

Synthesis and fungicidal activity of tetrazole-containing thioethers of the 2(5*H*)-furanone series

E. Sh. Saigitbatalova,^a N. S. Charushin,^a L. Z. Latypova,^a S. V. Kolyshkina,^b D. P. Gerasimova,^{a,c} D. A. Novichikhina,^d O. A. Lodochnikova,^{a,c} A. R. Kayumov,^{b} and A. R. Kurbangalieva^{a*}*

^a*A. M. Butlerov Institute of Chemistry, Kazan Federal University,
18 ul. Kremlyovskaya, 420008 Kazan, Russian Federation.*

E-mail: akurbang@kpfu.ru

^b*Institute of Fundamental Medicine and Biology, Kazan Federal University,
18 ul. Kremlyovskaya, 420008 Kazan, Russian Federation.*

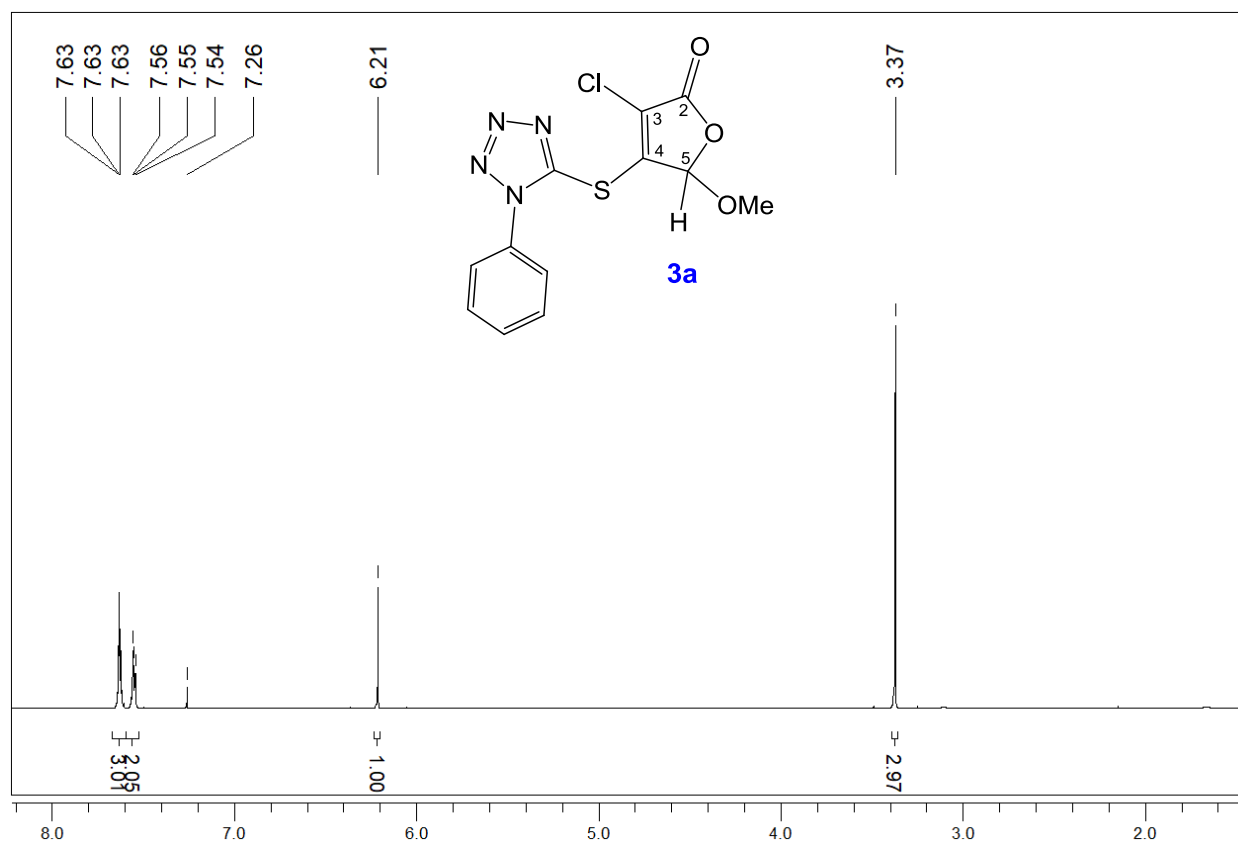
E-mail: kairatr@yandex.ru

^c*A. E. Arbuzov Institute of Organic and Physical Chemistry,
Federal Research Center “Kazan Scientific Center of the Russian Academy of Sciences”,
8 ul. Akademika Arbuzova, 420088 Kazan, Russian Federation.*

^d*Institute of Ecology, Biotechnology and Nature Management, Kazan Federal University,
18 ul. Kremlyovskaya, 420008 Kazan, Russian Federation.*

^1H and $^{13}\text{C}\{^1\text{H}\}$ NMR spectra of thioethers 3a–3g

a)



b)

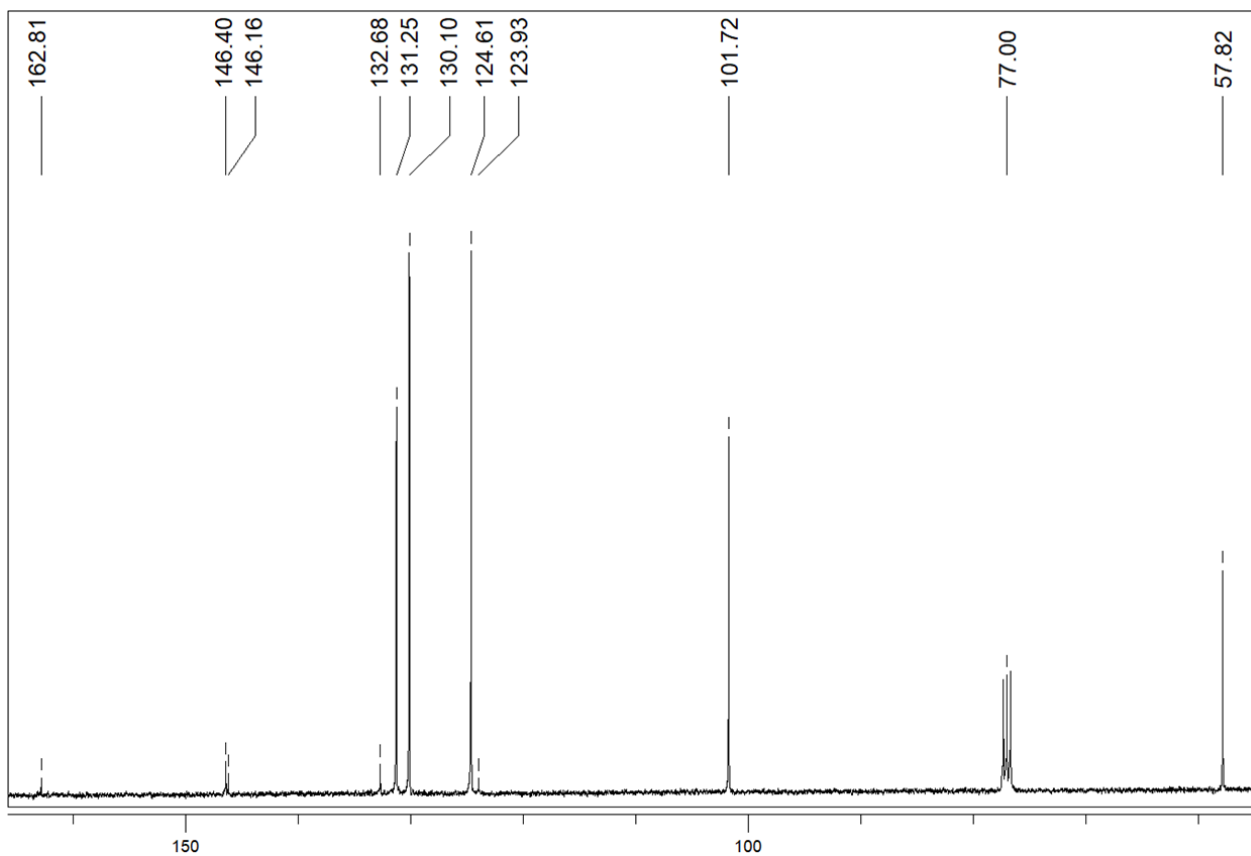
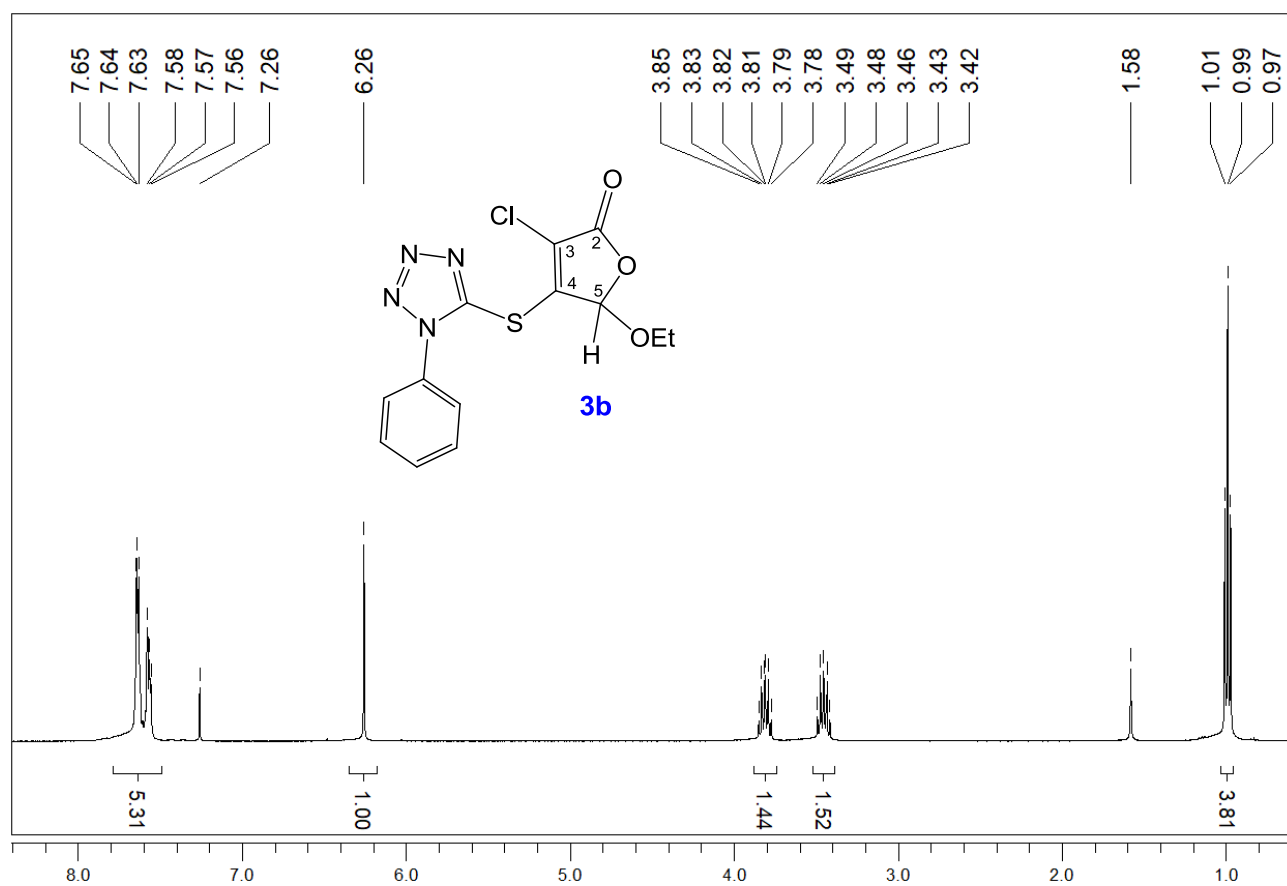


