

Supplementary Material (ESI) for RSC Advances.

This journal is (c) The Royal Society of Chemistry 2018

Supplementary information

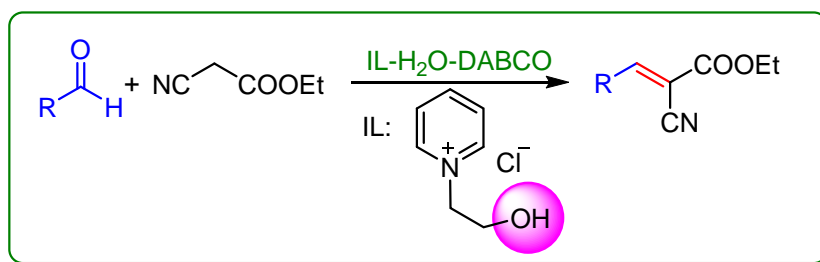
DABCO-Catalyzed Knoevenagel Condensation of Aldehydes with Ethyl Cyanoacetate Using Hydroxy Ionic Liquid as a Promoter

Dan Meng^a, Yongsheng Qiao^b, Xin Wang^b, Wei Wen^b and Sanhu Zhao^{*a,b}

^a School Chemistry and Material Science, Shanxi Normal University, Linfen 041001, Shanxi, China

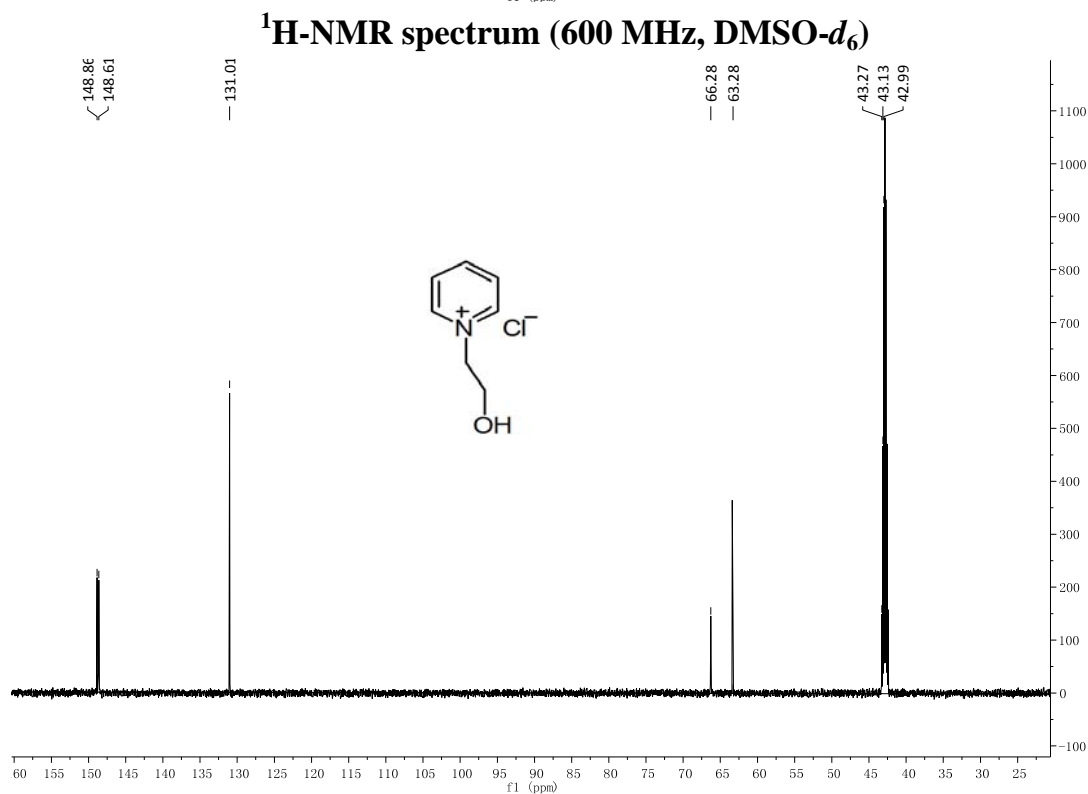
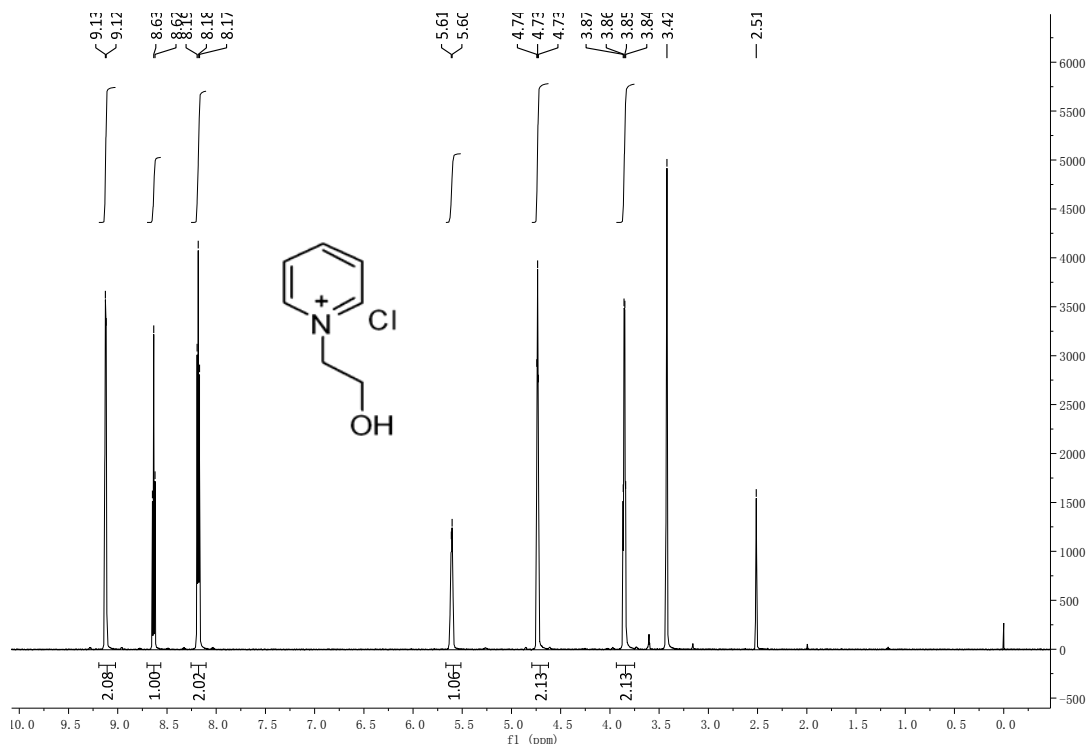
^b Department of Chemistry, Xinzhou Teachers University, Xinzhou 034000, Shanxi, China

