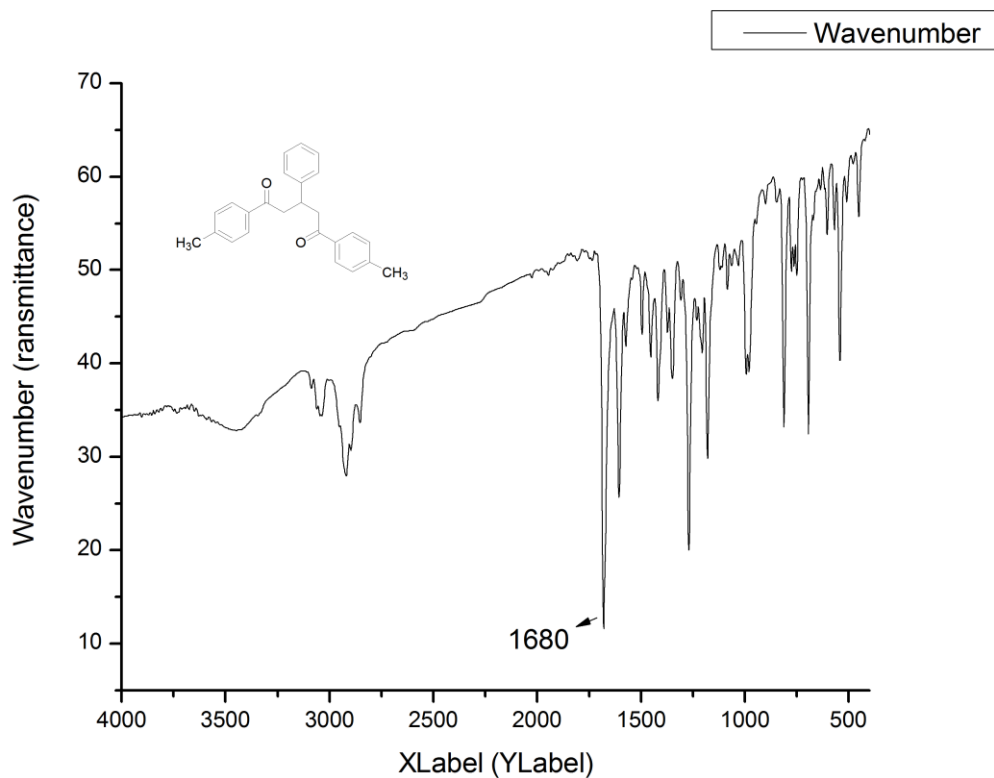


Fig 22. IR of 1,5-bis-(4-methoxy-phenyl)-3-phenyl-pentane-1,5-dione (2h)

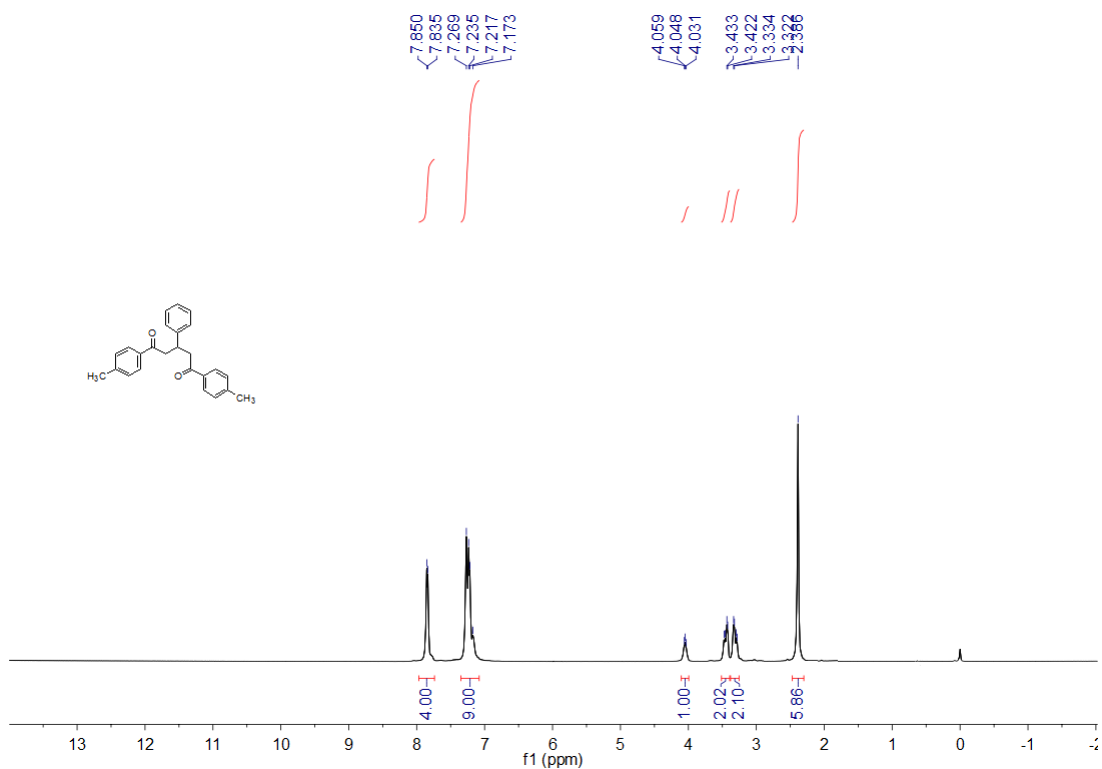


Fig 23.  $^1\text{H}$  NMR of 1,5-bis-(4-methoxy-phenyl)-3-phenyl-pentane-1,5-dione (2h)

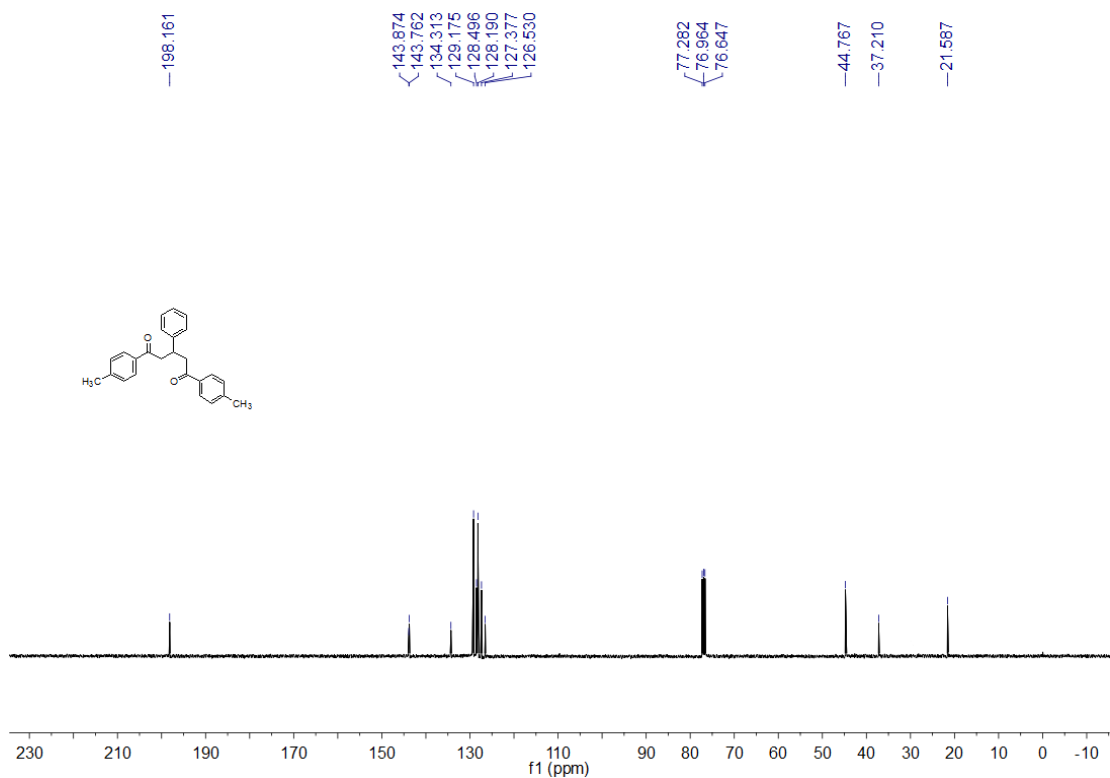


Fig 24.  $^{13}\text{C}$  NMR of 1,5-bis-(4-methoxy-phenyl)-3-phenyl-pentane-1,5-dione (2h)

