

63006 - Food colour: origin and methodology for study

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	Second 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

Biosynthesis, chemical structure, distribution, properties, stability and analysis of the main characteristics of the natural food pigments (carotenoids, polyphenols, chlorophylls, myoglobin and hemoglobin) will be described in the first part of the subject.

The second part begins stating the fundamentals of color vision as the basis for colorimetric techniques. Then, the necessary calculations are explained to set the different coordinates of the CIE spaces. The student is given the materials needed for these calculations, all of which is the foundation of the spreadsheet to be submitted for evaluation of this part. As a complement, the student must search on the web colorimetry material that complements the material delivered in the

63006 - Food colour: origin and methodology for study

different sessions. In the practical sessions, the student comes into contact with various instruments used in color measurement and with the data obtained they perform the calculations of color coordinates of measured objects. In the sesión for the discussion of practical results, the students make a critical interpretation of them.

5.2.Learning activities

The program offered to the student to achieve the expected results consists of theoretical sessions and practical cases in the laboratory and in classroom.

5.3.Program

Part I. Origin of color.

Theoretical sessions: 10 hours (sessions of 1 or 2 hours).

1. Introduction to color pigments.
2. Carotenoids.
3. Polyphenols
4. Chlorophyll.
5. Meat pigments.

Practical sessions: 5 hours (2 sessions of 2.5 hours).

Pigments from spinach leaves: carotenes, chlorophyll a, chlorophyll b and xanthophylls (violaxanthin and neoxanthin) separation by column chromatography

Pigments from spinach leaves separation of by thin layer chromatography.

Part II. Color measurement.

Theoretical sessions: 10 hours (sessions of 1 or 2 hours).

The following topics are addressed in these sessions:

1. Vision color.

63006 - Food colour: origin and methodology for study

2. Basis of colorimetry. Illuminant and observer pattern.
3. Colorimetric calculations.
4. Colorimetry of food. Color measurement devices.
5. Techniques for the color measurement of liquids and solids. Difficulties and solutions.

Practical sessions: 5 hours.

In these practices, the student will come in contact and use a spectroradiometer and a spectrophotometer for measuring reflectance spectra (opaque objects) and transmittance (transparent objects) respectively, from which it will calculate the color of them, comparing their results with those supplied by the devices. The results obtained are analyzed individually, assessing them

5.4.Planning and scheduling

5.5.Bibliography and recommended resources