

Supplementary Material for

# Studies on the removal of phenol and nitrophenols from water by activated carbon developed from demineralized kraft lignin

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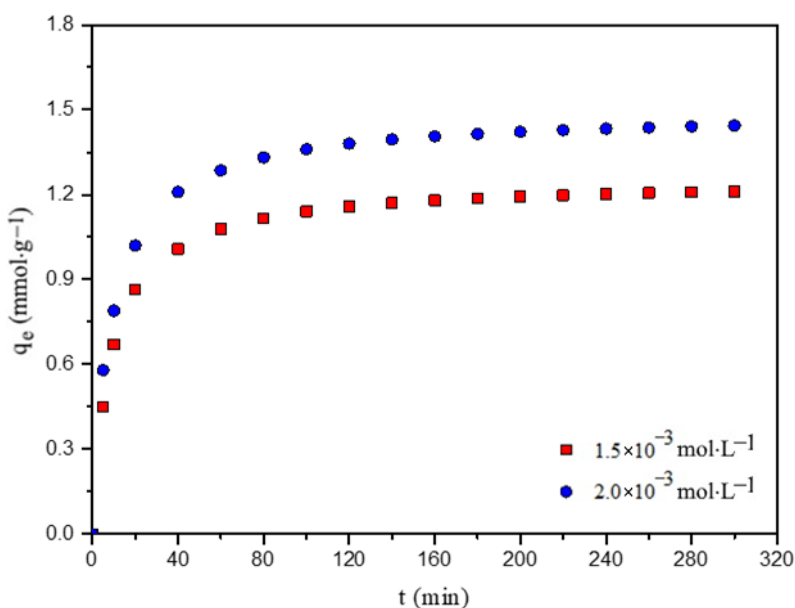
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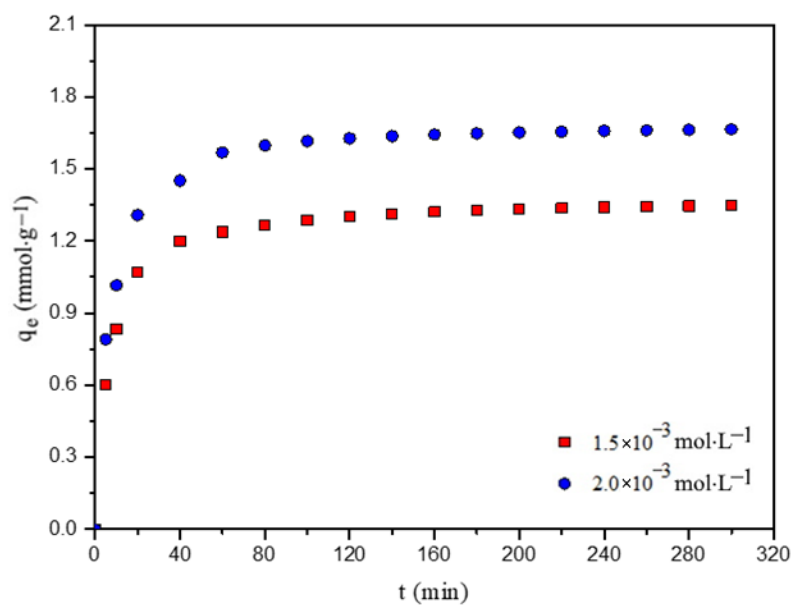
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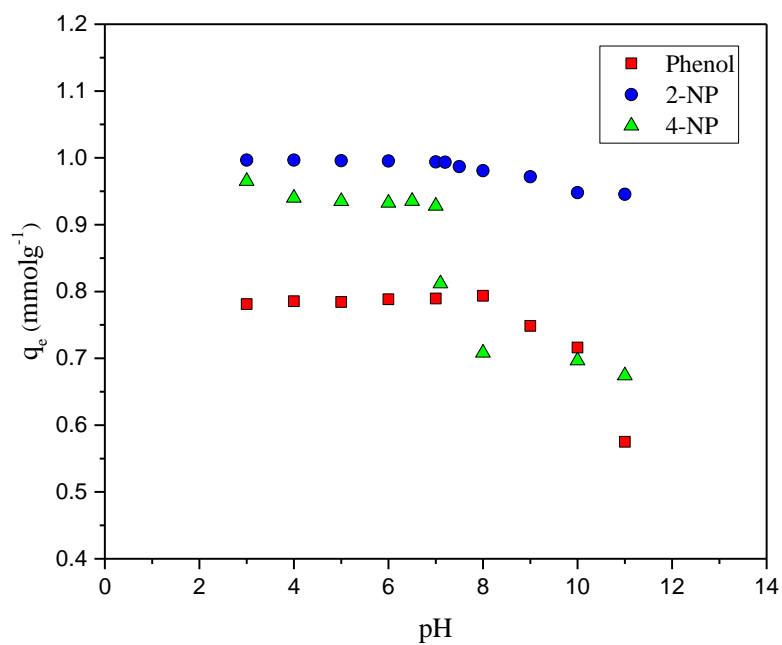
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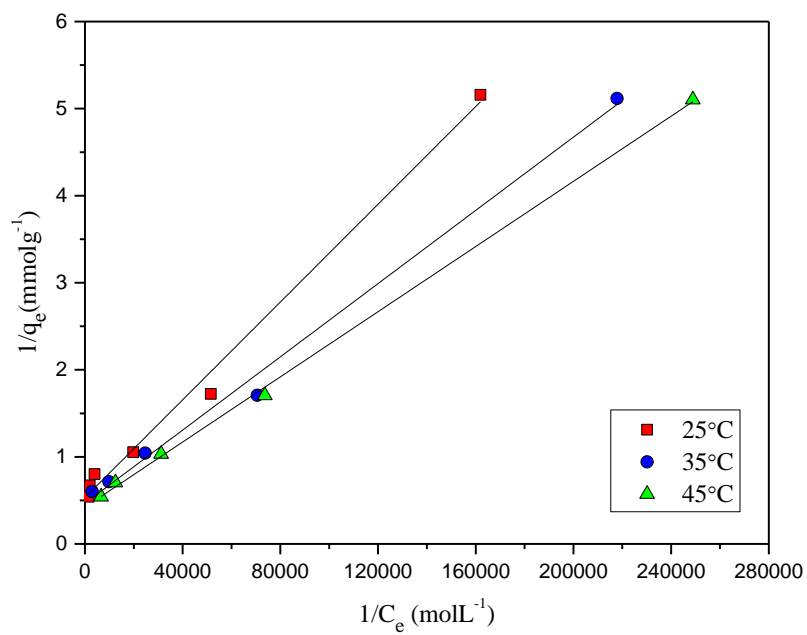
**Figure S1.** Effect of initial concentration for the removal of phenol by demineralized kraft lignin activated carbon (DKLAAC) at different initial concentrations at 25°C.



