

عنوان مقاله:

Biomonitoring of heavy metal signatures in urbanized contaminated ecosystems of Southern India: A case study using raptor, *Athene brama*

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خلاصه مقاله:

Background: Heavy metals remain tenacious in the environment which further leads to emerging bioaccumulation, rising through the food chain. Birds are great environmental sentinels that can spot even the smallest changes. The aim of this study was to determine the quantity of heavy metals, specifically Ni, copper (Cu), aluminum (Al), titanium (Ti), and Se, in the feathers, liver, kidney, muscle, and bones of spotted owlets (*Athene brama*), which were opportunistically collected from a variety of contaminated ecosystems in the urbanized landscapes of Visakhapatnam on India's East Coast. Methods: Opportunistic sample collection was done followed by necropsy. Following standard protocols, organic samples were digested by adding ۱۰ mL HNO₃, ۵ mL of HClO₄, and ۲ mL of H₂O₂ to eliminate the excess organic matter. Results: Based on the GIS data, raptors were shown to occur in production landscapes and mostly in urban spaces, and currently, are under several anthropogenic threats. The findings showed that the sequence of heavy metal concentrations was Ti > Al > Cu > Ni > Se, but the tissues of birds in which metals accumulated are in the following order: liver > kidney > bones > muscle. The tissues of *A. brama* showed the signs of significant concentrations of Ti and Al. The results obtained were analyzed using Kruskal-Wallis non-parametric test. Conclusion: Heavy metal studies on various matrices of the environment have been performed over time with certain metals either neglected or not being documented properly. The main finding of this study is the first report of Ti and Al .in bird species from India as there is a lacuna in this context

کلمات کلیدی:

Bio-accumulation, Feathers, Titanium, Birds, Ecosystem

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