Military Medical Science Letters
Since 1925

Mil. Med. Sci. Lett. (Voj. Zdrav. Listy) 2022, 91 (supplementum 1)
ISSN 0372-7025 (Print)
ISSN 2571-113X (Online)

MEETING ABSTRACTS

EFFECT OF PHARMACEUTICALY DRUGS METOPROLOL, ENALAPRIL AND METFORMIN ON EARLY LIFE STAGES OF ZEBRAFISH (*DANIO RERIO*)

Denisa Medkova [1,2,3], Pavla Lakdawala [1], Aneta Hollerova [1,4], Jana Blahova [1], Eva Postulkova [3], Jan Mares [3], Zdenka Svobodova [1]
Presenting author: Denisa Medkova (H19004@vfu.cz)

[1] Department of Animal Protection and Welfare & Veterinary Public Health, Faculty of Veterinary Hygiene and Ecology, University of Veterinary Sciences Brno, Palackého tř. 1946/1, 612 42 Brno, The Czech Republic
[2] Department of Animal Breeding, Animal Nutrition and Biochemistry, Faculty of Veterinary Hygiene and Ecology, University of Veterinary Sciences Brno, Palackého tř. 1946/1, 612 42 Brno, The Czech Republic
[3] Department of Zoology, Fisheries, Hydrobiology and Apiculture, Faculty of Agrisciences, Mendel University in Brno, Zemědělská 1665/1, 613 00 Brno, The Czech Republic
[4] Department of Infectious Diseases & Preventive Medicine, Veterinary Research Institute, Hudcova 296/70, 621 00 Brno, The Czech Republic

The level of contamination of the aquatic environment with residues of drugs as metoprolol, enalapril and metformin is constantly increasing. One of the reasons is the increasing prescribes and uses of these drugs, second is imperfect purification in wastewater treatment plants. Since the pharmaceuticals are entering water bodies continuously, they represent a potential risk for non-target aquatic biota. In our study, the toxicity of metformin, metoprolol and enalapril on zebrafish (*Danio rerio*) embryos in five different concentrations was tested. The acute toxicity test was performed according to OECD Guideline No. 236: Fish Embryo Acute Toxicity Test. The aim of this experiment was to study toxic effects of typical drugs used for treatment of diseases of affluence as diabetes, cardiovascular diseases and hypertension on fish early life stages. Metformin is the most common drug used to treat type II. diabetes, metoprolol and enalapril are used to treat diseases of the cardiovascular system and hypertension. The results showed that the tested substances had a negative effect on hatching of embryos at all tested concentrations and also they have influenced mortality and heartbeat.

This research was supported by project IGA VETUNI Brno 213/2022/FVHE and PROFISH [no. CZ.02.1.01/0.0/0.0/16¬_019/0000869].

Keywords: zebrafish; toxicity tests; development; mortality