

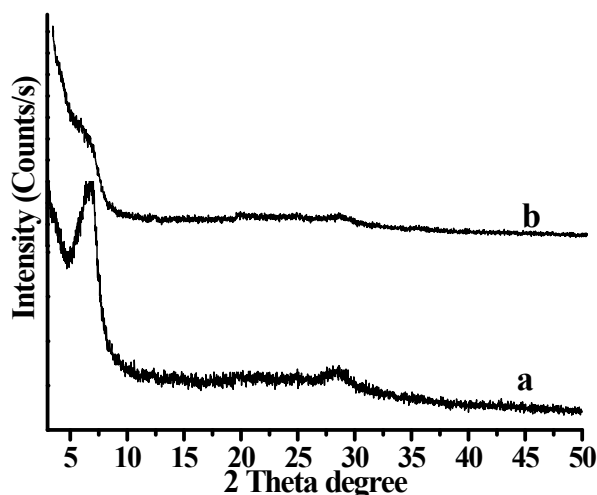
## Aromatic ring hydrogenation catalysed by nanoporous montmorillonite supported Ir(0)-nanoparticles composite under solvent free condition

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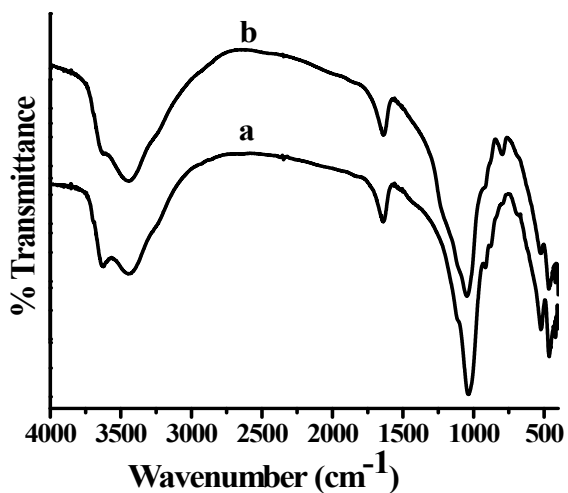
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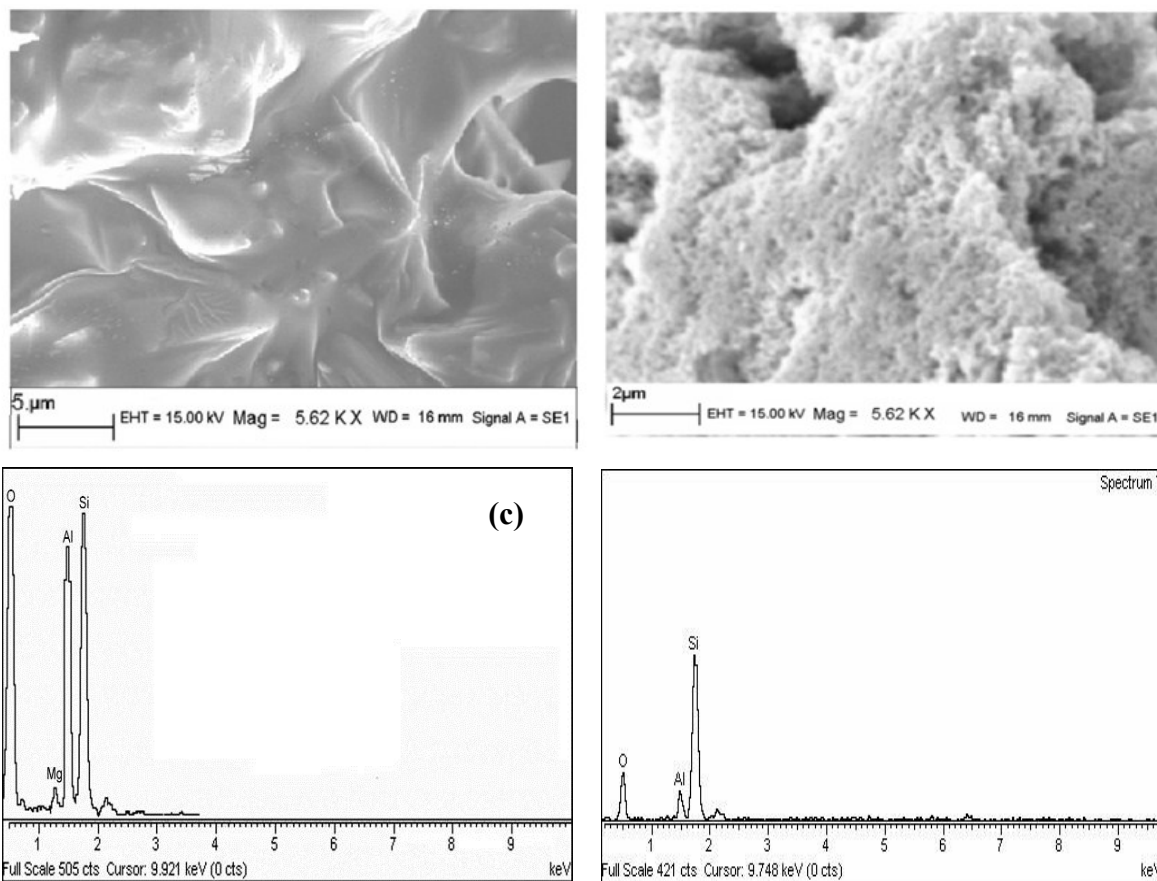
### Supporting Information



