

JOSIP JURAJ STROSSMAYER UNIVERSITY OF OSIJEK
Faculty of Food Technology



REPORT ON THE COURSES

POSTGRADUATE STUDIES

TEHNOLOGY OF TRADICIONAL
MEAT PRODUCTS

Osijek, October 2009

TEHNOLOGY OF TRADICIONAL MEAT PRODUCTS

POSTGRADUATE STUDIES

1. INTRODUCTION

Because of its geographical and climatic specificities and the rich history and culture, Croatia has a large number of traditional products to the standardization of quality, increasing production capacity and the protection of geographical indications, tradition or origin, should become the Croatian export brand in particular through tourism.

Consumption of traditional food products that are related to a specific climate, the lifestyle and culture is increasingly attracting consumers greater purchasing power. The European Union attaches great importance to the production of traditional products, because it contributes to sustainable rural development, rural tourism and increasing producer income as is consistent with the objectives of the Common Agricultural Policy (CAP) and the latest support system so-called a single farm payment (SFP).

The EU has protected more than 840 traditional agricultural and food products of which 54 are traditional meat products: different kinds of sausages, ham and other slow-fermented meat products. In Croatia, under the old Law on Geographical Indications of Products and Services (NN 78/99, 127/99) of meat preparations and meat products are protected only Istarski pršut, Slavonski Kulen/Kulin and Drniški pršut.

How would a national system of protection of EU-compatible, and our products are marked and recognizable in an integrated EU market for all products listed, as well as others that are intended to protect it is necessary to conduct proceedings under the Law on protection of designations of origin, geographical indications and designations of agricultural and reputation food products (NN 84/08, 75/09, 107/09), Regulations on designations of origin, geographical indications of agricultural products and foodstuffs (NN 88/09) and the Regulations of the Traditional and Food products (NN 82/09). The said Law and Regulations are in accordance with Commission Regulation (EC) No 1898/2006 of 14 December 2006 and laying down detailed rules for implementing Council Regulation 510/2006 on the protection of geographical indications and designations of origin for agricultural products and foodstuffs, and Commission Regulation (EC) No 1216/2007 of 18 October 2007 laying down detailed rules for implementing Council Regulation (EC) No 509/2006 on agricultural products and foodstuffs as traditional specialties guaranteed.

Problems in the manufacture and sale of traditional meat products could be divided into three groups: technical issues, marketing, and veterinary and health problems.

Regarding **the production technology** of traditional meat products, the biggest problem is the standardization of conditions of production: the basic raw materials, additives, technological parameters and in particular, the conditions of ripening, during which only a small number of manufacturers apply the latest technological advances and automated chambers for ripening are necessary to make the traditional technology parameters are held constant and independent of climatic conditions, to ensure continuous production throughout the year.

From **the marketing** point of view the biggest problems are related to insufficient production capacity and seasonal oscillations in the supply market. This problem is closely related to the merger of manufacturers in the production association and the absence of protection products. Also highlighted is the problem of the gray economy and unfair competition.

With **the veterinary and health** point of view the biggest problems are related to the fact that the production of handicrafts and family farms that make up the majority of production capacity, in many cases, no legal system in operation puts into question safety of the product and prevents an effective veterinary and health supervision.

With respect to income from and market competitiveness of traditional meat products in Croatia is a trend of increasing production capacity, and there are growing demands of producers and producer associations for education and particularly in the field of production technology and standardization of quality is framework of the study program.

Significant support in organizing this study enabled the long cooperation between PTF and German government agency GTZ and the Ministry of Agriculture, which has resulted in the establishment of "CMQ - Center for meat quality" in the PTF. CMQ is consisted of laboratory analysis with traditional meat products, advising and educating producers.

The study was made on the model of similar studies of prominent universities in the EU and based on many years of experience PTF in Osijek in undergraduate and postgraduate study.

2. GENERAL PART

2. 1. FEASIBILITY STUDY PROGRAMME IMPLEMENTATION

In Croatia, agriculture for several years intensively implemented structural reforms is a key goal of adaptation to EU markets and increase income and competitiveness. Key role in structural reforms, which have state support and the demands of the World Trade Organization (which are a member) and the adaptation of the EU are more focused on increasing production capacity (or so-called direct payments "red basket"), but to promote the interests of all rural areas as unique economic, and ecological and social environment (or so-called horizontal support. "green basket"). Last EU support system to be implemented on January 2006, so-called "single farm payment" is focused on product quality, environmental protection, food safety and animal welfare. Also, another important trend in the EU is related to their consumers

increased buying power, education and increased awareness of quality and food safety which has resulted in increasing demands on the one hand the ecologically or organically produced food, on the other side for the traditional products that are related to a specific region, culture and tradition. Traditional products make the identity of a region or country and therefore have great potential in tourism promotion and offer. The protection of traditional products, geographical indications, tradition or origin, have become recognized throughout the EU market, achieve significantly higher prices and increase revenue and competitive producers.

Croatia because of its physical, climatic and historical specificity has significant potential in the development of traditional products and their protection, but this potential has not been activated. The existing brands such as different types of slow-fermented sausage or ham, or different kinds of cheese, are not protected under the EU rules, have large variations in quality and production capacity, a significant problem is the gray economy and inadequate veterinary and health supervision. As a contribution to solving these problems, along with legislative and incentive measures carried out the State, Faculty of Food Technology in Osijek in cooperation with the Croatian Veterinary Institute in Zagreb this specialist study suggests that the experts in production and those who intend to start producing traditional meat products, bring the latest knowledge the entire chain of production of traditional meat products (growing, preparing raw materials, production technology, hygiene in production, veterinary and health conditions and quality of analysis and marketing). The previous teacher contacts, Faculty of Food Technology with the producers of traditional meat products came to recognize that there is great interest in this form of education and experience, equipment and human resources with the Faculty of Food Technology, Croatian Veterinary Institute and Faculty of Agriculture, guarantees that they will study be organized according to the highest educational standards. Taking into account the fact that Croatia is a producer of a significant number of traditional meat products and that there are many problems that follow this production, the proponent of the study considers that the specialist study of strategic interest, and that through education experts and be inspired by numerous studies.

2.2. COMPATIBILITY OF PROGRAMME WITH THE STRATEGIC OBJECTIVES FACULTY OF FOOD TECHNOLOGY

The Faculty of Food Technology for 38 years to educate engineers in food technology, since 1997 to educate masters, and since 2002 to educate Ph Ds. Today, the PTF with similar studies in accordance with European and successfully implemented the Bologna process in a bachelor degree (Food Technology), three graduate studies (Food Engineering, Process Engineering and Science of Food and Nutrition), postgraduate studies of Food Engineering and Graduate specialist study of food science and nutrition. On the basis of interest to postgraduate studies, primarily specialist (so far registered 46 who have completed studies on the PTF, the Agricultural, Chemical Technology, School of Medicine, Faculty of Science, etc.), as one of the paths of development PTF's will be professional specialization in certain areas of food production. The study is based on long experience in food technology , Faculty of Food Technology in undergraduate and postgraduate teaching and developing research projects, both domestic and projects of international cooperation

and scientific and professional experiences of the Croatian Veterinary Institute. We took into account the modern tendencies in the subject area covered and the specific conditions and needs and the role of science in the development of Slavonia and Baranja Croatia. The study suggests that upgrading the undergraduate and graduate students who performed in the PTF and related studies in higher education institutions with the same or a related theoretical and technical basis.

2.3. COMPARABILITY PROGRAMME WITH RELATED STUDY PROGRAMMES IN THE EU

1. Institute of Chemical Technology, Faculty of Food and Biochemical Technology, Praha, Czech Republic (MSc Study Programme: Food Chemistry and Technology; Subprogramme: Food Preservation and Meat Technology)
2. University of Helsinki, Faculty of Agriculture and Forestry, Helsinki, Finland (MSc Study Programme: Food Technology, Subprogramme: Meat Technology)

2.4. COMPATIBILITY OF LEARNING OUTCOMES WITH THE REQUIREMENT OF PROFESSIONAL ASSOCIATION AND THE LABOUR MARKET

Students who complete specialized studies "Technologies of traditional meat products" shall be qualified to work in the meat industry and catering, and trained to run entrepreneurial projects: family farms, crafts or companies who are engaged in the production of traditional meat products. Also, students who complete their studies, "Technologies of traditional meat products", will be trained to work in research and development in the area of quality, safety, marketing and protection of traditional meat products.

2.5. THE NAME ACQUIRED AFTER GRADUATION

Master Degree (degree acquired in undergraduate studies), a specialist in technology of traditional meat products.

3. PROGRAMME DESCRIPTION

3.1. CONTENT OF THE STUDY PROGRAM WITH RELEVANT ECTS

Order no.	Course code	Course title	Total classes	L	S	E	Points
OBLIGATORY COURSES							
1.	MEAT 101	Protection and branding of traditional food products in croatia and the EU	30	20	10	-	5
2.	MEAT	The basics of meat technology	30	30	-	-	4

	102						
3.	MEAT 103	Swine breeding for production of traditional meat products	20	20	-	-	4
4.	MEAT 104	Veterinary-medical supervision in production of traditional meat products	25	15	10	-	4
5.	MEAT 105	Technology of production of traditional meat products	90	90	-	-	10
6.	MEAT 106	Sensory and physico-chemical properties of traditional meat products	35	20	-	15	5
OPTIONAL COURSES							
1.	MEAT 201	Hygiene and sanitation in meat production and processing	25	25	-	-	4
2.	MEAT 202	Mikrobiologija i kvarenje tradicionalnih mesnih proizvoda/ microbiology and spoilage of traditional meat products	25	20	-	5	4
3.	MEAT 203	HACCP application in production of traditional meat products	25	10	-	10	4
4.	MEAT 204	Technological line design for production of traditional meat products and business plan	25	25	-	-	4
5.	300	Graduate thesis	100				20

- Total number of points a student must achieve a 60.
- MEAT from 101 to 106 are obligatory courses.

3.2. DESCRIPTION OF COURSE

Attached.

3.3. STRUCTURE OF THE STUDY, THE COURSE OF STUDY AND OBLIGATIONS OF PARTICIPANTS

Teaching in postgraduate study "Technologies of traditional meat products" takes two semesters. Graduate students help mentor who helps in the selection of courses and who directs the work of students. The requirement for registration of the second semester regularly worked in the obligations of the first semester. There are no prerequisites for admission to particular courses.

3.4. VERTICAL MOBILITY STUDENTS IN NATIONAL AND INTERNATIONAL HIGHER EDUCATION SPACE

In order to ensure the multidisciplinary study of the mobility of students, students can choose some courses in other post-graduate studies at the University of Josip Juraj Strossmayer or other universities in the Republic of Croatia (up to 4 ECTS). The decision will be made by the Commission for the specialist studies, and after comparing the award of this study and studies from which the selected course.

3.5. CRITERIA AND CONDITIONS OF TRANSFER ECTS POINTS

After comparing the scoring system of study, decided by the Commission for specialist study.

3.6. CONDITIONS UNDER WHICH STUDENTS WHO DISCONTINUED THE STUDY OR LOST THE RIGHT TO STUDY IN ONE STUDY PROGRAM MAY CONTINUE TO STUDY

Students who discontinued the study may continue provided that the interruption of studies has been NO more than three years.

3.7. CONDITIONS UNDER WHICH A STUDENT ACQUIRES THE RIGHT TO ABOUT PARTIAL CERTIFICATE PROGRAMME AS PART OF LIFELONG EDUCATION

At each stage of study, may be issued a certificate of completed activities and the ECTS points acquired in the study.

3.8. COMPLETION OF STUDIES, IE CONDITIONS FOR APPROVAL OF TOPICS AND PROCEDURE FOR FINAL EVALUATION AND DEFENSE OF THE FINAL

Postgraduate student at the beginning of the study shall be appointed mentor based on the application and areas of work of the student. Mentor takes care of student involvement in scientific research and professional work, the selection optional courses and topics of specialist work. The mentor can be a person appointed to the academic or scientific position in the field of topics. Login topics specialist work is submitted on the prescribed form (Subject, reasoning, literature), and after acceptance of the Commission for the specialist studies, the final decision on acceptance made by the Faculty Council. When the action is completed, the Faculty Council on a proposal from the Commission to appoint a specialist study commission to review and defense work. Members of the committee may be persons appointed to scientific research or teaching positions in the field of topics.

3.9. MAXIMUM DURATION OF STUDY

The maximum duration of study is five semesters.

4. CONDITIONS OF THE STUDY

4.1. LIST OF TEACHERS AND ASSOCIATES WHO WILL PARTICIPATE IN THE PERFORMANCE OF THE COURSE

Course code	Course title	Teacher and associates	Scientific field of teacher
MEAT 101	Protection and branding of traditional food products in Croatia and the EU	Dragan Kovačević, PhD, full professor; Jelena Đugum, PhD, assistant professor	Dragan Kovačević: Food Technology Jelena Đugum: Food Technology
MEAT 102	The basics of meat technology	Dragan Kovačević, PhD, full professor	Dragan Kovačević: Food Technology
MEAT 103	Swine breeding for production of traditional meat products	Đuro Senčić, PhD, full professor; Željko Cvetnić, PhD, scientific advisor	Đuro Senčić: Agronomy Željko Cvetnić: Veterinary medicine
MEAT 104	Veterinary-medical supervision in production of traditional meat products	Željko Cvetnić, PhD, scientific advisor; Andrea Humski, PhD, scientific advisor	Andrea Humski: Veterinary medicine Željko Cvetnić: Veterinary medicine
MEAT 105	Technology of production of traditional meat products	Dragan Kovačević, PhD, full professor; Drago Šubarić, PhD, full professor; Đuro Senčić, PhD, full professor	Dragan Kovačević: Food Technology Drago Šubarić: Food Technology Đuro Senčić: Agronomy
MEAT 106	Sensory and physico-chemical properties of traditional meat products	Ljiljana Primorac, PhD, professor; Jelka Pleadin, PhD, assistant professor	Ljiljana Primorac: Food Technology Jelka Pleadin: Food Technology
OPTIONAL COURSES			
MEAT 201	Hygiene and sanitation in meat production and processing	Drago Šubarić, PhD, full professor; Jurislav Babić, PhD, professor	Drago Šubarić: Food Technology Jurislav Babić: Food Technology
MEAT 202	Mikrobiologija i kvarenje tradicionalnih mesnih proizvoda/ microbiology and spoilage of traditional meat products	Marija Halt, PhD, full professor; Jadranka Frece, PhD, professor	Maja Halt: Food Technology Jadranka Frece: Biotechnology
MEAT 203	HACCP application in production of traditional meat products	Drago Šubarić, PhD, full professor; Andrea Humski, PhD, scientific advisor	Drago Šubarić: Food Technology Andrea Humski: Veterinary medicine
MEAT 204	Technological line design for production of traditional meat products and business plan	Mate Bilić, PhD, full professor	Mate Bilić: Food Technology

4.2. LIST OF ASSOCIATES, CONSULTANTS OF STUDY, MENTOR OR LEADER OF THE FINAL PAPER

1. Dragan Kovačević, PhD, full professor

2. Drago Šubarić, PhD, full professor
3. Đuro Senčić, PhD, full professor
4. Mate Bilić, PhD, full professor
5. Marija Halt, PhD, full professor
6. Ljiljana Primorac, PhD, full professor
7. Jelena Đugum, PhD, assistant professor
8. Jadranka Frece, PhD, professor
9. Jurislav Babić, PhD, assistant professor
10. Andrea Humski, PhD, scientific advisor
11. Željko Cvetnić, PhD, scientific advisor
12. Jelka Pleadin, PhD, assistant professor

4.3. DURATION OF STUDY

Classes at the studio last two semesters. Deadline for completion of the study is five semesters.

4.4. CONDITIONS ENTERING THE STUDY

Studies may enroll applicants who have completed studies at the Faculty of Food Technology in Osijek (PTF), equivalent studies in other universities in Croatia and abroad, the study of Chemistry and Technology, Agriculture, Agriculture and Veterinary Medicine, along with an examination of undergraduate studies required PTF for continuation of study. The decision will be made by the Commission for a specialist study after analyzing teaching plans of these universities. Candidates who have completed another college may enroll in this study under conditions that will adopt Faculty Council. Applicants for enrollment must have a grade point average in undergraduate study at least 3.0. Exception may be approved entry and a lower average score with the recommendation of two teachers with undergraduate studies. The decision will be made by the Faculty Council on a proposal from the Commission for the specialist studies.

4.5. CONCLUDED CONTRACTS WITH SCIENTIFIC AND TEACHING STAFF

For teaching at the study has signed contracts with six permanently employed teachers with appropriate academic titles that will run 67.21% or 410 hours of standard proposed program of study and 6 of the contract with teaching staff who are employed in other institutions and will run 32,78% or 200 hours of standard proposed program of study.

4.6. PROOF OF SPACE AND EQUIPMENT FOR PERFORMANCE STUDY

For the study will use existing facilities and equipment at the University of Osijek, Faculty of Food Technology in Osijek, Kuhačeva 18 and 20. Also, some exercises from the course "Sensory and physico-chemical properties of traditional meat products" will be performed in the CMQ in Osijek, Kuhačeva 20. To create the final work will be used by an accredited laboratory of Microbiology of food and accredited

laboratory for Analytical Food Chemistry Veterinary Institute in Zagreb, Savska 143. Space in the PTF for the performance study consists of six classrooms, 34 laboratories (16 and 18 research students), library with reading room, offices for teachers, cafeteria and space for student organizations FISEC, City Hall, Dean of the supporting services and communications, and sanitary space.

INFORMATION OF THE SURFACE AREA FOR PERFORMANCE STUDIES

Space	Surface (m ²)
LECTURE HALLS	397,65
Lecture hall I	86,00
Lecture hall II	76,90
Lecture hall III	64,90
Lecture hall IV	71,00
Lecture hall V	49,90
Lecture hall VI	48,95
Laboratories	1815,94
Scientific laboratories	1306,14
Laboratory I	42,50
Laboratory II	31,40
Laboratory III	30,20
Laboratory IV	29,70
Laboratory V	39,52
Laboratory VI	50,68
Laboratory VII	22,75
Laboratory VIII	26,36
Laboratory IX	22,75
Laboratory X	26,18
Laboratory XI	15,08
Laboratory XII	53,51
Laboratory XIII	36,98
Laboratory XIV	25,80
Laboratory XV	27,70
Laboratory XVI	28,69
Laboratories for students	509,80
Laboratory for Food Technologies	73,33
Laboratory for Food Quality Control	108,16
Laboratory for Instrumental Methods Of Analysis	118,16
Laboratory for Engineering Thermodynamics	98,08
Laboratory for Food Microbiology	48,49
Laboratory for Organic Chemistry	65,00
Laboratory for General And Analytical Chemistry	65,00
Laboratory for Water Technology And Wastewater Treatment	65,00
Laboratory for Physical Chemistry	65,00
Laboratory for Transfer Phenomena	65,00
Laboratory for Ecology	65,00
Library	300,00
Professors's offices	485,37
Cafeteria	200,00

Dean's office	250,00
Sanitation facilities	800,00
Center for meat quality	135,00
Laboratory for meat quality	135,00
Veterinary institute	213,39
Laboratory for Food Analytical Chemistry	130,00
Laboratory for Food Microbiology	83,39
TOTAL	4.475,35

LIBRARY FOND

Books and Textbooks	2.030
Journals	128

INFORMATION ON THE SURFACE AREA OF PERFORMANCE STUDIES

1. Faculty of Food Technology

- Gas chromatograph with head space injection and mass spectrometry by Hewlett Packard,
- Gas chromatograph with head space injection by Perkin Elmer,
- rotation viscometer with kriostatic unit,
- laboratory scale unit for reverse osmosis and ultrafiltration with plate membranes,
- laboratory scale unit for ultrafiltration and microfiltration with tubular module and tube membranes with spiral and capillary module,
- microwave destruction unit "Star 2",
- unit for electrochemical determination with rotating and static dripping Hg electrode, EG and GPAR, Model 303 A,
- system for α -amylase determination in wheat according to Falling Number method, Perten: Falling Number 1500,
- microscope, trinocular MBL 2100, with phototube,
- electronic bacterial thermostats (temperature 30 do 80 $^{\circ}$ C),
- IR-spectrometer FTIR 500, Perkin Elmer,
- *Electrophoresis system*
- system for foodstuff heat conductivity and specific heat determination regulated by computer,
- system for microwave drying
- spectrophotometer, SPECORD 200, 190-1100 nm,
- differential thermic analysis system, DTA,
- DSC (Differential Scanning Calorimeter),
- HPLC,
- unit for vacuum drying,
- sterile chamber (box),
- laboratory microscope with digital camera

2. Veterinary institute

- analytical scale (AUW220D SHIMADZU), 2 psc;
- precise scale (AND GF 2000);
- N/protein destilation unit (Vapodest 40, Gerhardt);
- N/protein destilation unit (Kjeltec System 1002 Tecator);
- unit for fat extraction (Soxtherm 2000 Gerhardt);
- ELISA plate reader (BIO Tek EL 800);
- ELISA plate eluent (EL 50 BIO-TEK);
- chemical analizator (ChemWell 2910);
- destruction unit (Digestion Unit 8 basic, Tecator);
- spectrophotometer (Hach DR/4000U);
- spectrophotometer (Thermo Spectronic Helios γ);
- Rotavapor (Laborota 4001 efficent, Heidolph);
- furnace (Program controller S27 Nabertherm);
- furnace (LV9/11 / P 320, Nabertherm);
- microwave oven (Pyro Terminal 240 Milestone);
- centrifuge with cooling (Universal 320R Hettich);
- laboratory dishwasher (LABEXIA 820 LX LANCER);
- thermostat (EPSA 2000), 3 kom.;
- water bath (GFL, Burgwald);
- water bath (Thermo Haake SWB 25);
- unit for fibre determination (Fibrebag-system, Gerhardt);
- pH-meter (MP 220 Mettler Toledo);
- laboratory mill (Cylotec 1093 Tecator), 2 kom.;
- homogenizer (GRINDOMIX GM 200, Retsch);
- homogenizer (DI 25 basic, Yellow Line, IKA);
- homogenizer (Silent Chrusher S Heidolph);
- analytical mill (A 11 basic IKA);
- mixer (HS 260 control, IKA);
- mini-shaker (IKA MS 1);
- mixer (MSL Braun);
- vacuum pump (NO 35 AN 18 KNF NEUBERGER GmbH), 2 psc;
- vacuum cleanser (Vac-Master BIOTAGE);
- (digester) (LDD 1800mm STANDARD Proklima), 2 psc;
- fume cupboard (digester) (Köttermann 2-418NL);
- acid and lye cupboard, 2 psc;
- cupboard for flammable components
- VITEK 2 System – automatic system for biochemical identification of microorganisms, first of all

bacteria and yeasts

- absorbance microreader "Sunrise Tecan"
- Homogenization unit : a) IAK A11 BASIC, b) peristaltic SEWARD 400 c) RETSCH GM2000
- Protective cupboards (laminaires) – KTB NS - 3 psc
- binocular microscope Magnum
- Centrifuge LABOFUGE 400, HERAEUS
- Incubators Binder, 3 psc; Memmert 2 psc
- Autoclave MelaQuick 12
- aw determination instrument – AquaLab Lite

3. Laboratorij CMQ

- FoodScan Meat Analyser (FOSS)
- FIA star 5000 (FOSS)
- Cyber scan pH 510 (Eutech Instruments)
- HygroLab 3 (ROTRONIC)
- TA.XT plus texture analyzer (Stable micro systems)
- KERN ALJ 220 – 4 NM – max. 220 g; 0,1 mg (KERN)
- KERN 440 – 35 N – max. 400 g; 0,01 g (KERN)
- KERN 440 – 47 N – max. 2000 g; 0,1 g
- SOXTEC SYSTEM 1040 extraction unit (FOSS TECHATOR)

4.7. OPTIMAL NUMBER OF STUDENTS THAT CAN ENROLL WITH RESPECT TO THE SPACE, EQUIPMENT AND NUMBER OF TEACHERS.

Optimal number of participants is 10.

4.8. COST ASSESSMENT PER STUDENT

Price per study participant is 25,000 kuna

4.9. METHOD OF MONITORING THE QUALITY AND PERFORMANCE PERFORMANCE STUDY

Quality of the study program will be monitored for program evaluation by the study participants (the structure of the study and teachers) and through the Commission for the specialist studies that will appoint a special committee to monitor the quality of studies, study design and the teachers. In this committee will be representatives of producers and producer associations. About all that the Commission stated the Commission for a specialist study report annually.

