

Supporting information

Biochar-based graphitic carbon nitride adorned with ionic liquid containing acidic polymer: a versatile, non-metallic catalyst for acid catalyzed reaction

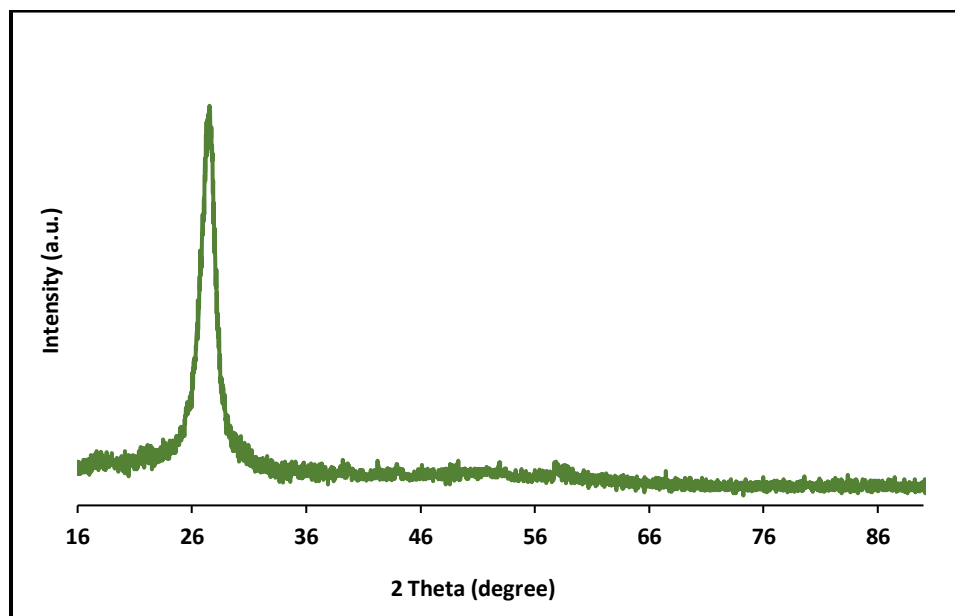


Figure S1. XRD pattern of BC@GCN-P-IL.

¹HNMR spectra for selected Knoevenagel condensation products

Sample code: Kn-ph

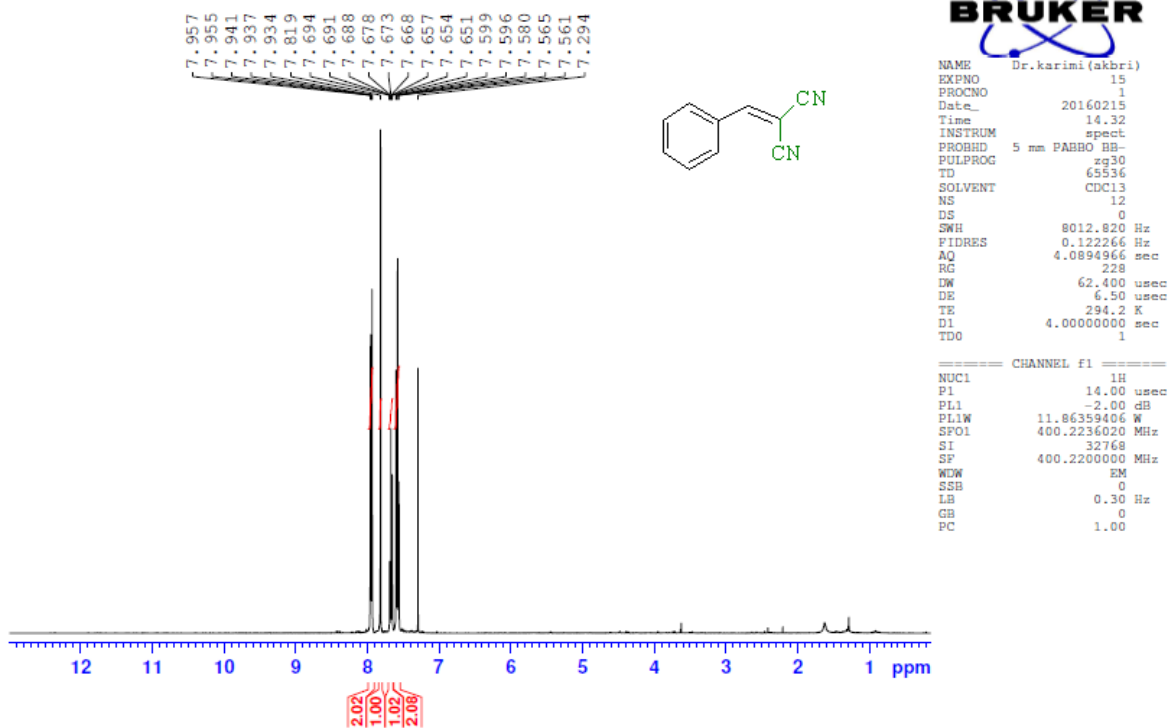


Figure S2. ^1H NMR spectrum of Knoevenagel condensation reaction of malononitrile and benzaldehyde.

