

The indium(III) chloride catalyzed synthesis and photochromic properties of some 3-acylcoumarins with sulfur in the C3-sidechain

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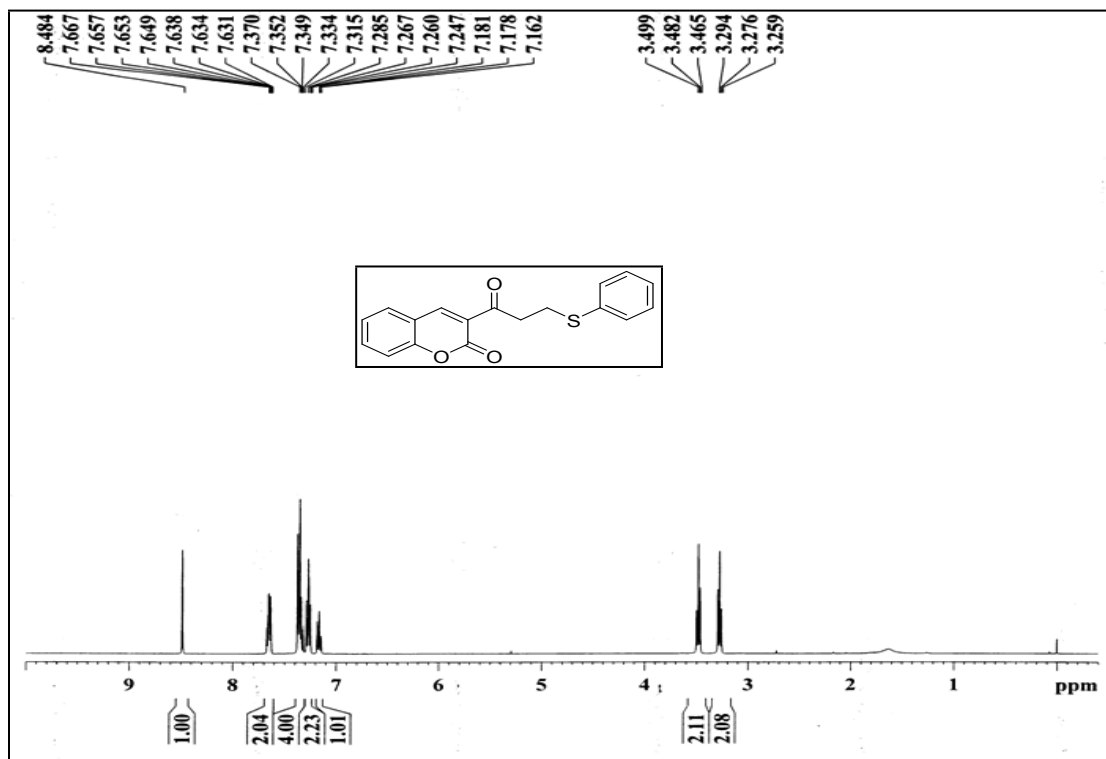


Figure 7. ¹H NMR (400 MHz, CCl₄ + CDCl₃, 1:1) spectrum of 3-(3-(phenylthio)propanoyl)-2H-chromen-2-one **3c**.

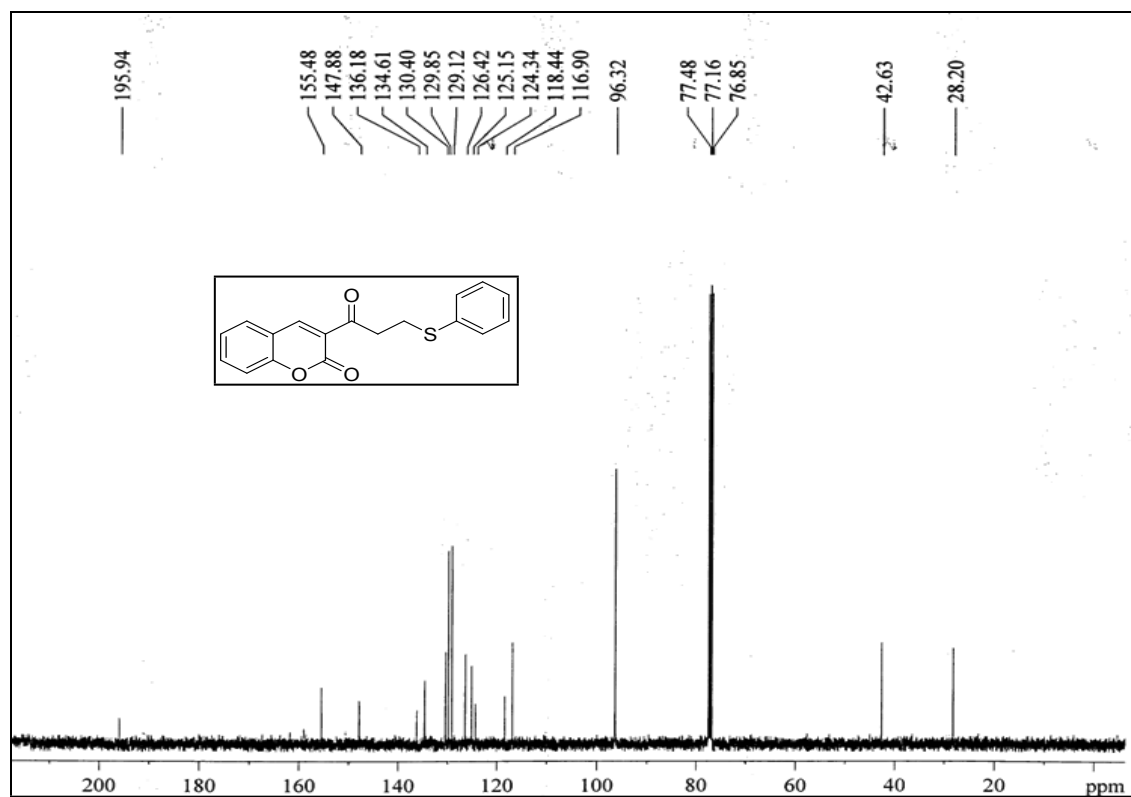


Figure 8. ¹³C NMR (100 MHz, CCl₄ + CDCl₃, 1:1) spectrum 3-(3-(phenylthio)propanoyl)-2H-chromen-2-one **3c**.