Figure S1. ^1H (a) and $^{13}\text{C}\{^1\text{H}\}$ (b) NMR spectra of compound **3a** (CDCl_3).

a)



b)

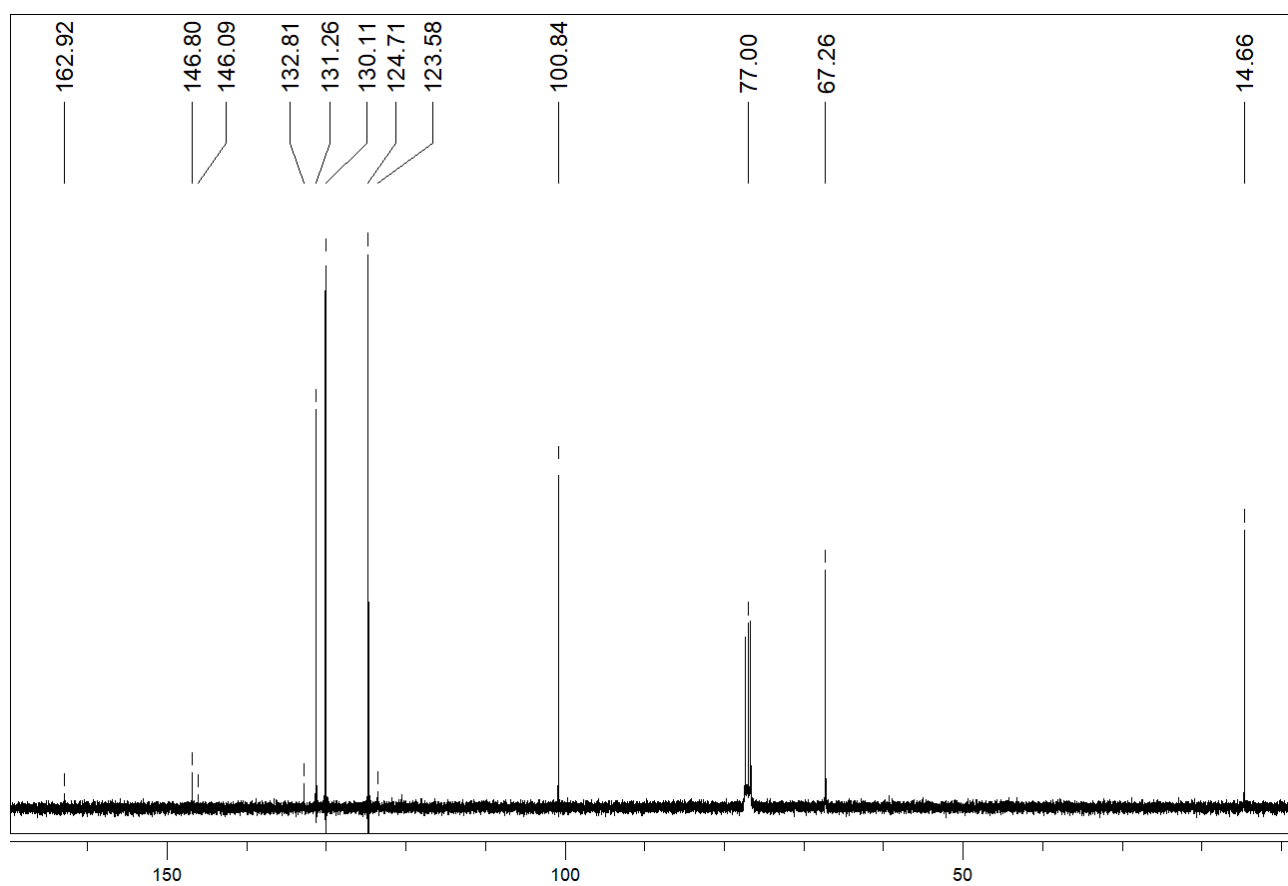
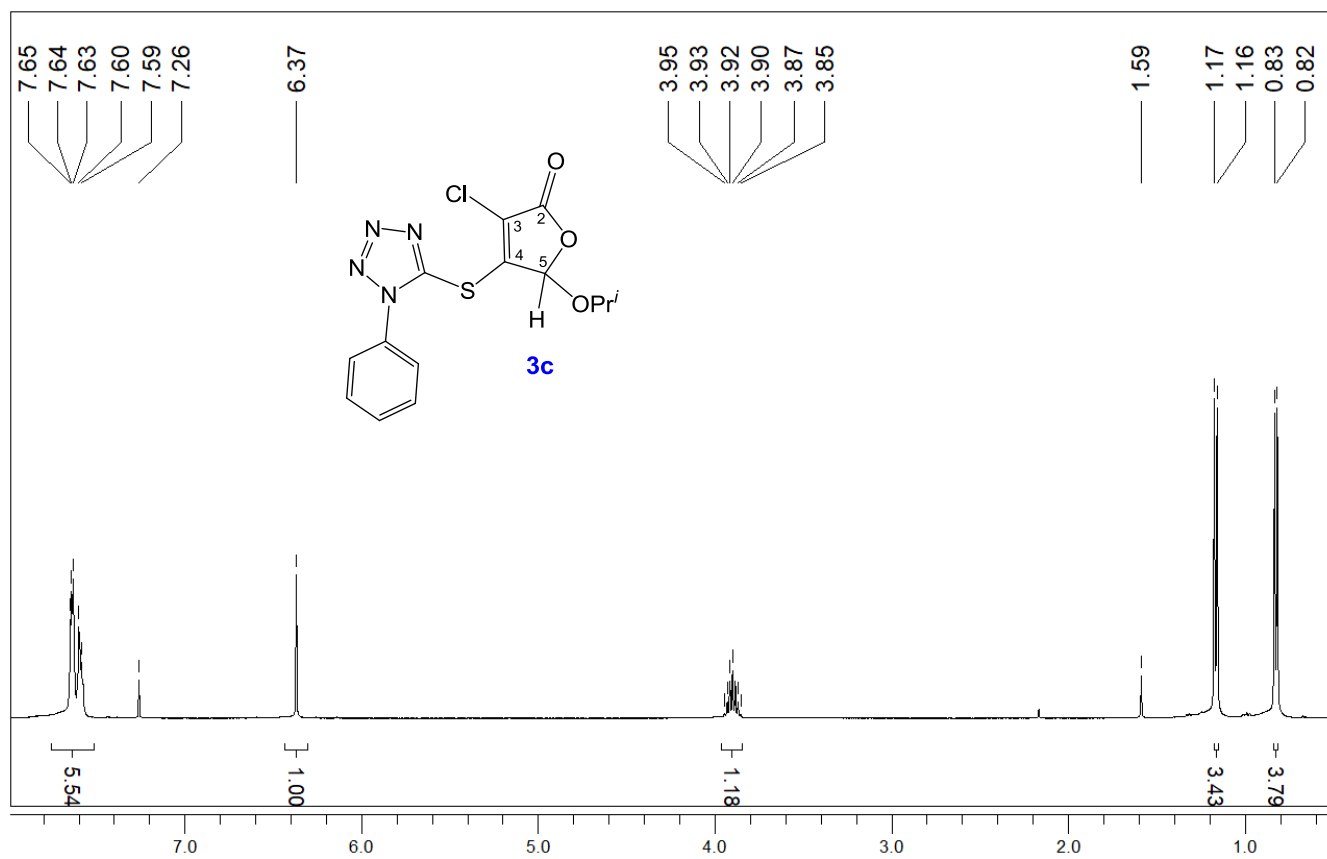


Figure S2. ¹H (a) and ¹³C{¹H} (b) NMR spectra of compound **3b** (CDCl₃).

a)



b)

