Electronic Supplementary Material (ESI) for New Journal of Chemistry.

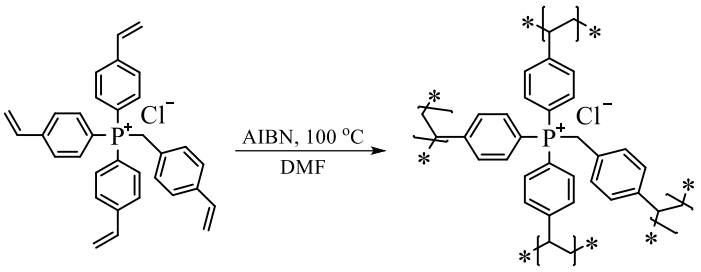
Supporting Information

Pd nanoparticles stabilized by phosphine-functionalized porous ionic polymer for efficient catalytic hydrogenation of nitroarenes in water

Yizhu Lei*, Zaifei Chen, Guosong Lan, Renshu Wang, Xiao-Yu Zhou

School of Chemistry and Materials Engineering, Liupanshui Normal University, Liupanshui, Guizhou 553004, PR China

*Corresponding author: *yzleiabc@126.com* (Y. Lei)



Scheme S1. Synthesis of PQP.

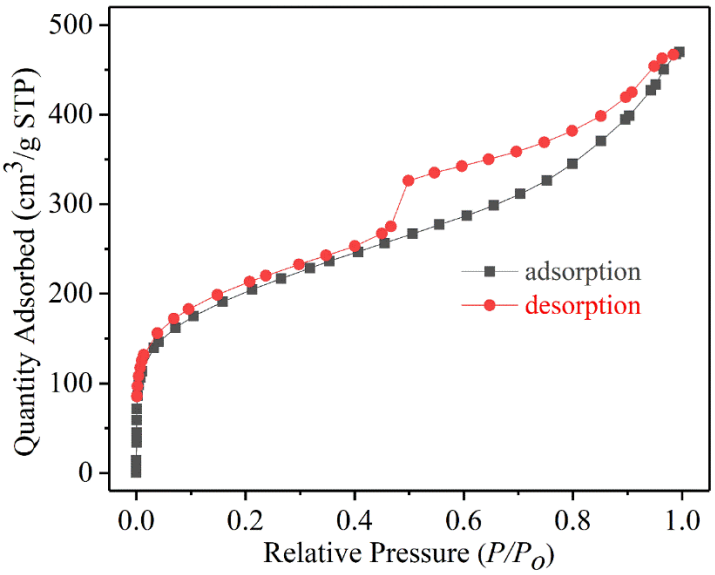


Fig. S1 Nitrogen adsorption-desorption isotherms of Pd@PQP.

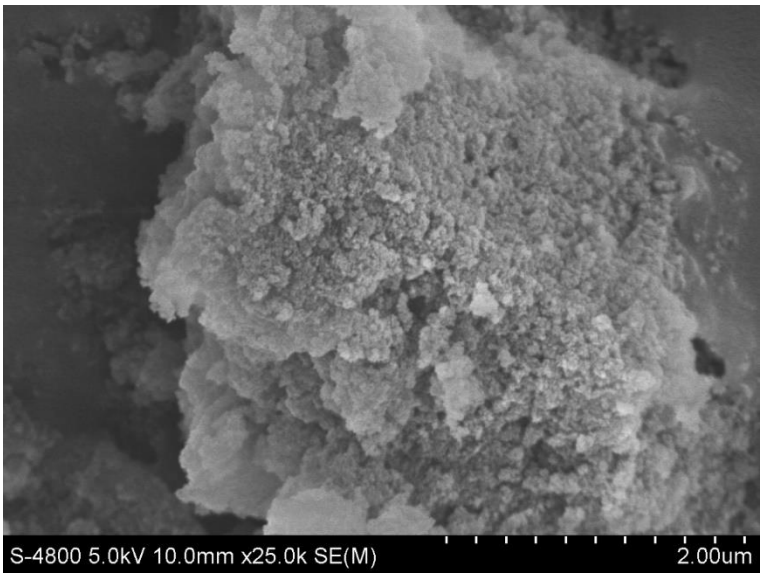


Fig. S2 SEM image of P(QP-TVP).

