Supplementary Information (SI) for RSC Advances.

Palladium nanoparticles from β-Cyclodextrin and cellulose methyl carboxylate as an effective catalyst for Sonogashira coupling and the reduction of alkynes

Van-Dung Le[a,b*], T. Kim Chi Huynh[a,b], Van Nam Dao[a, b], Chi-Hien Dang[a,b], Thi Yen Nghi Le[a,b]

[a]Institute of Chemical Technology, Vietnam Academy of Science and Technology, 1A, TL29 Street, Thanh Loc Ward, District 12, Ho Chi Minh City, Vietnam.

[b]Graduate University of Science and Technology, Vietnam Academy of Science and Technology, 18 Hoang Quoc Viet, Cau Giay, Hanoi, Vietnam.

***Corresponding author:** Van-Dung Le; Email: tohoahocctb@gmail.com

1. Spectra ^{1}H and ^{13}C NMR spectrum of 3a-3g

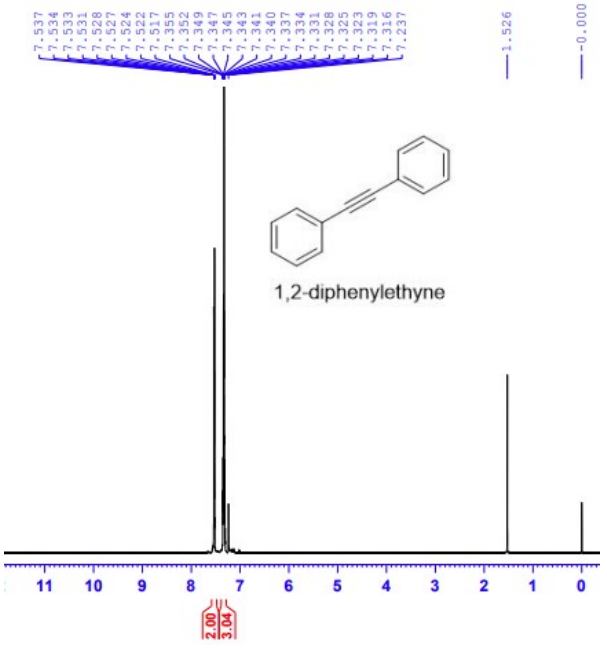

Figure S1. ^{1}H NMR spectrum of **3a** (600 Hz, $CDCl_3$)

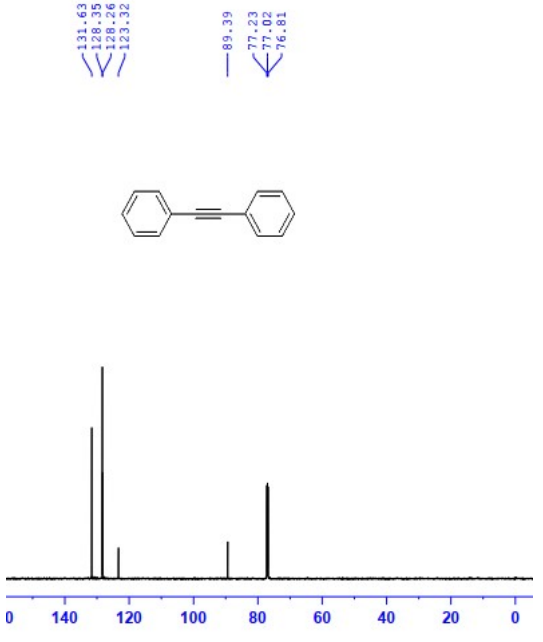

Figure S2. ^{13}C NMR spectrum of **3a** (150 Hz, $CDCl_3$)

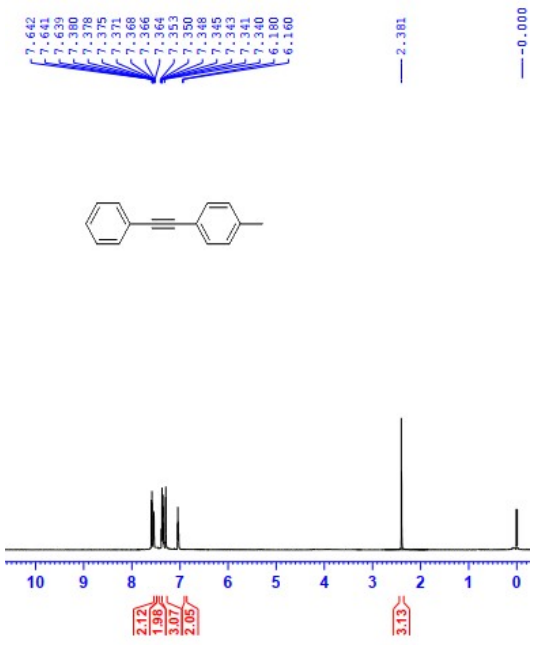

Figure S3. ^{1}H NMR spectrum of **3b** (600 Hz, $CDCl_3$)

