Supporting Information

Triazine functionalized porous organic polymer: Excellent CO_2 storage material and efficient catalyst for Sonogashira C-C cross-coupling reactions

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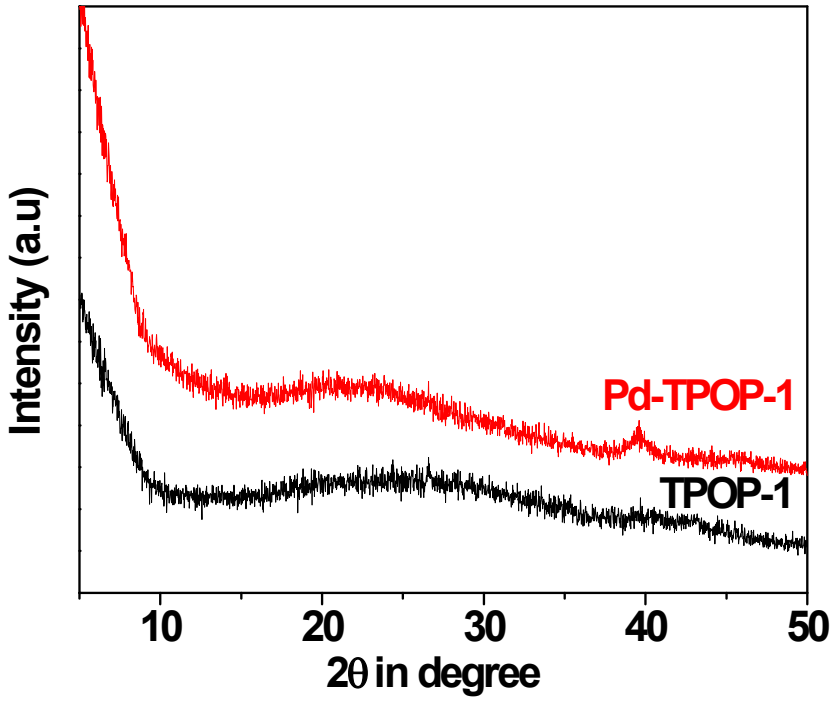


Figure S1. PXRD pattern of TPOP (black) and palladium grafted material Pd-TPOP-1 (red).

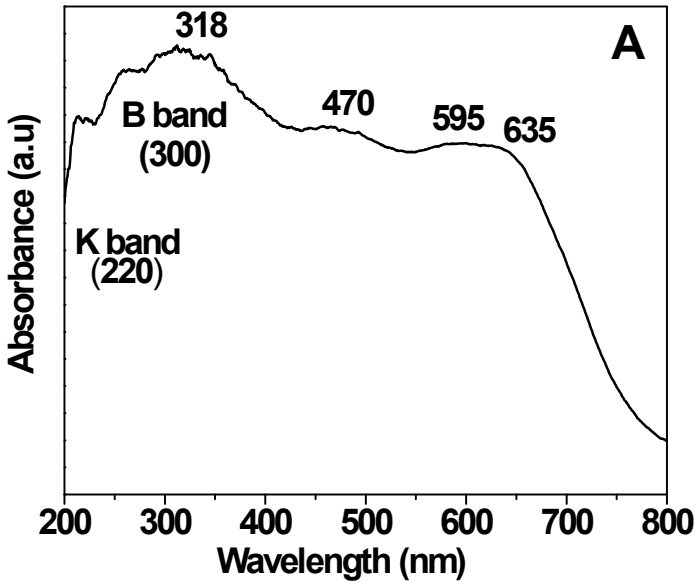


Figure S2. UV-Visible absorption spectrum of TPOP-1.

