

JOSIP JURAJ STROSSMAYER UNIVERSITY OF OSIJEK
Faculty of Food Technology



Plan and program of postgraduate specialist study

Food Safety and Quality

Osijek, January 2006

POSTGRADUATE SPECIALIST STUDY FOOD SAFETY AND QUALITY

1. INTRODUCTION

Life condition improvement is one of the main tasks of every society. When we talk about life quality we also refer to quality of production and distribution of safe and high quality food. In order to ensure production and distribution of food products of permanent quality with reduced health risks, certain standards are to be adopted worldwide. Adoption of these standards in food production implies knowledge acquisition related to food microbiology, quality control, hygiene and sanitation, toxicology, HACCP and the latest knowledge in food products technology.

The study proposed by the Faculty of Food Technology is aimed exactly at such knowledge acquisition that refers to safety and quality of food products starting from raw materials and production to, storage, distribution and consumption.

This type of study is now very important in food industry in Croatia because education of experts in this field will significantly help in HACCP application, prescribed by Food Law, which is obligatory for all firms involved in food production.

Faculty of Food Technology has made an inquiry and came to conclusion that there is a big interest in this type of study. All potential applicants are already employed in food industry, and their firms will send them to enroll in this study. In addition to that, there is a significant interest in carrying out practical part of teaching, as well as making a specialist thesis, in food factory.

This postgraduate study has been made in accordance with similar or identical type of studies at prominent universities worldwide and it is based on long year experience of undergraduate and postgraduate studies at the Faculty of Food Technology. The study has also been proposed in accordance with the needs of food industry. Therefore, the knowledge offered is an upgrade of the acquired knowledge during the undergraduate studies, based on the latest findings and experience of professors at the post graduate study.

2. GENERAL PART

2.1. Study title

Food Safety and Quality

2.2. Study holder

Faculty of Food Technology in Osijek

2.3. Study length

Study lasts for two semesters. The deadline for study completion is five semesters.

2.4. Enrolment conditions

Students admitted to enroll are those who finished the study at the Faculty of Food Technology in Osijek and identical or similar studies at other higher education institutions in Croatia and abroad, students of the Chemical-Technological Faculty, Faculty of Agronomy and Agriculture, Veterinarian Faculty and Pharmaceutical-Biochemical Faculty. Each of them must obtain 300 ECTS and pass the exams of undergraduate and graduate studies prescribed for study continuation. The final

decision is made by the Commission for specialist study after making an analysis of the respective curricula of the above mentioned institutions. Applicants from other Faculties will be admitted to enroll according to conditions prescribed by the Faculty Council.

All candidates must have the average mark 3.0 at postgraduate or graduate study. The exceptions will be made for students with lower marks if they obtain two recommendation letters by professors who taught at their study program. The final decision about this issue is made by the Commission for specialist study.

2.5. Competencies acquired by study completion

Students who complete postgraduate studies Food Safety and Quality will be qualified to work in food industries and similar institutions related to food safety and quality, in health and similar institutions and in the whole chain of food production and distribution (starting from raw materials up to end products distribution).

In addition to that, these experts can be also employed in research and development centers, in institutions for control or in public administration, in institutions for education and health promotion (schools, hospitals, media etc.).

2.6. Academic title obtained upon study completion

Master degree (degree acquired in undergraduate or graduate study), a specialist in Food Safety and Quality