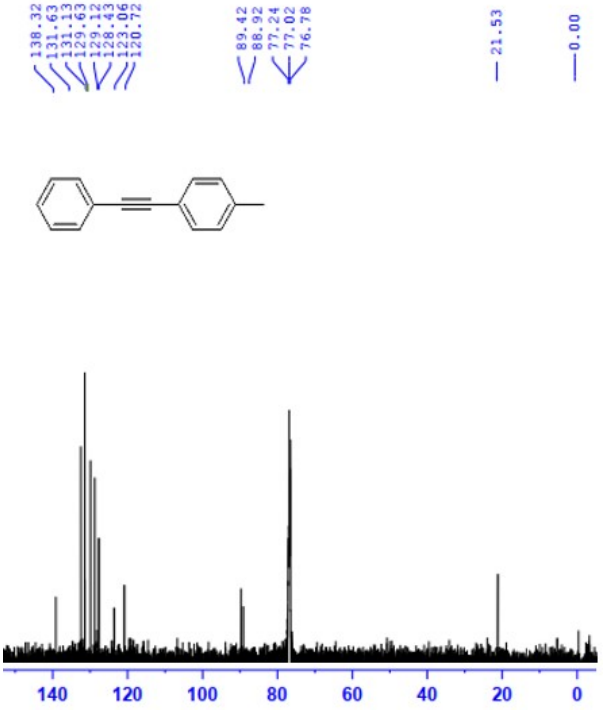

Figure S4. ^{13}C NMR spectrum of **3b** (150 Hz, $CDCl_3$)

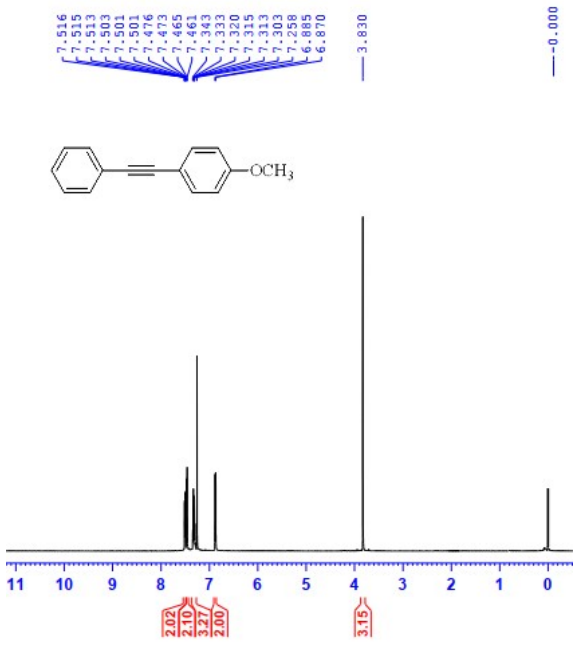

Figure S5. ^{1}H NMR spectrum of **3c** (600 Hz, $CDCl_3$)

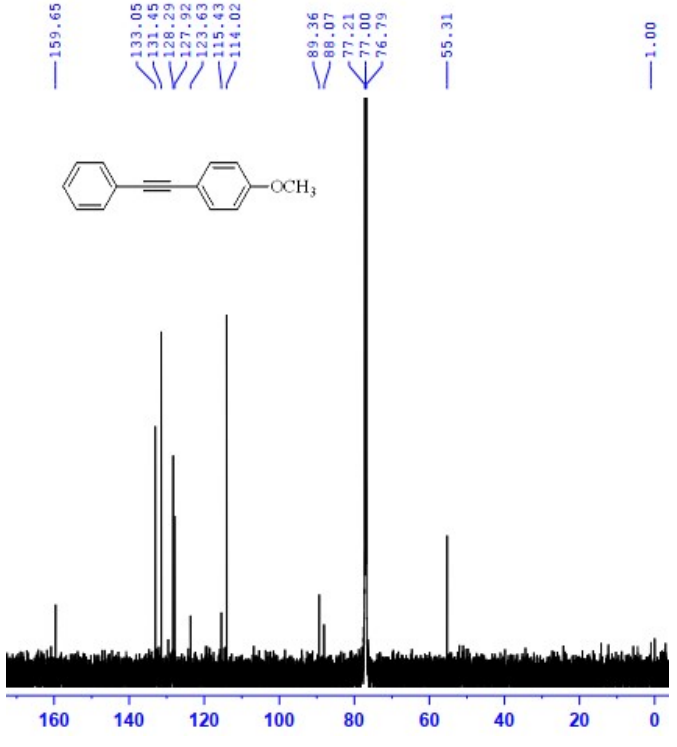

Figure S6. ^{13}C NMR spectrum of **3c** (150 Hz, $CDCl_3$)

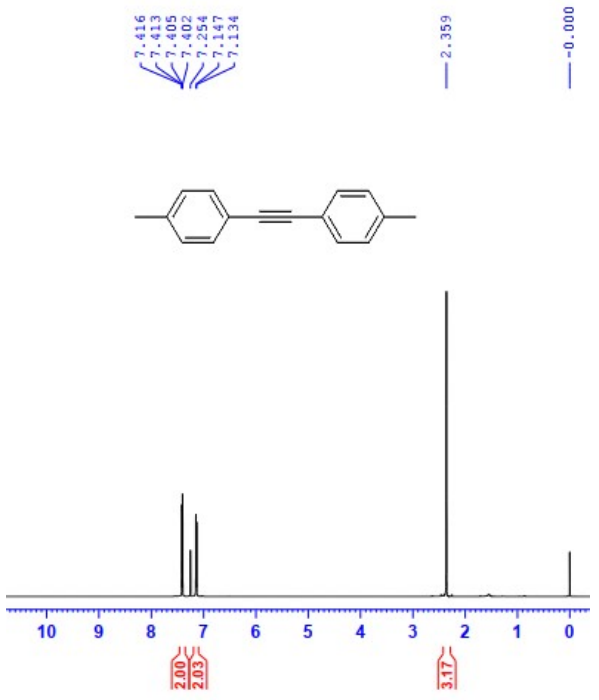

Figure S7. ^{1}H NMR spectrum of **3d** (600 Hz, $CDCl_3$)

