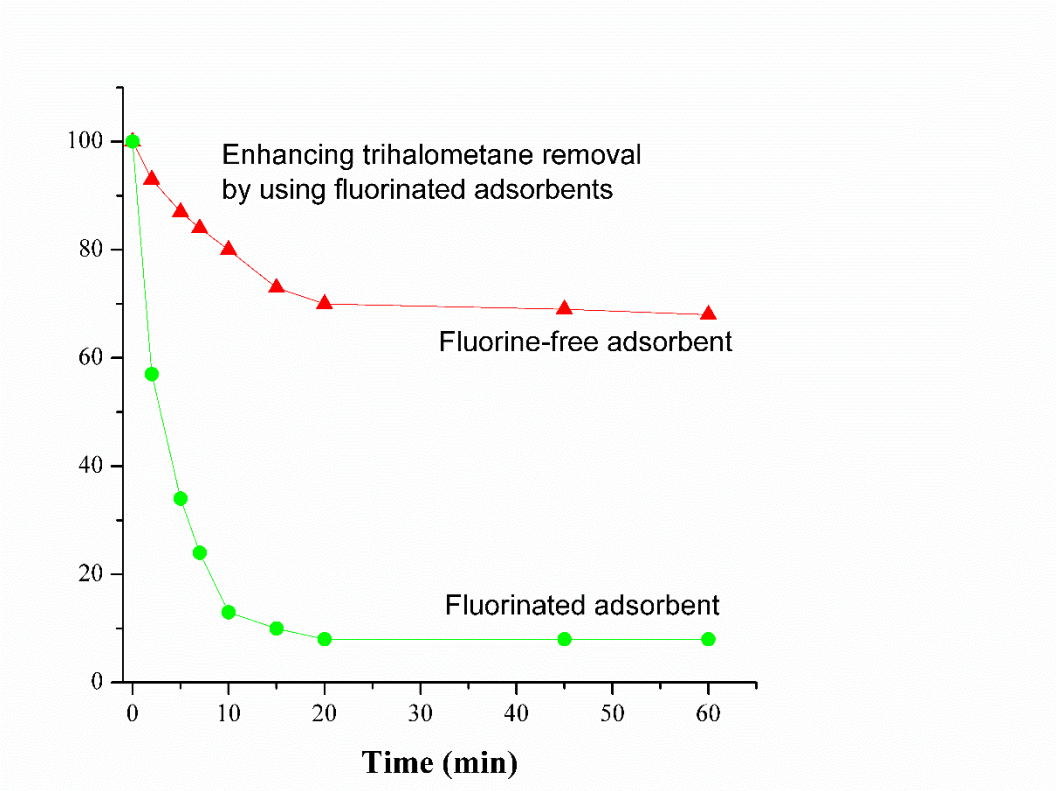
Graphical abstract



CAPTIONS TO FIGURES

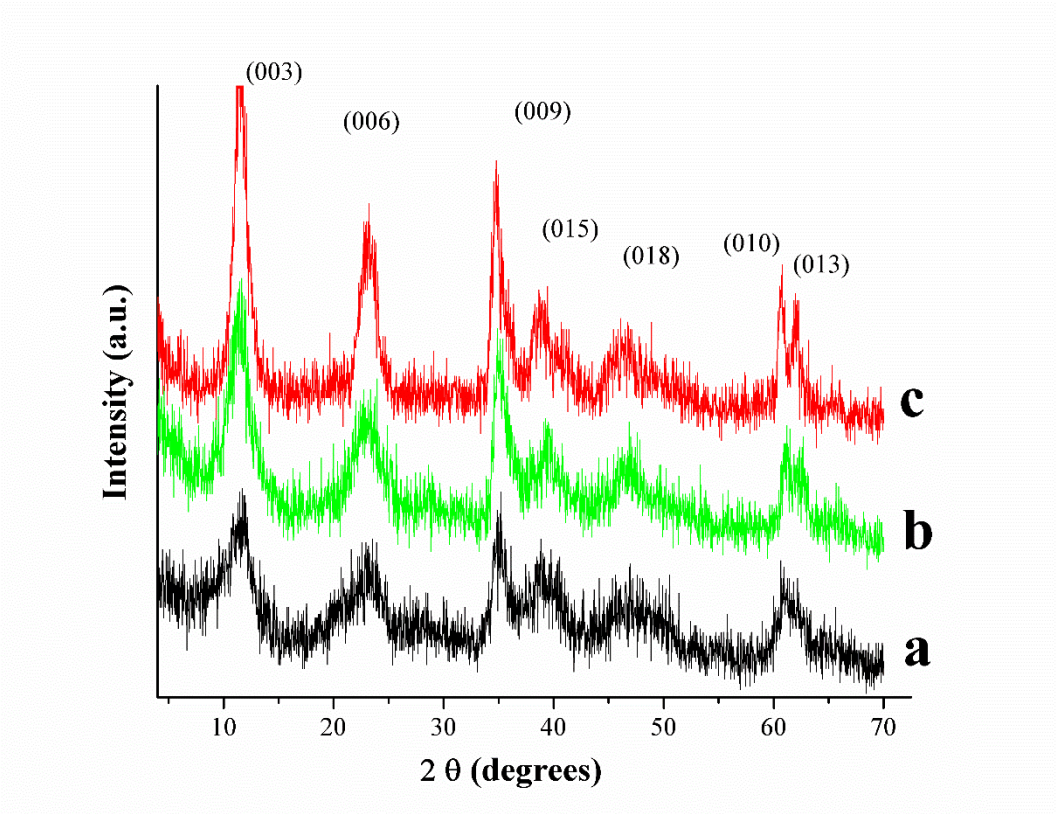


Figure 1. X-ray diffraction patterns of LDH as synthesized: (a) HT, (b) HT-10F and (c) HT-25F. Peak labels indicate Miller index of JPCDS card 22-0700.

