Neurobehavioral assessment of *Danio rerio* intoxicated by Mercury and the use of *Mercurius solubilis*

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Background: Mercury is used in various industrial. Part of Mercury's industrial waste is discharged into the environment, rivers and their tributaries, thus contaminating aquatic animals. **Aim:** to evaluate Mercury-induced behavioral changes in Zebrafish (Danio rerio) by the analysis of locomotor activity and parameters related to neurotoxicity and to verify whether ultra-diluted substances can decrease neurobehavioral effects and toxic. **Methodology:** The fishes were separated into 4 monitoring aquariums with 8 fishes each, with temperature, pH controlled, until the time of the toxicological experiments. 0.5 mL of Mercury 6cH, 30cH and distilled water (positive control) were added per liter of water in each aquarium containing 6 liters of water, then 3 mL of medication per aquarium, the white control received no medication and the toxic agent. After 1 hour the drugs were added, toxic mercury (200 μg/L), 4 mL per aquarium was added and remained so for 24 hours. All the experiment was run in blind, and the drugs identified by codes. The animals were subjected to behavioral tests (Open Field-locomotion; Vertical Open Field for neurotoxicity evaluation and Light and Dark Test), and each stage was recorded for later evaluation of movements and neurobehavioral changes. ANOVA was performed, followed by Tukey test, with $p < 0.05$. **Results**: Mercury produced an anxiogenic effect in animals that were submitted to it without medication. In the vertical open field, there was an increase in erratic movements (1.25 ± 1.0) and tremors (0.87 ± 0.35) compared to the control (0.12 ± 0.35 and 0.25 ± 0.46 respectively), proving the toxic effect. Fishes which received the medication at 6 cH and 30 ch showed tremors and erratic movements similar to control. **Conclusion:** 200 μg/L mercury in water can cause neurobehavioral disturbances in fishes, and animals receiving *Mercurius* 6 cH and 30 cH ultra-diluted drug did not show neurotoxicity.

Keywords: Ultra-diluted Drug. Danio rerio. Mercury. Open field.

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