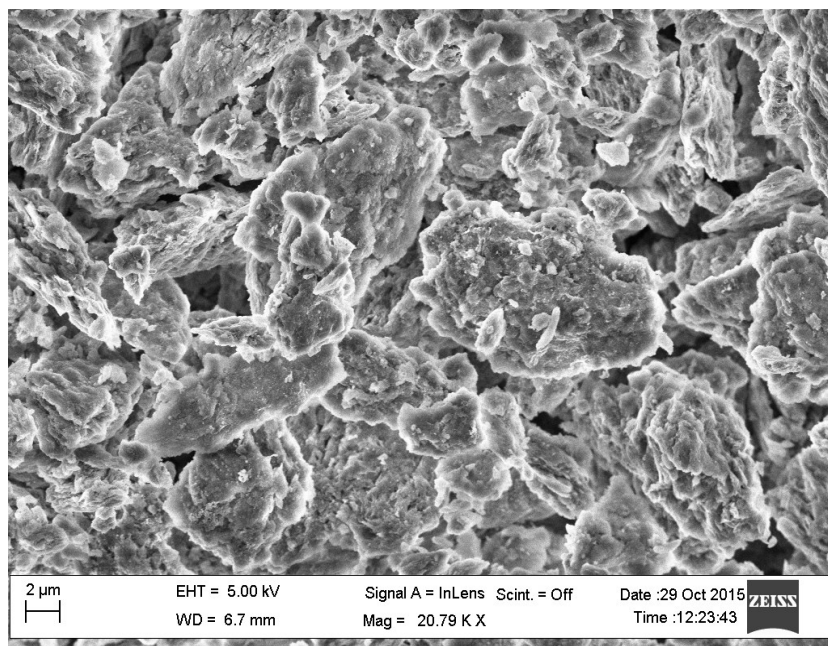
**Figure S1.** Powder XRD patterns of (a) mont. and (b) AT-mont.



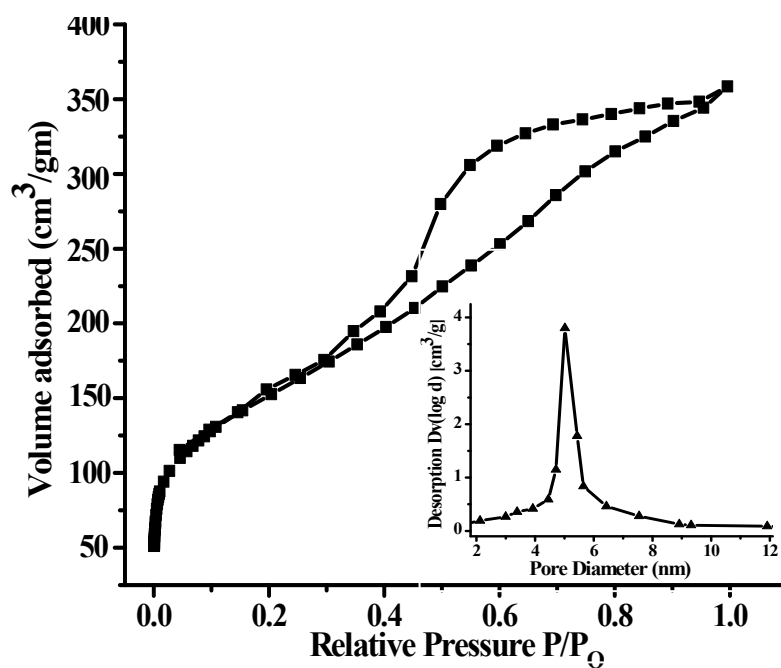
**Figure S2.** FT-IR spectra of (a) mont. and (b) AT-mont.



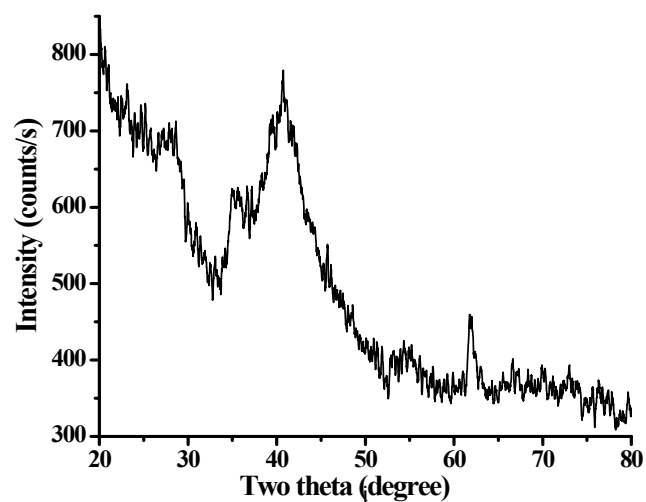
**Figure S3.** SEM images of (a) mont. , (b) AT-mont., (c) EDX spectra of mont. and (d) EDX spectra o of AT-mont.



