

REMOVAL OF METHYLENE BLUE FROM AQUEOUS SOLUTIONS USING IRAQI PORCELLANITE ROCKS

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ABSTRACT

Industrial wastewater and other polluted water need to be treated to make it possible to discharge into rivers and reuse them. Adsorption takes the importance of ways to remove organic and inorganic pollutants in water. The search for materials that are locally available and cheap to use as adsorbent surfaces. The Iraqi porcellanite powder can be used to remove the dye of Methylene Blue in batch method. The effect of various experimental parameters such as contact time, temperature, solution pH, weight of adsorbent, initial dye concentration, ionic strength were investigated. The adsorption studies included both equilibrium adsorption isotherms and kinetics. The

applicability of Langmuir and Freundlich equations was investigated at different temperature, and the Freundlich isotherm exhibited the best fit with experimental data. The thermodynamic parameters indicated that the adsorption was a spontaneous process (ΔG was negative), the negative value of ΔH indicate endothermic and ΔS was positive value (random), the kinetic data well described by Pseudo-second order kinetic model with intra particle diffusion as one of the rate limiting steps.

KEYWORDS: Adsorption, Methylene Blue, Thermodynamic and Kinetic.

INTRODUCTION

Synthetic dyes are one of most important materials that are widely used in many industries such as textiles, cosmetics, leather, wool, paper, printing, pharmaceutical and food industries, and may generate large amounts of aqueous colored effluents and causes an important environmental problems faced the human in last century.^[1]

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