



New Trends in Disinfection By-Products Formation upon Water Treatment

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Received date: 13 May 2014; Accepted date: 7 July 2014; Published date: 9 July 2015

Academic Editor: Miray Bekbolet

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Abstract

This review paper deals with the formation of disinfection by-products (DBPs). Water basin remains a wonderful chemical reactor that allows the occurrence of intricate secondary disinfection chemical reactions, forming several hundreds of DBPs at the same time with microorganisms killing. The kinetics of DBPs formation is tightly dependent on water physicochemical characteristics such as temperature, hydrophobic/hydrophilic fractions in natural organic matter (NOM), pH, and pretreatment. Reducing DBPs levels in drinking water is not a relevant measure as the newly-developed analytical techniques and the health-related research reveal that the tolerable DBPs' levels must be further decreased and would be detected at ng L⁻¹ instead of µg L⁻¹ scale. Furthermore, because of the fact that man is being exposed to DBPs concentrations in drinking water in his lifetime, there will be a cumulative effect of these toxic chemical products even at their more reduced concentrations. Hence, the removal of these chemical products is sought for and is considered a real challenge and the main objective of water treatment technology for mankind survival.

Keywords: Chlorination; Chloramination; Disinfection by-products (DBPs); Dissolved organic matter (DOM); Natural organic matter (NOM); Oxidation.

Cite this Article as: Ahmed Boucherit, Saâd Moulay, Djamel Ghernaout, Abdulaziz Ibraheem Al-Ghonamy, Badiaa Ghernaout, Mohamed Wahib Naceur, Nouredine Ait Messaoudene, Mohamed Aichouni, Ammar Abdallah Mahjoubi, Nouredine Ali Elboughdiri (2015), "New Trends in Disinfection By-Products Formation upon Water Treatment," Journal of Research & Developments in Chemistry, Vol. 2015 (2015), Article ID 628833, DOI: 10.5171/2015.628833