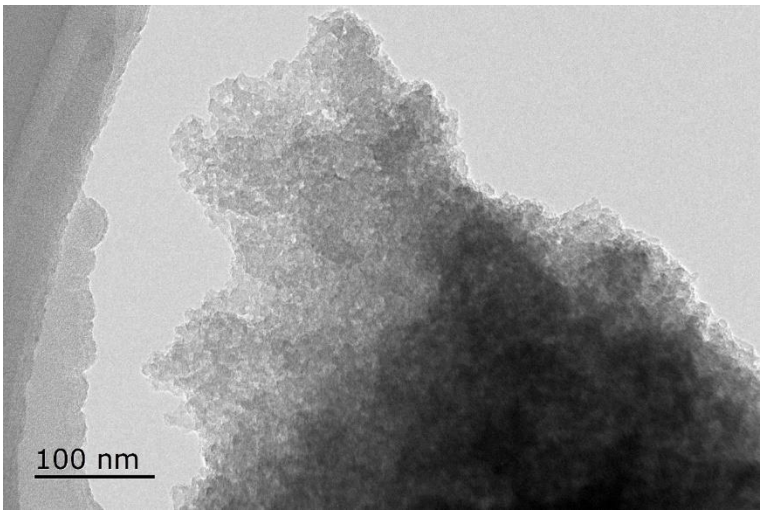
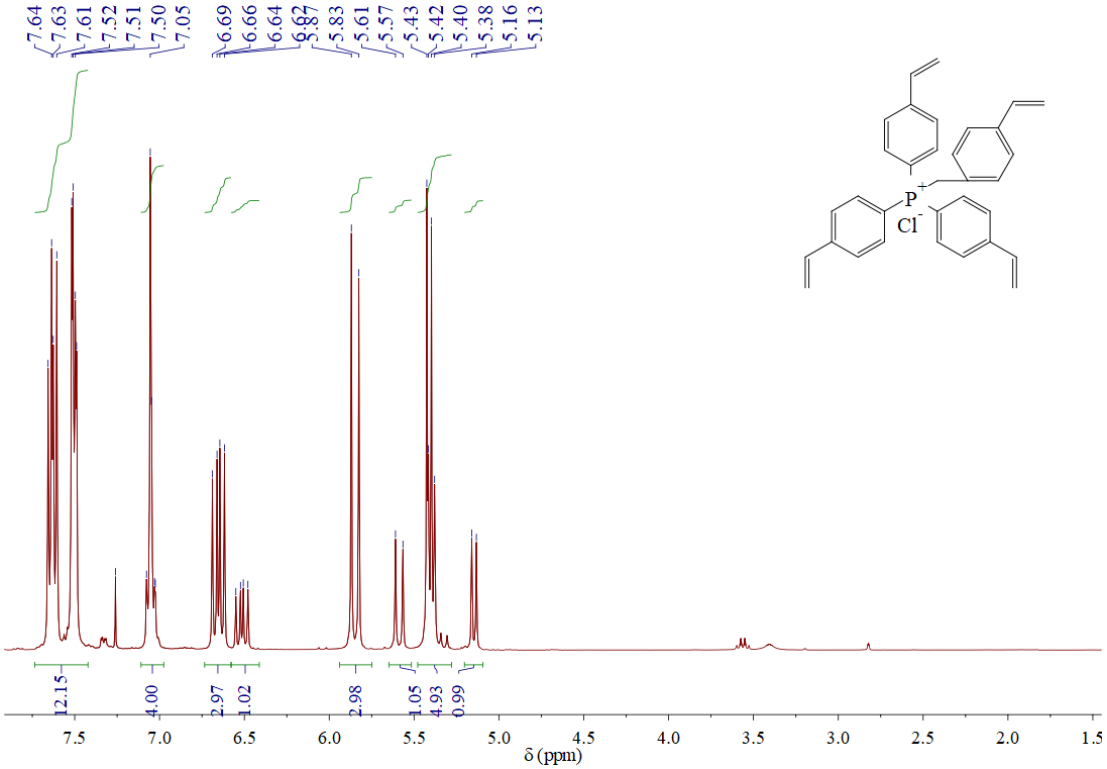