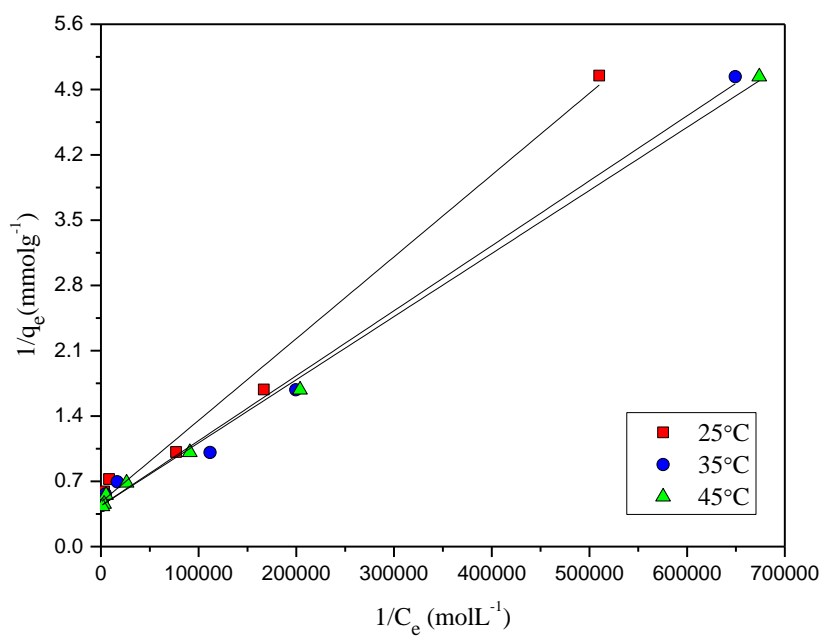
**Figure S2.** Effect of initial concentration for the removal of 4-nitrophenol (4-NP) by DKLAAC at different initial concentrations at 25°C.



