

Table SI 1. Comparison of MG adsorption capacity of HTC materials with other reported adsorbents.

| Sorbent | q_{max} (mg/g) | Reference |
|--|-------------------------------|------------------|
| Degreased coffee bean | 55.3 | [57] |
| Deoiled Soya | 51.91 | [25] |
| Modified rice husk | 15.49 | [47] |
| Rattan sawdust | 62.7 | [5] |
| Rubber wood sawdust | 36.45 | [58] |
| Treated sawdust | 65.8 | [59] |
| Sea shell powder | 42.33 | [24] |
| Ca(OH) ₂ -treated fly Ash | 17.38 | [22] |
| Waste apricot Activated carbon | 116.27 | [60] |
| Rice husks activated carbon | 92.59 | [23] |
| Laboratory grade activated carbons | 42.18 | [61] |
| Groundnut shell waste activated carbon | 222.22 | [62] |
| HTC-PN | 52.91 | This study |
| HTC-APN | 97.08 | This study |

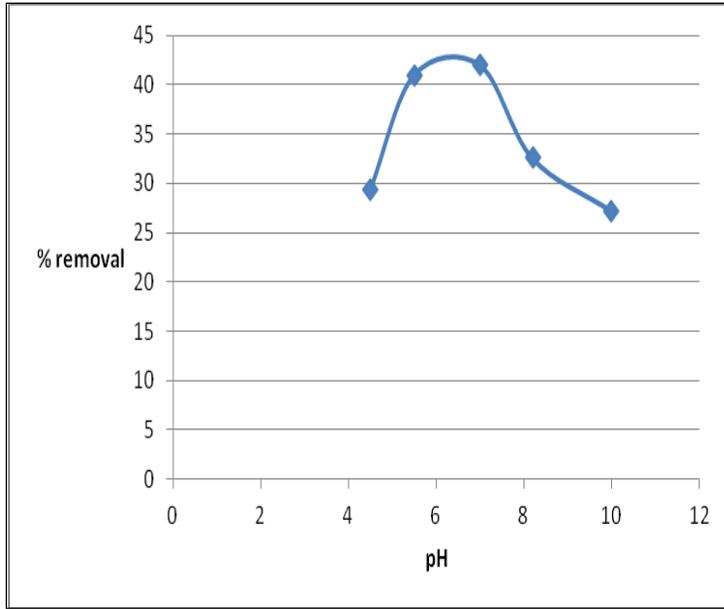


Figure SI 1. Effect of pH on percent removal of MG from aqueous solution onto HTC-PN.

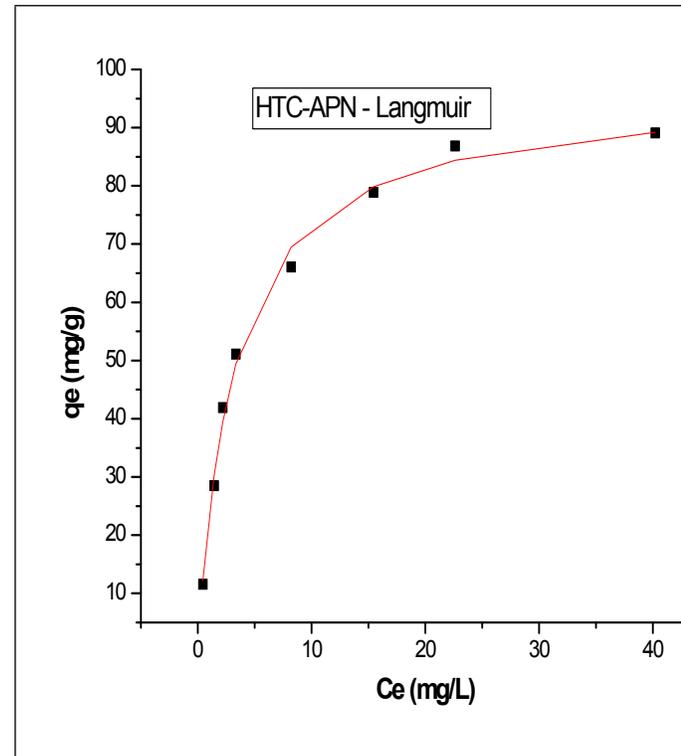
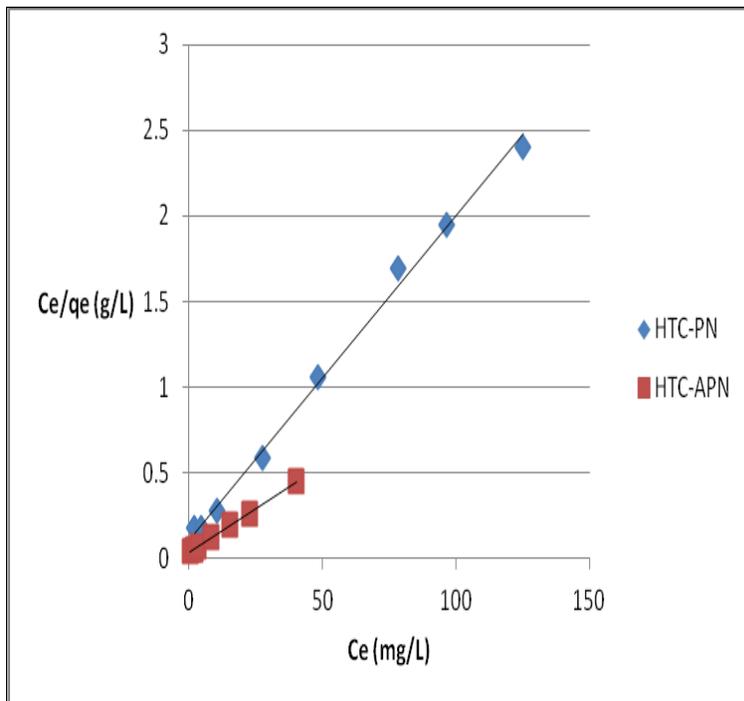