Sample code: Kn-2

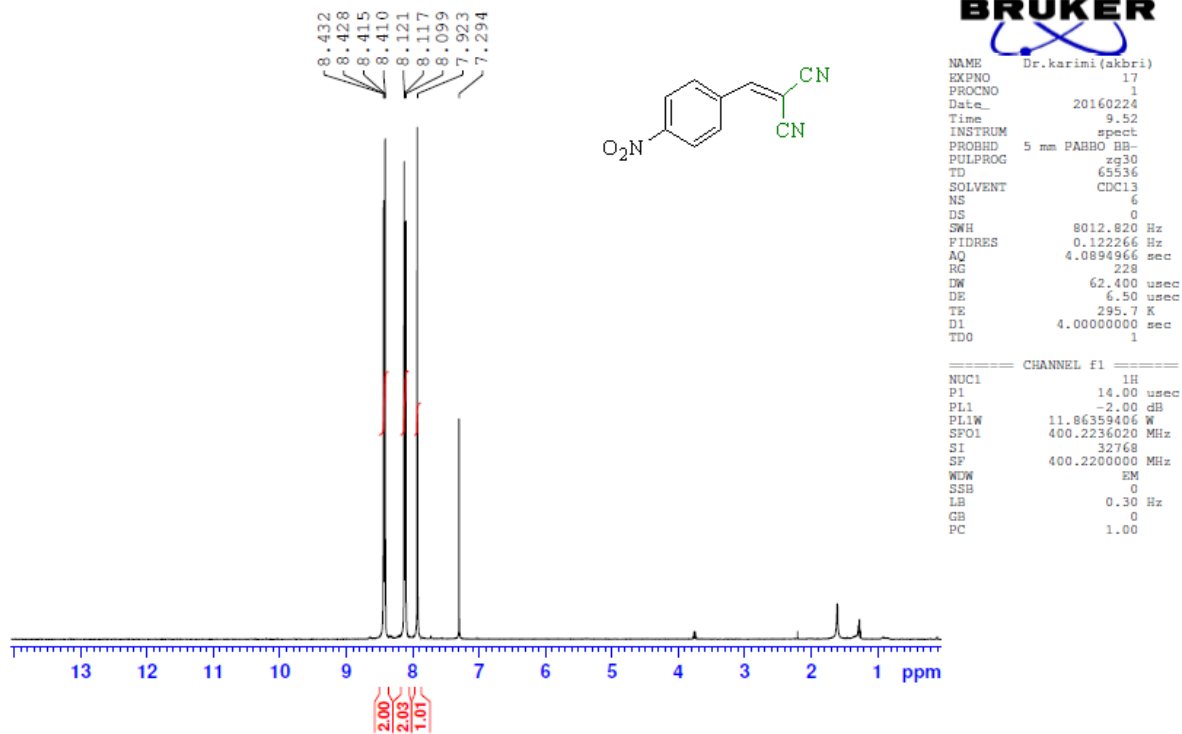


Figure S3. ^1H NMR spectrum of Knoevenagel condensation reaction of malononitrile and 4-nitrobenzaldehyde.

Sample code: Kn-7

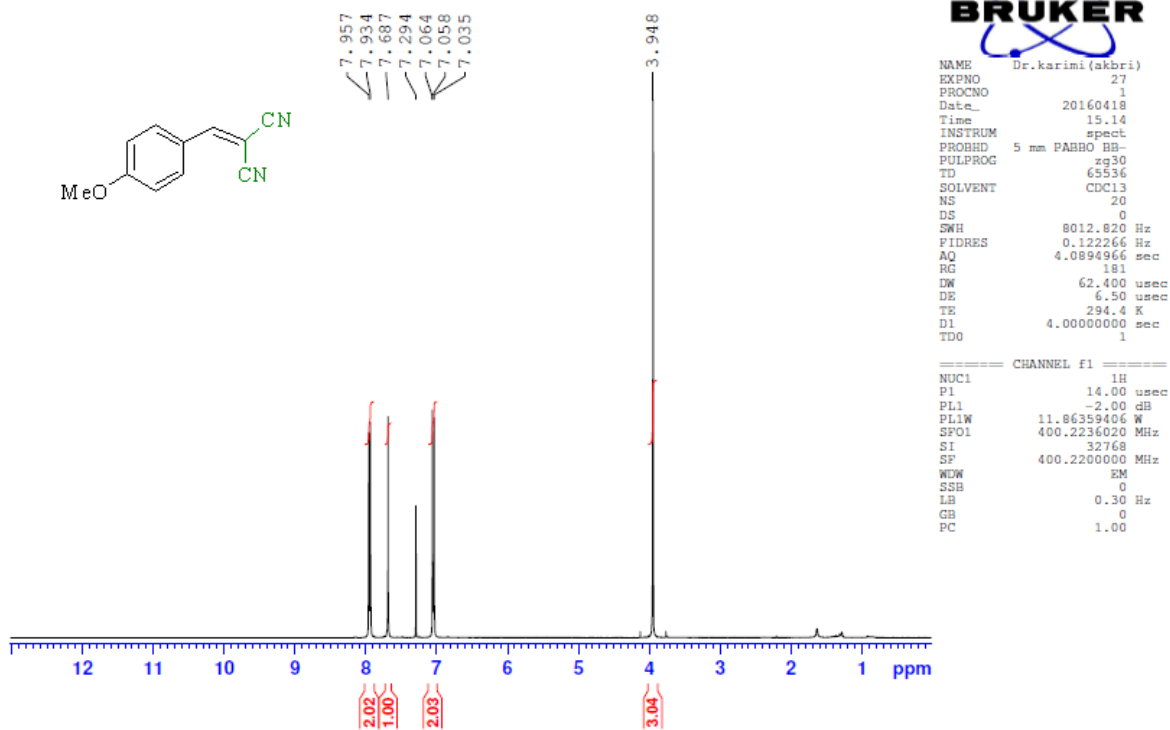


Figure S4. ^1H NMR spectrum of Knoevenagel condensation reaction of malononitrile and 4-methoxybenzaldehyde.