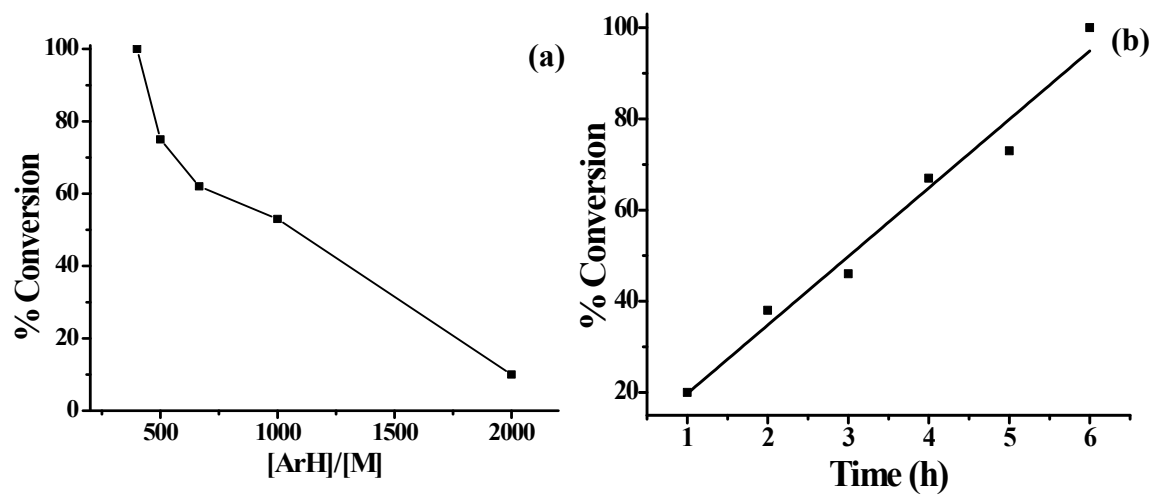
**Figure S4:** SEM image of Ir-NPs



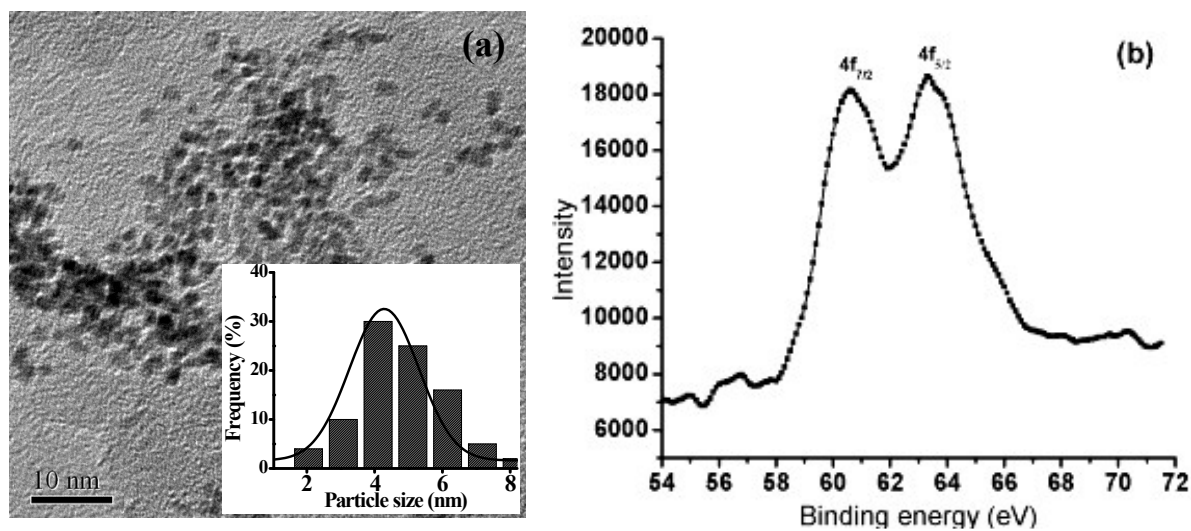
**Figure S5.** N<sub>2</sub> sorption isotherm and BJH pore size distribution curve of recovered (3<sup>rd</sup> run) Ir-NPs.



**Figure S6.** Powder X-ray diffraction pattern of recovered (3<sup>rd</sup> run) Ir-NPs.



**Figure S7. (a)** Catalyst activity with varying  $[\text{ArH}]/[\text{M}]$  ratio and **(b)** Optimization of catalyst activity with time.



**Figure S8. (a)** TEM image with particle size histogram and **(b)** XPS spectra of recovered Ir NPs after third catalytic run