Title of the paper: **Isothermal, kinetic studies of removal of Mn (II) from aqueous solution using date seed powder in raw form**

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ABSTRACT

Date seed powder in its raw form, showed excellent adsorptive properties in the removal of Mn(II) from aqueous solutions. The optimum conditions for the effective removal of Mn(II) were found to be pH of 4, temperature of 40^{o}C, adsorbent dosage 1g and initial metal concentration as 20 mg L^{-1}. Under these conditions it was found that 99.8% of Mn(II) has been removed from aqueous solutions. Maximum adsorption capacity was found to be 9.9 mg g^{-1}. This value is found to be superior when compared to the values cited in literature. Langmuir adsorption isotherm was found apt for the adsorptive removal of Mn(II) with a correlation coefficient value of 0.9785. Other isotherm models such as Fruendlich and Temkin models were also studied and found to be inferior with Langmuir model with reference to correlation coefficient value. Pseudo second order kinetics fits the best for the adsorption of Mn(II) with R^2 of 0.9994. Characterization of the adsorbent was carried out by using FTIR and XRD methods. The applicability of the adsorbent was verified with industrial effluents of alloy and battery industries, and found to be efficient.