

IDENTIFICATION

Course code : E3AG6RD8
ECTS : 3

DURATION

Lectures : 6
Tutorial classes : 16
Labs : 30
Total : 52

Project :
Personnal work :

ASSESSMENT

Continuous assessments, report grades,
lab work report grades

TEACHING MATERIALS

Course materials, tutorials and lab work
handouts will be made available

LANGUAGE

English

CONTACT

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UE : UE6-R

COURSE : Analytical tools for the product

SCOPE OF THE COURSE

OBJECTIVES

To know and be able to apply analytical methods/tools for characterizing a product or food To understand the rheophysical behavior of food products according to processing steps

COMPETENCE AND SKILLS

To adapt and select product characterization methods (physicochemical, rheological, sensory, nutritional, shelf life) based on objectives To understand scientific and technical resources in English

PROGRAM

1. Main methods for physicochemical analysis

- a) Nuclear Magnetic Resonance (NMR) : General principles Spectrum analysis Applications of the technique in the agri-food sector
- b) Mass spectrometry General principles Applications in the agri-food sector
- c) Chromatographic methods Principles Thin-layer chromatography Column separation methods Gas chromatography HPLC
- d) Global methods pH measurement, titratable acidity Water activity Aw / moisture content Brix measurement and sugar content Color analysis

2. Acquisition of basic knowledge in rheology :

- Rheological quantities (deformation, shear, elasticity...)
- Texture analysis (tools : viscometer, texturometer...)
- Behavior of food fluids, rheology of solids, gels and food powders
- Applications in the agri-food sector (example : extrusion and extrusion cooking process)

Lab work : - Measuring food texture and color - Analyzing food constituent biomolecules using various techniques (pH-metric titrations and spectrophotometry, HPLC, NMR, mass spectrometry).

BIBLIOGRAPHY

REQUIREMENTS

Knowledge of biochemistry of biological molecules, organic chemistry, fluid mechanics