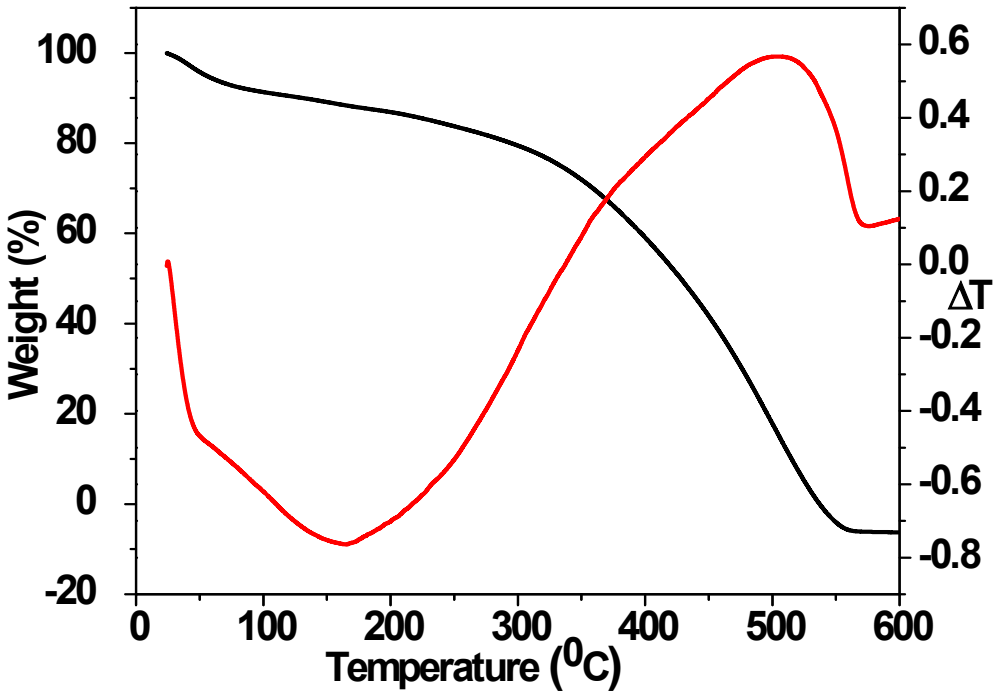


Figure S3. TG-DTA profile of TPOP-1.