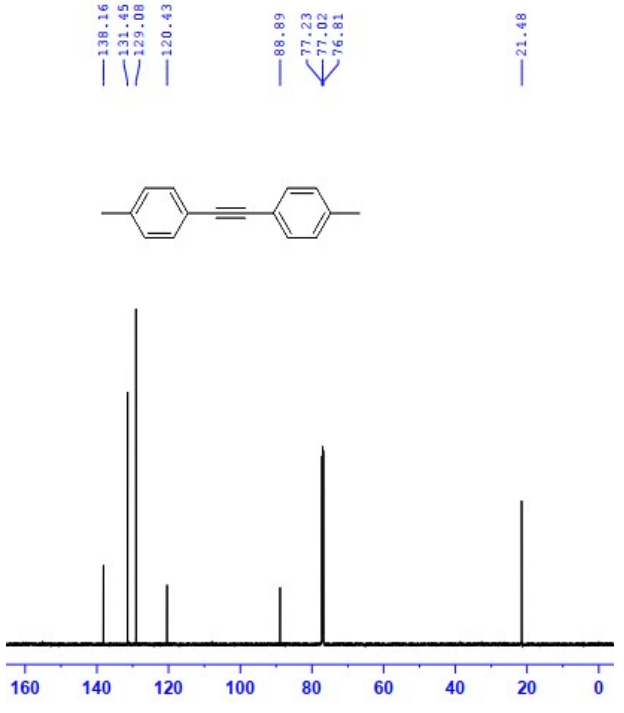

Figure S8. ^{13}C NMR spectrum of **3d** (150 Hz, $CDCl_3$)

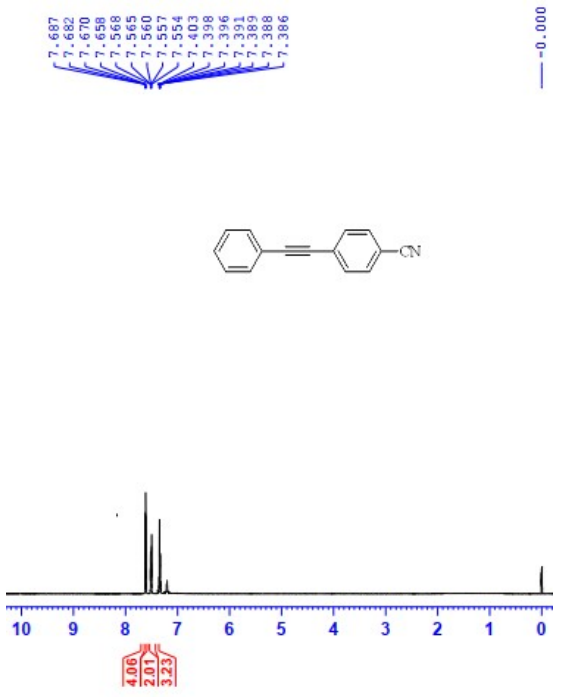

Figure S9. ^{1}H NMR spectrum of **3e** (600 Hz, $CDCl_3$)

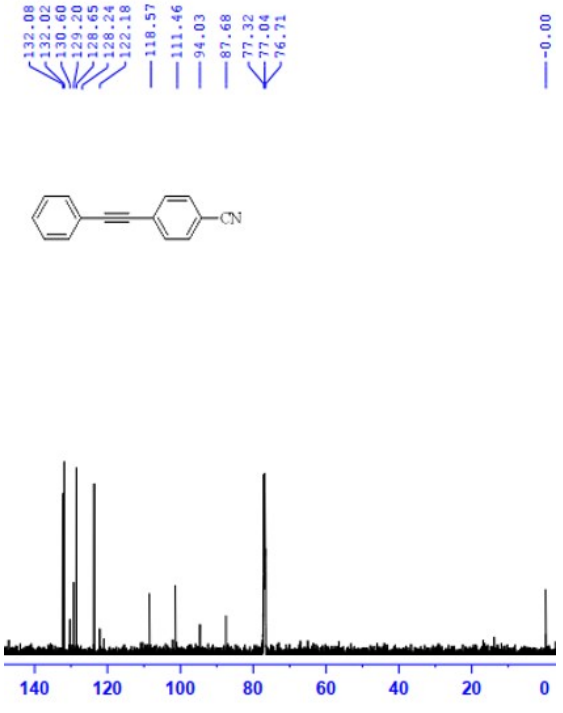

Figure S10. ^{13}C NMR spectrum of **3e** (150 Hz, $CDCl_3$)

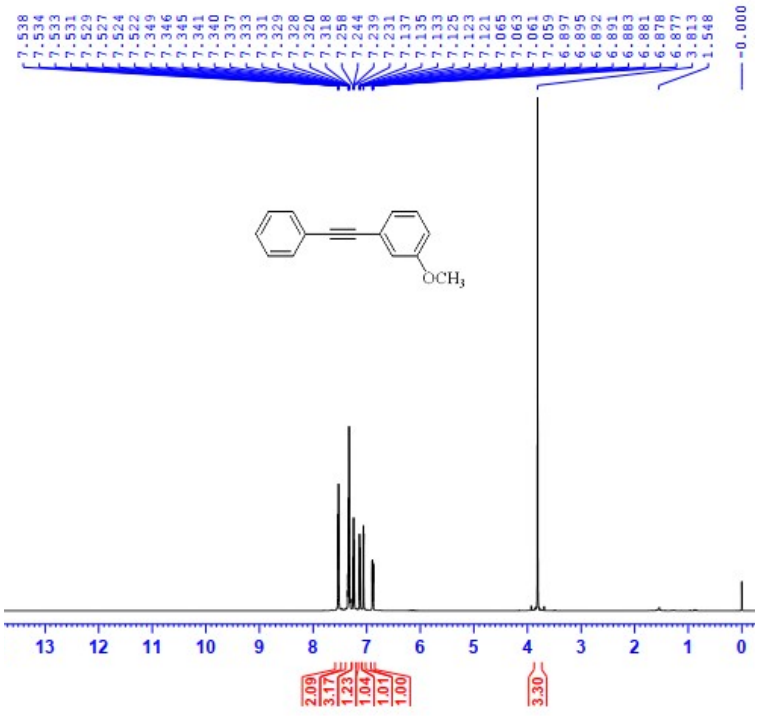

Figure S11. ^{1}H NMR spectrum of **3f** (600 Hz, $CDCl_3$)