Figure SI 2. Langmuir nonlinear plot for HTC-APN at 30 °C.

Figure SI 3. Langmuir linear plot for HTC-PN and HTC-APN at 30°C.

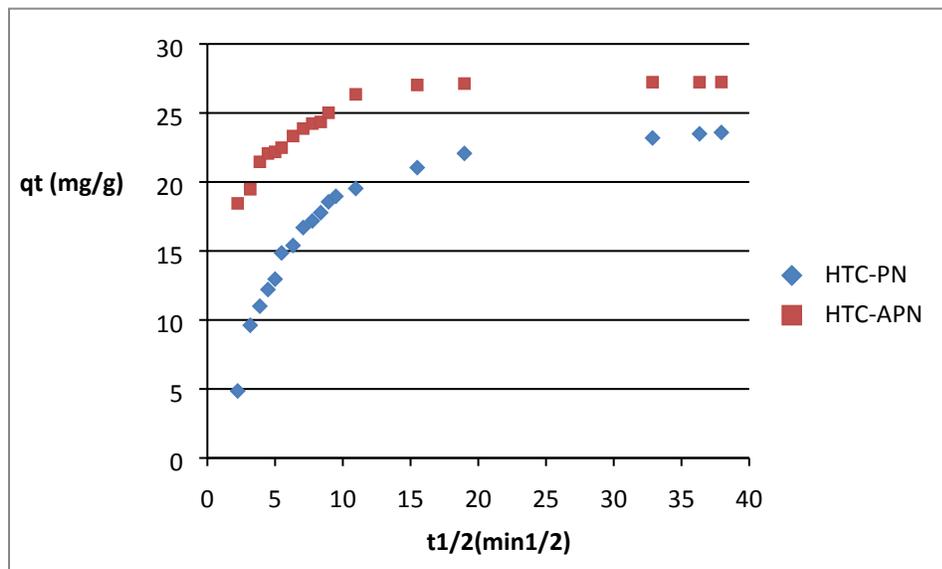


Figure SI 4. Intraparticle kinetic plot for adsorption of MG onto HTC-PN and HTC-APN at 35°C.

