Desalination and Water Treatment
www.deswater.com
doi:10.5004/dwt.2017.20426

76 (2017) 225–231
May

High turbid water treatment by Kenaf fibers: a practical method for individual water supply and remote areas

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Received 31 May 2016; Accepted 6 December 2016

ABSTRACT

Fast and easy access to simple methods for water treatment is one of the most important issues in the field of environmental health, water, and wastewater engineering. The aim of this study was to investigate the application of kenaf fibers for the fast treatment of high turbid water. To evaluate its ability, a pilot plant with various lengths (17.5, 35 and 70 cm) and weight (35 and 70 g) of fibers was used. A synthetic high turbid water (700 NTU) was prepared by mixing the kaolin and riverbed sediments. A samples were analyzed for residual turbidity, true colour, UV_{254} absorbance and total organic carbon (TOC).The findings showed that at the optimum condition, the removal efficiency of turbidity, true colour, and UV_{254} by kenaf fibers with 35 cm length was 99.93, 95.09 and 71.43%, respectively. Also, the quantity of produced water was 0.00368 L/g kenaf/h. This study showed that kenaf fibers can be used for high turbid water and fast treatment by a very simple and easy manner without any energy and chemical addition.

Keywords: High turbid water; Fast water treatment; Kenaf fibers; Emergency condition

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