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Title: Adsorption of cationic dye-neutral red on the graphene oxide nanocomposites

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The cancer treatment is still limited by barriers created by genetic changes such as mutations and gene polymorphisms. Such changes in certain malignant tissues render standard treatments of chemotherapy and radiation ineffective. It is also known that, in addition to the inconveniences caused by the surgical alternative, those methods have unintended consequences, such as non-specific distribution of antitumor drugs, cytotoxicity problems for healthy cells, development of multiple drug resistance, and standard antitumor drugs have immunosuppressive and cytotoxic properties, which can also damage cells normal, healthy cells. However, if the therapeutic drugs are directed at the sick spot, the side effects can be reduced. As a result, the option of exploring graphene oxide since a carrier and analyzing its properties, as it is a material of tremendous physicochemical potential, with new qualities, as well as the photo sensitizer and other additions, is being considered. The calibration curve of absorbance vs wavelength was used to create overlay graphs. The GraphPad Prism 8 program was utilized for the separated dye, the dye alone (neutral red=NR), the titrations, and the time variation, allowing us to determine the standard curves corresponding to concentration x absorbance and time x absorbance using the same software. The Hildebrand approach was found to be the mathematical solution that best suited the behavior of the titration curve with NO2- in both cases. As a result, it can be used to compare association constants (K). As a result of the exploratory practices, it was possible to conduct a comparative analysis of the binding of NR with nitrite in the presence and absence of graphene oxide, concluding through the variation of K and graph visualization that the presence of graphene oxide has no effect on the dye's association with the additive NO2- . FAPDF, CNPq, FINATEC and CAPES supported this project.

Biography

Claure Nain Lunardi is an associated professor in organic chemistry, enthusiast researcher leading undergraduate and graduate students in chemistry, nanomaterials, and photochemistry at University of Brasília since 2008. She obtained her Chemistry BSc. (1996), followed by her Chemistry Master and Ph.D. from University of São Paulo (USP-RP) on the synthesis and photochemistry of phthalocyanines for photodynamic therapy (2004). She completed a postdoctoral fellowship at Pharmacy School at USPRP (2008) in general pharmacology focused on nitric oxide donors. Claure was a visiting researcher at Columbia University (2013-2014) at Biomedical Engineering. Her work has been published in Materials Science and Engineering C, Nitric Oxide - Biology and Chemistry, Vascular Pharmacology and Canadian Journal of Chemical Engineering. Her current research interest lies in graphene, gold nanoparticles-based nanomaterials such as photocatalysis and drug delivery systems.