**COURSE DESCRIPTION
(OBLIGATORY)**

Course title	PROTECTION AND BRANDING OF TRADITIONAL FOOD PRODUCTS IN CROATIA AND THE EU		
Course code	MEAT 101		
Course lecturer	Ph. D Dragan Kovačević, full professor		
Course associates	Ph. D Jelena Đugum, assistant profesor		
Course content	Economic, cultural and gastronomic importance of traditional food products. Production of traditional food products in the Republic of Croatia and the European Union. Problems in the production and marketing of traditional food products (standardization of quality, application of technological advances, animal health control, producer associations and production facilities, marketing and protection of traditional products). Support the production of traditional food products in Croatia and the EU. Regulations and procedures of protection of traditional food products in Croatia and the EU. Food products that are marked protection of geographical indications, designations of origin and traditional speciality guaranteed in Croatia and the EU. Marketing, branding and export capabilities of traditional food products.		
General and specific knowledge acquired in course (objective)	Attendees receive key information about all the traditional food products in Croatia and the EU, procedures of protection, state aid and the role of traditional products in rural development and competitiveness of agriculture and food industry. Also, learn about the experiences of the EU and the current problems related to production and marketing of traditional products, quality and safety standards and applying the latest technological achievements. Acquires basic knowledge and skills in marketing and branding of traditional products as a precondition for successful market placement.		
Semester	I.	Teaching metod	20 L + 10 S
Examination method	Seminar and written exam		
Points	5	Language	Croatian
Compulsory reading	<ol style="list-style-type: none"> Jordana, J. (2000): Traditional foods: challenges facing the European food industry, Food Research International, Vol. 33, pp. 147-152. Trichopoulou, A., Soukara S., Vasilopoulou E. (2007): Traditional foods: a science and society perspective, Trends in Food Science and Technology, Vol. 18, pp. 420-427. A. Banterle, A. Cavaliere, S. Stranieri, L. Carraresi (2009): European traditional food producers and marketing capabilities: An application of marketing management process; 4th Aspects and Visions of Applied Economics and Informatics March 26 - 27. 2009, Debrecen, Hungary 347. Kotler, P. (2001): Upravljanje marketingom, Mate d.o.o. Zagreb, Zagreb. 		
Recommended reading	<ol style="list-style-type: none"> Toldra, F. (2007): Handbook of Fermented Meat and Poultry. Ames, Iowa: Blackwell Pub. Bukvić, Ž., Kralik, D., Milaković, Z. (2007): Hrvatski autohtoni proizvodi, Poljoprivredni fakultet u Osijeku, Osijek. Cayot N. (2007): Sensory quality of traditional foods, Food Chemistry, Vol. 101, pp. 154 -162. Luykx, D.M.A.M., van Ruth S.M. (2008): An overview of analytical methods for determining the geographical origin of food products, Food Chemistry, Vol. 107, pp. 897-911. Živković, J., Ž. Cvrtila (1998): Autohtoni mesni proizvodi u Hrvata. Okrugli stol: Hrvatski izvorni proizvodi u turizmu i promidžbi Hrvatske. JMZV' 98. Zagreb 1998. Zbornik radova, 50-54. 		

Course title	THE BASICS OF MEAT TECHNOLOGY		
Course code	MEAT 102		
Course lecturer	Ph. D Dragan Kovačević, full professor		
Course associates	-		
Course content	Structure, chemical composition and properties of meat. Post-mortem changes and maturation of the meat . Basic raw materials and additives for the production of meat products. Technology slaughter and carcass processing. Categorization and cutting meat. Methods of meat conserving. Technological processes and equipment for producing and conserving of meat products. The systematization of meat products. Achievements in meat packaging.		
General and specific knowledge acquired in course (objective)	The program provides students with a comprehensive introduction to the properties and post-mortem changes in meat, especially in traditional products, play a key role in the ripening process and the creation of specific sensory properties. Also, acquire knowledge about all phases of production of meat products, from the slaughter line cutting through to processing, conserving and packaging. Special emphasis is given on the latest technologies, machinery and equipment for processing, conserving, ripening and packaging of meat products.		
Semester	I.	Teaching metod	30 L
Examination method	Seminar and oral exam		
Points	4	Language	Croatian
Compulsory reading	<ol style="list-style-type: none"> 1. Kovačević, D. (2001): Kemija i tehnologija mesa i ribe, PTF - Osijek, Osijek (sveučilišni udžbenik). 2. Kerry, J., Kerry J., Ledward, D. (2002): Meat Processing: Improving Quality, C.H.I.P.S., Weimar, Texas. 3. Varnam, A. H., Sutherland, J. P. (1995): Meat and Meat Products. Technology, chemistry and microbiology, Chapman & Hall, London - Glasgow - Weinheim - New York -Tokyo - Melbourne - Madras. 		
Recommended reading	<ol style="list-style-type: none"> 1. Pearson, A. M., Dutson, T. R. (1997): Production processing of healthy meat, poultry and fish products, Blackie Academic & Professional, London - Glasgow - Weinheim - New York - Tokyo - Melbourne - Madras. 2. Živković, J. (2001): Higijena i tehnologija mesa (I. Dio), (II. dopunjeno izdanje), Veterinarski fakultet Sveučilišta u Zagrebu, Zagreb. 3. Pearson, A. M., Dutson, T. R. (2001): HACCP in Meat, Poultry and Fish Processing, C.H.I.P.S., Weimar, Texas. 		

Course name	SWINE BREEDING FOR PRODUCTION OF TRADITIONAL MEAT PRODUCTS		
Code	MEAT 103		
Course leader	Đuro Senčić, PhD, full profesor		
Course associate	Željko Cvetnić, PhD, scientific advisor		
Course description	The genotypes of pigs for production of traditional meat products. Breeding methods in cultivation of pigs for extended fattening. Pig keeping systems (open, semi-open, closed). Requirements for swine accommodation. Feeding fattening pigs. Treatment of pigs prior to slaughter.		
General and specific knowledge acquired in course (objective)	Students learn about swine breeds and breeding methods, which will provide them with knowledge and ability to select quality raw materials to produce traditional meat products. Also, students get insight into genetic and paragenetic factors, which together with breeding methods and body weight have a significant impact on quality of pigs for production of traditional meat products.		
Semester	I.	Classes	20 P
Examination	Oral exam		
Points	4	Language	Croatian
Required reading	<p>1. Senčić, Đ., Pavičić, Ž., Bukvić, Ž. (1996.): Intenzivno svinjogojstvo. Nova Zemlja, Osijek.</p> <p>1. Senčić, Đ., Pavičić, Ž., Bukvić, Ž. (1996.): Intensive swine husbandry. Nova Zemlja, Osijek.</p> <p>2. Kovačević, D. (2004): Sirovine prehrambene industrije (meso i riba), PTF-Osijek, Osijek (sveučilišni udžbenik).</p> <p>2. Kovačević, D. (2004): Raw materials in food industry (meat and fish), Faculty of Food Technology, Osijek, (university textbook).</p> <p>3. Senčić, Đ., Antunović, Z., Kanisek, J., Šperanda, M. (2005): Fattening, meatiness and economic efficiency of fattening pigs. Acta Veterinaria 55, 4, 327-334.</p>		
Recommended reading	<p>1. Uremović, M., Uremović, Z. (1997.): Svinjogojstvo. Agronomski fakultet, Zagreb.</p> <p>1. Uremović, M., Uremović, Z. (1997.): Pig husbandry. Faculty of agriculture, Zagreb.</p> <p>2. Karolyi, D., K. Sinjeri, D. Kovačić, I. Jurić, M. Đikić (2006): Kvaliteta mesa i iskorištenje trupa crne slavonske i modernih svinja u proizvodnji kulena. Meso, VIII (1), 29-33.</p> <p>2. Karolyi, D., K. Sinjeri, D. Kovačić, I. Jurić, M. Đikić (2006): Meat quality and body utilisation of Black slavonian and modern pigs in kulen sausage. Meat, VIII (1), 29-33.</p> <p>3. Operativni program potpore proizvodnji slavonskog kulena. Ministarstvo poljoprivrede, šumarstva i vodnog gospodarstva. Zagreb, svibanj 2006.</p> <p>3. Operative support programme in production of Slavonian kulen sausage. Ministry of Agriculture, Forestry and Water Management. Zagreb, May 2006.</p>		

Course name	VETERINARY-MEDICAL SUPERVISION IN PRODUCTION OF TRADITIONAL MEAT PRODUCTS		
Code	MEAT 104		
Course leader	Željko Cvetnić, PhD, scientific advisor		
Course associate	Andrea Humski, PhD, scientific advisor		
Course description	Objectives, tasks and implementation of veterinary-medical inspections in control and monitoring of swine breeding and production of meat products (regulations in the field of "hygiene package", veterinary medicine and consumer protection). Impact of environmental, breeding and technological factors on swine disease. Most significant infectious and parasitic swine diseases - diagnosis, prevention and therapy. Problems in implementation of veterinary-medical surveillance in family farms and small facilities for production of traditional meat products.		
General and specific knowledge acquired in course (objective)	The purpose of this course is to give students insight into a new approach in veterinary-medical surveillance and control of pig farming and production of meat products with special emphasis on latest regulations and animal health standards that Croatia has harmonised with those in EU. Also, students get basic insights into most common swine diseases and their diagnosis, prevention and therapy.		
Semester	I.	Classes	15 P + 10 S
Examination	Seminar paper and oral exam		
Points	4	Language	Croatian
Required reading	1. Živković, J. (2001): Higijena i tehnologija mesa (I. Dio), (II. dopunjeno izdanje), Veterinarski fakultet Sveučilišta u Zagrebu, Zagreb. 1. Živković, J. (2001): Hygiene and meat technology (Part I), (II. revised edition), Veterinary Faculty, University in Zagreb, Zagreb. 2. Herenda, D. (1994): Manual on meat inspection for developing countries. FAO animal production and health paper, Rome, Italy. 3. Gracey, J., D.S. Collins, R. Huey (1999): Meat hygiene. W.B. Saunders Company, Ltd. London, UK.		
Recommended reading	1. Zakon o veterinarstvu, NN 41/07 i NN 155/08. 1. Law on Veterinary Medicine, NN 41/07 i NN 155/08. 2. Zakon o hrani, NN 46/07 i NN 155/08. 2. Law on Food, NN 46/07 i NN 155/08. 3. Pravilnik o higijeni hrane životinjskog podrijetla, NN 99/07. 3. Regulations on hygiene of food of animal origin, NN 99/07. 4. Zakon o zaštiti potrošača, NN 79/07, 125/07 79/09, 89/09. 4. Consumer Protection Law, NN 79/07, 125/07 79/09, 89/09.		

Course title	TECHNOLOGY OF PRODUCTION OF TRADITIONAL MEAT PRODUCTS		
Course code	MEAT 105		
Course lecturer	Dragan Kovačević, PhD, full professor		
Course associates	Drago Šubarić, PhD, full professor and Đuro Senčić, fPhD. full professor		
Course content	Technology of production of Slavonian kulen, Dalmatian smoked prosciutto, Istrian prosciutto, Slavonian ham and Slavonian homemade sausages and other traditional meat products. Selection of raw materials to produce traditional meat products (types of livestock for slaughter, meat categories, recipes, additives, spices, additives). Processing of the carcass, meat processing and preparation of semi products. The latest mashinery and equipment for meat processing and preparation of semi products. Technology conservation of traditional dried meat products and / or smoking. Technology maturation (fermentation) of traditional meat products and technological characteristics of automated chambers for ripening. Packaging of traditional meat products.		
General and specific knowledge acquired in course (objective)	Students acquired specific knowledge about production technologies and some traditional meat products. Also, acquired themselves knowledge about all the current problems in the production of traditional meat products, which are an obstacle to the standardization of quality and production technology, and protection of traditional meat products. Special emphasis is given to the quality standards and implement the latest technological achievements as students would have to be professional basis and encouragement for modernization production of traditional meat products modeled on the experience of EU countries.		
Semester	II.	Teaching metod	90 L
Examination method	Seminar and written exam		
Points	10	Language	Croatian
Compulsory reading	<p>1. Toldra, F. (2007): Handbook of Fermented Meat and Poultry. Ames, Iowa: Blackwell Pub.</p> <p>2. Baldini, P., Cantoni, E., Colla, F., Diaferia, C., Gabba, L., Spotti, E., Marchelli, R., Dossena, A., Virgili, E., Sforza, S., Tenca, P., Mangia, A., Jordano, R., Lopez, M.C., Medina, L., Coudurier, S., Oddou, S., Solignat, G. (2000): Dry sausages ripening: influence of thermohygrometric conditions on microbiological, chemical and physico-chemical characteristics, Food Research International, Vol. 33, pp. 161-170.</p> <p>3. Kovačević, D. (2001): Kemija i tehnologija mesa i ribe, PTF - Osijek, Osijek (sveučilišni udžbenik).</p> <p>4. Đ. Senčić: Slavonska šunka hrvatski autohtoni proizvod. Poljoprivredni fakultet u Osijeku, Osijek, 2009.</p>		
Recommended reading	<p>1. Benčević, K., A. Petričević (1999): Slavonski domaći kulen i kobasice. Mala škola povijesti i proizvodnje. Hrvatski farmer d.d. Zagreb, 1999.</p> <p>2. Krvavica, M., Đugum, J. (2006): Proizvodnja pršuta u svijetu i kod nas. Meso, VII (6), 355-365.</p> <p>3. Karolyi, D., Salajpal, K., Đikić, M., Jurić, I., Kostelić, A. (2005): Utjecaj obrade, težine i prešanja buta na kalo istarskog pršuta. Meso, VII (6), 32 - 35.</p> <p>4. Karolyi, D. (2003): Drniški pršut. Meso, V (6), 8 -10.</p>		

Course title	SENSORY AND PHYSICO-CHEMICAL PROPERTIES OF TRADITIONAL MEAT PRODUCTS		
A. Course code	MEAT 106		
Course lecturers	Ljiljana Primorac, PhD, professor		
Course associates	Jelena Pleadin, PhD, assistant professor		
Course content	Food Quality and Safety. Food Composition, energy value, macronutrient determination. Standardized methods and procedures for water, fat and protein determination and other methods for meat quality control. Physico-chemical properties of traditional meat products. Nitrate and phosphate analysis. Residue identification and determination. Sensory analyses in quality assessment of traditional meat products. Authenticity issues for meat and meat products.		
General and specific knowledge acquired in course (objective)	The attendants are introduced to physico-chemical properties of traditional meat products and common contaminants, as well as standardised methods for their determination. The insight to sensory analyses, which is, due to the specific aroma and flavour of traditional meat products, crucial in quality assessment is provided by this course.		
Semester	I	Lectures	20 P+15 V
Examination method	Seminar and oral exam		
Credits		B. Language	Croatian
Compulsory reading	<ol style="list-style-type: none"> 1. S.S. Nielsen (2003.): Food analysis. Kluwer Academic/plenum Publishers, New York. 2. LJ. Primorac (2005.): Metode senzorske analize (interna skripta). Prehrambeno tehnološki fakultet, Osijek. 3. Rouessac, F., Rouessac, A. (2000): Chemical Analysis, Modern Instrumental Methods and Techniques, Willey&Sons, New York. 4. Karolyi, D., K. Salajpal, M. Đikić, A. Kostelić, I. Jurić (2005): Fizikalno-kemijske osobine Slavonskog kulena. Meso VII (2), 35 - 37. 		
Recommended reading	<ol style="list-style-type: none"> 1. John de Vries (1997): Food Safety and Toxicity, CRC Press, London. 2. M. L.Mandić, A. Perl Pirički (2006): Osnove senzorske procjene hrane. Prehrambeno-tehnološki fakultet ,Osijek. 3. C.S.James:Analytical chemistry of foods, Chapman & Hall, London 1995. 4. Karolyi, D., Kovačić, D. (2008): Organoleptička ocjena slavonskog kulena od crne slavonske i bijelih pasmina. Meso, X (5), 356- 360. 5. Krvavica, M. (2006): Čimbenici kakvoće pršuta. Meso, VII (5), 279-290. 6. Karolyi, D. (2006): Kemijski sastav i kakvoća istarskog pršuta. Meso, VII (4), 227-228. 		

**COURSE DESCRIPTION
(OPTIONAL)**

Subject	HYGIENE AND SANITATION IN MEAT PRODUCTION AND PROCESSING		
Course code	MEAT 201		
Course lecturer	Drago Šubarić, PhD, full profesor		
Associate	Jurislav Babić, PhD, assistant profesor		
Course content	Good manufacturing practice, good hygiene practice, good laboratory practice. Sources of food- and facilities- contamination. Microbial, physical and chemical hazards. Personal hygiene (personell). Sanitary food handling. Food poisoning types and causes. Cleaning compounds and sanitizers of process equipment, proper cleaning procedures. Sanitation methods. Cleaning and sanitizing systems. Waste treatment. Pest control (insects, rodents, birds). HACCP system. Regulations. Requirements for meat establishment construction and hygiene and sanitation.		
General and specific knowledge acquired in course (objectives)	At this course, students will gain knowledge in hygiene and sanitation of facilities for meat production and processing, principally: prevention of microbial, physical and chemical contamination of food, effective cleaning procedures and application of proper cleaning compounds, application of good manufacturing practice, process equipment maintenance, personal hygiene and sanitary food handling.		
Semester	I.	Lectures	25 P
Examination method	Oral.		
ECTS	4	Language	Croatian
Compulsory reading literature	<ol style="list-style-type: none"> 1. C. De W. Blackburn, P. J. McClure (2002): Foodborne pathogens. Hazards, risk analysis and control. CRC Press, Boston, New York, Washington. 2. N. G. Marriott (1997): Essentials of food sanitation., International Thomson Publishing. 3. V. Turčić2 (2000.): HACCP i higijena namirnica. Zagreb. 		
Recommended reading literature	<ol style="list-style-type: none"> 1. S. Duraković (1996.): Primijenjena mikrobiologija. PTI Zagreb. 2. S. Duraković (1991.): Prehrambena mikrobiologija. Medicinska naklada Zagreb. 3. S. Duraković, L. Duraković (2001.): Mikrobiologija namirnica. Kugler Zagreb. 		

Subject	MIKROBIOLOGIJA I KVARENJE TRADICIONALNIH MESNIH PROIZVODA/ MICROBIOLOGY AND SPOILAGE OF TRADITIONAL MEAT PRODUCTS		
Course code	MEAT 202		
Course lecturer	Marija Halt, PhD, full profesor		
Associate	Jadranka Frece, PhD, profesor		
Course content	Microbial populations of traditional meat products and raw materials for their production. Conditions for growth of microorganisms. Starter cultures for the production of traditional meat products. The main sources of contamination and the most common causes of spoilage of meat. Types of meat spoilage. Microbial infection and intoxication of meat. Methods to prevent contamination of traditional meat products and methods for removal of contaminants. Methods for rapid determination of microorganisms in traditional meat products.		
General and specific knowledge acquired in course (objectives)	Students will receive information about the microbial population of traditional meat products, factors affecting their development and measures to be taken to minimize the microbiological contamination of meat products and raw materials for their production. Also, students will learn about the experiences and current problems of surface contamination and spoilage of traditional meat products and methods for their prevention as they would be allowed to practice recognition of spoilage or contamination and the handling of meat products. Furthermore, students can learn through practical classes methods for detection and rapid determination of microorganisms in traditional meat products and the application of starter cultures in production of meat products, particularly lactic acid bacteria.		
Semester	II.	Lectures	20 P + 5 V
Examination method	Seminar and oral exam		
ECTS	4	Language	Croatian
Compulsory reading literature	<ol style="list-style-type: none"> 1. Kovačević, D. (2001): <i>Kemija i tehnologija mesa i ribe</i>. Osijek 2. Duraković, S. i suradnici (2002): <i>Moderna mikrobiologija namirnica</i>, Knjiga druga; Kugler, Zagreb. 3. Živković, J. (2001): <i>Higijena i tehnologija mesa</i>. Veterinarsko sanitarni nadzor životinja za klanje i mesa. I dio. Pipremio i nadopunio: M. Hadžiosmanović. Udžbenik Sveučilišta u Zagrebu. Orbis, Zagreb 		
Recommended reading literature	<ol style="list-style-type: none"> 1. Duraković, S. (1991): <i>Prehrambena mikrobiologija</i>, Medicinska naklada-Zagreb. 2. Krznarić J. i sur. (2006): <i>Prosuđivanje mesa zahvaćenog kvarenjem</i>, <i>Meso</i>, Vol. VII, 89-92. 3. Jofre A. <i>et al.</i> (2009): Improvement of the food safety of low acid fermented sausages by enterocins A and B and high pressure, <i>Food Control</i>, 20, 179-184. 		

Subject	HACCP APPLICATION IN PRODUCTION OF TRADITIONAL MEAT PRODUCTS		
Course code	MEAT 203		
Course lecturer	Drago Šubarić, PhD, full profesor		
Associate	Andrea Humski, PhD, scientific advisor		
Course content	HACCP role in food safety system. HACCP in general and HACCP in meat industry. Differences between HACCP application in large meat industries and small producers of traditional products (family farms, crafts, SMEs, etc.). Establishment of planning, documenting and sampling system to verify procedures in accordance with self-control plans and conformity check. Differences between HACCP requirements and requirements defined in Specification of traditional meat products in protection procedure.		
General and specific knowledge acquired in course (objectives)	The aim of this course is to give attenders insight into HACCP application as tool for placing traditional meat products on market and its importance in entire food safety system. In addition, attenders gain knowledge on HACCP system requirements, based on which they can participate in plant design or HACCP establishment in existing objects for production of traditional meat products.		
Semester	I.	Lectures	10 P + 10 S
Examination method	Seminary thesis and oral exam.		
ECTS	4	Language	Croatian
Compulsory reading literature	<ol style="list-style-type: none"> 1. CODEX Alimentarius, Hazard Analysis and Critical Control Point (HACCP) System and Guidelines for its Application & Recommended International Code of Practice General Principles of Food Hygiene, CAC/RCP 1- 1969, Rev 4- 2003. 2. Zakon o oznakama izvornosti, oznakama zemljopisnog podrijetla i oznakama tradicionalnog ugleda poljoprivrednih i prehrambenih proizvoda NN 84/08. 3. Pravilnik o oznakama izvornosti i oznakama zemljopisnog podrijetla hrane NN 80/05 i 11/07. 4. Zakon o hrani NN 46/07 i 155/08. 		
Recommended reading literature	<ol style="list-style-type: none"> 1. Anon, EC (2004): From Farm to Fork – Safe Food for Europe's Consumers. Brussels: European Commission – Directorate General for Press and Communication Publications (p.p. 1-28), ISBN: 92-894-7772-5. (http://ec.europa.eu/publications/booklets/move/46/en.pdf) 2. Anon, EC (2005): Report of the mission carried out in Croatia from 7 to 11 March 2005 regarding general assessment of food safety controls and the readiness of Croatia to meet EU food safety standards. European Commission - Health and Consumer Protection Directorate - General - Directorate F – Food and Veterinary Office, DG (SANCO)/7604/2005. 3. Geoffrey Campbell-Platt: Food Science and Technology, Wiley Blackwell 4. Sara Mortimore, Carol Wallace (2001): HACCP, Blackwell Science, ISBN: 978-0-632-05648-4 		

Subject	TECHNOLOGICAL LINE DESIGN FOR PRODUCTION OF TRADITIONAL MEAT PRODUCTS AND BUSINESS PLAN		
Course code	MEAT 204		
Course lecturer	Mate Bilić, PhD, full profesor		
Associate	-		
Course content	Definition of technological design with supporting regulations. Project task (plant design for production of traditional meat products). Design phases, technical project, cost estimation, detailed project, equipment specification and purchase, construction and installation, start up operation. Technological scheme, building layouts, 3D view, computer programs. The selection of macro and micro location, infrastructure, plant layout. Environmental issues, waste minimization and disposal. Writing a business plan.		
General and specific knowledge acquired in course (objectives)	Students acquire basic knowledge in plant design for the production of traditional meat products. Students are qualified for participation in the development of technological projects and techno-economic studies, as well as in all phases of plant design. Furthermore, students are trained for economic considerations and the development of business plans in order to achieve the financing of projects and for estimation of investment justification.		
Semester	II.	Lectures	25 hrs
Examination method	Seminar and oral exam.		
ECTS	4	Language	Croatian and English
Compulsory reading literature	<ol style="list-style-type: none"> 1. Zakon o gradnji, NN 175/03 i NN 100/04 2. Pravilnik o uvjetima kojima moraju udovoljavati objekti za klanje životinja, obradu, preradu i uskladištenje proizvoda životinjskog podrijetla, NN 20/92, NN 27/92 i NN 75/93 3. Kovačević, D. (2001): Kemija i tehnologija mesa i ribe, PTF - Osijek, Osijek (sveučilišni udžbenik). 		
Recommended reading literature	<ol style="list-style-type: none"> 1. Taldra F. (2007) Handbook of Fermented Meat and Poultry, Ames, Iowa, Blackwell Pub. 2. Operativni program potpore proizvodnji slavonskog kulena. Ministarstvo poljoprivrede, šumarstva i vodnog gospodarstva. Zagreb, 2006. 3. Mikšić, M., Nikolić, E., Borbaš, T., Murgić, N., Juzbašić, K., Pajić, S., Klarić, H., Peranić, I., Črep, R., Jelaković, K., Perić, B., Fumić, B. (2007.): Katalog kalkulacija tradicijskih poljoprivredno – prehrambenih proizvoda. Hrvatski zavod za poljoprivrednu savjetodavnu službu. Odjel za agroekonomiku Zagreb. 		