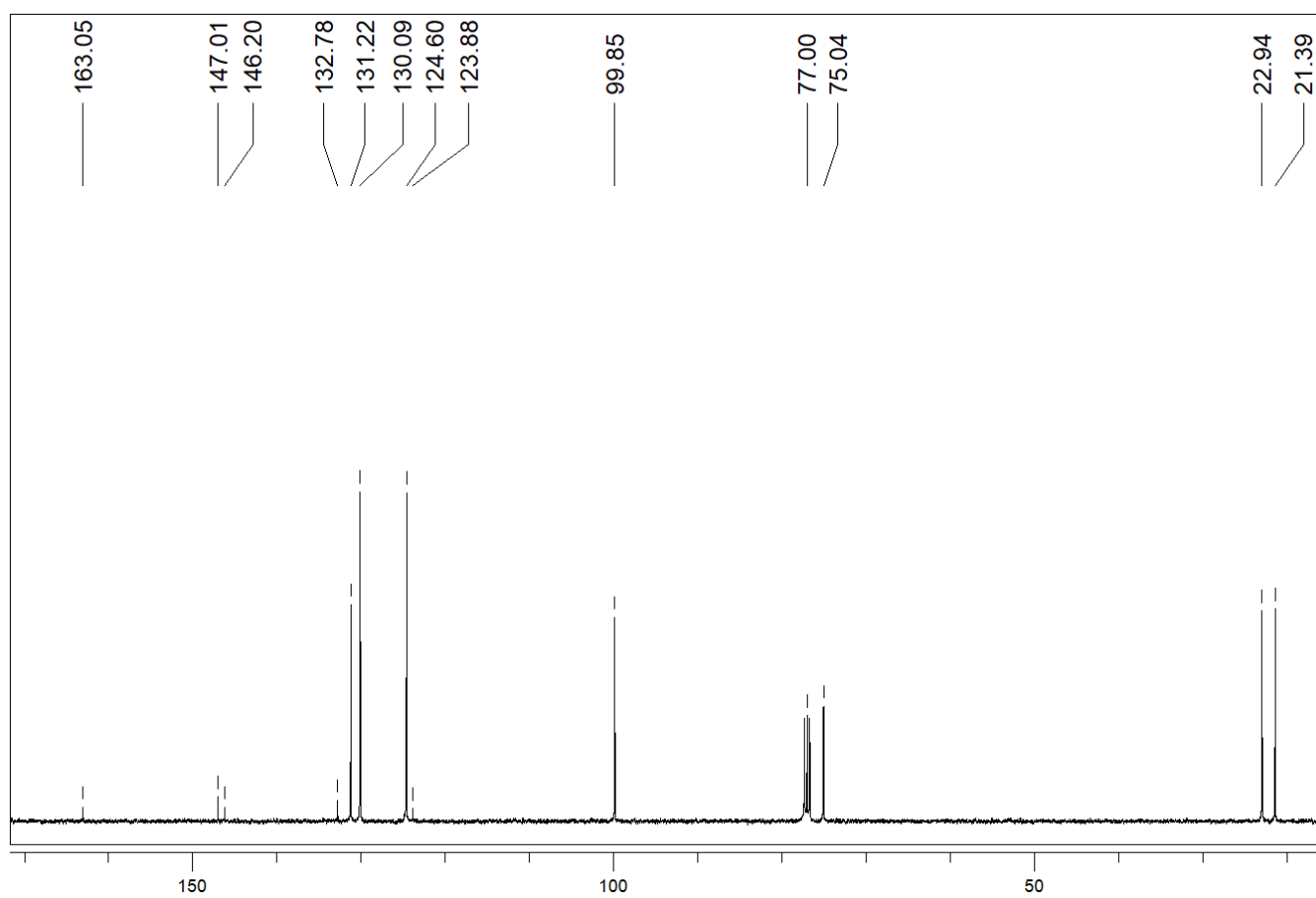
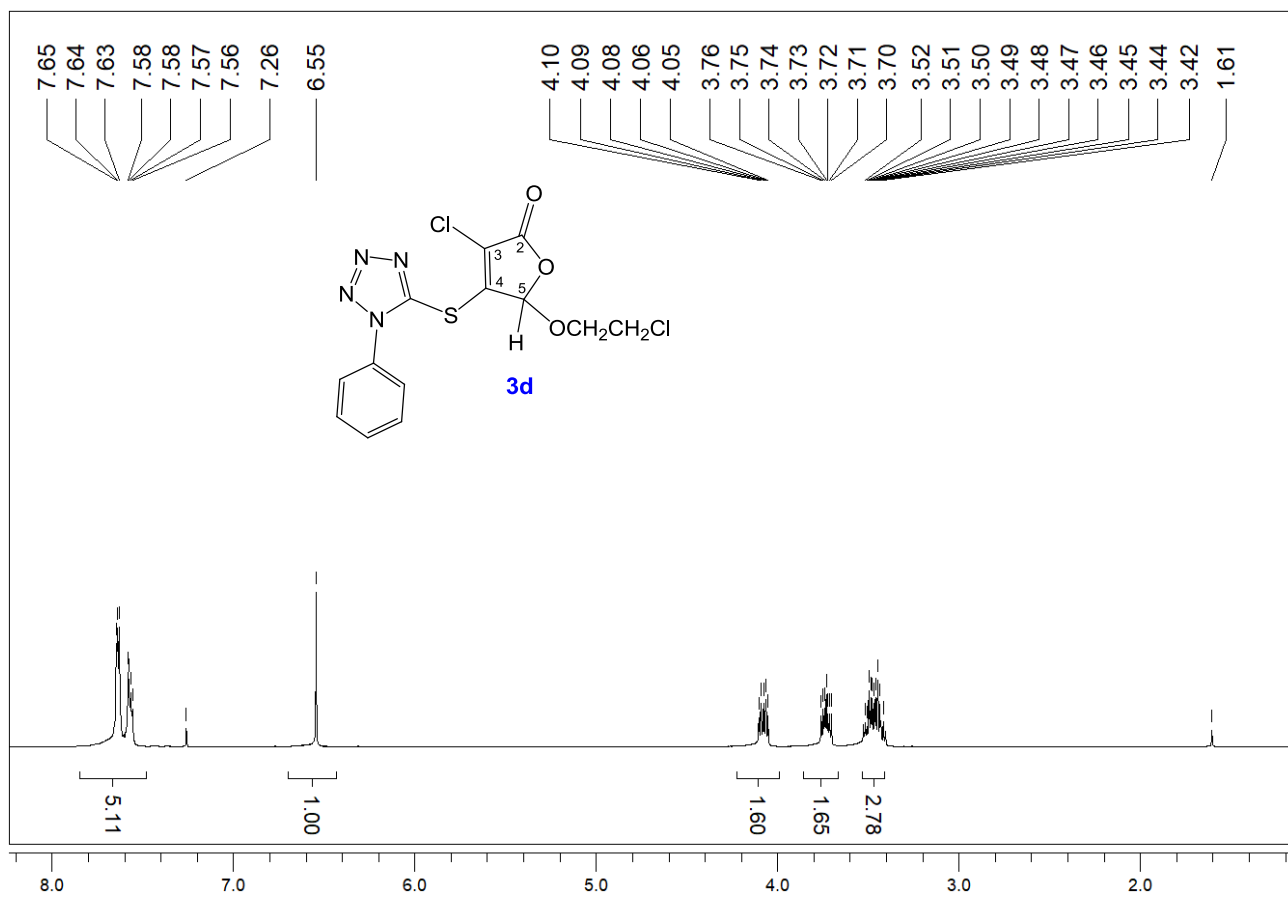


Figure S3. ^1H (a) and $^{13}\text{C}\{^1\text{H}\}$ (b) NMR spectra of compound **3c** (CDCl₃).

a)



b)

