**Supplementary Information**

**Equipment and Methods:**

Infrared spectra of the samples were measured using FTIR spectrometer. The XRD spectra are recorded by Bruker D8 Advance instrument. Raman spectra are collected on a Perkin Elmer Spectrometer. The Scanning electron microscopic images and energy-dispersive X-ray analyzer were captured using a JEOL JSM-6100 microscope. The Transmitted electron microscopic images were captured on a Jeol JEM-1010 electron microscope. High resolution transmitted electron microscopic images were recorded by using Jeol JEM 2100 Electron Microscope.

**General procedure for Catalytic reaction:**

To the round bottomed flask containing, 0.03 g of catalyst, 4.5 mmol of aryl halide, 10 mL of DD water, reducing agent: sodium formate (1.10 g) and potassium hydroxide (1.40 g) were added and the mixture was stirred for 5 h at 80 °C. The reaction progress was monitored by TLC till completion of the reaction. The final product was analysed by GC. The catalyst was collected by centrifugation followed by washing. The possible product was characterized by $^1$H and $^{13}$C NMR technique.
Figure S1: FT-IR spectra (4000-400) of GO (a) and Pd (0)-RGO (b) samples.

Figure S2: XPS spectra of Pd of 5-Pd(0)RGO sample.
Figure S3(a): $^{13}$C- NMR spectrum of the product.
Figure S3(b): $^1$H-NMR spectrum of the product.