Corresponding author. e-mail: sanhuzhao@163.com



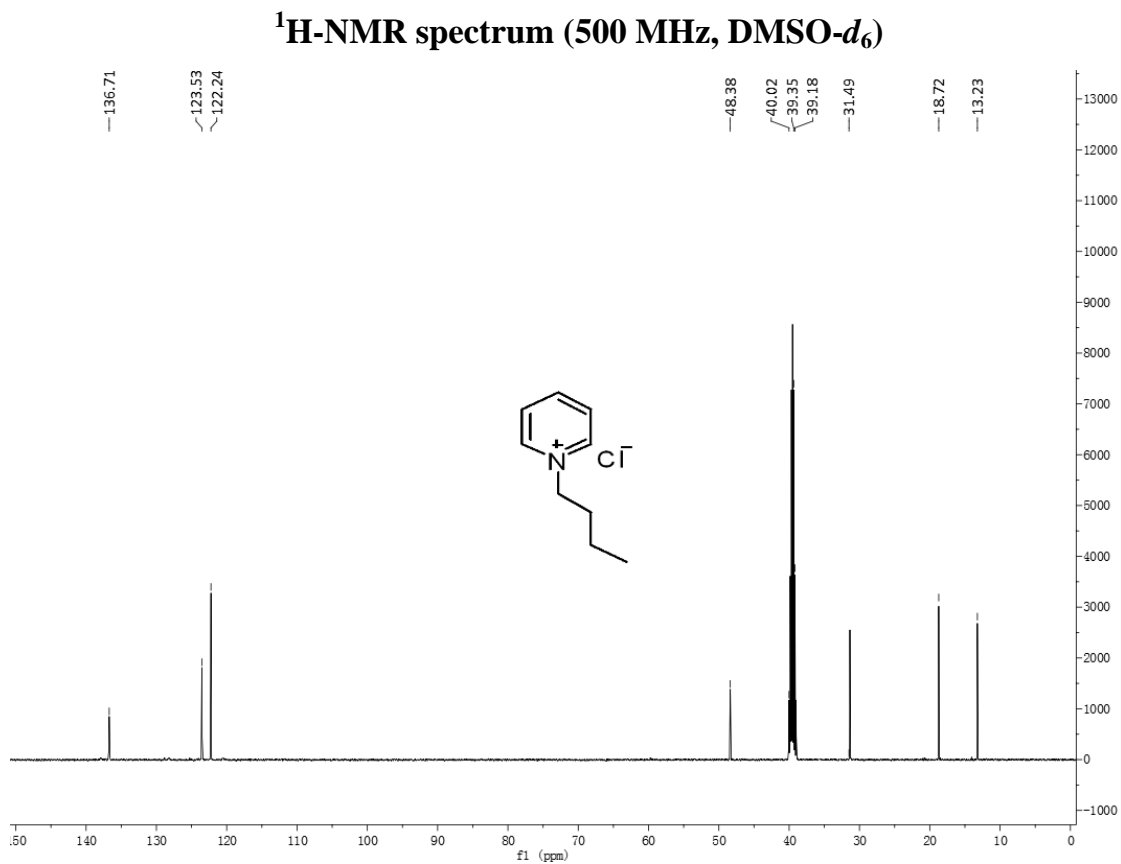
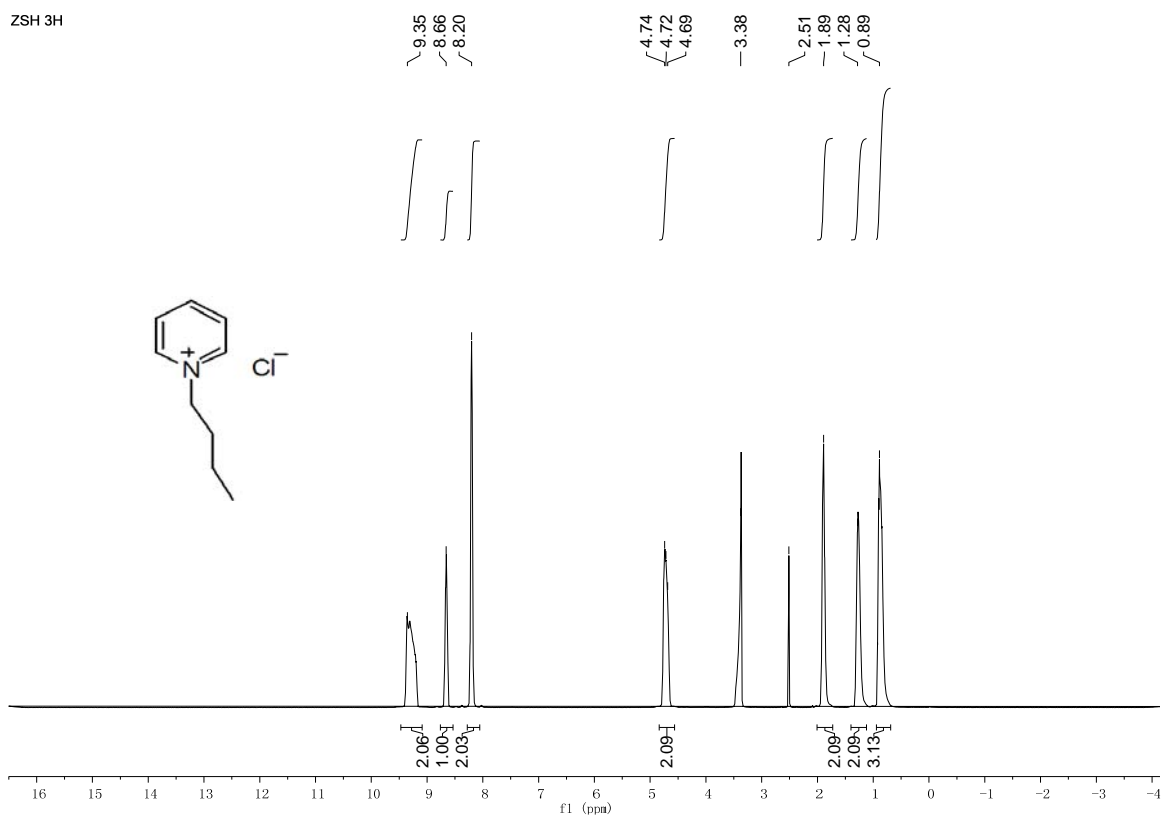
The NMR spectra for the ionic salts and Knoevenagel condensation products

