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| **Subject** | **GENETICALLY MODIFIED FOODS** | | | |
| **Type** | **Semester** | **ECTS** | **Code** |
| ELECTIVES (E) | VI | 4 | 130GMF367 |
| **Course Lecturer** | Prof. ass. Flutura Ajazi | | | |
| **Aims and Objectives** | The course aims to provide basic knowledge of modern Biotechnology, molecular genetic markers, as well as genetically modified organisms (plants, animals and microorganisms). Present applications of GMO are presented and possible future applications discussed. Legislation, patenting and licensing of crop varieties is presented. GMOs-politics around genetically engineered. | | | |
| **Learning Outcomes** | Upon completion of this module, students will be able to:   * gain basic knowledge of Molecular Biology which enables applications in laboratory practice and research. * demonstrate the importance of genetically modified foods. * Understand an overview of the molecular vectors used in plant biotechnology, germs and microorganisms. * apply and develop molecular techniques for DNA isolation and the PCR (Polymerase Chain Reaction) method. * make comparisons in the method of extracting DNA between plants, animals and microorganisms. * have knowledge of the standards and laws of application, use of GMOs | | | |
| **Course Content** | **Course Plan** | | | **Week** |
| Introduction. | | | 1 |
| Fundamentals of Molecular Biology. **Exercise 1.** Job description and laboratory specifications in B. Molecular. | | | 2 |
| Genetic engineering (model organisms, bacteria and restriction enzymes). | | | 3 |
| Transgjenic organisms (Plants). **Exercise 2**. DNA Extraction in Plants | | | 4 |
| Transgjenic organisms (Animals). | | | 5 |
| Methods for production of OMG (Cloning vector). **Exercise 3.** DNA extraction in animals | | | 6 |
| Mid-term exam I | | | 7 |
| Using OMG for food production. | | | 8 |
| Controversy about genetically modified foods. **Exercise 4**. DNA extraction in microorganisms | | | 9 |
| Health and risk assessment. | | | 10 |
| EU and Kosovo legislation on GMOs. **Exercise 5.** Using the conventional and quantitative PCR method in the identification of GMOs | | | 11 |
| Food Biofortification by genetic engineering. | | | 12 |
| Adulteration related to genetically modified foods. **Exercise 6.** Using the ELISA method for the detection of GMOs. | | | 13 |
| Mid-term exam II | | | 14 |
| Final exam | | | 15 |
| **Literature/References** | * Biotechnology for Beginners. Reinhard Renneberg. 2007. * Bioteknologjia, B. Berisha. Prishtinë 2013. * Bioteknologjia, Salillari, A., Fetahu Sh, Aliu, S., Susaj L. Prishtinë. 2003. * Plant Biotechnology and Geneics. Principles, Techniques, and Applications Neal, C. Stewart JR. John Wiley & Sons, Inc. New Jersey, 2008. * Genetically modified foods: safety, risks and public concerns—a review. A. S. Bawa & K. R. Anilakumar. J Food Sci Technol (November–December 2013) 50(6):1035–1046. * Myths and Realities about Genetically Modified Food: A Risk-Benefit Analysis. Angelo Vega Rodríguez, Cristina Rodríguez-Oramas, Esther Sanjuán Velázquez, Arturo Hardisson de la Torre, Carmen Rubio Armendáriz and Conrado Carrascosa Iruzubieta. Appl. Sci. 2022, 12(6), 2861. | | | |
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