Sample code: Kn-8

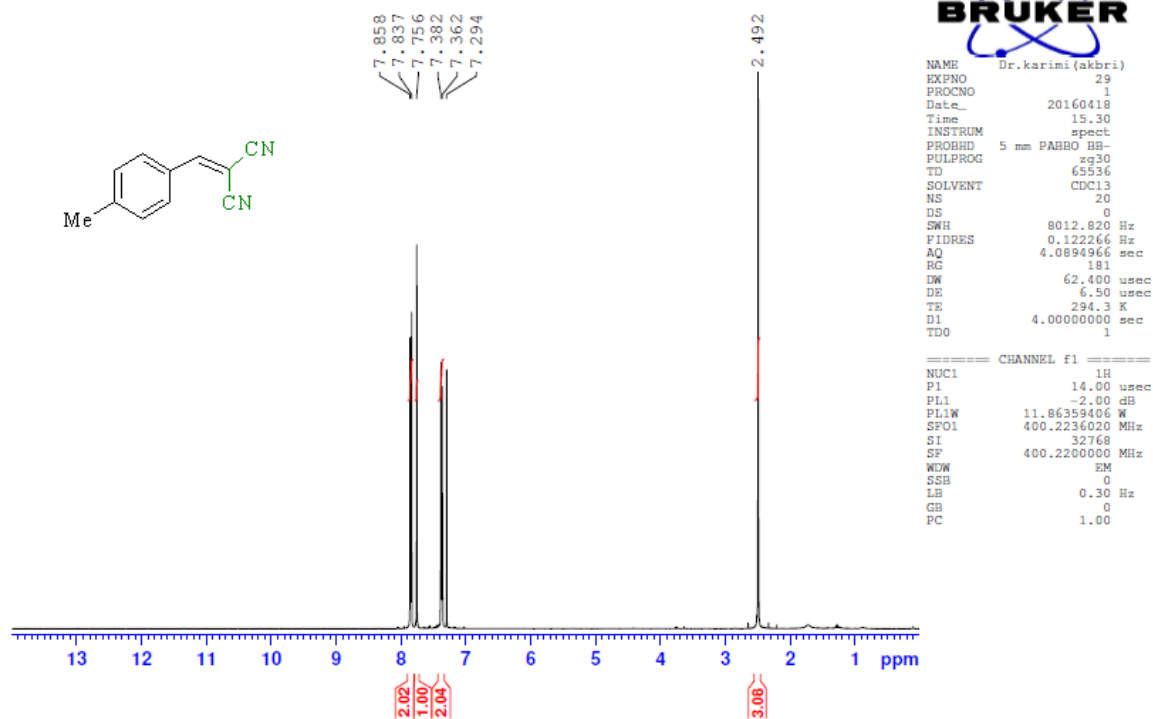


Figure S5. ¹H NMR spectrum of Knoevenagel condensation reaction of malononitrile and 4-methylbenzaldehyde.

¹³CNMR spectra for selected Knoevenagel condensation products

Sample code:Kn-ph

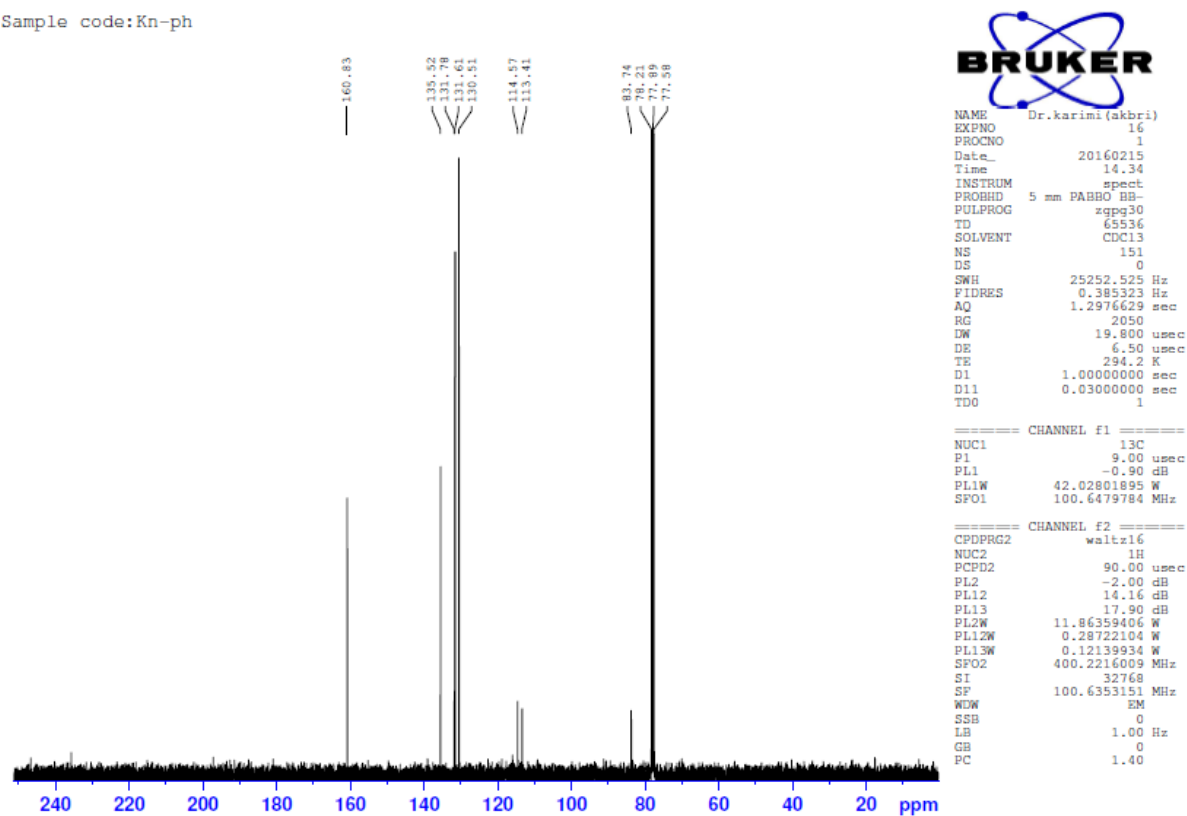


Figure S6. ¹³CNMR spectrum of Knoevenagel condensation reaction of malononitrile and benzaldehyde

