Interactive comment on “Surface Water Purification using cellulose Paper Impregnated with Silver Nanoparticles” by Shahad A. Raheem and Alaa H. Alfatlawi

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Received and published: 10 September 2020

revised manuscript


Surface Water Purification using cellulose Paper Impregnated with Silver Nanoparticles

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Abstract. The objective of this study is to prepare a cellulose paper was impregnated with (AgNPs) for the purpose of water purification (Disinfection (removal of Escherichia C. Aureus, Enterococcus Faecalis, Enterobacter Aerogenes, Klebsiella Pneumoniae, and P. mirabilis). AgNPs papers were prepared by chemical reduction of silver nitrate (AgNO₃) concentrations (0.005 M, 0.015 M, 0.03 M, and 0.05 M) using sodium borohydride (NaBH₄) as a reducing agent. Two ratios of NaBH₄/AgNO₃ of 2:1 and 10:1 were used to show the effect of reducing concentrations and removal efficiencies of AgNPs. AgNPs papers were characterized using Scanning Electron Microscopy (SEM) and Transmission Electron Microscopy (TEM). An acid digestion using HCl acid for the samples in Atomic Absorption Spectrometer (ASS) was conducted to measure the silver concentration in the effluent water. AgNPs paper antibacterial efficiency ranged (99 % to 100 %).