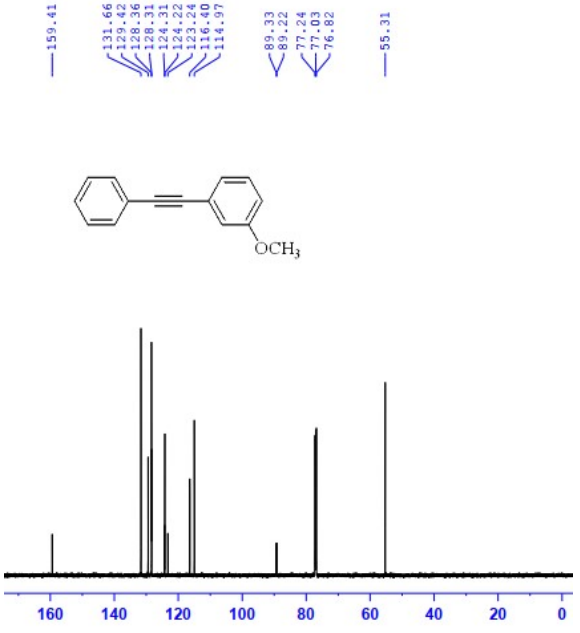

Figure S12. ^{13}C NMR spectrum of **3f** (150 Hz, $CDCl_3$)

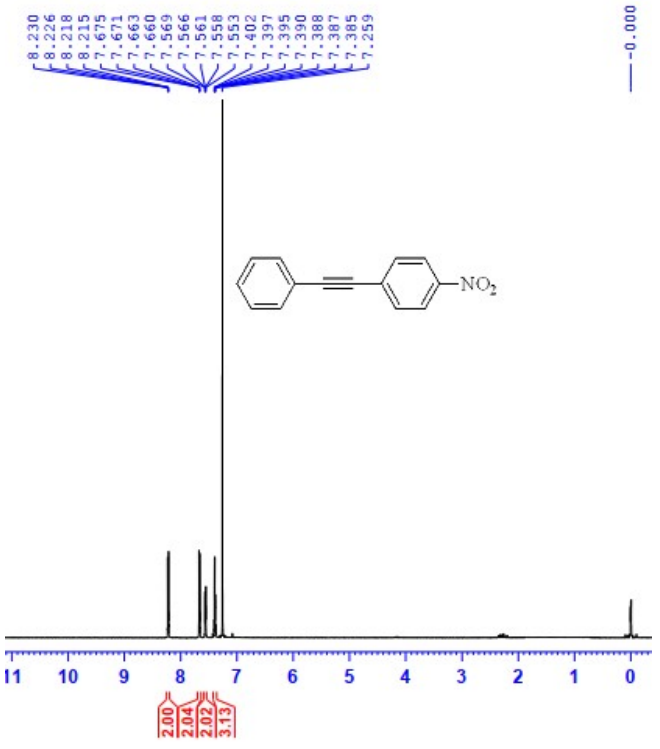

Figure S13. ^{1}H NMR spectrum of **3f** (600 Hz, $CDCl_3$)

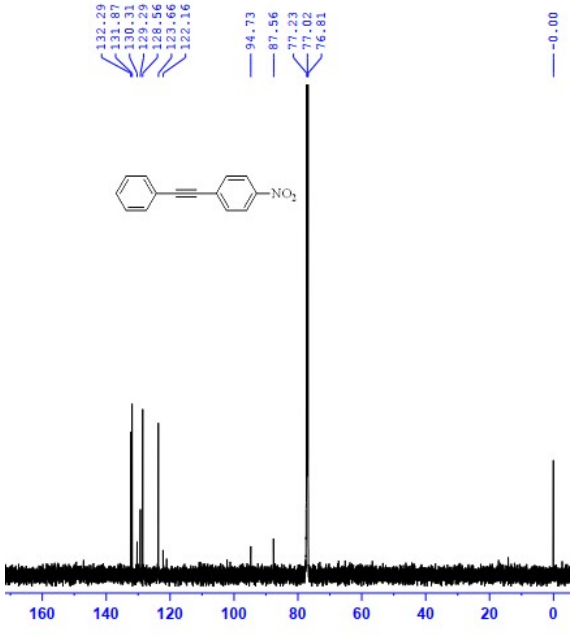

Figure S14. ^{13}C NMR spectrum of **3f** (150 Hz, $CDCl_3$)

