

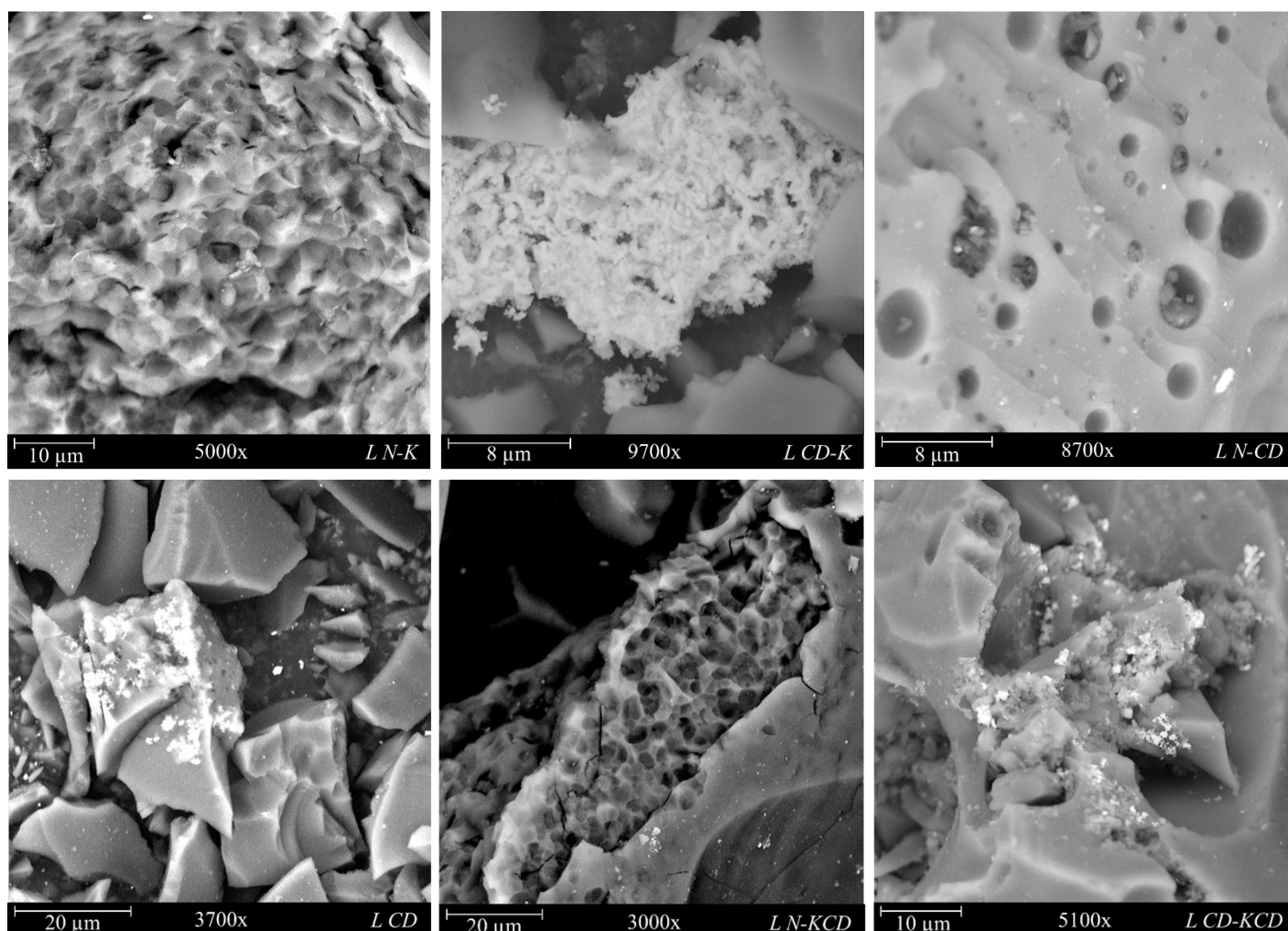
## Sustainable synthesis of activated porous carbon from lignin for enhanced CO<sub>2</sub> capture: A comparative study of physicochemical activation