BIOGRAPHY OF TEACHERS

Name and surname: Ph. D Dragan Kovačević, full professor

Institution:

Faculty of Food Technology

e-mail address and personal website:

dragan.kovacevic@ptfos.hr; <http://www.ptfos.hr/~dkovac/>

Biography list of articles published in the last five years and guidance of articles which qualify for teaching:

Born:

Osijek, 17th October 1968

Graduated:

The Faculty of Food, Technology and Biotechnology in Zagreb; 22nd September 1992; „Determination Of Thermal diffusivity of Surimi With Differential Thermal Analysis (DTA)“

Master's degree:

The Faculty of Food, Technology and Biotechnology in Zagreb; 22nd February 1994; „Effects Of Crioprotectors On Thermophysical Properties Of Surimi“

Doctoral Degree:

The Faculty of Food, Technology and Biotechnology in Zagreb; 12th February 1997; „Determination Of Thermophysical Properties Of Frozen Food“

Position and responsibility:

1992 - 1994 working as a Scientific Novice at the Faculty of Food Technology and Biotechnology in Zagreb; 1994. staff Associates in IPK Osijek d.d. (Food Processing Industry, PLC); 1994 - 1996 Head of the Reconstruction and Development Office of Osijek-Baranja County; 1995 member of Osijek-Baranja County Corporation Council; 1995 - 1999 member of the House of Representatives of Croatian Parliament; 1996 - 1999 chairman of the Parliament Board of Economy, Development and Reconstruction; 1997 - 1998 chairman of the Managing Board of IPK Osijek d.d.; 1999. - 2003. assistant Professor (appointed July 19th 1999), course Lecturer at the Faculty of Food Technology in Osijek; 2003 - 2006 associate Professor (appointed January 21st 2003) - Head of «Chemistry and Meat and Fish Technology Department» at the Faculty of Food Technology in Osijek; 2004 - 2008 State Secretary in the Ministry of Agriculture, Forestry and Water and coordinator the negotiations for Chapter 11 - Agriculture and Rural Development; 2005 - 2011 chairman of the Croatian Democratic Union organization for the City Osijek; 2006 - 2011 full Professor (appointed Mai 31st 2006) - Head of «Meat and Fish Technology Department» and «Economics of Food Processing Industry Department» at the Faculty of Food Technology in Osijek; 2007 - 2012 member of the City council of City Osijek; 2009 president of the City council of City Osijek; 2008 - 2011 member of the Croatian Parliament; 2008 - 2011 chairman of the Parliament Board of Economy; 2010 to this day head of the postgraduate specialist studies: "The technology of traditional meat products" in the PTF-Osijek; 2011 to this day full Professor (confirmed April 20th 2011) - the teacher and the head of "Department of Technology of meat and fish" at the Faculty of Food Technology in Osijek.

Teaching activities:

Faculty of Food Technology in Osijek:

He developed education program and leads classes according to Bologna process at following courses (graduate study – Food engineering): Meat and Fish technology, Autochthonic Meat Products and Chemistry and Technology of Meat and Fish. He developed education program and leads classes according to Bologna process at following courses (undergraduate study – Food engineering): Raw Materials of Animal Origin, Economics of food processing industry and Processing Technology of Raw Materials with Animal Origin. He developed education program and conducts classes at postgraduate study in: Meat and Fish Technology achievements, Technology of Traditional Meat Products and Food Process Engineering, at postgraduate scientific study Food Engineering at the Faculty of Food Technology. He developed education program and conducts classes at postgraduate study in: Protection And Branding Of Traditional Food Products in Croatia and the EU, The Basics of Meat Technology and Technology of Production of Traditional Meat Products, at postgraduate specialist study Tehnology Of Tradicional Meat Products at the Faculty of Food Technology.

Teaching at other universities:

He was a visiting professor at the Faculty of Agriculture and Food Technology, University of Mostar, and in the academic year 2009/2010 performing schools in the undergraduate study, at the course: "Technology of raw materials of animal origin." He was a visiting professor at the Faculty of Technology, University of Tuzla, and in the academic year 2009/2010 performing schools in postgraduate study of Food Engineering, at the course: "Advances in meat processing".

Professional activity:

He participated in the implementation of several professional projects and has since 2011 until to this day was the project leaders: "Improving technology and commercialization of traditional meat products (TMP)" (Croatian Institute of technology) and „Improvement and standardization of production technology horse salami" (City Pakrac). Published three books, two in the category of university textbooks: «Chemistry and Technology of Meat and Fish» (2001.), «Primary Products of Food Processing Industry (Meat and Fish)» (2004.) and «Croatian Economical Labyrinth» (2003). Also, co-author of two internal course materials «Primary Products of Food Industry - animal part» and «Mathematical Modeling and Management of Industrial Processes». Published several dozens of scientific and professional works in Food Technology and Economy domain. He was consultant for food industry in German certification house TÜV NORD, which certifies ISO standards and HACCP system.

Scientific activity:

He participated in the implementation of several research projects and has since 2002 until 2007 MZT was the project leader: "0113008 Optimizing and Modeling Freezing Food Processes". He participated in the realization of 04/07/17 "Modeling and optimal control of non-stationary states" and "058 201 Mathematical modeling and intelligent management in biotechnology". He was a member of the scientific and organizational boards of several international scientific conferences. For several dozen national and international scientific and professional meetings attended as an invited speaker, plenary speaker or poster. He is an editor of scientific journals: "Croatian Journal of Food Science and Technology" and "Meat".

Scientific articles:

List of all papers published in the last five years:

1. Jerković I., Kovačević D., Šubarić D., Marijanović Z., Mastanjević K., Suman K.: Authentication study of volatile flavour compounds composition in Slavonian traditional dry fermented salami "kulen". Food Chemistry, (2009) (prihvaćeno za objavljivanje).
2. Kovačević, D., Mastanjević, K., Kordić, J., Čunko, D.: Određivanje krioprotektorske djelotvornosti κ -karagena na miofibrilarnu proteine pilećeg mesa pomoću diferencijalne motridbene kalorimetrije (DSC), Meso, 3 (11) (2009) 175-180.
3. J. Čačić, J. Gajdoš Kljusurić, L. Karpati, M. Tratnik, D. Kovačević (2009.). Croatian small wine producers - possible marketing strategy. Presentation summaries of the 32nd World Congress of vine and wine and 7th general assembly of the OIV 29. 6. – 3. 7. 2009., Dr. sc. Veronika Kubanović (ur.), Hrvatski zavod za vinogradarstvo i vinarstvo, sažetak rada i izlaganje; 2009. 141.
4. Mastanjević, K., Kovačević, D., Suman, K., Lenardić, M.: krioprotektorsko djelovanje polidekstroze i κ -karagena na surimi srdele, Meso, 5 (10) (2008) 352-355.
5. Kovačević, D., Mastanjević, K., Suman, K., Qetaj, L.: Effect of Polydextrose and κ -Carrageenan on Initial Freezing Point of Chicken Surimi, Agriculture Scientific and Professional Review, 13:1 (2007) 201-204.
6. Borislav M., Kovačević, D., Šubarić, D., Miličević, R.: The Influence of Various Distillation Techniques on Quality of Mandarins Distillates. // *Proceedings of The 2008 Joint Central European Congress 4th Central European Congress on Food 6th Croatian Congress of FOOD TECHNOLOGISTS, BIOTECHNOLOGISTS AND NUTRITIONISTS* / Prof. Dr. Duška Čurić (ur.), Zagreb : Croatian Chamber of Economy, (2008) 197-203.
7. Kovačević, D., Mastanjević, K., Suman, K., Šarić, D.: Cryoprotective Effect of Polydextrose on Adriatic Surimi // *Proceedings of The 2008 Joint Central European Congress 4th Central European Congress on Food 6th Croatian Congress of FOOD TECHNOLOGISTS, BIOTECHNOLOGISTS AND NUTRITIONISTS* / Prof. Dr. Duška Čurić (ur.). Zagreb : Croatian Chamber of Economy, (2008) 255-258.
8. Kovačević, D., Mastanjević, K., Lenardić, M.: Effect of κ – carrageenan on initial freezing point of surimi // *35th International Symposium "Actual Tasks on Agricultural Engineering" Opatija, Croatia, 19th - 23rd of February 2007* / Silvio Košutić (ur.). Zagreb : Zavod za mehanizaciju poljoprivrede, Agronomski fakultet Sveučilišta u Zagrebu, (2007) 429-433
9. Babić, J., Šubarić, D., Ačkar, D., Kovačević, D., Piližota, V., Kopjar, M.: Preparation and characterization of acetylated tapioca starches, Deutsche Lebensmittel-Rundschau, 103 (12) (2007) 580-585.
10. Babić, J., Šubarić, D., Kovačević, D., Jašić, M., Nedić Tiban, N., Miličević, D., Anđelić, S.: Influence of additives on rheological properties of maize and tapioca starch pastes. // *Proceedings of 34th International Symposium Actual Tasks on Agricultural Engineering*. 34 (2006) 581-586.
11. Kovačević, D., Kordić, J., Mastanjević, K., Lovrinčević N.: Determination of unfrozen water in doughs by application of mathematics models // *Proceedings of 3rd International Congress FLOUR-BREAD ; 05 5th CROATIAN CONGRESS OF CEREAL TECHNOLOGIST* / Žaneta Ugarčić-Hardi (ur.). Opatija : J. J. Strossmayer University of

- Osijek Faculty of Food Technology Department of Cereal Processing Technology, (2006) 308-315.
12. Čačić, J., Tratnik, M., Čačić, D., Kovačević, D.: Influence of Different Technologies on the Competitiveness of Strawberry Production in Croatia, *Agriculturae Conceptus Scientificus*, 71 (4) (2006) 181-186
 13. Miličević, B., Šubarić, D., Mađar, S., Kovačević, D., Babić, J.: The influence of various distillation techniques on quality of plum brandy, *Works Fac. Agric. Univ. Sa.* 58(52) (2006) 221-229.
 14. Kovačević, D., Španjol, S., Jurišić, M., Jurišić, Ž., Nakić M.: AGRICULTURAL PRODUCTION MANAGEMENT EMPLOYING GIS TECHNIQUES-INTRODUCING IACS AND LPIS // *GIS ODYSSEY 2006* / Davorin Kreković (ur.). Šibenik: Hrvatski infomatički zbor, (2006) 271 - 277.
 15. Kovačević, D., Pišonić, M.: Hrvatski autohtoni proizvodi – brand za EU, Zbornik radova 41. hrvatski i 1. međunarodni znanstveni simpozij agronoma, Opatija 13. – 17. 02. 2006., pp.1.
 16. Miličević, B., Šubarić, D., Mađar, S., Kovačević, D., Babić, J.: Utjecaj niskotlačnog UV-sistema za dekontaminaciju na fizikalno-kemijska svojstva procesne vode u proizvodnji alkoholnih pića // *Book of Abstracts "agroTECH 2006"* / Jašić, Midhat (ur.). Tuzla : Faculty of Technology, Tuzla University, (2006) 30-30 (poster).
 17. Krvavica, M., Babić, I., Kovačević, D., Đugum, J., Luburuć-Galić, M.: NON-VOLATILE AND VOLATILE COMPONENTS OF ISTRIAN DRY-CURED HAM // *Book of Abstract - 3rd Central European Congress on Food* / Konstantin Fikiin (ur.). Sofia, (2006) 198 (poster, međunarodna recenzija, sažetak, znanstveni).
 18. Đugum, J., Čurić, D., Kovačević, D., Novotni, D., Krvavica M., Bauman I.: Extrusion cooking as a new trend in cereal baby food production // *Book of Papers of 13 th World Congress of Food Science and Technology, Food is Life*, Nantes, (2006) od 931-932 (poster, međunarodna recenzija, objavljeni rad).
 19. Božić, M., Kovačević, D.: Članstvo u EU : povijesni izazov za hrvatsku poljoprivredu, Zbornik radova XL. znanstvenog skupa hrvatskih agronoma s međunarodnim sudjelovanjem / Kovačević, Vlado; Jovanovac, Sanja (ur.), Osijek, Poljoprivredni fakultet Sveučilišta J.J. Strossmayera u Osijeku, (2005) 3-9.
 20. Halt, M., Kovačević, D., Pavlović, H., Jukić, J.: Contamination of pasta and the raw materials for its production with moulds of the genera *Aspergillus*, *Czech Journal of Food Sciences*, 22 (2004) 67-72.
 21. Planinić, M., Tomas, S., Bucić, A., Bilić, M., Velić, D., Kovačević, D., Šubarić, D.: Effect of cultivation and drying temperature on rehydration ability of the carrots and potatoes, *Proceedings of the 32. International Symposium on Agricultural Engineering* / Košutić, Silvio (ur.), Zagreb, Zavod za mehanizaciju poljoprivrede, Agronomski fakultet Sveučilišta u Zagrebu, (2004) 397-403.
 22. Kovačević, D., Šubarić, D., Tomas, S., Bilić, M.: Effect of Polydextose on Thermophysical Properties of Chicken Surimi, *Proceedings of the 32. International Symposium on Agricultural Engineering* / Košutić, Silvio (ur.), Zagreb, Zavod za mehanizaciju poljoprivrede Agronomski fakultet Sveučilišta u Zagrebu, (2004) 415-427.
 23. Kovačević, D., Unbehend, Ljilja., Šubarić, D., Kordić, J.: DETERMINATION OF AMIDATED PECTIN INFLUENCE ON THE DOUGH INITIAL FREEZING POINT BY DTA, *Proceedings of International Congress FLOUR-BREAD '03* / Hardi-Ugračić, Žaneta (ur.), Osijek, Faculty of Food Technology University of Josip Juraj Strossmayer, (2004) 115-122.
 24. Šubarić, D., Babić, J., Kovačević, D., Kopjar, M., Nedić Tiban, N.: Influence of guar and pectin on gelatinisation and retrogradation of starch, *Abstract book / International Congress Flour - Bread '03 [and] 4th Croatian Congress of Cereal Technologists*, Opatija, 19-22. 11. 2003. / Ugarčić-Hardi, Žaneta (ur.), Osijek, Faculty of Food Technology, University of J.J. Strossmayer in Osijek, (2004) 123-130.
 25. Babić, J., Šubarić, D., Piližota, V., Kovačević, D., Nedić Tiban, N.: Influence of hydrocolloids on the rheological properties of tapioca starch, *Book of Abstracts 2nd Central European Meeting 5th Croatian Congress of Food Technologists, Biotechnologists and Nutritionists* / Karlović, Damir (ur.), Zagreb, Food Technologists, Biotechnologists and Nutritionists Society, (2004) 54-54.
 26. Miličević, B., Kovačević, D., Šubarić, D., Miličević, R.: Possibilities of fermentation process with immobilized yeast cells in pear's distillates production, *Book of Abstracts 2nd Central European Meeting 5th Croatian Congress of Food Technologists, Biotechnologists and Nutritionists* / Karlović, Damir (ur.), Zagreb, Food Technologists, Biotechnologists and Nutritionists Society, (2004) 133-133.
 27. Planinić, M., Bucić, A., Tomas, S., Bilić, M., Velić, D., Kovačević, D.: Application of Peleg's model to Study of Drying Temperature Influence on Dehydration and Rehydration of Potatoes, *Book of Abstracts. 2nd Central European Meeting/5th Croatian Congress of Food Technologists and Nutritionists* / Karlović, Damir (ur.), Zagreb, Food Technologists, Biotechnologists and Nutritionists Society, (2004) 47.
 28. Velić, D., Bilić, M., Tomas, S., Planinić, M., Bucić, A., Kovačević, D.: Celery Root Drying in Fluid Bed Drier, *Book of Abstracts. 2nd Central European Meeting/5th Croatian Congress of Food Technologists and Nutritionists* / Karlović, Damir (ur.), Zagreb, Food Technologists, Biotechnologists and Nutritionists Society, (2004) 43.
 29. Magdić, D., Horvat, D., Jurković, Z., Kovačević, D., Drezner, G. (2004): *Ispitivanje utjecaja smrzavanja na izgled sredine kruha primjenom računalne analize slike*. *International Congress Flour - Bread '03 [and] 4th Croatian Congress of Cereal Technologists* 19. – 22. 11. 2003., Opatija, Hrvatska *Proceedings*, pp. 214-217.

List of other works that qualify teachers for teaching:

1. Kovačević, D.(2004): Sirovine prehrambene industrije - meso i riba, Prehrambeno-tehnološki fakultet, Osijek (sveučilišni udžbenik).
2. Kovačević, D.(2001): Kemija i tehnologija mesa i ribe, Prehrambeno-tehnološki fakultet, Osijek (sveučilišni udžbenik).
3. Jerković I., Kovačević D., Šubarić D., Marijanović Z., Mastanjević K., Suman K.: Authentication study of volatile flavour compounds composition in Slavonian traditional dry fermented salami "kulen". Food Chemistry, (2009) (prihvaćeno za objavljivanje).
4. Kovačević, D., Pišonić, M.: Hrvatski autohtoni proizvodi – brand za EU, Zbornik radova 41. hrvatski i 1. međunarodni znanstveni simpozij agronoma, Opatija 13. – 17. 02. 2006., pp.1.
5. Božić, M., Kovačević, D.: Članstvo u EU : povijesni izazov za hrvatsku poljoprivredu, Zbornik radova XL. znanstvenog skupa hrvatskih agronoma s međunarodnim sudjelovanjem / Kovačević, Vlado; Jovanovac, Sanja (ur.), Osijek, Poljoprivredni fakultet Sveučilišta J.J. Strossmayera u Osijeku, (2005) 3-9.
6. Halt, M., Kovačević, D., Pavlović, H., Jukić, J.: Contamination of pasta and the raw materials for its production with moulds of the genera *Aspergillus*, Czech Journal of Food Sciences, 22 (2004) 67-72.

Date of most recent election to the scientific - teaching position:

31st May 2006 full professor (confirmed April 20th 2011)

Name and surname: Dr. sc. Drago Šubarić, red. prof.

Institution:

Faculty of Food Technology Osijek

e-mail adress and personal web site:

drago.subaric@pfos.hr

Curriculum vitae, list of publications in last five years and list of publications qualifying for teaching:

Birth:

Kladari Gornji, BiH, 13. 10. 1963.

Graduated:

Faculty of Food Technology Osijek, 1988., „Different capabilities of blood plasma application in salami production “

Master's degree:

Faculty of Food Technology and Biotechnology Zagreb, 1994., „ Rheological properties of hydrocolloid/starch mixtures at low temperatures “

PhD:

Faculty of Food Technology and Biotechnology Zagreb, 1999., „ Inhibition of polyphenol-oxidase in prevention of enzymatic browning“

Employment and functions:

15. 02. 1990. - Faculty of Food Technology u Osijeku, young research, teaching assistant, assistant professor, associate professor, full professor

2000. - Faculty of Food Technology Osijek, Head of Carbohydrate Department

2000.-2005. vice-dean for education of Faculty of Food Technology Osijeku

2005.-2008. vice-dean for science of Faculty of Food Technology u Osijeku

2005.-2007. chair-man of scientific council of Croatian Food Agency

2005.- to this day, member of Board for biotechnical sciences, Croatian Ministry of Science, Education and Sport

2008. - dean of Faculty of Food Technology Osijek

Teaching:

Since he was elected as assistant professor, he organized course "Technology of carbohydrates and confectionary products". He equipped laboratory for "Technology of carbohydrates and confectionary products" and organized lab exercise in afore mentioned course.

He developed education program and leads classes according to Bologna process at following courses:

- «Hygiene and sanitation» and «Technology of plant raw materials processing» (undergraduate study Food Technology at Faculty of Food Technology)
- « Technology of carbohydrates and confectionary products » (graduate study Food Engineering)
- «Chemistry and Technology of Carbohydrates» i «Technology of confectionary and related products » (graduate study Food Science and Nutrition)
- «Starch Technology» and «Sugar Technology» (graduate study Process Engineering)
- He developed education program and conducts classes at postgraduate study in:
- "Achievements in technology of carbohydrates and confectionary products" at postgraduate scientific study Food Engineering at Faculty of Food Technology
- «Food aditives» (postgraduate scientific study Food Engineering at Faculty of Food Technology and interdisciplinary study Molecular biosciences)
- «Achievemnts in technology of plant materials with HACCP elements I» and «Hygiene and sanitation» at postgraduate specialist study Food Safety and Quality

Until 2008. he was head of postgraduate study Food Engineering at Faculty of Food Technology Osijek (study for master's and PhD degrees, scientific area 4. biotechnical sciences, field 4.05 food technology) and was president of Committee for PhD degrees at Faculty of Food Technology Osijek

Teaching at other universities:

- Academic 2001/02., 2002/03. i 2003/04. – visiting professor at Faculty of Technology in Tuzla, BiH (graduate study Food Engineering, course "Technology of fruits and vegetables")

- Invited lecture (seminar) in the field «Non-thermal methods of food preservation». 11th International Summer University, Tuzla, 03.-13. 07. 2006.
- Invited lecture (seminar) in the field «Integration of quality management systems in food establishments according to international standards». 10th International Summer University, Tuzla, 04.-14. 07. 2005.
- Invited lecture (seminar) in the field «Chemistry and technology of starch and starch hydrolyses» // 8th International Summer University, Tuzla, 07-17. 07. 2003.
- Invited lecture (seminar) in the field "achievements in production of confectionary products". International Summer University, Tuzla 8-17. July 2002.
- Teaching at postgraduate study «Environmental Protection and Nature Conservation», University Josip Juraj Strossmayer Osijek, Institute Ruđer Bošković, Zagreb
- Teaching at postgraduate study of Faculty of Technology Tuzla in academic 2004/05. and 2005/06., 2008./09. (courses «Food process engineering», «Development of processes and products» and «Food Technology I»).
- Teaching at Biotechnical faculty of Bihac University (academic 2002./2003., 2003./2004., 2004./2005., 2005./2006.); «Technology of fruits and vegetables» and «Hygiene and sanitation»
- University college of applied sciences in safety Zagreb; specialist study course «Integrated systems for quality management»)
- Leading teacher at course «Food additives» at postgraduate study «Molecular biosciences» (University of Osijek, University of Dubrovnik, Institute «Ruder Boškovic» Zagreb)

Professional activity:

- participated in realization of technology project (TP-01/0113-02: «Improvement of food freezing processes»)
- Actively participated in realization of several projects for SMEs
- Successfully trained in TRAIN – THE - TRAINER workshop (Business planning for SMEs)
- As co-author published on professional article in domestic journal and two professional articles in professional books
- He was leader of VIP project «Standardisation of production and quality of fruit brandies»
- Since 2004. he is full-time consultant for food industry in German certification house TÜV NORD, which certifies ISO standards and HACCP system

Scientific activity:

Scientific projects:

LEADER

Project: Development of new modified starches and their application in food industry (2007.-2012.)

PARTICIPATION

Project 4-07-063 (1991-1996)

"preservation, recuperation and production of aroma in food technology"

Project 4-07-058 (1991-1996)

"Study of physical and thermophysical properties of food";

Project 113001 (1997-2002.)

"Development of production processes of value-added food products"

Project 113004 (1997-2002.)

"Revival and development of processing of agricultural products in Croatian Danube Region"

Project 010008 (2001.-2002.)

«Continental resources in tourism development»

Project 0113001 (since 2002.)

"Development of production processes of value-added food products "

International

HR-USA Project (1996-1999)

"Hydrogen peroxide treatment of fruit and vegetables"

HR-SLO Project (1997-1998)

"stress changes in minimally processed plant food products"

HR-ITA Project (2000-2001)

"Improvement of process in order to extend shelf-life of minimally processed fruit and vegetables"

HR-SLO Project (2003-2004)

"Condition and function of water during phase transitions during dehydration and freezing of food products"

HR-SLO Project (2005-2006)

«Influence of trehalose on aroma compounds in strawberry paste»
BH Project (2005-2006);
Project of Ministry of Science and Education of Federation BiH (Faculty of Agriculture Sarajevo)
«Phenol content and browning index during ripening and storage of autochthonous and modern apple cultivars»
2005. (Professional Project)
«Implementation of the system for the health safety of the food – GMP & HACCP in company “Briz” Brcko». (project leader).

