

## **SEDIMENTARY GEOCHEMISTRY OF KABAR TAL WETLAND, BEGUSARAI, BIHAR, INDIA**

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### **Abstract**

Wetlands are one of the most productive ecosystems and play a significant role in the ecological balance. The Kabar Tal (86° 05' E to 86° 09' E, 25°30' N to 25° 32') wetland is the largest freshwater lake in Northern Bihar. Owing to anthropogenic pressures the sediment and water quality of Kabar Tal has been adversely affected. In order to study the distribution of trace metals, twenty five (25) surface sediments were analysed. The average concentration of trace metal in sediments followed the trend Fe>Mn>Pb>Ni>Co>Cu>Cd. For assessing the degree of pollution in Kabar Tal sediments concentration factor (CF), enrichment factor (EF), geo-accumulation index ( $I_{geo}$ ) and pollution load index (PLI) were calculated. These indexes indicate that Kabar Tal is extremely contaminated with respect to Cd. The PLI value indicates that the lake is polluted. In addition, the sequential extraction of sedimentary phosphorus was performed for different fractions of Phosphorus as Non-Apatite Inorganic Phosphorus (NAIP), Apatite Phosphorus (AP), Inorganic Phosphorus (IP) and Organic Phosphorus (OP) representing the different pools in the Kabar Tal sediments. The fractions of phosphorus in the sediment samples were found quite low as NAIP  $72 \pm 108.05$  mg/Kg, AP  $19.94 \pm 16.805$  mg/Kg, IP  $25.56 \pm 23.23$  mg/Kg and OP  $40.86 \pm 47.66$  mg/Kg. The results reflect spatial variability and followed the order NAIP>OP>IP>AP. NAIP was the dominant fraction in Kabar Tal and bioavailable pool for the uptake by aquatic flora.

*Keywords:* Sediments, Wetlands, Trace metals, Phosphorus, Fractionation.