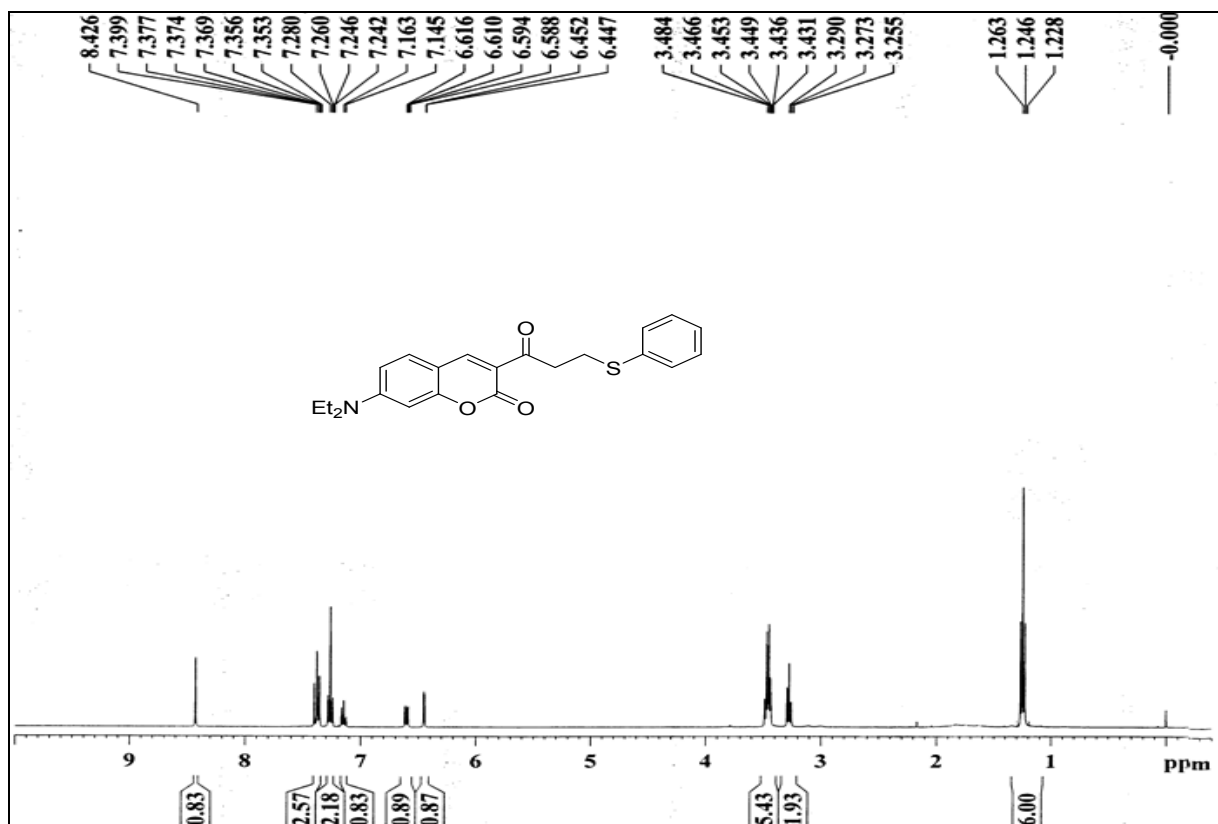


Figure 9. ¹H NMR (400 MHz, CCl₄ + CDCl₃, 1:1) spectrum of 7-(diethylamino)-3-(3-(phenylthio)propanoyl)-2H-chromen-2-one **3f**.