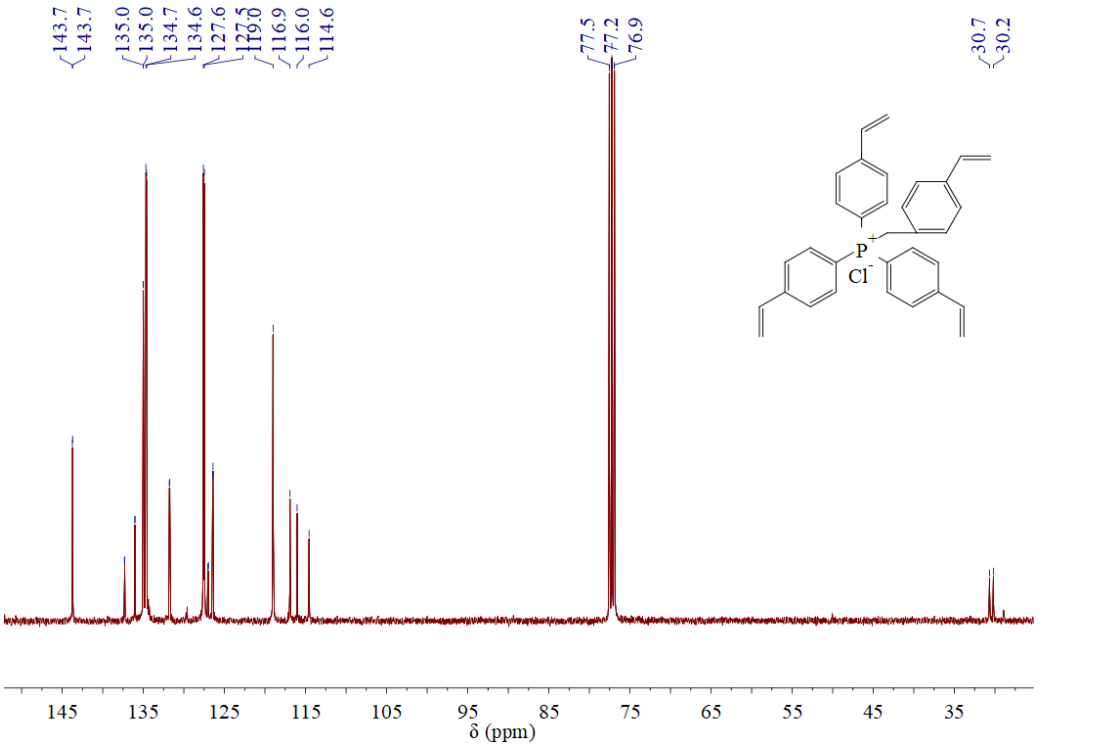