routes

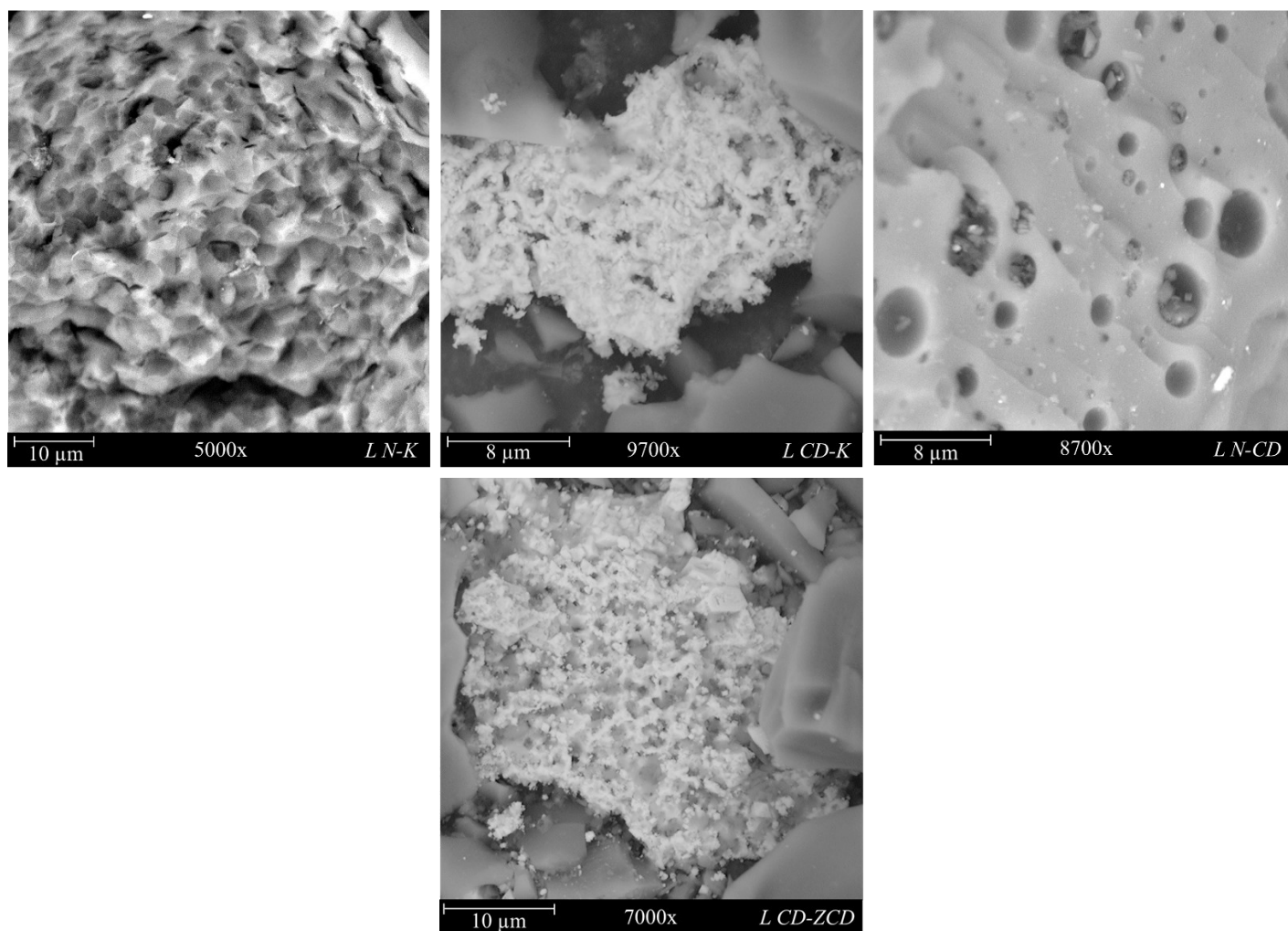
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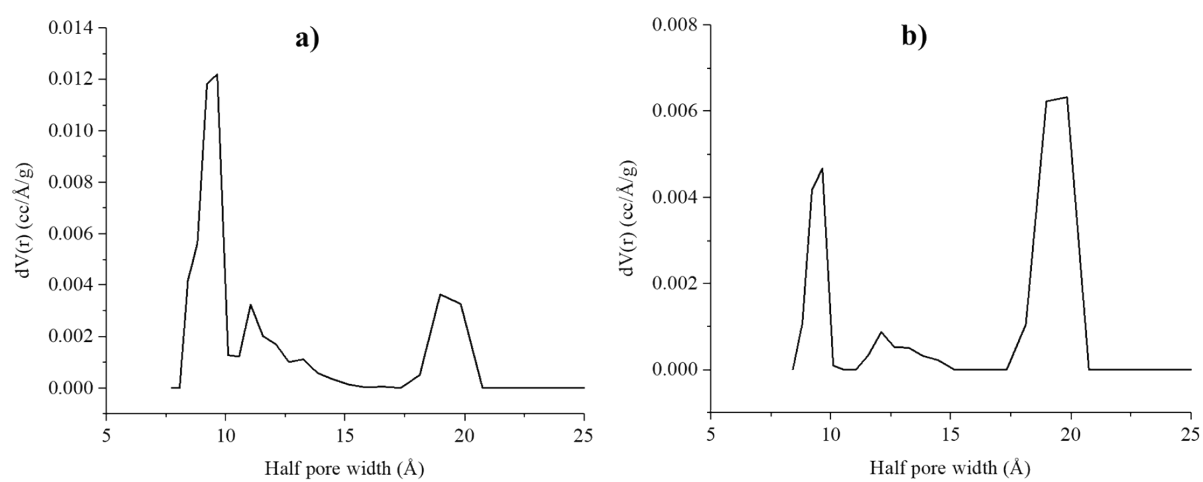
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