Assessment of Hg in Grey heron (*Ardea cinerea*) and Oriental Darter (*Anhinga melanogaster)* Foraging in Mahakanadarawa Tank Ecosystem Anuradhapura

Jayathilake C.[1] ✉, Jayaratne R.[1] ✉

Abstract

Heavy metals accumulate through food chains and bio magnification occurs in higher trophic levels and this in turn leads to more pronounced pathological symptoms in these animals including humans. So, continues monitoring of these heavy metal levels are quiet imperative. In monitoring the heavy metal levels, in addition to the direct analysis of soil and water, birds have been considered effective bio markers and using their feathers a non-destructive sampling method of assessing levels of environmental pollutants in many studies. Mahakanadarawa tank is surrounded by agricultural land and is heavily utilized for agricultural practices. The tank ecosystem serves as a nesting area for many species of aquatic birds. During their breeding season, nestlings depend on foods which are brought by adults from the tank ecosystem itself. Therefore, these fledglings are representing spatial and temporal heavy metal levels of the Mahakanadarawa tank ecosystem. In this study the main objective was to analyze the heavy metal levels in the dead nestlings of Grey heron (*Ardea cinerea*) who are nesting in Mahakanadarawa tank ecosystem and adults of Oriental darter (*Anhinga melanogaster)* who had been caught in fishing gear. As a preliminary survey conducted in May to July 2020, flight feathers of *Anhinga melanogaster* (n=5) and *Ardea cinerea* (n=4) were collected from dead specimens and analyzed by using ICPMS (PerkinElmer nexION 2000-B) in the Chemistry Laboratory, Faculty of Applied Sciences Rajarata University. Analytical reagent blanks and spikes were used as controls. Mercury was detected in feather samples of *Anhinga melanogaster* (0.01±0.009 ppm) and *Ardea cinerea* (0.06±0.03 ppm). Since the values of this study were well below the threshold level, the course of death of these nestlings may be due to any other reason. Although, there was no such detections in the present study, the continuous monitoring of mercury concentration is essential in Mahakanadarawa ecosystem.

Keywords: *Mercury, bird feathers, Mahakanadarawa*

[1]Faculty of Applied Sciences, Rajarata University of Sri Lanka, Sri Lanka
✉Corresponding author: chamijayathilake1@gmail.com, ravindrajayaratne@yahoo.com