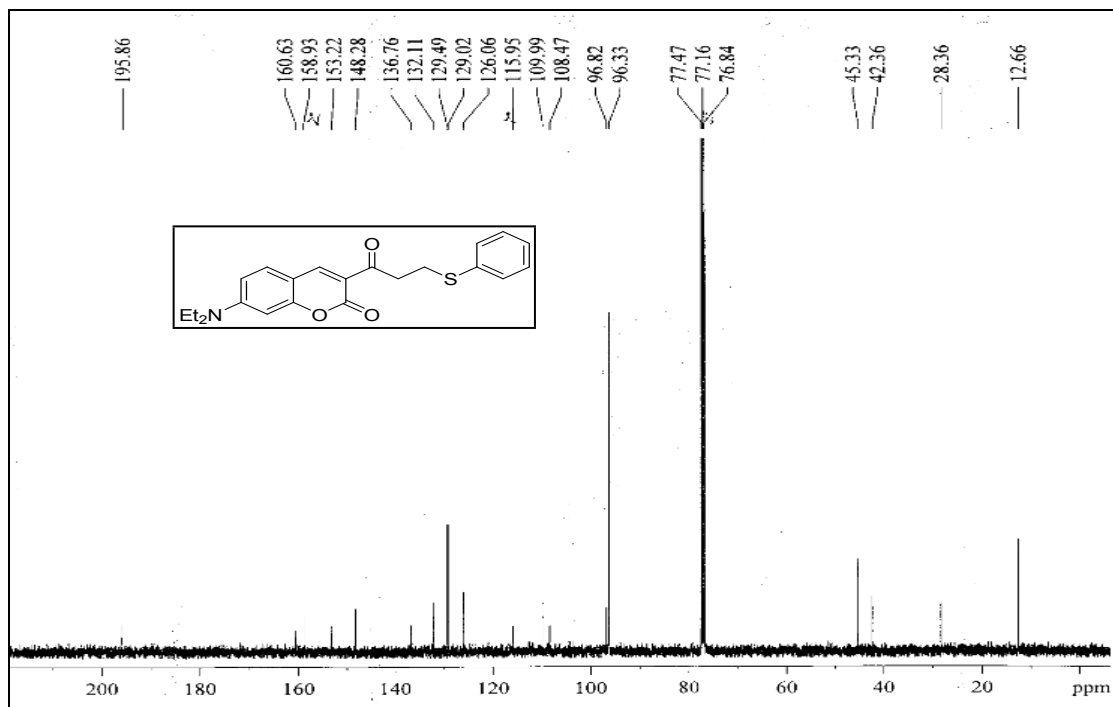


Figure 10. ^{13}C NMR (100 MHz, $\text{CCl}_4 + \text{CDCl}_3$, 1:1) spectrum of 7-(diethylamino)-3-(3-(phenylthio)propanoyl)-2*H*-chromen-2-one **3f**.

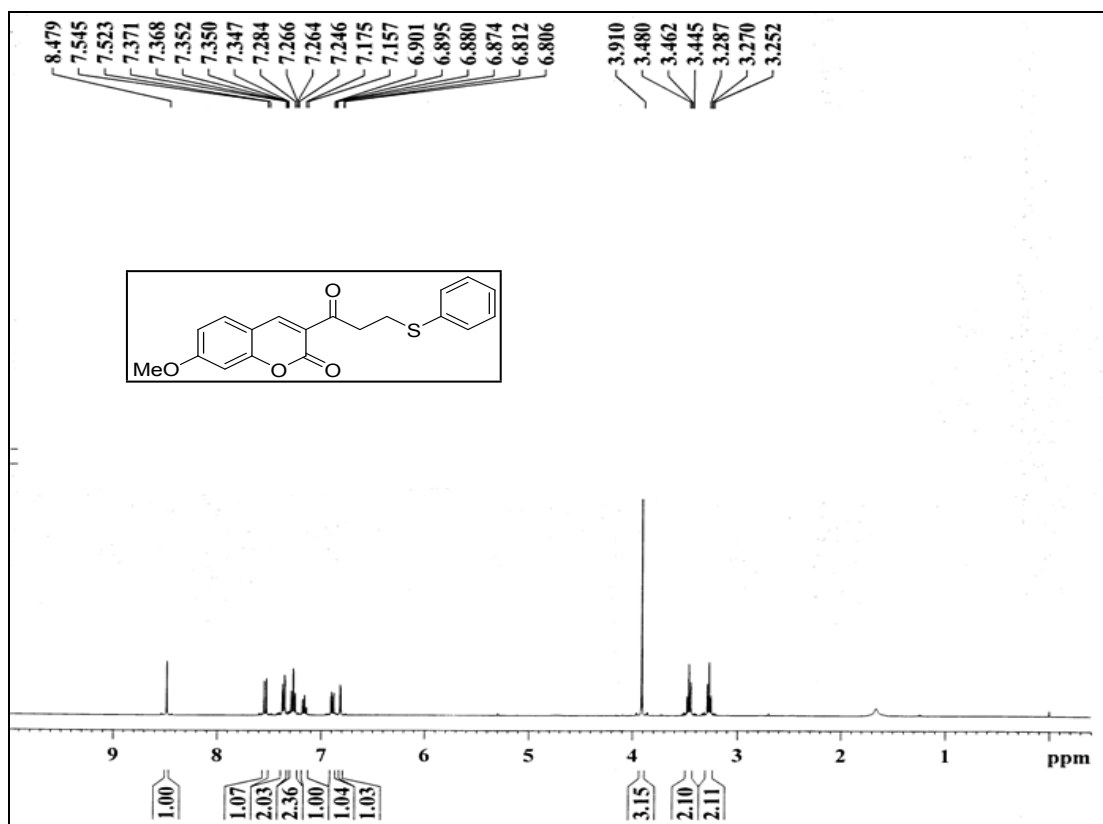


Figure 11. ¹H NMR (400 MHz, CCl₄ + CDCl₃, 1:1) spectrum 7-methoxy-3-(3-(phenylthio)propanoyl)-2H-chromen-2-one **3h**.