3. PROGRAMME DESCRIPTION

3.1. List of compulsory and elective courses with relevant ECTS

Year/ Semest.	Course code	Course title	Total classes	L	S	E	ECTS
OBLIGATORY COURSES							
1/I	FOOD S101	Food safety and quality management	35	30	5	0	7
1/I	FOOD S102	Foodborne hazards	45	30	5	10	8
1/I	FOOD S103	Hygiene and sanitation	25	20	5	0	5
1/I	FOOD S104*	Attainments in processing of vegetable origin raw materials including HACCP elements I	55	40	15	0	10
1/I	FOOD S105*	Attainments in processing of vegetable origin raw materials including HACCP elements II	55	40	15	0	10
1/I	FOOD S106*	Attainments in processing of animal origin raw materials including HACCP elements I	55	40	15	0	10
TOTAL							30
OPTIONAL COURSES							
1/II	FOOD S 201	Food toxicology	25	15	0	10	5,0
1/II	FOOD S202	Nutrition	25	20	0	5	5,0
1/II	FOOD S203	Rapid methods in food analysis	25	20	5	0	5,0
1/II	FOOD S204	Food chemistry	25	20	0	5	5,0
1/II	FOOD S205	Food additives	25	20	5	0	5,0
1/II	FOOD S206	New food products development	25	20	5	0	5,0
I/II	FOOD S207	Sensory analysis	25	15	0	10	5,0
1/II	FOOD S 300	Graduate thesis	200				20
1/II	TOTAL						30

S 101, S102 i S103 are obligatory courses

* From courses with asterisk mark, one is obligatory, while the other may be chose as elective

Elective courses: min 10 ECTS

Total number of ECTS that a student must obtain is 60.

3.2. Description of each course

In attachment.

3.3. Study structure and students' obligations

Teaching in postgraduate study Food Safety and Quality takes two semesters. Mentors help students in choosing courses and guide students during the study. Enrolment conditions for the second semester imply that students have fulfilled all obligations in the first semester. There are no prerequisites for admission to particular courses.

3.4. List of courses that students can choose at other postgraduate studies

In order to ensure multidisciplinary character of the study and students' mobility, students can choose some other courses at postgraduate studies offered at the Josip Juraj Strossmayer University, or at other Croatian universities (up to 5 credits). Commission for specialist study will make the final decision about this issue after comparing the credit system of this study and the study where the course is chosen.

3.5. Criteria and conditions of ECTS points transfer

Commission for Specialist study makes a final decision about a credit transfer after comparing credit systems of respective studies.

3.6. List of courses that can be taught in a foreign language (language is specified)

3.7. Conditions for study continuation upon study cessation or after losing right to study at one study program

Students with study cessation can continue studies if the cessation does not exceed three years.

3.8. Conditions for obtaining a certificate for absolved part of the study program, as a 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.

3.9. Study completion, conditions for approval of a specialist thesis, procedure for evaluation and defense

A mentor is given to every postgraduate student at the beginning of the study program, in accordance with student's wishes and research area. Mentor takes care of student's involvement in professional and scientific work, choice of elective courses and a specialist thesis. An applicant can ask for an approval of a specialist thesis after obtaining 10 ECTS credits. The work on specialist thesis can be done in the laboratories of the Faculty of Food Technology, in industry where students work or in other institutions as arranged with a mentor and study coordinator.

Student can make entry for the specialist thesis in a prescribed form (title, explication, literature). After the thesis is accepted by the Commission for specialist study, the final approval is given by the Faculty Council.

When the work on thesis is finished, the Faculty Council appoints the Committee for evaluation and defense of thesis based on the proposal of the Commission for Specialist study. Committee members are assistant, associate and full professors from the research field related to the thesis.

3.10. Maximum study length

Maximum study length is five semesters.

4. CONDITIONS OF THE STUDY PERFORMANCE

4.1. Location of study performance

Faculty of Food Technology

4.2. Data on premises and equipment for study performance

To carry out the study program, premises and equipment of the Faculty of Food Technology at the Josip Juraj Strossmayer University will be used.

The premises consist of 6 lecture rooms, 34 laboratories (16 research and 18 student laboratories), library with a reading room, teacher offices, students' restaurant and office for students' organization FISEC, Faculty staff meeting room, dean and vice-dean offices, accounting office, communication and sanitary premises.