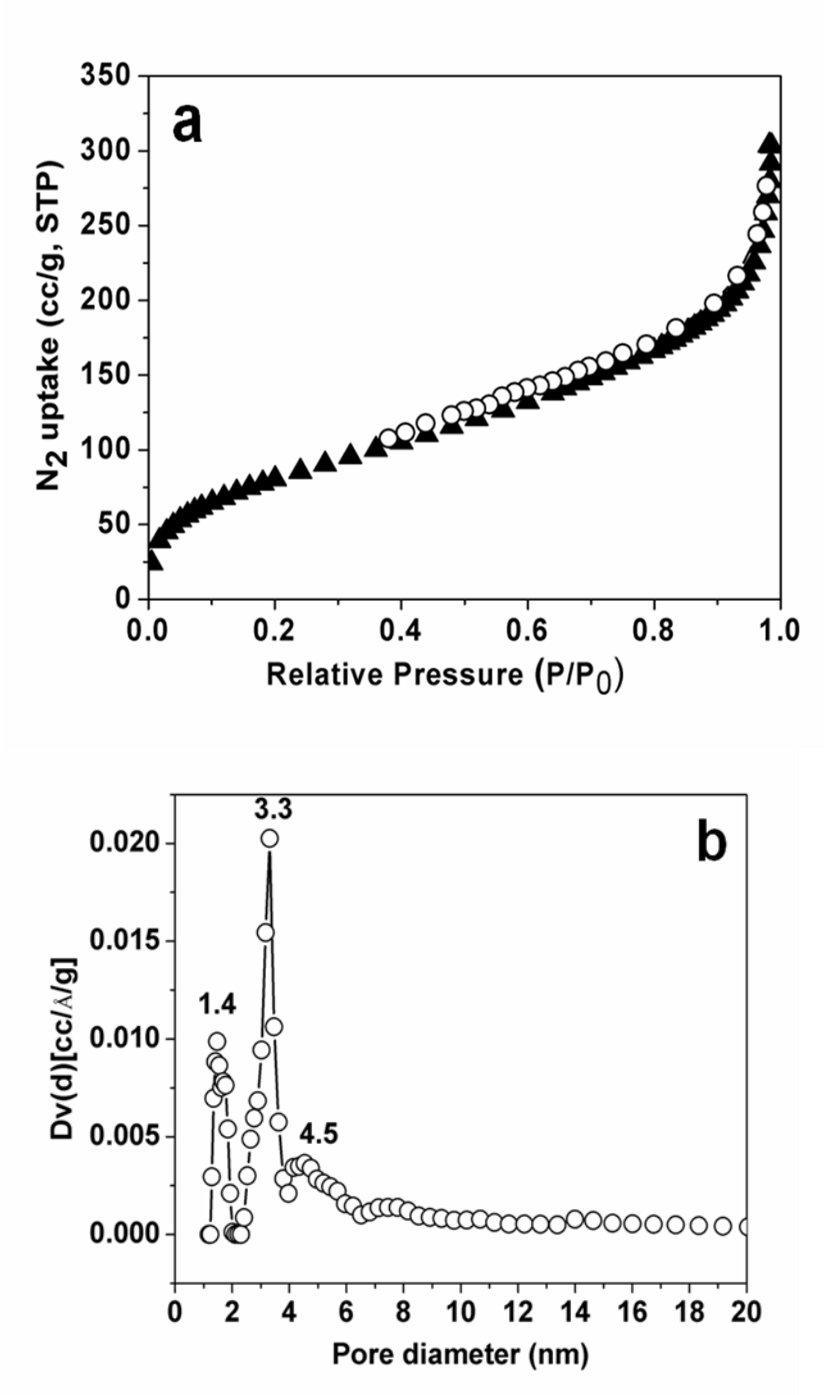


Figure S4. (a) N_2 adsorption-desorption isotherm of Pd-TPOP-1 at 77 K, where filled triangles represents for adsorption and empty circles denote desorption process. (b) NLDFT pore size distribution considering N_2 at 77 K on carbon slit pore. Pore Volume = 0.34 cc/g.