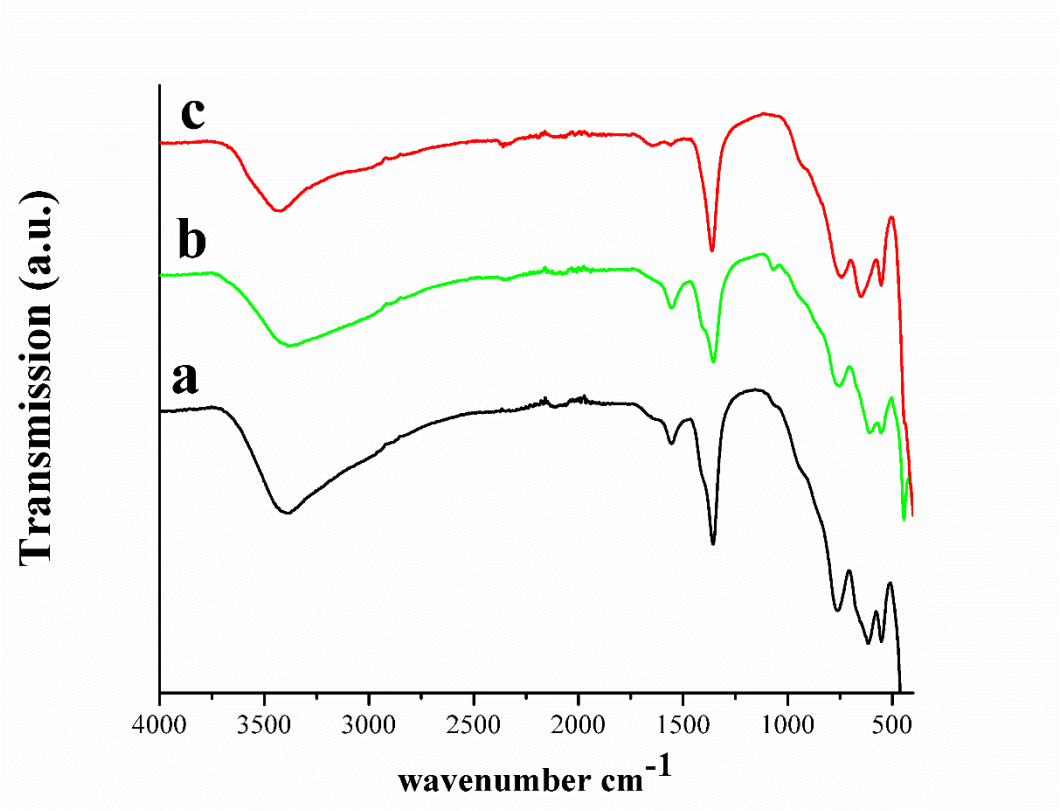


Figure 2. Infrared spectra of LDH as synthesized: (a) HT, (b) HT-10F and (c) HT-25F.

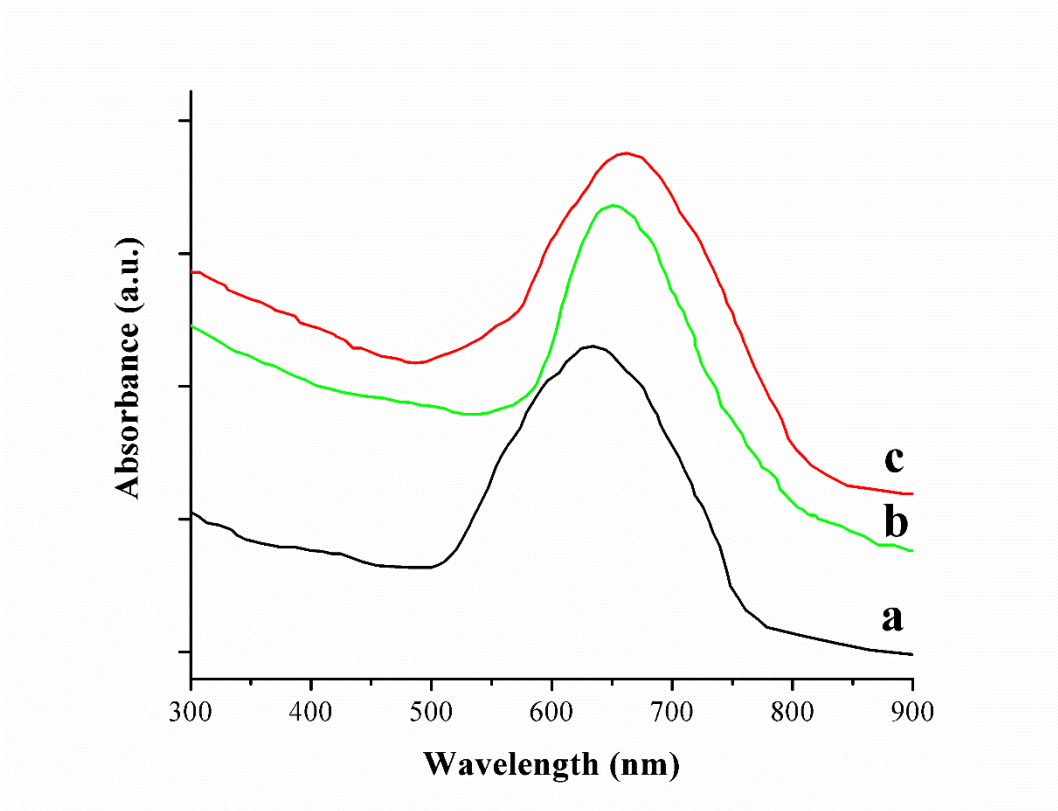


Figure 3. UV–vis spectra of the solvatochromic dye 4-tert-butyl-2-(dicyano-methylene)-5-[4-(diethylamino)benzylidene]-Δ3-thiazoline adsorbed onto (a) HT, (b)HT-10F and (c) HT-25F.

