

Course name:
Plant-based dietary supplements

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| ECTS | 4 |
| Course status | facultative |
| Course final assessment / evaluation of outcomes | Exam |
| Prerequisite | knowledge of plant biology and the basics of biochemistry at the level of undergraduate or engineering agricultural / natural studies |

Main field of study:

Agriculture and Horticulture, Biology and Biotechnology (Erasmus+)

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| Educational profile | General academic |
| Code of studies and education level | Bachelor/engineer (SI) or master of science (SM) |
| Semester of studies | Winter or summer |
| Language of instruction | English |

Course offered by:

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| Name of faculty offering the course | Faculty of Biotechnology and Horticulture |
| Name of department offering the course | Department of Horticulture |
| Course coordinator | dr inż. Barbara Domagała |

Learning outcomes:

| Symbol of outcome | Description of the learning outcome | Reference to main field of study outcomes | Area symbol* |
|--|--|--|---------------------|
| KNOWLEDGE – student knows and understands | | | |
| GEN_W1 | Student describes the composition of dietary supplements, with particular emphasis on plant raw materials used in their production. | EPB2_W01 EPB2_W04 | R, P |

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| GEN_W2 | Student describes the effect of using these plant-based supplements on the human organism and the mechanisms of their action/reaction. | EPB2_W01 EPB2_W04 | R, P |
| GEN_W3 | Student describes the lists the species of horticultural plants used in in the pharmaceutical and dietary supplement production program and the active substances obtained from them. | EPB2_W01 EPB2_W04 | R, P |
| GEN_W4 | The student knows the basic legal regulations regarding the marketing of dietary supplements and the basics of the law relating to the cosmetics market in the European Union. | EPB2_W01 EPB2_W04 | R, P |
| GEN_W5 | The student determines the effects of plant-based dietary supplements on the human body | EPB2_W01 EPB2_W04 | R, P |
| GEN_W6 | The student knows the basics principles of a balanced diet. | EPB2_W01 EPB2_W04 | R, P |
| SKILLS – student is able to | | | |
| GEN_U1 | The student modifies the methods of composing a balanced diet | EPB2_U01 EPB2_U05 | R, P |

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| GEN_U2 | The student develops agrotechnics for the cultivation of more important species in order to use the product as a dietary supplement. | EPB2_U01 EPB2_U05 | R, P |
| GEN_U3 | Student is able to prepare selected dietary supplements of plant origin. | EPB2_U01 EPB2_U05 | R, P |
| GEN_U4 | The student determines the suitability of a given plant ingredient for the production of a dietary supplements. | EPB2_U01 EPB2_U05 | R, P |
| SOCIAL COMPETENCIES – student is ready to: | | | |
| GEN_K1 | The student is able to define priorities for the proper selection and preparation of plant materials for use in dietary supplements. | EPB2_K02 | R, P |
| GEN_K2 | The student is able to assess the risk to the human body caused by improper use of plant dietary supplements. | EPB2_K04 EPB2_K05 | R, P |
| GEN_K3 | The student is able to choose the most appropriate dietary supplements in terms of their composition | EPB2_K03 | R, P |

Teaching contents

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| Lectures: | 30 hours |
| Topics | History of dietary supplementary production. An introduction to the topics of the perks of deity supplements. |

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| | <p>The mechanisms of action of supplements and other medical products. Differences between cosmeceuticals and drugs and dietary supplements.</p> <p>Supplements in sports.</p> <p>Supplements in diseases of the skin.</p> <p>Supplements in the system digestive and nervous.</p> <p>Supplements in the problem of obesity.</p> <p>Supplements that affect the body's immunity.</p> <p>Fundamentals of the law relating to the production, marketing and sale of diet supplements in the European Union.</p> <p>Development of instructions on the choice of species, preparation methods and application of the preparation.</p> |
| Accomplished learning outcomes | GEN_W1, GEN_W2, GEN_W3 GEN_W4, GEN_W5, GEN_W6 |
| Means of verification, rules and criteria of assessment | Evaluation is based on test questions, in order to earn a positive mark at least 51% of answers must be correct. Contribution to the final grade from the course – 65%. |
| Classes: | 30 hours |
| Topics | <p>A visit to a company that produces dietary supplements based on plant products.</p> <p>Production of diet supplements.</p> <p>Presentation of the production method, application and effectiveness of the diet supplements produced by them.</p> |
| Accomplished learning outcomes | GEN_U1, GEN_U2, GEN_U3, GEN_U4, GEN_K1, GEN_K2, GEN_K3 |
| Means of verification, rules and criteria of assessment | Evaluation is based on: - individual reports from laboratory activities, contribution to the final grade from the course – 15%; - two tests from the laboratory topics (at least 51% of correct answers to earn a positive mark), contribution to the final grade from the course – 20%. |

References:

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| Basic | <p>Balch, P. A. (2006). Prescription for nutritional healing. Penguin.</p> <p>Greenwood, M., Cooke, M. B., Ziegenfuss, T., Kalman, D. S., & Antonio, J. (Eds.). (2015). Nutritional supplements in sports and exercise. Humana Press.</p> |
| Supplementary | <p>Hennekens C.H., et al., Lack of effect of long-term supplementation with beta carotene on the incidence of malignant neoplasms and cardiovascular disease, New England Journal of Medicine, 334.18 (1996): 1145-114</p> <p>Maret W., Sandstead H.H., Zinc requirements and the risks and benefits of zinc supplementation, Journal of Trace Elements in Medicine and Biology, 20.1 (2006): 3-18</p> <p>Poortmans J.R., Francaux M., Adverse effects of creatine supplementation, Sports Medicine, 30.3 (2000): 155-170</p> <p>Vanhatalo A., et al., Acute and chronic effects of dietary nitrate supplementation on blood pressure and the physiological responses to moderate-intensity and incremental exercise, American Journal of Physiology-Regulatory, Integrative and Comparative Physiology, 299.4 (2010): R1121-R1131</p> |

Structure of learning outcomes

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| Area of academic study: R – agricultural, forestry and veterinary sciences | 2 ECTS** |
| Area of academic study: P – biological sciences | 2 ECTS** |

Structure of student activity

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| Contact hours | | 68 hrs | 2.7 ECTS ** |
| Including | lectures | 30 hrs | |
| | classes and seminars | 30 hrs | |
| | consultations | 4 hrs | |

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| | participation in research | 0 hrs | |
| | obligatory traineeships | 0 hrs | |
| | Participation in examination | 4 hrs | |
| e-learning | | 0 hrs | 0 ECTS ** |
| Student own work | | 32 hours | 1.3 ECTS ** |
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***Areas of academic study in the fields of:**

H- humanities; S - social studies; P – biological sciences; T – technological sciences; M- medical, sport and health sciences; R – Agricultural, forestry and veterinary sciences; A – the arts

**** stated with an accuracy to 0.1 ECTS, where 1 ECTS = 25 - 30 hours of classes**