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 and Packaging	65,00
Laboratory for Transfer Phenomena	65,00
Laboratory for Biochemical engineering and waste water treatment	65,00
Library	300,00
Professors's offices	485,37
Cafeteria	200,00
Dean's office	250,00
Sanitation facilities	800,00
TOTAL	4.248,00

LIBRARY FOND

Books and Textbooks	2.030
Journals	128

List of lab equipments

- 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 °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

4.3. List of teachers and associates for performing study program

Course code	Course title	Teachers and associates
OBLIGATORY COURSES		
FOOD S101	Food safety and quality management	Ljiljana Primorac, PhD, associate professor
FOOD S102	Foodborne hazards	Marija Halt, PhD, associate professor Mirjana Sabo, PhD, assistant professor Tomislav Klavec, PhD, associate professor
FOOD S103	Hygiene and sanitation	Drago Šubarić, PhD, associate professor
FOOD S104*	Attainments in processing of vegetable origin raw materials including HACCP elements I	Drago Šubarić, PhD, associate professor Žaneta Ugarčić, PhD, professor
FOOD S105*	Attainments in processing of vegetable origin raw materials including HACCP elements II	Vlasta Piližota, PhD, professor Andrija Pozderović, PhD, associate professor Tihomir Moslavac, PhD, assistant professor
FOOD S106*	Attainments in processing of animal origin raw materials including HACCP elements I	Dragan Kovačević, PhD, associate professor Jovica Hardi, PhD, associate professor
OPTIONAL COURSES		
FOOD S 201	Food toxicology	Tomislav Klavec, PhD, associate professor
FOOD S202	Nutrition	Milena Mandić, PhD, professor Daniela Čačić Kenjerić, PhD, assistant professor
FOOD S203	Rapid methods in food analysis	Vlasta Piližota, PhD, professor
FOOD S204	Food chemistry	Vlasta Piližota, PhD, professor
FOOD S205	Food additives	Drago Šubarić, PhD, associate professor
FOOD S206	New food products development	Vlasta Piližota, PhD, professor
FOOD S207	Sensory analysis	Antonija Perl, PhD assistant professor
FOOD S 300	Graduate thesis	

4.4. Data on teaching staff

- in attachment

4.5. List of locations available for study performance and chief executive agreement

Study will be performed in the premises of the Faculty of Food Technology and in institutions where the students come from.

4.6. List of associates, potential advisers, mentors or mentors for specialist thesis

1. Marija Halt, PhD, associate professor
2. Jovica Hardi, PhD, associate professor
3. Danijela Kenjeric, PhD, assistant professor
4. Tomislav Klavec, PhD, associate professor
5. Dragan Kovačević, PhD, associate professor
6. Milena Mandić, PhD, professor
7. Tihomir Moslavac, PhD, assistant professor
8. Antonija Perl, PhD, assistant professor
9. Vlasta Piližota, PhD, professor
10. Andrija Pozderović, PhD, associate professor
11. Ljiljana Primorac, PhD, associate professor
12. Mirjana Sabo, PhD, assistant professor
13. Drago Šubarić, PhD, associate professor
14. Žaneta Ugarčić-Hardi, PhD, professor

4.7. Optimum number of students that can be enrolled regarding the premises, equipment and teachers

Optimum number of students is 15.

4.8. Cost assessment per student

Study cost is 15000 kn

4.9. Method of controlling study quality and efficiency of study performance

Quality of the study program (study structure and teachers) will be evaluated by students, by the Commission for specialist study that will appoint a special Committee to monitor quality of the study program, and teachers. These reports will be given annually to the Commission for specialist study.

COURSE DESCRIPTION (OBLIGATORY)

