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THE CORRELATION OF TRIHALOMETHANES WITH OTHER DISINFECTIONS BY-PRODUCTS AND FRACTIONATION OF DISSOLVED ORGANIC CARBON IN DEZ RIVER WATER

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This work assesses the correlation between trihalomethanes (THM) and the formation potential (THMFP) of other disinfections by-products and the fractionation of natural organic matter in Dez River water in Iran. The THMFP of Dez River water was well correlated with the haloacetonitriles (R^2 = 0.796) and haloacetic acids (R^2 = 0.907) formation potential. The most abundant fraction of natural organic matter in the river was hydrophobic acid fraction (49.4 μg/L). The study demonstrated that however the THMFP of Dez River water was relatively high but a usual waterworks could effectively reduce THMFP.

Keywords: Dez River, dissolved organic carbon fractionation, THMFP, disinfections by-products.

Introduction

Chlorine is one of the most commonly used disinfectants in water treatment due to its easy operation, low cost and especially its high efficiency in killing microorganisms. However, chlorine also reacts with natural organic matter (NOM) and bromide/iodide/nitrite present in water, leading to the formation of trihalomethanes (THM), haloacetic acids (HAA), haloacetonitriles (HAN) and other harmful disinfection by-products (DBP) [1]. Some epidemiologic studies [2, 3] have indicated an association

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