1. NMR spectrum of ionic salt [HyEtPy]Cl

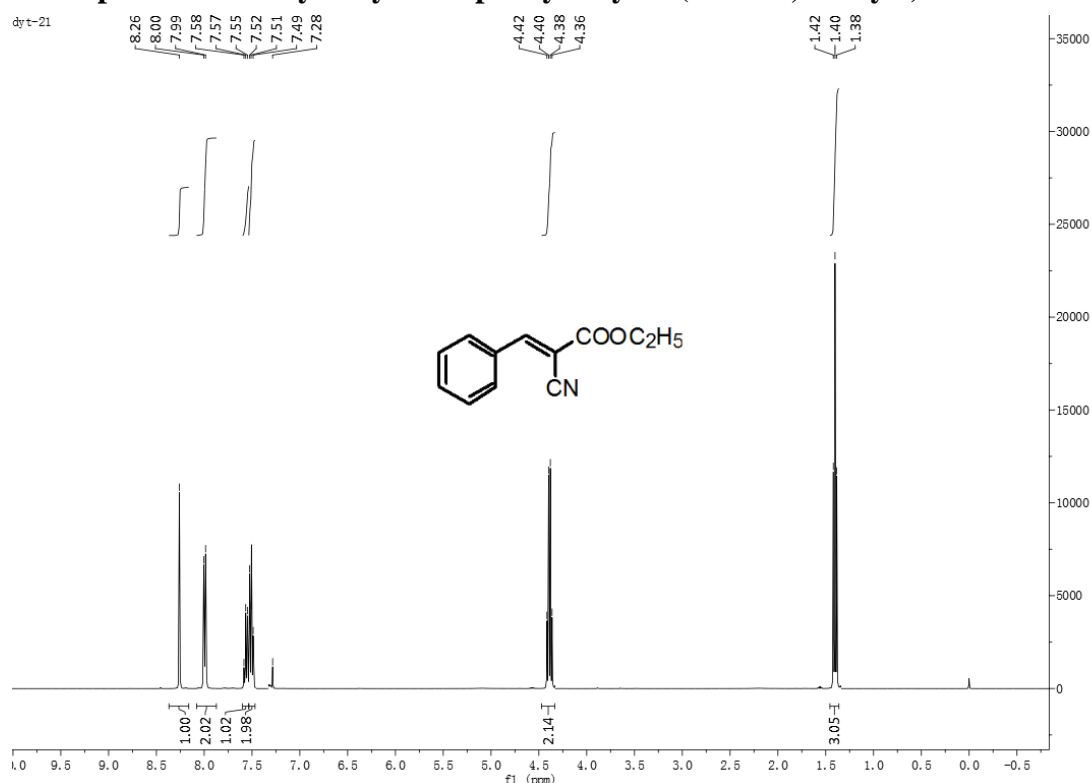


2. NMR spectrum of ionic salt [BuPy]Cl

ZSH 3H

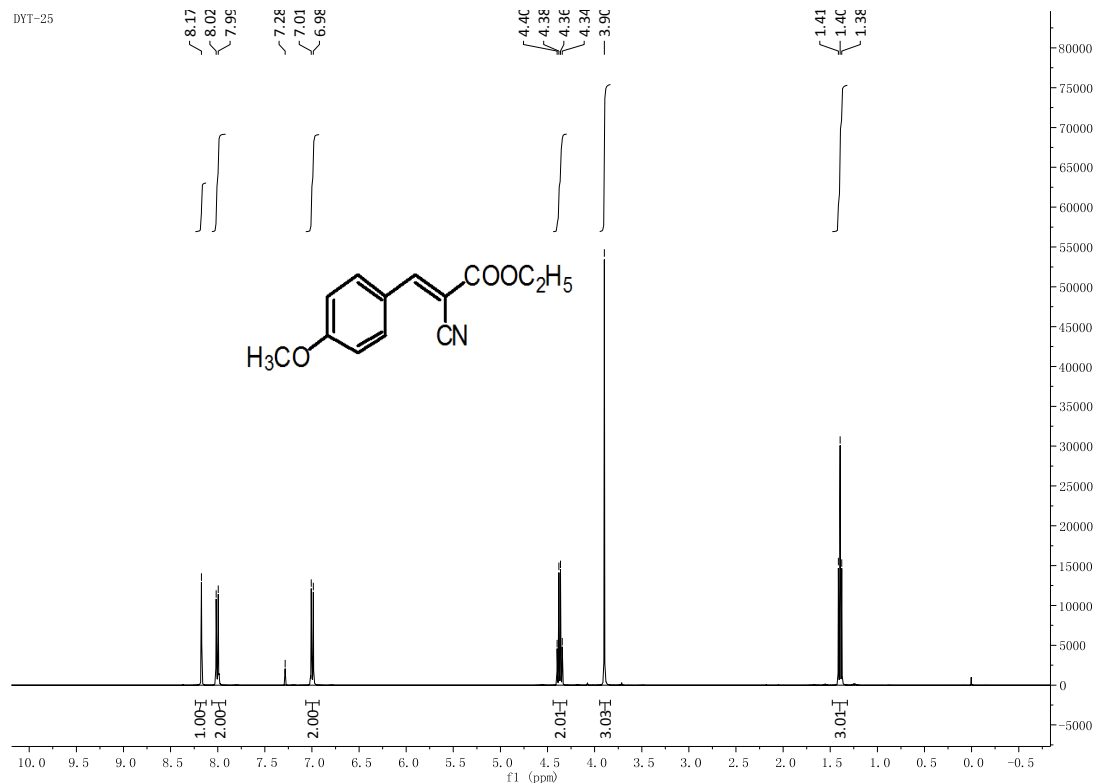


3. $^1\text{H-NMR}$ spectrum of ethyl 2-cyano-3-phenylacrylate (Table 2, Entry 1)