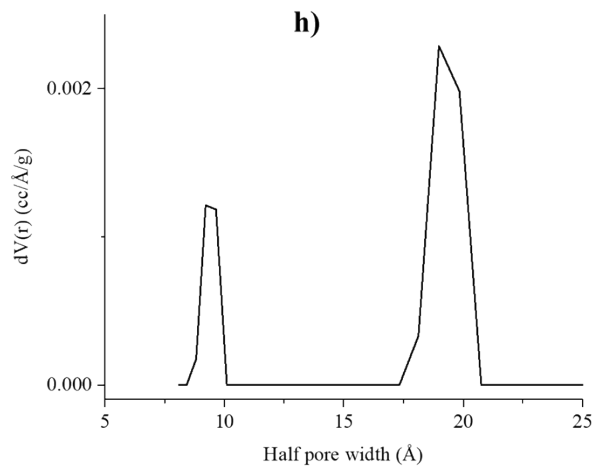
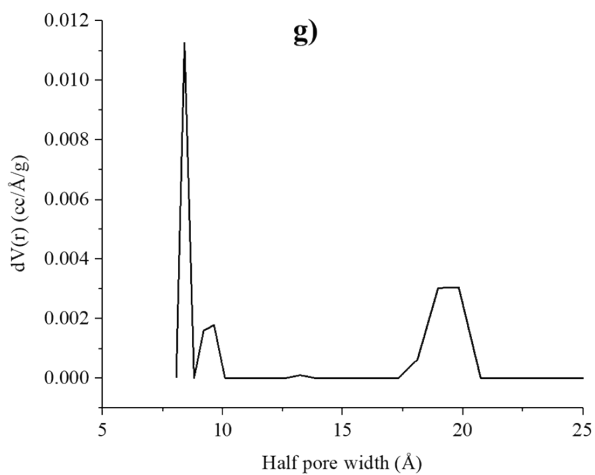
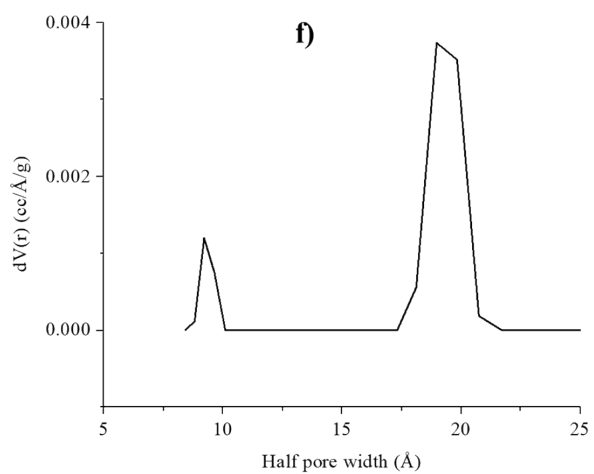
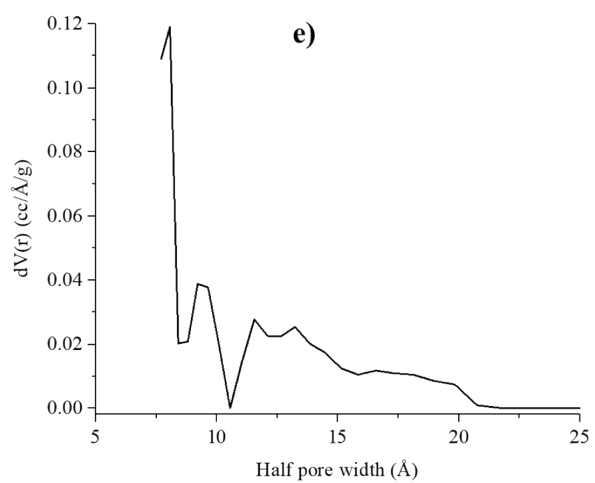