Scientific articles:

List of articles published in last 5 years

1. Jerković I., Kovačević D., Šubarić D., Marijanović Z., Mastanjević K., Suman K.: Authentication study of volatile flavour compounds composition in Slavonian traditional dry fermented salami “kulen”. Food Chemistry 2009 (prihvaćeno za objavljivanje).
2. Babić, J., Šubarić, D., Ačkar, Đ., Kopjar, M., Nedić Tiban N.: Acetylation and characterisation of corn starch. *J Food Sci. Techno.* 46 (2009) , 5; 423-426.
3. Babić, J., Šubarić, D., Miličević, B., Ačkar, Đ., Kopjar, M., Nedić Tiban, N.: Influence of trehalose, glucose, fructose and sucrose on gelatinization and retrogradation of corn and tapioca starch. // *Czech J. Food Sci* 27 (2009) , 3; 151-157.
4. Brnčić, M., Ljubić Herceg, I., Šubarić, D., Badanjak, M., Rimac Brnčić, S., Tripalo, B., Jezek, D., Cerovec, P., Herceg, Z.: Influence of power ultrasound on textural properties of corn starch gels. *Proceedings of the 5th International Symposium of Food Rheology and Structure ISFRS 2009* / Fischer, Peter ; Pollard, Michael ; Windhab, Erich (ur.), Zurich : Laboratory of Food Process Engineering, Institute of Food Science and Nutrition, Zurich, 2009.
5. Kopjar, M., Piližota, V., Nedić Tiban, N., Šubarić, D., Babić, J., Ačkar, Đ., Sajdl, M.: Strawberry jams : influence of different pectins on colour and textural properties. // *Czech J.f Food Sci.* 27 (2009) , 1; 20-28.
6. Kopjar, M., Piližota, V., Hribar, J., Nedić Tiban, N., Šubarić, D., Babić, J., Požrl, T.: Influence of trehalose addition on instrumental textural properties of strawberry pastes. // *Int. J. Food Properties.* 11 (2008) , 3; 646-655.
7. Babić, J., Šubarić, D., Ačkar, Đ., Kovačević, D., Piližota, V., Kopjar, M.: Preparation and characterization of acetylated tapioca starches. *Deutsche Lebensmittel-Rundschau.* 103 (2007) , 12; 580-585.
8. Kopjar, M., Piližota, V., Nedić Tiban, N., Šubarić, D., Babić, J., Ačkar, Đ.: Effect of different pectin addition and its concentration on colour and textural properties of raspberry jam. *Deutsche Lebensmittel-Rundschau.* 103 (2007) , 4; 164-168.
9. D. Šubarić, J. Babić, Đ. Ačkar, V. Piližota, M. Kopjar, M. Jukić: Effect of guar and pectin on rheological properties and solubility of corn starch. *Works of the Faculty of Agriculture and Food Science, University of Sarajevo*, 58 (2007) 171-178.
10. Babić, J., Šubarić, D., Ačkar, Đ., Piližota, V., Kopjar, M., Nedić Tiban, N.: Effects of pectin and carrageenan on thermophysical and rheological properties of tapioca starch. // *Czech Journal of Food Sciences.* 24 (2006) , 6; 275-282.
11. Jašić, M., Đonlagić, N., Šubarić, D., Keran, H.: Insuring the food safety for fruits and vegetables in processing pursuant to international standards. // *Proceedings of 34th International Symposium Actual Tasks on Agricultural Engineering.* 34 (2006) ; 573-579
12. Glavaš-Obrovac, Lj., Opačak, T., Bareš, V., Šubarić, D., Babić, J., Ilakovac, V., Karner, I.: Effects of dealcoholized red and white wines on human tumour and normal cells. // *Acta alimentaria.* 35 (2006) , 2; 153-162.

Other publications qualifying for teaching:

1. Jerković I., Kovačević D., Šubarić D., Marijanović Z., Mastanjević K., Suman K.: Authentication study of volatile flavour compounds composition in Slavonian traditional dry fermented salami “kulen”. Food Chemistry 2009 (prihvaćeno za objavljivanje).
2. Jašić M., Đonlagić N., Šubarić D., Keran H.: Contemporary principles of politics and legislation in food production. TEMPUS IB JEP 16140-2001, Sanchis, Vicente ; Grujić, R., (ur.). Banja Luka: Consortium of TEMPUS JEP project Nr. 16140-2001, (2005).
3. Lead Auditor (sustavi upravljanja kvalitetom i sustavi upravljanja sigurnošću hrane), Nigel Bauer & Associates, 2004.
4. Certificate of appointment (TUV NORD CERT – Lead Auditor – Quality Management, od 18. 06. 2009.).
5. Kovačević, D., Šubarić, D., Tomas, S., Bilić, M.: Effect of Polydextose on Thermophysical Properties of Chicken Surimi // *Proceedings of the 32. Internatinal Syposium on Agricultural Engineering / Košutić, Silvio (ur.)*. 415-427

(2004).

6. M. Halt, T. Klapac, D. Šubarić, M. Macura, S. Baćani: Fungal contamination of cookies and the raw materials for their production in Croatia. *Czech J. Food Sci.*, 22(3), 95-98, (2004).

Date of last election to scientific or professional position:

29. 09. 2006. (redoviti profesor)

Name and surname: dr. sc. Đuro Senčić, full professor

Institution:

Faculty of Agriculture, Osijek

e-mail address and personal website:

dsencic@pfos.hr

Biography, list of publications in the last five years, and guidance papers which qualify him for teaching:

Born:

Vinkovci, 30. 03. 1956.

Graduated:

Faculty of Agriculture, Osijek Osijek 1981., "Milk production on cattle farms „Ljeskovac“, PIK-a Vinkovci"

Master's degree:

Faculty of Agriculture in Beograd-Zemun, 1983., „Study of the Stress Syndrom and Its Effect on the Production Traits of the Meaty Pig Breeds and their Crossbreeds"

Doctor's degrees:

Faculty of Agriculture, Osijek, 1993., „Phenotypic Indication of Meatiness in Pigs of Different Genotypes"

Habilitated:

1995., „Breeding-selection and biotechnical aspects of improving the fertility of pigs“.

Research and professional:

1981., Faculty of Agriculture Osijek, assistant for courses "Poultry Production" and "Pig Production"

1995., Faculty of Agriculture Osijek, assistant professor

1995., Faculty of Agriculture Osijek, Associate professor

1998., Faculty of Agriculture Osijek, full professor

2001. Faculty of Agriculture Osijek, full professor in a permanent vocation 2005th year.

Teaching

Course work professor. Ph.D.. Đuro Senčić was until 1995. the exercises related to the subjects' Pig Production, "" Poultry Production "," Methods of research in animal husbandry "and" Current Animal "at the Agricultural Faculty in Osijek. Decision of the Scientific Council of the of 8 March 1994. year, he was entrusted with the performance of selected chapters of lectures within the course "Research Methods in Animal Husbandry" and examine the same course for students of cattle profiles (VII / 1). Also, the decision of the Scientific-teaching Council of 25 March 1995. was entrusted to him the execution of the subject "Current Animal" (part of the pig) and the lectures and exercises for students of cattle profiles (VI / 1). Since 1995. The exercises and lectures on the subject of "Pig," and since 1998. year, in addition, the holder of the subject "Livestock II" in the general direction and "Livestock" in the direction of the Mechanization of Agriculture, Faculty of Agriculture. From academic year 2005-06. holder of the module "Organic farming" (direction animal science) and "Animal Husbandry" (direction of mechanization) in undergraduate study, the module "Technology Livestock Production" and "Organic animal science" at university graduate study and modules "Poultry", "Pig," " Poultry-Practice "and" Pig-practice "in the hours of professional study in. It is also the holder of the module "Organic farming" on the university postgraduate interdisciplinary scientific study, "Environmental protection" and module "Genetics, Biometrics and breeding pigs" and "Ecological pig" on specialist postgraduate study "Pigs", whose founder and leader. He introduced several modules in the educational program of study at the Agricultural Faculty in Osijek ("Organic farming", "Organic animal science", "Livestock Production Technology" and "Genetics, Biometrics and breeding pigs." The 2003rd to 2005th, he was Head of the Department of Animal Husbandry, Faculty of Agriculture. Now the President of the Department of Animal Husbandry and ecological farming. working life he was a member of the Faculty Council and a member of several different committees (committee) and committee at the Agricultural Faculty in Osijek.

Expert professions:

Professional work of prof. Ph.D.. Đuro Senčić was associated with agricultural enterprises in the economy and family farms. For many years, before the war, was superkontroller evaluating the quality of cattle and pigs at slaughter. Especially prominent in the promotion and popularization of science. He has worked in a number of magazines ("Gospodarski list", "Nova zemlja", "Jutro", "Glas sela", "Agroglas") and "Vecernji List" (Attachment: "Vrt") to popularize agricultural science. He actively participated in several international and national scientific and professional meetings.

Scientific Research:

The scientific work of Professor. Ph.D.. Duro Senčić is related mainly to problems of pig and poultry in recent times and ecological animal husbandry. His field of scientific interest is the influence of genetic and genetic factors on production traits of farm animals, especially the quality of their meat and carcasses. He has participated in or was the head of several research projects. He also participated in several national and international scientific and professional meetings. He has published over 300 scientific papers, many of which are quoted in recognized international databases (CAB, CC, etc.). He has published alone or with associates of several books: "Poultry" (Zagreb, 1994.), "Intensive pig Breeding" (university textbook, Osijek, 1996.), "Chicken Fattening" (Osijek, 1998.), "Organic livestock" (University textbook, Osijek, 2003.) and "Meat production" (university manual, Osijek, 2008.).

Scientific papers:

List of papers published in the last five years

1. Antunović, Z., Senčić, Đ., Domaćinović, M., Šperanda, M., Steiner, Z. (2005): Changes in some blood parameters associated with the age of lambs. *Medicina Veterinaria* 61, 7, 761-764. Current Contents/Agriculture, Biology & Environmental Sciences Accession Number: 942EW-0002
2. Antunović, Z., Šperanda, M., Liker, B., Šerić, V., Senčić, Đ., Domaćinović, M., Šperanda, T. (2005): Influence of feeding to probiotic PIONEER PDFM® to growth lambs on performance and blood composition. *Acta Veterinaria* 55, 4, 287-300.
Current Contents/Agriculture, Biology & Environmental Sciences
Accession Number: 961FK-0004
3. Antunović, Z., Bogut, I., Senčić, Đ., Katić, M. (2005): Concentrations of selected toxic elements (cadmium, lead, mercury and arsenic) in ewe milk in dependence on lactation stage. *Czech J. Animal Science* 50, 8, 369-375.
Current Contents/Agriculture, Biology & Environmental Sciences
Accession Number: 962YF-000
4. Senčić, Đ., Antunović, Z., Kanisek, J., Šperanda, M. (2005): Fattening, meatiness and economic efficiency of fattening pigs. *Acta Veterinaria* 55, 4, 327-334.
Current Contents/Agriculture, Biology & Environmental Sciences
Accession Number: 961FK-0008
5. Senčić, Đ., Bukvić, Ž., Antunović, Z., Šperanda, M. (2005): Slaughter quality of Black Slavonian Pig-endangered breed and it is cross-breds with Swedish Landrace while keeping them outdoor. *Agriculture* 11, 1, 43-48.
6. Šperanda, M., Florijančić, T., Bošković, I., Bogut, I., Gutzmirtl, H., Senčić, Đ., Antunović, Z., Bodakoš, D. (2005): Utjecaj organskog selena na rast i biokemijske pokazatelje u serumu fazanskih pilića. *Krmiva* 47 (6), 295-301.
7. Antunović, Z., Šperanda, M., Senčić, Đ., Šerić, V., Šperanda, T., Gutzmirtl, D. (2006): Metabolički profil mlječnih koza u ekološkoj proizvodnji. *Krmiva* 48, 5, 231-236. CAB AN: 20073009139 Document Type: Journal article.
8. Domaćinović, M., Steiner, Z., Senčić, Đ., Antunović, Z., Mijić, P. (2006): Individual and combined usage of enzyme preparation and heat-treated cereals in pig fattening. *Czech. J. Anim. Sci.*, 51, 4, 157-162. Current Contents AN: 043Tm-0003.
9. Senčić, Đ., Antunović, Z., Domaćinović, M., Šperanda Marcela, Steiner, Z. (2006) : Kvaliteta kokošjih jaja iz slobodnog i kaveznog sustava držanja. *Stočarstvo* 60 (3), 173 – 179.
10. Senčić, Đ., Danijela Butko (2006): Proizvodnost nesilica i kvaliteta kokošjih jaja iz slobodnog i kaveznog sustava držanja. *Poljoprivreda* 12 (2) 48-51.
11. Šperanda, M., Liker, B., Šperanda, T., Šerić, V., Antunović, Z., Grabarević, Z., Senčić, Đ., Grgurić, D., Steiner, Z. (2006) : Haematological and biochemical parameters of weaned piglets fed on fodder mixture contaminated by zearalenone with addition of clinoptilolite. *Acta Veterinaria* 56 (2-3) : 121-136, 2006.
Current Contents/Agriculture, Biology & Environmental Sciences
Accession Number : 056AB-0003
12. Pavliček, J., Antunović, Z., Senčić, Đ., Šperanda, M. (2006): Proizvodnja i kemijski sastav kozjega mlijeka u ovisnosti o redoslijedu i stadiju laktacije. *Poljoprivreda*, 12, 2, 52-57.
13. Steiner, Z., Šperanda, M., Domaćinović, M., Steiner, Z., Antunović, Z., Senčić, Đ. (2006): The effect of different crude protein level and metabolic energy on performance and blood character-istic of broilers. *Book of Abstracts 57th Annual Meeting of the European Association for Animal Production of (EAAP 2006) 17.-20. September 2006. Antalya, p. 132.*
14. Antunović, Z., Grbavac, J., Bogut, I., Senčić, Đ., Šperanda, M., Steiner, Z. (2007): Carcass slaughter characteristics of sheep depending on age and sex. *58th Annual Meeting of the European Association for Animal Production (EAAP 2007), 26.-29. August 2007. Dublin, Ireland.*
15. Antunović, Z., Senčić, Đ., Šperanda, M., Steiner, Z. (2007): Effect of organic selenium on goat milk production in organic breeding. *Proceedings of 1st International Conference Research People and Actual Tasks on Multidisciplinary Sciences, 06.-08. 06. 2007. Lozenec, Bugarska. p. 147.151.*
16. Antunović, Z., Senčić, Đ., Šperanda, M. (2007): Body growth and metabolic profile of Tsigai lambs. *Proceedings of 1st International Conference Research People and Actual Tasks on Multidisciplinary Sciences, 06.-08. 06. 2007. Lozenec, Bugarska. p. 152-157.*
17. Antunović, Z., Šperanda, M., Senčić, Đ., Domaćinović, M. (2007): Biokemijski pokazatelji i acido-bazni status krvi jaradi u ekološkoj proizvodnji. *Krmiva*, 49, 1, 9-14. CAB AN : 20073219555 Document Type: Journal article.

18. Antunović, Z., Senčić, Đ., Šperanda, M., Domaćinović, M., Steiner, Z. (2007): Proizvodna svojstva koza i jaradi u ekološkoj proizvodnji. Zbornik radova 42. hrvatskog & 2. međunarodnog znanstvenog simpozija agronoma. Opatija, 13.-16. veljača 2007, str. 518-521.
19. Butko Danijela, Senčić, Đ., Antunović, Z., Šperanda Marcela, Steiner, Z.(2007): Pork carcass composition and the meat quality of the Black Savonian Pig – the endangered breeds in the indoor and outdoor keeping system. Agriculture 13, (1) 167-173).
20. Senčić, Đ., Antunović, Z., Butko Danijela (2007): Kvaliteta trupa i mesa svinja iz zatvorenog i otvorenog sustava držanja. 42. hrvatski i 2. međunarodni simpozij agronoma, Opatija, 13.-16. veljače. Zbornik radova, 515-517 (poster).
21. Šperanda, M., Šperanda, T., Domaćinović, M., Sadiković, M., Rozman, B., Tot-Kaša, S., Ikač, V., Senčić, Đ., Antunović, Z., Shala, A. (2007): Proizvodni i hematološki pokazatelji u odbite prasadi hranjene uz dodatak pripravka Nanofeed. Zbornik radova 42. hrvatskog & 2. međunarodnog znanstvenog simpozija agronoma. Opatija, 13.-16. veljača 2007, str. 573-576.
22. Antunović, Z., Šperanda, M., Senčić, Đ., Domaćinović, M., Novoselec, J. (2008): Djelotvornost probiotskog pripravka „Probios 2B“ u hrani janjadi. Krmiva 50, 2, 73-78.
23. Senčić, Đ., Butko Danijela, Antunović, Z. (2008): Evaluacija crne slavonske svinje u odnosu na sustav držanja i križanja. Konferencija o izvornim pasminama i sortama kao dijelu prirodne i kulturne baštine. Šibenik, 13-16, studeni 2007.
24. Senčić, Đ., Butko, D., Antunović, Z., Novoselec, J. (2008): Influence of Pig Body Mass on Meat and Carcass Quality of Black Slavonian Pig (poster). 7th International Symposium of Animal Biology and Nutrition, September 25-26, 2008, Bucharest. (collection of summaries).
25. Senčić, Đ., Butko, D., Antunović, Z., Novoselec, J. (2008): Utjecaj tjelesne mase na kvalitetu polovica i mesa crne slavonske svinje. Meso, 10, 4, 274-278.
26. Senčić, Đ., Butko, D. (2008): Kvaliteta šunki na „3. Nacionalnoj šunkijadi“. Meso 3, 206-212.
27. Šperanda, M., Florijančić, T., Bošković, I., Bogut, I., Gutzmirtl, H., Grgurić, D., Senčić, Đ., Antunović, Z. (2008): The effect of organic selenium and mannan oligosaccharides on the productivity and health of pheasant chicken (*Phasianus colchicus*). Acta Veterinaria Beograd 58 (1), 63-73.
28. Antunović, Z., Šperanda Marcela, Senčić, Đ., Novoselec, J., Djidara, M. (2009.): Influence of age on lambs blood metabolites in organic production. IV International Symposium Of Livestock Production. Zbornik radova. Ohrid, 09.-12. rujan 2009.
29. Antunović, Z., Marić, I., Matanić, I., Senčić, Đ., Šperanda, M., Novoselec, J. (2009.): Aktivnost enzima i hormona štitnjače u krvi za procjenu opskrbljenosti ovaca selenom. Krmiva 3, 131-137.
30. Antunović, Z., Novoselec, J., Senčić, Đ., Šperanda Marcela, Djidara, M. (2009): Aktivnost hormona štitnjače u krvi ovaca početkom laktacije. 44. hrvatski i 4. međunarodni simpozij agronoma. Zbornik radova, 724-728. Opatija, 16.-20. veljače 2009.
31. Senčić, Đ., Samac Danijela, Novoselec, J., Kalić, G. (2009.): Kvaliteta pilećega mesa iz ekološkoga i konvencionalnoga tova. Meso 9, 2, 110-113.
32. Senčić, Đ., Samac Danijela, Antunović, Z., Novoselec, J. (2009.): Influence of crude protein level in forage mixtures on pig meat and carcass quality. IV International Symposium Of Livestock Production. Zbornik radova. Ohrid, 09.-12. rujan 2009.
33. Steiner, Zv., Domaćinović, M., Antunović, Z., Senčić, Đ., Šperanda, M., Steiner, Z., Wagner, J. (2009.): Utjecaj različitih razina sirovih bjelančevina i metaboličke energije na proizvodne rezultate u tovu pilića. Krmiva 1, 25-35.

List of other works that qualify teachers for teaching:

1. Senčić, Đ., Antunović, Z., Kanisek, J., Šperanda, M. (2005): Fattening, meatiness and economic efficiency of fattening pigs. Acta Veterinaria 55, 4, 327-334.
Current Contents/Agriculture, Biology & Environmental Sciences
Accession Number: 961FK-0008.
2. Senčić, Đ., Bukvić, Ž., Antunović, Z., Šperanda, M. (2005): Slaughter quality of Black Slavonian Pig-endangered breed and its cross-breds with Swedish Landrace while keeping them outdoor. Agriculture 11, 1, 43-48.
3. Domaćinović, M., Steiner, Z., Senčić, Đ., Antunović, Z., Mijić, P. (2006): Individual and combined usage of enzyme preparation and heat-treated cereals in pig fattening. Czech. J. Anim. Sci., 51, 4, 157-162. Current Contents AN: 043Tm-0003.
4. Senčić, Đ., Butko, D., Antunović, Z., Novoselec, J. (2008): Utjecaj tjelesne mase na kvalitetu polovica i mesa crne slavonske svinje. Meso, 10, 4, 274-278.
5. Senčić, Đ., Butko, D. (2008): Kvaliteta šunki na „3. Nacionalnoj šunkijadi“. Meso 3, 206-212.

6. Senčić, Đ., Samac Danijela, Antunović, Z., Novoselec, J. (2009.): Influence of crude protein level in forage mixtures on pig meat and carcass quality. IV International Symposium Of Livestock Production. Zbornik radova. Ohrid, 09.-12. rujna 2009.

Date of last appointment to the scientific - teaching or teaching position

30. rujna 2005. Full professor

Subject	TECHNOLOGICAL LINE DESIGN FOR PRODUCTION OF TRADITIONAL MEAT PRODUCTS AND BUSINESS PLAN		
Course code	MEAT 204		
Course lecturer	Prof. Mate Bilić		
Associate	-		
Course content	Definition of technological design with supporting regulations. Project task (plant design for production of traditional meat products). Design phases, technical project, cost estimation, detailed project, equipment specification and purchase, construction and installation, start up operation. Technological scheme, building layouts, 3D view, computer programs. The selection of macro and micro location, infrastructure, plant layout. Environmental issues, waste minimization and disposal. Writing a business plan.		
General and specific knowledge acquired in course (objectives)	Students acquire basic knowledge in plant design for the production of traditional meat products. Students are qualified for participation in the development of technological projects and techno-economic studies, as well as in all phases of plant design. Furthermore, students are trained for economic considerations and the development of business plans in order to achieve the financing of projects and for estimation of investment justification.		
Semester	II.	Lectures	25 hrs
Examination method	Seminar and oral exam.		
ECTS	4	Language	Croatian and English
Compulsory reading literature	<ol style="list-style-type: none"> 1. Zakon o gradnji, NN 175/03 i NN 100/04 2. Pravilnik o uvjetima kojima moraju udovoljavati objekti za klanje životinja, obradu, preradu i uskladištenje proizvoda životinjskog podrijetla, NN 20/92, NN 27/92 i NN 75/93 3. Kovačević, D. (2001): Kemija i tehnologija mesa i ribe, PTF - Osijek, Osijek (sveučilišni udžbenik). 		
Recommended reading literature	<ol style="list-style-type: none"> 1. Taldra F. (2007) Handbook of Fermented Meat and Poultry, Ames, Iowa, Blackwell Pub. 2. Operativni program potpore proizvodnji slavonskog kulena. Ministarstvo poljoprivrede, šumarstva i vodnog gospodarstva. Zagreb, 2006. 3. Mikšić, M., Nikolić, E., Borbaš, T., Murgić, N., Juzbašić, K., Pajić, S., Klarić, H., Peranić, I., Črep, R., Jelaković, K., Perić, B., Fumić, B. (2007.): Katalog kalkulacija tradicijskih poljoprivredno – prehrambenih proizvoda. Hrvatski zavod za poljoprivrednu savjetodavnu službu. Odjel za agroekonomiku Zagreb. 		

Name and surname: Ljiljana Primorac

Institution:

Faculty of Food Technology Osijek

e-mail and personal web page:

Ljiljana.Primorac@ptfos.hr

Curriculum Vitae, scientific articles

Place and date of birth

Zagreb, 1957.

Education:

Graduate- Faculty of Food Technology Osijek , 1980.

M sc-Faculty of Food technology and Biotechnology in Zagreb,1993

PhD-University of Osijek,1998.

Work experience

Since 1981 she works at Faculty of Food Technology in Osijek, and from 2007 as a full professor. She is a head of Sub department of Food Quality and supervisor of the postgraduate specialist study Food safety and quality.

Teaching

Undergraduate study program of Faculty of Food Technology in Osijek : Food quality control;

Graduate study program of Faculty of Food Technology in Osijek: Food Quality and Safety Management; Laboratory Quality Management

Postgraduate study programs:

Postgraduate study Food Engineering at Faculty of Food Technology in Osijek: Food safety and quality management;

Selected topics of sensory analysis; Laboratory quality management

Postgraduate study Livestock farming at Faculty of Agriculture in Osijek: Food safety and quality management

Postgraduate specialist study Food safety and Quality at Faculty of Food Technology in Osijek: Food safety and quality management

Professional work

She was a member of several food legislation panels. At the Croatian Food Agency she is a member of the Advisory committee and was in Scientific panel on food additives, flavourings, processing aids and materials in contact with food. She is deputy editor of Croatian Journal of Food Science and Technology.

Scientific work

Her scientific interests include human nutrition, chemical and physical properties and sensory evaluation of food with emphasis to honey quality. She was a coordinator of one international project, participated in 10 scientific and professional projects.