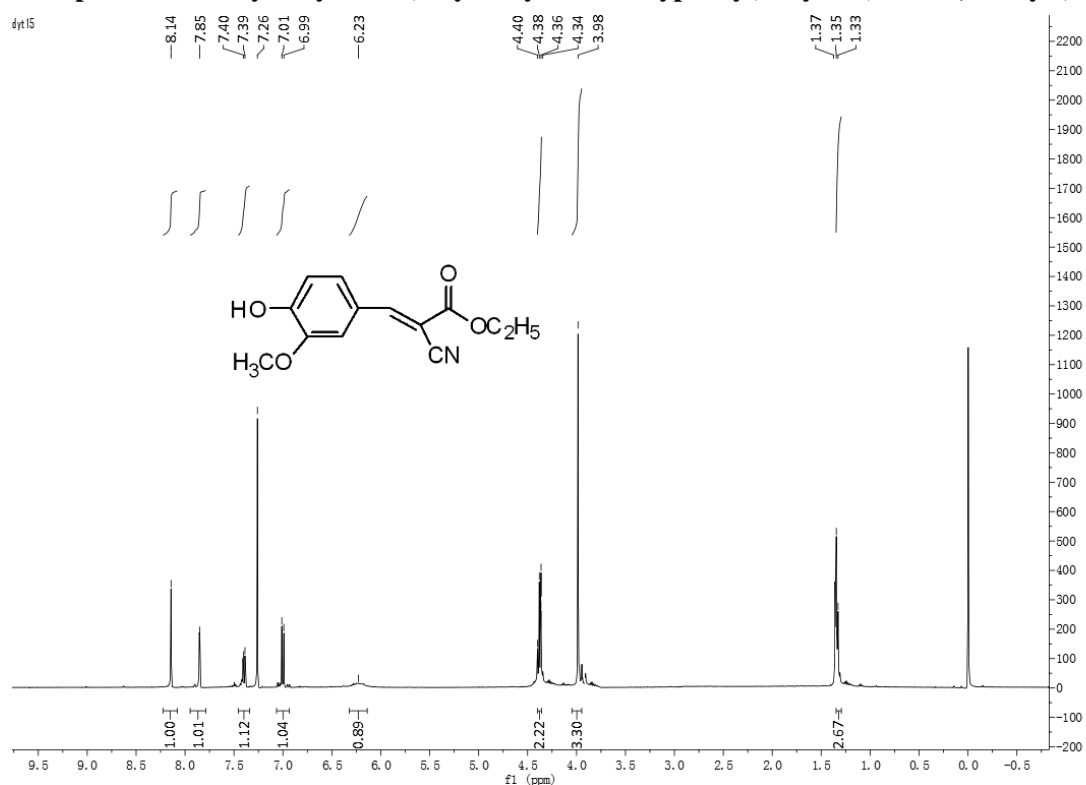
$^1\text{H NMR}$ spectrum (400 MHz, CDCl_3)

4. $^1\text{H-NMR}$ spectrum of ethyl 2-cyano-3-(4-methoxyphenyl)acrylate (Table 2, Entry 2)



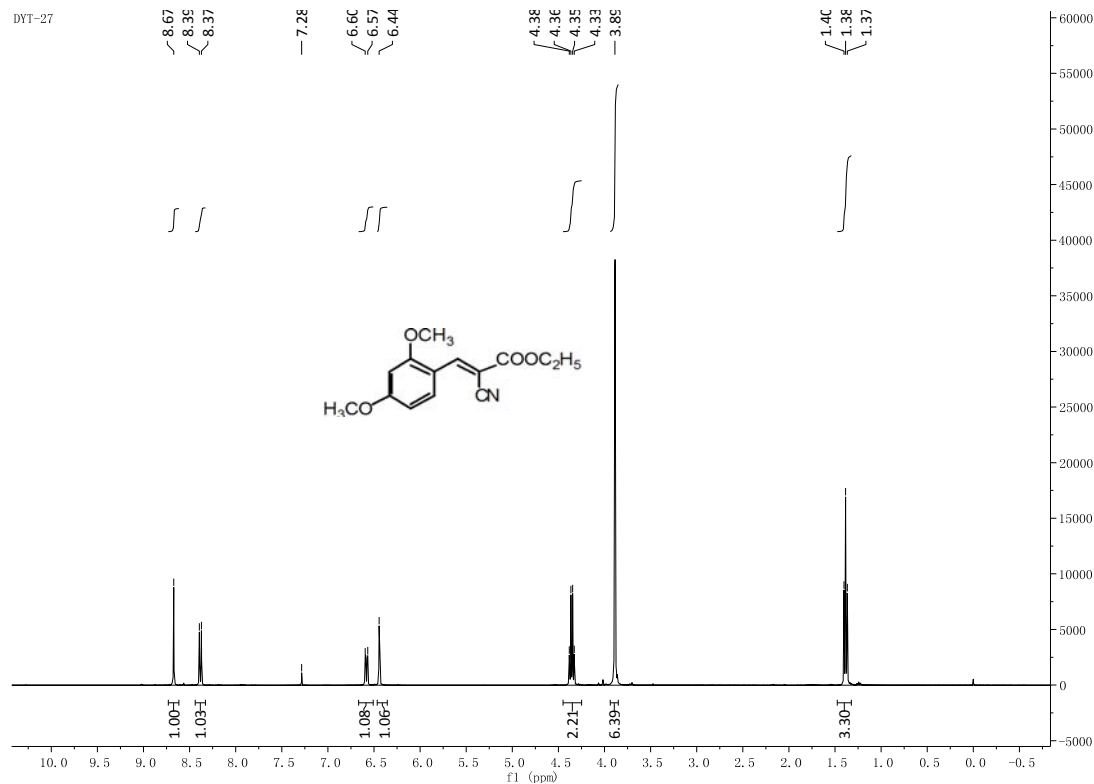
$^1\text{H NMR}$ spectrum (400 MHz, CDCl_3)

5. ¹H-NMR spectrum of ethyl 2-cyano-3-(4-hydroxy-3-methoxyphenyl)acrylate (Table 2, Entry 3)



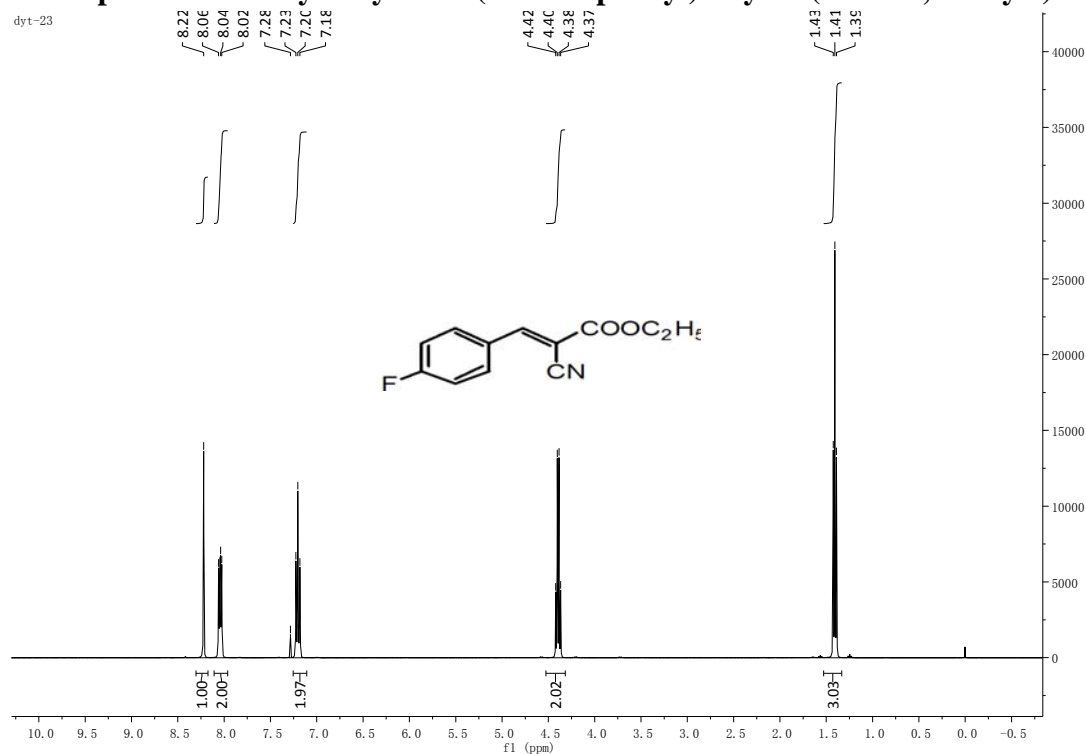
¹H NMR spectrum (400 MHz, CDCl₃)