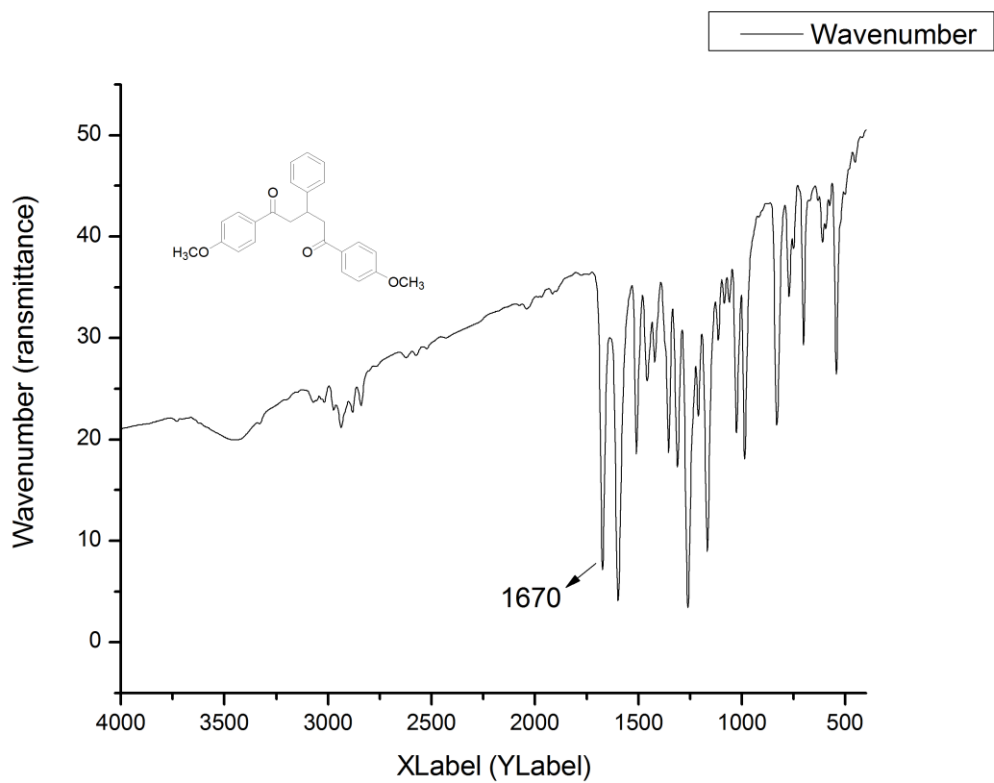


Fig 25. IR of 1,5-bis-(4-methoxy-phenyl)-3-phenyl-pentane-1,5-dione (2i)

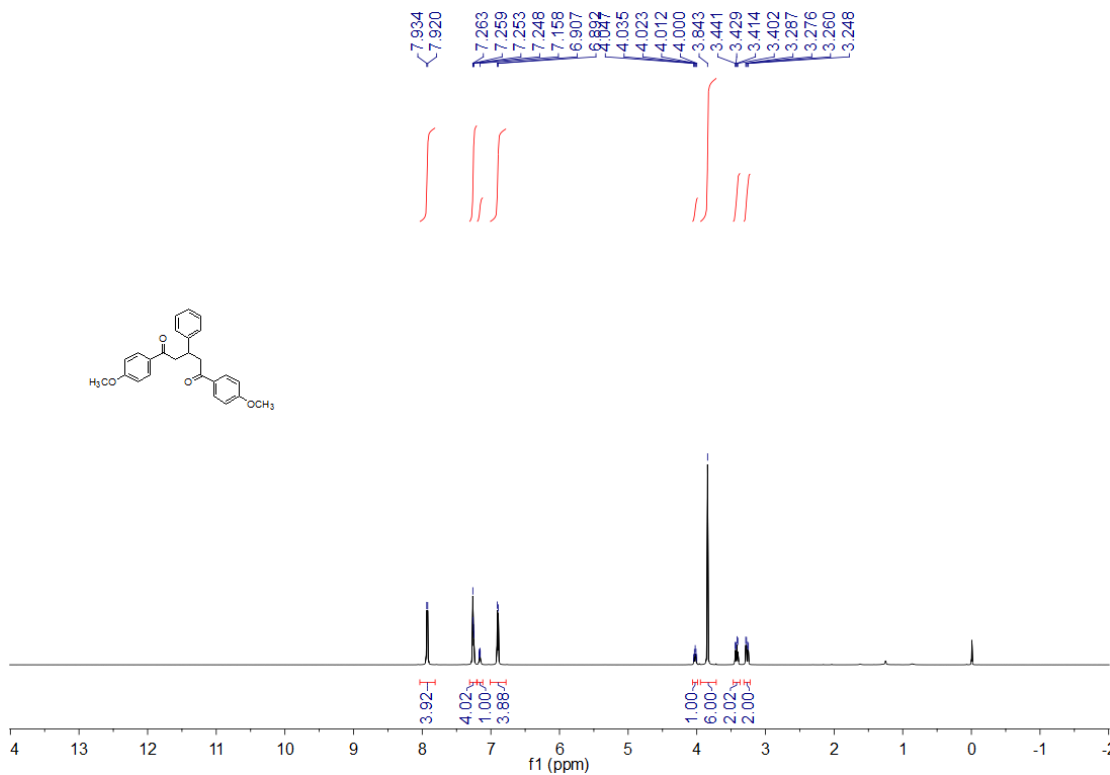


Fig 26. <sup>1</sup>H NMR of 1,5-bis-(4-methoxy-phenyl)-3-phenyl-pentane-1,5-dione (2i)

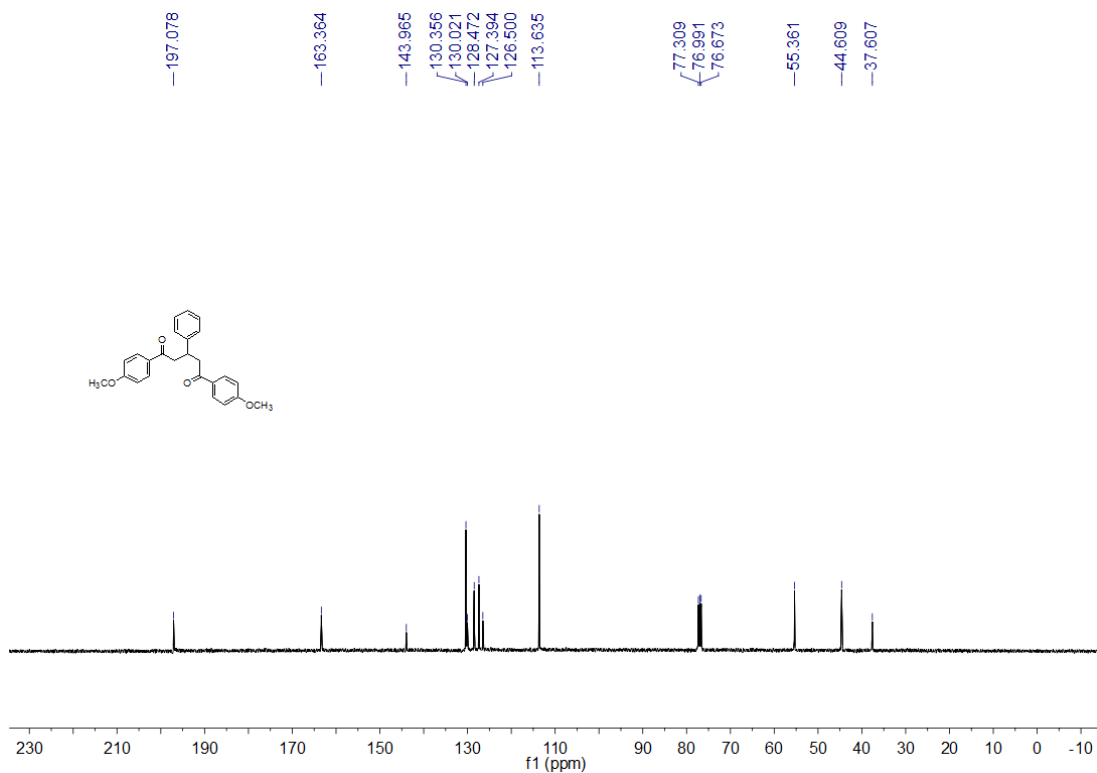


Fig 27. <sup>13</sup>C NMR of 1,5-bis-(4-methoxy-phenyl)-3-phenyl-pentane-1,5-dione (2i)

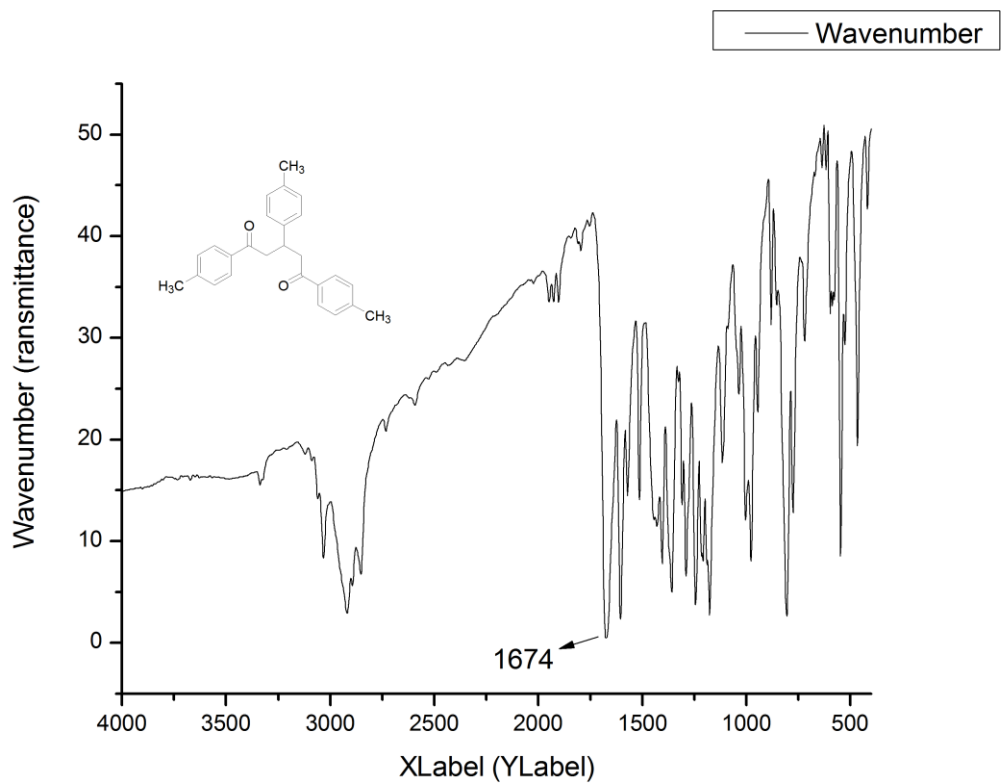


Fig 28. IR of 1,3,5-tri-*p*-tolyl-pentane-1,5-dione (2j)

