

Study Programme: Organic Agriculture
Course Unit Title: Quality and Safety of Agricultural Products
Course Unit Code: 19.ORG025
Name of Lecturer(s): Igor M. Jajić, PhD, Full Professor, Vojislava, P. Bursić, Associate Professor
Type and Level of Studies: Undergraduate Academic Studies
Course Status (compulsory/elective): compulsory
Semester (winter/summer): winter
Language of instruction: Serbian
Mode of course unit delivery (face-to-face/distance learning): face-to-face
Number of ECTS Allocated: 4
Prerequisites: None
<p>Course Aims:</p> <p>The concept of organic food quality includes controlled and certified production on the basis of legal regulations, the regulations defined by EU regulations and standards of IFOAM. Introducing students to the field of food safety, understanding of prerequisite programs (GMP and GHP), which are the basis of efficient management of food safety through the application of HACCP. Acquiring knowledge about the negative influence of the major contaminants of animal and plant products.</p>
<p>Learning Outcomes:</p> <p>Applicable knowledge of methods for assessing the quality and safety of agricultural products, human health, through strict compliance with applicable laws and regulations. Acquired basic knowledge of different chemical and microbiological pollutants in raw materials, food and water, their sources and consequences for the health and quality, as well as measures to be taken to avoid these pollutants in manufactured products.</p>
<p>Syllabus:</p> <p><i>Theory</i></p> <p>Definition of food, division by types, method of use and nutritional value. The definition of food quality, morphological and chemical characteristics. The definition of organic food quality. Quality parameters, the contents of desirable and undesirable substances. A holistic approach to assessing the quality of organic food, biocrystallization method. Quality factors: sensory, technological, nutritional, hygienic, toxicological and ethical. Meat: the importance of technological and nutritional quality of meat. Biochemical processes in muscle postmortem, post mortal glycolysis and maturation of meat. Eggs: structure and chemical composition, preserving the quality of eggs, processing. Honey: chemical composition, antibacterial properties, honey types according to their origin and method of obtaining. The most important contaminants of honey. Good manufacturing practice (GMP), good hygiene practices (GHP), hazard analysis and critical control points (HACCP). National and European food safety legislation. Toxicological quality food. Food contaminants: pesticides, polychlorinated biphenyls, heavy metals, dioxins, biogenic amines, microcystins and mycotoxins.</p> <p><i>Practice</i></p> <p>Introduction to instrumental laboratory techniques: gas and liquid chromatography, spectrophotometry. Introduction to the methods for determining the content of vitamin C in fruits and vegetables, the process of isolation and identification of</p>

plant pigments, sugars and proteins. Introducing the biocrystallization method. Determination of the water holding capacity of meat. Fat, total fat determination, determination of fat-soluble vitamins. Determination of glycogen, the amount of connective tissue and total pigments in meat. Food color, determination of meat color. Determination of egg freshness. The quality of honey: determination of pH in honey, proving honey fraudulation with starch and determination of hydroxymethyl furfural in honey.

Required Reading:

Bickel R., Rossier R. (2015). Sustainability and quality of organic food, 2nd Edition, FiBL & ORC.
 Cooper J., Leifert C., Niggli U. (2017). Handbook of Organic Food Safety and Quality, Elsevier Science
 Igor Jajić: Kvalitet i bezbednost stočarskih proizvoda, Praktikum, 2013.
 Nathan N. (2016). Mold & Mycotoxins: Current Evaluation and Treatment, Kindle Edition
 Belitz H.D., Grosch W., Schieberle P. (2009). Food Chemistry, 4th revised and extended ed., Springer
 Fanali S., Haddad P.R. (2017). Liquid Chromatography: Fundamentals and Instrumentation (Handbooks in Separation Science), Elsevier; 2nd edition.

Weekly Contact Hours:	Lectures: 3	Practical work: 2
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Teaching Methods:

Lectures, Practical classes, Consultations, study, research work

Knowledge Assessment (maximum of 100 points):

Pre-exam obligations	points	Final exam	points
Active class participation	5	written exam	
Practical work	5	oral exam	50
Preliminary exam(s)	30	
Seminar(s)	10		

The methods of knowledge assessment may differ; the table presents only some of the options: written exam, oral exam, project presentation, seminars, etc.