Course title	Food safety and quality management		
Course code	FOOD S101	Course status	Compulsory
Study programme	Postgraduate specialist study <i>Food Safety and Quality</i>		
Semester	I		
Course lecturers	Ljiljana Primorac, PhD, associate professor		
Course associates			
Course content	General concept of quality, historical background. Quality management principles and standards. Food quality legislation. Statistical quality control: statistical process control, control charts, process capability, sampling procedures. Food safety and legal requirements. Risk analysis. Traceability in food safety management. Food safety management standards. Principles and implementation of HACCP system. GMP and GHP principles and implementation. Accreditation, scope, standards.		
General and specific knowledge acquired in course (objective)	The course focuses on legislative bases, principles and methodology of food quality and safety management. Participants are provided with the skills needed to assess existing food safety and quality management systems and introduce improvements.		
Teaching method	Lectures	Seminars	Labs
Hours total	30	5	-
Examination method	Seminar work and oral exam		
Credits		Language	Croatian
Compulsory reading	<ol style="list-style-type: none"> Standards (ISO 9000, IFS, BRC Standard, ISO 22000, ISO 17000); Codex Alimentarius-Food Hygiene Basic Texts; Regulations, Directive R.E. Hester; R.M. Harrison (ed): Food Safety and Food Quality. Royal Society of Chemistry, 2001. K. Heijden, M. Zounes, L. Fishbein, S. Miller (ed): International food safety handbook. Marcel Dekker Inc., New York, Basel, 1999. R.S. Singhal, P. R Kulkarni, D. V. Rege: Handbook of indices of food quality and authenticity. Woodhead Publishing Limited, Abington 1997. J.M. Juran, Frank M Gryna: <i>Quality planning and analysis/ Planiranje i analiza kvalitete/</i>. Mate, Zagreb, 1999. V. Turčić: <i>HACCP i higijena namirnica</i>. Vlatka Turčić, Zagreb, 2000 		
Recommended reading	<ol style="list-style-type: none"> D.A. Shapton: <i>Principles and practices for the safe processing of foods</i>. Woodhead Publishing Limited, Cambridge, 1998. Food authenticity and traceability (ed. M. Lees) CRC, 2003. M. Dillon et al.: How to audit: Verifying Food Control Systems. MD Associates, Grimsby, 1997 		

Course title	Foodborne Hazards		
Course code	FOOD S102	Course status	Compulsory
Study programme	Postgraduate specialist study <i>Food Safety and Quality</i>		
Semester	I		
Course lecturers	Marija Halt, PhD, associate professor		
Course associates	Mirjana Sabo, PhD, assistant professor Tomislav Klapac, PhD, associate professor		
Course content	<p><u>Lectures:</u> Pathogenic biological foodborne agents (viruses, bacteria, helminths, protozoan...) Chemical contaminants in food (natural components, pesticides, additives, environmental contaminants, toxicants produced during food processing...) Physical hazards (pieces of glass, bone, metal...) in food Adverse effects caused by biological, chemical and physical agents Prevention of food contamination, destruction of pathogenic organisms, chemical and physical decontamination approaches Detection of foodborne hazards and relevant legislation</p> <p><u>Seminars:</u> Examples of risk assessment for chemicals</p> <p><u>Labs:</u> Detection and destruction of pathogenic microorganisms Detection of <i>Trichinella spiralis</i> in pork Detection of <i>Fasciola hepatica</i> Detection of parasites in fish Determination of deoxynivalenol in grains by HPLC Determination of lead in meat by AAS Application of metal detectors in food industry</p>		
General and specific knowledge acquired in course (objective)	This course focuses on sources, adverse health effects, prevention, decontamination, detection and legislation on food safety hazards.		
Teaching method	Lectures	Seminars	Labs
Hours total	30	5	10
Examination method	oral		
Credits	8	Language	Croatian
Compulsory reading	<ol style="list-style-type: none"> 1. U.S. Food & Drug Administration, Center for Food Safety & Applied Nutrition: <i>The Bad Bug Book</i>, FDA/CFSAN, Rockville, 2003. 2. T. Klapac: <i>Osnove toksikologije s toksikologijom hrane</i>, Interna skripta, Prehrambeno tehnološki fakultet, Osijek, 2002. 3. S. Duraković, F. Delaš, B. Stilinović, L. Duraković: <i>Moderna mikrobiologija namirnica</i> - knjiga prva. Kugler, Zagreb, 2002. 4. S. Duraković, F. Delaš, L. Duraković: <i>Moderna mikrobiologija namirnica</i> - knjiga druga, Kugler, Zagreb, 2002. 		
Recommended reading	<ol style="list-style-type: none"> 1. A. Wallace Hayes (ur.): <i>Principles and Methods of Toxicology</i>, Taylor & Francis, Philadelphia, 2001. 2. R.H. Schmidt, G.E. Rodrick (ur.): <i>Food Safety Handbook</i>, John Wiley & Sons, Hoboken, 2002. 3. L.M. Prescott, J.P. Harley, D.A. Klein: <i>Microbiology</i>. W.C. Brown Publishers, Boston, 1996. 4. S. Kalenić, E. Mlinarić-Missoni: <i>Medicinska bakteriologija i mikologija</i>, Prehrambeno tehnološki inženjering, Zagreb, 1995. 		