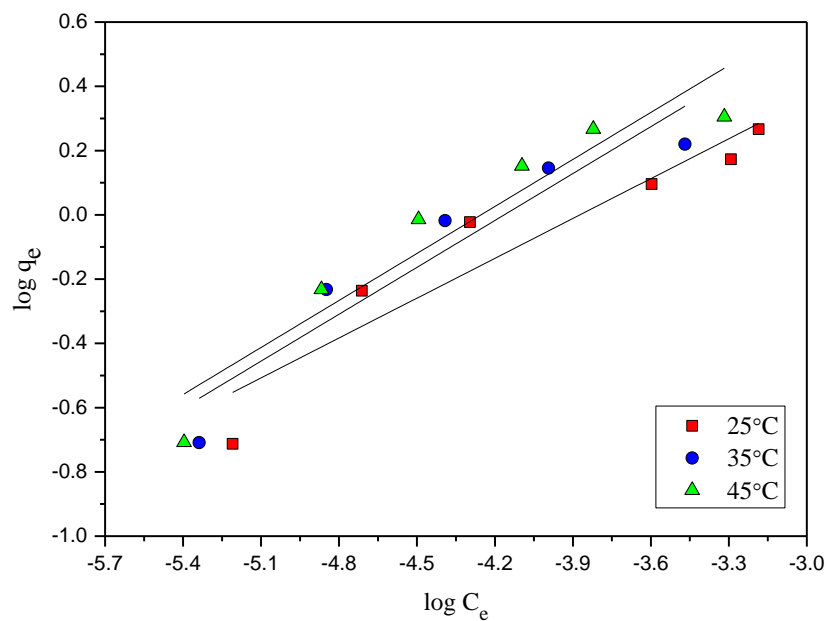
**Figure S3.** Effect of pH on the adsorption of phenol, 2-NP and 4-NP on DKLAAC at 25°C with initial phenol concentration at 1 × 10<sup>-3</sup> M.



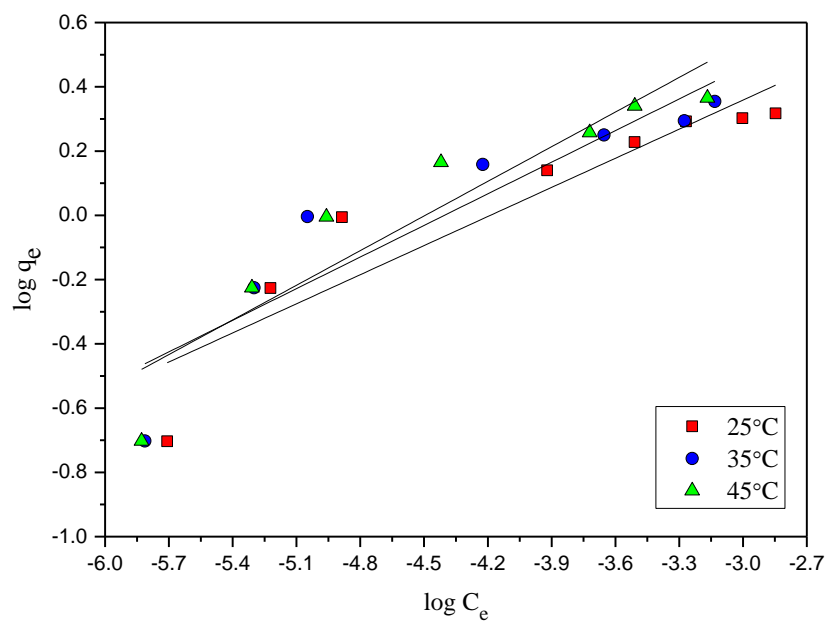
**Figure S4.** Langmuir adsorption isotherms of phenol on DKLAAC at different temperatures