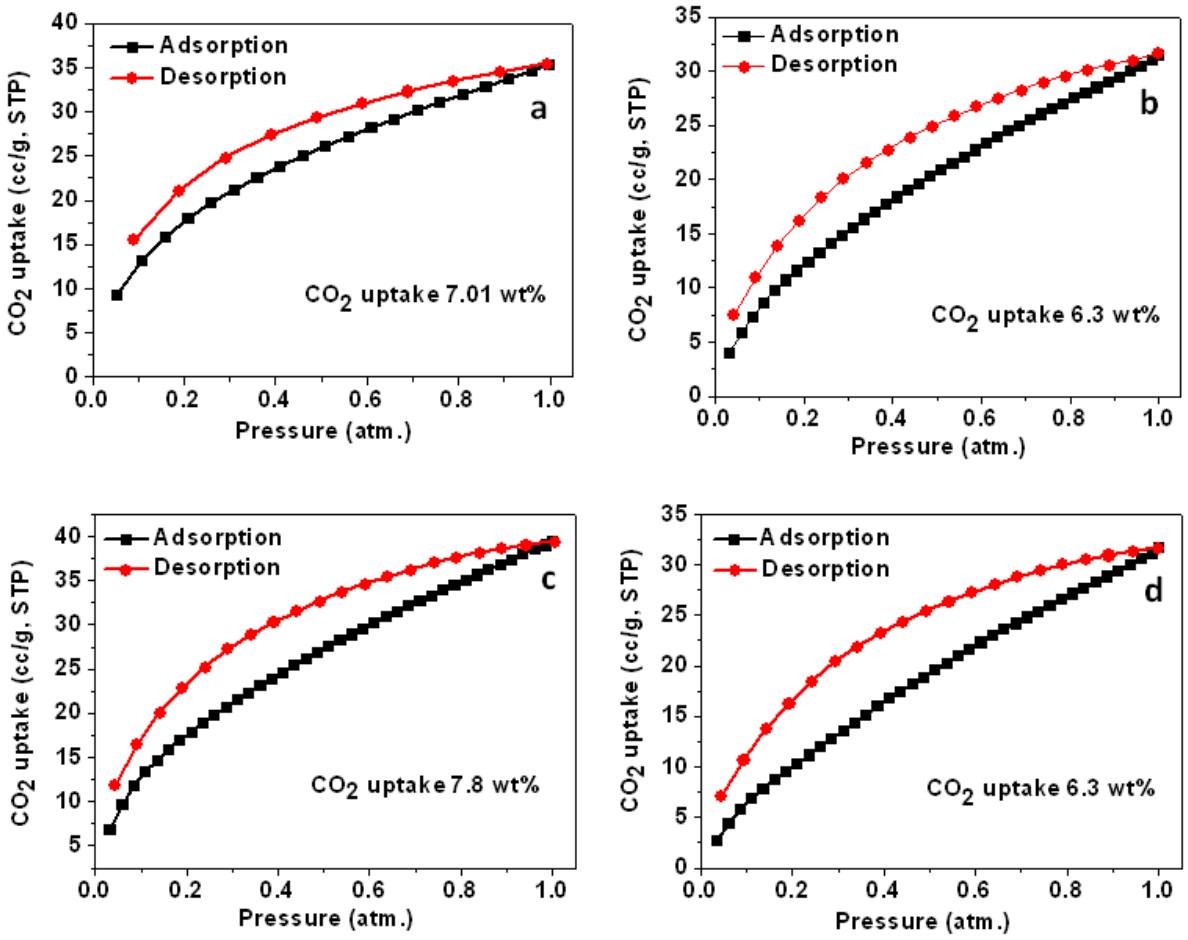


Figure S5. CO_2 adsorption isotherms over three triazine functionalized porous polymeric materials by variation of pyrrole and 4,4',4"-(1,3,5-triazine-2,4,6-triyl)tris(oxy)tribenzaldehyde: 4:3 (TPOP-1-2, a: 273 K, b: 298 K) and 1:1 (TPOP-1-3, c: 273 K, d: 298 K).

