EFFECTS OF DEPLETION OF SEROTONIN USING PARA-CHLOROPHENYLALANINE (PCPA) ON ANXIETY- AND DEPRESSIVE-LIKE BEHAVIORS IN ADULT ZEBRAFISH (*DANIO RERIO*)

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INTRODUCTION: Serotonin (5-HT) is an essential neurotransmitter involved in mood regulation, and its dysfunction is associated with various psychiatric disorders. Animal models that simulate 5-HT depletion are important tools for investigating the neurobehavioral effects of substances that affect this system. In this context, the zebrafish (*Danio rerio*) has emerged as a promising tool in neurobehavioral research due to its physiological and behavioral responses to serotonergic modulation and its high degree of homology with systems present in mammals. OBJECTIVE: To evaluate the effects of serotonin depletion induced by para-chlorophenylalanine (pCPA) on anxiety- and depression-like behaviors in adult zebrafish. METHODOLOGY: Adult zebrafish of both sexes were weighed, acclimated, and individually housed in tanks. The experimental protocol consisted of two intraperitoneal administrations of pCPA (300 mg/kg), with a 24-hour interval. Twenty-four hours after the last dose, the animals underwent a battery of behavioral tests: novel tank test (NTT), tail immobilization test (ZTI), social preference test (SPT), and shallow water test (SWT). Subsequently, brains were collected for biochemical analyses. RESULTS AND CONCLUSION: Results showed that zebrafish in the tail immobilization test exhibited reduced mobility, indicating a depressive-like response. In the novel tank test, pCPA-treated fish displayed increased geotaxis, with reduced vertical exploration. In the social preference test, they showed anxiety-like behavior by remaining close to conspecifics. In the shallow water test, pCPA induced lower exploration and higher immobility. Serotonin level measurements confirmed

depletion. These results emphasize the importance of zebrafish in experimental toxicology as a sensitive and efficient model to assess neurobehavioral alterations induced by chemical exposure, supporting its application in screening and evaluating the neurotoxic potential of substances that disrupt neurotransmitter systems.

Serotonergic system; Behavioral toxicology; Mood disorders.