Sample code:Kn-2

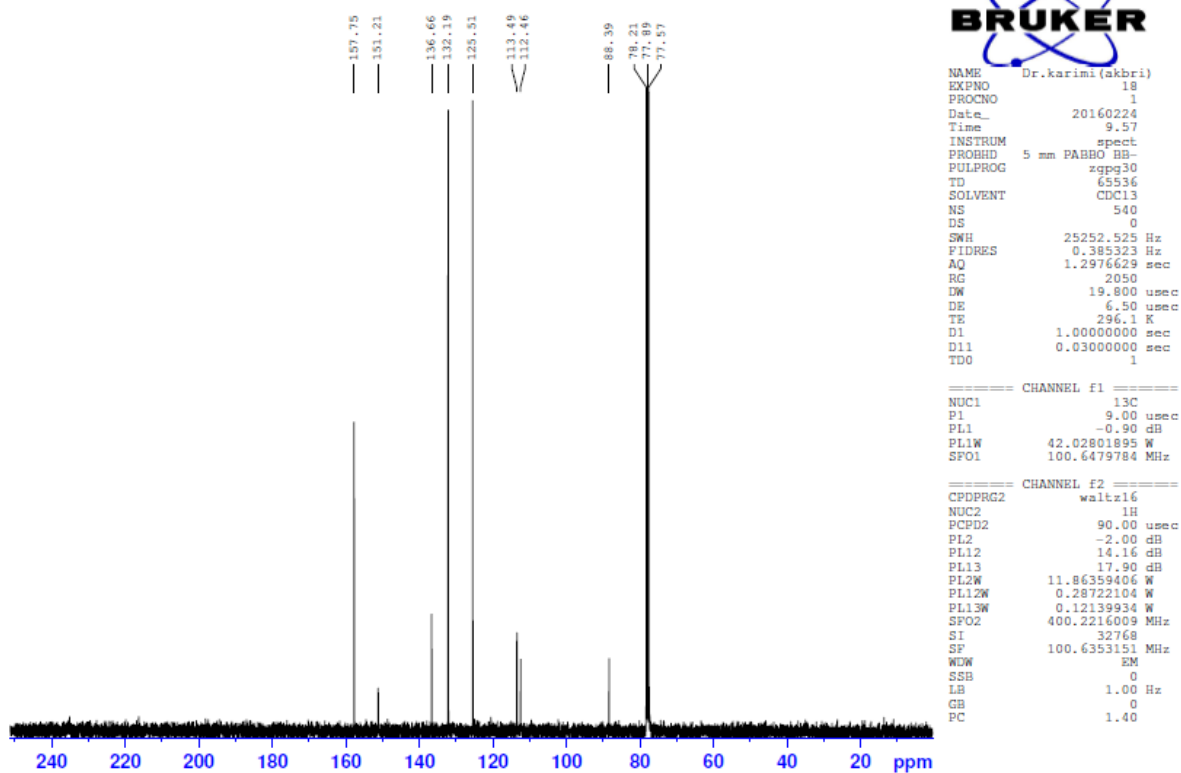


Figure S7. ^{13}C NMR spectrum of Knoevenagel condensation reaction of malononitrile and 4-nitrobenzaldehyde.

Sample code:Kn-7

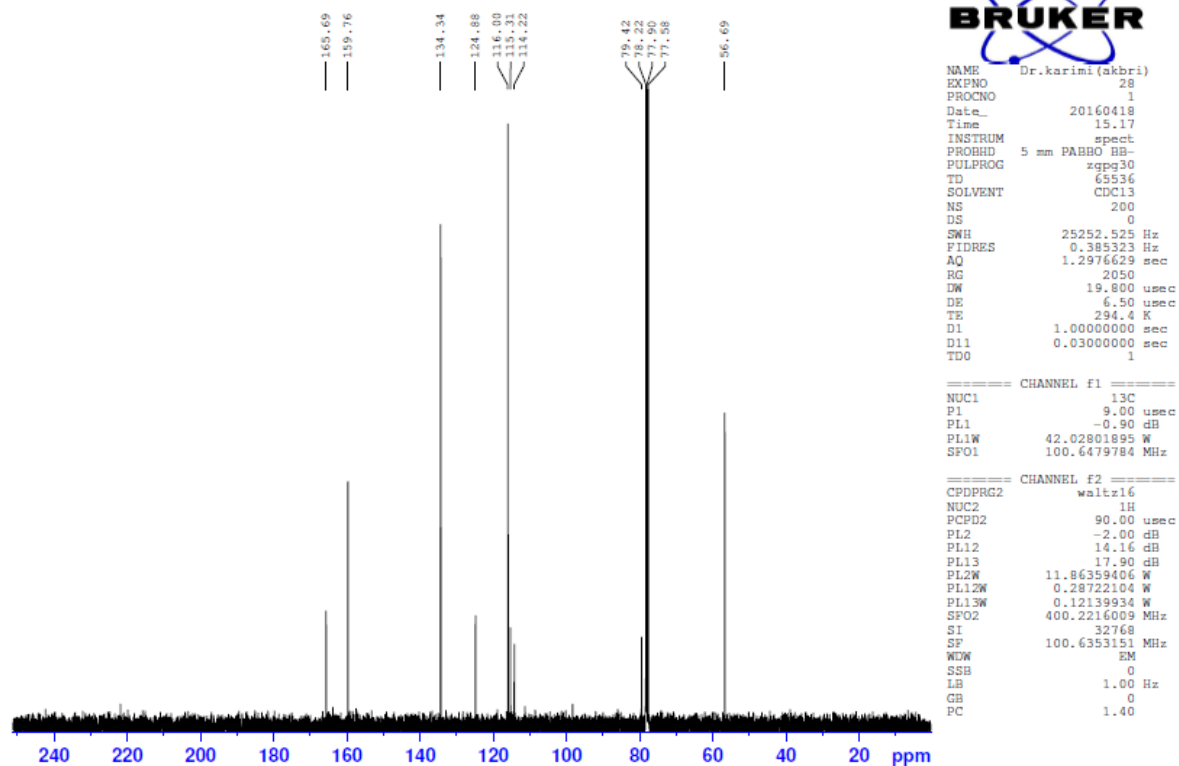


Figure S8. ^{13}C NMR spectrum of Knoevenagel condensation reaction of malononitrile and 4-methoxybenzaldehyde.