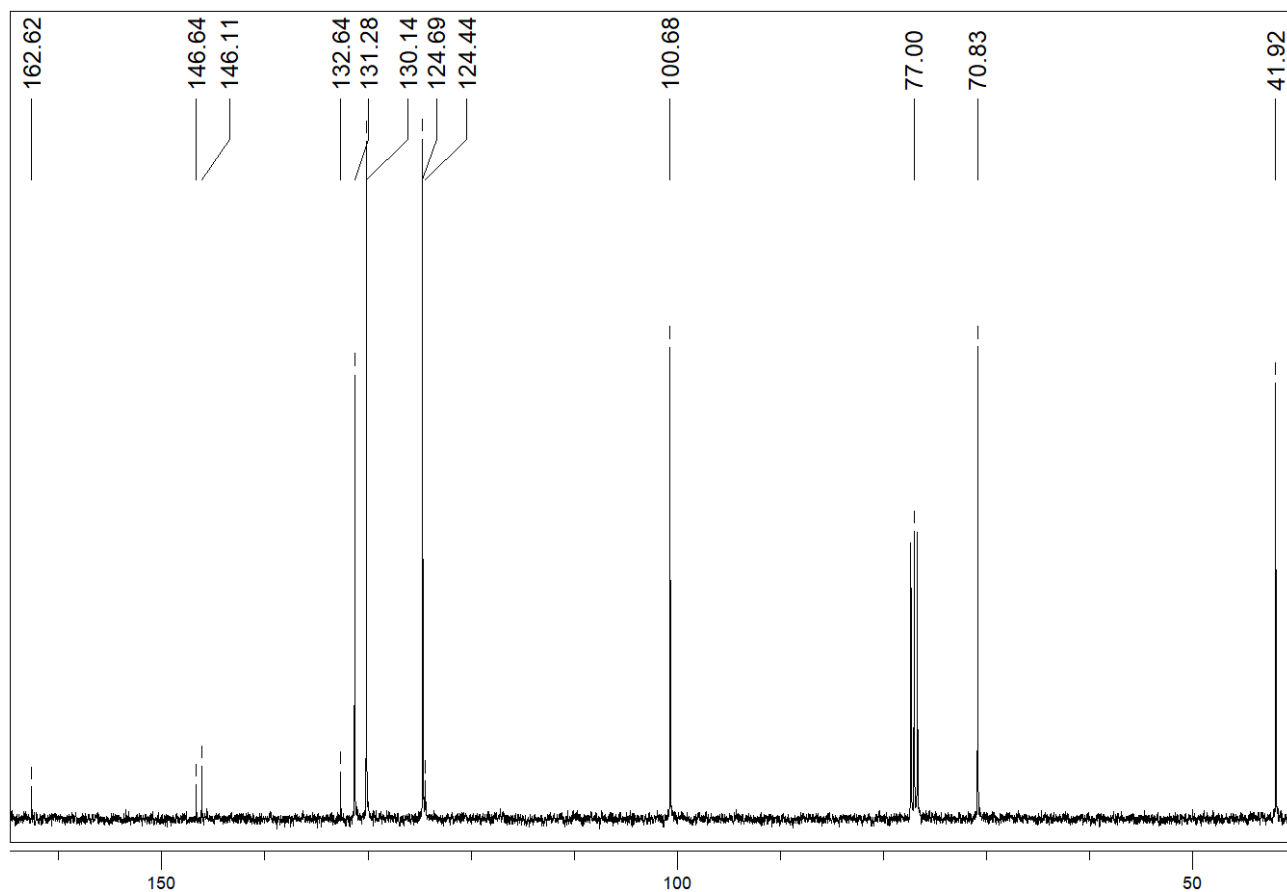
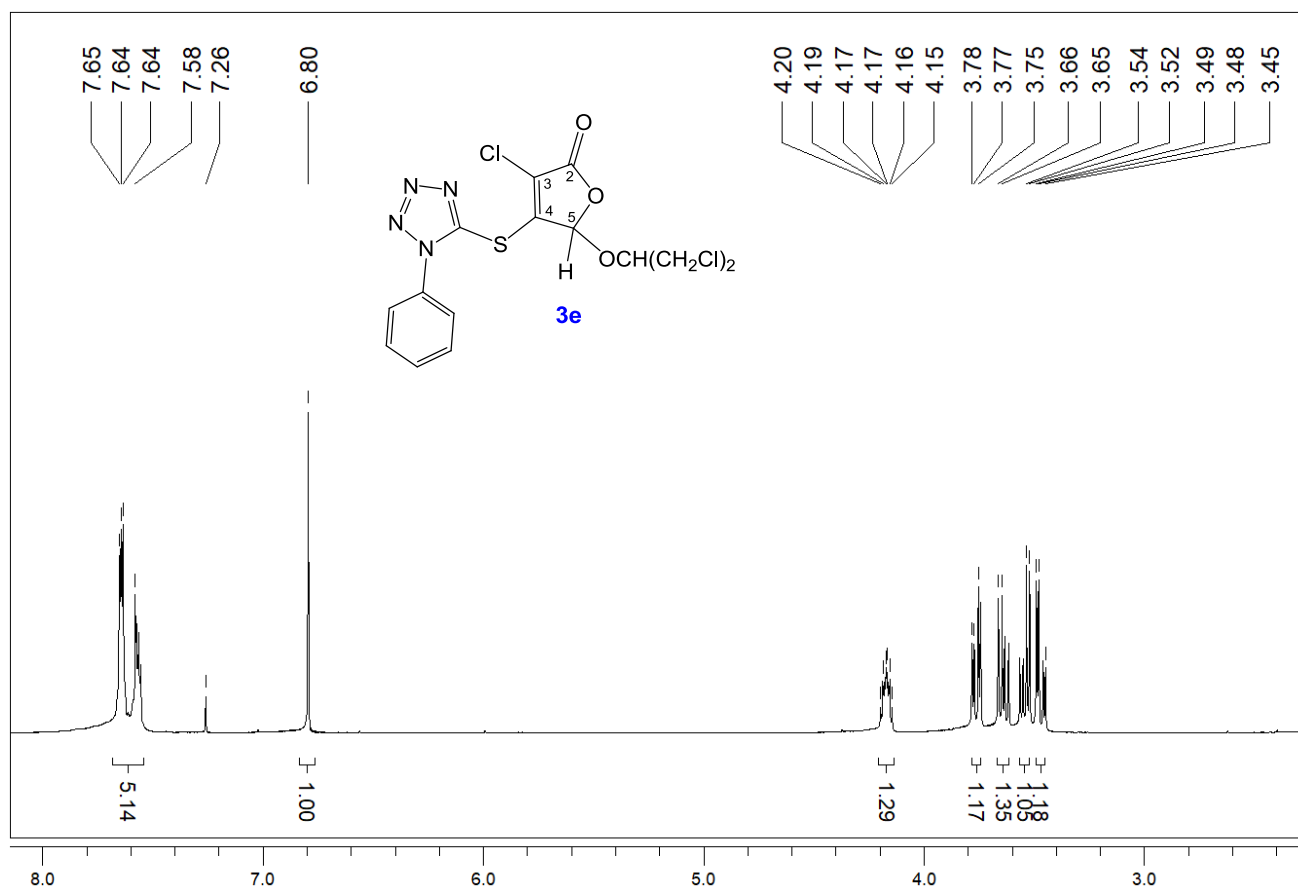


Figure S4. ¹H (a) and ¹³C{¹H} (b) NMR spectra of compound **3d** (CDCl₃).

a)



b)

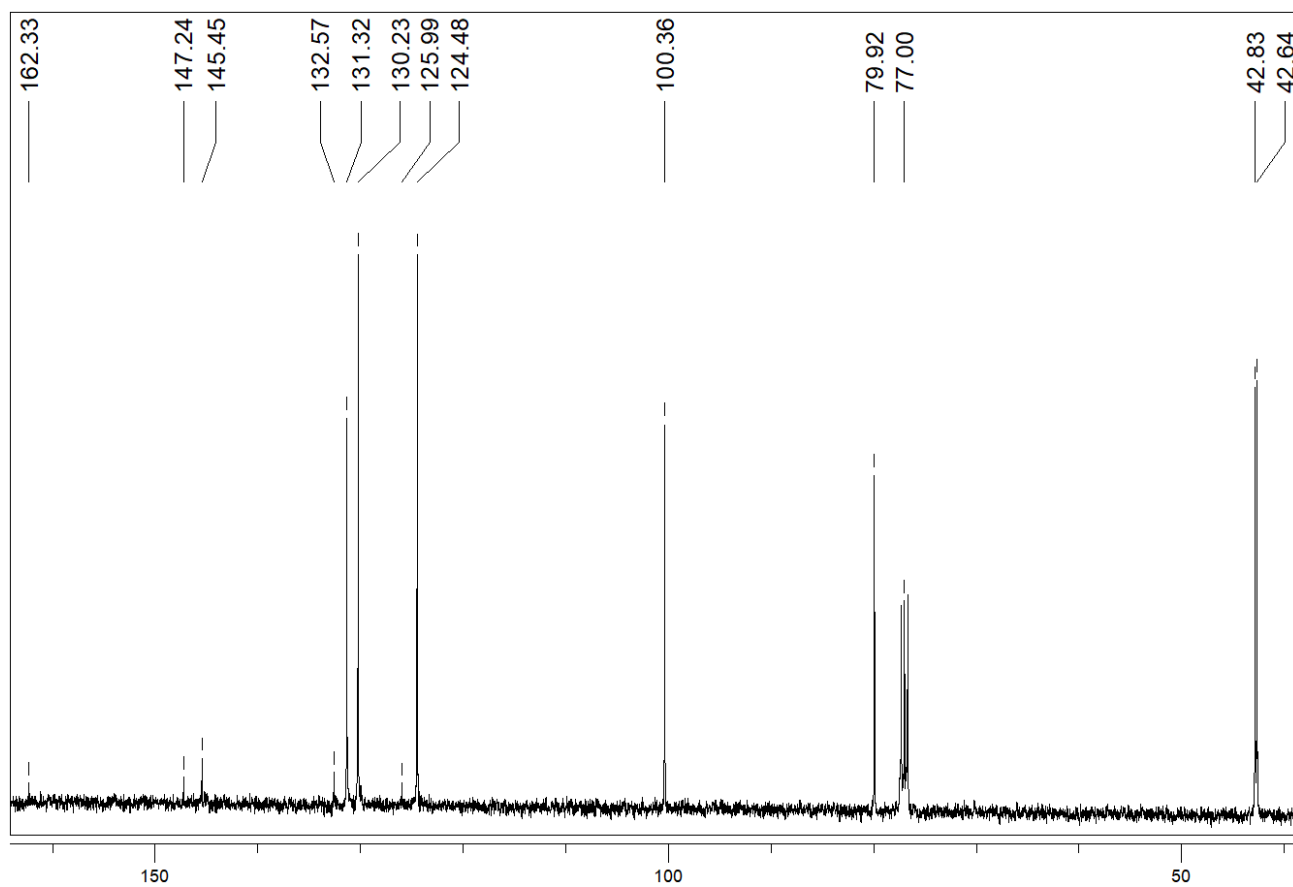
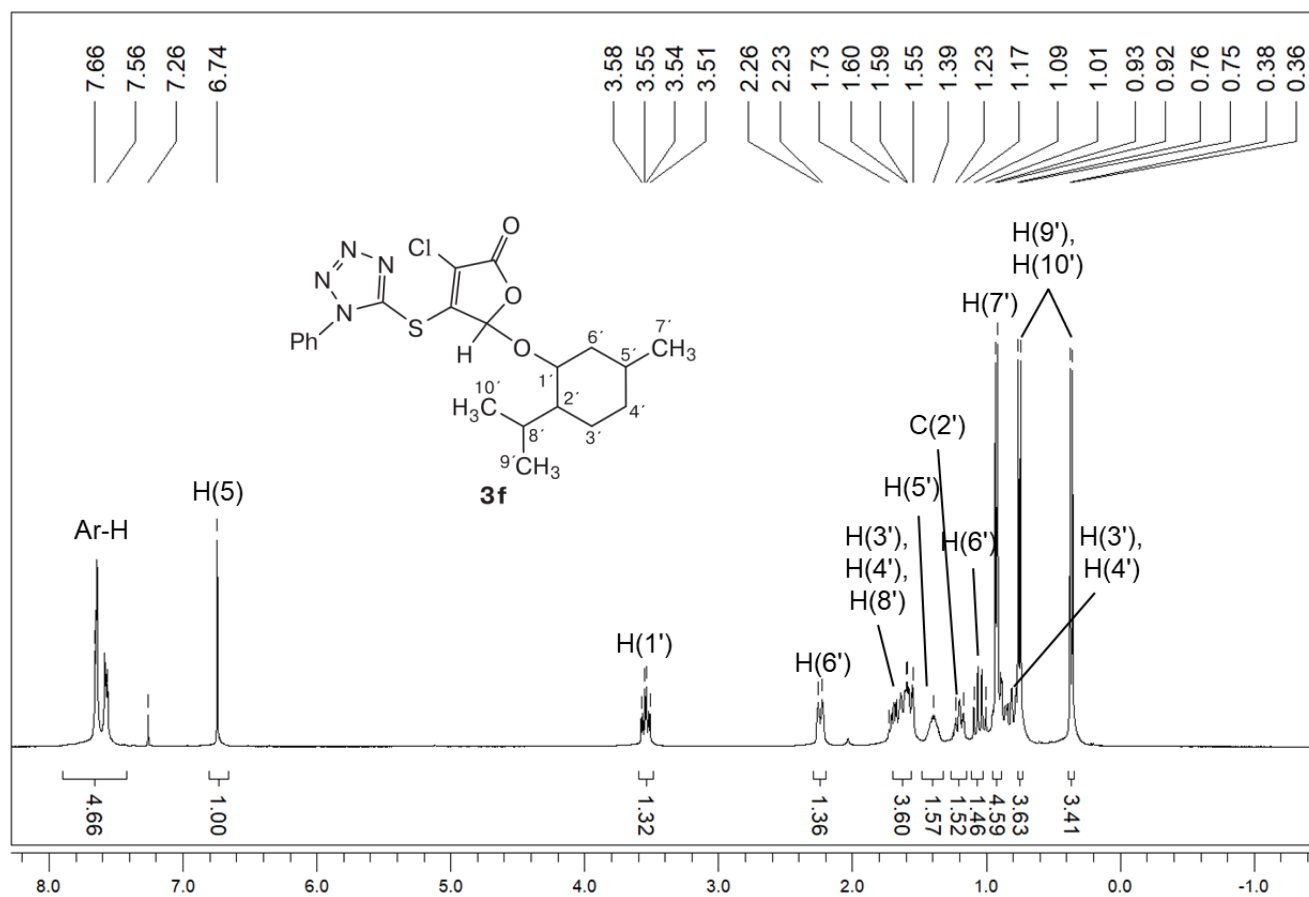