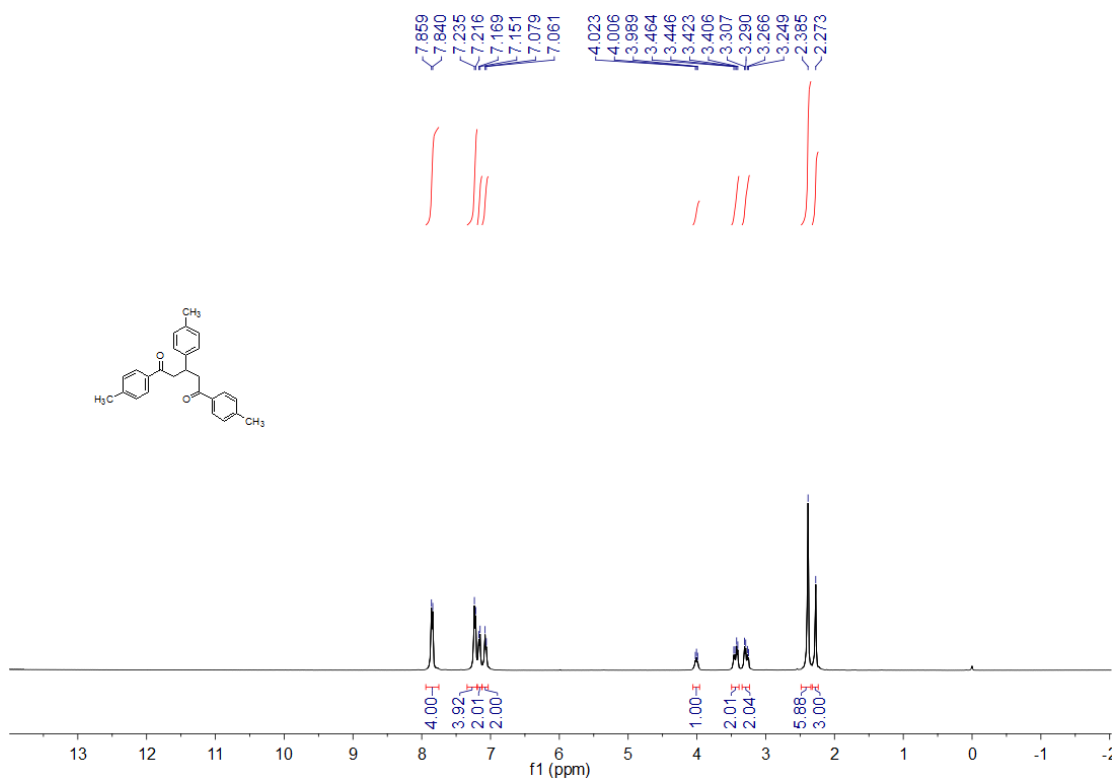


Fig 29.  $^1\text{H}$  NMR of 1,3,5-tri-*p*-tolyl-pentane-1,5-dione (2j)

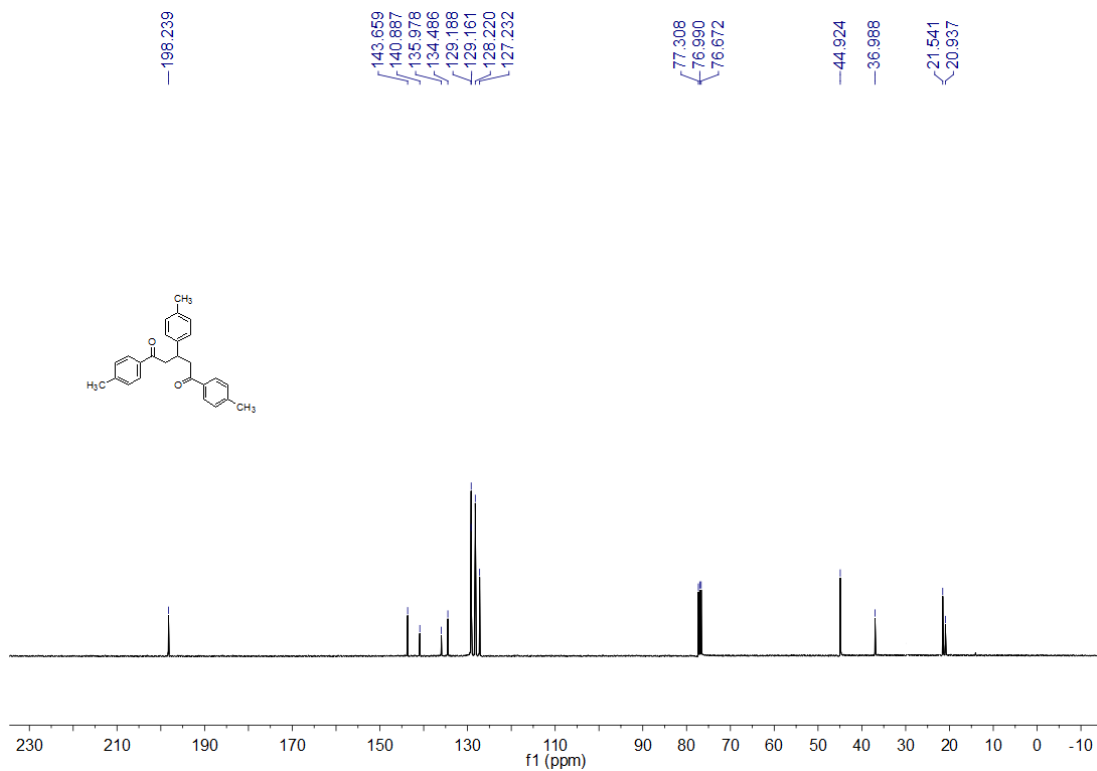


Fig 30.  $^{13}\text{C}$  NMR of 1,3,5-tri-*p*-tolyl-pentane-1,5-dione (2j)

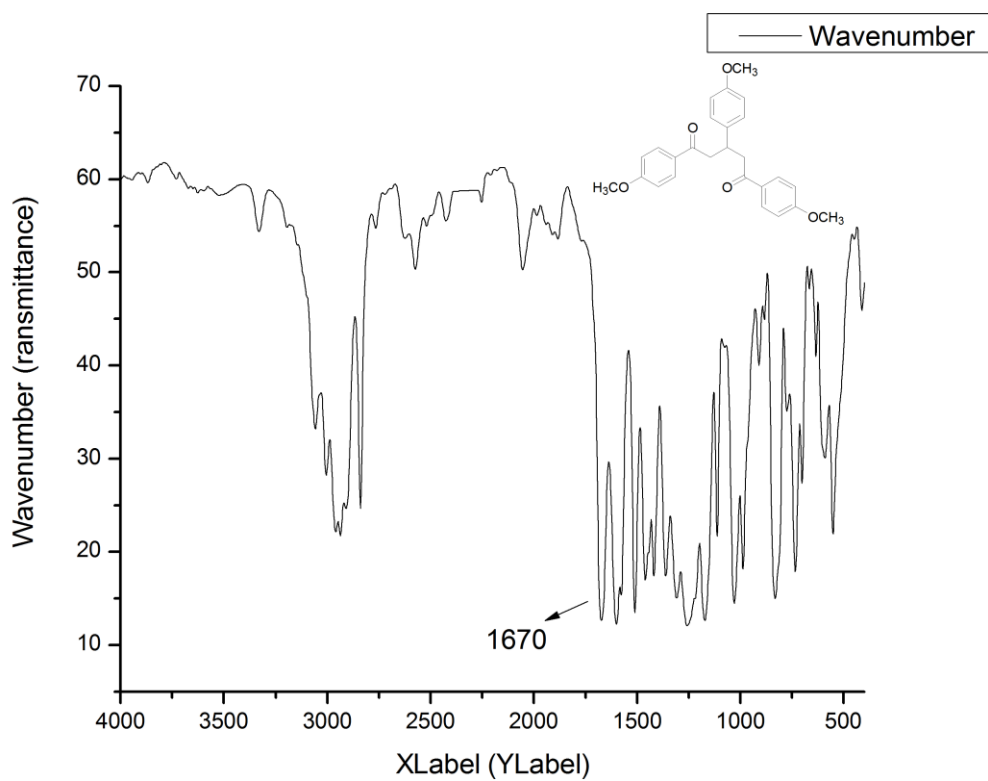


Fig 31. IR of 1,3,5-tris-(4-methoxy-phenyl)-pentane-1,5-dione (2k)