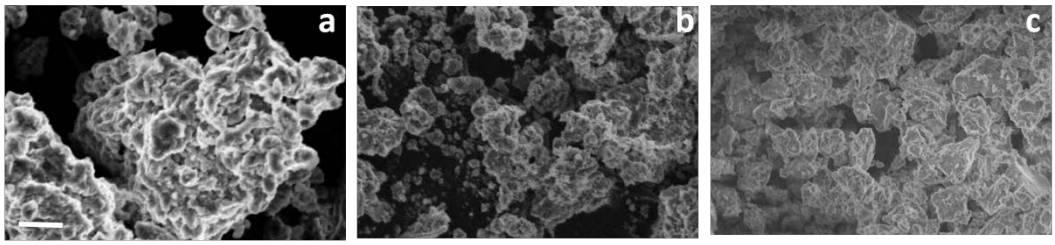


Figure 4. SEM image of (a) HT, (b) HT-10F and (c) HT-25F. The bar scale in image (a) corresponds to 20 μm and it is valid for all three images.

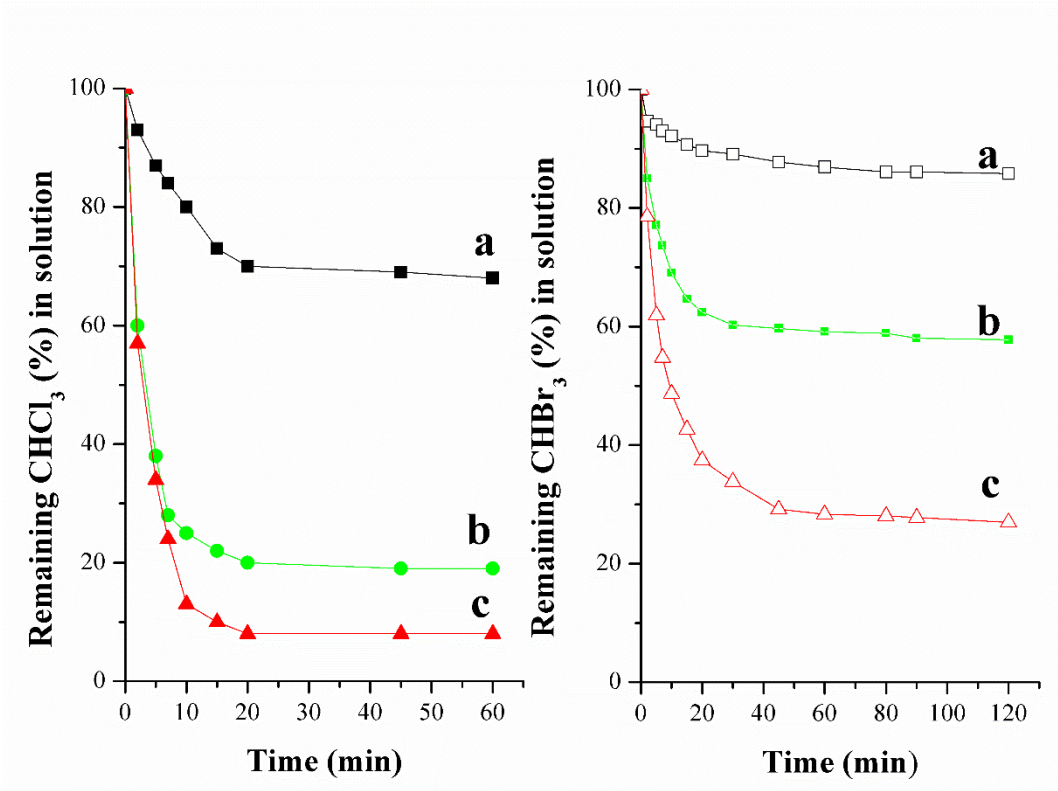


Figure 5. Concentration progress of $CHCl_3$ (left) and $CHBr_3$ (right) after contact with different adsorbents (a) HTC, (b) HT-10FC and (c) HT-25FC. Initial concentration of $CHCl_3$ and $CHBr_3$ was $5X10^{-3}$ and $4X10^{-4}$ M, respectively. Adding of C to code sample means that adsorbent was thermal treated at 350 °C for 8 h. The ratio mass of adsorbent to volume of solution was fixed to 12.5 mg/ml.

