J. Int. Environmental Application & Science, Vol. 5 (1): 63-67 (2010)

Used Tea Waste Adsorption for Removal of Phenol from Synthetic and Kosovo Industrial Waste Water

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Received September 16, 2009; Accepted February 12, 2010

Abstract: Coal power plant in Kosovo possesses a risk to the environmental and thus the people since it emits toxic pollutants, especially phenol. Kosovo has a coal power plant which releases substantial amounts of phenol during the coal conversion processes that contaminates the natural water streams, and soil. Thus this work is focused on used black tea waste as an alternative absorbent in order to remove phenol from synthetic and industrial waste water. Certain amount of phenol content (0.004g/L, 0.008g/L, 0.012g/L and 0.016 g/L) in the sample solutions are prepared . Two types of black tea waste are used (black Turkish tea and Indian tea). We have washed the used tea waste with boiled water to remove soluble and colour components until it became colourless. The tea waste is then mixed with distilled water (at room temp.) afterwards dried in oven at 120 ^{o}C for 2 hours. We have mixed certain amount of phenol samples (0.004g/L, 0.008g/L, 0.012g/L and 0.016 g/L) in synthetic water with certain amount of used tea waste (2 g, 4 g, 6 g and 8g) and waited for specific of time (60 min) than we have analyzed the different filtrates obtained by a spectrophotometer and recorded the concentration of phenol in ppm. We have employed the same experiment with two used tea waste (Turkish and Indian) in different PH medium and in the presence of some metal ions (Pb and Zn). Used tea waste can be applied to remove phenol from synthetic and industrial waste water. This process has proved to be very economical as well as effective.

Keywords: *Adsorption, wastewater, black tea, phenol removal.*

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