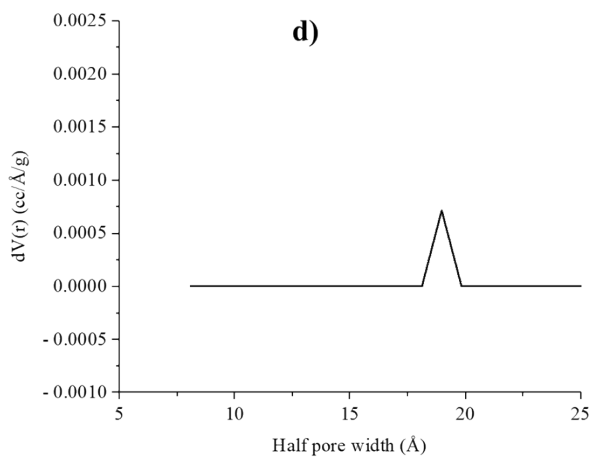
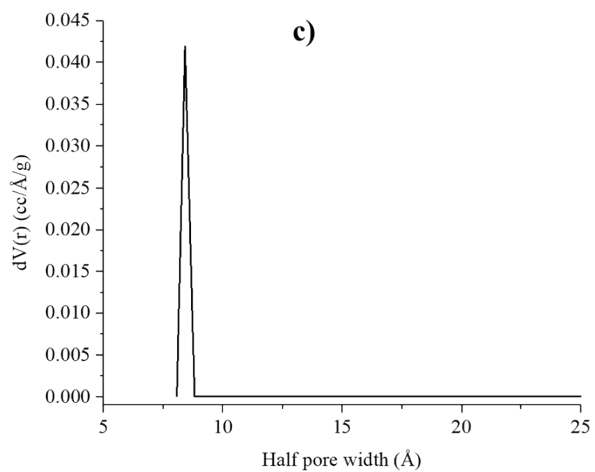
\* E-mail addresses: [mmisra@uoguelph.ca](mailto:mmisra@uoguelph.ca) (M. Misra)

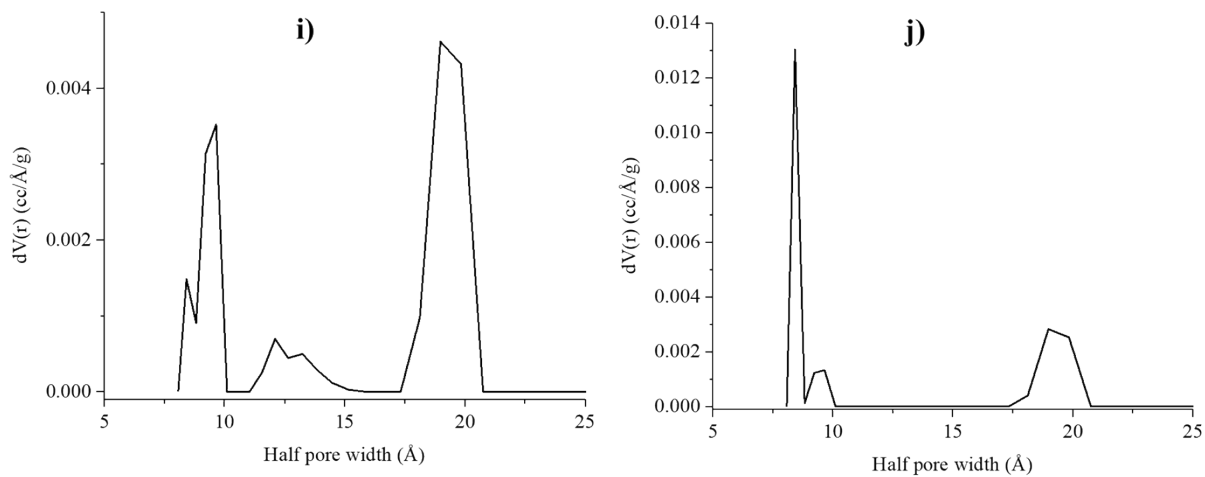




