

DRUG CHEMISTRY AND ORGANIC MARKERS IN FOOD. TRACEABILITY.

MODULE	CONTENT	YEAR	TERM	CREDITS	TYPE
	Chemistry	4	2	6	OPTIONAL
LECTURER(S)	<p>Postal address, telephone n°, e-mail address DEPARTAMENTO DE QUÍMICA FARMACÉUTICA Y ORGÁNICA. Facultad de Farmacia. Campus de Cartuja. 18071. GRANADA. Tfno. +34958243843</p>				
<ul style="list-style-type: none"> Ana Conejo García (ACG) Olga María Cruz López (OCL) José Francisco Domínguez Seglar (JFDS) Rosario María Sánchez Martín (RSM) 	<p>Email: aconejo@ugr.es, olgacl@ugr.es, jfdoming@ugr.es and rmsanchez@ugr.es</p> <p>ACG: Tue and Thu from 12.30 to 14.00 h; Wed from 9.30 to 12.30 h OCL: Tue, We and Thu from 10.30 to 12.30 h; JFDS: Tue and Thu from 11.30 to 13.30 h; Wed from 10.30 to 12.30 h RSM: Mo, Tue and Thu from 13.30 to 15.30 h</p>				
DEGREE WITHIN WHICH THE SUBJECT IS TAUGHT					
Food Science and Technology					
PREREQUISITES and/or RECOMMENDATIONS (if necessary)					
Organic Chemistry Chemistry and Biochemistry of Foods Analytical Techniques					
BRIEF ACCOUNT OF THE SUBJECT PROGRAMME (ACCORDING TO THE DEGREE)					
Analysis of Drugs and its Metabolites in foods. Chemical Traceability in Food. Organic Markers and identification tools.					
GENERAL AND PARTICULAR ABILITIES					
CT.1, CT.2, CT.3, CG.4, CG.7, CG.8, CE.1, CE.3 y CE.7					



OBJECTIVES (EXPRESSED IN TERMS OF EXPECTED RESULTS OF THE TEACHING PROGRAMME)

- Learn types of drugs and their metabolites in foods and techniques for their detection and quantification.
- Understand the structure and properties of drugs and their metabolites present in food.
- Know the chemical techniques to determine and elucidate drug structure and their metabolites in food.
- Knowing the scientific method, and skills for isolation and characterization and determination of the physicochemical properties of drugs and their metabolites in food.
- Knowing traceability techniques and organic markers used in food industry.

DETAILED SUBJECT SYLLABUS

LECTURES:

UNIT 1. GENERAL CONCEPTS. Concept of Traceability. Classification. Origin and types of drugs present in food. Regulations. Organic products. Information Sources.

UNIT 2. METABOLISM OF DRUGS IN FOOD. Drug metabolic processes. Reactions in phase I and II. Common metabolites.

UNIT 3. POTENTIAL EFFECTS OF DRUG RESIDUES IN FOOD ON HUMAN HEALTH. Allergic reactions. Resistors. Carcinogenesis. Teratogenicity. Other reactions. Risk assessment on the health of drug residues in food.

UNIT 4. Methods for detecting drugs in food. Classification. Spectroscopic analysis. Chromatography. Mass spectrometry. Colorimetric analysis. Current detection techniques.

UNIT 5. Antimicrobial and its metabolites: Classification. Structure and mechanism of action. Veterinary medicine. Characterization, analysis and quantification.

UNIT 6. Corticosteroids and their metabolites: structure and mechanism of action. Veterinary medicine. Characterization, analysis and quantification.

UNIT 7. β -adrenergic and its metabolites: Structure and mechanism of action. Veterinary medicine. Characterization, analysis and quantification.

UNIT 8. Hormonally active drugs and metabolites: Structure and mechanism of action. Veterinary medicine. Characterization, analysis and quantification.

UNIT 9. Other drugs often used in foods: Antiparasitics. Anthelmintics. Tranquilizers. Pesticides and pesticides. Structure and mechanism of action. Use in agriculture and veterinary medicine. Characterization, analysis and quantification

LABORATORY SESSIONS:

Scheduled visits to agro-food laboratories.



KEY LITERATURE

- Analysis of antibiotic/drug residues in food products of animal origin. Vipin K. Agarwal. ISBN 978-1-4615-3356-6. (1992).
- Handbook of Food Analysis, Second Edition. Volume 2: Residues and Other Food Component Analysis ISBN 978-0824750374. Leo M.L. Nollet (Editor). (2004).
- Food authenticity and traceability. Michèle Lees. ISBN 1-85573-526-1. (2003).
- Guía para la aplicación del sistema de trazabilidad en la empresa agroalimentaria. Agencia Española de Seguridad Alimentaria. www.aesa.msc.es.NIPO: 355-04-001-9. (2004).
- Trazabilidad y seguridad alimentaria. ISBN 10: 8416207577 - ISBN 13: 9788416207572 - IC Editorial - 2014

RECOMMENDED INTERNET LINKS

<http://www.codexalimentarius.org/>

<http://www.ema.europa.eu/>

<https://ec.europa.eu/info/food-farming-fisheries/farming/organic-farming>

http://www.aecosan.msssi.gob.es/AECOSAN/web/home/aecosan_inicio.htm

