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**To:** Hadi Salman Al-Lami

Tue, Aug 4 at 11:53 AM

Hadi Salman Al-Lami:

We have reached a decision regarding your submission to Baghdad Science Journal, "**Kinetic, Isotherm, and Thermodynamic Study of Bismarck Brown Dye Adsorption onto Graphene Oxide and Graphene Oxide-Grafted-Poly (n-butyl methacrylate-co-methacrylic Acid)**".

**Our decision is: Accepted**

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# Kinetic, Isotherm, and Thermodynamic Study of Bismarck Brown Dye Adsorption onto Graphene Oxide and Graphene Oxide-Grafted-Poly(n-butyl methacrylate-co-methacrylic Acid)

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## Abstract

The adsorption behavior of Bismarck brown (BB) dye from aqueous solutions onto graphene oxide GO and graphene oxide-g-poly (n-butyl methacrylate-co-methacrylic acid) GO-g-pBCM as adsorbents was investigated. The prepared GO and GO-g-pBCM were characterized by Fourier transform infrared spectroscopy FTIR, which confirmed the compositions of the prepared adsorbents. Adsorption of BB dye onto GO and GO-g-pBCM was explored in a series of batch experiments under various conditions. The data were examined utilizing Langmuir and Freundlich isotherms. The Langmuir isotherm was seen as increasingly reasonable from the experimental information of dye on formulating adsorbents. Kinetic investigations showed that the experimental data were fitted very well to the pseudo-second-order model, and from the calculated positive values of the ( $\Delta H^\circ$  and  $\Delta S^\circ$ ) indicated that the adsorption of BB dye onto GO and GO-g-pBCM was endothermic and increasing of the adsorption process randomness. The negative values of ( $\Delta G^\circ$ ) imply that the adsorption process was spontaneous.

**Keywords:** Adsorption isotherm, Bismarck brown, Freundlich, Graphene oxide, Langmuir, Pseudo-second-order model.