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Mercury and Methyl Mercury in Sediments of Northern Lakes-Egypt

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ABSTRACT

Fifty-four sediment samples of the five Northern Egyptian lakes, (Mariout, Edku, El-Burullus, El-Manzallah, and El-Bardaweel) were analyzed to investigate the pollution status of mercury (Hg). The total mercury (T-Hg) content in sediment samples ranged from 15.33 to 171.29 $\text{ng} \cdot \text{g}^{-1}$ dry wt). The results showed that T-Hg were lower than the back ground values reported and also lower than the ranges of uncontaminated sediments. Moreover, the T-Hg concentrations in all sediments were under the upper chemical Exceedance level ($1 \mu\text{g} \cdot \text{g}^{-1}$). The concentrations of Methyl mercury (MeHg) in surface sediments of the Northern lakes ranged from 0.002 - 0.023 $\text{ng} \cdot \text{g}^{-1}$ dry wt. The contribution of MeHg was less than 0.1% of total mercury concentration with index values from 0.08 - 1.37 $\text{ng} \cdot \text{g}^{-1}$; dry wt). MeHg showed insignificant correlation with T-Hg. This suggested that MeHg contents were not controlled by the T-Hg in sediments. The T-Hg and MeHg concentrations were insignificantly correlated with TOC content which indicates that the concentration of T-Hg and MeHg in sediments of Northern lakes were not influence by TOC. The average T-Hg concentration was found in the following order; Mariout > El-Manzallah > El-Burullus > Edku > El-Bardaweel. While the MeHg was found in the order; El-Bardaweel > El-Burullus \geq El-Manzallah > Mariout > Edku.

KEYWORDS

Mercury; Methyl mercury; Northern Lakes; Egypt

Cite this paper

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