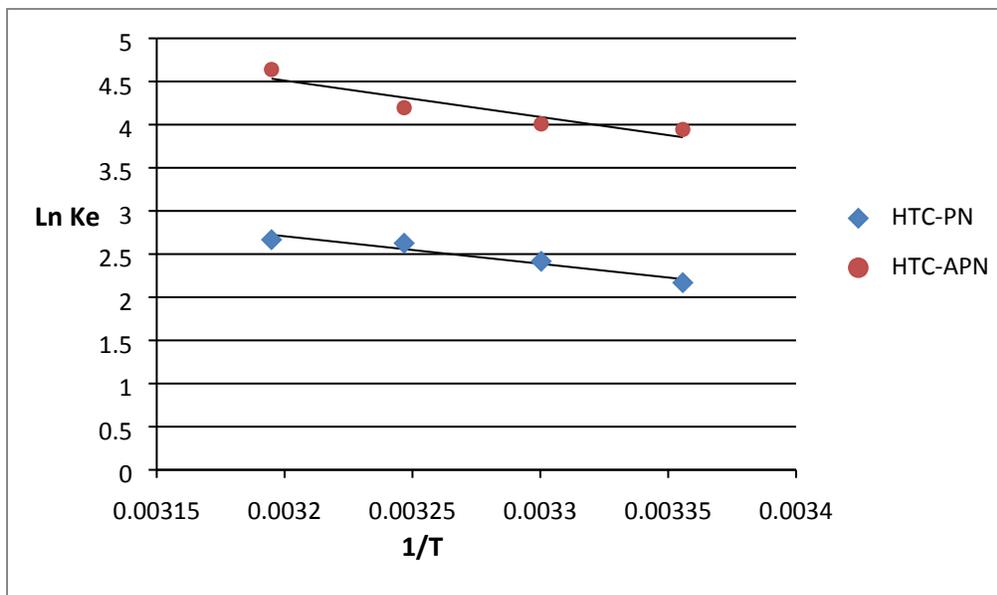


Figure SI 5. Van't Hoff plot of Ln Ke vs 1/T for adsorption of MG (50 mg/L) with HTC-PN and HTC-APN materials.

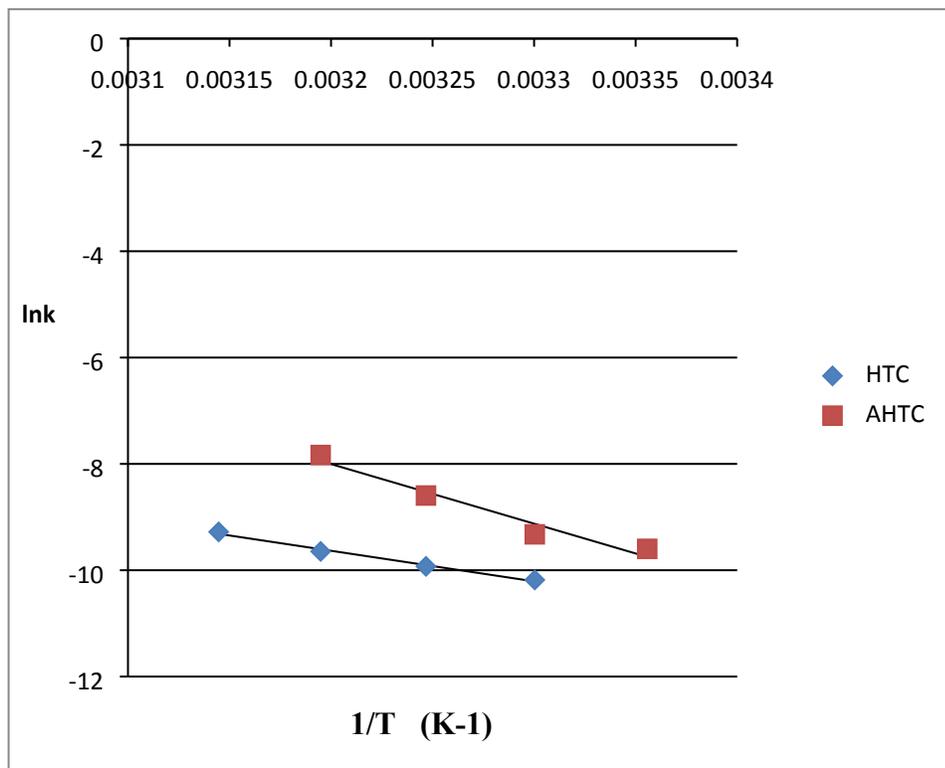


Figure SI 6. Arrhenius plot of $\ln k_2$ vs 1/T for adsorption of MG (50 mg/L) with HTC-PN (HTC) and HTC-APN (AHTC) materials.

