Pre meeting Courses

ISTA 18

SHORT COURSE (2)

Short course - The use of zebrafish embryos in ecotoxicology

Local: FACULDADE DE TECNOLOGIA DE LIMEIRA (UNICAMP)

Date: 15th July 2017

Period: 08h-18h (8 hours)

Number of participants: 50

Registration fee: R$ 80,00 per participant.

Description:

Worldwide, academy, research centres, industries and governmental agencies are performing fish embryos assays to evaluate the ecotoxicity of isolated chemicals or complex mixtures, such as environmental samples. Featuring a number of advantages, zebrafish embryos are gaining space with new standardized international protocols [1]. Noteworthy are also numerous advanced methodologies that allow the use of various types of experimental approaches ranging from phenotypic observations, functional gene tests, among others. Furthermore, in accordance with international standards of animal welfare, fish embryos provide a test system on a small scale, ethically acceptable to the complexity needed to replace an adult organism altogether. The short course "The use of zebrafish embryos in ecotoxicology" was held for the first time in 2012 during the XII Brazilian Congress of Ecotoxicology (ECOTOX 2012) with a second and a third editions during the ECOTOX 2014 and 2016, respectively. The main aim of the course is to promote zebrafish embryos as a potential alternative to ecotoxicological assays using adult animals [2]. For the 17th International Symposium on Toxicity Assessment (ISTA17) the course will focus on: the use of fish in ecotoxicology; ethical issues related to the use of animals and fish embryos in science; zebrafish maintenance, reproduction and nutrition; standardized protocols of Fish Embryo Test (FET); case-studies and applications of FET.

Topics:

(1) Ethics in the use of animals in science; (2) Use of fish in ecotoxicology; (3) Zebrafish maintenance systems, (4) The ZFET Test OECD no 236, (5) Case studies; (6) Future perspectives and new applications.

Speakers:

PhD. Paula S. Rocha, MSc Geosciences and Environment (UNESP, Rio Claro, SP, Brazil), PhD Natural Sciences/Ecotoxicology (Univ. Heidelberg, Germany). Post doc researcher at UNESP, Rio Claro - SP, Brazil). Coordinator of the Laboratory of Ecotoxicology (LAECO) at PLANTEC Laboratories, Iracemápolis, SP, Brazil. Interests: aquatic ecotoxicology (biomarkers, cell lines, zebrafish embryos, fresh water sediments, industrial effluents).

PhD. Rhaul Oliveira, MSc Toxicology/Ecotoxicology (Univ. Aveiro, Portugal), PhD Applied Biology (Univ. Aveiro - Portugal and Asian Inst. Technology - Thailand). Prof. Researcher at the Univ. Brasilia - UNB, Brazil. Interests: ecotoxicity assessment of psychiatric pharmaceuticals using zebrafish model organisms.

PhD. Thayres S. Andrade, Environmental Engineering (Univ. Federal do Tocantins- UFT, Brazil). PhD in Applied Biology, at the Univ. Aveiro, Portugal. Interests: zebrafish embryos, pesticides, behaviour, biomarkers.

Program (8 hours)

08:00 – 08:30: Opening session and introduction to the short course

08:30 - 09:15: The use of animal sciences and the zebrafish embryos as an alternative method in toxicology and ecotoxicology

09:15 - 10:15: Zebrafish – protocols for chronic and acute testing of chemical substances and environmental samples: an overview

Coffee Break

10:30 - 11:00: Breaking through the Fish Embryo Acute Toxicity (FET): principles, validation criteria and endpoints.

11:00 - 12:00: Case of study I and II

Lunch break

14:00 - 15:00: Standards for zebrafish maintenance, recirculating systems and water quality.

15:00 - 15:30: Zebrafish nutrition, reproduction and embryos collection

Coffee Break

15:30 - 16:30: The use of Zebrafish embryos in ecotoxicology: going beyond the OCED protocol.

16:30 - 17:30: Case of study III and IV

18:00 - Wrap up, recommendations, open points and evaluation

References:

1. OECD: Test No. 236: **Fish Embryo Acute Toxicity (FET)** Test. OECD Guidel Test Chem Sect 2, OECD Publ 2013(July):1–22.
2. Lammer E, Carr GJ, Wendler K, Rawlings JM, Belanger SE, Braunbeck T: **Is the fish embryo toxicity test (FET) with the zebrafish (Danio rerio) a potential alternative for the fish acute toxicity test?** Comp Biochem Physiol C