Sample code:Kn-8

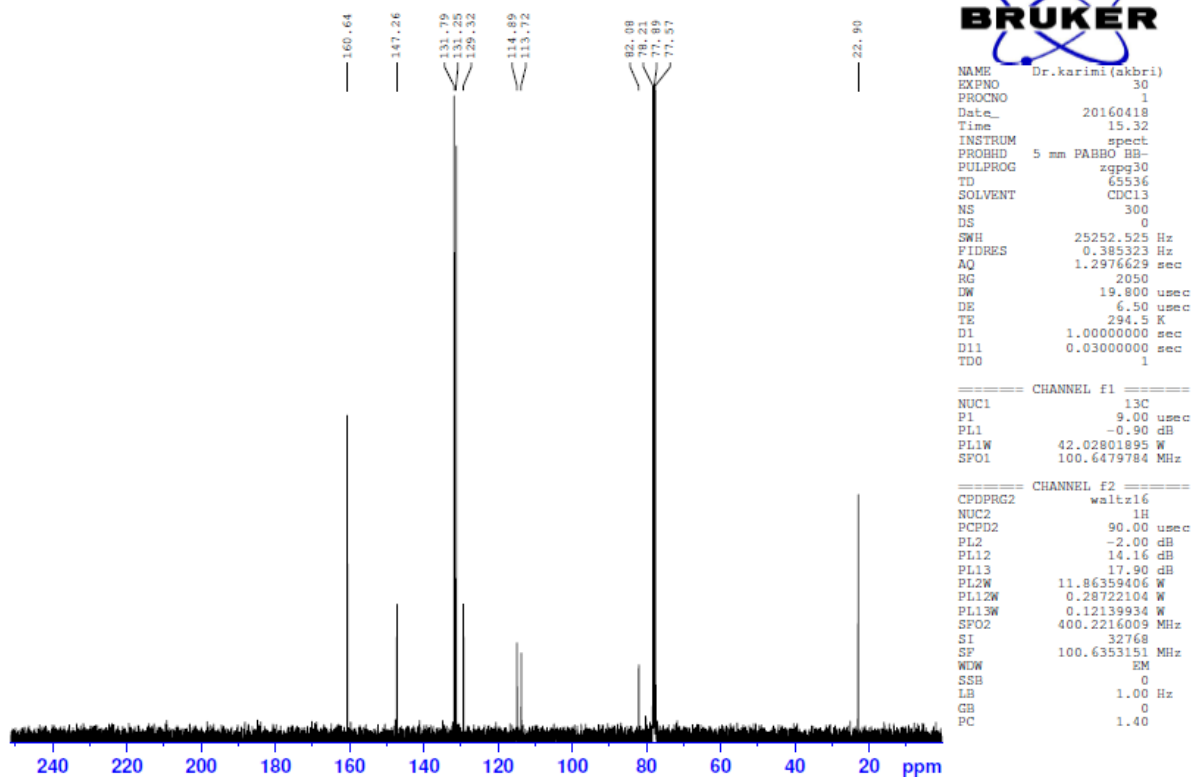


Figure S9. ^{13}C NMR spectrum of Knoevenagel condensation reaction of malononitrile and 4-methylbenzaldehyde.

¹HNMR spectra for selected dihydropyrimidinones

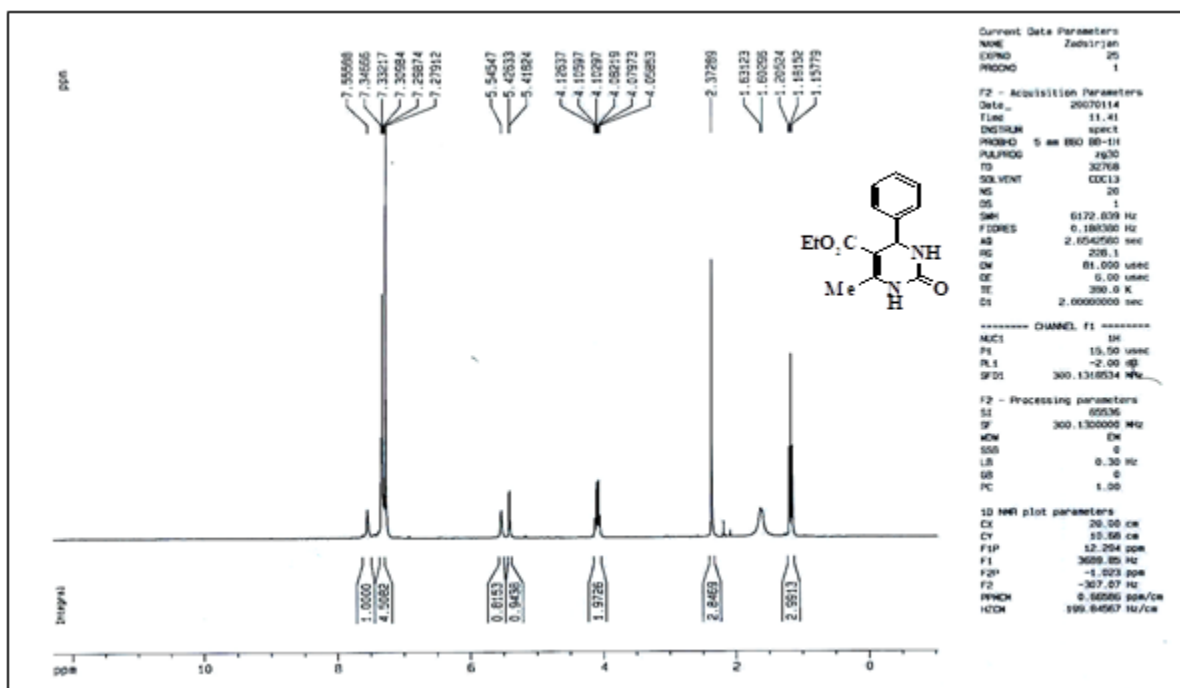


Figure S10. ¹HNMR spectrum of dihydropyrimidinone synthesized from reaction of urea, ethyl acetoacetate and benzaldehyde.

