

EFFECT OF BISPHENOL A ON GROWTH-RELATED OUTCOMES AND SURVIVAL OF EARLY LIFE STAGES OF *POLYPEDATES CRUCIGER*

R.M.H.N. Rajapaksha¹, P. Dissanayaka² and R.P.G.K. Rajapaksha^{1*}

¹Department of Zoology and Environmental Management, University of Kelaniya, Kelaniya, Sri Lanka

²Department of Statistics and Computer Sciences, University of Kelaniya, Kelaniya, Sri Lanka

*gayani@kln.ac.lk

Bisphenol A is a widely used chemical in the plastic industry worldwide. Urban water sources are frequently polluted by bisphenol A leaching from plastic waste and industrial effluents, hence threatening aquatic species. Bisphenol A is an endocrine disruptor that perturbs natural hormone signalling pathways affecting living organisms' growth, development, and physiology. This study assessed the impact of long-term exposure to Bisphenol A on the early life stages of *Polypedates cruciger* (Common hourglass tree frog). Twenty tadpoles of Gosner stage 26 – 27 were assigned to triplicate tanks treated with environmentally relevant concentrations of bisphenol A (1, 10, 100 µg/l) and treatment control (1% v/v ethanol) for 80 days. The total body length, tail length, and body weight of tadpoles were observed weekly. The survival rate, tail length ratio and increments in body weight and length were calculated at the end of the treatment. The total body length of tadpoles increased with increasing concentrations of bisphenol A. Total body lengths of tadpoles in all bisphenol A treatments were significantly higher than those in control ($p < 0.05$). The mean tail length ratio gradually increased with increasing concentrations of bisphenol A. Tail length ratio of those in control and 1 µg/l bisphenol A was significantly lower than those exposed to higher exposures ($p < 0.05$). Body weight increment was not significantly different between treatment and controls ($p > 0.05$). About 90% of all tadpoles survived in treatments and control, with no significant differences in survival between treatments and control ($p > 0.05$). Accordingly, it can be concluded that environmentally relevant concentrations of bisphenol A do not affect survival but has significant negative impacts on growth-related parameters in *Polypedates cruciger*.

Keywords: Amphibians, Bisphenol A, Growth, *Polypedates cruciger*, Survival