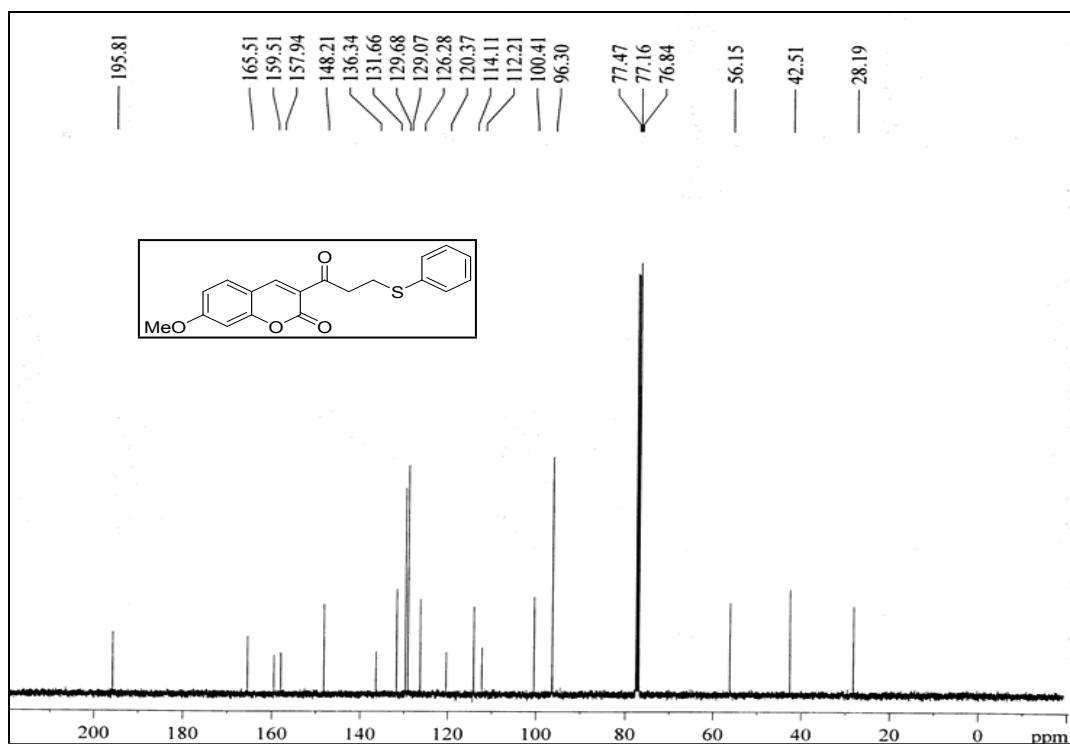


Figure 12. ¹³C NMR (100 MHz, CCl₄ + CDCl₃, 1:1) spectrum of 7-methoxy-3-(3-(phenylthio)propanoyl)-2H-chromen-2-one **3h**.

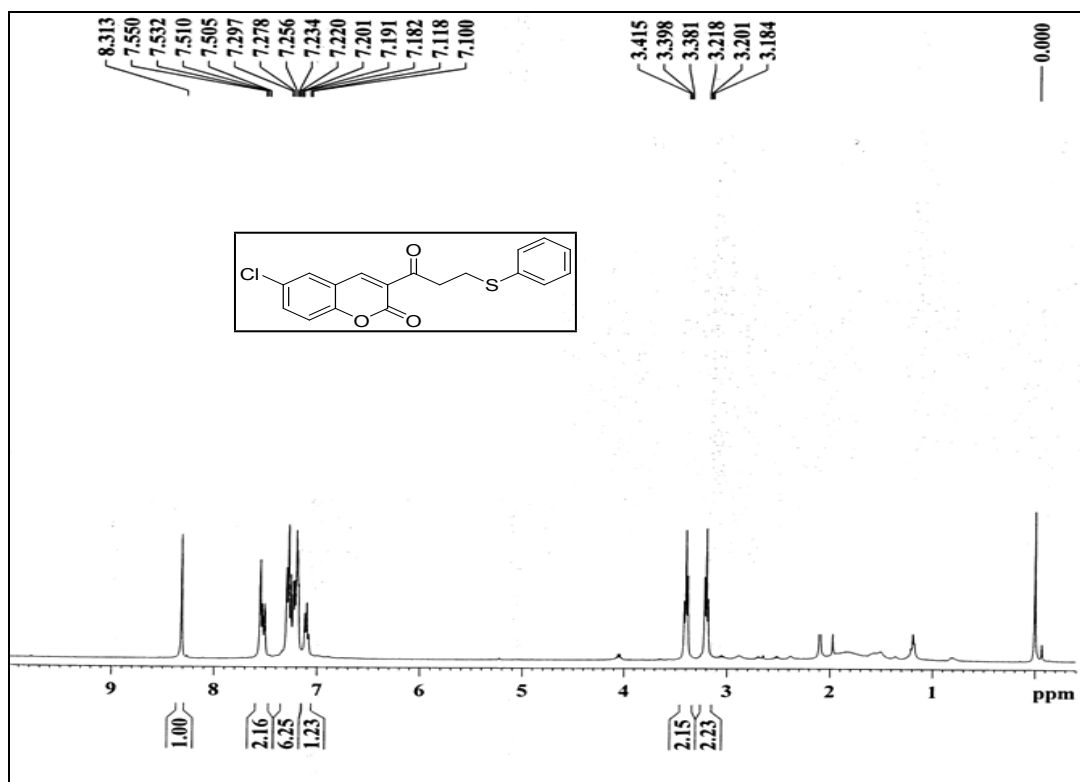


Figure 13. ¹H NMR (400 MHz, CCl₄ + CDCl₃, 1:1) spectrum of 6-chloro-3-(3-(phenylthio)propanoyl)-2H-chromen-2-one **31**.