2. GCMS spectrum of 5a-5d

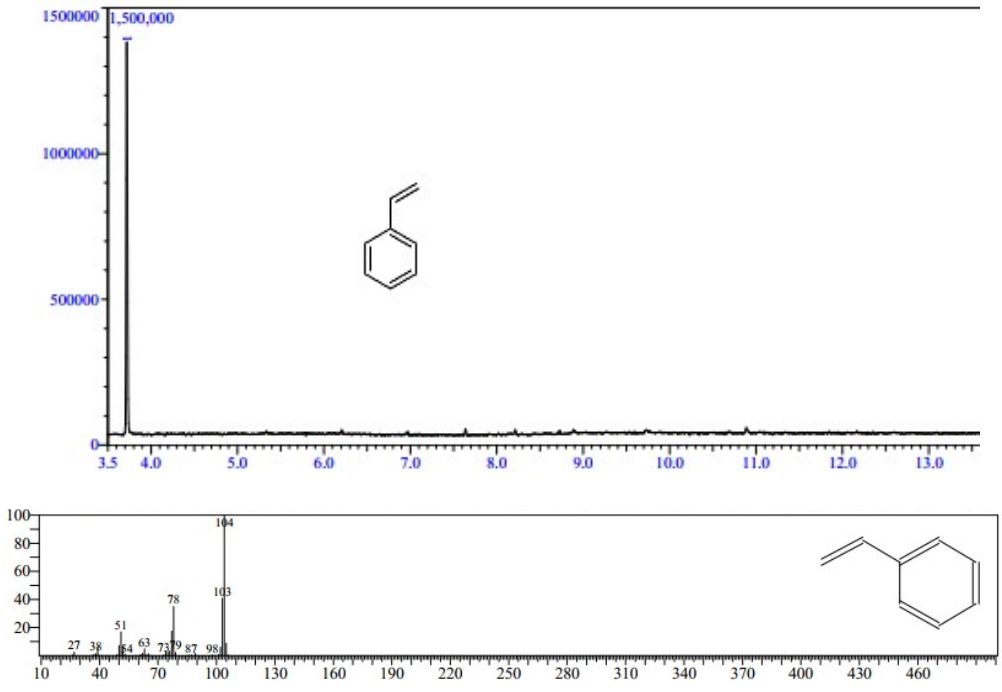

Figure S15. GCMS spectrum of **5a**

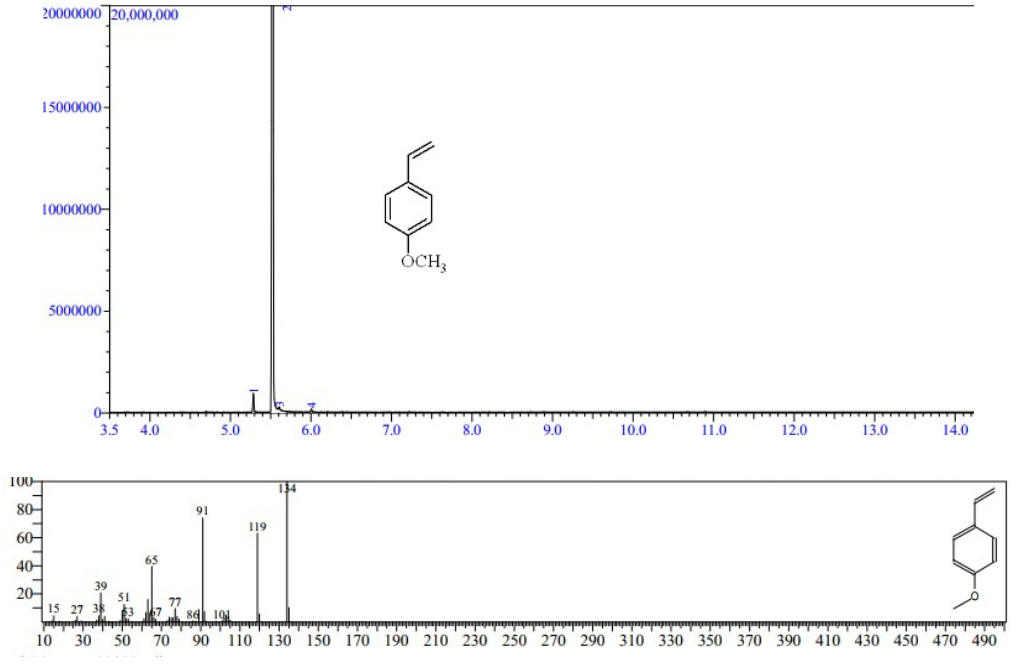

Figure S16. GCMS spectrum of **5b**

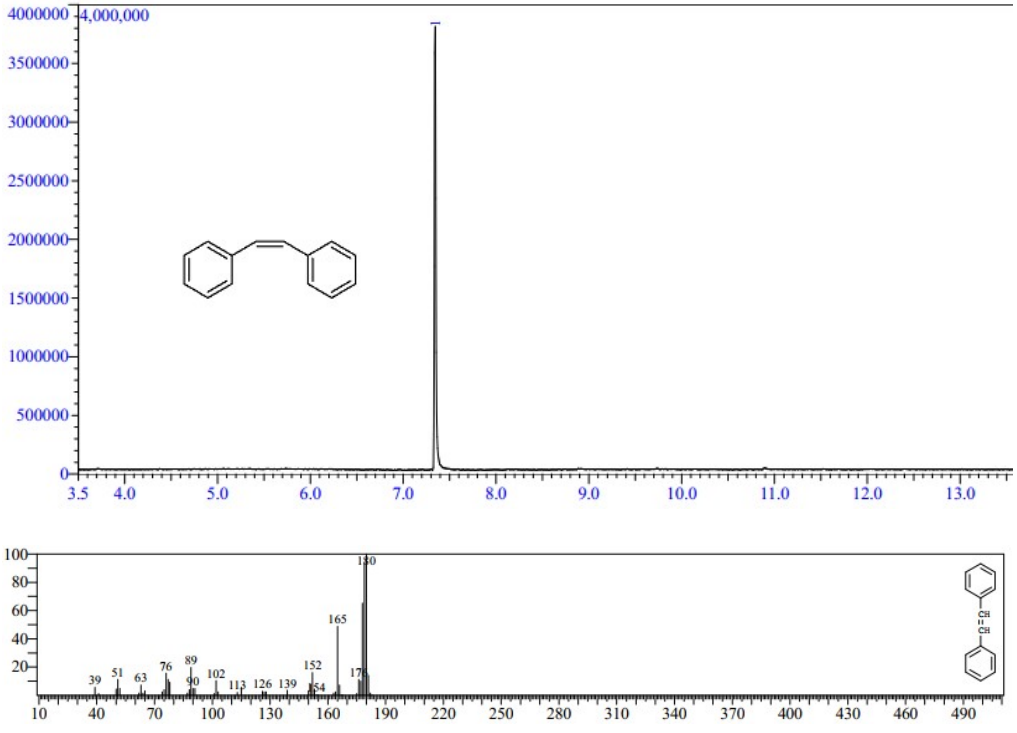

Figure S17. GCMS spectrum of **5c**

