UCLouvain

lbras2301

2023

Malt Biochemistry and Technology

4.00 credits	30.0 h + 15.0 h	Q1

Teacher(s)	Alvarez Costales Pablo ;Collin Sonia (coordinator) ;Nouwen Charles ;
Language :	French
Place of the course	Louvain-la-Neuve
Learning outcomes	
Evaluation methods	The evaluation methods are based on : 1. A written examination containing the main theoretical notions taught 2. An evaluation of the practical work reports (structuring of the report, clarity and rigor of the reported and commented results, critical analysis of the results, conclusions)
Teaching methods	The teaching is divided into four phases: 1. Theoretical courses (lectures) during which the main concepts related to barley and raw grains (anatomy and chemical composition), malting, mashing and filtration steps (biochemistry and technology) are taught. 2. Practical courses through which the student will be familiarized with the main manipulations related to the characterization of a malt. These two courses are complementary and allow the student to put into practice the main theoretical notions. 1. A teaching based on the writing of reports in relation with the practical part of the course allowing the student to report analytical results and to comment them in a brewing process context. 2. A teaching based on the realization of a practical work at home (malting of barley) and on the oral communication of the result of this work.
Content	**Theoretical notions:** - Anatomy and chemical composition of barley (structure of starch, beta-glucans, arabinoxylans, ...) - Enzymology during the malting step: cell wall degradation, starch degradation, protein hydrolysis, lipid hydrolysis, ... - Description of the technologies associated with malting process: distinction of the steps of steeping, germination, kilning, the production of special malts - Enzymology during the mashing step: starch degradation, alpha,beta-amylases paradox, , notion of liquefaction and saccharification - Description of the technologies associated with the mashing process: infusion or decoction mashing, mash tun, raw grain tun, type of heating, agitation, modern tanks - Theory of cake filtration: influence of cake thickness, beta-glucans, ... - Technologies associated with mash filtration: filter tank, filter press, 2001 filter - Use of raw grains: type of grains, uses, implication on the brewing process **Practical work:** - Malt moisture content - Conventional mash: liquefaction test, mash color, total and soluble nitrogen, free amino acids, extract, modification, pH - Diastatic power
Inline resources	Moodle
Faculty or entity in charge	AGRO

Programmes containing this learning unit (UE)				
Program title	Acronym	Credits	Prerequisite	Learning outcomes
Advanced Master in Brewing Engineering	BRAS2MC	4		