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BOOK OF ABSTRACTS



ENCONTRO DE
BIOTECNOLOGIA
MEDICINAL

18 DE MAIO DE 2018
ESCOLA SUPERIOR DE SAÚDE
POLITÉCNICO DO PORTO



IBERIAN CONGRESS ON
MEDICINAL
BIOTECHNOLOGY

MAY 18TH, 2018
SCHOOL OF HEALTH
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ISBN: 978-989-20-8533-3

Effects of embryonic exposure to venlafaxine on a zebrafish model

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Introduction: Major depressive disorder affects over 350 million people around the world, and might result from a complex interaction of epigenetic, genetic, environmental and developmental factors. Antidepressants are a class of neuroactive compounds that are used mostly in the treatment of clinically severe mood and anxiety disorders, and can be divided into three major classes: tricyclic antidepressants, monoamine oxidase inhibitors and selective serotonin reuptake inhibitors. The boost on antidepressants' prescription and consumption is related to an increase in the prevalence of psychiatric disorders and knowledge of mental health problems. These are considered emerging pollutants due to their omnipresence at trace levels in the environment. Nonetheless, the lack of knowledge concerning their impact on the environment, and consequently on aquatic species, highlights this topic as a pivotal concern. Even in low concentrations, antidepressants may cause several effects on the aquatic environment as a result of disturbing homeostasis throughout the central and peripheral nervous systems, both in vertebrates and invertebrates, and by modifying the regulation of neurotransmitters such as serotonin, norepinephrine and dopamine. Zebrafish (*Danio rerio*), an aquatic vertebrate species, is one of the most important model organisms in developmental biology, considered extremely valuable for the study of translational neuroscience of complex human brain disorders, being particularly useful for studying genetic and pharmacological mechanisms of depression and antidepressant action.

Material and methods: In the present study we will be using a developmental zebrafish model with the purpose of evaluating the impact of venlafaxine in zebrafish embryos. Morphological and motor abnormalities, as well as oxidative stress will be evaluated in the most important key points of development.

Conclusion: Since zebrafish embryos are sensitive to venlafaxine it is important to study its impact on the organisms' development. Additionally, this study could bring insight to potential impacts on human development.

Keywords: Depression, Venlafaxine, Emerging Pollutants, Zebrafish