Scientific articles published in the last 5 years

1. Primorac Lj., Flanjak I., Kenjeric D., Bubalo D., Topolnjak Z. (2011) Specific rotation and carbohydrate profile of Croatian unifloral honeys. *Czech Journal of Food Sciences*. 29: 515-519.
2. Čačić Kenjeric F., Mannino S., Benedetti S., Primorac Lj., Čačić Kenjeric D. (2009) Honey botanical origin determination by electronic nose. *Journal of Apicultural Research*. 48: 99-103.
3. Čačić F., Primorac Lj., Kenjeric D., Benedetti S; Mandić, Milena L. (2009) Application of electric nose in honey geographical origin characterisation . *Journal of Central European Agriculture*. 10 (1): 19-26.
4. Lj. Primorac, B. Angelkov, M.L. Mandić, D. Kenjeric, M. Nedeljko, I. Flanjak, A. Perl Pirički, M. Arapčeska (2009) Comparison of the Croatian and Macedonian honeydew honey. *Journal of Central European Agriculture*. 10 (3): 263-270.
5. Perl Pirički, Antonija; Boban, Katica; Primorac, Ljiljana; Banjari, Ines. (2009) Prihvattljivost jela od batata u djece predškolske dobi. *Croatian Journal of Food Science and Technology*. 1: 36-39.
6. Primorac Lj., Bubalo D., Kenjeric D., Flanjak I., Perl Pirički A., Mandić M.L. (2008) Pollen spectrum and physicochemical characteristics of Croatian Mediterranean multifloral honeys. *Deutsche Lebensmittel-Rundschau*. 104: 170-175.
7. Kenjeric D., Mandić M.L., Primorac Lj., Čačić F. (2008) Flavonoid pattern of sage (*Salvia officinalis* L.) unifloral honey. *Food Chemistry*. 110: 187-192.
8. M.L. Mandić, Lj. Primorac, D. Kenjeric, M. Mandić-Puljek, A. Perl Pirički (2008) Intake of Vitamins among clinically

<p>healthy adults from continental Croatia estimated by 24-recall. <i>Int J Food Sci Nutr</i> 59 (6): 457-464.</p> <p>9. Lj. Primorac, I. Flanjak, M. Cvijetić, Z. Đapić: Electrical conductivity and ash content of selected honey types. <i>13th Ružička Days "Today science-tomorrow industry"</i> Šubarić, Drago (ur.). Osijek : Prehrambeno-tehnološki fakultet Osijek, Hrvatsko društvo kemijskih inženjera i tehnologa (2011), 406-411.</p> <p>10. D. Kenjeric, M.L. Mandić, Lj. Primorac, F. Čačić: Flavonoids in Croatian Chesnut (<i>Castanea Sativa</i>) Honey. <i>13th Ružička Days "Today science-tomorrow industry"</i> Šubarić, Drago (ur.). Osijek : Prehrambeno-tehnološki fakultet Osijek, Hrvatsko društvo kemijskih inženjera i tehnologa (2011), 319-325</p>
<p>A list of other papers important for the teaching</p>
<p>1. B.Drokan, Lj. Primorac, Z. Erk, Z.. Pavličić, M.L. Mandić: Influence of whey on volume and porosity of wheat bread. U <i>Proceedings of International Congress Flour-Bread '03</i>. Faculty of Food Technology University of J.J. Strossmayer, str. 218-223, 2004. ICC-International Association for Cereal Science and Technology.</p> <p>2. Lj. Primorac, N. Pitlik, Ž. Ugarčić-Hardi, M. Jukić: Quality parameters of certain bread types at Slavonian market. U <i>Proceedings of International Congress Flour-Bread '03</i>. Faculty of Food Technology University of J.J. Strossmayer in Osijek, Hrvatska, str. 230-236, 2004.</p> <p>3. D. Koceva Komlenić, Ž. Ugarčić Hardi, Lj. Primorac: Impact of pectin and carboxymethylcellulose on sensory properties of pasta. <i>Proceedings of the Euro food chem XII . Strategies for safe food</i>. Koninklijke Vlaamse Chemische Vereniging. Brugge, Belgium, str. 276-279, 2003.</p>
<p>Datum zadnjeg izbora u znanstveno – nastavno ili nastavno zvanje:</p>
<p>2.04.2012. professor</p>

Name and surname: Ph.D. Jelena Đugum, Assistant Professor

Institution:

Ministry of Agriculture

e-mail address and personal web sites:

jelena.dugum@mps.hr

Biography list of papers published in the last five years, and papers which qualify teacher for teaching:

Place and date of birth

Zagreb, 06.08.1973.

Graduated

Faculty of Food Technology and Biotechnology, University of Zagreb, Zagreb, 27.03.1998, „Production of dietary fibre in extrusion cooking process“.

Ph.D.

Faculty of Food Technology and Biotechnology, University of Zagreb, Zagreb, 31.05.2007, „Effect of extrusion cooking conditions on the physico-chemical properties of wheat flour“ “

Work experience

Assistant: 1998.-2005. Faculty of Food Technology and Biotechnology, University of Zagreb, Zagreb

Advisor and Head of Department: 2005.-2008. Ministry of Agriculture, Forestry and Water Management

Director: 2008.-2011. Ministry of Agriculture, Fisheries and Rural Development

Teaching activity

Cereal chemistry and technology, assistant, 2002. – 2005.

Food-technology engineering II, assistant, 2000. – 2005.

Knowledge of raw materials of vegetable origin, assistant 1998. – 2005.

Technology of carbohydrates and confectionery products, assistant, 1998. – 2002.

Professional activity

J. Đugum: Iskustvo doktorata u Beču (2005); Stipendije. Info: Uloga stipendija u povećanju, akademske mobilnosti, Studentski informacijski centar, Zagreb, Croatia, Proceedings, p. 54-57.

J. Đugum (2006): U skladu sa standardima EU, *Novi Pekar*, VI (35-36), 24-27, Croatia.Scientific activity

Associate: 058-202 Mechanisms of degradation of biopolymers during extrusion cooking process, Ministry of Science, Technology and Informatics, Croatia, 1998.-2001.

Associate: 0058007 The mechanism of controlled degradation of carbohydrates during the extrusion cooking process, Ministry of Science, Technology and Informatics, Croatia, 2002.-2005.

Assistant in the technical realization of RC: FutureFood6 project, funded under the 6th Framework programme RTD, coordinator UNIDO, 2007.-2009.

Scientific papers:

List of all papers published in the last five years

1. D. Čurić, D. Karlović, J. Đugum, D. Tušak, B. Petrović (2001): Gluten as a Standard of Wheat Flour Quality. *Food Technol. Biotechnol.*
2. D. Čurić, J. Đugum, I. Bauman (2002): The Influence of Fungal Alpha-Amylase Supplementation on Amylolytic Activity and Baking Quality of Flour. *International Journal of Food Science and Technology.*
3. M. Krvavica, S. Vidaček, M. Konjačić, K. Botka-Petrak, J. Đugum, S. Kolarić, H. Medić (2008): A study of chemical profiles and appearance of white crystals in Istrian dry-cured ham: effect of desalting, *Ital. J. Anim. Sci.*
4. M. Krvavica, J. Đugum (2006): Proizvodnja pršuta u svijetu i kod nas, *Meso*
5. M. Krvavica, J. Đugum (2007): Učinak odsoljavanja na neke fizikalne osobine istarskog pršuta, *Meso*
6. M. Krvavica, A. Lukić, M. Vrdoljak, J. Đugum, D. Čurić (2007): Proteoliza mišićnog tkiva tijekom zrenja pršuta, *Meso*
7. M. Krvavica, J. Đugum (2007): Razgradnja lipida mišićnog i masnog tkiva tijekom zrenja pršuta, *Meso*
8. D. Čurić, J. Đugum, D. Karlović, D. Tušak, B. Petrović (2002): Comparability of Methods for Assessing Wet Gluten Content in Wheat Flour. In: Proceedings of the *4th Croatian Congress of Food Technologists, Biotechnologists and Nutritionists-Central European Meeting* (Ed. B. Tripalo) Faculty of Food Technology and Biotechnology, Zagreb, Croatia
9. D. Čurić, J. Đugum, M. Koradžija, D. Tušak, B. Petrović (2004): Wheat Flours Extrudates as a Basic Component of Cereal Baby Food, Proceedings of the *2nd Central European Meeting, 5th Croatian Congress of Food Technologists, Biotechnologists and Nutritionists*
10. J. Đugum, D. Čurić, M. Krvavica, D. Novotni (2008): Influence of Wheat Flour Extrusion Cooking on Texture and Colour of

Extruded Products. Proceedings of the 2008 Joint Central European Congress on Food, 4th Central European Congress on Food, 6th Croatian Congress of Food Technologists, Biotechnologists and Nutritionists

List of other papers which qualify teachers for teaching:

1. J. Đugum (2005): Pekarski proizvodi, stručni skup Autohtono u EU, 30. rujna 2005., Požega, Croatia
2. J. Đugum (2007): Autohtoni proizvodi u gastronomskoj ponudi, IV. hrvatski stručni skup prehrane, gastronomije i turizma Svijet hrane 2007, 14.-16. veljače 2007., Pula, Croatia
3. J. Đugum (2007): Poticanje malog i srednjeg poduzetništva, VI. međunarodni stručni skup Hrvatski pekar 2007, 8.-10. svibnja 2007., Pula, Croatia
4. J. Đugum (2006): Hrvatsko pekarstvo na putu prema Europskoj uniji, 2. Festival kruha i slastica, 29. rujna 2006., Zagreb, Croatia
5. J. Đugum (2007): Tržište prehrambenih proizvoda RH-EU, Stručni skup Agencije za strukovno obrazovanje, 11. siječnja 2007., Zagreb, Croatia
6. J. Đugum (2007): Primjena zakonskih propisa u mlinsko-pekarskoj i slastičarskoj industriji, VI. međunarodni stručni skup Hrvatski pekar 2007, 8.-10. svibnja 2007., Pula, Croatia
7. J. Đugum (2007): Zakonski propisi prilikom proizvodnje džema, pekmeza i marmelade, 1. Hrvatski festival pekmeza, džema i marmelade, 05.-07. listopada 2007., Dubrovnik, Croatia
8. J. Đugum (2007): Trends and Development in Croatian Food and Beverage Industry, ANUGA, Köln, BRD, October 15th 2007
9. J. Đugum (2008): Ključne tehnologije za sigurnost i kakvoću hrane: rezultati istraživanja, 2. konferencija o sigurnosti hrane, 07.-09. travnja 2008., Opatija, Croatia
10. J. Đugum, Lj. Tabaković (2008): Provedba Zakona o posebnim uvjetima stavljanja brašna na tržište, VII. međunarodni stručni skup Hrvatski pekar 2008., 22.-24. travnja 2008., Vodice, Croatia

Date of the last election to the scientific-teaching or teaching rank:

15.07. 2009. Assistant Professor, Faculty of Food Technology and Biotechnology, University of Zagreb, Zagreb

Name and surname: Ph.D. Jadranka Frece, Associated Professor

Institution:

Faculty of Food Technology and Biotechnology, University of Zagreb, Zagreb, Croatia

e-mail address and personal web sites:

igoreta@pbf.hr

Biography list of papers published in the last five years, and papers which qualify teacher for teaching:

Place and date of birth

Zagreb, 27.03.1974.

Graduated

Faculty of Food Technology and Biotechnology, University of Zagreb, Zagreb, 1997, „Frequency of covalent binding between the yeast cell wall glucan and mannan“.

M.Sc.

Faculty of Food Technology and Biotechnology, University of Zagreb, Zagreb, 28.11.2003, „*In vitro* and *in vivo* studies of probiotic mechanism effects in bacteria: *Lactobacillus acidophilus* M92, *Lactobacillus plantarum* L4 and *Enterococcus faecium* L3“

Ph.D.

Faculty of Food Technology and Biotechnology, University of Zagreb, Zagreb, 18.06.2007, „Synbiotic effect of bacteria: *Lactobacillus acidophilus* M92, *Lactobacillus plantarum* L4 and *Enterococcus faecium* L3“

Habilitation

Faculty of Food Technology and Biotechnology, University of Zagreb, Zagreb, 2008, „Molecular and microbiological methods for determination of pathogens in food“

Work experience

Scientific Assistant: 1999. Faculty of Food Technology and Biotechnology, University of Zagreb, Zagreb

Assistant Professor: 07.09. 2008. Faculty of Food Technology and Biotechnology, University of Zagreb, Zagreb

Associated Professor: 14.12. 2011. Faculty of Food Technology and Biotechnology, University of Zagreb, Zagreb

Senior Scientific Associate: 27.05. 2009. Faculty of Food Technology and Biotechnology, University of Zagreb, Zagreb

Scientific Adviser: 18.01.2011. Faculty of Food Technology and Biotechnology, University of Zagreb, Zagreb

Vice-dean for scientific-research work: 01.10. 2011. Faculty of Food Technology and Biotechnology, University of Zagreb, Zagreb

Teaching activity

Since 1999 - the practical part of teaching in the courses: Biotechnological production of drugs and specific chemicals, Production of enzymes and enzyme engineering and Probiotics and starter cultures. In these courses she participated in the preparation of 7 graduate's theses.

Since 2008 she participates in teaching in the courses: Microbiology, Food Microbiology, Bacteriology, Mycology, Food microbiology and Microbial indicators in the quality control of food.

Mentor of 19 graduate's theses, 7 final works, 2 master's theses and two dissertations.

Professional activity

15th October 1999 and 2004 - The grants from Biotechnical Foundation of Faculty of Food Technology and Biotechnology were awarded to her. 2007 - First Award of the Association of field Inventors and authors of technical improvements for the presented results "Production and application of probiotic starter cultures" authors: J. Šušković; J. Beganović, B. Kos, J. Frece, S. Matošić, Awarded at the international exhibition of innovations, new ideas, products and technologies ARCA 2007. Zagreb Fair, Zagreb, 11. – 18. september 2007

Scientific activity

She was a collaborator on three scientific projects (Probiotic activity of lactic acid bacteria (MZT 0058403) 1999 – 2002, The role of lactic acid bacteria in synbiotic effect (MZ RH 0058009), 2002 – 2006, Probiotics and functional starter cultures, 2006 – and in two technological: Production and application of probiotic starter cultures (TP 5039) 2005 – 2007., (TMP) (HIT – 2011.).

She has published so far 28 original papers (of which 17 are from A1 group), participated with 8 invited lectures (4 national and 4 international conference) and participated with 35 papers in international and national scientific meetings. She attended „methodological courses in biology and medicine „DNA i RNA“, Institute „Ruđer Bošković“ in Zagreb, 12. – 16. May 2003. From 26th October 1998 to 22nd January 1999 she stayed at the Biotechnical Faculty in Ljubljana, Department of Biotechnology, where she worked on the project "Accumulation of heavy metals in yeast", head of Ph.D. Peter Raspor, Full Professor, and from the 7th April 2008 to 30th April 2008 she spent on research training in Karl-Franzens-University in Graz, Institute of Chemistry and Structural Biology, head of Ph.D. Waltera Kellera Full Professor.

She was Secretary of the international conference Central European Symposium on Industrial Microbiology and Microbial Ecology, 3. Power of Microbs, Malin, Croatia, 2010.

Scientific papers:

List of all papers published in the last five years

1. B. Kos, J. Šušćković, J. Beganović, K. Gjurčić, J. Frece, C. Iannaccone, F. Canganella, Characterization of the three selected probiotic strains for the application in food industry, *World Journal of Microbiology and Biotechnology* 24 (5) (2008) 699-707.
2. J. Frece, B. Kos, I. K. Svetec, Z. Zgaga, J. Beganović, A. Leboš, J. Šušćković, Synbiotic effect of *Lactobacillus helveticus* M92 and prebiotics on the intestinal microflora and immune system of mice, *Journal of Dairy Research* 76 (2009), 98-104.
3. Leboš Pavunc, J. Turk, B. Kos, J. Frece, J. Beganović, S. Mahnet, S. Kirin, J. Šušćković, Proizvodnja fermentiranih probiotičkih napitaka od permeata mlijeka obogaćenih retentatom sirutke i identifikacija prisutnih bakterija mliječne kiseline, *Mljekarstvo* 59 (2009) 11-19.
4. G. Hajduk, B. Kos, J. Šušćković, J. Frece, A. Leboš and J. Beganović, Probiotic properties of *Bifidobacterium animalis* subsp. *lactis* BB-12 in baby cereal flakes enriched with inulin, *Italian J. Food Sci.* 4 (2009) 473-486.
5. K. Markov, J. Frece, D. Čvek, F. Delaš, *Listeria monocytogenes* i drugi kontaminanti u svježem siru i vrhnju domaće proizvodnje s područja grada Zagreba, *Mljekarstvo* 59 (2009) (3), 225-231
6. J. Frece, K. Markov, D. Čvek, K. Kolarec, F. Delaš, Comparison of conventional and molecular methods for the routine confirmation of *Listeria monocytogenes* in milk products produced domestically in Croatia, *Journal of Dairy Research* 77 (2010) 112-116.
7. D. Čvek, K. Markov, J. Frece, T. Landeka Dragičević, M. Majica, F. Delaš, Growth inhibition of *Aspergillus ochraceus* ZMPBF 318 and *Penicillium expansum* ZMPBF 565 by four essential oils, *Arh. hig. rada toks.*, 61, 191-196 (2010).
8. M. Zanoški Hren, T. Landeka Dragičević, J. Frece, K. Markov, A. Krivohlavek, Z. Šmit, Degradation of 6-aminonaphthalene-2-sulfonic acid by means of the selected mixed bacterial culture under microaerophilic conditions, *Fresenius Environmental Bulletin*, 2010, Vol. 19, No.2, 232-237.
9. K. Markov, J. Frece, D. Čvek, N. Lovrić, F. Delaš, Aflatoxin M1 u sirovom mlijeku i vezanje aflatoksina pomoću bakterija mliječne kiseline, *Mljekarstvo* 60 (4), 244-251 (2010).
10. T.L. Dragičević, M.Z. Hren, M. Gmajnić, S. Pelko, D. Kungulovski, I. Kungulovski, D. Čvek, J. Frece, K. Markov, F. Delaš, Biodegradation of olive mill wastewater by *Trichosporon cutaneum* and *Geotrichum candidum*, *Arh. hig. rada toks.*, 61 399-405 (2010).
11. Babić, K. Markov, D. Kovačević, A. Trontel, A. Slavica, J. Đugum, D. Čvek, I.K. Svetec, S. Posavec, J. Frece, Identification and characterization of potential autochthonous starter cultures from Croatian „brand“ product „Slavonski kulen“, *Meat Science*, 88 517-524 (2011).
12. J. Beganović, J. Frece, B. Kos, A. Leboš Pavunc, K. Habjanić, J. Šušćković, Functionality of the S-layer protein from the probiotic strain *Lactobacillus helveticus* M92, *Antonie van Leeuwenhoek Journal of Microbiology*, 100, 43-53 (2011).
13. S. Mahnet, S. Kirin, B. Kos, J. Frece, J. Šušćković, Imunomodulacijski učinak *Lactobacillus rhamnosus* GG iz svježeg posnog sira "BioAktiv LGG", *Mljekarstvo* 54 (1) (2004) 5-18.
14. J. Frece, K. Markov i D. Kovačević (2010), Određivanje autohtone mikrobne populacije i mikotoksina, te karakterizacija potencijalnih starter kultura u Slavonskom kulenu, *MESO*, XII (2), 92-98
15. J. Frece, K. Markov, D. Čvek i D. Kovačević (2010), Stafilokoki kao izvorne potencijalne starter kulture iz Slavonskog kulena, *MESO*, XII (3), 150-155.
16. J. Frece, J. Pleadin, K. Markov, N. Perši, V. Dukić, D. Čvek i F. Delaš (2010) Mikrobna populacija, kemijski sastav i mikotoksini u kobasicama s područja Varaždinske županije, *Veterinarska stanica*, 41 (3), 189-198.
17. K. Markov, J. Frece, D. Čvek, A. Trontel, A. Slavica, D. Kovačević: 2010 Dominantna mikroflora fermentiranih kobasica od konjskog mesa. *Meso* XII (4) 217-221.
18. J. Frece, D. Čvek, D. Kovačević, I. Gobin, T. Krcivaj i K. Markov: 2010 Karakterizacija bakterijskog soja *Lactobacillus plantarum* 1K izoliranog iz „slavonskog kulena“, kao probiotičke funkcionalne starter kulture. *Meso* XII (4) 210-216.
19. Lejla Duraković, Frane Delaš, Mihaela Blažinkov, Lejla Šećerkadić, Jadranka Frece, Sulejman Redžepović, Marijan Bošnjak, Andrea Skelin, Zijad Duraković, Senadin Duraković: Aflatoxin Accumulation During the Growth of Mould *Aspergillus flavus* ATCC 26949 on Corn in Pure and Mixed Culture as Related to Various Temperature and Moisture Content. *Croatian Journal of Food Technology, Biotechnology and Nutrition* 5 (1-2), 10-17 (2010).
20. Domagoj Čvek, Jadranka Frece, Ksenija Markov, Maja Friganović, Frane Delaš: 2010, Antifungal Effect of the Bacterium *Lactobacillus plantarum* K1 on Growth of Mold *Aspergillus ochraceus* ZMPBF 31. *Hrvatski časopis za prehranbeni tehnologiju, biotehnologiju i nutricionizam* 5 (1-2) 43-47.
21. Ksenija Markov, Jelka Pleadin, Nina Perši, Domagoj Čvek, Valerija Radošević, Frane Delaš, Lejla Duraković, Jadranka Frece (2011) Karakterizacija prirodne mikroflora i kemijski parametri u svježem domaćem siru, *Veterinarska stanica* 42 (3); 211-218.
22. Kovačević, D., Suman, K., Lenart, L., Frece, J., Mastanjević, K., Šubarić, D.: 2011 Smanjenje udjela soli u domaćoj slavonskoj kobasici: utjecaj na sastav, fizikalno-kemijska svojstva, boju, teksturu, senzorska svojstva i zdravstvenu ispravnost. *Meso* XIII (4) 244-249.
23. Leboš, K. Habjanić, B. Kos, J. Frece, J. Beganović, J. Šušćković, The use of *Lactobacillus plantarum* L4 for the production

of probiotic drink with cabbage juice, U: Proceedings of the 4th Central European Congress on Food 6 th Croatian Congress of Food Technologists, Biotechnologists and Nutritionists, (editor D. Ćurić) Prehrambeno-biotehnološki fakultet, Zagreb, (2008).vol.2, pp 269-276. Assoc: International Institute of Refrigeration (IIR); European Federation of Food Science and Technology (EFFoST); European Association for Chemical and Molecular Sciences – Division Food Chemistry (EuCheMS-FCD); European Society of Agricultural Engineers (EurAgEng)

List of other papers which qualify teachers for teaching:

1. B. Kos, J. Šušćković, J. Beganović, K. Gjuraćć, J. Frece, C. Iannaccone, F. Canganella, Characterization of the three selected probiotic strains for the application in food industry, World Journal of Microbiology and Biotechnology, 24 (2008) 699-707 CC, SCI
2. J. Frece, B. Kos, I. K. Svetec, Z. Zgaga, J. Beganović, A. Leboš, J. Šušćković, Synbiotic effect of *Lactobacillus helveticus* M92 and prebiotics on the intestinal microflora and immune system of mice, Journal of Dairy Research 76 (2009), 98-104. CC, SCI
3. Leboš, J. Turk, B. Kos, J. Frece, J. Beganović, S. Mahnet, S. Kirin, J. Šušćković, Proizvodnja fermentiranih probiotiććkih napitaka od permeata mlijeka obogaććenih retentatom sirutke, Mljekarstvo 59 (1), 11-20, (2009)
4. G. Hajduk, B. Kos, J. Šušćković, J. Frece, A. Leboš and J. Beganović, Probiotic properties of *Bifidobacterium animalis* subsp. *lactis* BB-12 in baby cereal flakes enriched with inulin, Italian J. Food Sci. 4 (2009) 473-486.
5. K. Markov, J. Frece, D. Ćvek, F. Delaš, *Listeria monocytogenes* i drugi kontaminanti u svježem siru i vrhnju domaće proizvodnje s područja grada Zagreba, Mljekarstvo 59 (3), 225-231, (2009).
6. J. Frece, K. Markov, D. Ćvek, K. Kolarec, F. Delaš, Comparison of conventional and molecular methods for the routine confirmation of *Listeria monocytogenes* in milk products produced domestically in Croatia, Journal of Dairy Research 77 (2010) 112-116.