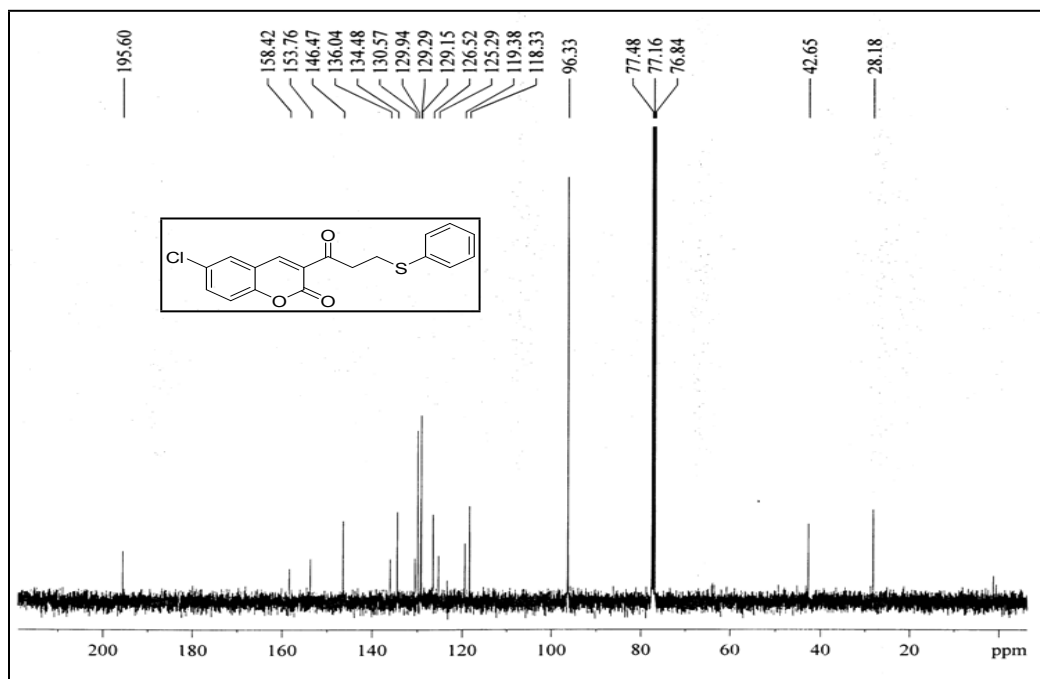


Figure 14. ¹³C NMR (100 MHz, CCl₄ + CDCl₃, 1:1) spectrum of 6-chloro-3-(3-(phenylthio)propanoyl)-2H-chromen-2-one **31**.

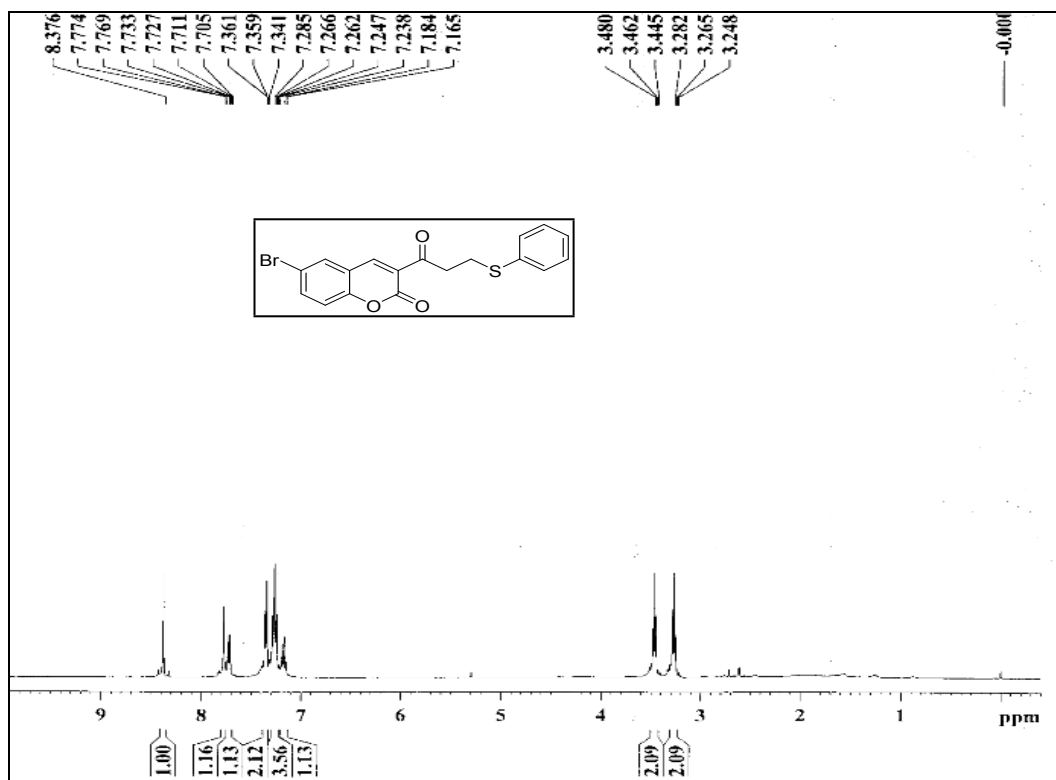


Figure 15. ¹H NMR (400 MHz, CCl₄ + CDCl₃, 1:1) spectrum of 6-bromo-3-(3-(phenylthio)propanoyl)-2H-chromen-2-one **30**.