6. ¹H-NMR spectrum of ethyl 2-cyano-3-(2,4-dimethoxyphenyl)acrylate (Table 2, Entry 4)



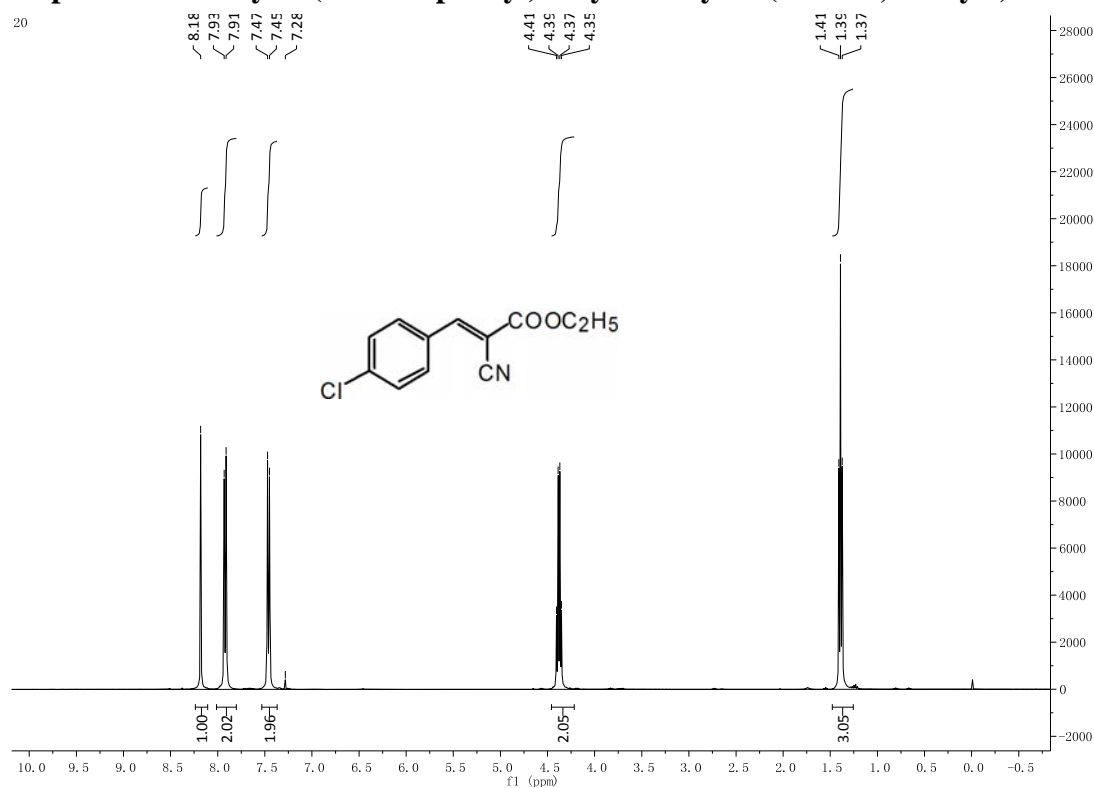
¹H NMR spectrum (400 MHz, CDCl₃)

7. ¹H-NMR spectrum of ethyl 2-cyano-3-(4-fluorophenyl)acrylate (Table 2, Entry 5)

