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Building and Construction Engineering Department**



"Adsorption of Coliform Bacteria from Treated Water by Activated Carbon"

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ABSTRACT

Usually chlorine added ratio during the treatment process is directly proportional to the microorganisms in water, so the use of any technique that will lead to reducing the amount of microorganisms in the water will lead to use of low concentrations of chlorine. Therefore, this study aimed to using commercial activated carbon to adsorp the rate of microorganisms such as bacteria coliform.

In this study, removalprocess of bacteria coliform is dealt withby activated carbon with field conditions and with devices for continuous adsorption system in fluidized bed, and under different operating conditions as flow rate, bed depth and particlessize. Where the results of the experiments showed that activated carbon adsorption for bacteria coliform had reachedto 88.24% after 24 hours of operation.

Through the knowledge of adsorption capacities in batch experiments system on bacteria coliform,the equilibrium isothermfor activated carbon was found to be of a favorable type and Langmuirisotherm model gives the best fit to represent the experimental data of this system with correlation coefficient equals to 0.9467, and the results of batch experiments showed that the maximum capacity for GAC adsorption is 2.6 cfu/g.

In present study, the ability of activated carbon used to remove turbidity from water treatment plants has been evaluated. Under field and different operating conditions, itis found that the Granular Activated Carbonwas capable ofremoving turbidity from water, while the results showed that activated carbon did not have a strong impact on the total dissolved solid, electrical conductivity and total hardness CaCO_3 .

Finally, the results obtained in this study proved the feasibility of the use of commercial activated carbon to remove bacteria coliform from water.



جمهورية العراق
وزارة التعليم العالي والبحث العلمي
الجامعة التكنولوجية
قسم هندسة البناء والانشاءات

امتزاز بكتريا الكولفورم من المياه المعالجة بواسطة الكربون المنشط

رسالة مقدمة الى قسم هندسة البناء والانشاءات في الجامعة
التكنولوجية
و هي جزءاً من متطلبات نيل درجة الماجستير في علوم هندسة
البناء والانشاءات
(الهندسة البيئية)

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