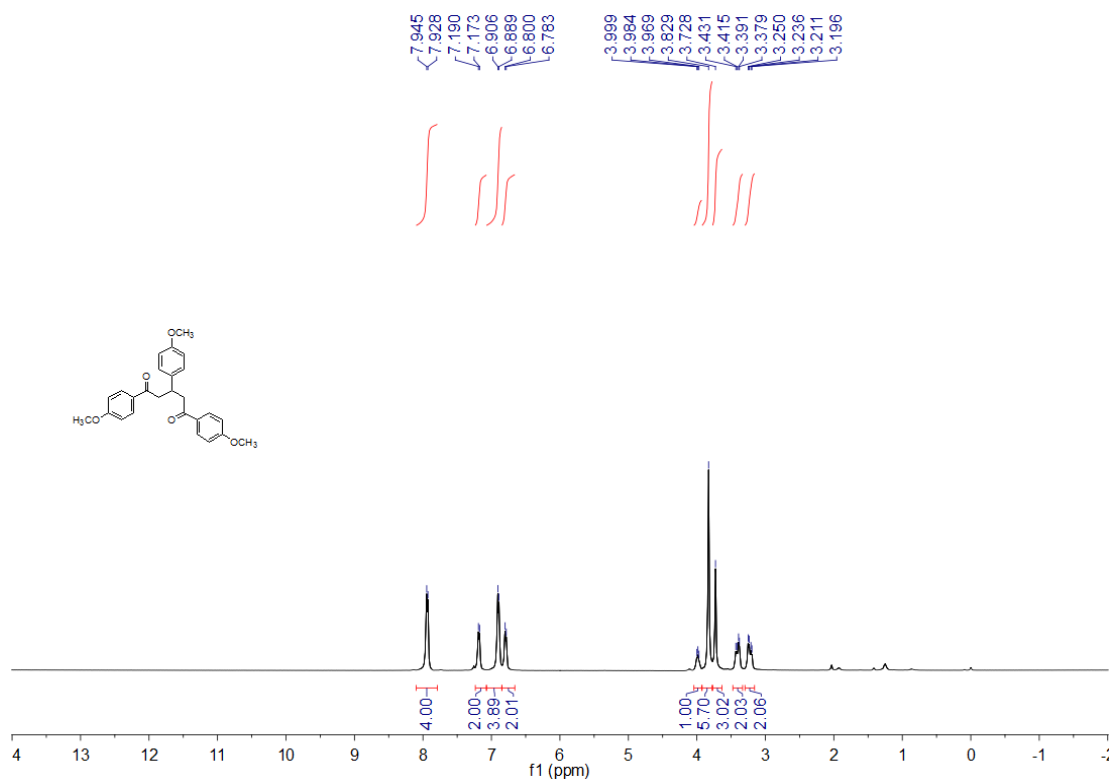


Fig 32. <sup>1</sup>H NMR of 1,3,5-tris-(4-methoxy-phenyl)-pentane-1,5-dione (2k)

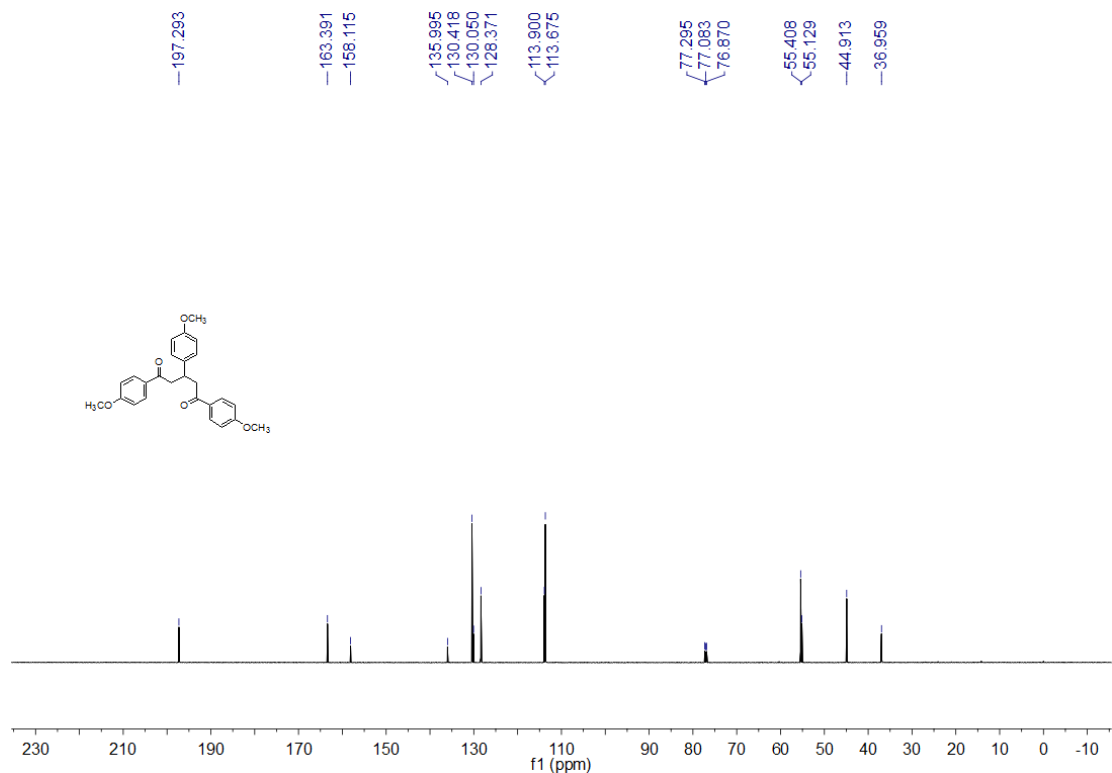


Fig 33. <sup>13</sup>C NMR of 1,3,5-tris-(4-methoxy-phenyl)-pentane-1,5-dione (2k)

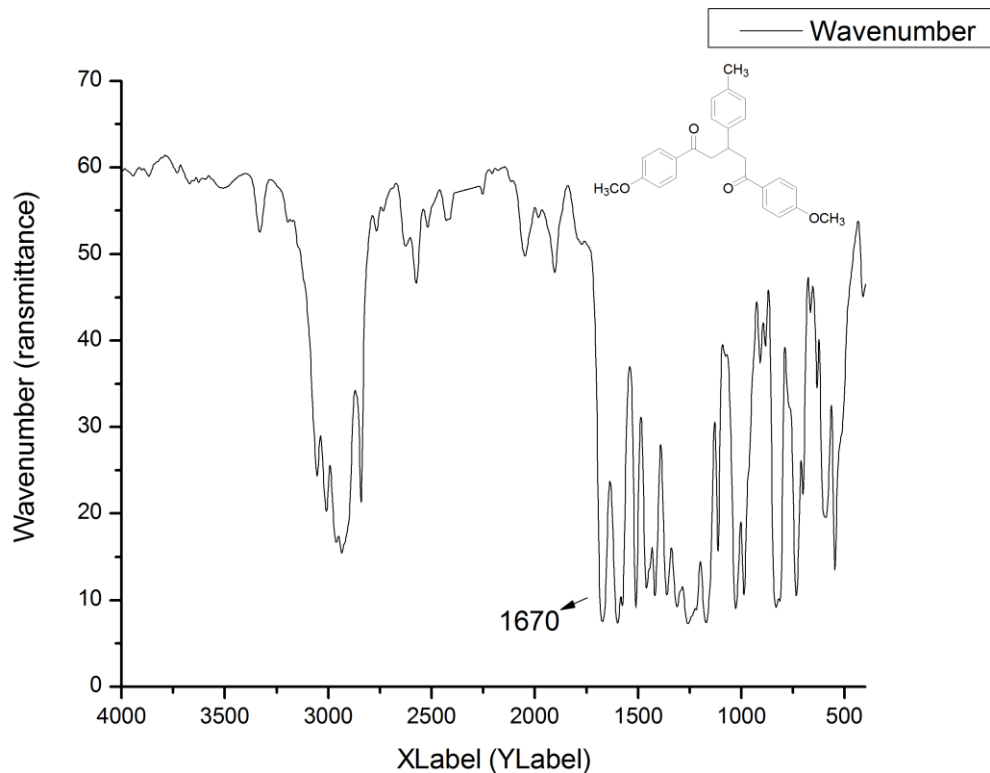


Fig 34. IR of 1,5-bis-(4-methoxy-phenyl)-3-*p*-tolyl-pentane-1,5-dione (2l)

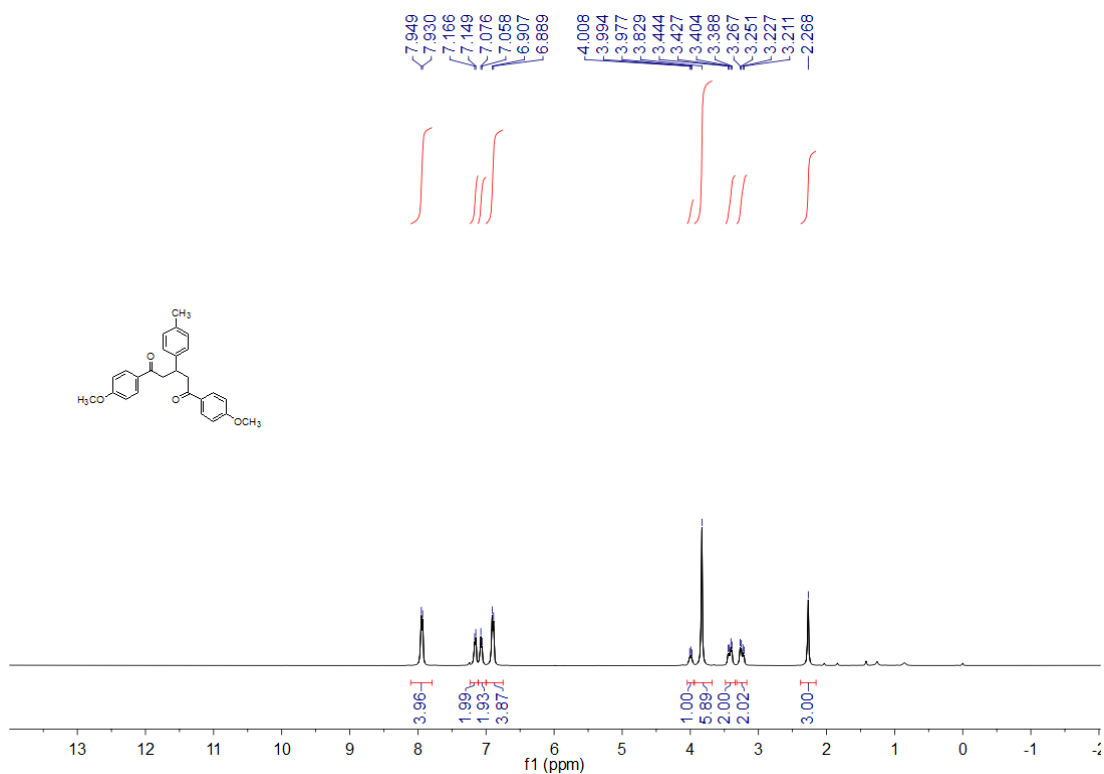


Fig 35. <sup>1</sup>H NMR of 1,5-bis-(4-methoxy-phenyl)-3-*p*-tolyl-pentane-1,5-dione (2l)