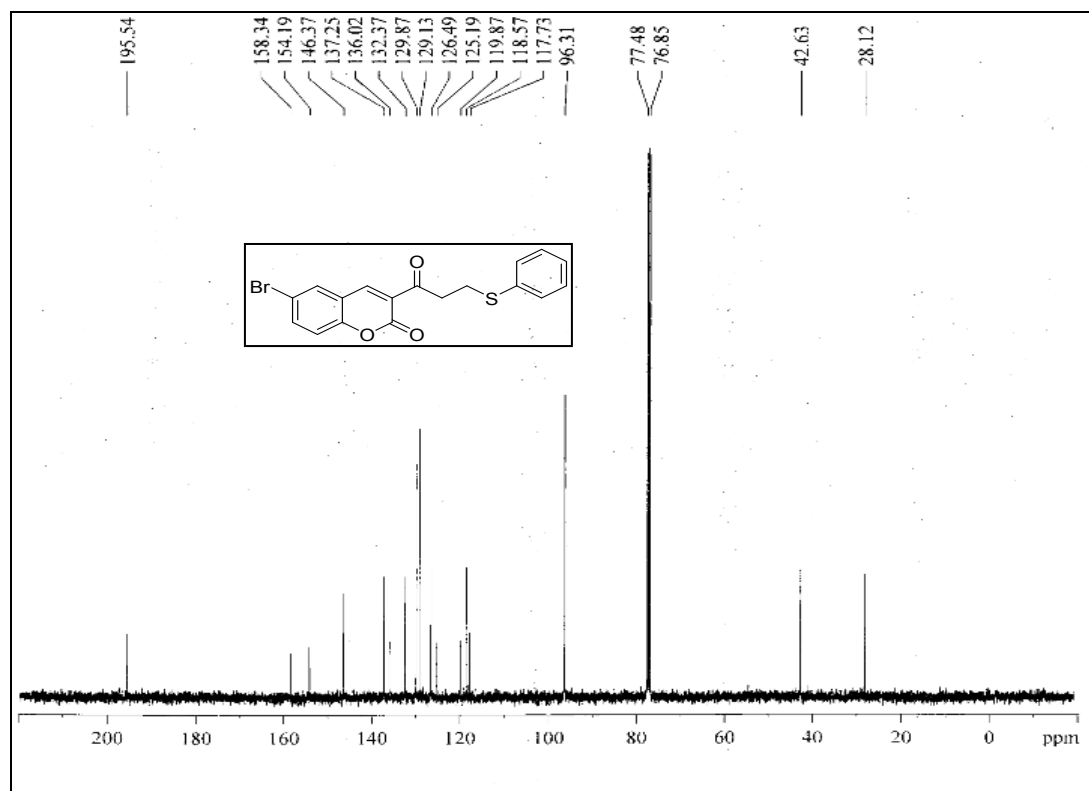


Figure 16. ^{13}C NMR (100 MHz, $\text{CCl}_4 + \text{CDCl}_3$, 1:1) spectrum of 6-bromo-3-(3-(phenylthio)propanoyl)-2H-chromen-2-one **30**.

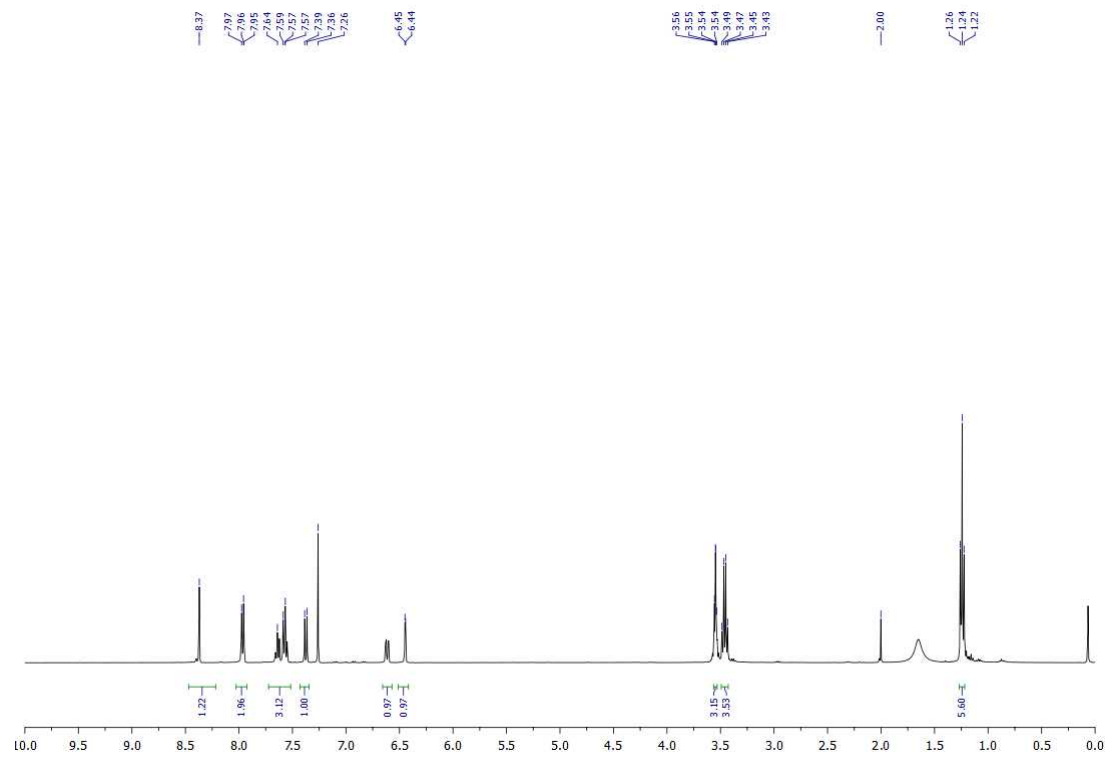


Figure 17. ¹H NMR (400 MHz, CCl₄ + CDCl₃, 1:1) spectrum of 7-(diethylamino)-3-(3-(phenylsulfinyl)propanoyl)-2*H*-chromen-2-one **3p**.

