

Assessment of Heavy Metal Deposition and Distribution Pattern of Tubificid Worm *Limnodrilus cervix* in a Freshwater Pond in Jammu Region: A One-Year Study

Waqas Ahmed¹ and Ravail Singh²

¹CSIR-Indian Institute of Integrative Medicine Jammu- 180001, India

²Academy of Scientific and Innovative Research (AcSIR), Jammu- 180001, India

Abstract—Tubificid worms are important organisms for vertical mixing of aquatic sediments, and they are used as a water quality indicator because of their ability to tolerate low oxygen conditions and heavy metal pollution. The study findings may help in understanding the impact of heavy metal pollution on the aquatic ecosystem and the importance of these worms in maintaining the health of aquatic systems.

The study focused on the distribution pattern of the tubificid worm *Limnodrilus cervix* in a freshwater pond in the Jammu region for one year from October 2020 to September 2021. The study found that the average density of the worms was highest for the months of March and April (100-120 worms/200 cm² area) and the lowest was recorded for the month of July (around 40 worms/200 cm²). The study also investigated the heavy metal deposition in the sediment on a monthly basis for one year. The results showed that lead (Pb) (average 10 mg/kg monthly) was present predominantly throughout the year followed by arsenic (average 5.30 mg/kg monthly). As heavy metals are considered toxic to the aquatic body, the study aimed to assess their impact on the morphology and distribution pattern of the tubificid worms. The presence of heavy metals in the sediment is known to have a negative impact on the health of aquatic organisms, including tubificid worms. These worms are known to tolerate low oxygen conditions and heavy metal pollution, and their density can serve as an indicator of water quality. Thus, the study suggests that the concentration of heavy metals in the sediment may affect the density and distribution of the tubificid worm *Limnodrilus cervix*, which in turn can impact the overall health of the aquatic ecosystem.

Keywords: *Limnodrilus cervix*, Freshwater, Pond, Metal, Density, Year.