Figure S5. ¹H (a) and ¹³C{¹H} (b) NMR spectra of compound **3e** (CDCl₃).

a)



b)

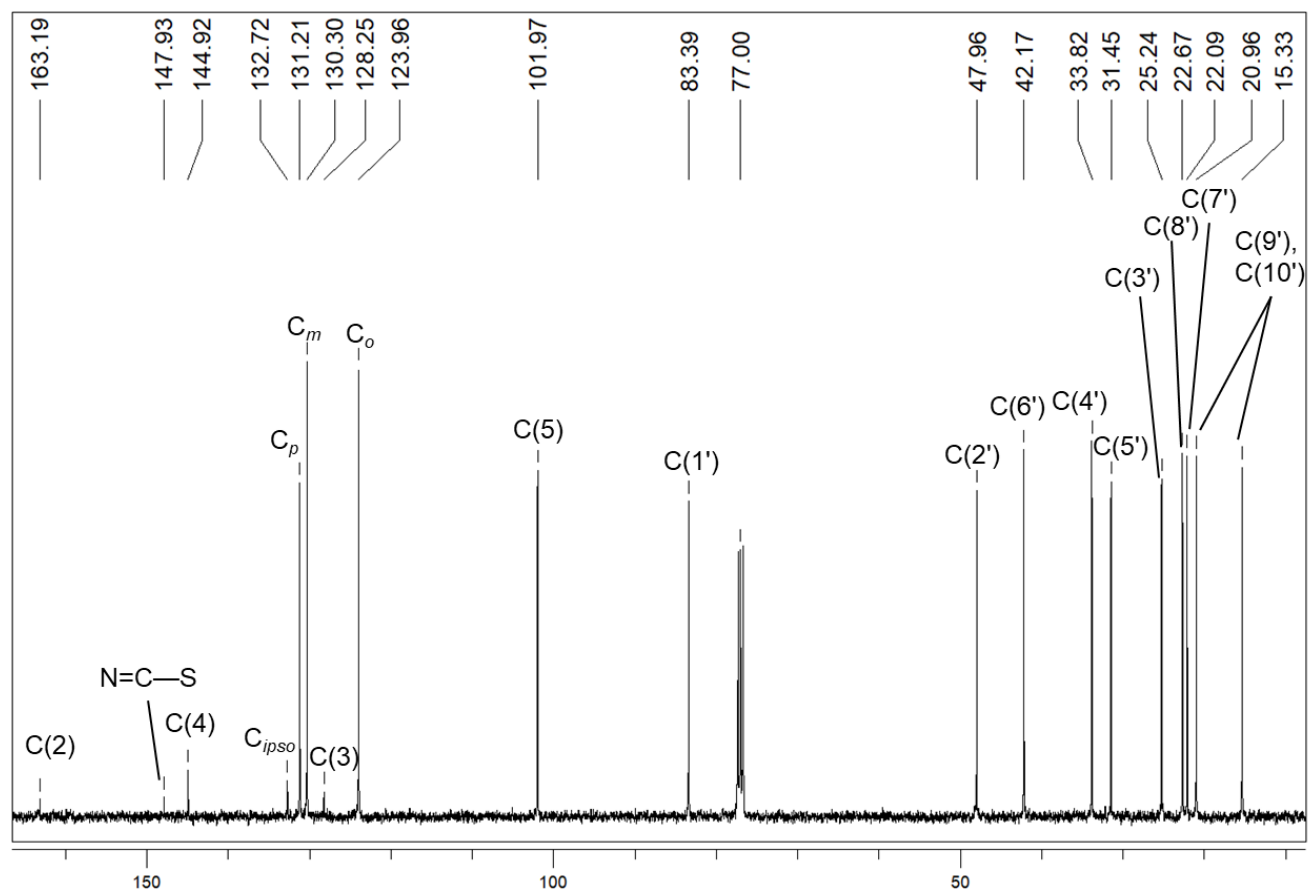
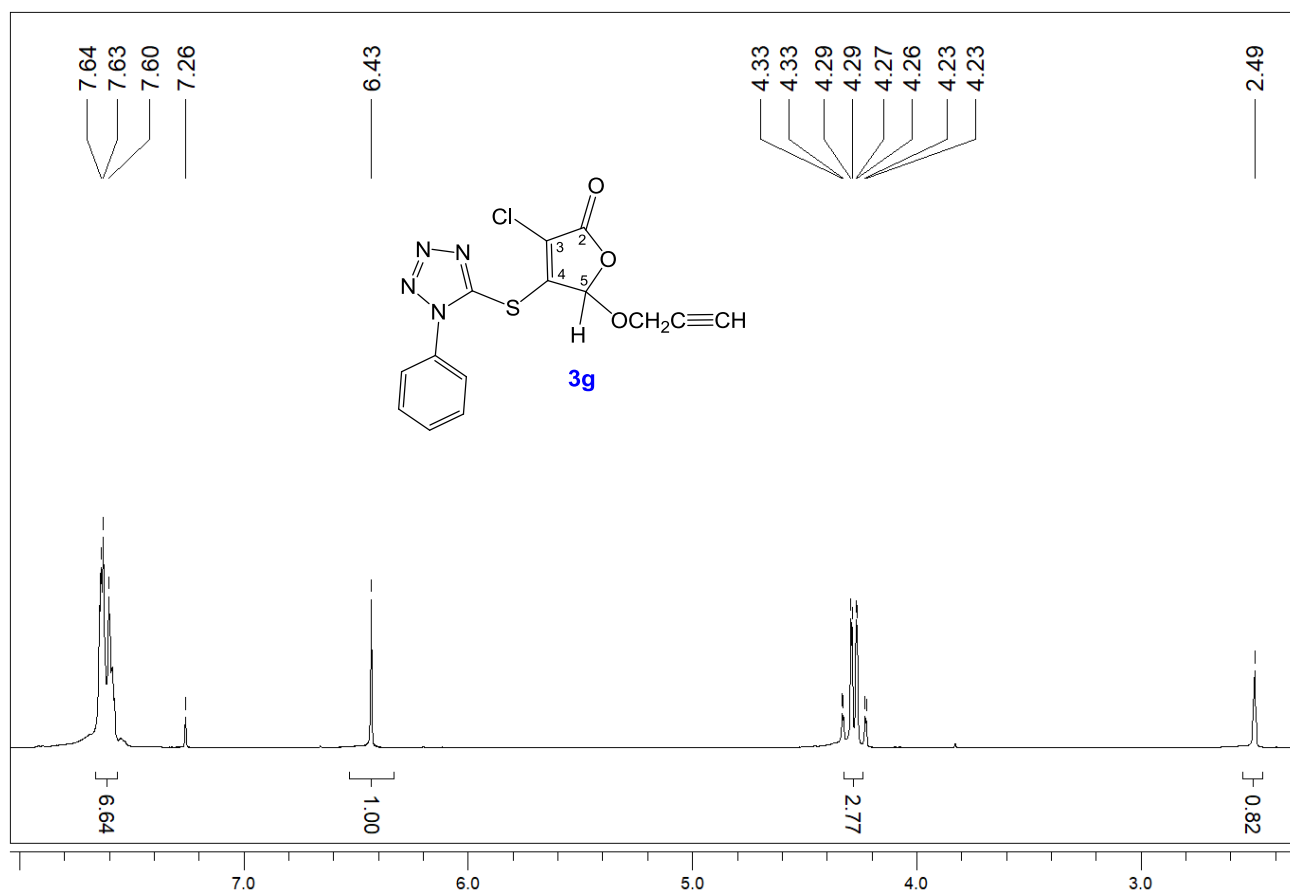