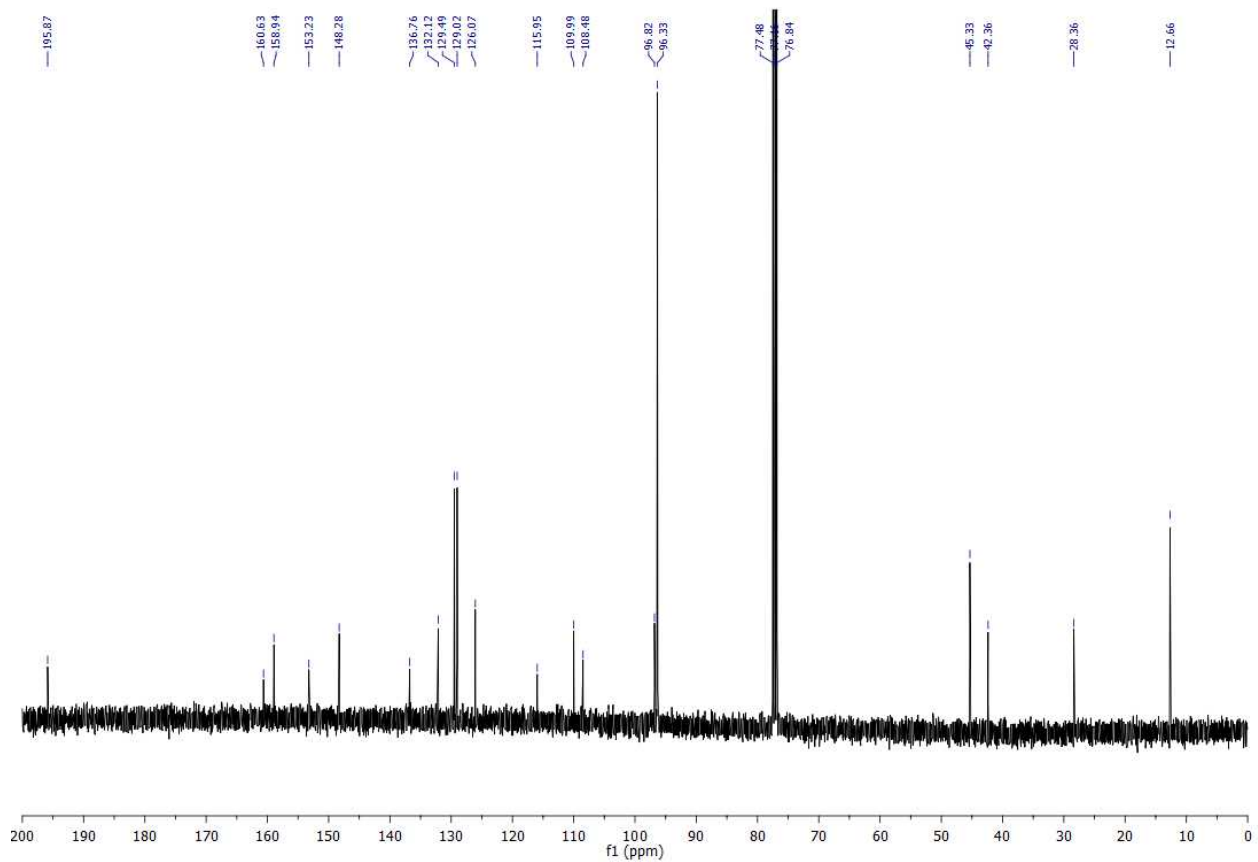


Figure 18. ^{13}C NMR (100 MHz, $\text{CCl}_4 + \text{CDCl}_3$, 1:1) spectrum of 7-(diethylamino)-3-(3-(phenylsulfinyl)propanoyl)-2H-chromen-2-one **3p**.