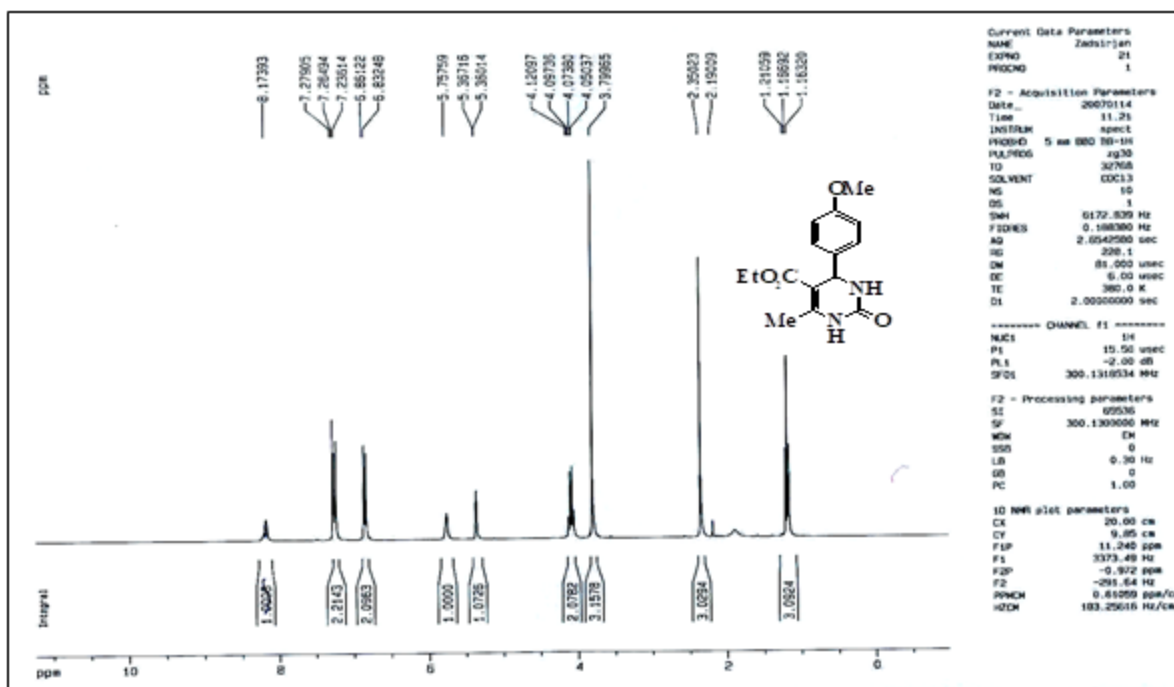


Figure S11. ^1H NMR spectrum of dihydropyrimidinone synthesized from reaction of urea, ethyl acetoacetate and 4-methoxybenzaldehyde.

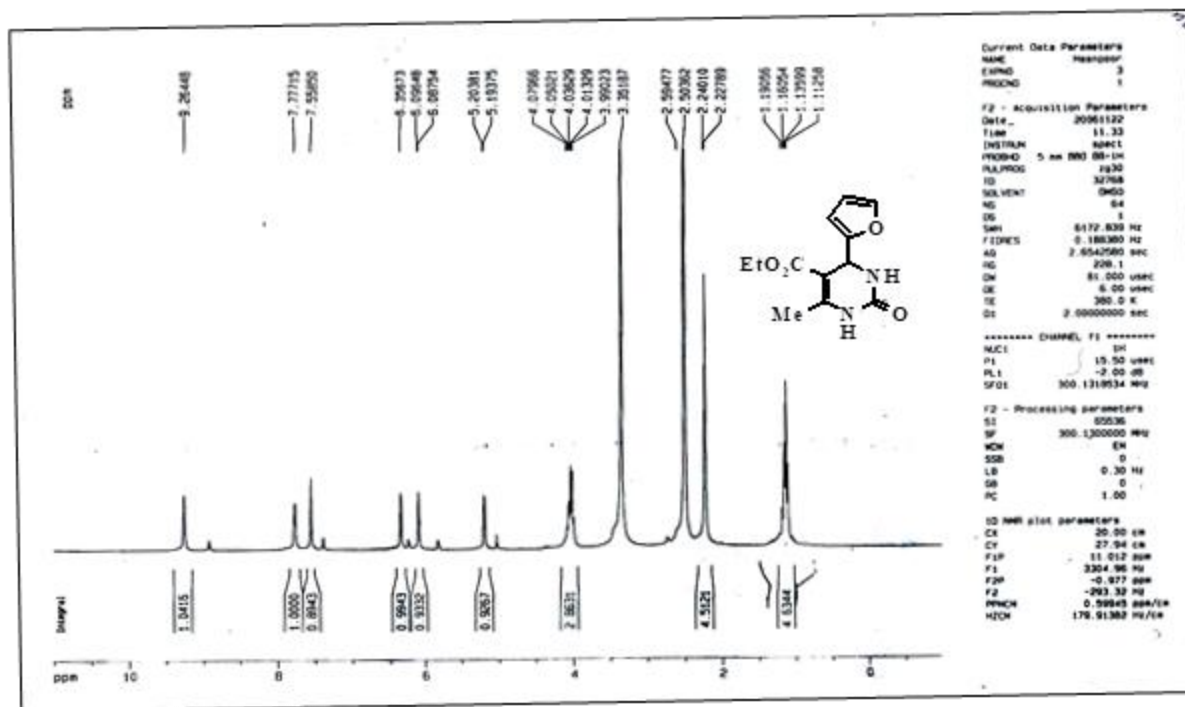


Figure S12. ^1H NMR spectrum of dihydropyrimidinone synthesized from reaction of urea, ethyl acetoacetate and furfural.