Course title	Hygiene and sanitation		
Course code	FOOD S103	Course status	Compulsory
Study programme	Postgraduate specialist study <i>Food Safety and Quality</i>		
Semester	I		
Course lecturers	Drago Šubarić, PhD, associate professor		
Course associates			
Course content	<p>Soources of food and facility contamination. Microbiological, chemical and physical hazards. Personal hygiene. Hygienic food handling. Food poisoning types and causes. Cleaning and sanitation compounds and proper cleaning of process equipment.</p> <p>Sanitation methods. Systems for cleaning and sanitation. Waste management. Pest control (insects, rodents, birds). HACCP system (risk analysis, critical control points). Good manufacturing practice, good hygiene practice, good laboratory practice. Legislation.</p> <p>Seminar: Food establishment design and hygiene and sanitation, main pathogens, cleaning and sanitation compounds and equipment. HACCP system establishment.</p>		
General and specific knowledge acquired in course (objective)	Production of safe food is main concern of food producers in the world, therefore students will gain knowledge essential for safe food production concerning: prevention of microbiological, chemical and physical contamination of food, efficient cleaning methods with application of suitable cleaning compounds, application of good manufacturing practice, process facilities maintainance, personal hygiene, hygienic food handling and HACCP system.		
Teaching method	Lectures	Seminars	Labs
Hours total	20	5	0
Examination method	oral		
Credits	5	Language	Croatian
Compulsory reading	<ol style="list-style-type: none"> 1. N. G. Marriott: Essentials of food sanitation., International Thomson Publishing, 1997. 2. C. De W. Blackburn, P. J. McClure: Foodborne pathogens. Hazards, risk analysis and control. CRC Press, Boston, New York, Washington,2002. 3. V. Turcic: HACCP i higijena namirnica. Zagreb, 2000. 		
Recommended reading	<ol style="list-style-type: none"> 1. S. Durakovic: Primijenjena mikrobiologija. PTI Zagreb, 1996. 2. S. Durakovic: Prehrambena mikrobiologija. Medicinska naklada Zagreb, 1991. 3. S. Durakovic, L. Durakovic: Mikrobiologija namirnica. Kugler Zagreb, 2001. 		