Fig. S3 TEM image of P(QP-TVP).

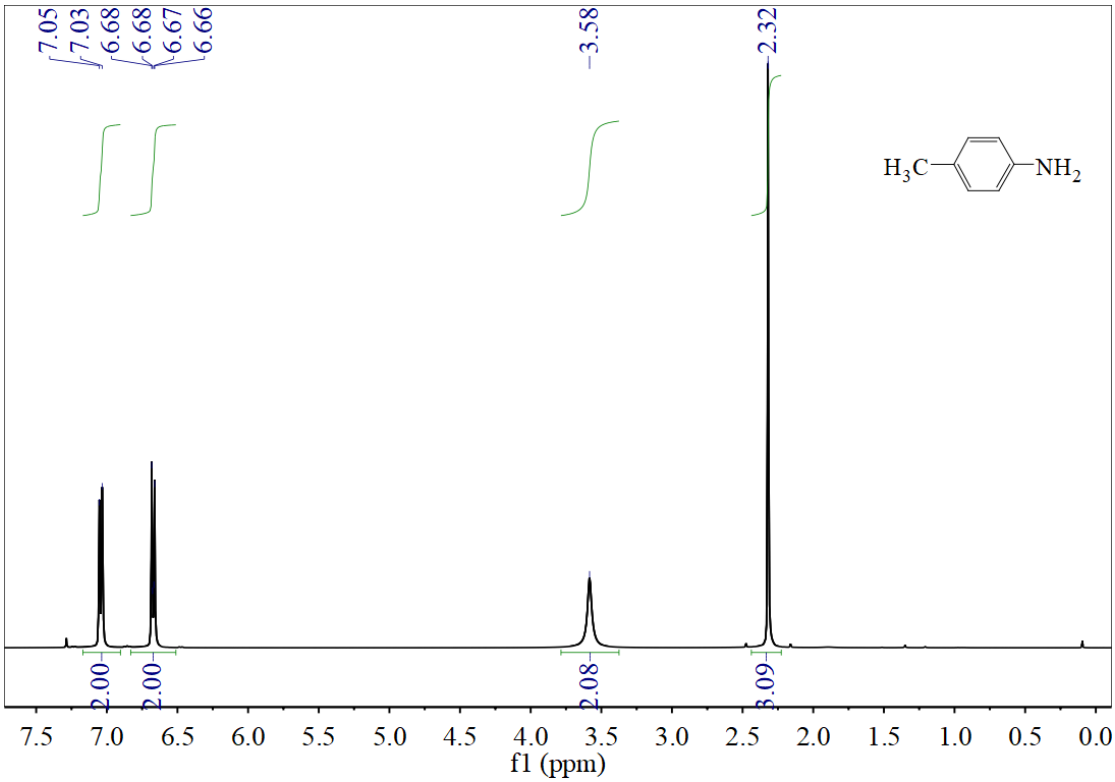
NMR data for the products

(4-Vinylbenzyl)-tris-(4-vinylphenyl)-phosphonium chloride; ^{1}H NMR (400 MHz, $CDCl_3$): δ = 7.66-7.50 (m, 12H), 7.08-7.02 (m, 4H), 6.69-6.62 (m, 3H), 6.61-6.57 (m, 1H), 5.85 (d, *J* = 17.6 Hz, 3H), 5.59 (d, *J* = 17.6 Hz, 1H), 5.43-5.38 (m, 5H), 5.15 (d, *J* = 10.9 Hz, 1H) ppm; ^{13}C NMR (100 = MHz, $CDCl_3$) δ 143.7, 137.3, 136.0, 135.0, 134.6, 131.8, 127.5, 127.0, 126.42, 119.0, 116.9, 116.0, 114.6, 77.6, 77.23, 76.9, 30.7, 30.2 ppm.