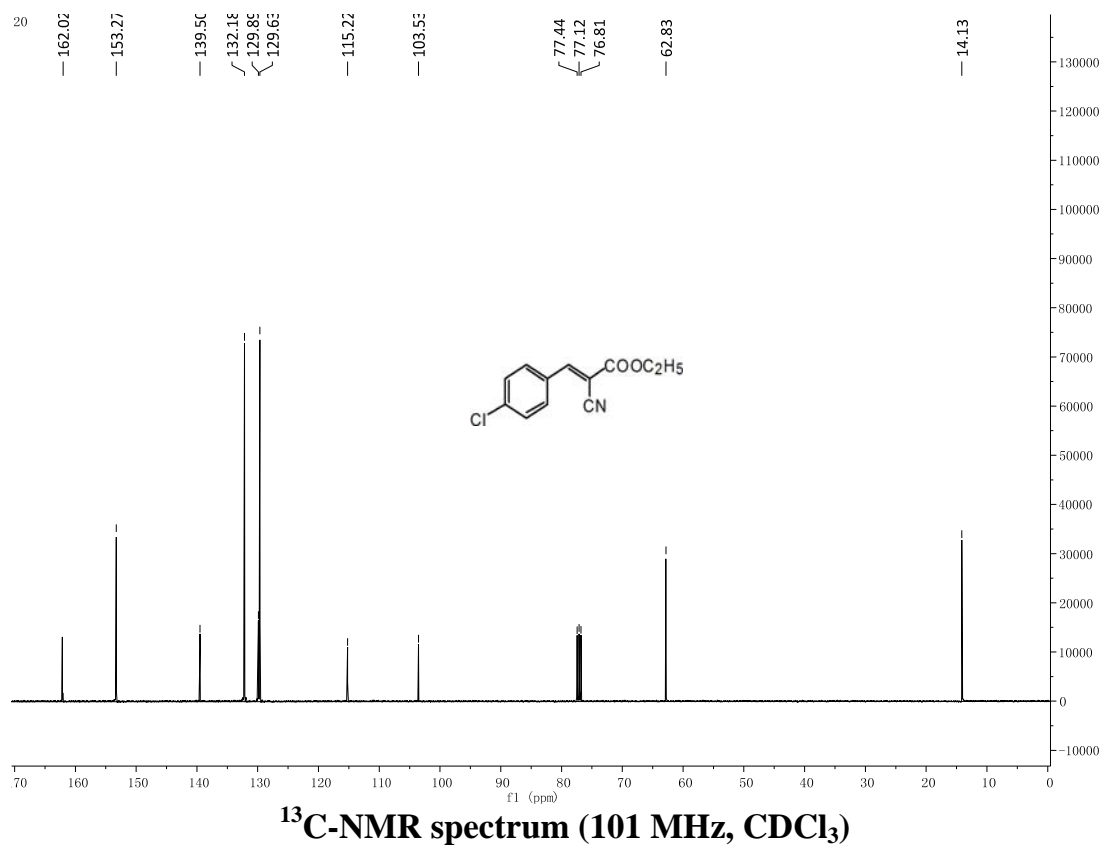


¹H NMR spectrum (400 MHz, CDCl₃)

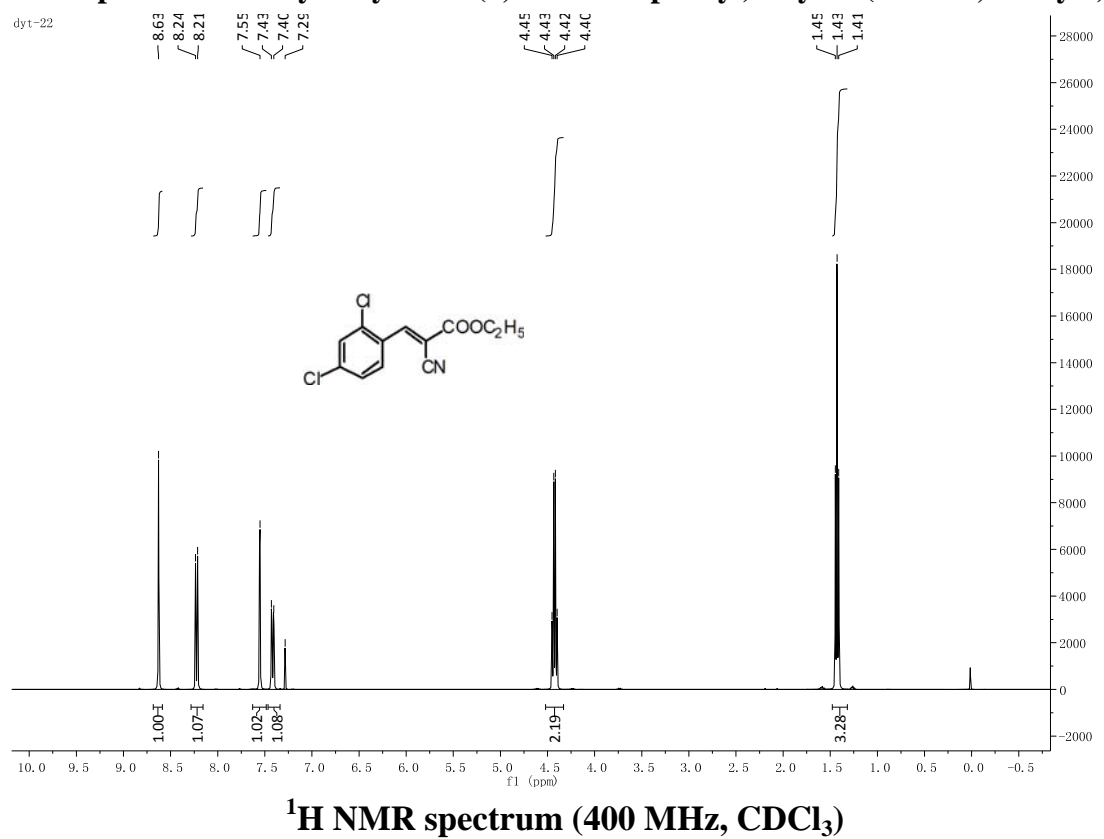
8. NMR spectrum of ethyl 3-(4-chlorophenyl)-2-cyanoacrylate (Table 2, Entry 6)



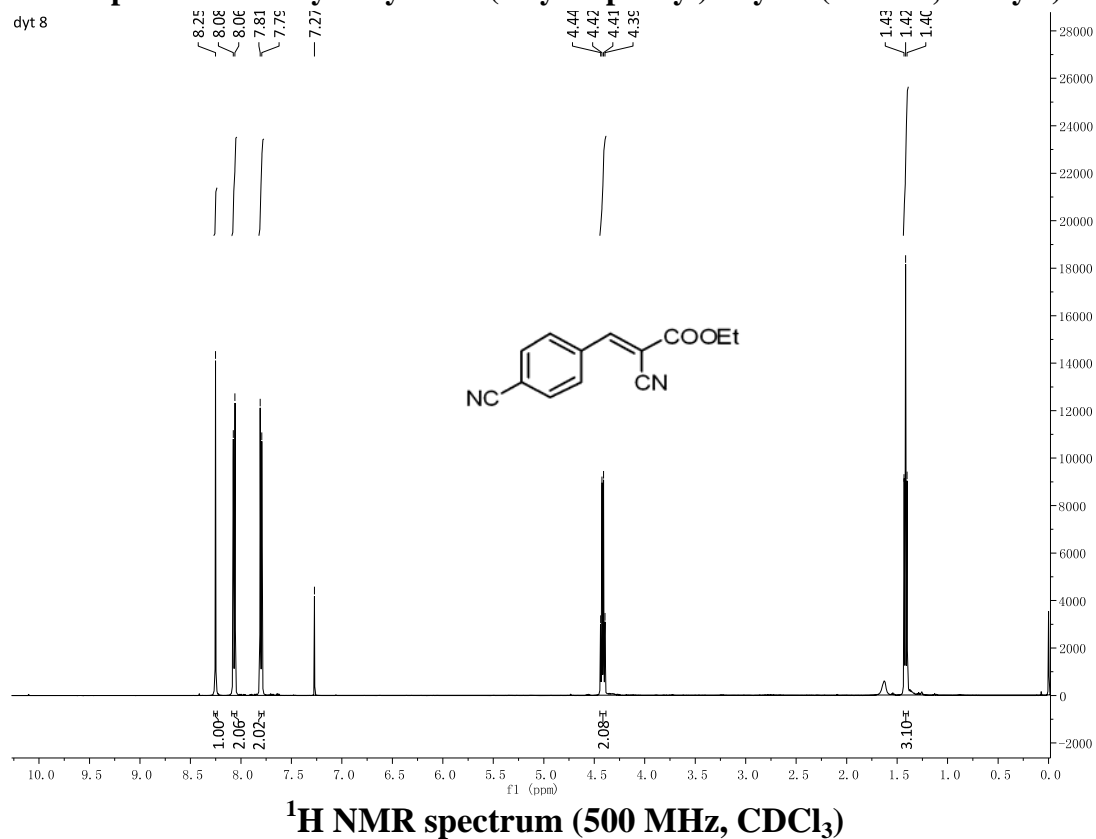
¹H NMR spectrum (400 MHz, CDCl₃)



