



## Analysis of Heavy Metals Concentrations in Water Samples Nearby Wadafia Dumpsite of Solid Waste in the Khartoum North, Sudan

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**Abstract:** This study was aimed to determine the heavy metals concentrations in water samples around an open landfill site in Khartoum North, Khartoum State, Sudan in the dry and rainy season. The concentrations of various metals like lead (Pb), cadmium (Cd), chromium (Cr), copper (Cu), nickel (Ni) and zinc (Zn) were analyzed employing a Flame Atomic Absorption Spectrophotometer (AAS) with proper digestion method. The heavy metals were within the range of acceptable limits set by Sudanese maximum value (2016), Canadian guideline values (2020) and WHO guideline value (2018) except, the concentrations of Cr in some water samples in the dry season which were above the recommended limits prescribed by Sudanese maximum value (2016) (0.03 mg l<sup>-1</sup>). The study findings indicated that the open dumpsite of solid waste could adversely affect the water quality in the study area and also the near residential district around and it could become a probable source of risk for human health and the environment in the future due to the expected problems of water pollution.

**Keywords:** Heavy metal, Landfill, Residential area, Water quality, Pollution, Environment, Sudan

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