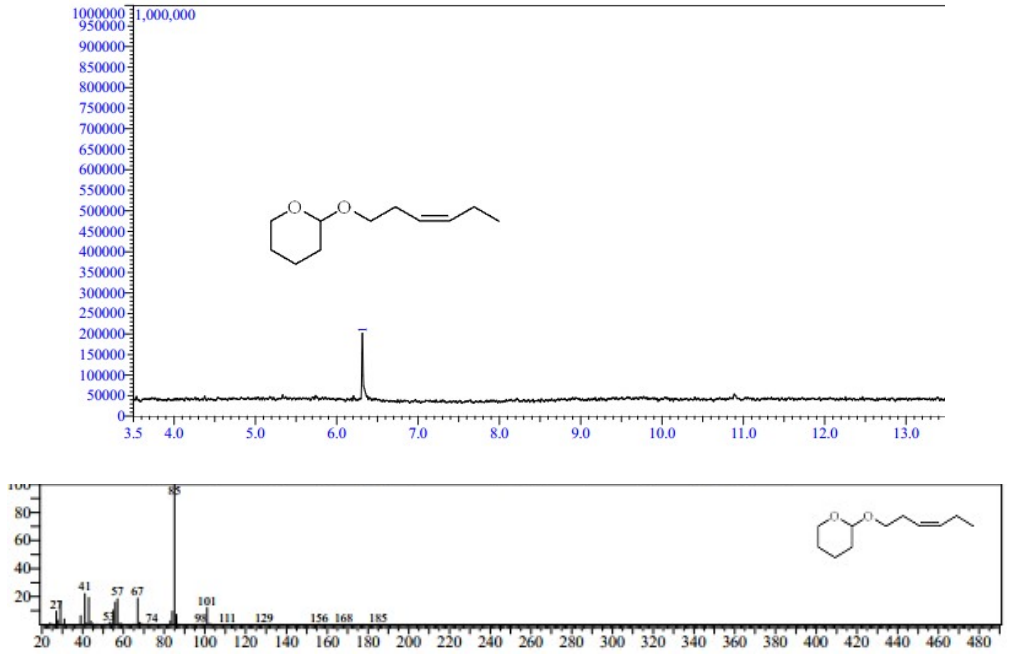

Figure S18. GCMS spectrum of **5d**

3. Spectra ^{1}H and ^{13}C NMR spectrum of 5a-5e

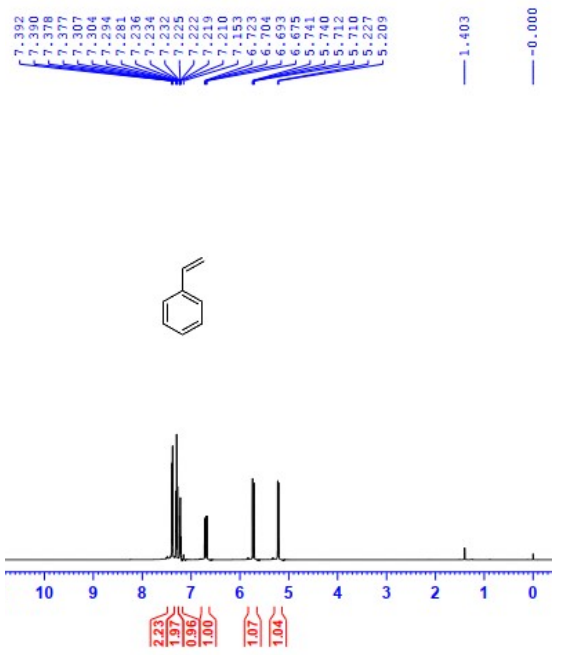

Figure S19. ^{1}H NMR spectrum of **5a** (600 Hz, $CDCl_3$)