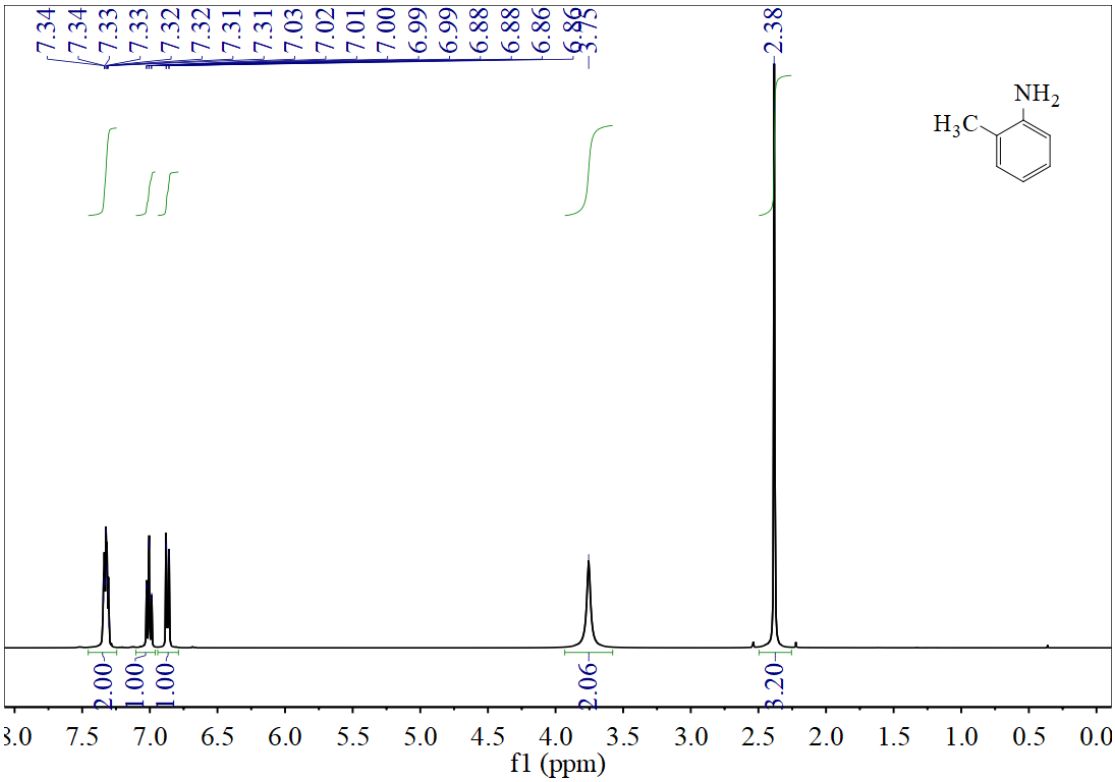




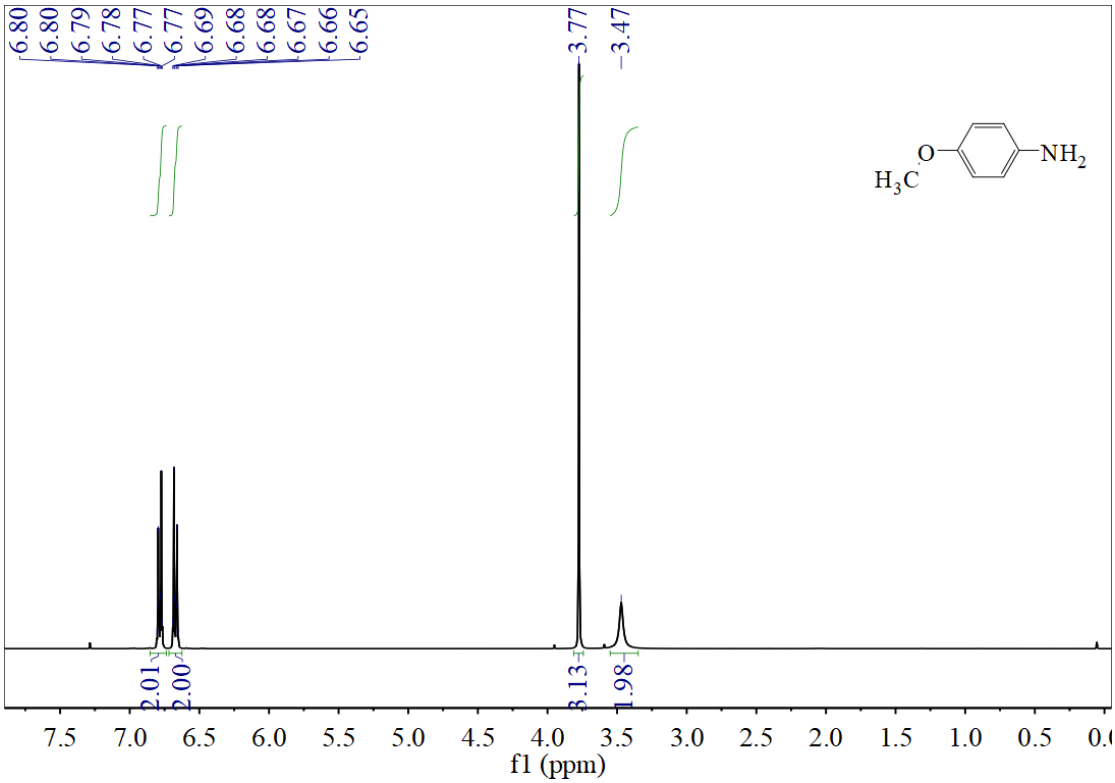
p-Toluidine; ^{1}H NMR (400 MHz, $CDCl_3$) δ = 7.05-7.03 (m, 2H), 6.68-6.66 (m, 2H), 3.58 (s, 2H), 2.32 (s, 3H) ppm.



