



<b>Module</b>	<b>Bioactive Food Ingredients</b>
<b>Code</b>	MSLS_FNH-5
<b>Degree Program</b>	Master of Science in Life Sciences (MSLS)
<b>ECTS Credits</b>	5
<b>Workload</b>	150 h: Contact: 71 h, self-study: 79 h
<b>Module Coordinator</b>	<p><b>Name</b> Wilfried Andlauer</p> <p><b>Phone</b> 027 606 86 37</p> <p><b>Email</b> Wilfried.andlauer@hevs.ch</p> <p><b>Address</b> HES-SO Valais-Wallis, School of Engineering, Institute of Life Technologies, Route du Rawyl 47, 1950 Sion</p>
<b>Lecturers</b>	<ul style="list-style-type: none"> <li>• Dr. Agnieszka Kosinska Cagnazzo</li> <li>• Guest lecturers</li> </ul>
<b>Entry Requirements</b>	Knowledge of the principles of food chemistry as well as human nutrition and metabolism.
<b>Learning Outcomes and Competences</b>	<p>After completing the module students will have acquired:</p> <ul style="list-style-type: none"> <li>• understanding of the multidisciplinary factors that influence the bioavailability and bioactivity of food ingredients</li> <li>• understanding of the principles and techniques used in the identification, quantification and evaluation of biological activities of food ingredients</li> <li>• understanding of the relation between the dietary phytochemicals and disease prevention</li> <li>• ability to critically read, analyse, and discuss scientific literature</li> </ul>
<b>Module Content</b>	The module provides a critical review on chemistry, analyses, bioavailability and health benefits of bioactive food components. Firstly, background, definitions, and classification of functional food will be introduced. Then the nature, sources and biological functions of food bioactives will be presented. The bioactives covered will include: carbohydrates, proteins, lipids, and phytochemicals such as phenolic compounds, carotenoids and phytosterols. The focus will be brought to the bioavailability and the mechanism of action. The overview on analytical approaches and techniques to identify food bioactives and access their biological activity will be presented.
<b>Teaching / Learning Methods</b>	<ul style="list-style-type: none"> <li>• Lectures and seminars with presentations by students</li> <li>• Exercises individually and in groups</li> <li>• Discussion on current trends in functional food</li> </ul>
<b>Assessment of Learning Outcome</b>	<ul style="list-style-type: none"> <li>• Term paper and its oral presentation</li> </ul>
<b>Bibliography</b>	<ul style="list-style-type: none"> <li>• Aluko RE, 2012. Functional foods and nutraceuticals. Springer, New York.</li> <li>• Belitz H-D, Grosch W, Schieberle P, 2009. Food chemistry (4th rev. and extended ed.). Springer, Berlin.</li> <li>• Gropper SS, 2012. Advanced nutrition and human metabolism (6th Ed.). Cengage Learning, Belmont OH</li> <li>• Higdon J, Drake VJ, 2013, An evidence-based approach to phytochemicals and other dietary factors, 2<sup>nd</sup> Edition, Thieme</li> </ul>

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	<ul style="list-style-type: none"><li>• Nelson DL, Cox MM, Lehninger AL, 2008. Lehninger principles of biochemistry (5th ed., [various printing]). W.H. Freeman, New York.</li><li>• Wildman RE, 2007. Handbook of nutraceuticals and functional foods (2nd ed.). Taylor &amp; Francis, Boca Raton, FL, 541 S.</li><li>• Selected research articles on functional food ingredients will be posted on the moodle platform.</li></ul>
<b>Language</b>	English
<b>Last Update</b>	24.01.2020 / Wilfried Andlauer