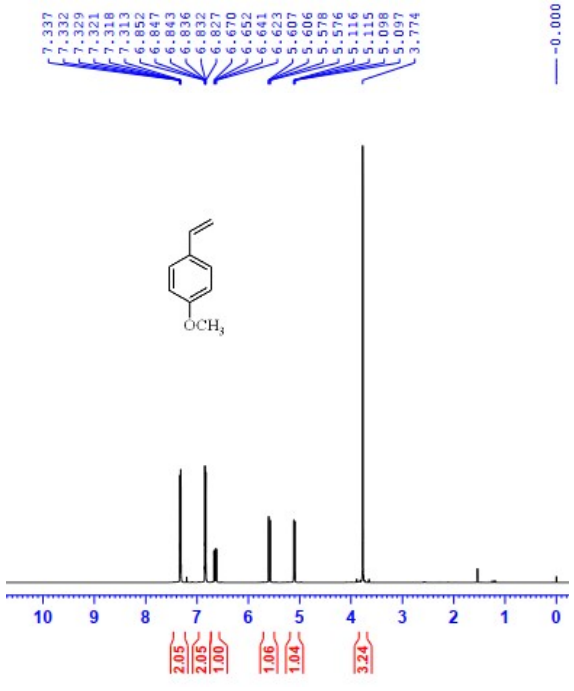

Figure S20. ^{1}H NMR spectrum of **5b** (600 Hz, $CDCl_3$)

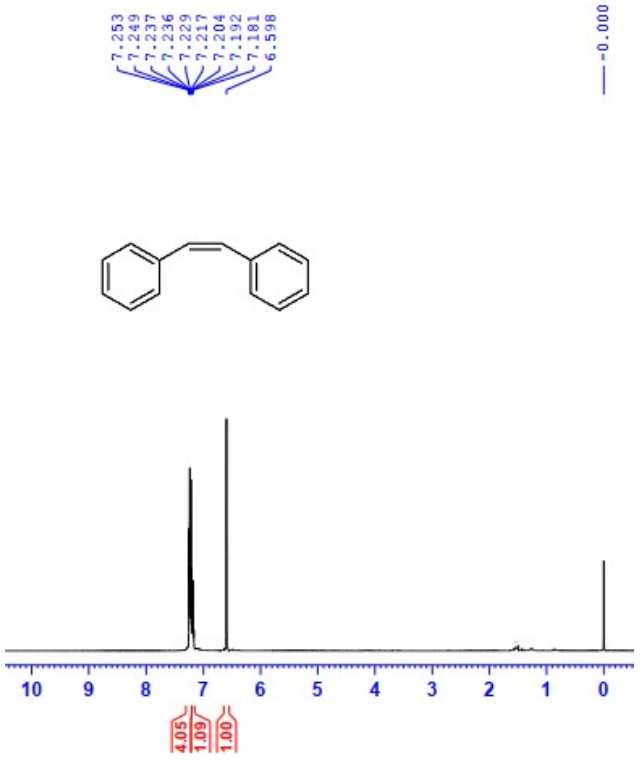

Figure S21. ^{1}H NMR spectrum of **5c** (600 Hz, $CDCl_3$)

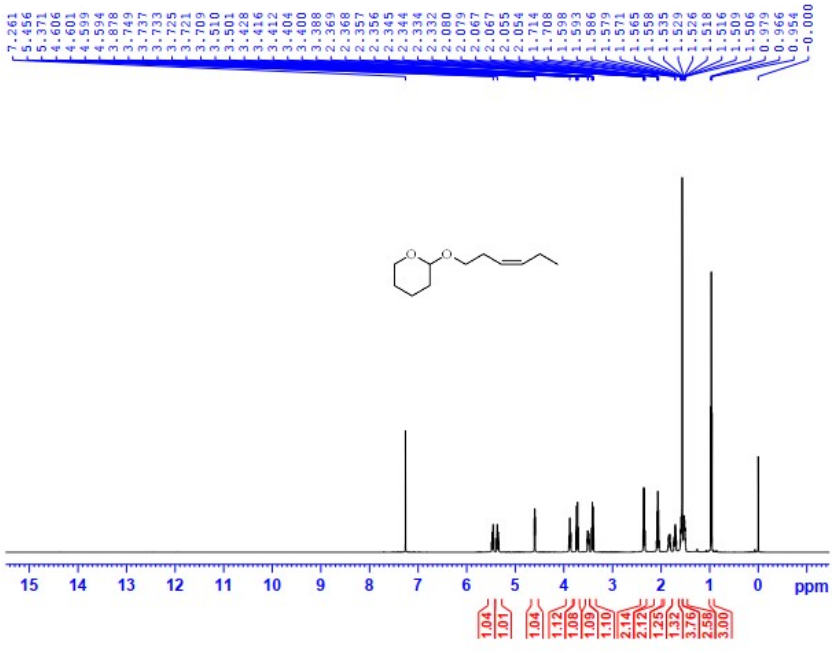

Figure S22. ^{1}H NMR spectrum of **5d** (600 Hz, $CDCl_3$)

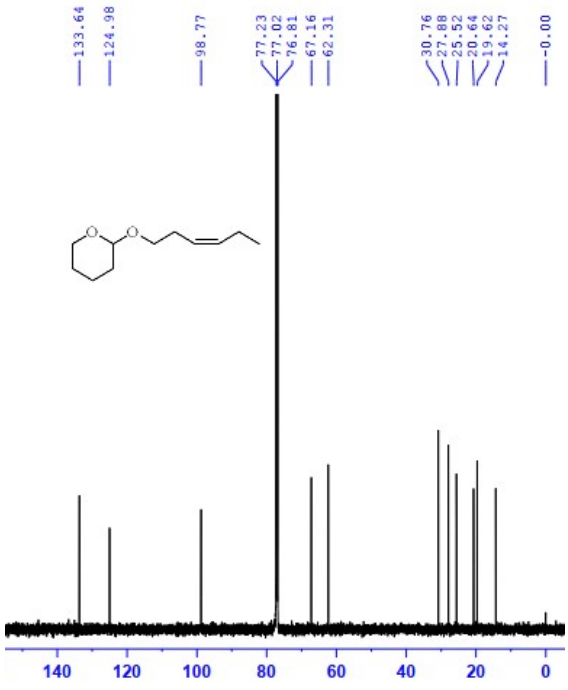

Figure S23. ^{13}C NMR spectrum of **5d** (150 Hz, $CDCl_3$)