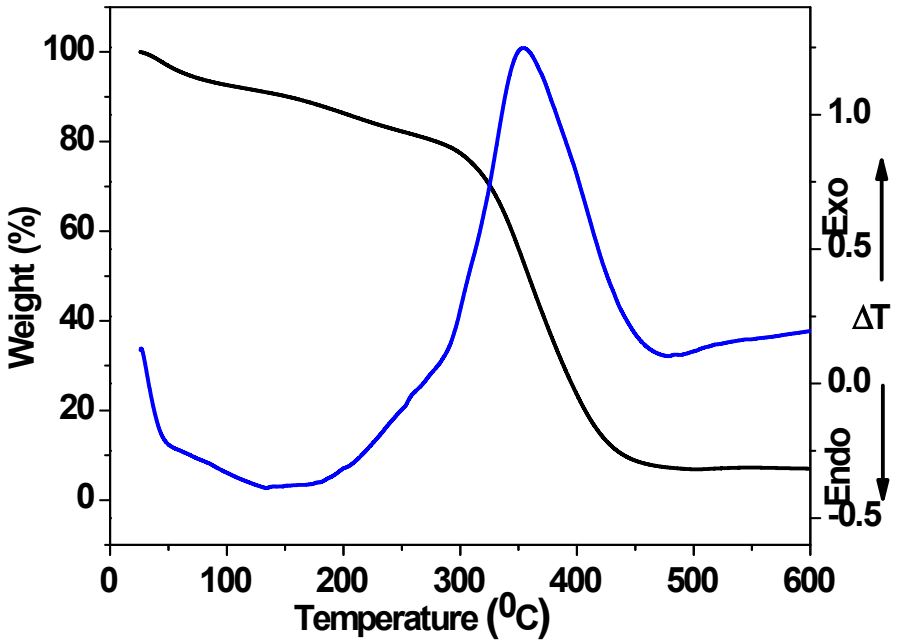


Figure S6. TG-DTA profile of Pd-TPOP-1

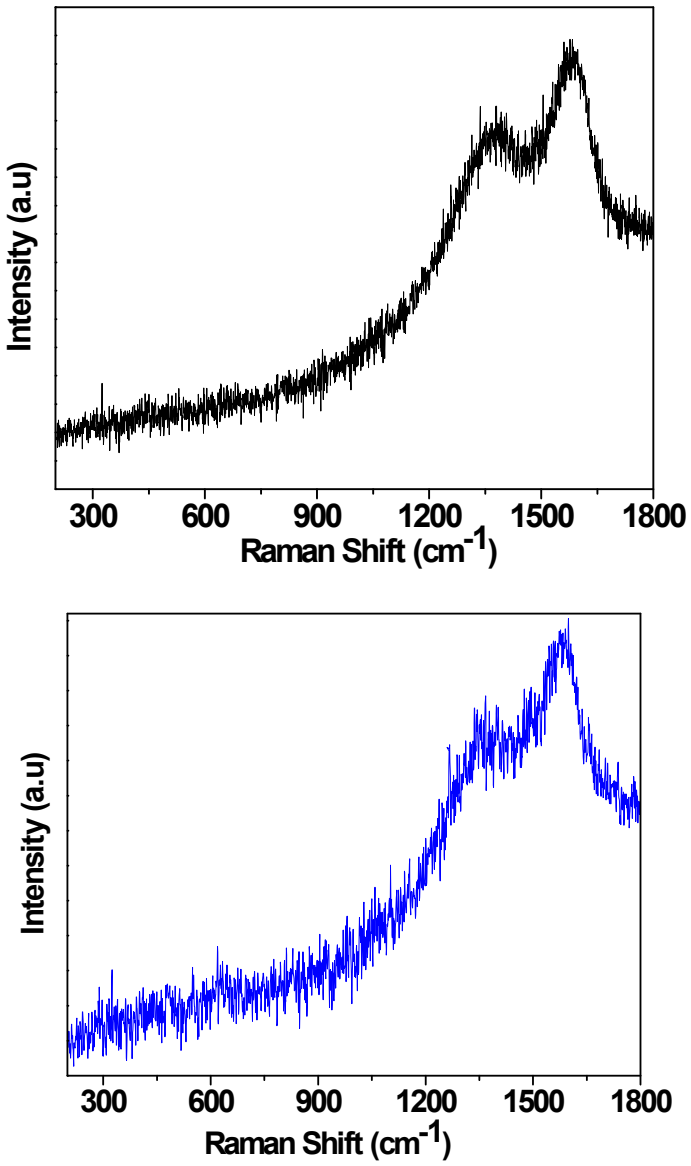


Figure S7. Raman shift of TPOP-1 (black) and Pd-TPOP-1 (blue).

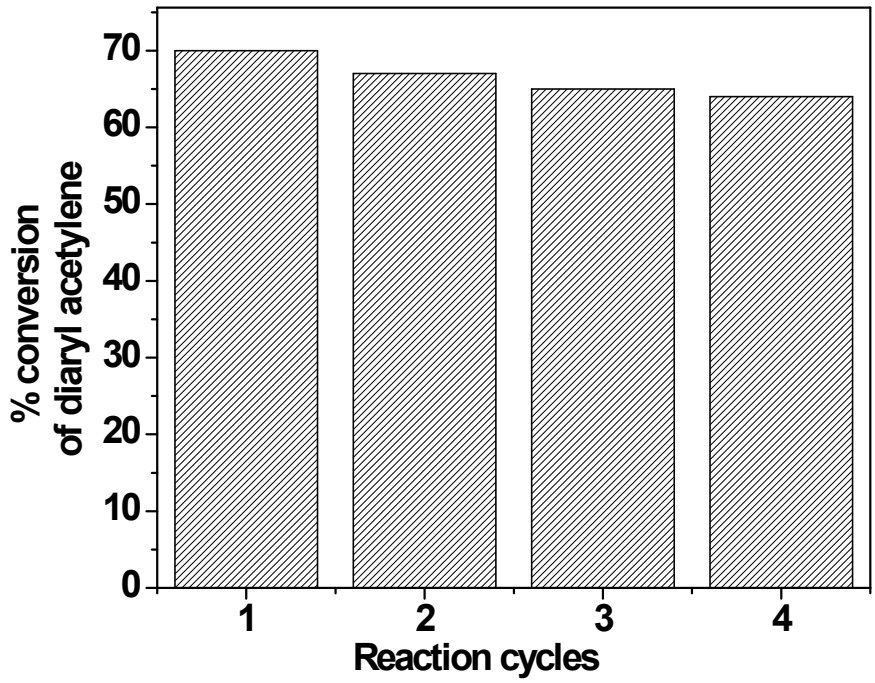
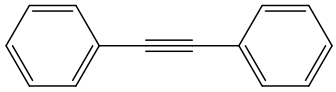
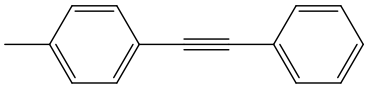


Figure S8. Recycling efficiency of Pd-TPOP-1 for four successive cross-coupling reactions of iodo benzene with phenyl acetylene.

Spectroscopic data for the reaction products in Sonogashira cross-coupling reaction with Pd-TPOP-1

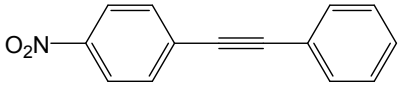


Diphenyl acetylene: ^{1}H NMR (300 MHz, $CDCl_3$) δ = 7.62 (d, 4H, J= 6.4 Hz, ArH), δ = 7.48 (m, 6H, ArH) ppm
^{13}C (75 MHz, $CDCl_3$): δ = 132.8, 129.6, 128.58, 121.96, 81.9 ppm.



