

5 H P R Y D O⁺ ions from aqueous solution using a naturally occurring Kenyan micaceous mineral

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Water pollution by chemicals is of great public concern. Improvements in the quality and availability of water are however possible at relatively low costs. The objective of this work was to test the efficacy and applicability of a micaceous mineral of Kenyan origin (herein referred to as Mica-K) in the removal of Cr^{6+} ions from water and wastewater systems. The adsorption of Cr^{6+} onto mica-K was found to be dependent on experimental conditions, particularly: Contact time, adsorbate concentration, pH, particle size, sorbent dose and temperature. The sorption pattern of Cr^{6+} onto mica-K followed Langmuir, Freundlich, and Dubinin-Kaganer-Radushkevich (DKR) isotherms with correlation factors and other parameters for the isotherms confirming good agreement between theoretical models and the experimental results. Positive but small enthalpy, (ΔH°) value suggests that sorption of Cr^{6+} is endothermic and involves moderately weak bonding between the metal ions and mica-K.