

Removal of Iron (II) from Wastewater by Locally Prepared of Activated Carbon

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ABSTRACT

The use of low-cost activated carbon derived from reed, an agricultured waste material, has been investigated for the removed of Fe (II) from wastewater, using batch method. The influences of the weight of adsorbent (0.2-2) g, pH of solution (1-9) and initial Fe(II) concentration (10-80) mg/l have been studied. The suitability of the activated carbon used was tested by fitting the adsorption data with Langmuir and Freundlich isotherms. The study showed that the adsorption data obtained are obey the Freundlich isotherm fitting.

Keywords: Metal Ion, Adsorption, Activated Carbon, Adsorption Isotherm.

إزالة كبريتات الحديد من مياه الصرف الصحي الصناعية بواسطة الكربون المنشط المحضر محلياً

الخلاصة

تم استخدام الكربون المنشط المصنوع والقصب من الفضلات الزراعية كمادة لازالة الحديد Fe(II) من مياه الصرف الصحي باستخدام طريقة الوجبة. تم دراسة تأثير وزن المادة الممتزة (0,2-2) غم وهو الكربون المنشط وحامضية المحلول (1-9) والتركيز الابتدائي للحديد في المحلول (10-80) ملغم/ لتر. ان ملائمة الكربون المنشط على امتزاز الحديد تم اختبارها باستخدام بعض الموديلات الرياضية مثل معادلة لانكماير وفرنديلش. بينت الدراسة ان النتائج المستحصلة تخضع لمعادلة فرنديلش.

INTRODUCTION

Increased use of metals and chemicals in process industries has resulted in generation of large quantities of effluents that contain high level of toxic heavy metals and their presence poses environmental-disposal problems due to their non-degradable and persistent nature. In addition, mining mineral processing and extractive metallurgical operations also generate toxic liquid wastes ^[1, 2, 3]. The removal of toxic heavy metal contaminants from aqueous waste streams is currently one of the most important environmental issues being investigated ^[4, 5, 6]. Adsorption on low cost-adsorbent for removal of toxic metals from wastewater has been investigated extensively. These materials include thioglycolic acid and modified oil-palm ^[7, 8, 9, 10]. The aim of this research is to