

63010 - Research in molds and mycotoxins in food

Información del Plan Docente

Academic Year	2016/17
Academic center	105 - Facultad de Veterinaria
Degree	566 - Master's in Food Quality, Safety and Technology
ECTS	3.0
Course	1
Period	First semester
Subject Type	Optional
Module	---

1.Basic info

1.1.Recommendations to take this course

1.2.Activities and key dates for the course

2.Initiation

2.1.Learning outcomes that define the subject

2.2.Introduction

3.Context and competences

3.1.Goals

3.2.Context and meaning of the subject in the degree

3.3.Competences

3.4.Importance of learning outcomes

4.Evaluation

5.Activities and resources

5.1.General methodological presentation

The course is structured in several participatory lectures (15 hours), 4 sessions of laboratory practice (10 hours) and 2 sessions of oral presentations (5 hours) after individual preparation of a Power Point based on a research paper.

5.2.Learning activities

This course begins with an introductory session, stating the intended learning outcomes, program activities, teaching

63010 - Research in molds and mycotoxins in food

materials, evaluation systems and criteria and other aspects of interest. In addition, the research group and its activities is presented. In the theoretical sessions the fundamental contents of foodborne molds and mycotoxins are presented, as well as techniques for fungal quantification and determination of mycotoxins, showing by means of graphic material the equipment necessary for their application. Then there are practical sessions in which students can apply these techniques in the laboratory for mycotoxicological analysis of food samples. To do this, they have detailed experimental protocols, support materials and the direct supervision of the teachers.

Active student participation and criticism to the different approaches will be encouraged during theoretical and practical sessions. All teaching materials for the course (class notes, protocols, laboratory practices, support material, recommended bibliography and websites) will be available in advance on the Teaching Digital Ring (ADD) of the University of Zaragoza and reprographic service of the Veterinary Faculty of Zaragoza.

5.3.Program

1: Theoretical sessions. 15 contact hours.

These sessions will expose the contents related to the foodborne molds and mycotoxins, techniques of fungal quantification, isolation and identification, techniques for mycotoxin analysis and strategies for prevention and control. In these theoretical sessions the following topics will be developed:

1. Introduction to the course and presentation of the research group and its activities. (2 hours)
2. Molds: general characteristics. Classification. Most important foodborne fungi. Factors affecting the growth of toxigenic molds in food. (2 hours)
3. Techniques for quantitation of foodborne fungi. Isolation and identification. (1 hour)
4. Main mycotoxins: aflatoxins, ochratoxin A, Fusarium toxins (trichothecenes, zearalenone, fumonisin), patulin, citrinin, ergot alkaloids and others. Conditions for mycotoxins synthesis and more susceptible foods. Toxicological aspects of mycotoxins. Procedures to reduce their presence in the food chain: prevention and control. Legislation. (8 hours)
5. Analytical techniques for mycotoxins in food. (2 hours)

63010 - Research in molds and mycotoxins in food

2: Practical sessions. 10 contact hours.

The laboratory practices are organized into 2-hour sessions. First a practical session will take place in computer classroom (2 hours) using several web pages (in Spanish and English) on the course contents and writing a web report. In practical laboratory sessions (4 x 2 hours) students will carry out analysis of mycotoxins in foods by screening and instrumental techniques (HPLC). The practical laboratory sessions conclude with the analysis and interpretation of the results, which will be discussed in groups.

3: Elaboration of an individual work.

Preparing a PowerPoint presentation on an article in English of any aspect related to molds and / or mycotoxins, selected from a recent impact magazine (last 5 years)

4: Sessions of oral presentations of the work. 5 contact hours.

They will be organized in 2 sessions of 2.5 hours each. Each student will make an oral presentation of the work during 10 minutes, followed by a short discussion.

5: Written exam on the theoretical part of the course.

Test exam with 40 multiple choice questions (30% of the final grade) will be distributed at the beginning of the theoretical sessions and be returned for corrections at an agreed date.

5.4.Planning and scheduling

The master calendar and scheduling of the theoretical and practical sessions of the course will appear throughout the month of September on the website of the Faculty of Veterinary Medicine, at the following address:

<http://veterinaria.unizar.es/>

Theoretical classes will be held in a Room of Central Building assigned by the Center

63010 - Research in molds and mycotoxins in food

Practical sessions will be held in Computer Classroom of Zootecnia Building and laboratories of the of the Unit of Nutrition and Food Science.

Sessions of oral presentations by students will be held in a Room of Central Building assigned by the Center.

Mentoring will be conducted at any time agreed with the teachers of the course.

5.5.Bibliography and recommended resources

Typically, the literature of the academic year is kept updated and is consulted at the Library website (search for recommended bibliography in biblioteca.unizar.es)