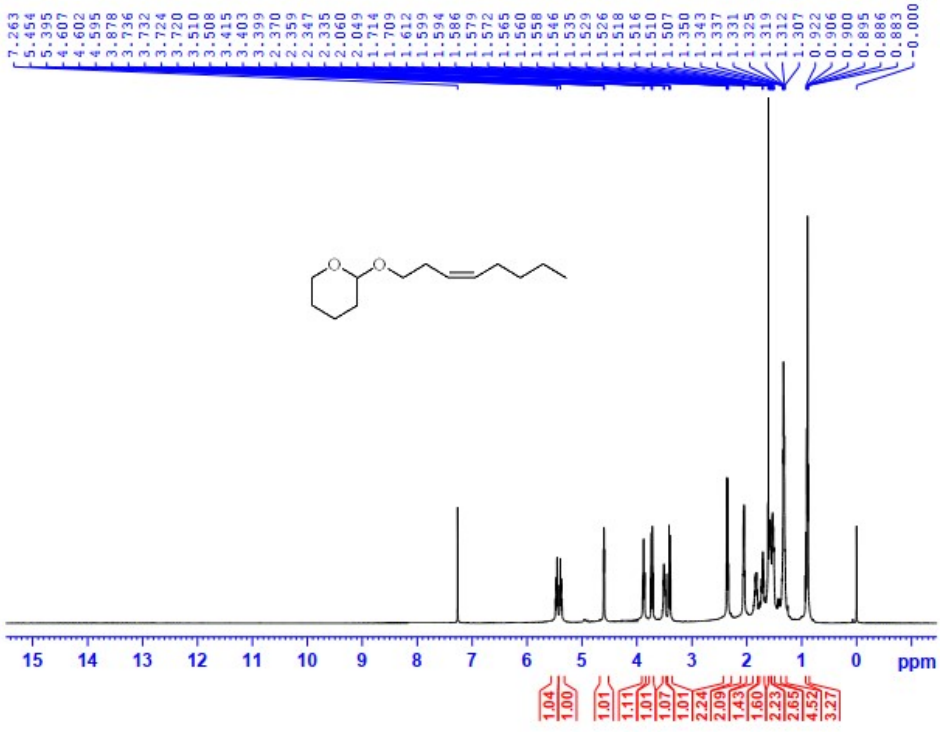

Figure S24. ^{1}H NMR spectrum of **5e** (600 Hz, $CDCl_3$)

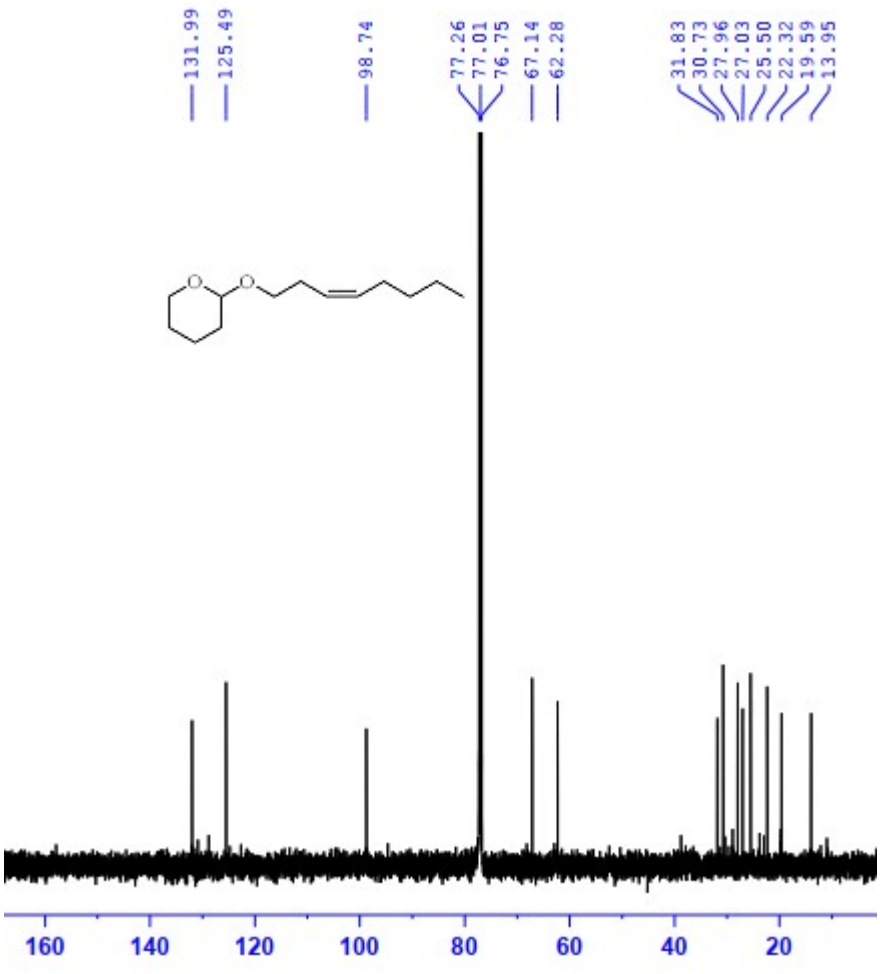

Figure S25. ^{13}C NMR spectrum of **5e** (600 Hz, $CDCl_3$)