



Module Title	Bioactive Food Ingredients
Module Code	MCLs345
Module	FNH-5
Degree Program	Master of Science in Life Sciences (MSLS)
ECTS Credits	5
Workload	150 h: Contact 71 h; Self-study 79 h
Module Coordinator	<p>Name Wilfried Andlauer</p> <p>Phone 027 606 86 37</p> <p>Email Wilfried.andlauer@hevs.ch</p> <p>Address HES-SO Valais-Wallis, School of Engineering, Institute of Life Technologies, Route du Rawyl 47, 1950 Sion</p>
Lecturers	<ul style="list-style-type: none"> • Dr. Serge Rezzi
Entry Requirements	Knowledge of the principles of food chemistry as well as human nutrition and metabolism.
Learning Outcomes and Competencies	<p>After completing the module, students will be able to:</p> <ul style="list-style-type: none"> • gain a deep knowledge on the main categories of food bioactives including an introduction to the regulatory framework • understand the relationship between dietary bioactives for health maintenance (healthy ageing), disease prevention and medical nutrition • understand the multidisciplinary factors that influence the bioavailability and bioactivity of food bioactives; • critically read, analyse and discuss the scientific literature.
Module Content	<p>The module provides a critical review on the different classes of bioactive food components and their biological activity for health maintenance and disease prevention:</p> <ul style="list-style-type: none"> • Introduction to the background, definitions and classification of food bioactives • Presentation of the nature, sources and biological functions of food bioactive compounds – including carbohydrates, proteins, specific amino acids and lipids – and phytochemicals, such as phenolic compounds, carotenoids and phytosterols • An overview of analytical approaches and techniques to identify food bioactive compounds • An insight into bioaccessibility, bioavailability and the mechanisms of action
Teaching and Learning Methods	<ul style="list-style-type: none"> • Lectures and seminars with presentations by students • Individual and group exercises • Discussions on current trends in functional food
Assessment of Learning Outcomes	<ul style="list-style-type: none"> • Oral presentation

Bibliography	<ul style="list-style-type: none"> • Aluko RE, 2012. Functional foods and nutraceuticals. Springer, New York • Belitz H-D, Grosch W, Schieberle P, 2009. Food chemistry (4th revision and extended edition). Springer, Berlin • Gropper SS, 2017. Advanced nutrition and human metabolism (7th edition). Cengage Learning, Belmont OH, USA • Higdon J, Drake VJ, 2013. An evidence-based approach to phytochemicals and other dietary factors (2nd edition). Thieme, New York
	<ul style="list-style-type: none"> • Nelson DL, Cox MM, Lehninger AL, 2008. Lehninger principles of biochemistry (5th ed., [various printing]). W.H. Freeman, New York. • Wildman RE, 2007. Handbook of nutraceuticals and functional foods (2nd ed.). Taylor & Francis, Boca Raton, FL, 541 S. • Selected research articles on functional food ingredients will be posted on the moodle platform.
Language	English
Last Update	19.12.2025 / Wilfried Andlauer & Serge Rezzi

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