Date of the last election to the scientific-teaching or teaching rank:

14.12. 2011. Faculty of Food Technology and Biotechnology, University of Zagreb, Zagreb, Associated Professor

Name and surname: Jurislav Babić, PhD, associate professor

Institution:

University of Osijek, Faculty of Food Technology

e-mail:

jbabic@ptfos.hr

Date and place of birth:

March 14th, 1978; Gradačac

Education (chronologically):

- PhD, January 19th 2007., University of Osijek, Faculty of Food Technology.
- Graduate of Food Technology, March 2002, University of Osijek, Faculty of Food Technology.

Work experience:

- 2010. - onward, *Vice dean for science*, University of Osijek, Faculty of Food Technology.
- 2008. - 2011. *assistant professor*, 2011. – onward *associate professor*. University of Osijek, Faculty of Food Technology
- 2002. - 2007. *young researcher*, University of Osijek, Faculty of Food Technology.

Teaching:

Undergraduate study programs:

- University of Osijek, Faculty of Food Technology in Osijek: „Hygiene and sanitation“; „Technology of plant-base raw materials I“; “Plant-base raw materials”.
- University of Mostar, Bosnia and Herzegovina: „Technology of plant-base raw materials“; „Technology of carbohydrates and confectionary products”.

Graduate study programs:

- University of Osijek, Faculty of Food Technology: „Technology of carbohydrates and confectionary products“; „Chemistry and technology of carbohydrates“; „Technology of carbohydrates and related products“; „Starch technology“; „Sugar technology“.

Postgraduate study programs:

- University of Osijek, Faculty of Food Technology: “Hygiene and sanitation in meat production and processing”, “Additives”, “Achievements in carbohydrates technology”.

Research and other projects:

Associate in international projects:

1. Improving academia - industry links in food safety and quality (2010-2012). leader: Ljiljana Primorac; funding source: TEMPUS
2. Quality and stability development of confectionary filling; leader: Drago Šubarić funding source: Croatian Ministry of Science, Education and Sports (2011-2012)
3. Starch isolation from different domestic cereals and development of modified starches for food industry; leader: Drago Šubarić funding source: Croatian Ministry of Science, Education and Sports (2010-2011)

Associate in national scientific projects:

1. Development of new modified starches and their application in food industry; leader: Drago Šubarić; funding source: Croatian Ministry of Science, Education and Sports (2007-2012)
2. Production of food products of high quality. Leader: Vlasta Piližota; funding source: Croatian Ministry of Science, Education and Sports (2002. – 2006)
3. Standardization of quality fruits brandy production. leader: Drago Šubarić; funding source: Croatian Ministry of Sgriculture (2005. – 2006)

List of scientific articles in last 5 years (from 2009)

1. J. Babić, D. Šubarić, B. Miličević, Đ. Ačkar, M. Kopjar, N. Nedić Tiban: Influence of trehalose, glucose, fructose

- and sucrose on gelatinization and retrogradation of corn and tapioca starch. *Czech Journal of Food Science*, 27: 151-157, 2009.
2. J. Babić, D. Šubarić, Đ. Ačkar, M. Kopjar, N. Nedić Tiban: Acetylation and characterisation of corn starch. *Journal of food science and technology*, 46: 423-426, 2009.
 3. J. Babić, D. Šubarić, Đ. Ačkar, V. Piližota, M. Kopjar and N. Nedić Tiban: Effects of Pectin and Carrageenan on Thermophysical and Rheological Properties of Tapioca Starch. *Czech Journal of Food Science*, 24: 275-282, 2006.
 4. J. Babić, D. Šubarić, Đ. Ačkar, D. Kovačević, V. Piližota, M. Kopjar: Preparation and characterization of acetylated tapioca starches. *Deutsche Lebensmittel-Rundschau*, 103 (12): 580-585, 2007.
 5. J. Babić, D. Šubarić, Đ. Ačkar, M. Kopjar: Influence of the hydrocolloids on the rheological properties of waxy maize starch. *Proceedings of 4th International symposium on agriculture, Opatija 2008*, 558-562, (2008).
 6. J. Babić, D. Šubarić, D. Kovačević, M. Jašić, N. Nedić Tiban, D. Miličević, S. Anđelić: Influence of additives on rheological properties of maize and tapioca starch pastes. *Proceedings of 34th International symposium Actual Tasks on Agricultural Engineering, Opatija*: 581-586, 2006.
 7. J. Babić, D. Šubarić, N. Nedić Tiban, M. Kopjar: The effect of lactose and whey powder on the gelatinization and retrogradation of tapioca starch. *Proceedings of the 4th International symposium on food rheology and structure, ISFRS 2006, Zurich*: 707-708, 2006.
 8. Lj. Glavaš-Obrovac, T. Opačak, V. Bareš, D. Šubarić, J. Babić, V. Ilakovac, I. Karner: Effects of dealcoholized red and white wines on human and normal cells proliferation. *Acta Alimentaria*, 35: 153-162, 2006.
 9. M. Kopjar, V. Piližota, N. Nedić Tiban, D. Šubarić, J. Babić, Đ. Ačkar: Effect of different pectin addition and its concentration on colour and textural properties of raspberry jam. *Deutsche Lebensmittel-Rundschau*. 103 (4), 164-168. (2007.).
 10. Mirela Kopjar, Vlasta Piližota, Janez Hribar, Nela Nedić Tiban, Drago Šubarić, Jurislav Babić, and Tomaz Pozri: Influence of trehalose addition on instrumental textural properties of strawberry pastes. *International Journal of Food Properties*, 11: 646-655, 2008.
 11. M. Kopjar, V. Piližota, N. Nedić Tiban, D. Šubarić, J. Babić, Đ. Ačkar, M. Sajdl: Strawberry Jams: Influence of Different Pectins on Colour. *Czech Journal of Food Science*, 27: 20-28, 2009.
 12. M. Lučan, V. Slačanac, J. Hardi, K. Mastanjević, J. Babić, V. Krstanović, M. Jukić: Inhibitory effect of honey-sweetened goat and cow milk fermented with *Bifidobacterium lactis* Bb-12 on the growth of *Listeria monocytogenes*. *Mljekarstvo* 59 (2): 96-106, 2009.
 13. D. Šubarić, D. Miličević, H. Pašalić, M. Šabanović, J. Babić, M. Aljić: Inhibicija enzimске oksidacije polifenola i posmeđivanja soka kruške i narezanih krušaka. *Works of the Faculty of Agriculture, University of Sarajevo*, 56: 105-114, 2005.
 14. D. Šubarić, J. Babić, Đ. Ačkar, V. Piližota, M. Kopjar, M. Jukić: Effect of guar and pectin on rheological properties and solubility of corn starch. *Works of the Faculty of Agriculture and food science, University of Sarajevo*, 58: 171-178, 2007.
 15. B. Miličević, D. Šubarić, S. Madjar, D. Kovačević, J. Babić: The influence of various distillation techniques on quality of plum brandy. *Works of the Faculty of Agriculture and food science, University of Sarajevo*, 58: 221-229, 2007.
 16. D. Šubarić, J. Sadadinović, J. Babić, D. Miličević, B. Muhamedbegović: Enzymes application in starch technology: *Technologica-Acta*, 1(2): 185-188, 2005. (CAB Abstracts 2007/11-2008/02.)
 17. M. Kopjar, V. Piližota, N. Nedić Tiban, J. Babić, Đ. Ačkar: The influence of sugar addition on stability of phenolic, flavonoids, anthocyanins and antioxidant activity in red grape juice. *Proceedings of the 4th central european congress on food, Cavtat*, 169-175, 2008.
 18. M. Kopjar, V. Piližota, J. Hribar, E. Zlatić, N. Nedić Tiban, D. Šubarić, J. Babić: Aroma retention in evaporated and freeze dried strawberry pastes. *Proceedings of the 13th World congress of food science, IUFOST 2006, Nantes 2006*: 189-190, 2006.
 19. N. Nedić Tiban, M. Kopjar, J. Babić, V. Piližota, D. Šubarić: Effect of fructose syrup addition on the rheological behaviour of Croatian honeys. *Proceedings of the 4th International symposium on food rheology and structure, ISFRS 2006, Zurich*: 741-742, 2006
 20. M. Kopjar, V. Piližota, N. Nedić Tiban, D. Šubarić, J. Babić: Influence of pH and temperature during storage on concentrates of sour cherry and sour cherry Maraska. *Proceedings of the 4th International Congress on Pigments in Food*. (R. Carle, A. Schieber, F.C. Stintzing, ur.), Stuttgart, 226-228, (2006).
 21. V. Piližota, D. Šubarić, N. Nedić-Tiban, M. Kopjar, J. Babić: Influence of browning inhibitors on colour and polyphenols in fresh-cut pears and pear juice. *Proceedings of the 32. International symposium on agricultural engineering, Opatija 2004*: 405-414, 2004.
 22. N. Nedić Tiban, V. Piližota, D. Šubarić, M. Kopjar, J. Babić: Effects of concentration and temperature on rheological properties of some hydrocolloids. *Proceedings of 4th International Congress Flour-Bread 2003, Opatija 2003*: 158-167, 2004.
 23. D. Šubarić, J. Babić, D. Kovačević, M. Kopjar i N. Nedić Tiban: Influence of guar and pectin on gelatinisation

and retrogradation of starch. *Proceedings of 4th International Congress Flour-Bread 2003*, Opatija 2003: 123-129, 2004.

Works which qualified for teaching:

7. Certifikat pohađanja seminara „Kvaliteta i sigurnost hrane“, Renn, Francuska (26.06.2006-15.07.2006) u sklopu TEMPUS projekta.
8. Predavanje na domaćem skupu: Tema: HACCP sustav. Katarinski Sajan, 26.11.2008. Slavonski Brod.
9. Predavanje na I. regionalnom seminaru o HACCP sustavu u organizaciji Hrvatske agencije za hranu. Tema: Osnove HACCP sustava, 20.11.2007., Osijek.
10. M. Lučan, V. Slačanac, J. Hardi, K. Mastanjević, J. Babić, V. Krstanović, M. Jukić: Inhibitory effect of honey-sweetened goat and cow milk fermented with *Bifidobacterium lactis* Bb-12 on the growth of *Listeria monocytogenes*. *Mljekarstvo* 59 (2): 96-106, 2009.

Date of last election:

November 2011. – Associate professor

Surname/ First name: Humski Andrea, Ph.D.

Institution (Name of employer):

Croatian Veterinary Institute

E-mail(s), Web address(s):

humski@veinst.hr; www.veinst.hr

Biography; list of publications in the last five years citing articles which qualify for teaching

Born:

Zagreb, 11. 02. 1965.

Graduation:

Veterinary Faculty University of Zagreb, 21. 12. 1990., „Findings of *Staphylococcus hyicus* on the skin and some mucous membranes of healthy sows”

Master's degree:

Veterinary Faculty University of Zagreb, 15. 12. 1995., „Prevalence of enterotoxigenic *Escherichia coli* strains isolated from suckling and weaned pigs with colibacillosis “

Doctor's degree:

Veterinary Faculty University of Zagreb, 11.07.2001., „Adherence ability of enterotoxigenic *Escherichia coli* strains exposed to subminimal inhibitory concentrations of some antibiotics“

Position and responsibilities:

Younger assistant: Croatian Veterinary Institute, Zagreb, Laboratory of diagnostic bacteriology, October 1991.

Assistant: Croatian Veterinary Institute, Zagreb, Laboratory of diagnostic bacteriology, June 1997.

Senior assistant: Croatian Veterinary Institute, Zagreb, Laboratory of diagnostic bacteriology, October 2001.

Research associate: Croatian Veterinary Institute, Zagreb, Laboratory of food microbiology, July 2002.

Senior research associate: Veterinary Faculty University of Zagreb, May 2006.

Scientific adviser: Veterinary Faculty University of Zagreb, July 2006.

Main activities and responsibilities:

- Research on surveillance of food-born zoonotic agents, with particular reference to *Escherichia coli*, *Salmonella* spp., *Listeria monocytogenes* and thermotolerant *Campylobacter* spp
- Organization of the work of the National Reference Laboratory for *Escherichia coli* (including VTEC), *Salmonella* spp. in food, *Listeria monocytogenes*, Coagulase positive staphylococci (including *Staphylococcus aureus*) and thermotolerant *Campylobacter* spp
- Conducting research within the National control plan of *Campylobacter* in poultry carcasses
- Conducting research for the control of compliance with microbiological criteria for imported shipments
- Scientific and technical support for the Ministry of Agriculture of Croatia related to surveillance plans and National monitoring plans of microorganisms in food of animal origin
- Scientific and technical support for the preparation and implementation of the national legislation and guidance documents in respect of microbiological criteria according to EU Regulation 2073/2005
- Support and participation in education of national authority staff, other officials and stakeholders on microbiological criteria for foodstuffs
- Activities connected to the quality system implementation and laboratory accreditation

Trainings:

- Study visit on identification and characterization of *Salmonella* and enterotoxigenic and verotoxigenic strains of *Escherichia coli* by PCR, Robert Koch Institute, Wernigerode, Germany, 2000.
- Study visit on analytical methods for microbiological and chemical control of shellfish acc to ISO standards, Institute "Centro Richerche Marine", Cesenatico, Italy, 2005.
- Microbiological risk assessment, FAO/ICD/WHO-EURO, Ljubljana, Slovenia, 2005.
- Study visit on identification of major pathogens in food by PCR and accreditation of microbiological lab acc to EN ISO 17025, "IZSAM, G. Caporale", Teramo, Italy, 2005.
- Study visit on food safety control and RASFF, "Food Standard Agency", London, UK, 2006.
- Training for HACCP trainers, FAO/MAWM/CFA, Zagreb, 2006.

- Training course on risk analysis, "IZSAM, G. Caporale", Teramo, Italy, 2006.
- E-learning, professional studies: Overview of Risk Analysis, Center for Risk Communication Research, Department of Communication, University of Maryland, Maryland, USA, 2007.
- Corso base sulle protezioni comunitarie (DOP/IGP) - Basic course on the activities of determining compliance with the specification of agricultural and food products with designation of origin or geographical indications, CSQA / Biotechnicon, Zagreb, Croatia, 2008.
- Training course on methods for risk assessment in animal health and food safety fields, Interreg/CARDS-Project (SARA) / "IZSAM, G. Caporale", Teramo, Italy, 2008.
- Training course on assessment of laboratory performing tests related to the control of food safety, MAFRD / CARDS 2004, Zagreb, Croatia, 2009.
- Advanced course on the activities of determining compliance with the specification of agricultural and food products with designation of origin or geographical indications, CSQA / Biotechnicon, Zagreb, Croatia, 2009.
- Workshop on microbiological criteria for foodstuffs, AGR 33429, TAIEX/MAFRD, Zagreb, Croatia, 2009.
- EU RL Campylobacter Workshop, Uppsala, Sweden, 2009.
- Workshop on microbiological criteria for foodstuffs, AGR 40165, TAIEX/MAFRD, Zagreb, Croatia, 2010.
- New approach of the microbiological food control, CSI/CroLab, Zagreb, Croatia, 2010.
- Workshop on Incident management – RASFF, traceability, withdrawal and recall procedures, AGR 43219, TAIEX/MAFRD, Zagreb, Croatia, 2011.
- EU RL Campylobacter Workshop, Uppsala, Sweden, 2011.
- EU RL Listeria monocytogenes Workshop, Paris, France, 2012.
- EU RL Coagulase positive staphylococci Workshop, Valetta, Malta, 2012.

Teaching activities:

- Student assistant at graduate study; the subject "General Microbiology and Immunology" and "Special Microbiology", Department of Microbiology and Infectious Diseases, Veterinary Faculty University of Zagreb
- Associate at postgraduate study in veterinary science; the subject "*Enterobacteriaceae* and other causes of intestinal disease in domestic animals" Veterinary Faculty University of Zagreb
- Extra-mural education for the students of XII. semester of Veterinary Faculty, University of Zagreb, subject: Standard microbiological methods in the control of food of animal origin
- Associate at postgraduate study Technology of traditional meat products; the course "Application of HACCP in the production technology of autochthonous meat products" and "Veterinary health surveillance in the production of autochthonous meat products", Faculty of Food Technology University of JJ Strossmayer Osijek

Professional experience

2011/2012 Participation in EuropeAid/128208/C/SER/ME "Development of Food Safety in Montenegro" as trainer of laboratory staff and relevant governmental officers in the specific field of microbiological criteria and Regulation 2073/2005-Rapid Alert System for Food and Feed on national level, 2007.

2009/2011 Trainer in several trainings organized by Croatian Ministry of Agriculture, Croatian Standards Institute, and other institutions for Food inspectors, other officials and stakeholders on microbiological criteria for foodstuffs

2010/2011 Individual Consultant – Implementation of the Quality System acc to ISO 17025 into the Laboratories of Public Health Institute - Tuzla, Federation of Bosnia and Herzegovina, 2010.

2009/2011 Trainer in several trainings organized by Croatian Ministry of Agriculture, Croatian Standards Institute, and other institutions for Food inspectors, other officials and stakeholders on microbiological criteria for foodstuffs

2009 Individual Consultant / STE in the Republic of Macedonia: International Bank for Reconstruction and Development (WB) Project "Agriculture Strengthening and Accession Project"(ID.P101216)/, component 3 "Capacity Building in the Area of Veterinary Services" – Preparation of Business Plan and QS improving for the Institute for Food Safety and Veterinary Institute, Veterinary Faculty, Skopje

2006/2007 Part of the Team that negotiated, on behalf of the Croatian Ministry of Agriculture, the application for membership of the European Union – Chapter 12 Food safety, veterinary and phytosanitary policy

2005/2007 CVI Quality manager for Dept of Veterinary Public Health

2005/2007 Coordination of projects within CVI:

- "Interregional Center for Food Safety and Risk Analysis-SARA", 2007.

- "Capacity building in the area of agriculture, live animals and food products" Twinning Project-HR-02-IB-IG-01, Italy, 2002;
- Rapid Alert System for Food and Feed on national level, 2007.

2002/ongoing – Head of the Laboratory for food microbiology, CVI Zagreb

Social skills and competencies

- Member of the Commissions for the by-laws preparation and implementation (Regulation on microbiological criteria for foods; A guide for the microbiological criteria for foods; A guide for the conduct of research on compliance with criteria for bacteria *Listeria monocytogenes* in RTE products till the expiration date; Regulations on the rapid alert system for food and feed).
- Member of Croatian Microbiology Society/ Section for food microbiology
- Member of Croatian Food Agency - Scientific Committee/Panel on food safety
- Member of Croatian Accreditation Agency/ Assessor – Expert
- Member of State Office for Standardization and Metrology, ISO/TC34/SC 8

Scientific work:

- Rector's Award 1988. for the student's work under the title "The findings of *Staphylococcus hyicus* in skin and mucosa of healthy sows"

Participation in a scientific projects supported by Ministry of science, education and sports:

- Researcher, Project 1178" Antimicrobial resistance of bacteria important in veterinary medicine" project leader PhD Boris Habrun, within the program (048-0481186), "Modern diagnostics and analytics in animal and the environment protection", Program leader Ph.D. Sveltana Terzic
- Researcher, Project "Molecular epizootiology of significant diseases in pig breeding" (0048003), project leader Ph.D. Zeljko Cvetnic.
- Researcher, Program 004 801 "Animal health protection" thematic task 00-480-103 "The breeding diseases in agglomeration" Program leader Ph.D. Vitomir Bilic.
- Researcher, Project 3-03-315 "Control of dominant bacterial infections in pigs", Project leader Ph.D. Vitomir Bilić

Publications:

- 1 book chapter
- 1 textbook chapter
- 9 articles in international journals indexed in Current Contents
- 14 articles in journals indexed in secondary publications
- 8 articles in the proceedings with international review
- 12 articles in the proceedings with national review
- 28 abstracts in the book of abstracts from international or national scientific conference with international participation
- 13 invited lectures at national and international scientific and professional conferences

Scientific articles:

List of papers published in the last five years:

1. Andrea Benussi-Skukan, Lidija Kozacinski, Diana Brlek-Gorski, Andrea Humski, Alemka Dunaj (2008): Detection of Salmonella spp. and *Listeria monocytogenes* in fresh meat: use of conventional microbiological methods and immunomagnetic separation. Food Micro 2008 - 21st International ICFMH Symposium, 1-4. September 2008, Aberdeen, Scotland.
2. M. Mikulić, Andrea Humski (2011): Microbiological carcass sampling methods. Book of Abstracts, The International Congress "Veterinary Science and Profession", Zagreb, Hrvatska, 01.-02.2009
3. Andrea Humski, M. Mikulić (2009): The criteria for hygiene control process in the slaughter-houses - Carcass sampling for microbiological analysis. Vet. stanica, 40 (3), 129-192.
4. Đokić Maja, Bilandžić Nina, Humski Andrea (2011): Ensuring quality in primary production of meat. *Meat XIII* (2011), 5; 348-354
5. Andrea Humski; Marina Mikulić; Mirna Klarić; Tena Havrda (2011): *Listeria monocytogenes* in cottage cheese. *Vet. stanica* 42 (2011), 4; 317-323.
6. Mikulić Marina; Zdravec Manuela; Andrea Humski; Mitak Mario (2011): Determination of yeasts and moulds in food of animal origin. Book of Abstracts, The International Congress "Veterinary Science and Profession" Faculty of Veterinary Medicine, University of Zagreb, 2011. 91-91 (ISBN: 978-953-6062-81-2).
7. Andrea Humski (2011): Warning for food safety control system. *Vet. stanica* 42 (2011), 4; 305-306

The handbook chapter:

Andrea Humski (2011): Campylobacter in food. Pathogens that are transmitted by food and water/ Mlinarić-Galinović, Gordana ; Capak, Krunoslav ; Ljubin-Sternak, Sunčanica ; Sviben, Mario (ur.). - Zagreb : Medicinska naklada , 35-38.

The guides:

1. Guidance on microbiological food criteria, (2009), Ministry of Agriculture, <http://www.mps.hr>
2. Guidance on microbiological food criteria, (2010), 2nd edition, Ministry of Agriculture, <http://www.mps.hr>
3. Guidance on microbiological food criteria, (2011), 3rd edition Ministry of Agriculture, <http://www.mps.hr>

Invited lectures:

1. Andrea Humski, Mikulić Marina (2009): Implementation of Campylobacter monitoring programme in Croatia, EU-RL Campylobacter Workshop 2009, Uppsala, Sweden
2. Andrea Humski (2009): Carcasse sampling methods for microbiological analysis acc. to standard HRN ISO 17604:2009. Training course: The new approach to microbiological food control. Zagreb, Croatia, 23.10.2009. ; 04.12.2009., CSI/CroLab
3. Andrea Humski (2009): Campylobacter - a "knew"challenge for food safety. Symposium on Biological hazards in food. Societas Veterinaria Croatica/Croatian Food Agency. Zagreb, December 03, 2009
4. Andrea Humski (2010): Proceedings in the laboratory after sample receiving in compliance with Ordinance on food microbiology criteria. HZN/CroLab, Zagreb, Croatia, 26.02.2010. ; 07.05.2010
5. Andrea Humski (2010): Milk sampling procedure. MAWFM Zagreb, Croatia ; Požega, Croatia, 26.02.2010. ; 07.05.2010.
6. Andrea Humski (2010): Croatian Ordinance on sampling frequencies in small slaughterhouses. Workshop on microbiological criteria for foodstuffs. TAIEX/MAFRD, Zagreb, 22.-23.04.2010.
7. Andrea Humski (2010): Application and interpretation of Ordinances in the food control field Zagreb, Hrvatska, 21.05.2010., MAWFM/CVI
8. Andrea Humski (2011): The role of laboratories in the application of microbiological criteria for foods. The program of help of FBO, Chamber of Commerce, Center for Quality, Zagreb, November 2011.
9. Andrea Humski , M. Mikulić (2012): CVI, NRL for Listeria monocytogenes. 6th Workshop of NRLs for Listeria monocytogenes. Paris, France. March 2012
10. Andrea Humski , M. Mikulić (2012): Laboratory for food microbiology - CVI, NRL for Coagulase positive Staphylococci. 6th Workshop of NRLs for Coagulase positive Staphylococci. Valeta, Malta. May 2012

List of other works that qualify teachers for teaching:

1. Humski, Andrea, A. Premzl, B. Habrun, S. Terzić, L. Jemeršić, Ž. Cvetnić (2004): Detection of salmonella antibodies in porcine sera and meat juices. Proceedings of the 18th IPVS Congress, Hamburg, Germany, 27. June -1. July 2004., 330.
2. Benussi-Skukan, A., A. Humski (2004): Detection of Listeria monocytogenes in various foods. Book of Abstracts, The 19th International ICFMH Symposium Foodmicro 2004, Portorož, Slovenia, 12 -16th September 2004., 358.
3. Humski, A., V. Bilić, B. Habrun (2001): Monitoring of Listeria spp., Salmonella spp. and Escherichia coli O157:H7 in poultry meat. Peradarski dani 2001. Poreč, 16.-19. svibnja 2001. Zbornik radova, str. 61
4. Andrea Humski (2004): "Određivanje Listeria spp., Salmonella spp. i Campylobacter spp. u namirnicama komercijalnim testovima", Merck, lipanj 2004.
5. Zrnčić, S., D. Oraić, A. Humski, J. Postružnik-Sapunar, D. Bažulić (2003): Safety and epizootiological status of shellfish from the Mali Ston Bay. Stonska kamenica-Hrvatski proizvod za 21. stoljeće. Mali Ston, 18.-19.03.2003.
6. Humski, A., V. Bilić, B. Habrun (2000): Results of investigating the presence of bacteria from the Salmonella family and bacteria Listeria monocytogenes and Escherichia coli O157:H7 in the material of animal origin.) 2nd Croatian Veterinary Congress. Cavtat, 10.-13. 10. 2000. Zbornik radova, str. 477-482.
7. M. Mikulić, Andrea Humski (2011): Microbiological carcass sampling methods. Book of Abstracts, The International Congress "Veterinary Science and Profession", Zagreb, Hrvatska, 01.-02.2009
8. Andrea Humski, M. Mikulić (2009): The criteria for hygiene control process in the slaughter-houses - Carcass sampling for microbiological analysis. Vet. stanica, 40 (3), 129-192

Date of most recent election to the scientific - teaching position:

20. 07. 2006. scientific adviser, Veterinary Faculty, University of Zagreb

Name and Surname: Željko Cvetnić, PhD**Institution:**

Croatian Veterinary Institute, Zagreb

e-mail address and personal web page:

cvetnic@veinst.hr; www.veinst.hr

Curriculum vitae; list of papers published in the last five years and papers that qualify the lecturer for teaching:Born:

Mraclin (Velika Gorica), 26.11.1963.

