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USE OF KAOLIN AS A POTENTIAL LOW-COST ADSORBENT FOR THE REMOVAL OF MALACHITE GREEN FROM COLORED EFFLUENTS

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This study investigated the potential of raw kaolin as a low-cost adsorbent for the removal Malachite Green (MG) from colored effluents. The morphology, chemical structure and the surface properties of the adsorbent were investigated by characterization techniques such as X-ray diffraction, N₂ adsorption-desorption isotherms, Fourier transform infrared spectroscopy, X-ray fluorescence spectroscopy and scanning electron microscopy. A possible technological application of kaolin is the MG removal from aqueous media, which was investigated by batch adsorption experiments. The adsorption kinetics was studied using the pseudo-first order, pseudo-second order and Elovich models. The adsorption isotherms were studied using Langmuir, Freundlich and Sips models. Maximum adsorption capacity was found to be 128 mg g⁻¹, and this satisfactory result may be associated to some properties of adsorbent. Therefore, the results of this investigation revealed that kaolin can be utilized as a promising low-cost adsorbent to remove MG from colored effluents.