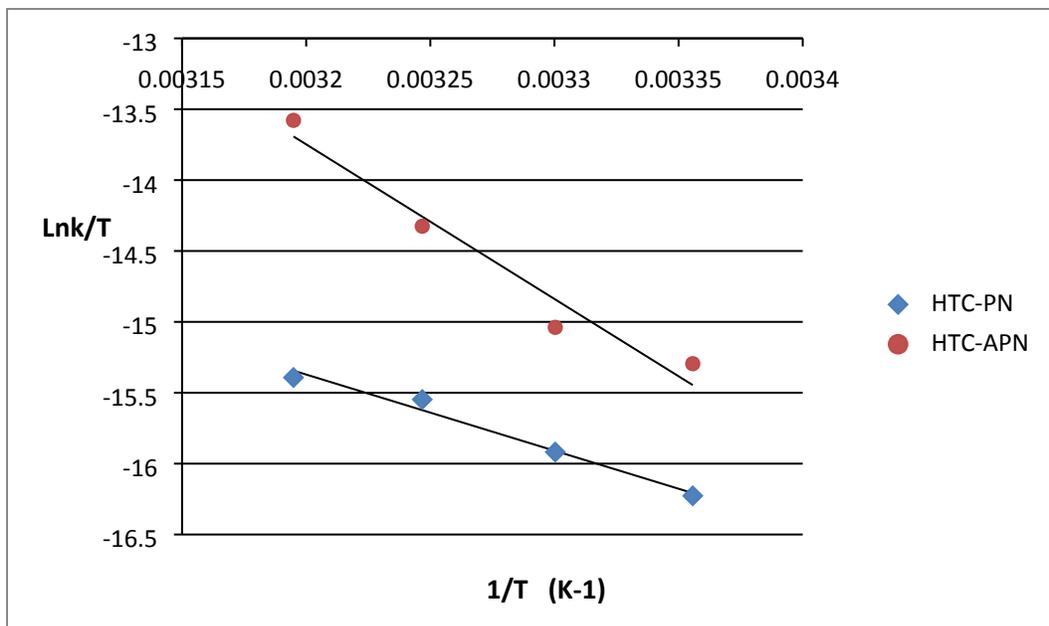


Figure SI 7. Eyring plot of $\ln k_2/T$ vs $1/T$ for adsorption of MG with HTC-PN and HTC-APN materials.

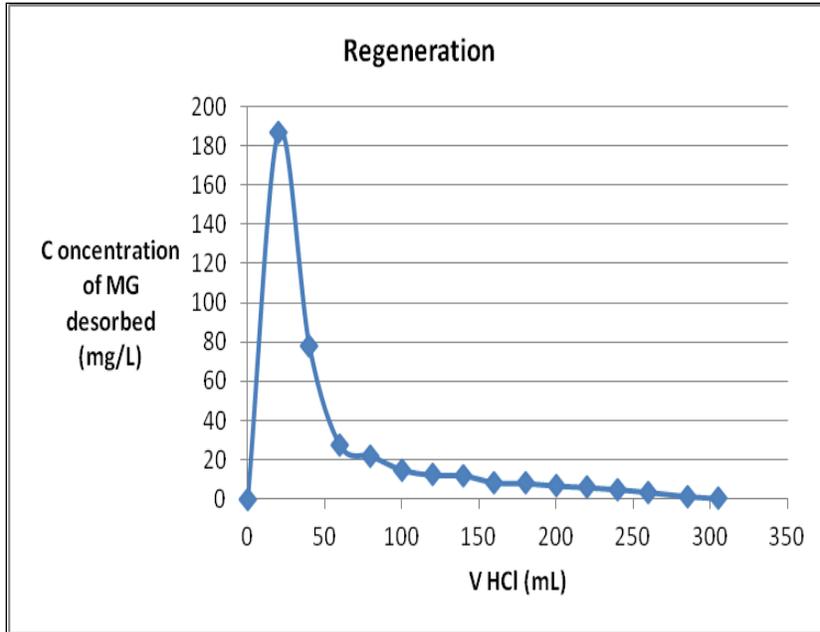


Figure SI 8. First cycle desorption profile of MG (100 mg/L) onto column charged with HTC-APN (0.5 g).

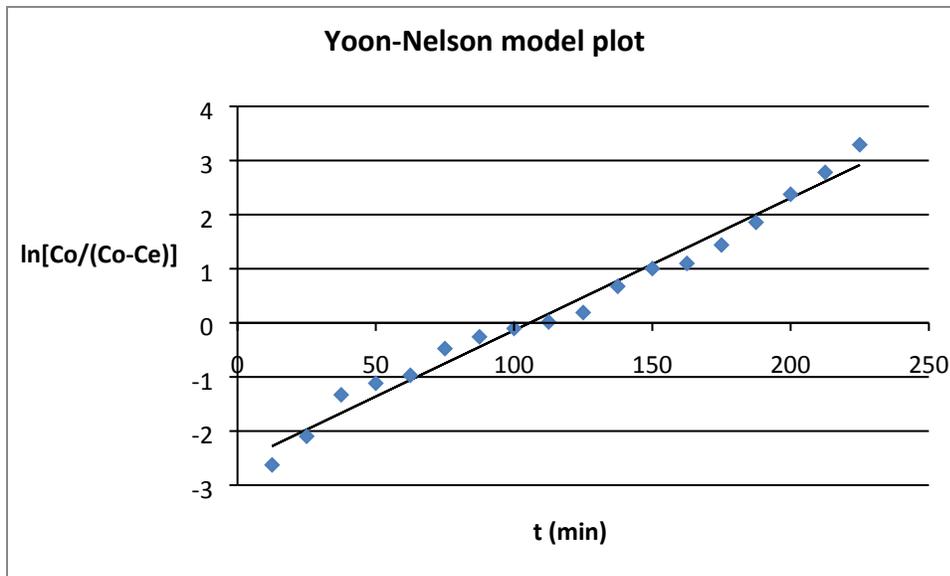


Figure SI 9. Yoon-Nelson linear plot. The points are experimental data, solid line is predicted by Yoon Nelson Model.