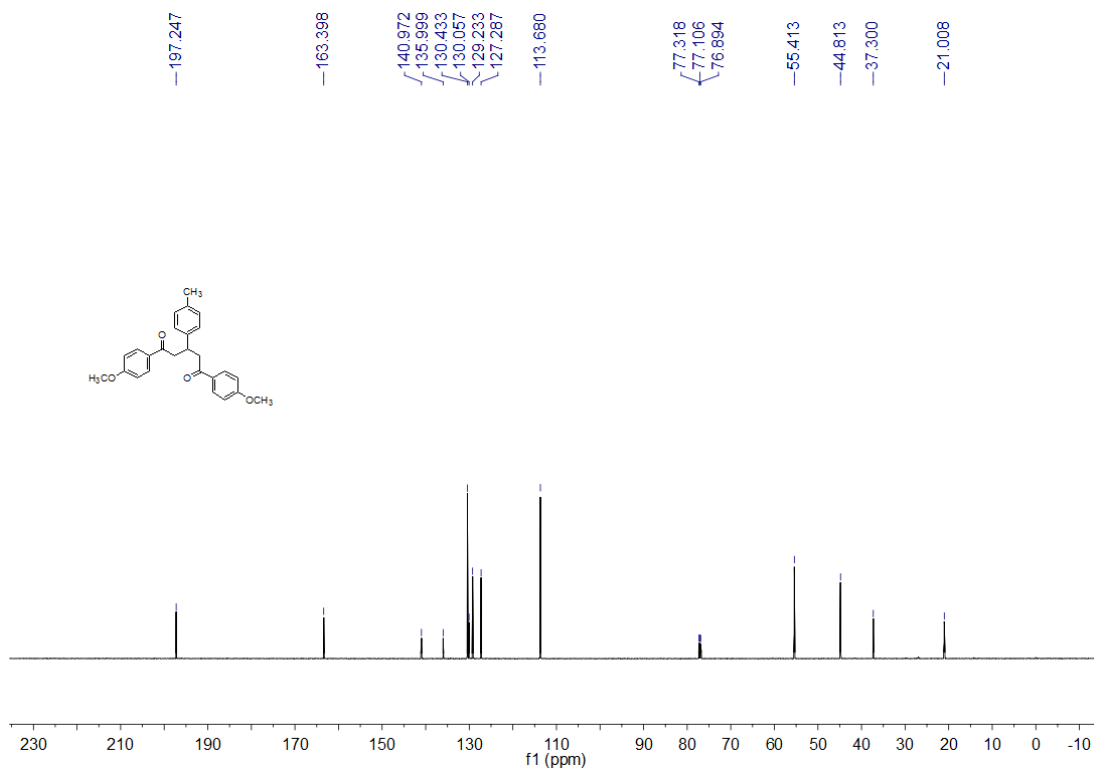


Fig 36. <sup>13</sup>C NMR of 1,5-bis-(4-methoxy-phenyl)-3-p-tolyl-pentane-1,5-dione (2l)

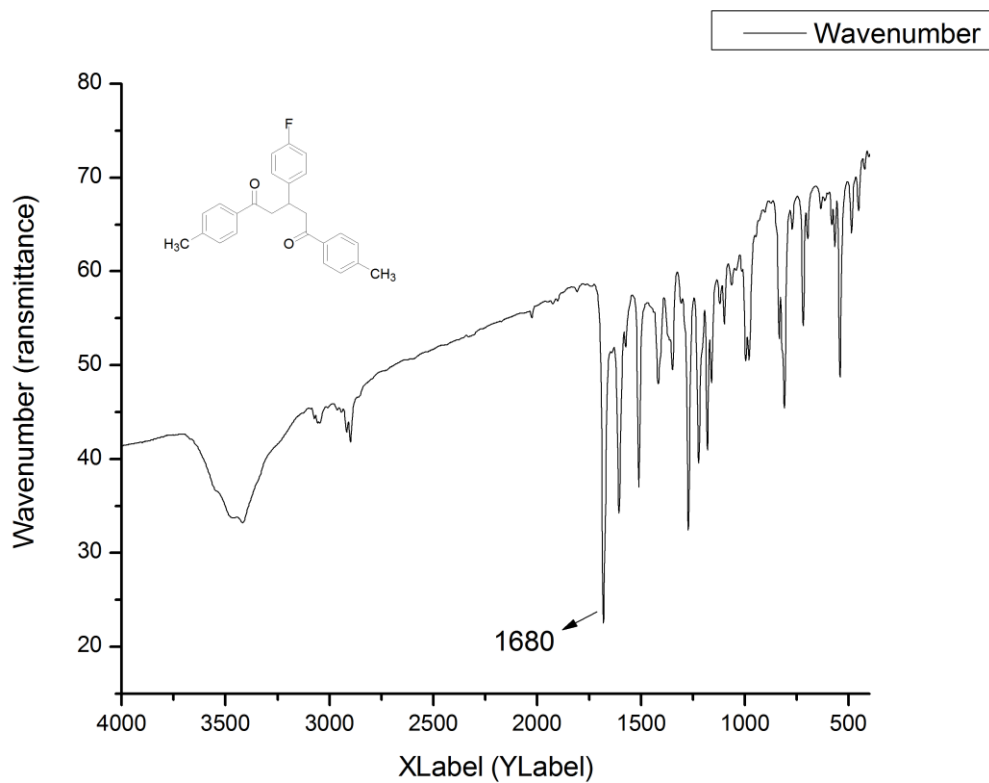


Fig 37. IR of 3-(4-fluoro-phenyl)-1,5-di-p-tolyl-pentane-1,5-dione (2m)

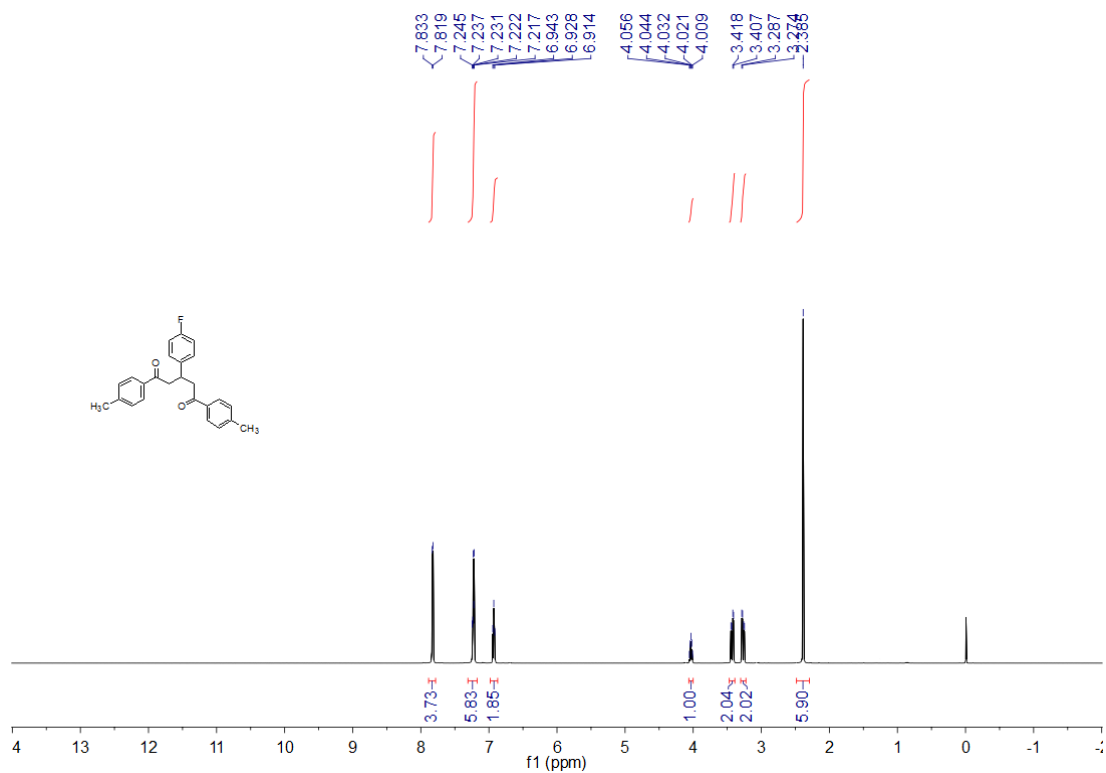


Fig 38. <sup>1</sup>H NMR of 3-(4-fluoro-phenyl)-1,5-di-*p*-tolyl-pentane-1,5-dione (2m)

