UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Bioactivity in Biological Models

2627-1-F0602Q110-F0602Q11003

Aims

Knowledge and understanding
This teaching module, which is the last module of the "One Health Laboratory: from the environment to health" aims to evaluate the effect of the plant extracts obtained in the "Approaches for the study of natural bioactive molecules" laboratory. The goal is to test their bioacitivities, such as antioxidant and hypolipidemic properties in specific cellular systems. The student will acquire the skills to evaluate if the purified extracts/molecules represent resources for disease prevention and if they can be considered bioactive molecules to be used in the nutraceutical and food context.
Capacity
Thanks to the attendance of the laboratory, the student will learn to know and use the instruments present in a cellular biology laboratory and to perform various functional assays, including biochemical assays, cell viability and cell death experiments.
Autonomy of judgment
Develop the skills to verify the effect of the bioactive molecules present in the extracts for their potential use in the nutraceutical, cosmetic and pharmaceutical sectors.
Communication skills
This teaching module aims to provide to the student the ability to clearly and correctly describe the topics covered during the course, using an appropriate technical language, clarity and synthesis skills.

Contents

This module of the “One Health Laboratory: from Environment to Health” focuses on the study of the effects of natural extracts as antioxidants and modulators of cellular metabolism, within the context of both disease prevention and the promotion of well-being.

Detailed program

This third part of the course “One Health Laboratory: from Environment to Health” will guide students in understanding the resources that biodiversity offers in terms of bioactive metabolites capable of promoting well-being and preventing diseases. The vitality of specific cellular models will be assessed in the presence of the obtained extracts, testing their antioxidant properties and potential impact on models of metabolic dysfunction. Furthermore, specific cellular pathways will be investigated through western blotting and fluorescence microscopy experiments to evaluate any protective effects.

Prerequisites

Knowledge of chemistry, biochemistry and botany, for a full understanding of the lessons, but also to be able to carry out laboratory activities.

Teaching form

Fully interactive, in?person laboratory activity. The course will take place over 3-4 days of practical work (4-5 h each), followed by a discussion of the results.

Textbook and teaching resource

The teaching material consists of slides shown in class which will be provided on the teaching e-learning platform.

Semester

Second semester.

Assessment method

The knowledge acquired during the course will be assessed through an oral exam, contemporary to the other modules of the teaching, which has the objective of verifying the acquisition of the expected knowledge according to what is detailed in the objectives of the course, the ability to discuss the program using the appropriate terminology. The final evaluation will be carried out through an oral exam with three-four questions in order to ascertain the understanding of the theoretical topics and of the experiments carried out in the laboratory. No mid?term assessments are scheduled.

Office hours

By appointment by writing to the teachers: paola.coccetti@unimib.it; farida.tripodi1@unimib.it

Sustainable Development Goals

GOOD HEALTH AND WELL-BEING | QUALITY EDUCATION