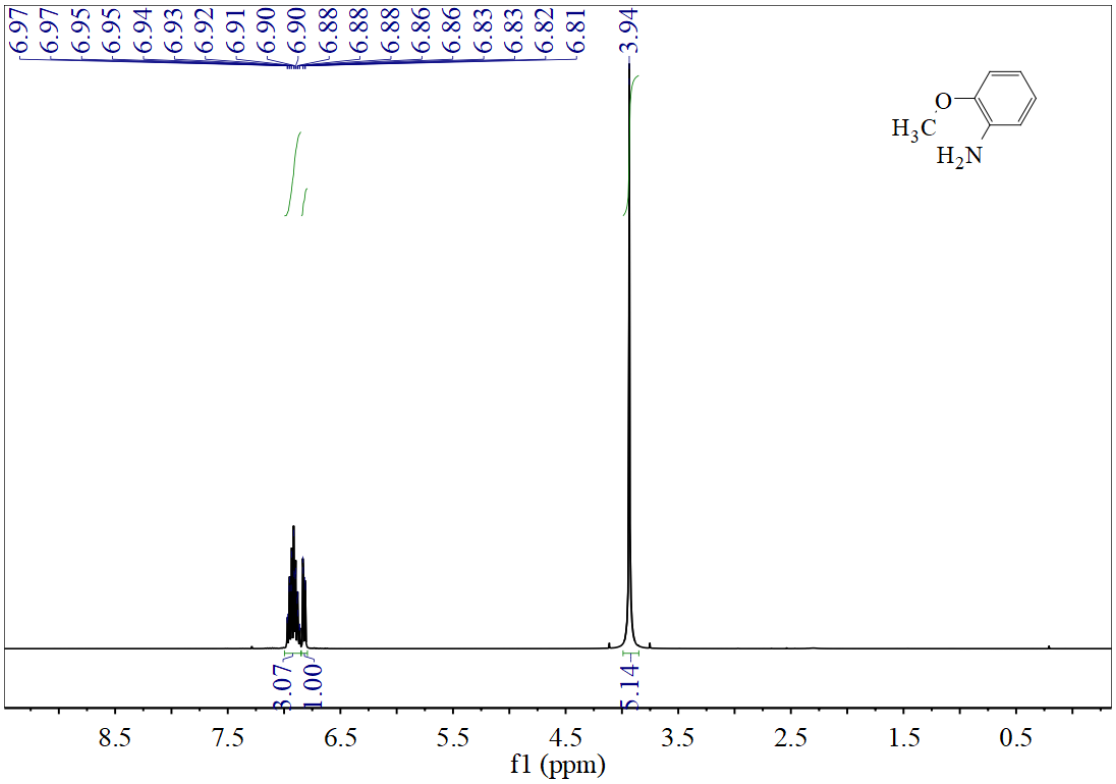
o-Toluidine; ^{1}H NMR (400 MHz, $CDCl_3$) δ = 7.34-7.30 (m, 2H), 7.03-6.99 (m, 1H), 6.87 (dd, *J* = 8.2, 1.4 Hz, 1H), 3.75 (s, 2H), 2.38 (s, 3H) ppm.