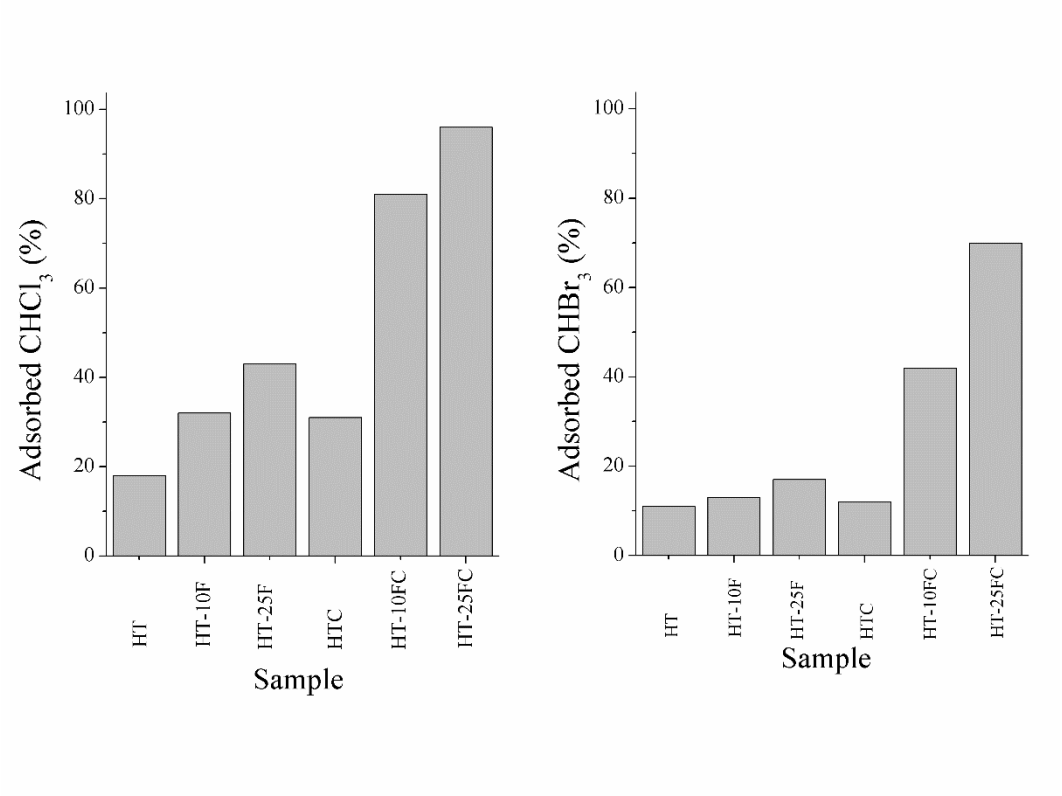


Figure 6. $CHCl_3$ (left) and $CHBr_3$ (right) removal efficiency through adsorption on different adsorbents. The equilibrium time was taken as 30 and 90 minutes for $CHCl_3$ and $CHBr_3$, respectively.