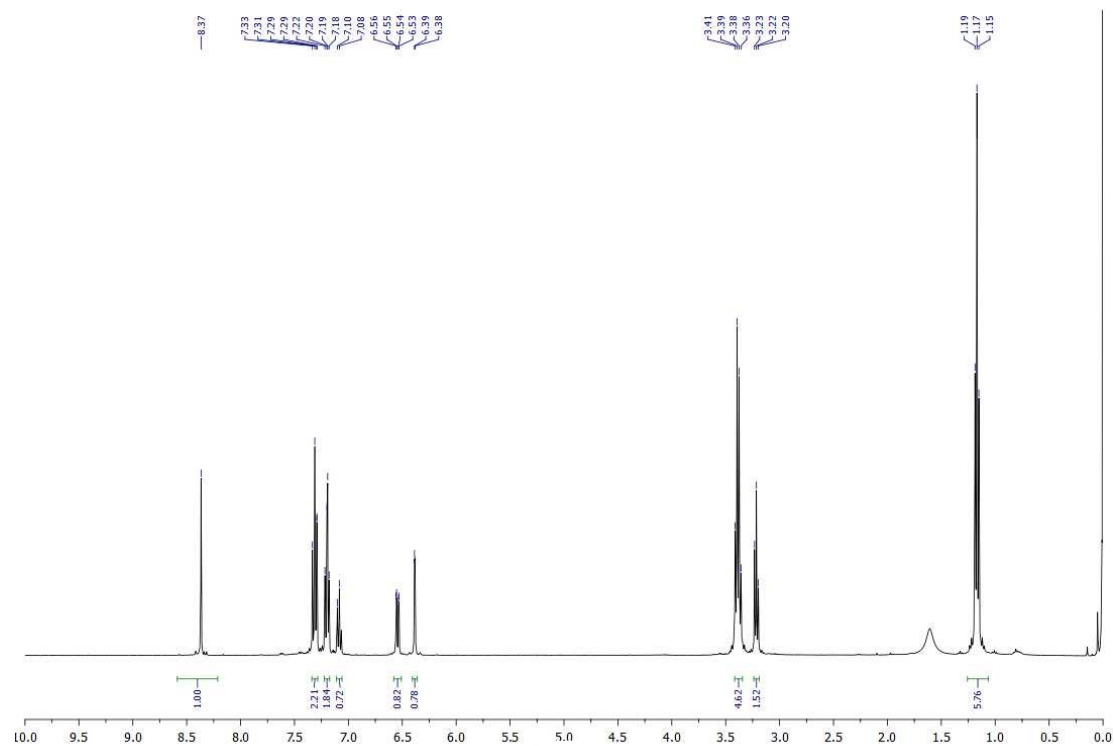


Figure 19. ¹H NMR (400 MHz, CCl₄ + CDCl₃, 1:1) spectrum of 7-(diethylamino)-3-(3-(phenylsulfonyl)propanoyl)-2H-chromen-2-one **3q**.

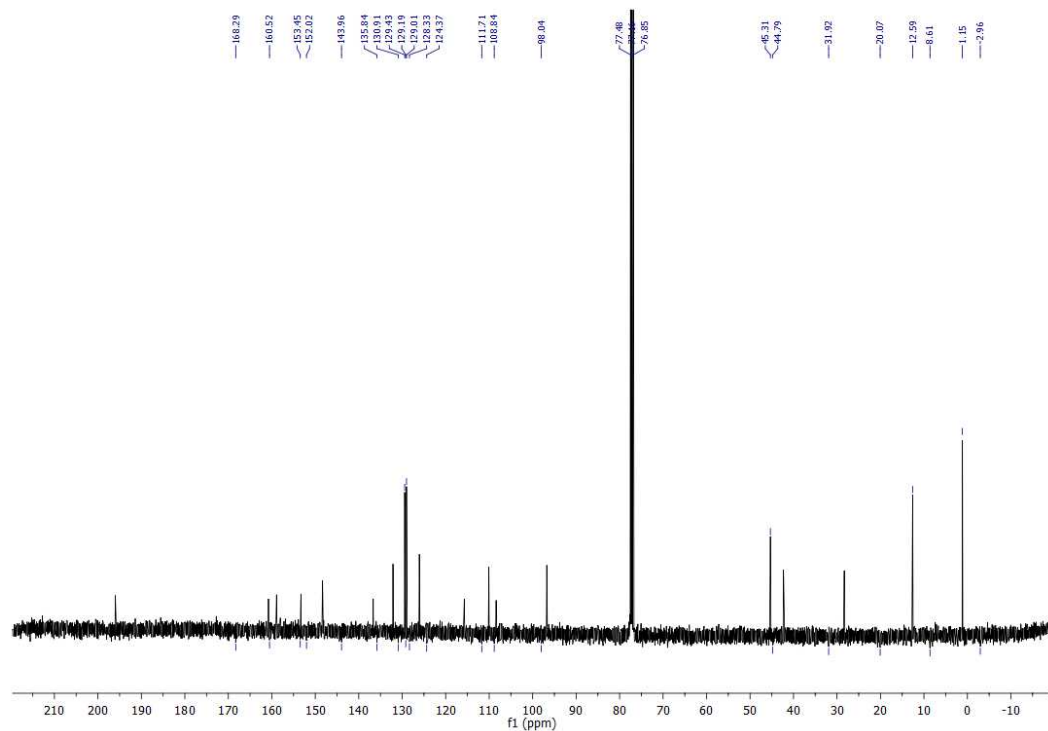


Figure 20. ^{13}C NMR (100 MHz, $\text{CCl}_4 + \text{CDCl}_3$, 1:1) spectrum of 7-(diethylamino)-3-(3-(phenylsulfonyl)propanoyl)-2*H*-chromen-2-one **3q**.

UV visible spectra of coumarins of **3p** and **3f** in different solvents

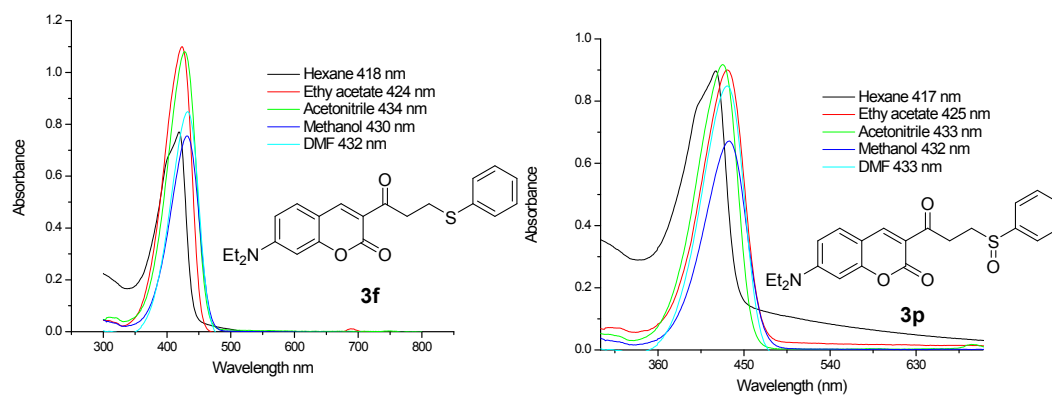


Figure 26. Absorption spectra of sulfone **3f** (8.8 μM) and parent **3p** (9.8 μM) in hexane (black), EtOAc (red), MeCN (green), MeOH (blue), DMF (cyan)