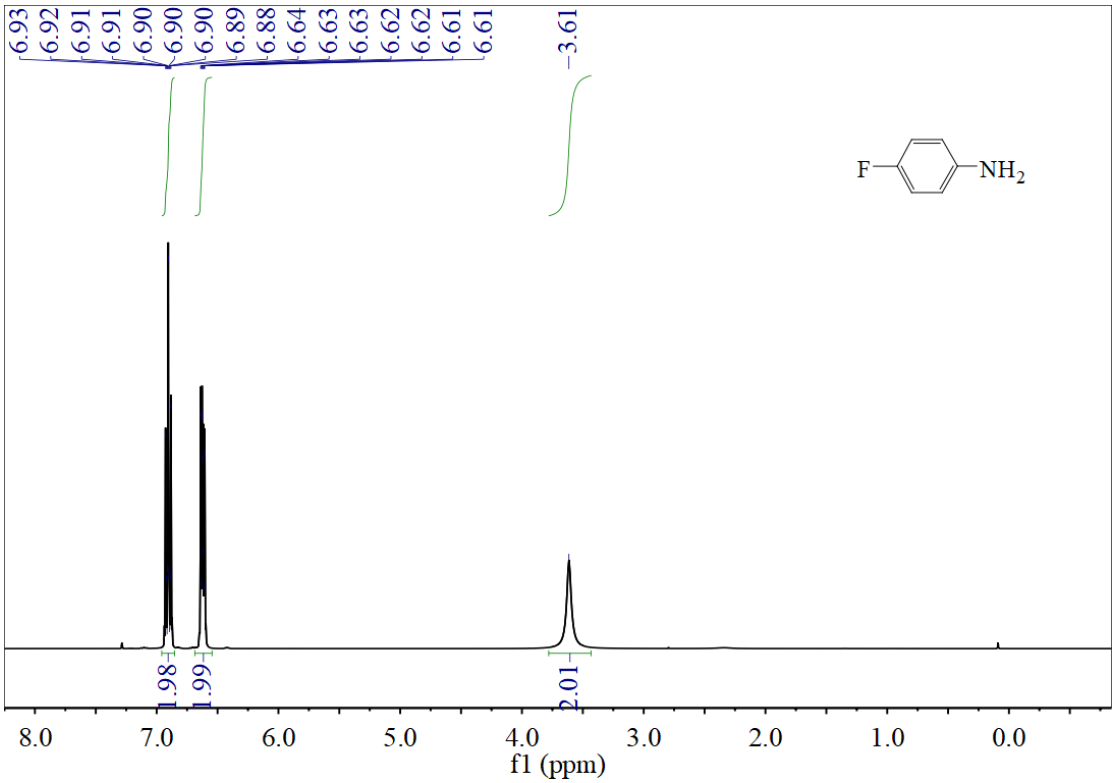
***p*-Anisidine**; ^{1}H NMR (400 MHz, $CDCl_3$) δ 6.80-6.77 (m, 2H), 6.69-6.65 (m, 2H), 3.77 (s, 3H), 3.47 (s, 2H).



