

INTRODUCTION: *Azadirachta indica* (neem) originates from Indian, have been exploited by traditional medicine for millennia. Researches addresses the pharmacological *A. indica*, indicate neuroprotective and antioxidant effects. Neem infusion consumption is recorded as part of ethnopharmacology and is considered an excellent source of essential trace elements such as iron, copper, zinc, and selenium. In the agricultural sector, neem has been used for pest control through the anti-feeding mechanism and the ability to inhibit insect growth and development. In veterinary medicine, neem is used for formulating various pet sector products, such as repellents and treatments against fleas, ticks and protozoan diseases, cosmetics, and dietary supplements. **OBJECTIVE:**

Evaluate the toxicity and behavioral effects of *A. indica* in early stages of zebrafish

METHODOLOGY: Neem infusion was prepared according to the manufacturer's recommendations (10 g/L) and diluted in E3 media at concentrations of 75%, 50%, 25%, 15%, 10%, 5%, and 1%. Zebrafish embryos at 6 hours post-fertilization were exposed to the solutions and monitored for 96 hours post-exposure and were evaluated mortality and hatching rates and malformations occurrence. **RESULTS:** A positive correlation was observed between the increase in neem infusion different concentrations and embryo mortality rate, with the determination of the median lethal concentration (LC50) at 2.682 g/L. Significant anatomical malformations were identified at higher concentrations (≥ 1.5 g/L), including pericardial edema, scoliosis, notochord alterations, indicating significant embryonic toxicity. These malformations may be related to the presence of limonoids and metallic trace elements known to induce oxidative stress in aquatic organisms.

CONCLUSION: Neem infusion demonstrated high toxicity in the early stages of stage of zebrafish, with significant lethal and sublethal effects even at moderate concentrations. These results highlight the need for additional studies on the safe use of neem, considering the potential risks to non-target species and possible environmental impacts.

Keywords: Animal development; toxicology; animal behavior.