REMOVAL OF TEXTILE DYES FROM WASTE WATER OF KIFFRY TEXTILE FACTORY USING NATURAL CLAY OF THE REGION

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Two types of Kiffry clays (Brown clay and Yellow clay) were characterized. Chemical compositions were analyzed by XRF and ICP techniques. The XRD pattern of the samples shows that the samples are of mixed layered type of illite/smectite structure, contaminated with various percentage of kaolinite. The highest percentage of smectite is present in Brown clay sample which is obvious from the relative peak high and peak area at (001) (2o =6.9) of smectite compared to kaolinite and illite.

The method of methylene blue adsorption has been used for the determination of specific surface area (SSA) and cation exchange capacity (CEC). The SSA were 83.93 and 83.1m^2/g, and CEC were 28.5 and 28.0 mmol/g for Brown and Yellow clays respectively.

Most of synthetic organic chemicals compounds (e.g., dyes) are potential or known human carcinogens and are of considerable health concern, even at low concentrations. Methods for decolorization have therefore become important in recent years. Adsorptions of a textile dye of Kiffry textile factory from aqueous solutions at 25°C by natural Brown and Yellow clays of Kiffry region have been studied. The equilibrium time was found to be 35 min. The data was found that Langmuir isotherm model fits the data very well for dye adsorption on both clays.

Keywords: Kiffry clay, textile dye, adsorption