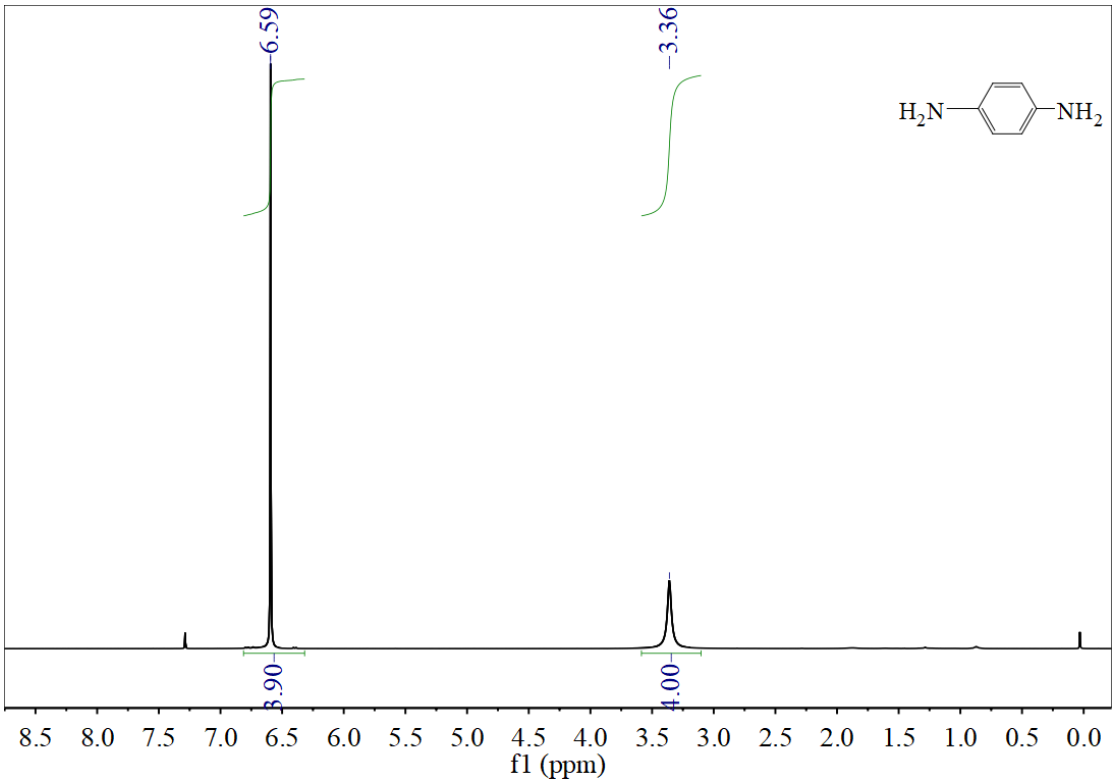
2-Methoxyaniline; ^{1}H NMR (400 MHz, $CDCl_3$) δ = 7.00-6.85 (m, 3H), 6.82 (dd, *J* = 7.5, 1.8 Hz, 1H), 3.94 (s, 5H) ppm.



4-Fluoroaniline; ^{1}H NMR (400 MHz, $CDCl_3$) δ = 6.93-6.88 (m, 2H), 6.64-6.61 (m, 2H), 3.61 (s, 2H) ppm.



Benzene-1,4-diamine; ^{1}H NMR (400 MHz, $CDCl_3$) δ = 6.59 (s, 4H), 3.36 (s, 4H) ppm.



Pyridin-3-amine; ^{1}H NMR (400 MHz, $CDCl_3$) δ = 8.03 (d, *J* = 2.9 Hz, 1H), 7.94 (dd, *J* = 4.7, 1.6 Hz, 1H), 7.00 (dd, *J* = 8.2, 4.6 Hz, 1H), 6.90 (ddd, *J* = 8.2, 2.9, 1.5 Hz, 1H), 3.95 (s, 2H) ppm.