Graduated:

Veterinary Faculty at University of Zagreb, 18.1.1990., „The spread of rabies in animals in Yugoslavia in the period from 1980 -1989.“

Master's degree:

Veterinary Faculty at University of Zagreb, 31.3.1993. „The spread of bovine tuberculosis in large swine cultivations in the Republic of Croatia and the incidence of certain mycobacteria“

Doctor's degree:Veterinary Faculty at University of Zagreb, 03.07.1996. „Epizootiological significance of the *Mycobacterium avium* - *intracellulare* complex and other potentially pathogenic mycobacteria in pig environment“Employment and duties:

Associate positions

- assistant (7.3.1990. - 1.7.1993)
- research assistant (2.7.1993. – 2.3.1997.)
- senior assistant (3.3. 1997. – 30.3. 1999.)

Scientific positions

- scientific associate (31.3. 1999. – 16.7.2002.)
- senior scientific associate (17.7.2002. – 1.10.2005.)
- scientific advisor (2.10.2005.)

Employment and duties

- From 7.3.1990. to 30.6.1999., assistant at Department of Immunology of Croatian Veterinary Institute, Zagreb
- From 1.7.1999. to 21.2.2006., Head of Department of Immunology of Croatian Veterinary Institute, Zagreb
- Two mandates as a member of Governing Council of Croatian Veterinary Institute, Zagreb, from 2001. to 2003., and from 2003. to 2005.
- From 21.2.2006., Head of Department of Bacteriology and Parasitology of Croatian Veterinary Institute, Zagreb
- Member of Governing council of Croatian Foog Agency
- Member of the evaluation group of Ministry of Science, Education and Sports, area Biomedicine and health, field Veterinary medicine
- From 8.3.2007. Head of Croatian Veterinary Institute, Zagreb
- From 8.4.2009. Member of The Parent Committee for Science – field Veterinary Medicine

Teaching

Course leader in doctoral studies of Veterinary science at the Veterinary Faculty in Zagreb named: „The causative agents of specific infectious diseases with bacterial etiology: tuberculosis, brucellosis and glanders“. Participates in undergraduate teaching in the course: Contagious animal diseases (fifth year) with 4 hours of teaching. Since 2001. is a guest professor at the Veterinary Faculty in Sarajevo. Currently in the process of competing for the title teaching position at the Veterinary Faculty in Zagreb.

Projects

Training

- 1990., Croatian Department of Public Health, Zagreb. Area: "Bacteriological diagnosis of tuberculosis in people" - Isolation and identification of mycobacteria
- 1991., Veterinary Faculty in Ljubljana, Slovenia, Laboratory for tuberculosis

- 1993., Veterinary Faculty in Ljubljana, Slovenia, Laboratory for tuberculosis.
Area: "Bacteriological diagnosis of tuberculous animals", Serotyping of *M. avium* complex
- 1998. Veterinary Faculty in Ljubljana, Slovenia, Institute for Microbiology:
Area: Application of various concentrations of tuberculin and gamma interferon diagnosis of bovine tuberculosis and paratuberculosis
- 2001., AFSSA - OIE / FAO Reference Laboratory for Brucellosis, Tuberculosis and Paratuberculosis, Paris, France
Area: Serological, bacteriological and molecular diagnosis of brucellosis, tuberculosis and paratuberculosis
- 2002., Departamento Interfacultativo de Microbiología y Parasitología, Pamplona, Spain, as part of Mediterranean Zoonoses Control Programme
Area: Possibilities in diagnosis of brucellosis in small ruminants
- 2005., Unidad de Sanidad Animal Centro de Investigación y tecnología agroalimentaria (CITA) Zaragoza, Spain
Area: Bacteriological, serological and molecular diagnosis of brucellosis, with special reference to *Brucella ovis* infection in sheep
- 2006., Danish Institute for Food and Veterinary Research, Institute of Infectious Animal Diseases, Department of Veterinary Diagnostics and Research, Copenhagen, Denmark
Area: Nonspecific (False Positive Serological Reactions - FPSR) reactions in serological diagnosis of brucellosis in pigs, the application of distinguishing techniques

Scientific activity

Participation in the realization of scientific projects:

- «Game as a reservoir of infectious diseases of domestic animals» (1993., code 3-03-357)-assistant
- «Animal health research» (1998., code 00480101)- assistant
«Molecular epizootiology of significant diseases in swine breeding» (2002., code 0048003) – head of the project
- «Molecular epizootiology of important bacterial zoonoses» (2006). – head of the project and of the overall programme

Bibliography

Total of 180 bibliographic units, 21 guest lectures, 5 book reviews, mentoring of 2 doctoral thesis, 1 master's thesis, 7 graduate thesis

- 2 qualification papers (master's and doctor's thesis)
- 3 books
- 33 scientific papers cited in Current Contents (CC)
- 33 scientific papers cited in secondary publications
- 23 professional papers
- 57 posters (international congresses)
- 26 posters (domestic scientific-professional meetings)
- 3 papers on popularization of the profession
- 5 book reviews
- 21 public guest lectures

Scientific papers:

List of all papers published in the last five years

Scientific papers published in journals cited in Current Contents

1. Svjetlana Terzić, Lorena Jemeršić, M. Lojkić, Lidija Šver, I. Valpotić, Nada Oršolić, Andrea Humski and Ž. CVETNIĆ (2004): Leukocyte Subsets and specific antibodies in pigs vaccinated with a classical swine fever subunit (E2) vaccine and the attenuated ORF virus strain D1701. *Acta Veterinaria Hungarica* 52, 151-161.
2. CVETNIĆ, Ž., J. Toncic, S. Spicic, M. Lojkic, S. Terzic, L. Jemersic, A. Humski, S. Curic, M. Mitak, B. Habrun, M. Brstilo, M. Ocepek, B. Krt(2004): Brucellosis in wild boar (*Sus Scrofa*) in the Republic of Croatia. *Vet. Med – Czech* 49, 115-122.
3. Erler, W., Martin, G., Sachse K., Neumann, L., Kahlau, D, Beer, J., Bartoš, M., Nagy, G., CVETNIC, Z., Zolnir-Dovc, M., Pavlik, I. (2004): Molecular Fingerprinting of *Mycobacterium bovis* subs. *Caprae* Isolates from Central Europe. *Journal of Clinical Microbiology*, 42 (5), 2234-2238.

4. Jemeršić, L., Ž. CVETNIĆ, I. Toplak, S. Špičić, J. Grom, D. Barlič-Maganja, S. Terzić, P. Hostnik, M. Lojkić, A. Humski, B. Habrun, B. Krt (2004): Detection and genetic characterization of porcine circovirus type 2 (PCV2) in pigs in Croatia. *Res. Vet. Sci.* 77, 171-175.
5. CVETNIC, Z., Spicic, S, Curic S, B. Jukic, M. Triebaud, Albert D., Garin-Bastuji B. (2005): Isolation of *Brucella suis* biovar 3 from horses in Croatia. *Vet. Rec.* 156, 584-585.
6. Pavlik, I., I.Trcka, I. Parmova, J. Svoboda, I. Melicharek, G. Nagy, Z. CVETNIC, M. Ocepek, M. Pate, M. Lipiec (2005): Detection of bovine and human tuberculosis in cattle and other animals in six Central European countries during the years 2000- 2004. *Vet. med. – Czech*, 50 (7) 291 – 299.
7. Prodinge, W.M., A., Brandstaetter, L., Naumann, M., Pacciarini, T., Kubica, M.L., Bosciroli, A., Aranaz, G., Nagy, Z. CVETNIC, M. Ocepek, A. Skrypnik; W. Erler, S. Niemann, I. Pavlik, I. Moser (2005): Characterization of *Mycobacterium caprae* isolates from Europe by *Mycobacterial Interspersed Repetitive Unit Genotyping*. (Karakterizacija izolata *Mycobacterium caprae* iz Europe pomoću MIRU genotipizacije). *Journal of Clinical Microbiology* 43 (10) 4984-4992.
8. Habrun, B., Listes, E., Spicic S., CVETNIC, Z., Lukacevic, D., Jemersic, L., Lojkić, M., and Kompes, G. (2006): An outbreak *Salmonella abortus ovis* abortions in sheep in south Croatia. *Journal of vet. med B.*
9. Punda –Polić, Volga, Z. CVETNIC (2006): Human brucellosis in Croatia. *The Lancet infectious disease* 6 (9), 540-541.
10. Pate M, Svava T, Gombac M, Paller T, Zolnir-Dovc M, Emersic I, Prodinge WM, Bartos M, Zdovc I, Krt B, Pavlik I, CVETNIC Z, Pogacnik M, Ocepek (2006): Outbreak of tuberculosis caused by *Mycobacterium caprae* in a zoological garden. *J Vet Med B.* 53, 387-392.
11. CVETNIC, Z., S. Spicic, V. Katalinic-Jankovic, S. Marjanovic, M. Obrovac, M. Benic, I Pavlik (2006): *Mycobacterium caprae* infection in cattle and pigs on one family farm in Croatia: a case report. *Veterinarni Medicina*, 51 (11) 523-531.
12. CVETNIĆ, Ž., S. Špičić, M. Benić, Vera Katalinić Janković, Mateja Pate, B. Krt, M. Ocepek (2007): *Mycobacterial* infection of pigs in Croatia. *Acta Veterinaria Hungarica* 55 (1), 1-9.
13. CVETNIĆ, Ž., Vera Katalinić Janković, B. Šošarić, S. Špičić, M. Obrovac, S. Marjanović, M. Benić, I. Vicković (2007): *Mycobacterium caprae* in cattle and humans in Croatia. *Int. J. Tuberc. Lung Dis.* 11 (6), 1-7.
14. David Garcia-Yoldi, Philippe Le Fleche, Maria J.De Miguel, Pilar M. Munoz, Jose M. Blasco, ZELJKO CVETNIC, Clara M. Marin, Gilles Vergnaud, Ignacio Lopez-Goni (2007): Comparison of Multiple-Locus Variable-Number Tandem –Repeat Analysis with Other PCR-Based Method for Typing *Brucella suis* Isolates. *J. Clin. Microbiol.* 45 (12) 4070-4072.
15. Alen Slavica, ŽELJKO CVETNIĆ, Zoran Milas, Zdravko Janicki, Nenad Turk, Dean Konjević, Krešimir Severin (2008): Incidence of Leptospiral antibodies at different game species during ten years period (1996-2005) in Croatia. *J. wildlife Dis.* 54,2; 305-311.
16. Gudan A, Artuković B, CVETNIĆ, Ž., Špičić S, Beck A, Hohsteter M, Naglič T, Bata I, Grabarević Z.(2008): Disseminated tuberculosis in hyrax (*Procavia capensis*) caused by *Mycobacterium africanum*. *J Zoo Wildl Med.* 39,3:386-391.
17. Hinić V, Brodard I, Thomann A, CVETNIĆ Z, Makaya PV, Frey J, Abril C. (2008): Novel identification and differentiation of *Brucella melitensis*, *B. abortus*, *B. suis*, *B. ovis*, *B. canis*, and *B. neotomae* suitable for both conventional and real-time PCR systems. *J Microbiol Methods.* 75(2):375-378.
18. Špičić, Silvio, Sanja Marjanović, Maja Zdelar Tuk, Ž. CVETNIĆ (2009): First evidence of *Brucella ovis* infection in Republic of Croatia. *Deutsche Tierarzliche Wochenschrift* 116 (6), 209-213.
19. CVETNIĆ Ž, Špičić S, Tončić J, Majnarić D., Benić M., Albert D, Triebaud M., Garin Bastuji B (2009): *Brucella suis* infection in domestic and wild boars in Croatia. *OIE Scientific and Technical Review.* 28 (3)

Scientific papers published in journals cited in secondary publications

1. CVETNIĆ, Ž., S. Špičić, Vera Katalinić Janković, Brankica Capek, B. Habrun i M. Mitak (2004): Application of DNA method in the diagnosis and identification of *Mycobacterium tuberculosis* complex in domestic animals. *Vet. station* 35, 261-268.
2. CVETNIĆ, Ž., B. Jukić i S. Špičić (2004): The spread of leptospirosis in horses in Croatia from 1994. to 2003. *Vet. station* 35, 67 -75.
3. CVETNIĆ, Ž., S. Špičić, S. Marjanović (2005): Brucellosis, leptospirosis and tuberculosis in pigs: classic disease and new insights. *Praxis veterinaria* 53, 47-58.

4. Vera Katalinić-Janković, Mihaela Obrovac, Željko CVETNIĆ, Silvio Špičić, Mirjana Žagar- Petrović, Branka Kristić-Kirin (2005): *Mycobacterium caprae* - cause of tuberculous lymphadenitis in a child). *Medicina* , 42, 267-270.ž
5. CVETNIĆ, Ž., Sanja Marjanović, S. Špičić, Silvija Drašković, Valerija Podgorski i Marijana Novosel (2005): The occurrence of nonspecific reactions in the serological diagnosis of brucellosis in cattle imported from the European Union. *Vet. Station.* 36, 85-90.
6. Mitak, M, Manuela Zdravec, Tihomira Gojmerac, i Ž. CVETNIĆ (2005): Zearalenone contamination of corn grain 2004. *Vet. Station.* 36, 95-100.
7. Kompes, G., B. Habrun, B. Šošarić, I. Vicković, Ž. CVETNIĆ, S. Špičić (2005): *Listeria* abortion of cattle - a case report and comparison of two isolation methods of causative agent. *Vet. Station* 36, 141-149.
8. Ruža Sabočanec, Dean Konjević, Stipica Čurić, Željko CVETNIĆ and Silvio Špičić (2006): Spontaneous *Mycobacterium avium* serovar 2 infection in a Muscovy duck (*Cairina moschata*) – a case report. *Vet. arhiv* 76 (82) 185-192.
9. CVETNIĆ, Ž., I. Brkić, S. Špičić, M. Mitak (2006): Q-fever in Topusko in 2001. *Croatian Journal of Public Health* 1 (4), 4-7.
10. Ž. CVETNIĆ, M. Ocepek, M. Lojkić, Lj. Markuš-Cizelj, S. Špičić, M. Pate, B. Krt (2006): Comparison of tuberculin and *Mycobacterium bovis* gamma immunomodulatory test in the diagnosis of bovine tuberculosis. *Praxis vet.* 54 (1-2) 41-49.
11. CVETNIĆ, Ž., S. Špičić, Volga Punda Polić, E. Listeš, A. Gašpar, A. Labrović, M. Brstilo (2006): Epizooty of brucellosis in sheep and goats in southern Croatia. *Vet. Station.* 37,2, 69 -75.
12. Vera Katalinić Janković, Ž. CVETNIĆ, M. Obrovac (2007): *M. caprae* – the cause of child tuberculosis. *Medical Journal* 129,5, 146-151.
13. Terzić, Svjetlana; Oršolić Nada; Šver, Lidija; Jemeršić, Lorena; Cvetnić Željko; Valpotić, Ivica; Logomerac, Vesna; Šandor, Ksenija; Bašić Ivan(2007): In vitro proliferation of lymphocytes derived from pigs vaccinated against classical swine fever. *Periodicum biologorum.* 109, 2; 165-171.
14. CVETNIĆ, Ž., VELIĆ R., ŠPIČIĆ S., DUVNJAK S., ZDELAR-TUK M., MAJNARIĆ D., ALERAJ B.(2008): Distribution of brucellosis in the Republic of Croatia with regard to the situation in Bosnia and Herzegovina. *Croatian Journal of Infection* 28 (3) 117 -123.
15. DUVNJAK S., ŠPIČIĆ S., ZDELAR-TUK M., CVETNIĆ, Ž., (2008): Identification of bacteria *Brucella* sp. with polymerase chain reaction. *Croatian Journal of Infection* 28 (3) 125 -133.
16. BARUŠIĆ Z., ČIVLJAK R., MARETIĆ T., LISIĆ M., CVETNIĆ, Ž., PETROVIĆ R. (2008): A case report of patients with brucellosis and sarkoileitism with clinical and epidemiological review. *Croatian Journal of Infection* 28 (3) 157 -160.
17. SLAVICA, A., Ž. CVETNIĆ, Z: MILAS; D: KONJEVIĆ; Z: JANICKI; J: ANTIĆ; D: DEŽDEK (2008): Serological investigation of incidence of antibodies to the bacterium *Leptospira interrogans* in red deer (*Cervus elaphus* L.) in Croatian mainland. *Vet. Station* 39 (5), 257-267.
18. HABUŠ, J., Ž. CVETNIĆ, Z. MILAS., Z. ŠTRITOF, M. BALEN TOPIĆ, J. MARGALETIĆ, N. TURK (2009): Sero-epidemiological and sero - epizootiological studies of leptospirosis in 2007. *Croatian Journal of Infection* 28, 4 183-188.
19. KEROS, T., J. BALATINEC, Ž. CVETNIĆ, M. LOJKIĆ (2009): Checking the possibility of transmission of bovine viral diarrhoea (BVD) from parents to offspring. *Vet. Station* 40 (2),75-81.

PARTICIPATION AT CONFERENCES

International conferences

1. Prodingler, W.M., Kofler, D. Kofler, Neumann, L., Aranaz, A., Nagy, G., CVETNIC, Z, Ocepek, M., Erler, W., Pavlik, I, Moser, I. (2004): MIRU-VNTR typing high discriminatory power for *Mycobacterium caprae* isolates. 25th Annual Meeting of the European Society for Mycobacteriology (27-30 June, Alghero – Sardinija, Italy). Abstract Book. 103.
2. Jemeršić, Lorena; Terzić, Svjetlana; Lojkić, Mirko; Čač, Željko; Roić, Besi; CVETNIĆ, ŽELJKO; Humski, Andrea; Brstilo, Mate; Keros, Tomislav (2004): OCCURENCE OF CLASSICAL SWINE FEVER IN CROATIA DURING THE PERIOD OF 2001 TO 2003 // Proceedings of the 18th IPVS Congress. Hamburg : IPVS Veranstahtungs GmbH., 349
3. Terzić, Svjetlana; Jemeršić, Lorena; Lojkić, Mirko; Šver, Lidija; Valpotić, Ivica; Oršolić, Nada; Humski, Andrea Cvetnić, željko (2004): The proportions of cd5a+, cd45ra+, cd45rc+, wcd21+ cells in pigs vaccinated with a classical swine fever subunit (e2) vaccine
4. Humski, A., A. Premzl, B. Habrun, S. Terzić, L. Jemeršić , Ž. CVETNIĆ (2004): Detection of *Sallmonella* antibodies in porcine sera and meat juice. Proceedings of the 18th IPVS Congress. Hamburg : IPVS Vearnstahtungs GmbH,

5. Habrun, Boris; Humski, Andrea; Jemeršić, Lorena; CVETNIĆ ŽELJKO; Mitak, Mario (2004): Antimicrobial resistance of beta-hemolytic Escherichia coli associated with diarrhea in weaned pigs from large pig breeding farms in Croatia // Proceedings of 18th International Pig Veterinary Society Congress 522-522.
6. CVETNIĆ, Z., S. Spicic, B. Garin – Bastuji, D. Albert, M. Thiebaud (2004) Brucella suis biovar 1 and 3 in central Europe, a threat for the EU? COST – Meeteng – Lisbon, Portugal (6-7, May 2004).
7. P.M. Munoz, M.J. Miguel, C.M. Marin, J.M. Blasco, A.C. Ferreira, M.A. Correa de Sa, Z CVETNIC (2004): Molecular typing of Brucella suis. COST –Meeting Weybridge U.K. (7-8 October)
8. Skuhala, T. A. Beus, Desnica, M., Balen-Topić, M. Ž. CVETNIĆ (2005): Brucellosis as a protracted febrile illness-case report. The first symposium of zoonoses. Sarajevo, 22-23. april 2005.
9. Jemeršić, Lorena; Terzić, Svjetlana; Lojkić, Mirko; Čač, Željko; Roić, Besi; CVETNIĆ, Ž.; Keros, Tomislav; Špičić, Silvio (2005): RT-PCR and PCR detection of pestiviruses and porcine circovirus type 1 in swine vaccines as additional methods for vaccine quality control. New diagnostic Technology, Applications in animal health and biologics controls / Vannier/Clement ,103.
10. Špičić, S., Ž. CVETNIĆ, M.J. de Miguel, C.Marin (2005): Occurrence of Brucella ovis infection in Republic of Croatia. International Research Conference for Brucellosis in Small Ruminants, Skopje, 28 -30 November 2005. 18.
11. Ocepek, M., M. Pate, M., Zolnir-Dovc, M. Bartos, I. Pavlik, G Nagy, W. M. Prodinger, Z. CVETNIC. (2005). An outbreak of tuberculosis in a ZOO in Slovenia in 2004. (Slučaj tuberkuloze u ZOO u SLOVENIJI 2004.). 26th Annual Meeting of the European Society for Mycobacteriology (27-30 June, Istanbul - Turkey). Book of abstract. p103.
12. Prodinger, W. M., Brandstaetter, A., Naumann, L., Pacciarini, M., Kubica, T., Boschioli, M. L., Aranaz, A., Nagy, G., CVETNIC, Z., Ocepek, M., Skrypnik, A., Erler, W., Niemann, S., Pavlik, I., Moser, I. (2005): Characterisation of Mycobacterium caprae by Mycobacterial Interspersed Repetitive Units (MIRU) genotyping. The 4th International Conference on Mycobacterium bovis. 22nd to 26th August, 2005, Dublin, Ireland.
13. CVETNIĆ, Ž., S. Špičić, S. Marjanović, V. Katalinić-Janković (2006): Mycobacterial infection in pigs in Croatia. 27th Annual Conference of the European Society of Mycobacteriology, London, Uk 9-12, july. P85
14. CVETNIĆ, Ž., S. Špičić, S. Marjanović, V. Katalinić-Janković, M. Obrovac (2006): Mycobacterium caprae infection in cattle and swine in Croatia. 27th Annual Conference of the European Society of Mycobacteriology, London, Uk 9-12, july. P86
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16. Pavlik, I., Trčka, I., Koubek, P., Heroldová, M., Kopečná, M., Lamka, J., CVETNIC, Z., Moser, I., Ocepek, M., Mrlík, V., Pate, M. (2006): Mykobakteriální infekce u domácích a divokých masožravých savců ve střední Evropě. XXI. Zoborský den, Konferencia o mikrobiológii a epidemiológii tuberkulózy a nešpecifických infekciách, Nitra, 19.10.2006.
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18. Slavica, Alen; Milas, Zoran; Cvetnić, Željko; Konjević, Dean; Janicki, Zdravko; Severin, Krešimir; Turk, Nenad; Deždek, Danko; Antić Jelena 2007: Serosurveillance for leptospiral antibodies in red deer (Cervus elaphus) from continental part of Croatia. Second International Symposium 'Game and Ecology' / Janicki, Zdravko (ur.). (sažetak, znanstveni rad).
19. Cvetnić Ž. , S. Špičić, M. Benić, Vera Katalinić-Janković, Mateja Pate B. Krt and M. Ocepek (2007): M. avium hominissuis - main cause of mycobacterial infection of pigs in Croatia. ESM 2007., 28th Annual congress of the European society of mycobacteriology, Atena, 1.-4. srpanj
20. Cvetnić, Ž., V. Katalinić-Janković, B. Sostarić, S. Špičić, M. Obrovac, S. Marjanović , M. Benić, B. Kristić Kirin , I. Vicković: Mycobacterium caprae in cattle and humans in Croatia. ESM 2007., 28TH ANNUAL CONGRESS OF THE EUROPEAN SOCIETY OF MYCOBACTERIOLOGY, Atena, 1.-4. srpanj
21. M. Pate, B. Krt, Ž. Cvetnić, M. Ocepek (2007): Retrospective IS901 RFLP analysis of Mycobacterium avium subsp. avium isolates from domestic animals. ESM 2007., 28TH ANNUAL CONGRESS OF THE EUROPEAN SOCIETY

OF MYCOBACTERIOLOGY, Atena, 1.-4. srpanj.

