EFFECTS OF SODIUM FLUORIDE TOXICITY ON BLOOD PARAMETERS AND CATALASE ACTIVITY OF THE INDIAN FRESH WATERLARVICIDAL FISH *CHANNA STRAITUS*

Arun Chauhan,[a]Harpreet Singh,[a]Rahul Singh[a,b]
Phagwara, Punjab, India

SUMMARY: Due to its high reactivity, fluorine does not occur in its elemental state in nature. Fluoride ions are directly toxic to aquatic life and accumulate in the tissues when absorption rates exceed excretion rates. Toxicity increases with increased duration of exposure. WHO recommends that the maximum fluoride content in drinking water should not exceed 1.5 ppm and while the Indian standard specifications for drinking water (IS: 10500) permits this level in the absence of an alternative source, it gives the desirable limit as 1.0 ppm noting that high fluoride may cause fluorosis and that the level may be kept as low as possible. After the snakehead fish (*Channastraitus*), a larvivorous and edible fish species of India and South East Asia, was exposed of NaF (60ppm) for 20–40 days, significant decreases were found, compared to the controls, in the body weight (6.48–8.80%) and the organosomatic index of liver (8.1–16.66%) and brain (4.3–16%). Decreases also occurred in neutrophils (1.13–2.68%) and monocytes (0.66–35.66%) while increases were seen in lymphocytes (2.90–10.01%) and eosinophils (7.60–20.88%). Hemoglobin decreased (4.87–12.30%). Catalase activity increased in liver (8.11–8.90%), possibly due to increased oxidative stress, and decreased in brain (0.03–9.23%).

Keywords: Catalase; *Channastraitus*; Fluoride; Hemoglobin; Leucocytes; Organosomatic index; Snakehead fish.

[a]Department Of Zoology, School Of Biotechnology and Biosciences, Lovely Professional University, Phagwara, Punjab- 144411, India. [b]For correspondence: Rahul Singh; E-mail: rahulsingh.mlkzoology@gmail.com