

## **Formation of Trihalomethane (THM) with Humic Acid and Correlated to Distribution System**

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Disinfection of drinking water reduces pathogenic infection, but may pose risks to human health through the formation of disinfection by products. Chlorination remains as one of the simplest and cheapest disinfection methods used in water treatment. The main objectives of this research were Predict model to simple chlorine decay and  $\text{CHCl}_3$  formation, Assessment the distribution of the THMs concentrations in Greater Kandy Water distribution system in relation to water quality data. Series of reactions were performed between the different concentration of total organic carbon (TOC) in Sigma Aldrich Humic acid (SHA) and Chlorine dose. Water samples were taken from greater Kandy water supply scheme, Nugawela, Kulugamma, Kahalla, Kondadeniya and Asgiriya service reservoirs, to measure the Trihalomethane (THM) and other water quality parameters. Trihalomethanes were analyzed using Gas Chromatography, Finally simple model (contour map model) predicted for rate of chlorine decaying and THMs formation. The proposed contour map model was validated by using the data obtained from Mahaweli river filtered water chlorination to ensure the results. According to descriptive statistics and correlation statistics distribution THMs formation depends on various factors such as residual chlorine, pH, conductivity, TOC. However, there are no any significant relation with distance from Water treatment plant. Average level and highest levels of TTHMs in water supply schemes were not exceeding World Health Organization (WHO) 80 'AWL standard value.

Keywords: Trihalomethane, Humic acid, Disinfection, Chlorine decay, TOC

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