

Syllabus

Course description

Course title	Fruit fermentation
Course code	43072
Scientific sector	AGR/16
Degree	Agricultural and Agro-Environmental Sciences
Semester	II
Year	II, III
Academic year	2018/19
Credits	3
Modular	No

Total lecturing hours	
Total lab hours	20
Total exercise hours	10
Attendance	Strongly recommended
Prerequisites	----
Course page	

Specific educational objectives	<p>The course is a deepening of the disciplinary field of food microbiology, as a characterizing course.</p> <p>The aim of the course is to provide advanced knowledge on fruits fermentation.</p> <p>The course gives a general overview on the physiology and biochemistry of lactic acid bacteria and yeasts, which have used for making fruit-based fermented products. The use of starter cultures and criteria for their selection has supplied. The effect of the fermentation on fruit properties is given with particular emphasis on the sensory, shelf life and nutritional features.</p>
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Lecturer	Prof. Raffaella Di Cagno
Scientific sector of the lecturer	AGR/16
Teaching language	English
Office hours	From Monday to Thursday, on appointment
Teaching assistant (if any)	
Office hours	
List of topics covered	<p>Ecophysiology and metabolism of lactic acid bacteria, fructophilic lactic acid bacteria and yeasts.</p> <p>Lactic acid bacteria microbiota of raw fruits.</p> <p>Spontaneous fermentation and main fermented vegetable and fruit products.</p> <p>Starter cultures and criteria for their selection.</p> <p>Metabolic adaptation of lactic acid bacteria during fruit fermentation.</p>

	<p>Fruit phenolic compounds: antimicrobial activity and metabolism of phenolics by lactic acid bacteria.</p> <p>Innovative fruit-based fermented products (smoothies, lacto-juices).</p> <p>Solid-state fermentation of bee-collected pollen as a novel biotechnology.</p> <p>Health-promoting properties of fermented fruits (source of novel probiotics candidates).</p> <p>Protocols for making fruit-based fermented products (case studies).</p>
Teaching format	<p>Teaching activities consist of lectures, explaining the theoretical concepts of the course, where case studies have carried out. The course is presented in digital format. Presentations and scientific papers used during the course are provided to students.</p>
Learning outcomes	<p>Knowledge and understanding of the role of lactic acid bacteria and yeasts in the fermentation for making fermented fruit based products.</p> <p>Applying knowledge and understanding through the capacity to achieve information, which enable to manage the principles of the fermentation process used for making fruit-based fermented products.</p> <p>Making judgments through the practical and theoretical knowledge achieved during the course.</p> <p>Communication skills to present knowledge with a language pertinent to this specific field.</p> <p>Learning skills to manage within the basic concepts of fruit fermentation and use of starters.</p>
Assessment	<p>The exam consists of a written test, including questions to verify the knowledge and capacity gained the course. The questions aim to assess the transfer capacity of the principles of fruit fermentations.</p>
Assessment language	<p>English</p>
Evaluation criteria and criteria for awarding marks	<p>A final grade is given.</p> <p>Criteria: clarity of the answers and lexical appropriateness, synthesis capacity, pertinence of the treated topics and capacity of elaboration.</p>
Required readings	<p>Articles and book chapters will be provided at the beginning of the course.</p>
Supplementary readings	