



Impacts of *Boana curupi* tadpoles (Anura: Hylidae) exposure to environmental doses of trichlorfon and ultraviolet radiation

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The biodiversity collapse strongly affects the amphibian group, and many factors are pointed out as catalytic agents. It is estimated that the global amphibian decline may be caused by the interaction of multiple drivers. Thus, this study aimed to evaluate the stressful effects in tadpoles of the *Boana curupi* species (Anura: Hylidae) exposed to an environmental dose of trichlorfon (TCF) pesticide (0.5 µg/L and an additional 100-fold concentration of 50 µg/L) and to ultraviolet radiation (UVR) (184.0 kJ/m² of UVA and 3.4 kJ/m² of UVB, which correspond to 5% of the daily dose). The isolated and combined exposures occurred under controlled conditions during acute treatment of 24 hours. In the combined treatments, we adopted three different moments of tadpole irradiation from the beginning of the acute exposure to TCF (0h – *moment 1*, 12h – *moment 2*, and 24h – *moment 3*). We evaluated tadpole survival, change in morphological characters, induction of apoptotic cells, lipid peroxidation (LPO), protein carbonyl content (PCC), glutathione S-transferase (GST), non-protein thiols (NPSH), and acetylcholinesterase (AChE), as well as the induction of genomic DNA (gDNA) damage. UVB alone results in high mortality, as well as a high level of apoptosis induction. Both UVA, UVB, and TCF increase LPO, PC, and AChE, and also decrease GST activity. Regarding co-exposure, the most notable effect was observed in the interaction between UVB and TCF, which surprisingly decreased UVB-induced tadpole mortality, apoptosis, and gDNA damage. These results reinforce the *B. curupi* sensitivity mainly to UVB radiation and indicated a complex response in face of the interaction with TCF, which may be related to activation of DNA repair pathways and/or inhibition of apoptosis decreasing UVB-induced tadpole mortality.

Key-words: amphibian decline, sublethal doses, organophosphates, DNA damage.

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