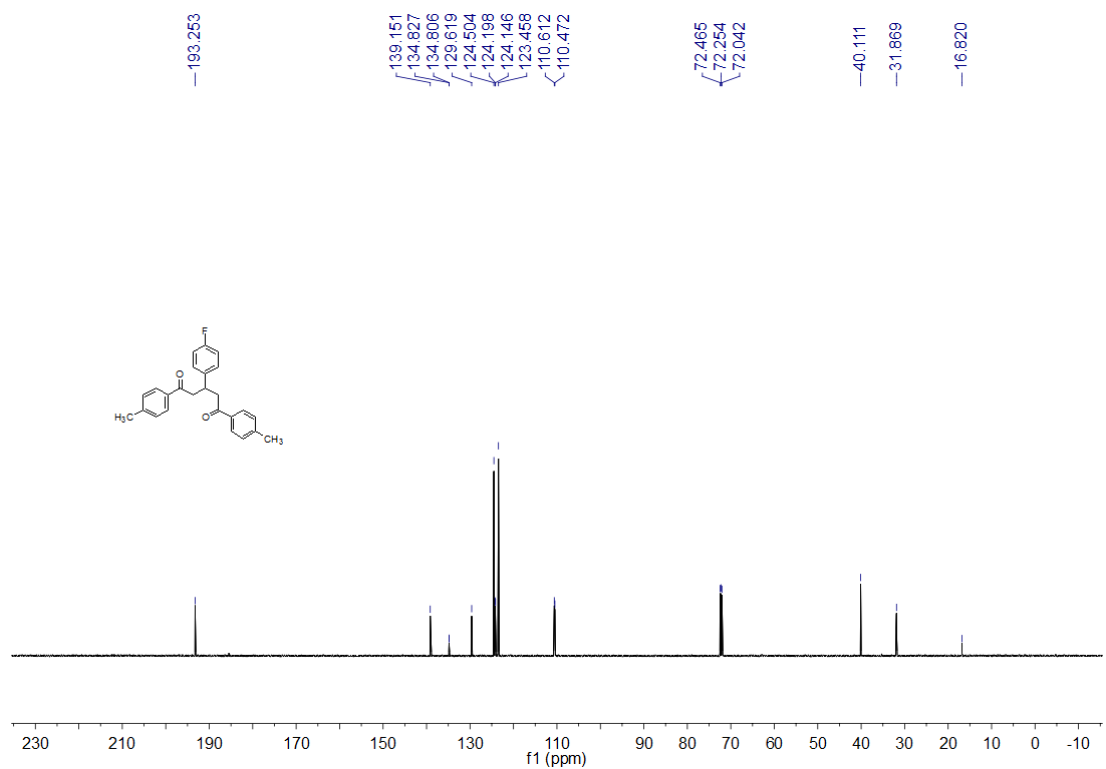


Fig 39. <sup>13</sup>C NMR of 3-(4-fluoro-phenyl)-1,5-di-*p*-tolyl-pentane-1,5-dione (2m)

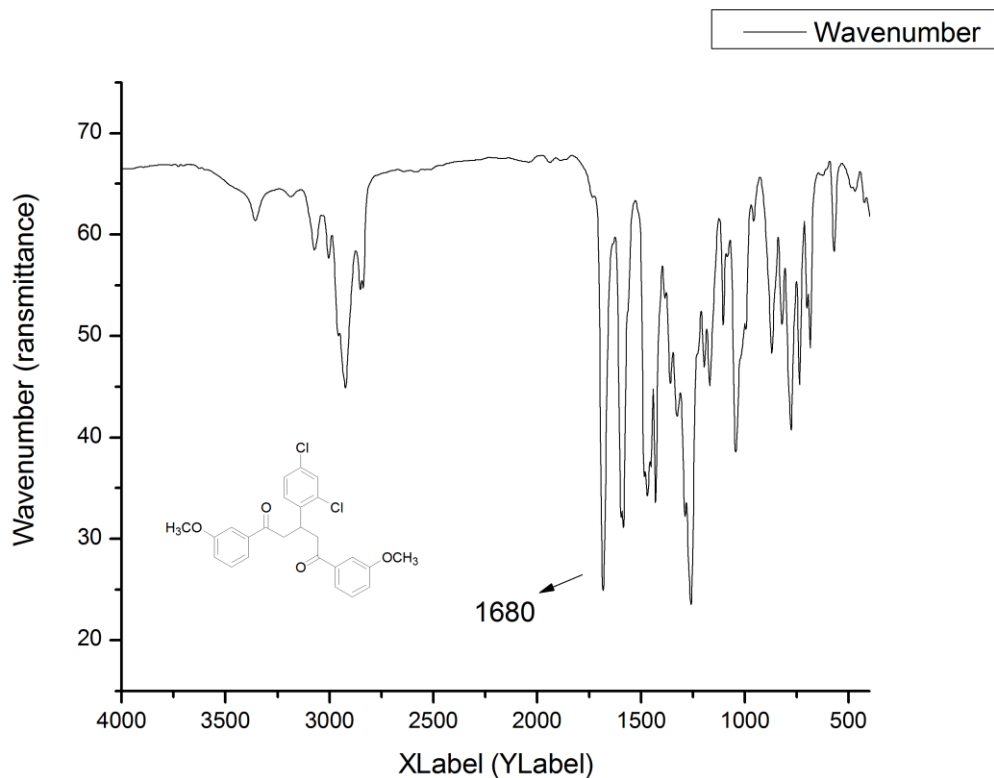


Fig 40. IR of 3-(2,4-dichloro-phenyl)-1,5-bis-(3-methoxy-phenyl)-pentane-1,5-dione (2n)

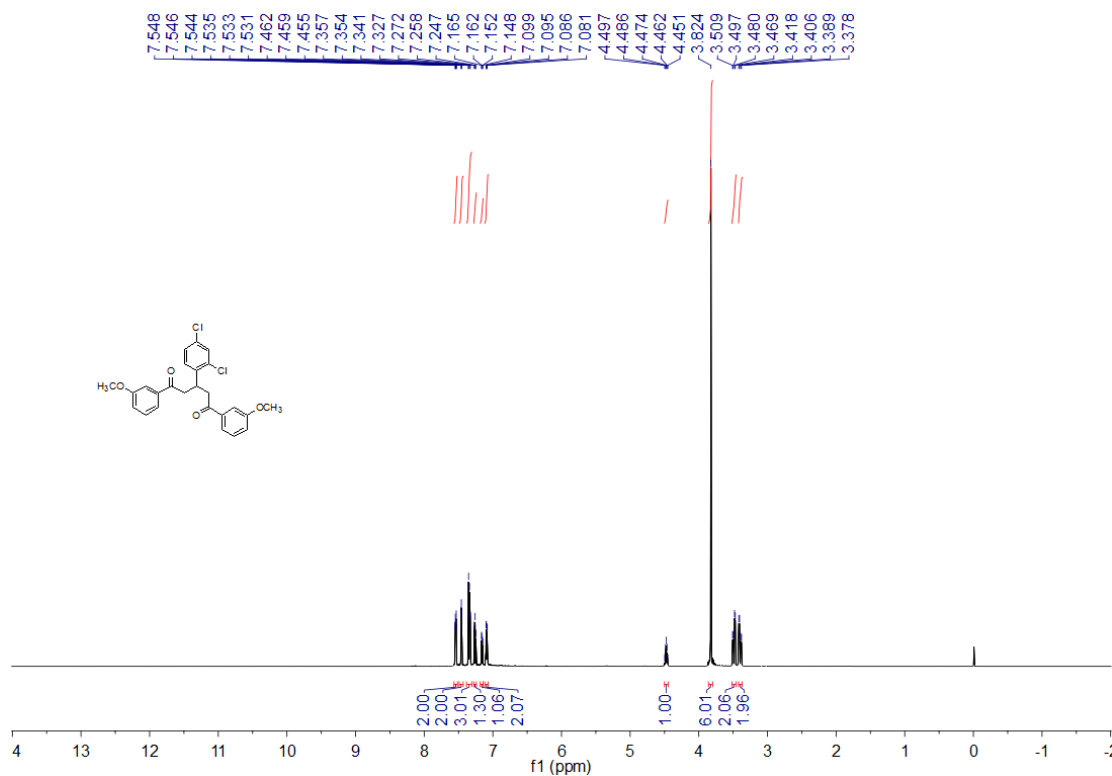


Fig 41.  $^1\text{H}$  NMR of

3-(2,4-dichloro-phenyl)-1,5-bis-(3-methoxy-phenyl)-pentane-1,5-dione (2n)