Figure S6. ¹H (a) and ¹³C{¹H} (b) NMR spectra of compound **3f** (CDCl₃).

a)



b)

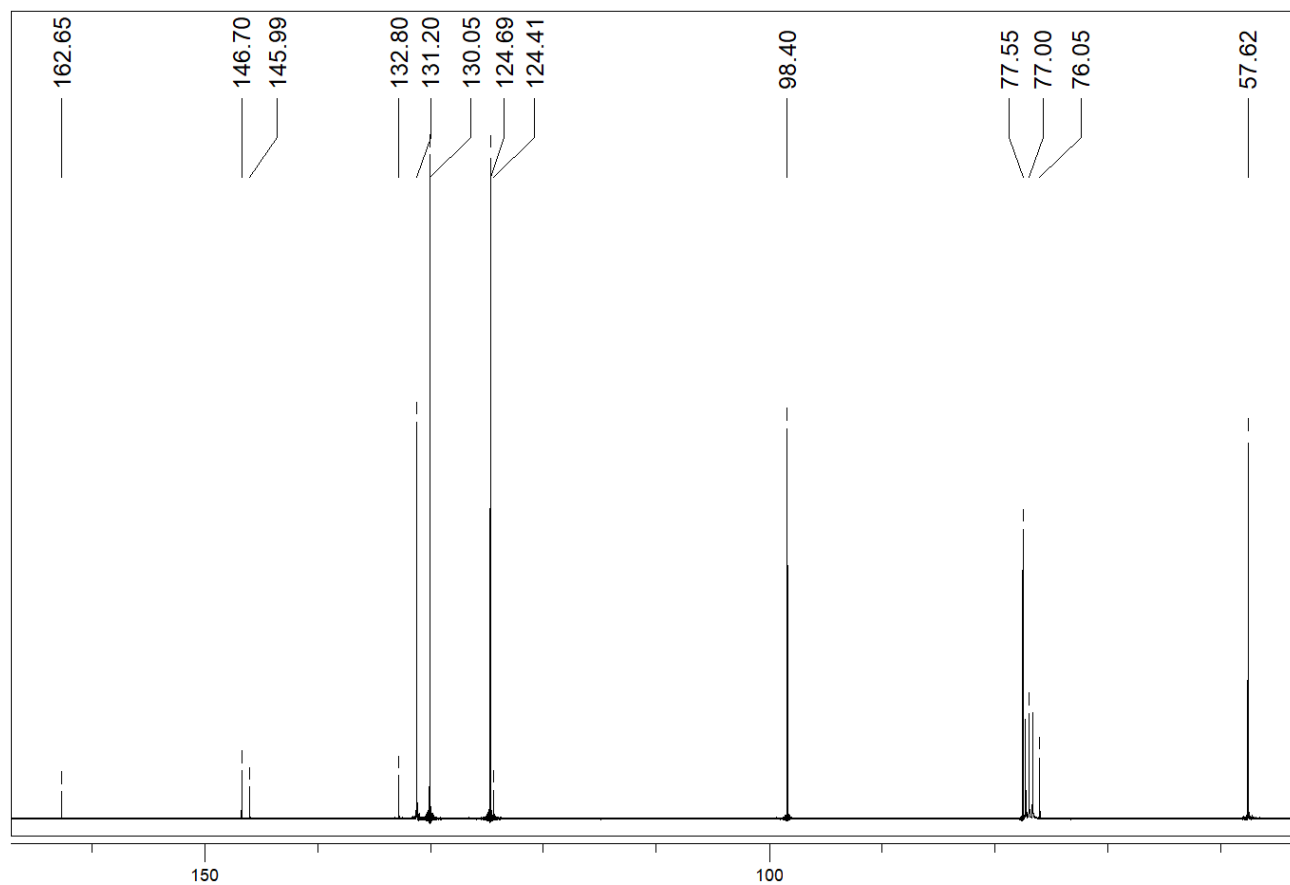
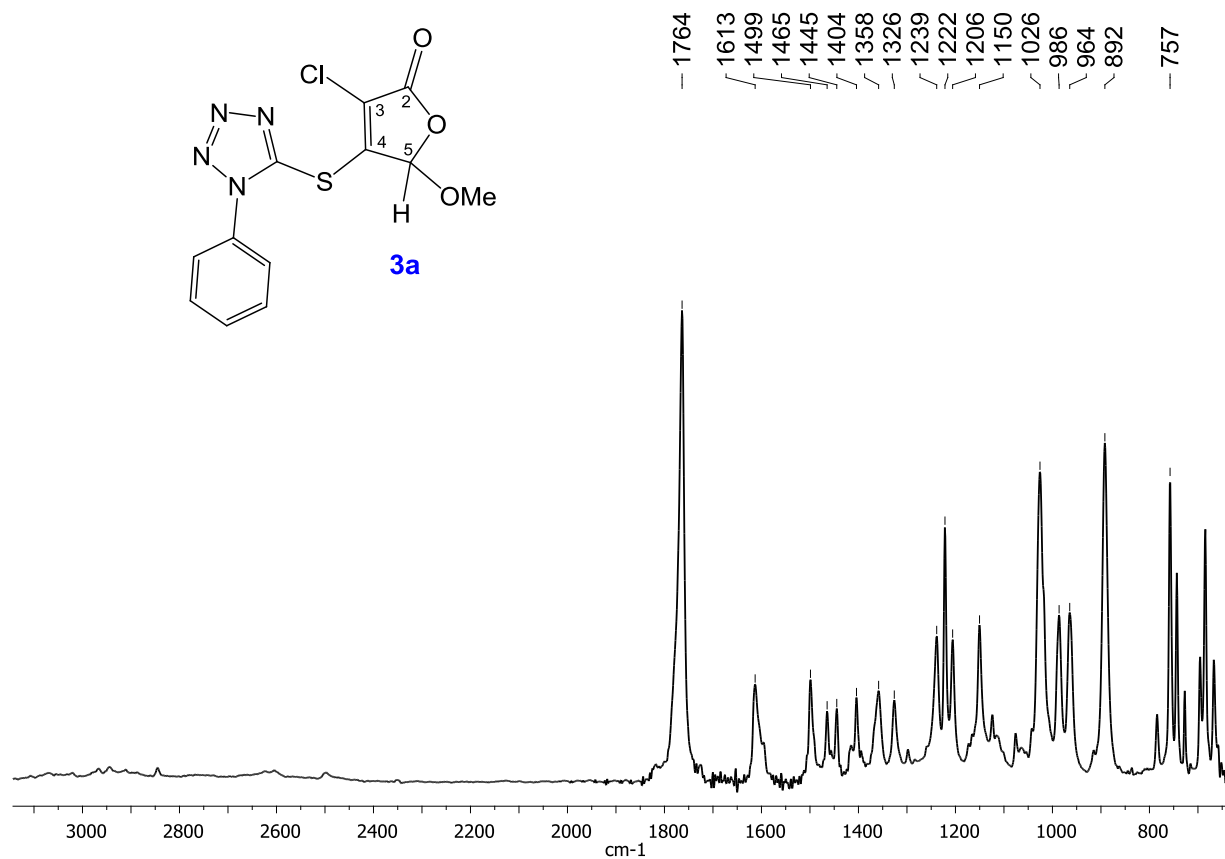


Figure S7. ¹H (a) and ¹³C{¹H} (b) NMR spectra of compound **3g** (CDCl₃).

IR spectra of thioethers 3a–3g

a)



b)