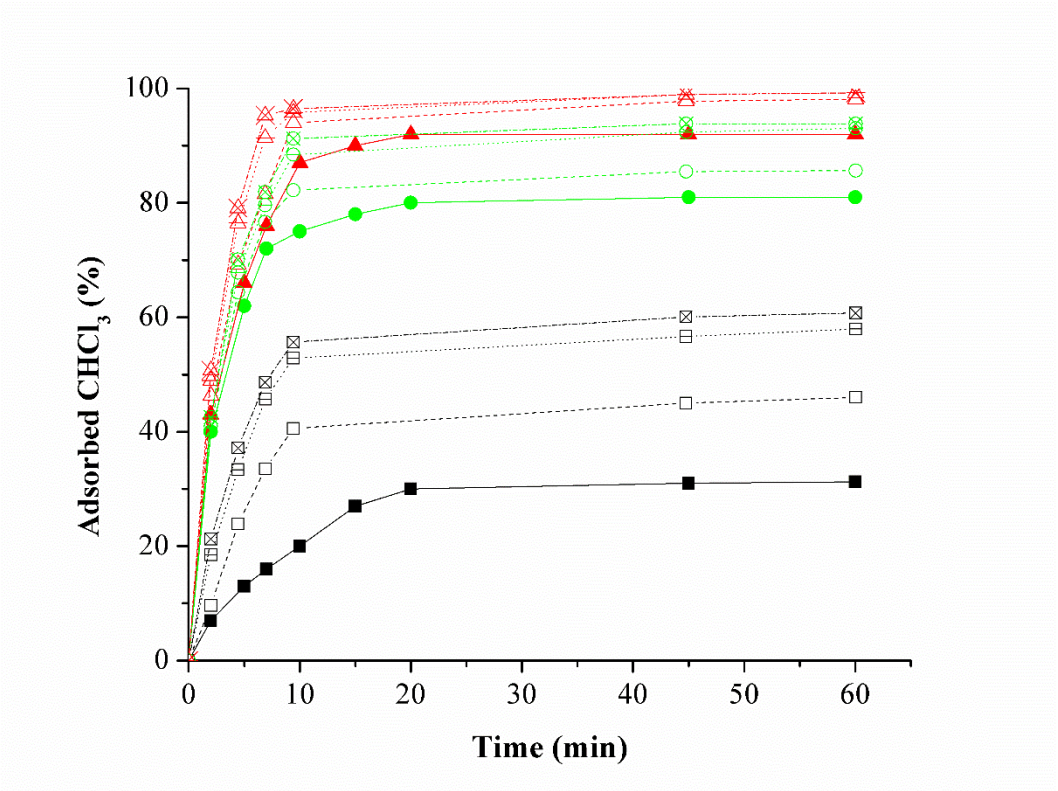


Figure 7. $CHCl_3$ adsorption onto different adsorbents (squares) HTC, (circles) HT-10FC and (triangles) HT-25FC, starting with different initial $CHCl_3$ concentration, $5x10^{-3}$ M (solid lines), $2x10^{-2}$ (dashed lines), $3x10^{-2}$ (dotted lines), $5x10^{-2}$ (dotted-dashed lines).

