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| Level: master | | | | |
| Course title: Experimental methods for determination of bioactivity (IB-510) | | | | |
| Status: elective | | | | |
| ECTS: 7 | | | | |
| Requirements: none | | | | |
| Learning objectives The goal of the course is to provide students with theoretical knowledge and practical skills for the purpose of estimating biological activities of pharmacologically active compounds and natural products. Furthermore, the goal of the course is to develop students' ability to independently choose appropriate methodology for testing selected biological activity. | | | | |
| Learning outcomes By the end of this course, students will be able to (1) understand basic principles of methods for evaluation of biological activities and difference between <i>in vitro</i> , <i>in vivo</i> and <i>ex vivo</i> tests, (2) demonstrate creativity in the selection of methods, depending on the objective and stage of experiment, (3) understand basic principles and ethics in working with laboratory animals, (4) independently apply the appropriate experimental procedures in the study of biological activities, (5) processes data independently, critically present the results and conclude. | | | | |
| Syllabus <i>Theoretical instruction:</i> Types of biological activities. Basic principles of biochemical assays. <i>In vitro</i> , <i>in vivo</i> and <i>ex vivo</i> assays. Use of laboratory animals in the study of biological activities. Application of tissue culture in bioassays. The selection of appropriate experimental method, substrate, target molecules, activators/inhibitors of biological response, method for detecting bioactivity and way of presenting results. Detailed review of selected biological activities: anti-oxidant, anti-inflammatory, anti-cancer, antiviral, antimicrobial, antimutagenic, antifungal, antibiotic, anticoagulant, etc. Selected examples of <i>in vitro</i> , <i>in vivo</i> and <i>ex vivo</i> methods for study of various biological activities. <i>Practical instruction:</i> Introduction to design of experiments. Evaluation of anti-inflammatory, anti-oxidant and antimicrobial potential of selected plant extracts, essential oils and natural products. | | | | |
| Weekly teaching load | | | | Other: |
| Lectures: 2 | Exercises: 3 | Other forms of teaching: | Student research: | |