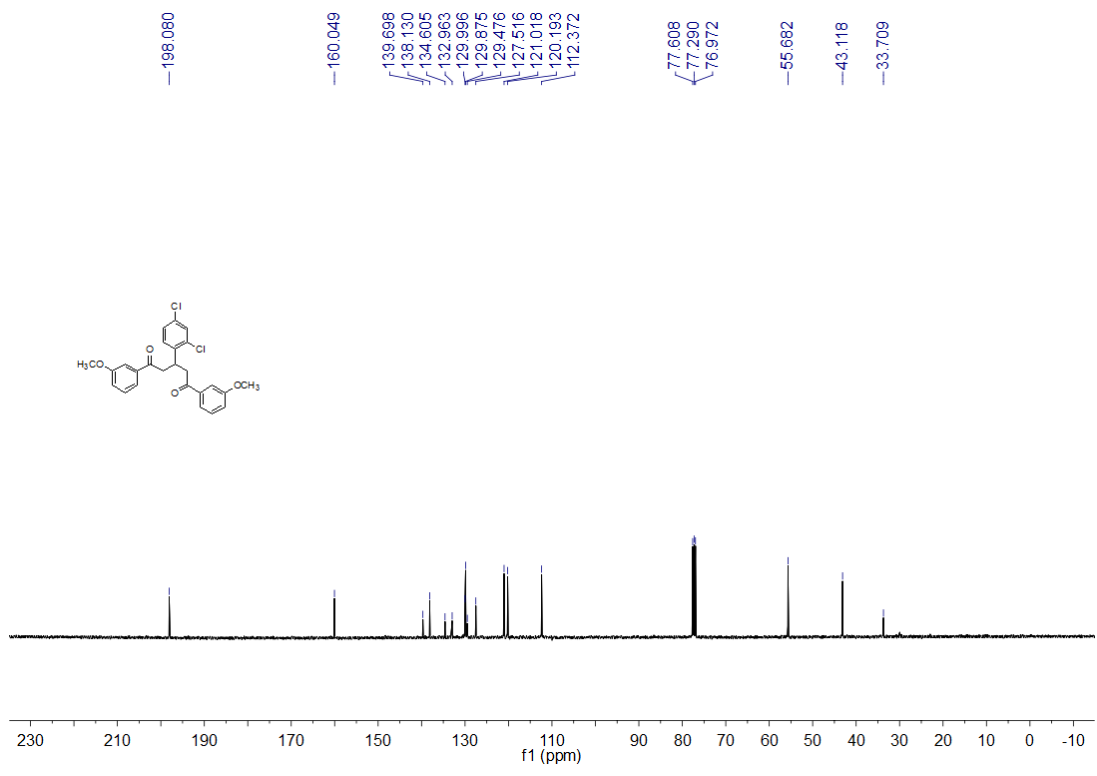


Fig 42.  $^{13}\text{C}$  NMR of

3-(2,4-dichloro-phenyl)-1,5-bis-(3-methoxy-phenyl)-pentane-1,5-dione (2n)

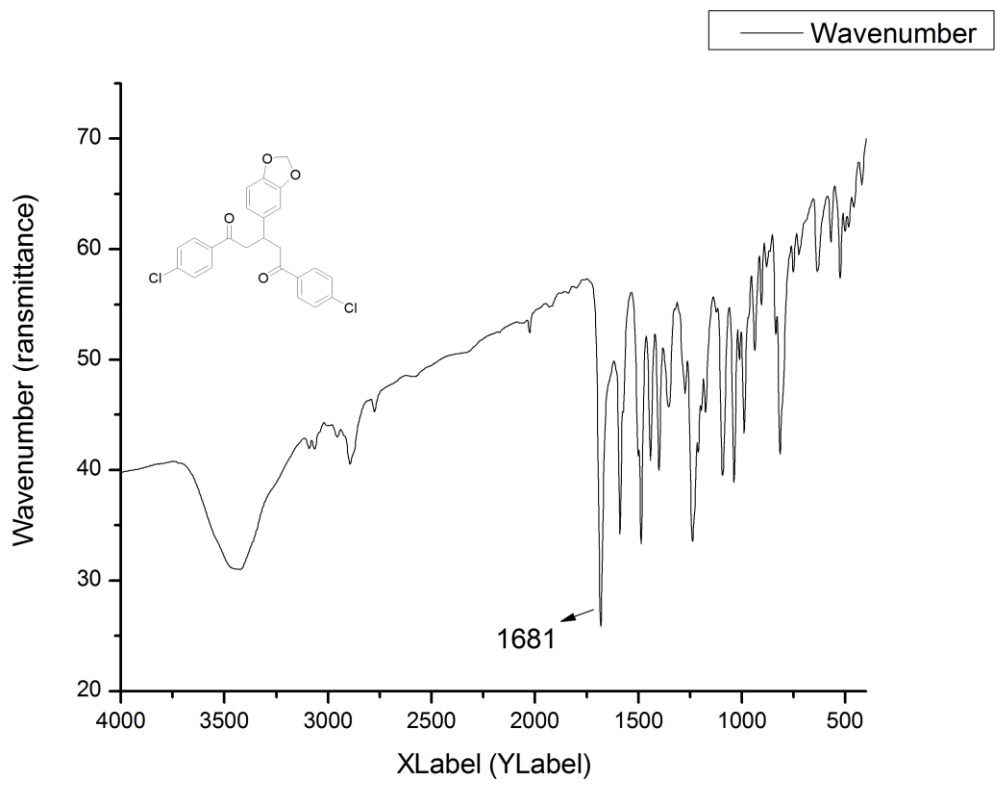
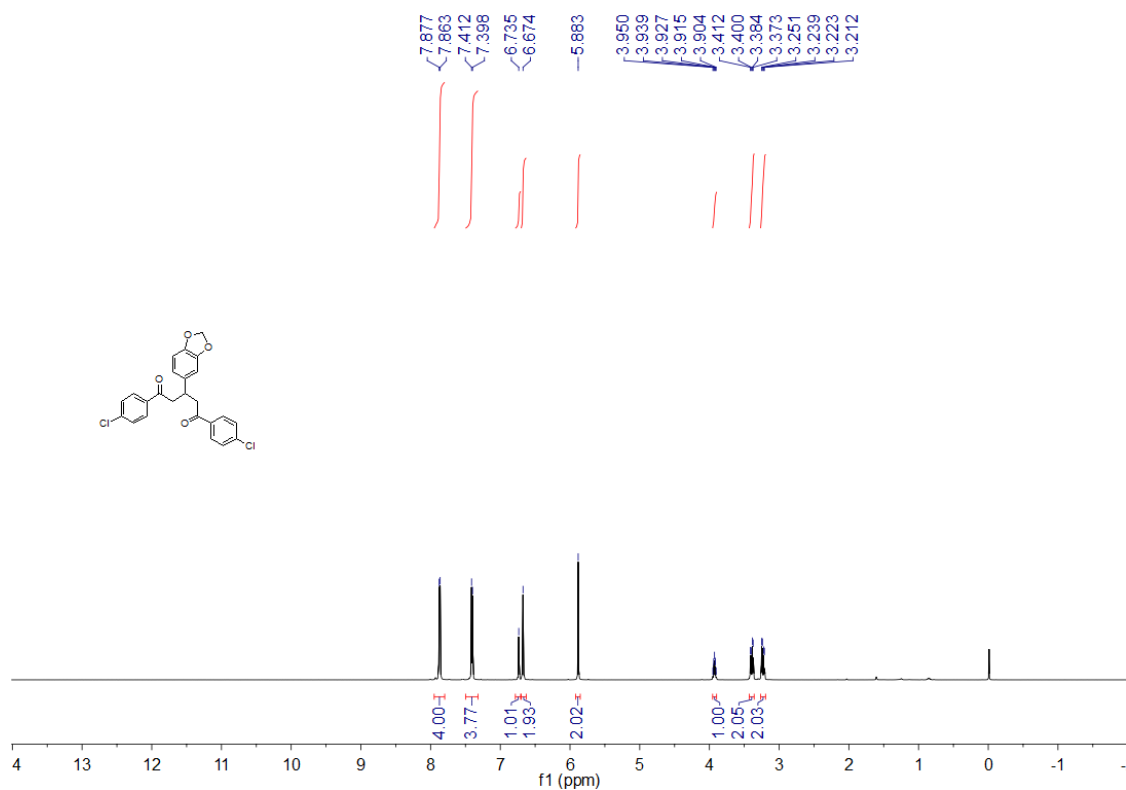
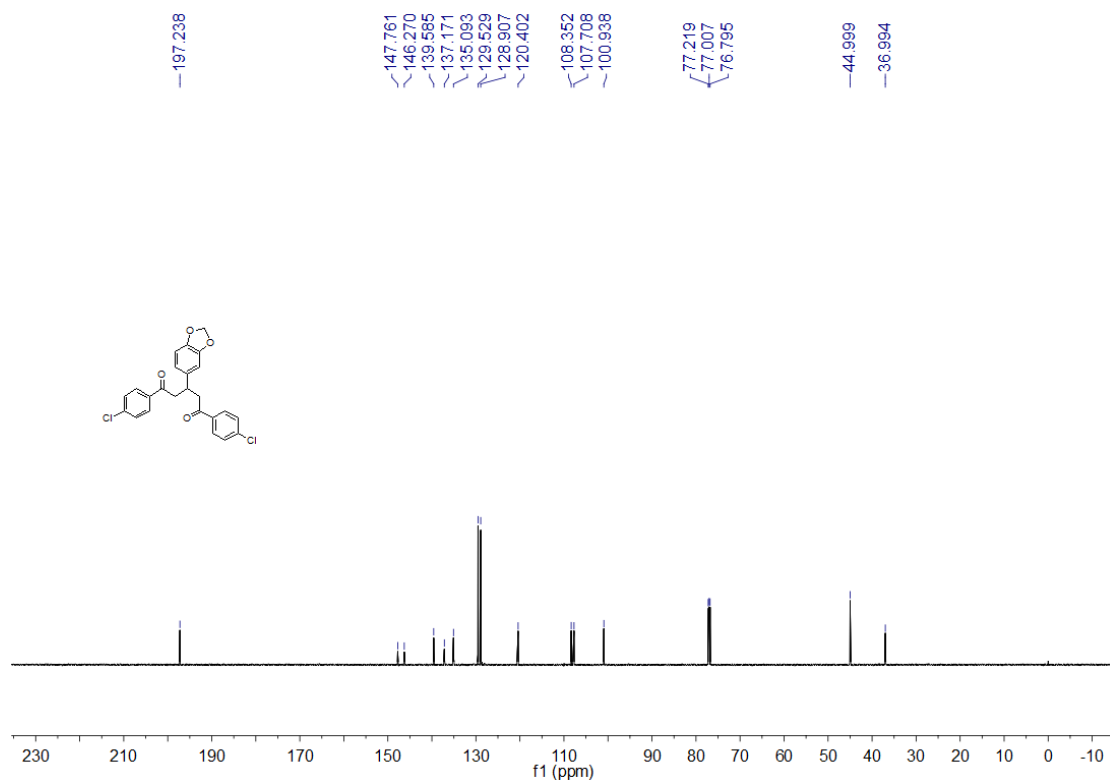


