THE EFFECTS OF THE COMPOUND 3,4-DICHLOROANILINE ON THE EMBRYONIC DEVELOPMENT OF THE ANNUAL FISH *Nothobranchius furzeri*

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INTRODUCTION: 3,4-dichloroaniline (3,4-DCA) is a degradation product of the herbicide Diuron known for its toxicity to aquatic organisms. Annual fish species inhabit ephemeral pools that dry out seasonally. While the adult fish die when the pools dry up, their drought-resistant embryos remain viable, enabling the population to persist through unfavorable conditions. These animals have been stablished in Brazil as model species. Key developmental events like pigmentation and presence of golden iris serve as phenotypic markers for tracking their development. These markers can be used as tools to track the impact of contaminants on embryogenesis. **OBJECTIVE:** This study investigates the effects of different concentrations 3,4-DCA on embryonic development in *Nothobranchius furzeri,* highlighting impairments in key developmental processes such as iris and body pigmentation (IP and BP) and the presence of a golden iris. **MATERIALS AND METHODS:** To evaluate the effects of 3,4-DCA, embryos at the somitogenesis stage were exposed to concentrations of 1, 2, 4, and 8mg/L in 24-well plates, with a control group. The medium was renewed every 96h, and embryos were monitored daily for eight days under a stereomicroscope. Animals were kept in an incubator at 27°C with a 12h:12h photoperiod. After the exposure period, surviving embryos were transferred to a dry substrate, where their progress was further assessed for 14 days. **RESULTS AND CONCLUSION:** During the exposure period, all embryos reached the IP/BP stage. Most embryos exposed to 3,4-DCA developed IP and BP earlier than the control group. On day four, 100% of embryos in the control, 1mg/L, 4mg/L, and 8mg/L exposure groups reached this stage, except for the 2mg/L group, which did so on the fifth day ($p<0.01$). After 14 days on the dry substrate, only the control animals developed fully golden eyes, while exposed embryos failed to reach this phenotype. This suggests that even low 3,4-DCA concentrations may impair development, preventing hatching and potentially causing population decline. It is hypothesized that desiccation stress combined with contaminant-induced damage compromised embryo viability, contrasting with the successful development observed during exposure period on water.

KEYWORDS: Annual fish; Embryotoxicity; Somitogenesis.

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