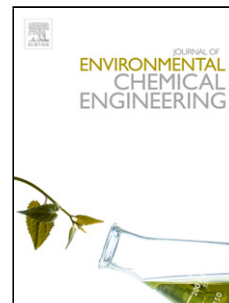


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Authors: Apurva A. Narvekar, J.B. Fernandes, S.G. Tilve

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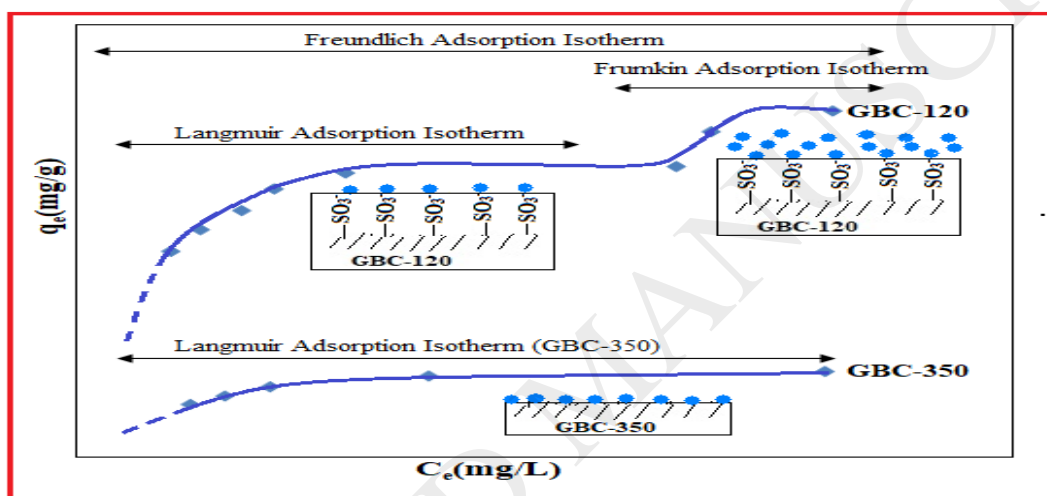
## Adsorption behavior of methylene blue on glycerol based carbon materials

Apurva A. Narvekar, J.B. Fernandes\*, S.G.Tilve

Department of Chemistry, Taleigao Plateau, Goa University, Goa – 403206, India.

Corresponding author e-mail address: jbfx@rediffmail.com

### Graphical abstract



### Highlights

- First report of methylene blue adsorption on glycerol based carbons.
- GBC-120 ( $\text{SO}_3\text{H}$ ), surface area  $21 \text{ m}^2/\text{g}$ , multilayer adsorption capacity  $> 1000 \text{ mg/g}$
- GBC-350,  $464 \text{ m}^2/\text{g}$ , gave much lower adsorption  $\sim 130 \text{ mg/g}$ , due to loss of  $\text{SO}_3\text{H}$  function.
- GBC-120 and GBC-350 followed second order adsorption kinetics.

### Abstract

In the present investigation a glycerol based carbon was synthesized by partial carbonization of glycerol using concentrated  $\text{H}_2\text{SO}_4$  in the molar ratio 1:4. The carbonized material was further treated at  $120^\circ\text{C}$  and  $350^\circ\text{C}$  to obtain the carbons GBC-120 and GBC-350 respectively. The samples were characterized by XRD, ir, thermal analysis (TG-DTG-DTA), pzc measurements; SEM and BET surface area analysis. The TGA showed a gradual weight loss up to about  $800^\circ\text{C}$ . The adsorption studies were carried out using

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