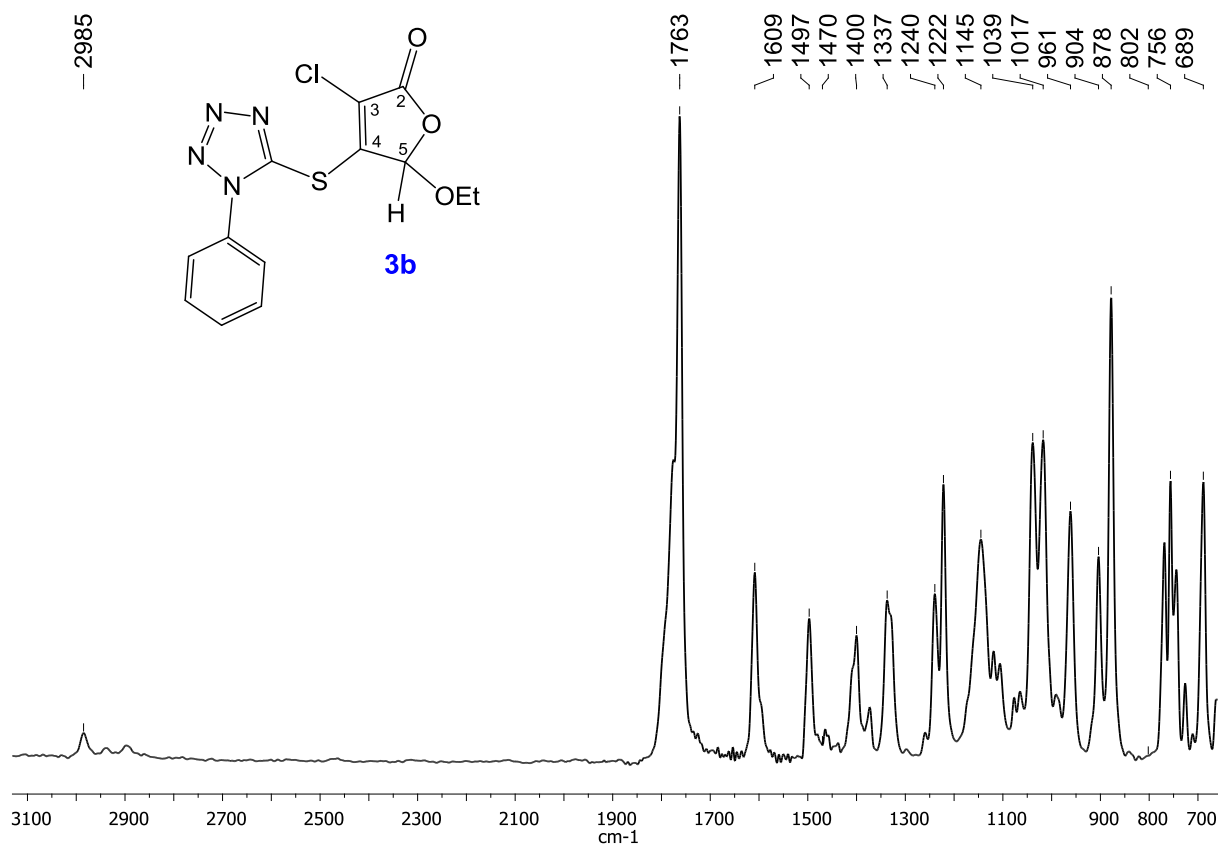
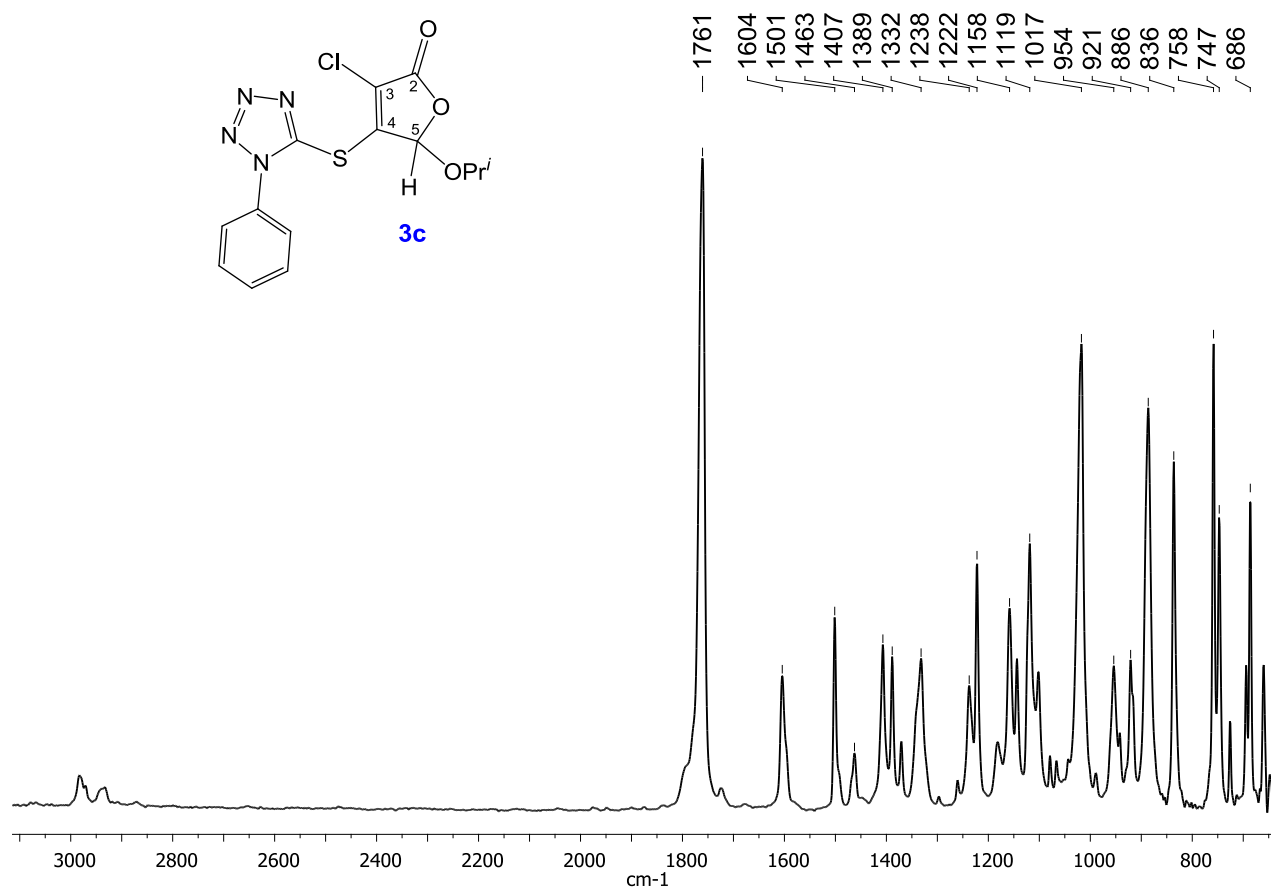


Figure S8. IR spectra of compounds **3a** (a) and **3b** (b).

a)



b)

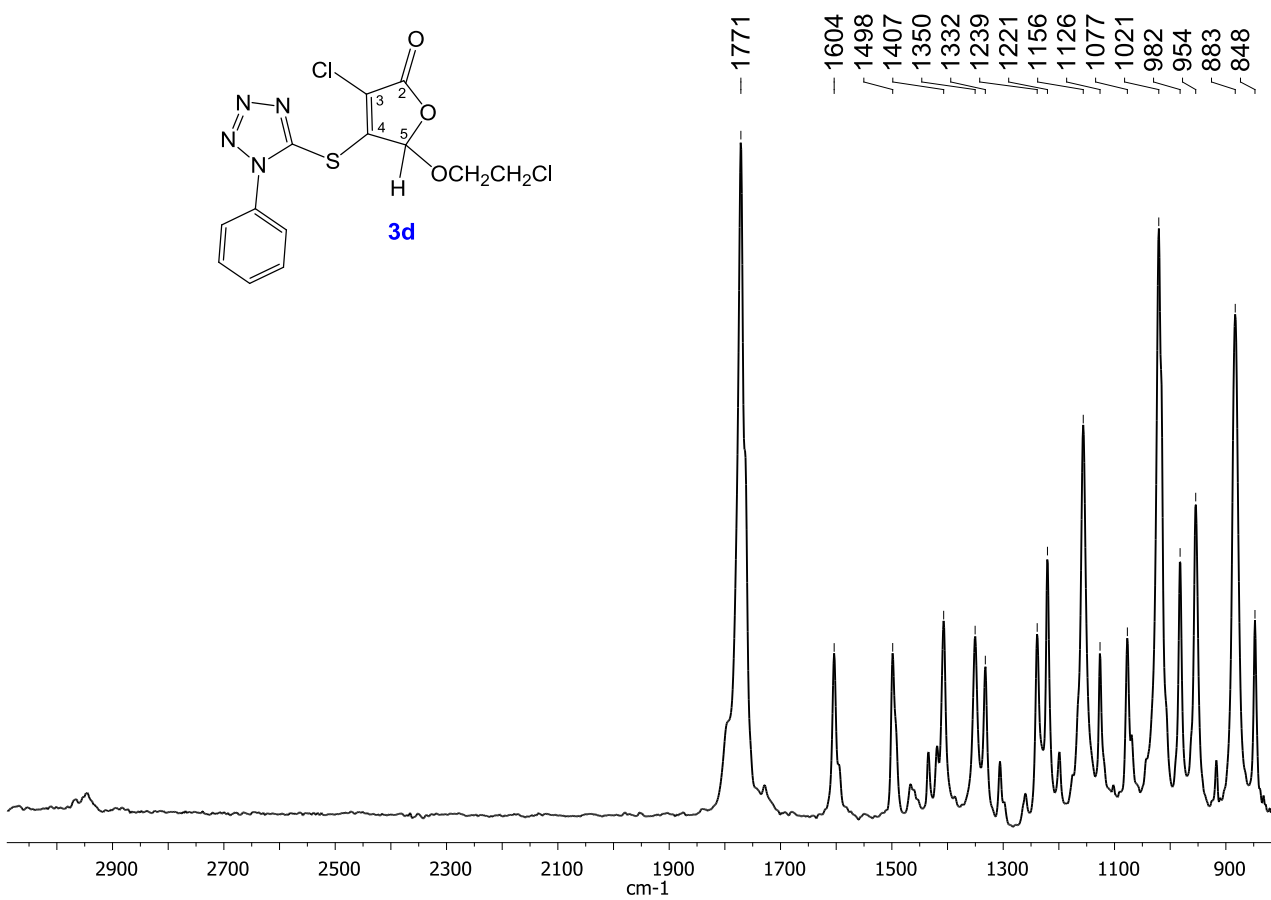
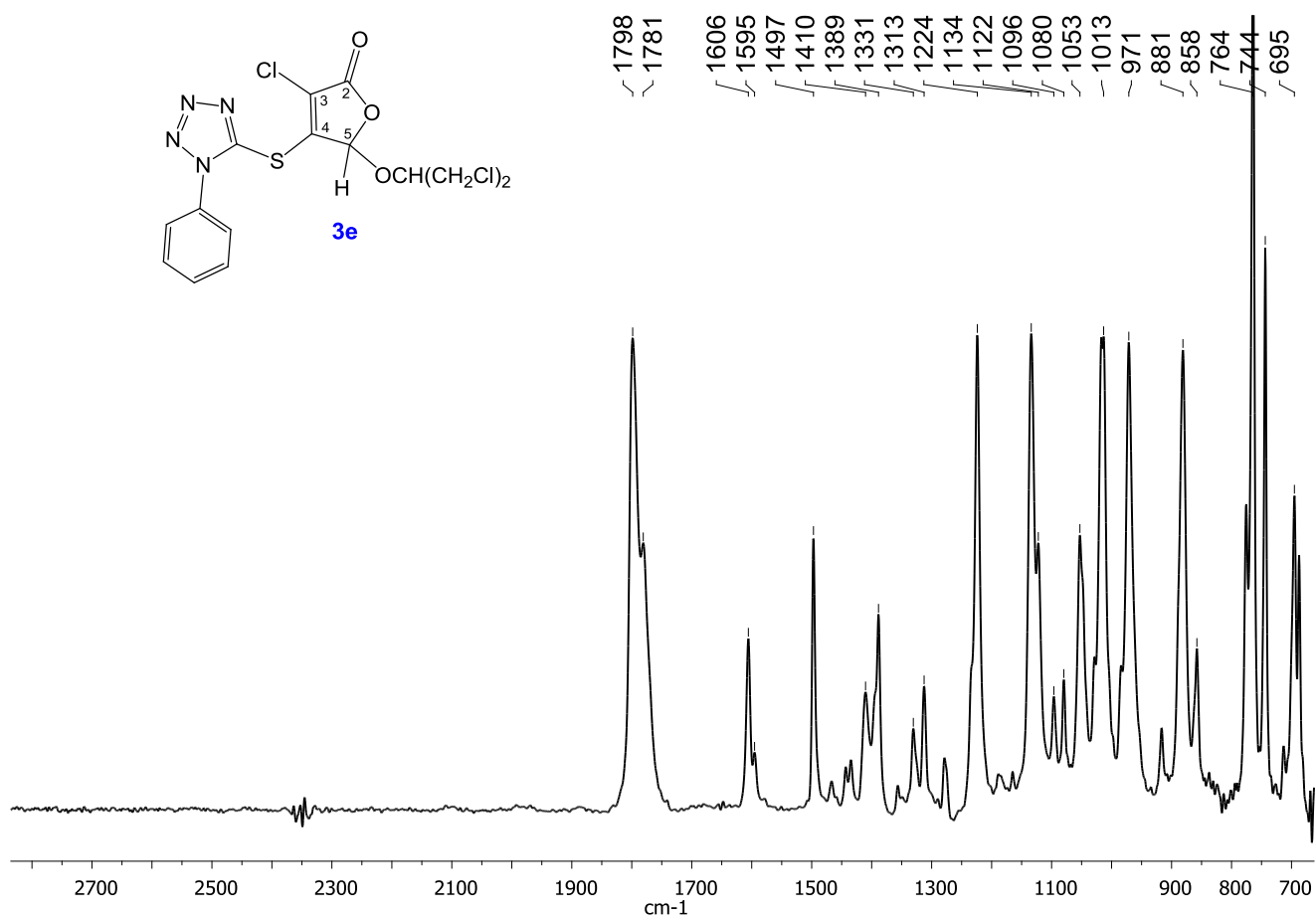