FTIR spectra for selected dihydropyrimidinones

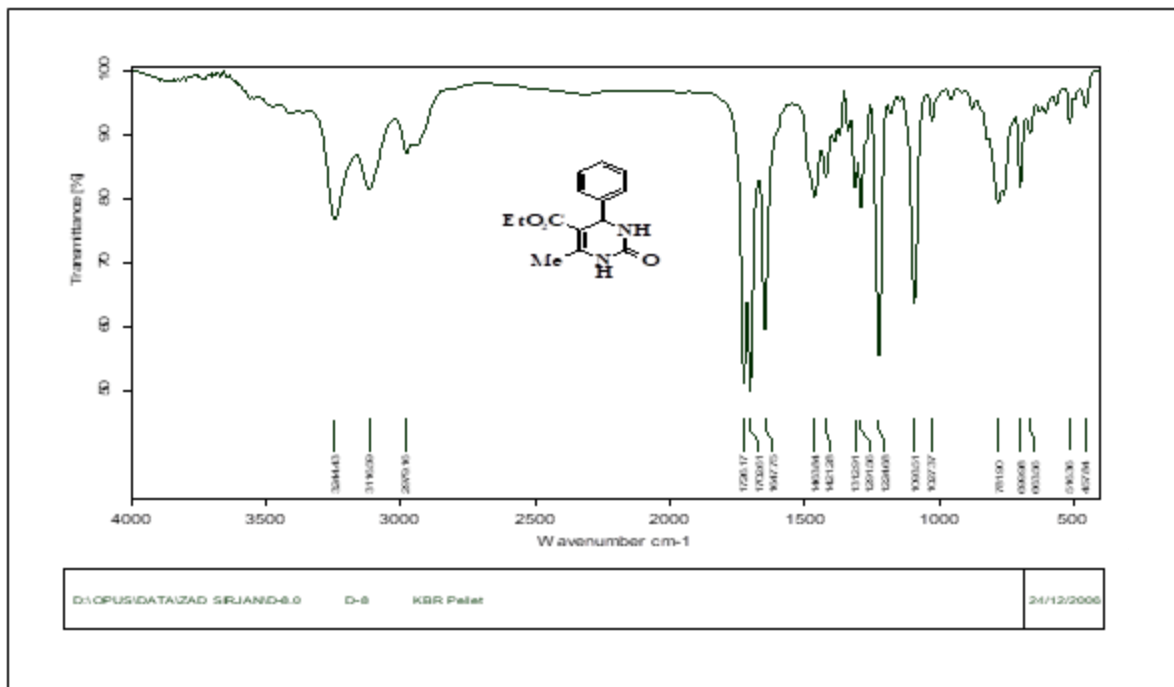


Figure S13. FTIR spectrum of dihydropyrimidinone synthesized from reaction of urea, ethyl acetoacetate and benzaldehyde.

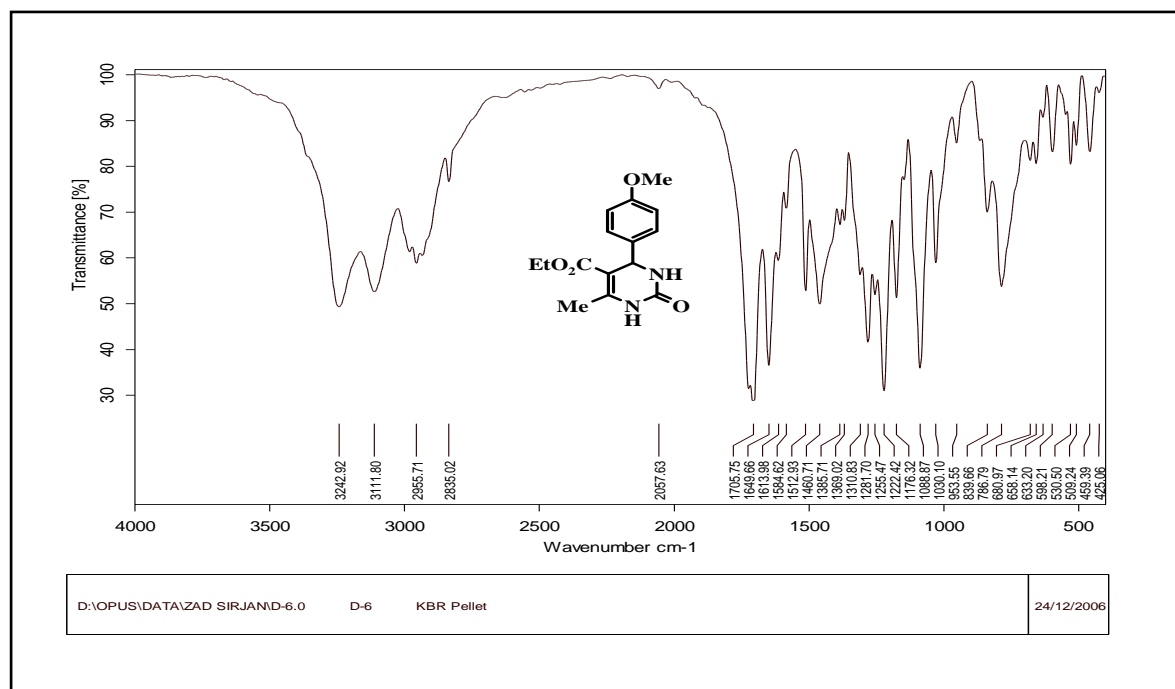


Figure S14. FTIR spectrum of dihydropyrimidinone synthesized from reaction of urea, ethyl acetoacetate and 4-methoxybenzaldehyde.