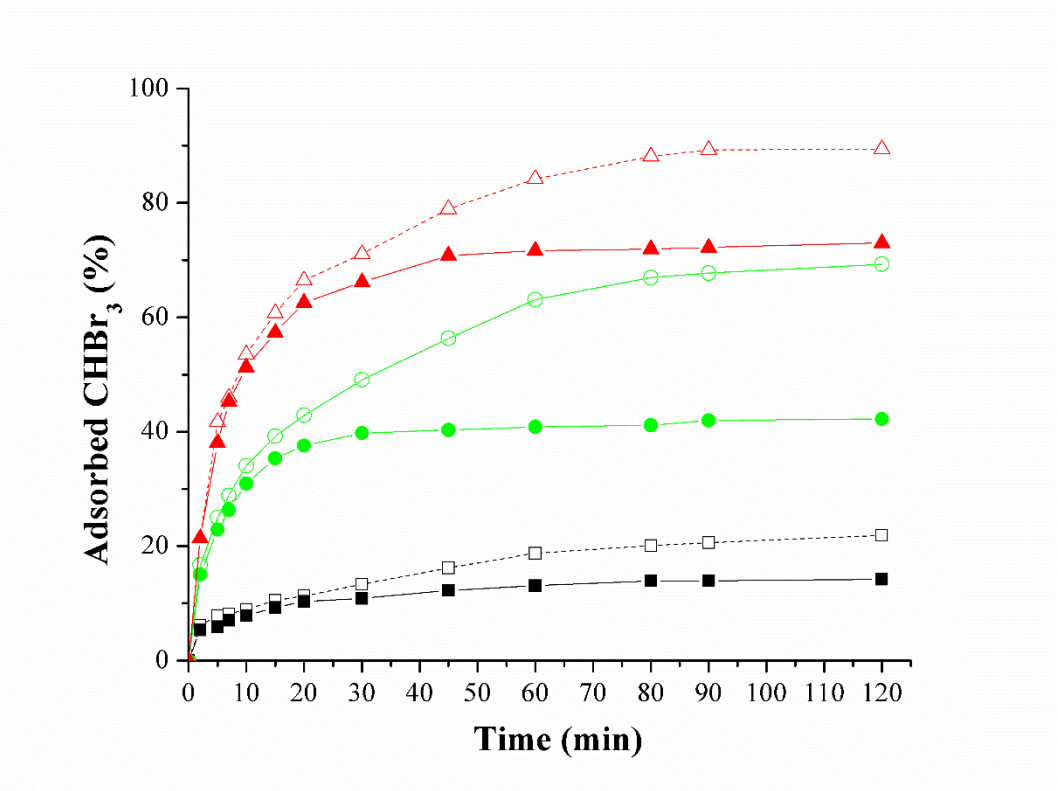


Figure 8. $CHBr_3$ adsorption onto different adsorbents (squares) HTC, (circles) HT-10FC and (triangles) HT-25FC, starting with different initial $CHCl_3$ concentration, $4x10^{-4}$ M (solid lines), $5x10^{-3}$ (dashed lines).

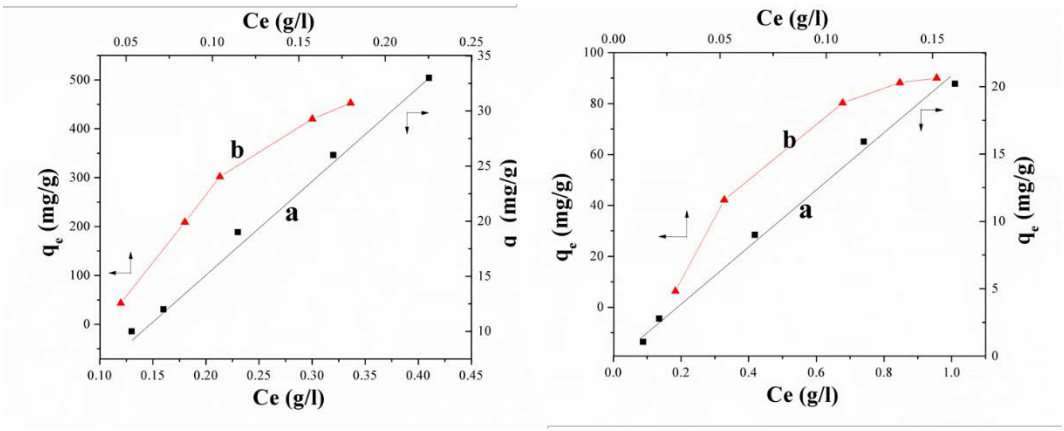


Figure 9. Adsorption isotherms of $CHCl_3$ (left) and $CHBr_3$ (right) onto (a) HTC, and (b) HT-25FC. q_e represents the amount of THM per unit mass of adsorbent and Ce the equilibrium concentration of the remaining THM in solution. The equilibrium time was taken as 30 and 90 minutes for $CHCl_3$ and $CHBr_3$, respectively.