Figure S9. IR spectra of compounds **3c** (a) and **3d** (b).

a)



b)

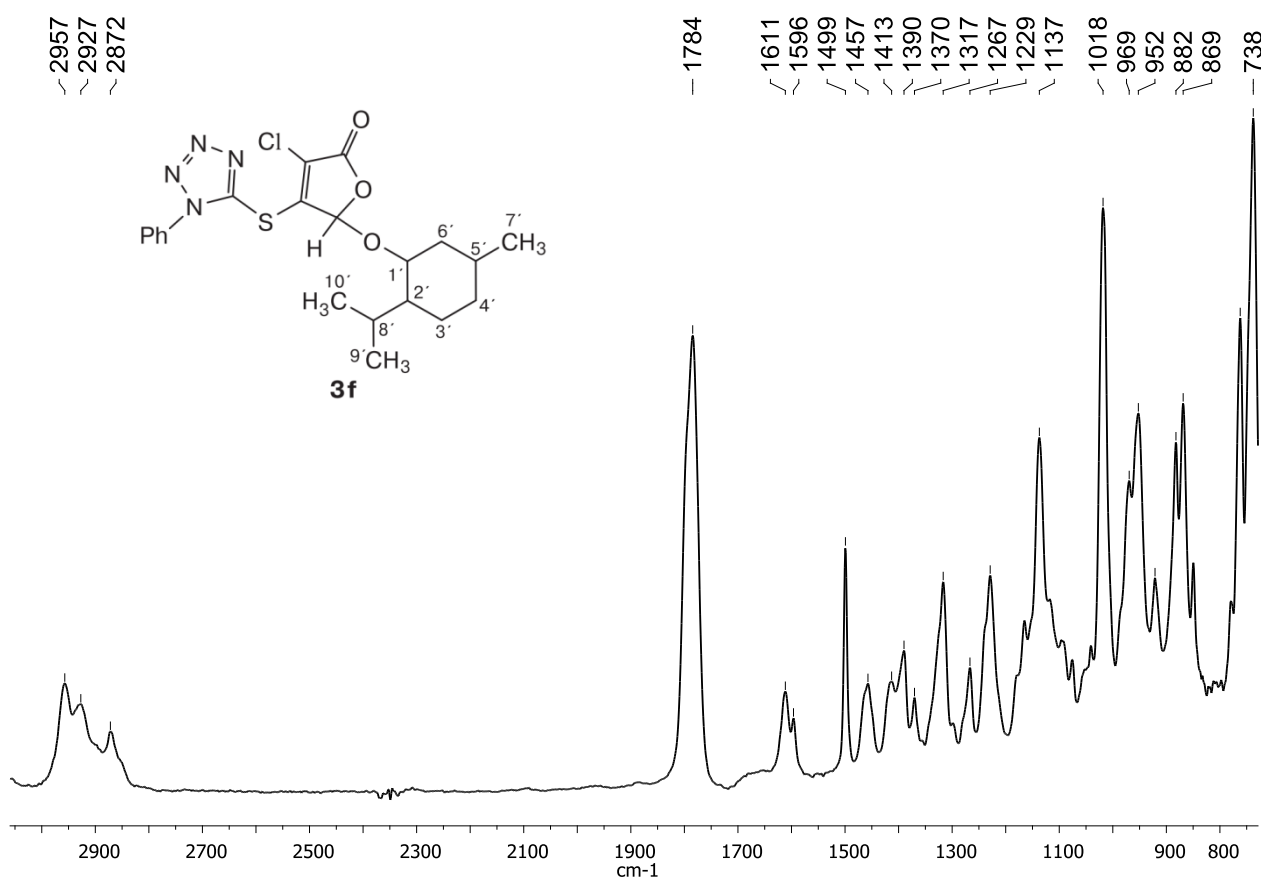


Figure S10. IR spectra of compounds **3e** (a) and **3f** (b).

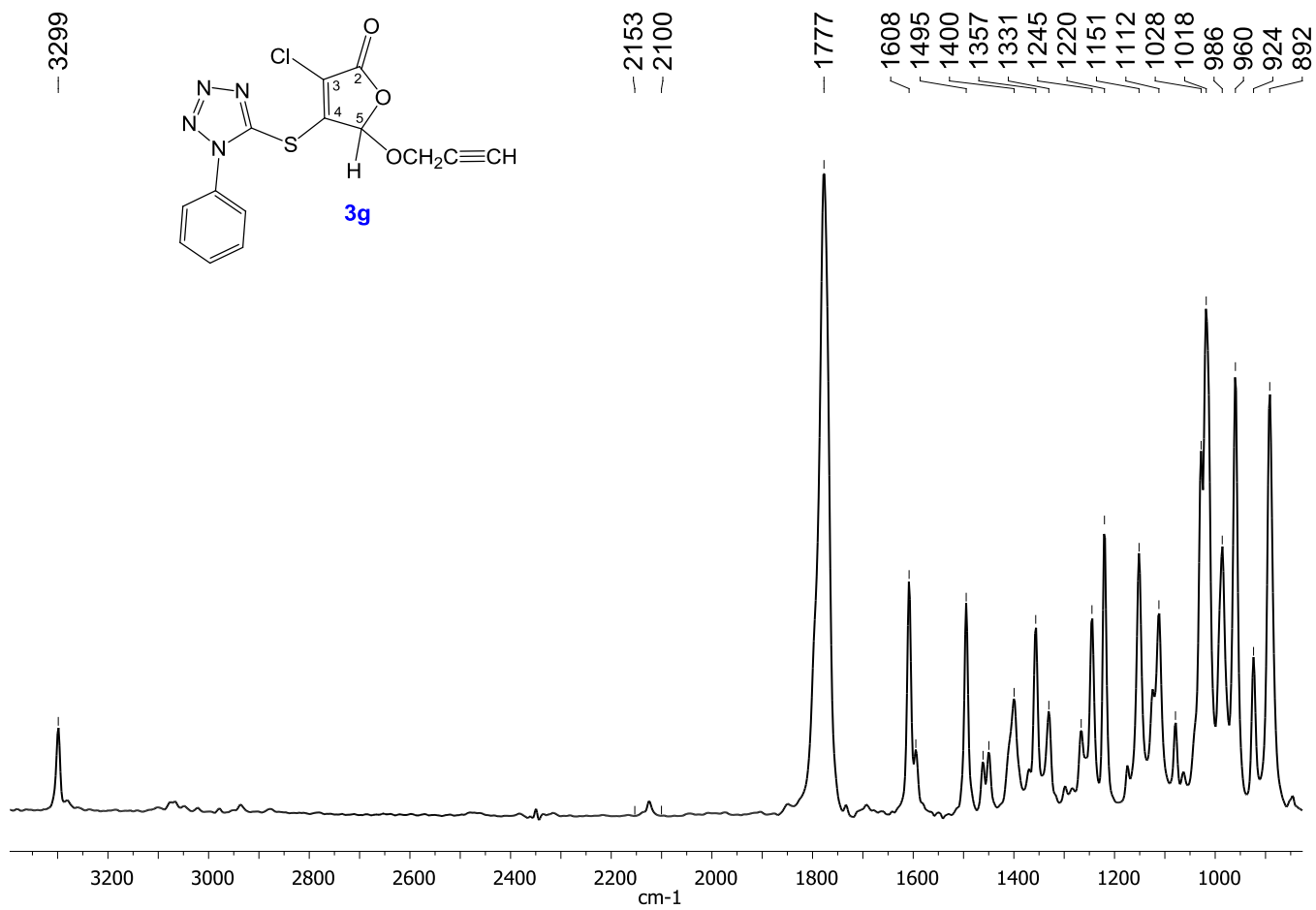


Figure S11. IR spectrum of compound **3g**.