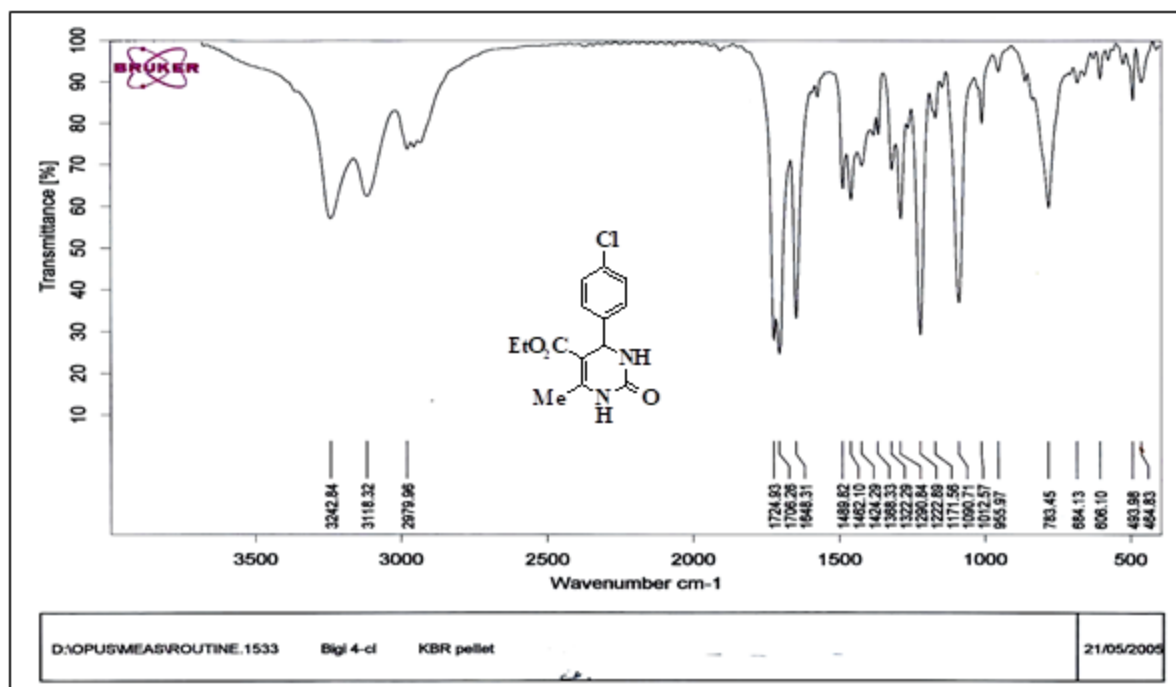


Figure S15. FTIR spectrum of dihydropyrimidinone synthesized from reaction of urea, ethyl acetoacetate and 4-chlorobenzaldehyde.

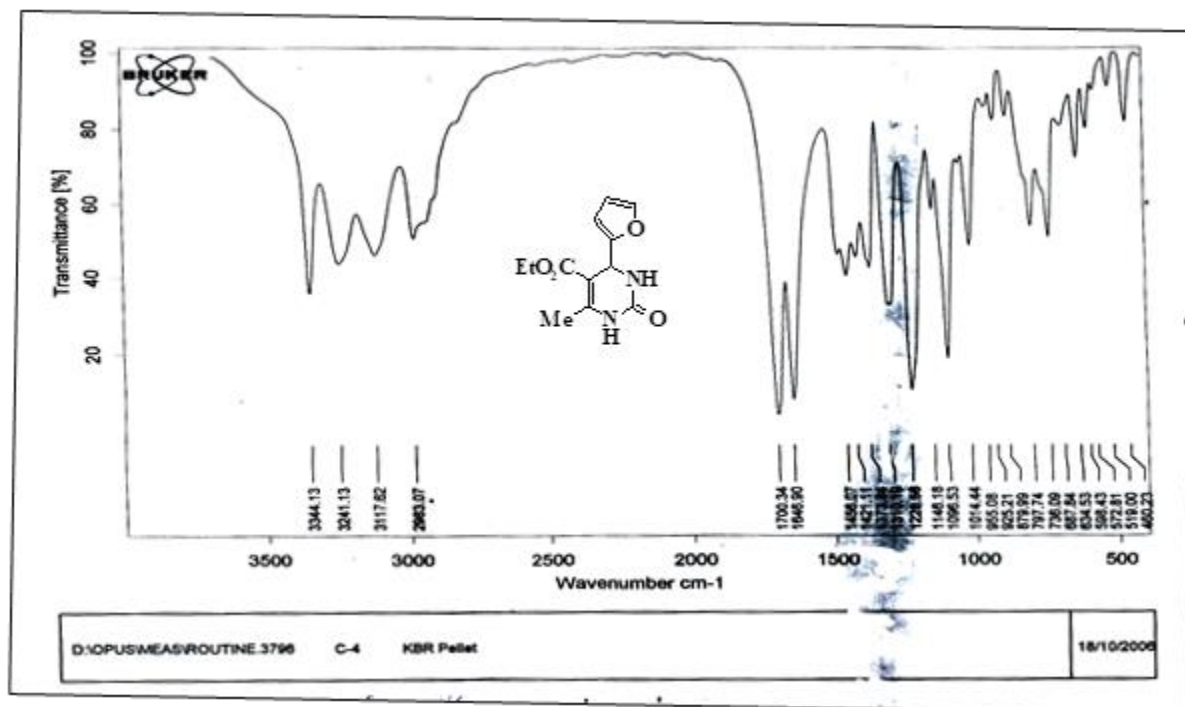


Figure S16. FTIR spectrum of dihydropyrimidinone synthesized from reaction of urea, ethyl acetoacetate and furfural.