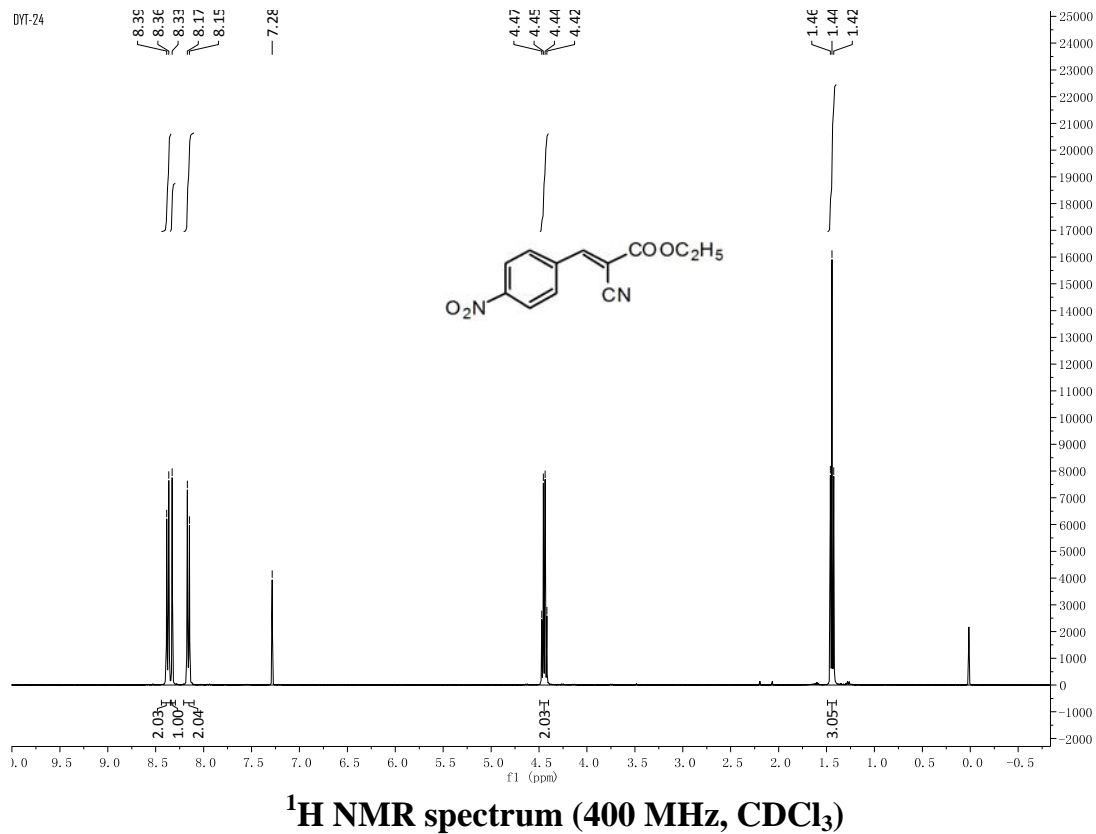
9. ¹H-NMR spectrum of ethyl 2-cyano-3-(2,4-dichlorophenyl)acrylate (Table 2, Entry 7)



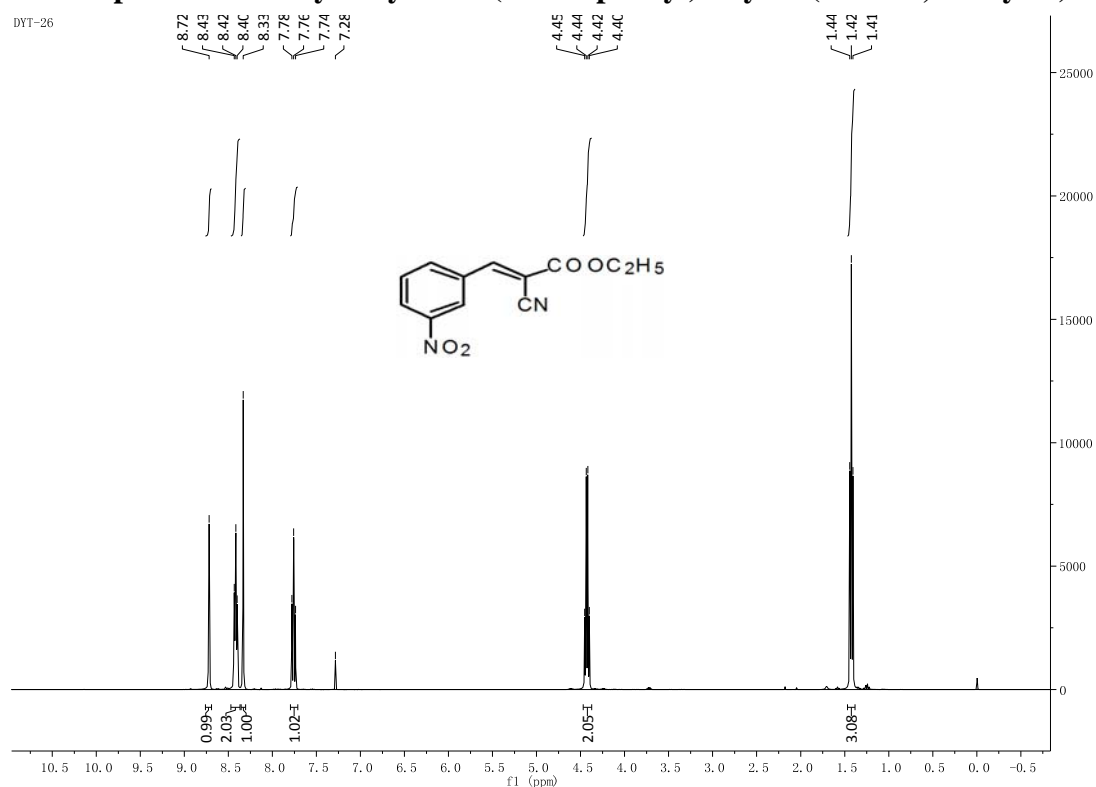
10. ¹H NMR spectrum of ethyl 2-cyano-3-(4-cyanophenyl)acrylate (Table 2, Entry 8)