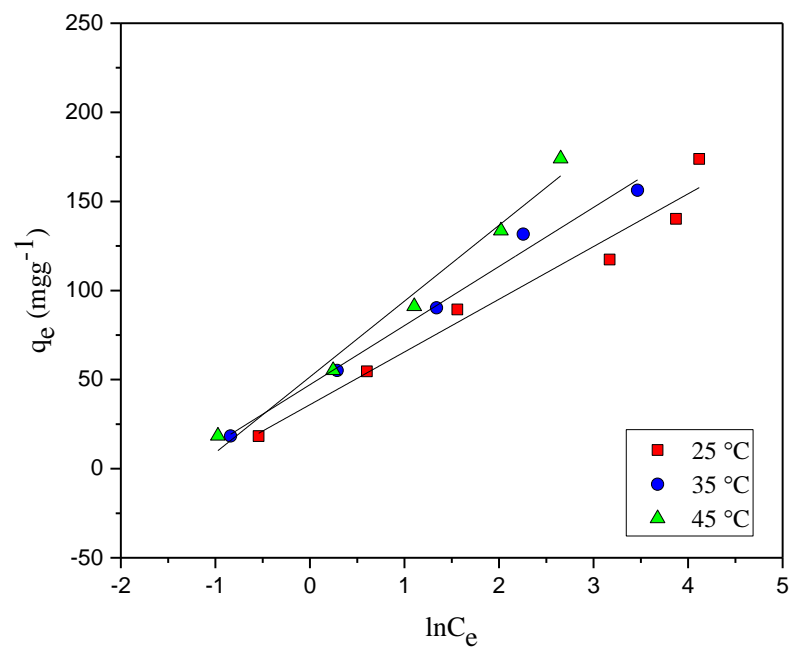
**Figure S5.** Langmuir adsorption isotherms of 4-NP on DKLAAC at different temperatures.



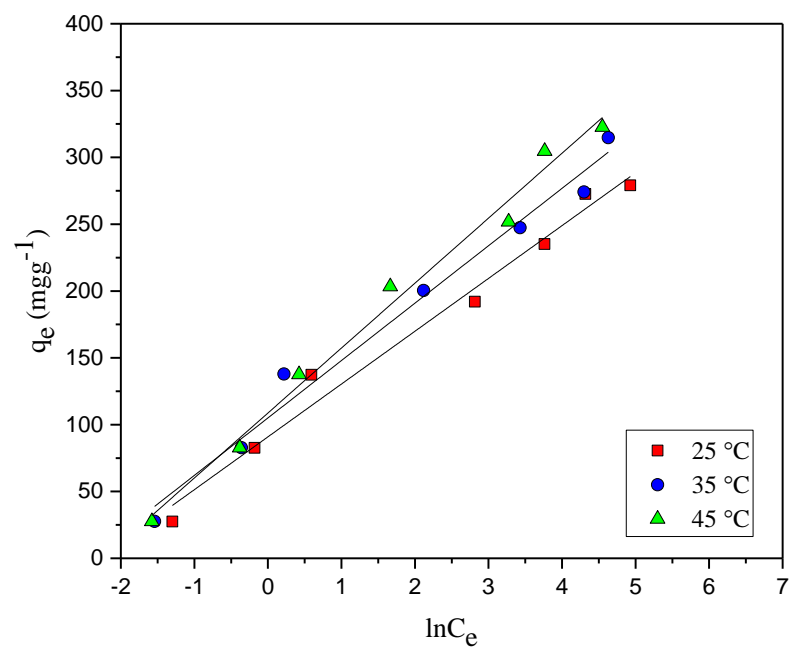
**Figure S6.** Freundlich adsorption isotherms of phenol on DKLAAC at different temperatures.



