

Relationship between Pb and Cd accumulations in house crow, their habitat, and food content from Klang area, Peninsular Malaysia

ABSTRACT

Heavy metal pollution has become a global concern due to accumulation in tissue and transferable effects to humans via the food chain. This study focused on monitoring the accumulation of cadmium (Cd) and lead (Pb) in surface soil and body content: bone, heart, brain, liver, lung, muscle, kidney, feathers, feces, and gizzard contents of house crow *Corvus splendens* in the Klang region, Malaysia. The results revealed the occurrence of Pb and Cd in all biological samples from house crows, food contents, and surface soil samples. Heart and kidney accrued high amounts of Cd, while high amounts of Pb were found to accumulate in bones and feathers. Major discrepancies were also discovered in the concentrations of metals between juvenile and adults, as well as female and male bird samples. Concentrations of Pb and Cd in house crow internal tissues correlated significantly with that of bird feathers, but none could be established with that of surface soil. In addition, a significant correlation was observed between Pb concentration in the internal tissues to that of the feces, but the same was not the case when compared with the surface soil concentration. Metal accrual in the house crows feathers and feces may be through a long-term transmission via the food chain, which are eliminated from feathers via molting. This may suggest the utility of molted breast feathers of house crow in the bio-monitoring of Cd and Pb contamination, whereas feces of house crow appear only to be suitable for the bio-monitoring of Pb contamination.

Keyword: Cadmium; Lead house crow; Feathers; Feces; Bio-indicator