11. ¹H NMR spectrum of ethyl 2-cyano-3-(4-nitrophenyl)acrylate (Table 2, Entry 9)

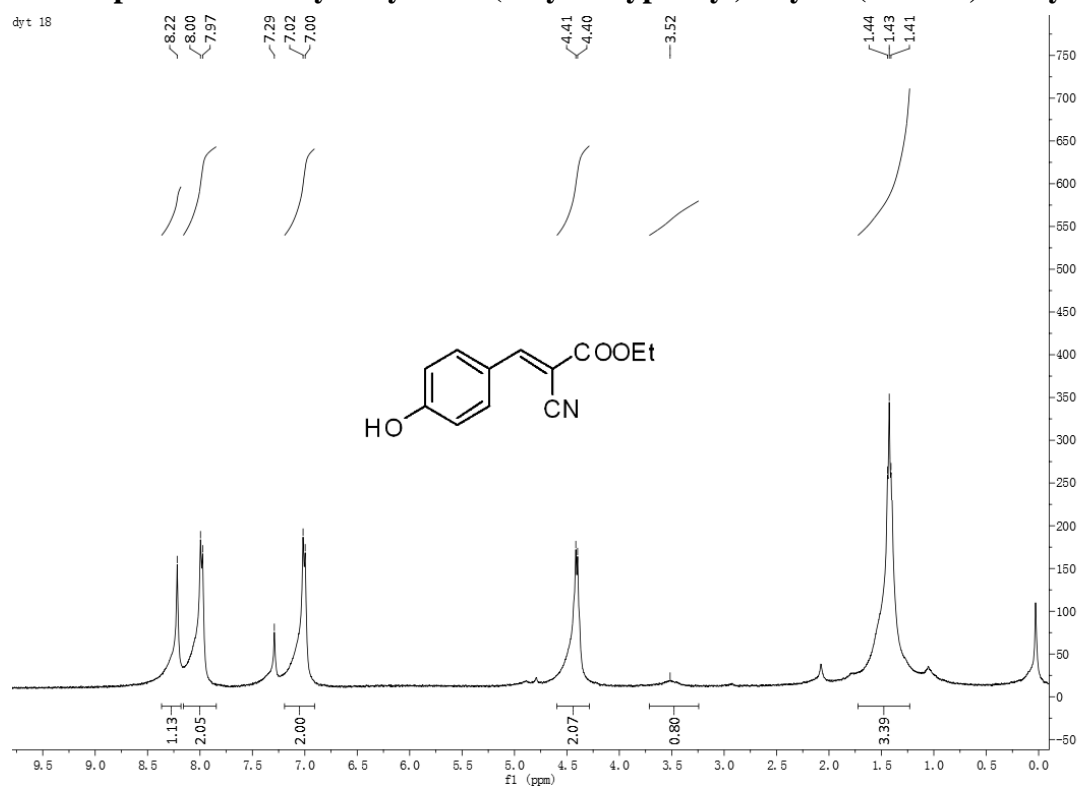


12. ¹H-NMR spectrum of ethyl 2-cyano-3-(3-nitrophenyl)acrylate (Table 2, Entry 10)



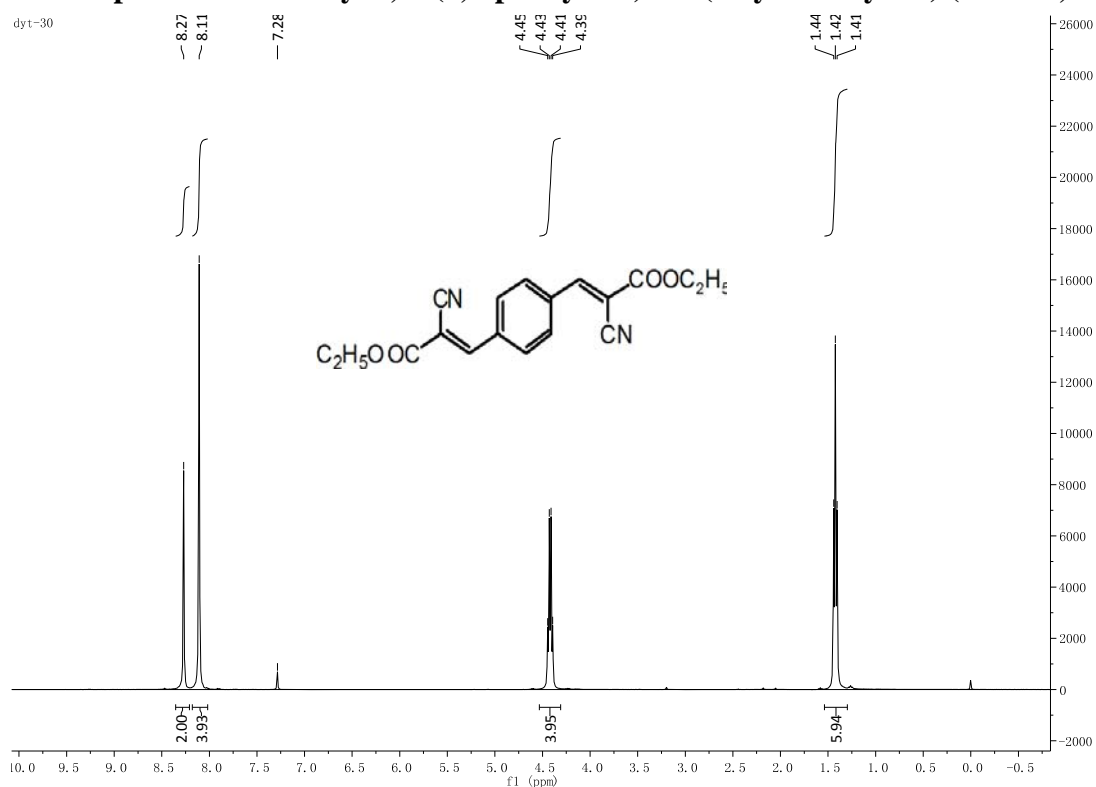
¹H NMR spectrum (400 MHz, CDCl₃)

13. ¹H-NMR spectrum of ethyl 2-cyano-3-(4-hydroxyphenyl)acrylate (Table 2, Entry 8)



¹H NMR spectrum (400 MHz, CDCl₃)

14. ¹H-NMR spectrum of diethyl 3,3'-(1,4-phenylene) -bis(2-cyanoacrylate) (Table 2, Entry 12)



¹H NMR spectrum (400 MHz, CDCl₃)