22. ŠPIČIĆ S., DUVNJAK S., ZDELAR-TUK, CVETNIĆ, Ž.: Epizooty of bovine tuberculosis (.M. Caprae) in various small breed with joint pastures. 29. Annual Congress of the European Society of Mycobacteriology. Plovidid, Bulgaria (July 6-9, 2008).PP65.
23. ŠPIČIĆ S., DUVNJAK S., ZDELAR-TUK M., CVETNIĆ, Ž.: Distribution and suppressing of Brucella ovis infection in the Republic of Croatia. Brucellosis 2008., International Research Conference (10 -13 September 2008). Royal Holloway College, London UK. P25.
24. VELIĆ R., CVETNIĆ, Ž.,BAJROVIĆ T., ŠPIČIĆ S., DUVNJAK S., VELIĆ L., ZDELAR-TUK M.: Isolation and identification of Brucella melitensis in federation of Bosnia and Herzegovina: An example of regional cooperation. Brucellosis 2008., International Research Conference (10 -13 September 2008). Royal Holloway College, London UK. P71.
25. Špičić, S., CVETNIĆ Ž, Pate M., Duvnjak S, Zdelar Tuk M., Račić I (2009): Typing of Mycobacterium avium subsp. Avium from different sources using PvuII-PstI-IS901 restriction fragment length polymorphism (RFLP) in Croatia. 30. Annual Congress of the European Society of Mycobacteriology. Porto, Portugal (July 5-8, 2009).PP47.
26. Špičić, S., Duvnjak S,Obrovac M, Zdelar Tuk M., Katalinić Janković V., Račić I, CVETNIĆ Ž, (2009):Tuberculosis in pets and wild animals living in urban environment. 30. Annual Congress of the European Society of Mycobacteriology. Porto, Portugal (July 5-8, 2009).PP49.
27. Špičić, S., CVETNIĆ Ž, Pate M., Duvnjak S, Zdelar Tuk M., Račić I (2009): Typing of Mycobacterium avium subsp. Avium from different sources using PvuII-PstI-IS901 restriction fragment length polymorphism (RFLP) in Croatia. 30. Annual Congress of the European Society of Mycobacteriology. Porto, Portugal (July 5-8, 2009).PP47.

Domestic conferences

1. Marina Tišljar, Željko CVETNIĆ, N. Šešić, Alma Marukić, Lirija Turtula, Borka Šimpraga, Željko Grabarević, Andrea Gudán, Branka Artuković (2004): The first case of avian tuberculosis in one pet psittaciformes flock in Croatia. 1. croatian – slovenian symposium on exotic and wild animals. Zagreb, 25.-27. November 2004. page 44.
2. LOJKIĆ, M., S. TERZIĆ, L. JEMERŠIĆ, M. BRSTILO, Ž. CVETNIĆ, Ž. ČAČ, B. ROIĆ, B. HABRUN, S. ŠPIČIĆ, E. LISTEŠ (2004): Modern approach to diagnosis and disease control. Third Croatian Veterinary Congress, Opatija 17.- 21. November 2004. Book of abstracts, 147-164.
3. Vera Katalinić-Janković, Mihaela Obrovac, Željko CVETNIĆ, Silvio Špičić, Branka Kristić –Kirin (2004) : Mycobacterium caprae: new old member of Mycobacterium tuberculosis complex. Opatija
4. Habrun, B., Ž. CVETNIĆ, G. Kompes, A. Humski, M. Mitak (2004): Streptococcus suis infection – a problem common to human and veterinary medicine. 4th Croatian Congress on Infectious Diseases. Abstract book, Opatija, Croatia (2-6. October, 2004).
5. CVETNIĆ, Ž. Špičić, S., Sanja Marjanović (2005): Brucellosis, leptospirosis and mycobacterial infections in pigs: classical diseases and new insights. V. scientific – professional symposium, Current Affairs in swine breeding. Zagreb, 28.4.2005.
6. Punda-Polić V., CVETNIĆ, Ž., Crnek-Šestan S., Karanović J., Sardelić S., Tonkić M. (2005): Brucellosis re-emerging disease in Croatia. 7. croatian congress of clinical microbiology with international participation. Zagreb, 18-20. svibnja 2005. Programme and book of abstracts. 26.
7. CVETNIĆ, Ž. (2005): The most important bacterial zoonoses in sheep and goats. Seventh consultation of sheep and goats breeders in Croatia, Zadar 13 i 14. October 2005. HSC. Str. 79-91.
8. Gudán Andrea, Branka Artuković, Ana Beck, M., Hohšteter, Branka Šeol, T., Naglič, Ž. CVETNIĆ, Ž., Grabarević (2005): Tuberculosis in hyrax (Procavia capensis)- case report. Veterinary science and profession. str. 22. Book of abstracts
9. BENIĆ, M., CVETNIĆ Ž., LOJKIĆ M., HABRUN B., KOMPES G., CERGOLJ M., MAČEŠIĆ N.: Prevalence and etiology of mastitis in cows in small family farms. XVI Congress of Mediterranean Federation for Health and Productivity of ruminants Zadar, 22-26. April 2008). Book of Abstracts. 527 -530.
10. CVETNIĆ,Ž., HABRUN, B. (2008): Laboratory diagnosis and analytics of the Croatian Veterinary Institute and its compliance with the EU requirements. 4. Croatian Veterinary Congress (8 -11. November 2008., Šibenik). 57 -58.

Veterinary science and profession

Scientific papers published in domestic journals

1. CVETNIĆ, Ž., B. Jukić i S. Špičić (2004): The spread of equine leptospirosis in Croatia from 1994. to 2003. Vet. Station 35, 67 -75.
2. Habrun, Boris; Listeš, Eddy; Kompes, Gordan; CVETNIĆ, ŽELJKO; Mitak, Mario (2004): Abscess lymphadenitis of goats and sheep. Vet.Station 35,139-144.
3. CVETNIĆ, Ž., S. Špičić, Vera Katalinić Janković, Brankica Capek, B. Habrun i M. Mitak (2004): Application of DNA method in the diagnosis and identification of *Mycobacterium tuberculosis* complex in domestic animals. Vet. Station 35, 261-268.
4. M. Mitak, Manuela Zdravec, Vera Auslender-Ujević, Ž. CVETNIĆ, S. Špičić (2004): Detection of proteins derived from ruminants in feed samples. Vet. Station 35, 209-214.
5. CVETNIĆ, Ž., Sanja Marjanović, S. Špičić, Silvija Drašković, Valerija Podgorski i Marijana Novosel (2005): The occurrence of nonspecific reactions in the serological diagnosis of brucellosis in cattle imported from the European Union. Vet. Station. 36, 85-90.
6. Mitak, M, Manuela Zdravec, Tihomira Gojmerac, i Ž. CVETNIĆ (2005): Zearalenone contamination of corn crop in 2004. Vet. Station. 36,95-100.
7. Kompes, G., B. Habrun, B. Šošćarić, I. Vicković, Ž. CVETNIĆ, S. Špičić (2005): Listeria abortion of cattle - a case report and comparison of two methods for isolation of caustive agent. Vet. Station 36, 141-149.

List of other papers that qualify the the lecturer for teaching:

1. CVETNIĆ, Ž. (2002): Basics of swine breeding in family farming.
2. CVETNIĆ, Ž., J. Toncic, S. Spicic, M. Lojkic, S. Terzic, L. Jemersic, A. Humski, S. Curic, M. Mitak, B. Habrun, M. Brstilo, M. Ocepek, B. Krt(2004): Brucellosis in wild boar (*Sus Scrofa*) in the Republic of Croatia. Vet. Med – Czech 49, 115-122.
3. Erler, W., Martin, G., Sachse K., Neumann, L., Kahlau, D, Beer, J., Bartoš, M., Nagy, G., CVETNIC, Z., Zolnir-Dovc, M., Pavlik, I. (2004): Molecular Fingerprinting of *Mycobacterium bovis* subs. *Caprae* Isolates from Central Europe. Journal of Clinical Microbiology, 42 (5), 2234-2238.
4. CVETNIC, Z., S. Spicic, V. Katalinic-Jankovic, S. Marjanovic, M. Obrovac, M. Benic, I Pavlik (2006): *Mycobacterium caprae* infection in cattle and pigs on one family farmi n Croatia: a case report. Veterinarni Medicina, 51 (11(523-531).
5. CVETNIĆ, Ž., S. Špičić, M. Benić, Vera Katalinić Janković, Mateja Pate, B. Krt, M. Ocepek (2007): Mycobacterial infection of pigs in Croatia. Acta Veterinaria Hungarica 55 (1), 1-9.
6. CVETNIĆ, Ž., Vera Katalinić Janković, B. Šošćarić, S. Špičić, M. Obrovac, S. Marjanović, M. Benić, I. Vicković (2007): *Mycobacterium caprae* in cattle and humans in Croatia. Int. J. Tuberc. Lung Dis. 11 (6), 1-7.
7. David Garcia-Yoldi, Philippe Le Fleche, Maria J.De Miguel, Pilar M. Munoz, Jose M. Blasco, ZELJKO CVETNIC, Clara M. Marin, Gilles Vergnaud, Ignacio Lopez-Goni (2007): Comparison of Multiple-Locus Variable-Number Tandem –Repeat Analysis with Other PCR-Based Method for Typing *Brucella suis* Isolates. J. Clin. Microbiol. 45 (12) 4070-4072.
8. CVETNIĆ, Ž. Špičić, S., Sanja Marjanović (2005): Brucellosis, leptospirosis and mycobacterial infections in pigs: classical diseases and new insights. V. scientific-professional symposium, Current Affairs in Swine Breeding. Zagreb, 28.4.2005.
9. CVETNIĆ, Ž., S. Špičić, S. Marjanović, V. Katalinić-Janković (2006): Mycobacterial infection in pigs in Croatia. 27th Annual Conference of the European Society of Mycobacteriology, London, Uk 9-12, july. P85
10. CVETNIĆ, Ž., S. Špičić, S. Marjanović, V. Katalinić-Janković, M. Obrovac (2006): *Mycobacterium caprae* infection in cattle and swine in Croatia. 27th Annual Conference of the European Society of Mycobacteriology, London, Uk 9-12, july. P86

Date of last election in scientific-teaching or teaching position:

02.10.2005., Veterinary Faculty at University of Zagreb, scientific advisor

Name and surname: Ph. D. Jelka Pleadin, assistant professor

Institution:

Croatian Veterinary Institute

e-mail address and personal website:

pleadin@veinst.hr

Biography list of articles published in the last five years and guidance of articles which qualify for teaching:

Born:

Trogir, 12. June 1974

Graduated:

Faculty of Food Technology and Biotechnology University of Zagreb, 25 February 1998, Selecting of funds for stabilizing the yeast milk

Doctoral disertation:

Croatian Veterinary Institute in Zagreb, 12 October 2006, Persistence of clenbuterol residues in body fluids and tissues of pigs after subchronic exposure to anabolic dose

Position and responsibility:

Younger assistant:	Croatian Veterinary Institute, Zagreb, Laboratory for Analytical Chemistry, May 2001.
Assistant:	Croatian Veterinary Institute, Zagreb, Laboratory for Analytical Chemistry, January 2004.
Senior assistant:	Croatian Veterinary Institute, Zagreb, Laboratory for Analytical Chemistry, December 2006.
Research associate:	Croatian Veterinary Institute, Zagreb, Laboratory for Analytical Chemistry, June 2007.
Senior research associate:	Faculty of Food Technology and Biotechnology University of Zagreb, November 2010.
Scientific adviser:	Faculty of Food Technology and Biotechnology University of Zagreb, October 2011.

Teaching activities:

- Associate at postgraduate study Quality and food safety; the course Analytical methods for monitoring of food safety, Faculty of Food Technology and Biotechnology University of Zagreb
- Associate at graduate study; the course Modern methods in the control of food quality, Faculty of Food Technology and Biotechnology University of Zagreb
- Associate at postgraduate study Technology of traditional meat products; the course Sensory and physico-chemical properties of traditional meat products, Faculty of Food Technology University of JJ Strossmayer in Osijek

Professional activities:

As an assistant in the Laboratory for Analytical Chemistry CVI has been employed since 2001. She was appointed as head of the Laboratory in 2007. In routine laboratory she organized performance of chemical analyzes to test the quality of feed and food of animal origin, as also determination of residues of substance from group A and B in biological samples and animal foodstuffs. In these areas of laboratory work she organized development and validation of new analytical methods, participation in proficiency testing, accreditation of laboratory methods as also routine analysis of samples performed for customer needs.

Trainings:

- Food Safety Summit 2004, Waters, Manchester, Great Britain, April 2004.
- Application of ELISA and LC/MS/MS in determination of anabolics, Laboratory of Hormonology, Marloie, Belgium, March 2006.
- Food Safety Summit 2006, Waters, Manchesterr, Great Britain, May 2006.
- Annual CRL Workshop for hormones and anabolics, Bilthoven, The Netherlands, October 2006.
- Annual CRL workshop for hormones and anabolics, Bilthoven, The Netherlands, October 2007.
- Study visit on method development, sample preparation and validation for screening and confirmatory analytical methods, Teramo, Italy, November 2007.

- Visit to the Veterinary Medicines Directorate Residues Unit, London, Great Britain, April 2008.
- Annual CRL workshop for hormones and anabolics, Bilthoven, The Netherlands, October 2008.

Scientific research:

Work on scientific research projects:

The effect of chemical residues in food on reproduction hormones – project of Ministry of Science, Education and Sport, Republic of Croatia 2002., No. 0048006, project leader: Ph. D. Tihomira Gojmerac

Residues of chemical contaminants in food: Pharmacokinetics and toxicology – project of Ministry of Science, Education and Sport, Republic of Croatia 2007, No. 048-0531854-0467, project leader: Ph. D. Tihomira Gojmerac

Publications:

- 1 book chapter
- 22 articles in international journals indexed in Current Contents, SCI, BCI (a1)
- 21 articles in journals indexed in secondary publications (a2)
- 2 articles in the proceedings with international review (a3)

Participation at conferences:

- 13 abstracts in the book of abstracts from an international conference
- 7 abstracts in the book of abstracts from national scientific conference with international participation

Scientific articles:

List of all papers published in the last five years:

Book chapter:

1. Pleadin, J., Vulić, A., Perši, N., Radeck, W. (2012) Determination of ractopamine residues in pigs by ultra performance liquid chromatography tandem mass spectrometry. Tandem Mass Spectrometry - Applications and Principles, Jeevan K. Prasain, USA (ed.), InTech, Croatia, p. 349-372.

Scientific articles published in journals indexed in Current Contents (a1):

1. Gojmerac, T., Pleadin, J., Bratoš, I., Vulić, A., Vahčić, N. (2008) Xenobiotic clenbuterol in food producing male pigs: Various tissue residue accumulation on days after withdrawal. Meat science. 80, 879-884.
2. Pleadin, J., Gojmerac, T., Bratoš, I., Lipej, Z., Novosel, D., Vulić, A. (2009) Clenbuterol residues in plasma and urine samples of food-producing pigs during and after subchronic exposure to a growth-promoting dose. Food technology and biotechnology. 47 (1), 67-74.
3. Pleadin, J., Gojmerac, T., Lipej, Z., Mitak, M., Novosel, D., Perši, N. (2009) Accumulation of the β_2 -adrenergic agonist clenbuterol in mouse dark hair. Archives of toxicology, 83 (11), 979-983.
4. Pleadin, J., Vulić, A., Stojković, R., Perši, N., Mitak, M., Zadavec, M. (2010) A fast immunoassay for determination of β -agonist residues in plasma. Reviews in analytical chemistry. 29, 39-50.
5. Pleadin, J., Vulić, A., Perši, N., Vahčić, N. (2010) Clenbuterol residues in pig muscle after repeat administration in a growth-promoting dose. Meat science. 86 (3), 733-737.
6. Vulić, A., Pleadin, J., Perši, N., Stojković, R., Ivanković, S. (2011) Accumulation of β -agonists clenbuterol and salbutamol in black and white mouse hair. Journal of analytical toxicology. 35 (8), 566-570.
7. Vulić, A., Pleadin, J., Perši, N. (2011) Determination of T-2 and HT-2 toxins in commodities and feed in Croatia. Bulletin of environmental contamination and toxicology. 86 (3), 294-297.
8. Pleadin, J., Vulić, A., Perši, N., Milić, D., Vahčić, N. (2011) Ractopamine and clenbuterol urinary residues in pigs as food-producing animals. Food technology and biotechnology. 49 (4), 517-522.
9. Pleadin, J., Vulić, A., Mitak, M., Perši, N., Milić, D. (2011) Determination of clenbuterol residues in retinal tissue of food-producing pigs. Journal of analytical toxicology. 35 (1), 28-31.
10. Pleadin, J., Bratoš, I., Vulić, A., Perši, N., Đugum, J. (2011) Analysis of clenbuterol residues in pig liver using liquid chromatography electrospray ionisation tandem mass spectrometry. Reviews in analytical chemistry. 30 (1), 5-9.
11. Vulić, A., Pleadin, J., Perši, N., Milić, D., Radeck, W. (2012) UPLC-MS/MS determination of ractopamine residues in retinal tissue of treated food-producing pigs. Journal of chromatography. B. 895-896, 102-107.
12. Pleadin, J., Sokolović, M., Perši, N., Zadavec, M., Jaki, V., Vulić, A. (2012) Contamination of maize with deoxynivalenol and zearalenone in Croatia. Food control. 28, 94-98.

13. Pleadin, J.; Perši, N., Vulić, A., Milić, D., Vahčić, N. (2012) Determination of residual ractopamine concentrations by enzyme immunoassay in treated pigs tissues on days after withdrawal. *Meat science*. 90, 755-758.
14. Pleadin, J., Perši, N., Mitak, M., Zdravec, M., Sokolović, M., Vulić, A., Jaki, V., Brstilo, M. (2012) The natural occurrence of T-2 toxin and fumonisins in maize samples in Croatia. *Bulletin of environmental contamination and toxicology*. 88 (6), 863-866.
15. Pleadin, J., Perši, N., Mitak, M., Terzić, S., Milić, D., Vulić, A., Brstilo, M. (2012) Biochemical changes in pig serum after ochratoxin A exposure. *Bulletin of environmental contamination and toxicology*. 88 (6), 1043-1047.
16. Vulić, A., Pleadin, J., Perši, N., Mitak, M. (2012) Analysis of naturally occurring zearalenone in feeding stuffs and urine of farm animals in Croatia. *Journal of Immunoassay and Immunochemistry*, in press.
17. Pleadin, J., Vulić, A., Perši, N., Terzić, S., Andrišić, M., Žarković, I., Šandor, K., Perak, E. (2012) Comparison of ractopamine residue depletion from internal tissues. *Immunopharmacology and immunotoxicology*, in press.
18. Pleadin, J., Perši, N., Zdravec, M., Sokolović, M., Vulić, A., Jaki, V., Mitak, M. (2012) Correlation of deoxynivalenol and fumonisin concentration determined in maize by ELISA methods. *Journal of immunoassay and immunochemistry*, in press.

Scientific articles in journals indexed in secondary publications (a2):

1. Gojmerac, T., Pleadin, J. (2009) Control of β 2-adrenergic agonists abuse as anabolic steroids during the fattening of animals in meat production: hair as new biological matrix. *Veterinarska stanica*. 40 (1), 3-9.
2. Pleadin, J., Perši, N. (2009) Clenbuterol as substance with anabolic effect - use, abuse and control. *Veterinarska stanica*. 40 (4), 199-207.
3. Pleadin, J., Vahčić, N., Perši, N., Vulić, A., Volarić, M., Vraneš, I. (2010) The content of cholesterol in the domestic and industrial sausages. *Meso*. XII (3), 156-161.
4. Perši, N., Pleadin, J., Vulić, A. (2010) Additives in meat and meat products. *Veterinarska stanica*. 41 (5), 409-420.
5. Frece, J., Pleadin, J., Markov, K., Perši, N., Dukić, V., Čvek, D., Delaš, F. (2010) Microbial populations, chemical composition and mycotoxins in the sausages from the Varaždin County. *Veterinarska stanica*. 41 (3), 189-198.
6. Markov, K., Perši, N., Pleadin, J., Čvek, D., Radošević, V., Delaš, F., Duraković, L., Frece, J. (2011) Characterization of natural microflora and chemical parameters of fresh homemade cheese. *Veterinarska stanica*. 42 (3), 211-218.
7. Mitak, M., Pleadin, J., Perši, N., Vulić, A., Zdravec, M. (2011) Mycotoxins in feed raw materials and mixtures during 2009 and 2010. *Veterinarska stanica*. 42 (2), 139-145.
8. Perši, N., Pleadin, J., Vulić, A. (2011) Chemical composition and cholesterol content in eggs of domestic and commercial laying hens. *Veterinarska stanica*. 42 (2), 111-117.
9. Pleadin, J., Vulić, A., Perši, N., Milić, D. (2011) The effect of subchronic ractopamine application on the chemical composition and residue levels in pork meat. *Meso*. XIII (1), 22-27.
10. Vulić, A., Pleadin, J., Perši, N., Žvorc, Z. (2011) Effect of salbutamol and clenbuterol on biochemical parameters in plasma of mice. *Veterinarska stanica*. 42 (1), 5-11.
11. Terzić, S., Pleadin, J., Šandor, K., Vulić, A., Perši, N., Žarković, I., Andrišić, M., Jemeršić, L., Weber Sušan, J. (2012) Aflatoxin B1 in wheat bran containing premixes. *Veterinarski arhiv*. 82 (2) 155-166.
12. Pleadin, J., Vulić, A., Perši, N. (2012) β -adrenergic agonists: Substances with anabolic effect in animals for meat production. *Meso*. XIV (1), 51-57.
13. Pleadin, J., Perši, N., Vulić, A., Zdravec, M. (2012) Survey of mycotoxin feed contamination in Croatia. *Biotechnology in Animal Husbandry*. 28 (2), 167-177.
14. Perši, N., Vulić, A., Pleadin, J., Božanić, R. (2012) The quality of domestic fresh and semihard cheese from the area of the Varaždin and Zagreb County. *Veterinarska stanica*. 43 (3), 201-206.
15. Pleadin, J., Zdravec, M., Perši, N., Vulić, A., Jaki, V., Mitak, M. (2012) Mould and mycotoxin contamination of pig feed in northwest Croatia. *Mycotoxin research*, in press.

Scientific articles in the proceedings with international review (a3):

1. Pleadin, J., Vulić, A., Perši, N., Vahčić, N., Milić, D. (2011) Comparison of ractopamine and clenbuterol accumulation in pigs as meat production animals. *Proceedings of the 7th International Congress of Food Technologists, Biotechnologists and Nutritionists, Croatian Society of Food Technologists, Biotechnologists and Nutritionists, Zagreb*, 317-321.
2. Turk, R., Kovačić, M., Flegar Meštrić, Z., Roncada, P., Piras, C., Svetina, A., Dobranić, V., Pleadin, J., Samardžija, M. (2012) Relevance of paraoxonase-1, platelet-activating factor acetylhydrolase and serum amyloid A in bovine mastitis. *Farm Animal Proteomics, Proceedings of the 3rd Menaging Committee Meeting and 2nd Meeting of Working Groups 1, 2&3 of COST Action FA1002, Wageningen, The Netherlands*, 102-105.

Conference reports (abstracts) in CC journals:

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1. Pleadin, J., Vulić, A., Perši, N. (2009) Control of substances with anabolic effect in the production of meat. Book of Abstracts of Scientific expert meeting of Veterinary Science and Profession 2009, Zagreb, October 2009, p. 50-51.
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List of other works that qualify teachers for teaching:

1. Pleadin, J., Perši, N., Đugum, J. (2009) The levels of nitrite and polyphosphates in meat products. Veterinarska stanica. 40 (6), 373-380.
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3. Pleadin, J., Vulić, A., Perši, N. (2009) Control of substances with anabolic effect in meat production. Meso. XI (6), 360-365.

Date of most recent election to the scientific - teaching position:

14 October 2011, Scientific adviser, Faculty of Food Technology and Biotechnology University of Zagreb, scientific area Biotechnology, scientific field Food Technology

