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Potentiality of Fly Ash from Burning Geology Coal in Water Purification

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Abstract

In this experiment fly ash is used for purification of drinking water in Khartoum. Huge amount of fly ash is generated annually from thermal power plants in Khartoum. This may cause environmental problems if they are not discharged or treated properly. The suitability of fly as in concrete mixture has been studied by Sudanese researcher, but there is no reported literature about its use in water purification. Some physical and chemical properties of fly ash, drinking water and waste water were studied before starting the experiment. For water samples besides physical and chemical properties *E. coli* and *Salmonella* species account was done. The result of this study showed that treating water with fly ash reduced total dissolved solids, electrical conductivity, chlorine, magnesium and sodium. However, the pH of the water was increased from 7 to 9 and there was also an increase in the concentration of sulfate and nitrate, which affected water quality. The most important result was the complete elimination of *Salmonella* and the reduction in the number of *E. coli* to the lowest number at the end of experiment. In conclusion the finding of this study indicates that fly ash has potentiality in purification of water and improves its quality, but further research is needed.

Keywords: Fly ash, *Salmonella*, water purification

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