Fig 43. IR of

**3-benzo[1,3]dioxol-5-yl-1,5-bis-(4-chloro-phenyl)-pentane-1,5-dione (2o)**

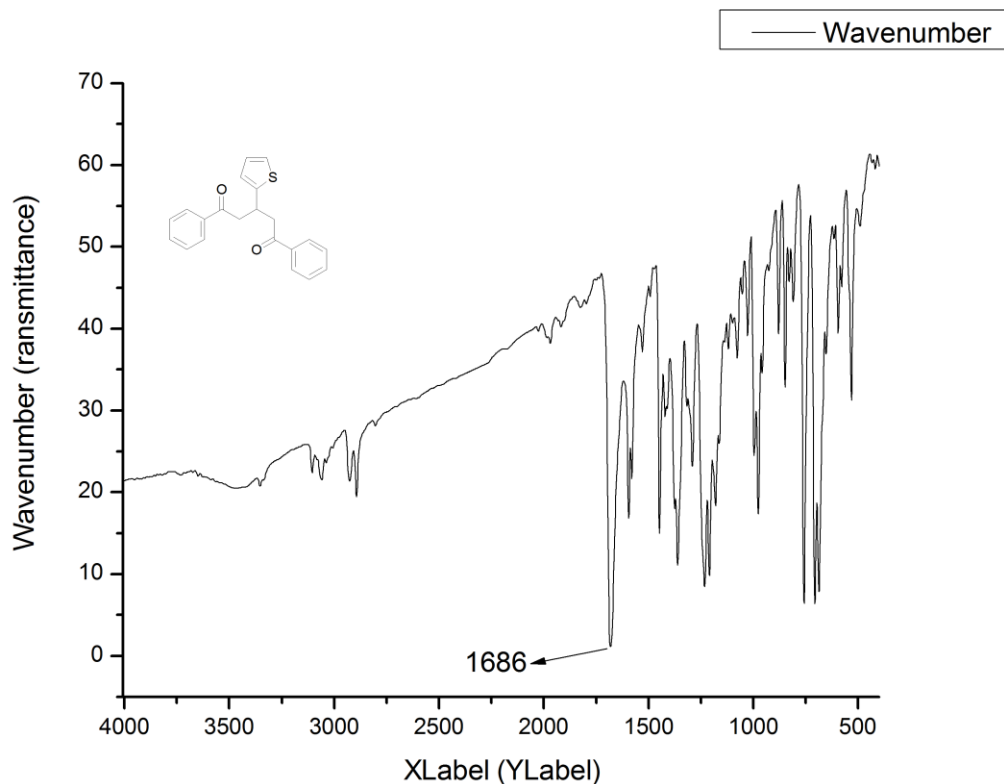


**Fig 44. <sup>1</sup>H NMR of 3-benzo[1,3]dioxol-5-yl-1,5-bis-(4-chloro-phenyl)-pentane-1,5-dione (2o)**

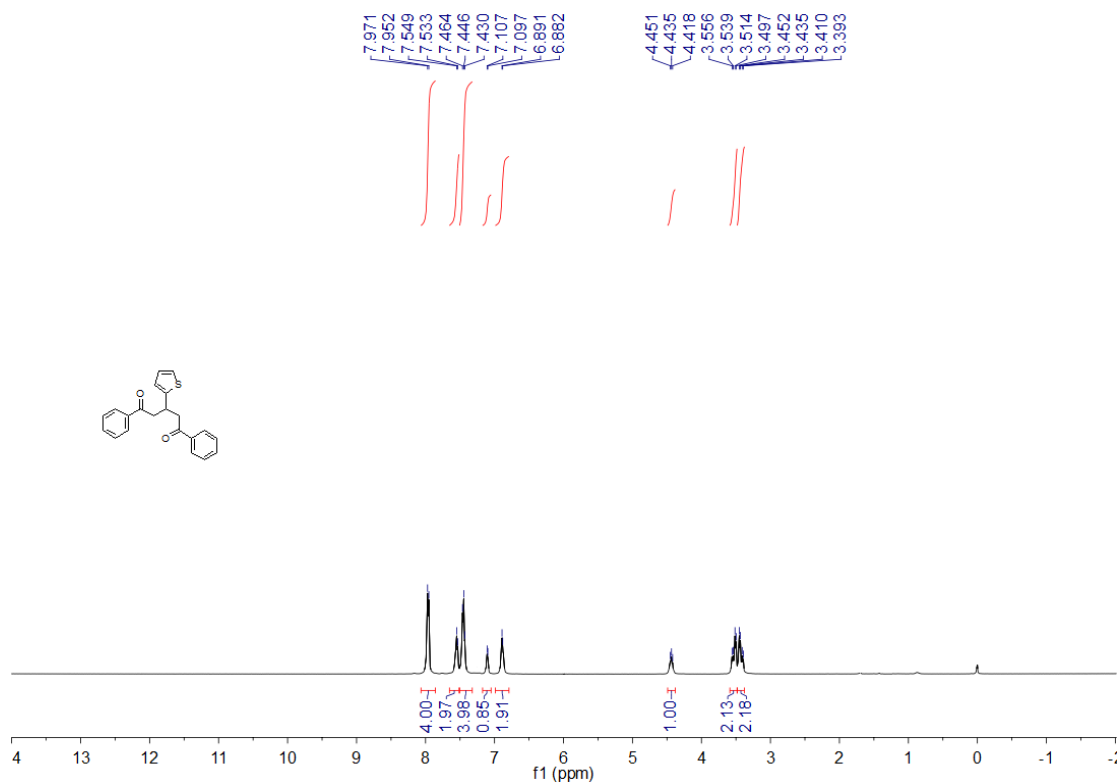


**Fig 45. <sup>13</sup>C NMR of**

**3-benzo[1,3]dioxol-5-yl-1,5-bis-(4-chloro-phenyl)-pentane-1,5-dione (2o)**



**Fig 46. IR of 1,5-diphenyl-3-thiophen-2-yl-pentane-1,5-dione (2p)**



**Fig 47. <sup>1</sup>H NMR of 1,5-diphenyl-3-thiophen-2-yl-pentane-1,5-dione (2p)**



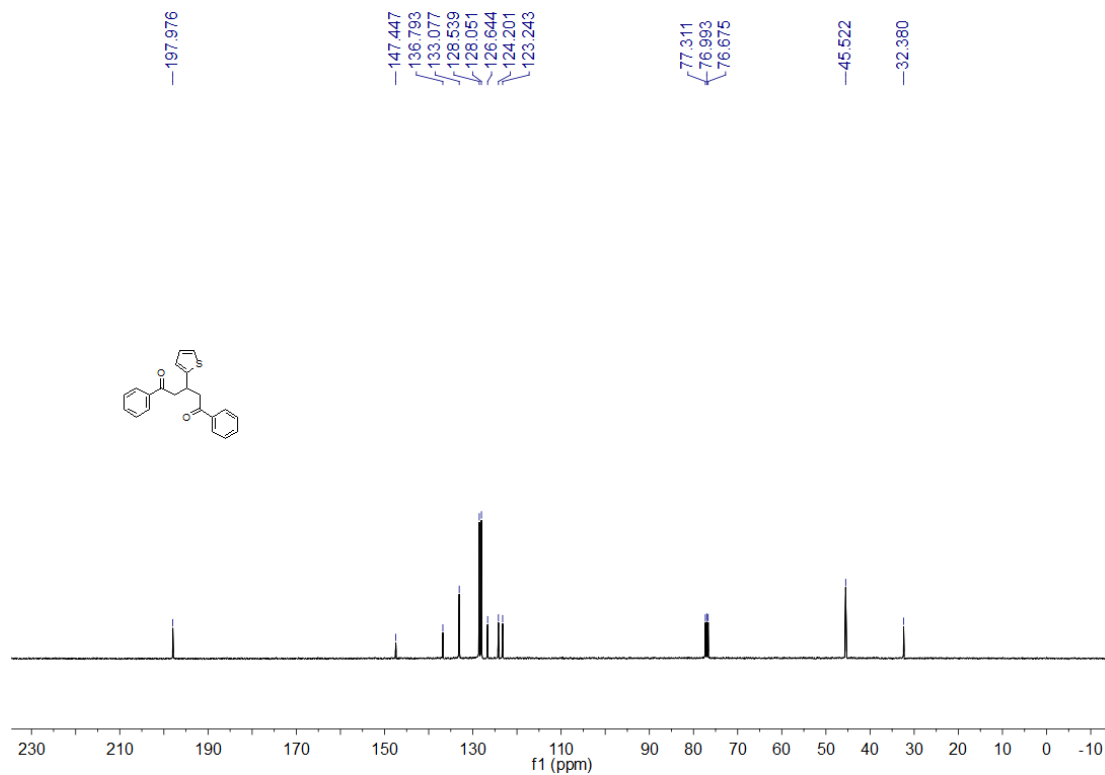


Fig 48.  $^{13}\text{C}$  NMR of 1,5-diphenyl-3-thiophen-2-yl-pentane-1,5-dione (2p)