THE SILENT GRIM REAPER: ACUTE EXPOSURE TO 3,4-DCA RESULTS IN ELEVATED MORTALITY IN ANNUAL FISH *Nothobranchius furzeri* EMBRYOS EVEN AFTER THE EXPOSURE PERIOD

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INTRODUCTION: The environmental contaminant 3,4-dichloroaniline (3,4-DCA) is used as an intermediate in herbicide Diuron, one of the most widely used herbicides in sugarcane crops in Brazil. *N. furzeri* is an annual killifish with desiccation-resistant embryos that has emerged as a novel model to study the harmful effects caused by chemical substances on fish. Unraveling its responses can provide insights into how endangered annual killifishes are affected by similar threats. **OBJECTIVE:** This study investigates the effects of aquatic exposure to different concentrations of 3,4-DCA on the survival of *N. furzeri* embryos, as well as how its impacts persists when the embryos are dried following the exposure period, a common trait of the annual killifishes life-history. **MATERIALS AND METHODS:** The embryos were placed in different 24-well plates (2 mL per well) and exposed to 1, 2, 4, and 8 mg/L of 3,4-DCA, along with a control group, in a semi-static system with complete medium renewal every 96 hours for a total of 8 days in reconstituted water. During the experiment, the embryos were maintained under a controlled temperature (27ºC) and photoperiod (12h:12h). After the exposure period, embryos were transferred to a dry substrate for 14 days, allowing them to complete development. Animal's survival was daily monitored under a stereomicroscope. **RESULTS AND CONCLUSION:** Survival analysis indicates that the exposed groups exhibited higher mortality rates compared to the control group (1 mg/L, 9 fold increase; 2 mg/L, 6 fold increase; 4 mg/L, 9 fold increase; 8 mg/L, 5.5 fold increase; $p < 0,01$). Specifically, the 8 mg/L animals showed a higher mortality compared to the other groups during the exposure period. In contrast, during the post-exposure period, embryos exposed to 1 mg/L, 2 mg/L and 4 mg/L showed a significant increase in mortality rate compared to the 8 mg/L group, which remained stable ($p < 0,01$), indicating that during the exposure period, the damage caused affects essential protective processes, making the animal more susceptible to dessication. In conclusion, exposure to 3,4-DCA may impair the physiological resilience processes in *N. furzeri* embryos, compromising their survival in fluctuating environments.

KEYWORDS: Dessication resistance; aquatic toxicity; endangered species.

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