UCL Université catholique de Louvain

LBRAL2103

2015-2016

Food chemistry

5.0 credits	30.0 h + 22.5 h	1q

Teacher(s) :	Collin Sonia ;
Language :	Français
Place of the course	Louvain-la-Neuve
Inline resources:	Icampus
Prerequisites :	Analysis of organic compounds - I : separation techniques
Main themes :	A- Major food constituents: physico-chemical properties, reactivity, functional properties, modifications during processing. Mainly 4 families of constituents are investigated : carbohydrates and Maillard reactions, lipids and chemical/enzymatic oxidation pathways (antioxidants, especially polyphenols), proteins, and water. The experimental courses associated to this part are organized around the production of a wine and the analyses of its raw materials. B- Minor food constituents: chemical structures, reactivity and functional properties of the aromas, sweeteners, imitators of fats, colouring agents, and contaminants (dioxins, PCB, mycotoxins, nitrosamines, acrylamide..).
Aims :	The course contributes to the following learning outcomes : 1.1, 1.3, 1.4, 1.5 + 2.2, 2.5 + 3.1, 3.4, 3.7, 3.8 + 6.1, 6.2, 6.4, 6.5 + 7.1, 7.4, 7.5 + 8.1, 8.2, 8.4, 8.5 of the BIRC21 Master At the end of this course, the student will be able to - compare the chemical compositions of various foods, - assess the impact of technological processes on this composition, - develop new products presenting defined functional properties, - reproduce a protocol of analysis and to discuss the obtained results. *The contribution of this Teaching Unit to the development and command of the skills and learning outcomes of the programme(s) can be accessed at the end of this sheet, in the section entitled "Programmes/courses offering this Teaching Unit".*
Evaluation methods :	Written examination for the theoretical aspects. The experimental know-how and the attitude are assessed throughout practical classes, as well as by a relatively concise report.
Teaching methods :	Magistral lectures for the theoretical part of the course. The chocolate is used as the typical example in all chapters. The student is also brought to produce a wine, and to implement a series of protocols aiming at the analysis of grapes and wine. According to the number of students, certain aspects can be approached through the analysis of published papers.
Content :	- Chemistry of sugars and Maillard reactions - Compounds issued from lipid oxidation - Chemistry of polyphenols and actions against lipid oxidation - Other major constituents: proteins and water - Chemical structures and synthesis pathways of the main aromas - Other minor constituents: colorants, sweeteners, contaminants ..
Bibliography :	Polyphenols et procédés. Collin and Crouzet. 2011. Ed Tec et Doc. Lavoisier. ISBN: 978-2-7430-1338-7
Faculty or entity in charge:	AGRO

Programmes / formations proposant cette unité d'enseignement (UE)				
Intitulé du programme	Sigle	Credits	Prerequis	Acquis d'apprentissage
Master [120] in Biochemistry and Molecular and Cell Biology	BBMC2M	5	-	
Master [60] in Biology	BIOL2M1	5	-	
Master [120] in Agricultural Bioengineering	BIRA2M	5	-	
Master [120] in Chemistry and Bioindustries	BIRC2M	5	-	
Advanced Master in Bio-engineering : Brewery	BRAS2MC	5	-	