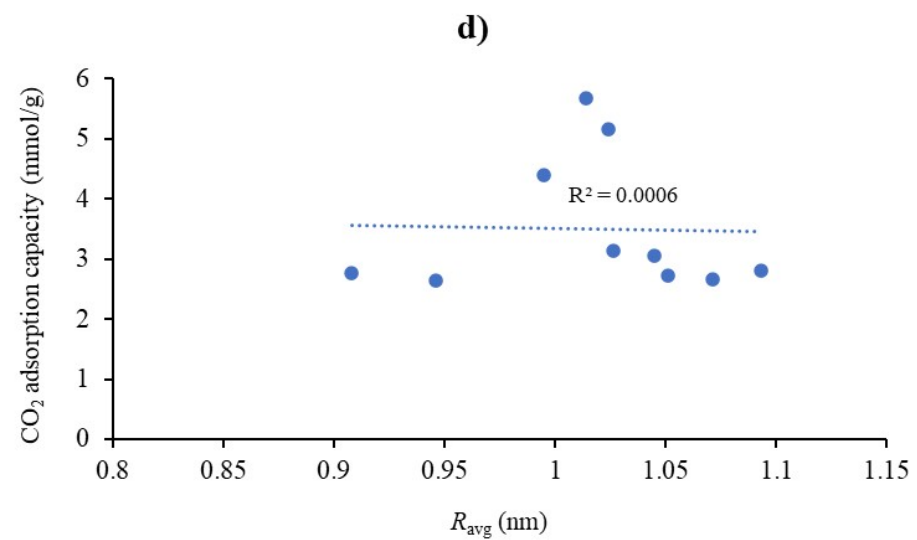
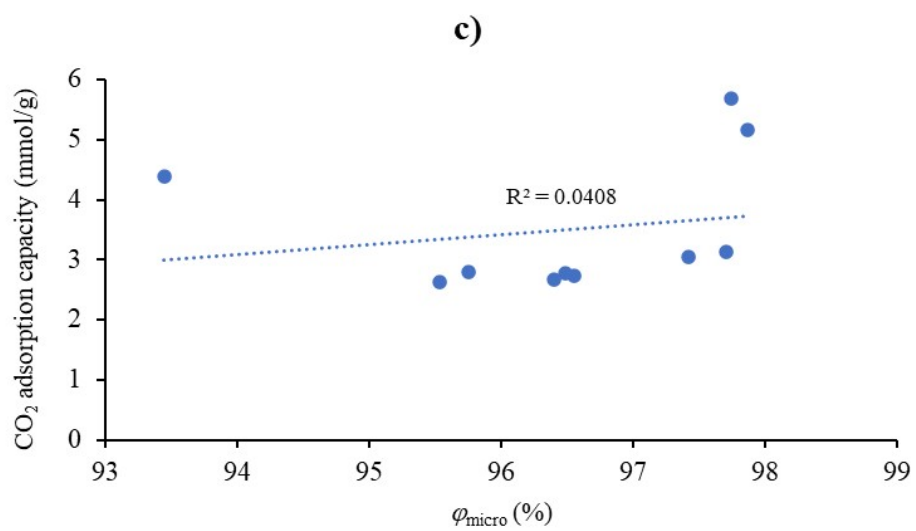
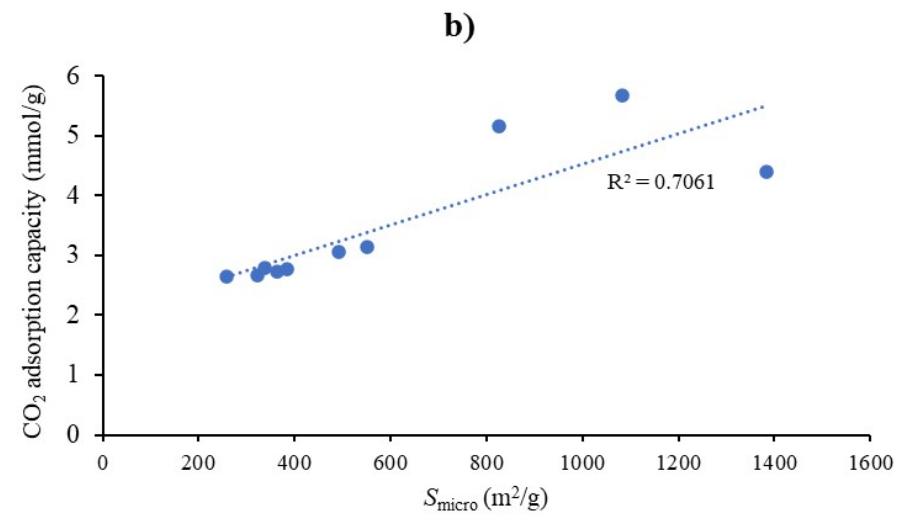
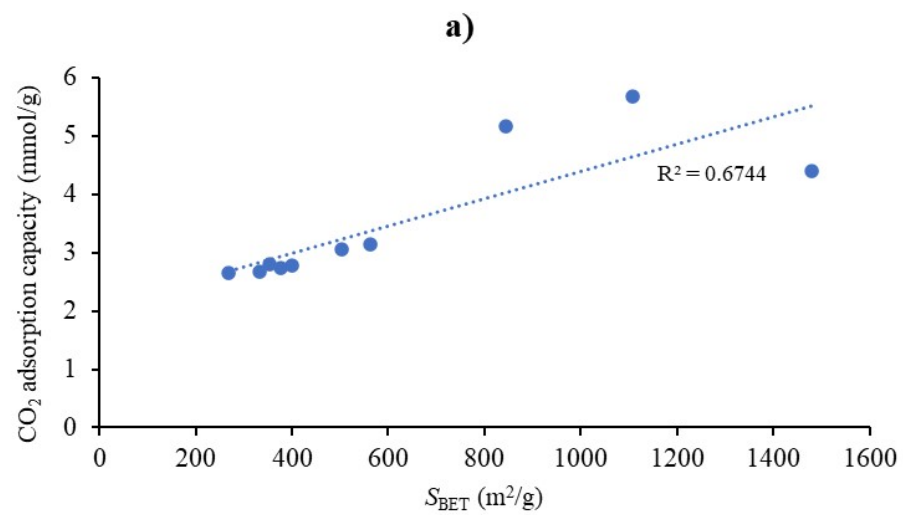
**Figure S1.** Scanning electron micrographs of lignin protobind 2400 based activated carbons.

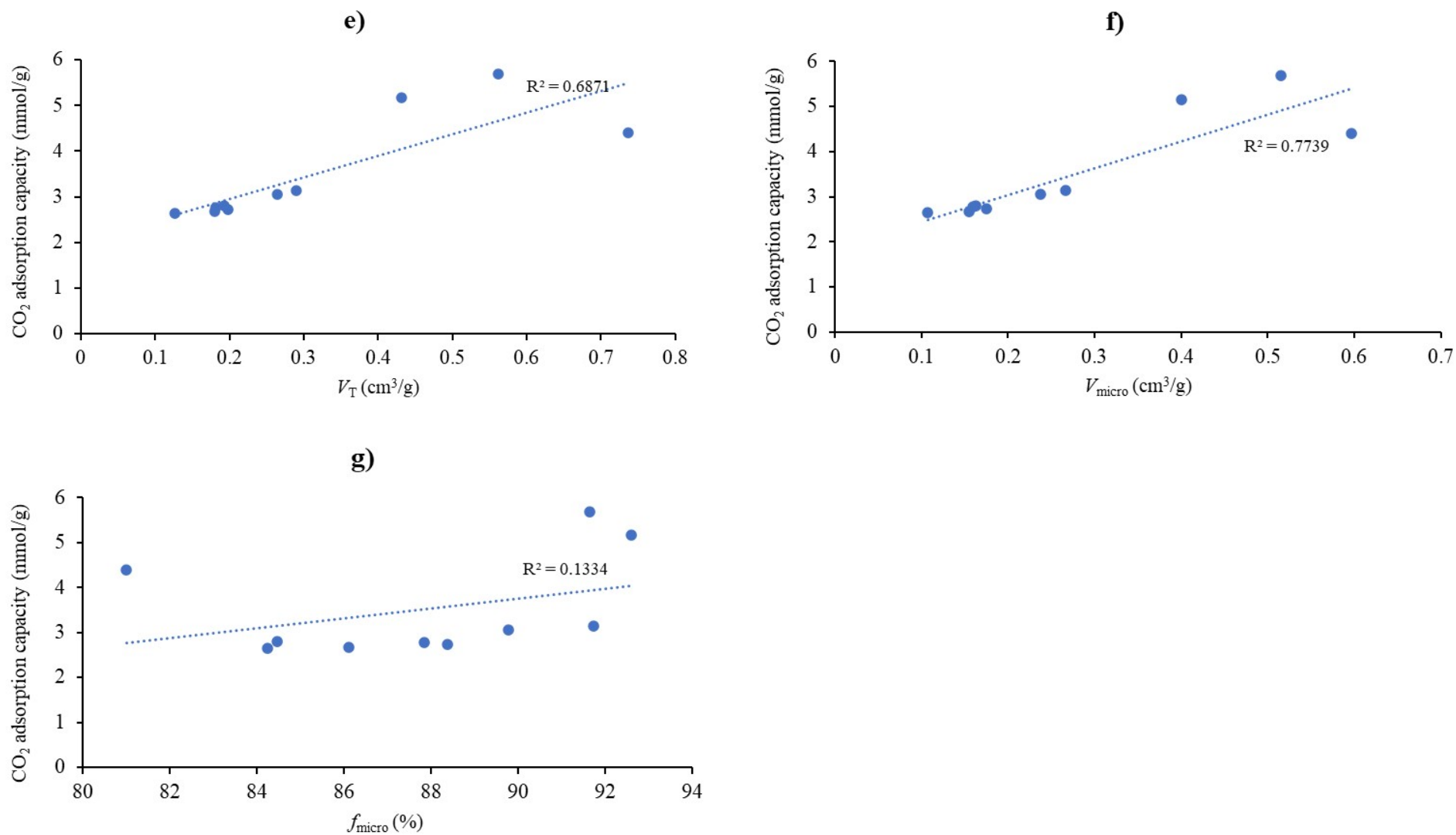






**Figure S2.** Pore size distribution from NLDFIT method using N<sub>2</sub> isotherms at -196 °C for (a) *L N-K*, (b) *L CD-K*, (c) *L N-CD*, (d) *L CD*, (e) *L N-KCD*, (f) *L CD-KCD*, (g) *L N-Z*, (h) *L CD-Z*, (i) *L N-ZCD*, and (j) *L CD-ZCD*.





**Figure S3.** Linear relation between each textural property (a)  $S_{\text{BET}}$ , (b)  $S_{\text{micro}}$ , (c)  $\phi_{\text{micro}}$ , (d)  $R_{\text{avg}}$ , (e)  $V_T$ , (f)  $V_{\text{micro}}$ , and (g)  $f_{\text{micro}}$  versus CO<sub>2</sub> adsorption capacity at 0 °C/1 bar.