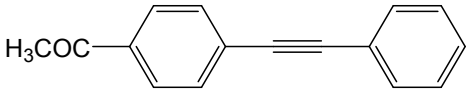
4-methyl diphenyl acetylene: ^{1}H NMR (500 MHz, $CDCl_3$) δ = 2.81 (s, 3H, -CH_3), δ = 7.6 (m, 4H, ArH), δ = 7.86 (d, 2H, J= 9 Hz, ArH), δ = 7.65 (d, 2H, J=8.5 Hz, ArH), 7.58 (m, 1H, ArH) ppm.

^{13}C (125 MHz, $CDCl_3$): δ = 129, 140.5, 132, 119, 94, 125.8, 132.1, 129.3, 128.2, ppm .



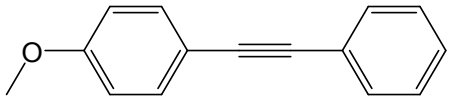
4-nitro diphenyl acetylene: ^{1}H NMR (300 MHz, $CDCl_3$) δ = 8.3 (d, 2H, J= 8.88 Hz, ArH), δ = 7.8 (d, 2H, J= 8.88 Hz, ArH), δ = 7.6 (d, 2H, J= 6.14 Hz, ArH), δ = 7.42 (m, 3H, ArH) ppm.

^{13}C (75 MHz, $CDCl_3$) : δ = 147.1, 132.8, 131.9, 130.1, 129.4,128.68,128.58,123.78, 122.25, 95 ppm.



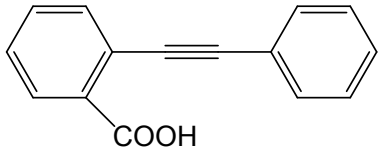
4-acetyl diphenyl acetylene: ^{1}H NMR (300 MHz, $CDCl_3$) δ = 2.6 (s, 3H, $COCH_3$), δ = 7.9 (d, 2H, J=8.6 Hz, ArH) δ = 7.5 (m,3H, ArH), δ = 7.8 (m, 4H, ArH) ppm.

^{13}C (75 MHz, $CDCl_3$) : δ = 196, 138, 126, 95, 132.2, 122, 125, 128.4, 132.5 ppm.



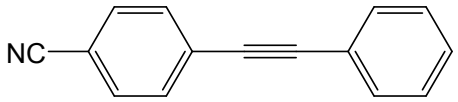
4-methoxy diphenyl acetylene: ^{1}H NMR (500 MHz, $CDCl_3$) δ = 3.9 (s, 3H, -OCH_3), 7.5 (m, 3H, ArH), 7.8 (d, J=9Hz, 2H, ArH), 7.5 (m, 2H, ArH), 6.9 (d, J=9 Hz, ArH, 2H) ppm

^{13}C (125 MHz, $CDCl_3$): δ = 56, 162, 138, 129, 125, 131, 124, 94 ppm.

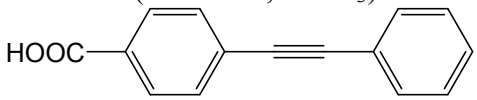


1-carboxy diphenyl acetylene: ^{1}H NMR (500 MHz, $CDCl_3$) δ = 8.2 (d, 1H, J=8 Hz, ArH), 8.0 (d, 2H, J=8 Hz, ArH), 7.20 (1H, t, J=7.5 Hz, ArH), 7.64 (4H, m, ArH), 7.48 (1H, d, J=7.5, ArH) ppm

^{13}C (125 MHz, $CDCl_3$): δ = 172, 135, 134, 128, 94, 128, 130, 134, 125 ppm.



4-cyano diphenyl acetylene: ^{1}H NMR (500 MHz, $CDCl_3$): δ = 7.8 (d, 2H, J=8.5 Hz, ArH), 7.9 (d, 2H, J=8 Hz, ArH), 7.5 (d, 2H, J=8 Hz, ArH), 7.3 (m, 3H, ArH) ppm.
^{13}C NMR (125 MHz, $CDCl_3$) δ = 126, 123, 134, 118, 92, 135, 132, 128 ppm.



4-carboxy diphenyl acetylene: ^{1}H NMR (500 MHz, $CDCl_3$) δ =7.98 (d, 2H, J=8.5 Hz, ArH), 7.66 (d, 2H, J=8 Hz, ArH), 7.4 (d, 2H, J=8 Hz, ArH), 7.3 (m, 3H, ArH) ppm.
^{13}C NMR (125 MHz, $CDCl_3$) δ = 172, 130, 127.5, 129, 132.3, 94 ppm.