**Figure S7.** Freundlich adsorption isotherms of 4-NP on DKLAAC at different temperatures.



**Figure S8.** Temkin adsorption isotherms of phenol on DKLAAC at different temperatures.



**Figure S9.** Temkin adsorption isotherms of 4-NP on DKLAAC at different temperatures.

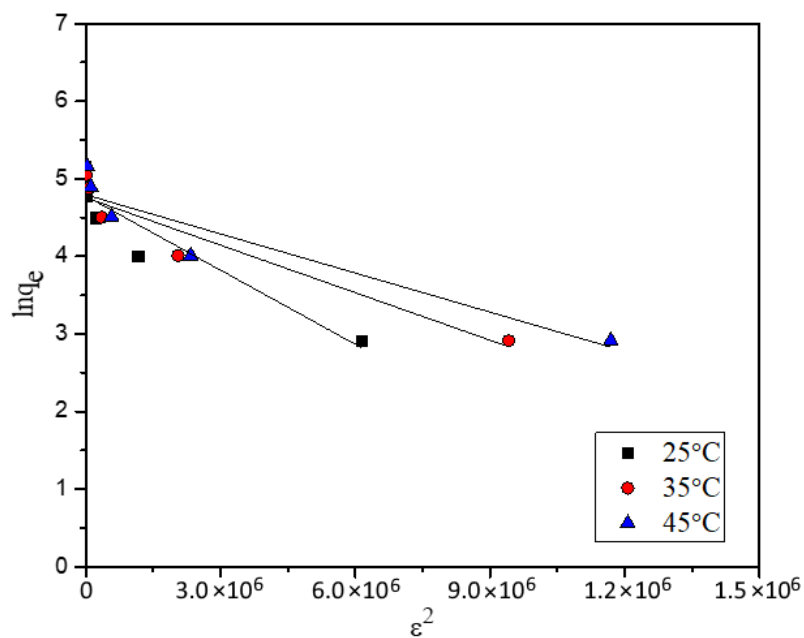


Figure S10. D-R adsorption isotherms of phenol on DKLAAC at different temperatures.

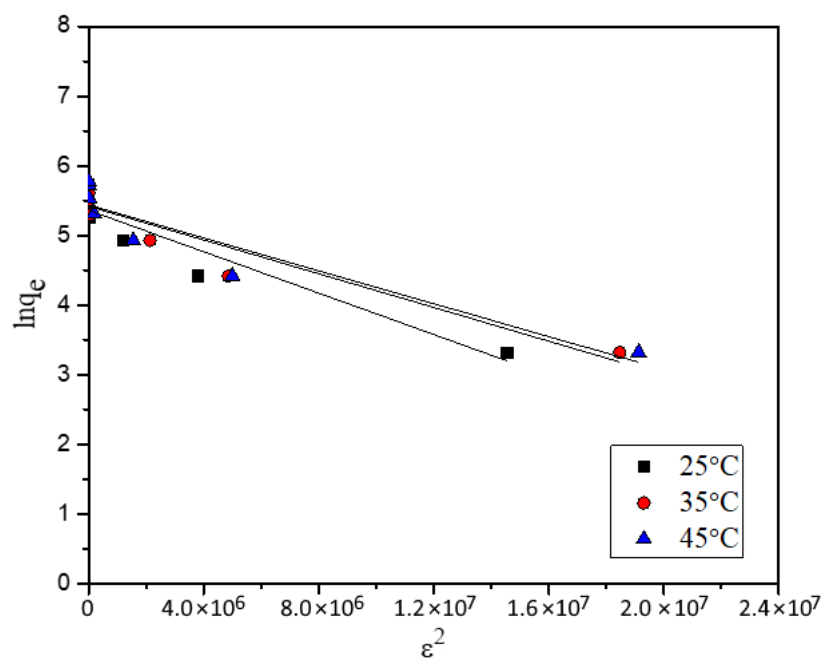


Figure S11. D-R adsorption isotherms of 4-NP on DKLAAC at different temperatures.