Course title	Attainments in processing of vegetable origin raw materials including HACCP elements I		
Course code	FOOD S104	Course status	Optional
Study programme	Postgraduate specialist study <i>Food Safety and Quality</i>		
Semester	I		
Course lecturer	Žaneta Ugarčić, PhD, professor Drago Šubarić, PhD, associate professor		
Course associates	-		
Course content	<p>Lectures: The quality and nutritive value of cereals. Modern cereal and flour storage systems. Microorganisms and mycotoxins in cereals and flour. The causes of deterioration of wheat. Methods used for testing the quality of cereals and end products. The latest development trends in bread-making. Starter-cultures for sourdough making. The freezing of dough and end products. The importance of packaging and packaging systems. Causes of bread going stale, bread diseases, and preservatives. Positive manufacturing practice, ISO standards as prerequisite for implementing HACCP.</p> <p>Seminars: The elements of implementing HACCP system in bread-making.</p> <p>Achievements in the production of starch. Achievements in the technology of starch hydrolysates. Modified starches, production and application. Polyols. Control of the quality of starch and starch-based products. The colour of sugar as a factor of quality – procedures for reduction and control of the colour of white sugar. Hydrocolloids in food industry, functional properties in food systems and changes during the production and storage of the product. Achievements in technology of confectionery and similar products industry. Positive sanitary and production practice. HACCP system: the principles of HACCP system, prerequisites of implementation, implementation procedure.</p> <p>Seminars: Implementing the HACCP system</p>		
General and specific knowledge acquired in course (objective)	The students will be introduced to new achievements in the fields of storing and conserving cereals and flour, and the production of bakery products with emphasis on prevention of product contamination and implementing HACCP system. Furthermore, they will be introduced to achievements in carbohydrates and confectionery products technology, with emphasis on starch-based products technology, and implementing HACCP system in the carbohydrates and confectionery products technology.		
Teaching method	Lectures	Seminars	Labs
(hrs/week)			
(total)	40	15	-
Examination method	One term paper and an oral exam.		
Credits	10	Language	Croatian
Compulsory reading	<ol style="list-style-type: none"> 1. Ž. Ugarčić-Hardi; Tehnologija proizvodnje i prerade brašna (Opći dio i skladištenje žitarica), Interna skripta, Prehrambeno tehnološki fakultet Osijek, 1999. 2. S. Kljusurić: <i>Uvod u tehnologiju mljevenja pšenice</i>. Prehrambeno tehnološki fakultet Sveučilišta Josipa Jurja Strossmayer-a u Osijeku, 2000. 3. Ž. Ugarčić-Hardi; Tehnologija proizvodnje i prerade brašna (Pekarstvo), Interna skripta, Prehrambeno tehnološki fakultet Osijek, 1999. 4. Y. Pomeranz: <i>Advances in Cereal Science and Technology</i>. Volumen I i II. American Association of Cereal Chemists, St. Paul, Minnesota, 1978. 5. Y. Pomeranz: <i>Wheat: Chemistry and Technology</i>. Volumen I i II. American Association of Cereal Chemists, St. Paul, Minnesota, 1988. 		

	<ol style="list-style-type: none"> 6. E. J. Pyler: <i>Baking Science and Tehnology</i>. Volumen I i II. Sosland Publishing Company, Marriam, Kansas, 1988. 7. Starch Conversion Technology (G.M.A. van Beynum and J.A. Roels, ed.), Marcel Dekker INC, New York and Basel, 1985. 8. Handbook of Starch Hydrolysis Products and their Derivates (M.W. Kearsley and S.Z. Dziedzic), Blackie Academic and Personal, London, Glasgow, Weinheim, New York, Tokyo, Melbourne, Madras, 1995. 9. P. W. van der Poel, H. Schiweck, T. Schwartz: <i>Sugar Technology, Beet and Cane Sugar Manufacture</i>, Verlag Dr. Albert Bartens KG-Berlin, 1998.
Recommended reading	<ol style="list-style-type: none"> 1. W. Baltes: <i>Lebensmittelchemie</i>. Springer Verlag, Berlin, Heidelberg, New York. 2000. 2. Food Chemistry (O. R. Fennema ur.), Marcel Dekker, Inc., New York, Basel, Hong Kong, 1996. 3. E.S. Posner, A.N. Hibbs: <i>Wheat Flour Milling</i>. American Association of Cereal Chemists, Inc. St. Paul, Minnesota, U.S.D. 1997. 4. S. A. Matz: <i>Bakery Technology: Packaging, Nutrition, Product Development, Quality Assurance</i>. Elsevier Science Publishers, Essex, U.K., 1989. 5. Hirsekorn, W. Nehr Korn, K. Miekley: <i>Grundprozesse der Backwarenherstellung und Feinbackwaren</i>. VEB Fachbuchverlag Leipzig, 1986 6. K. Kulp, K. Lorenz, and J. Brümmer (Ed.): <i>Frozen and Refrigerated Doughs and Batters</i>, American Association of Cereal Chemists, St. Paul, Minnesota, 1995. Ch. Mercier, C. Cantarelli: <i>Pasta and extrusion cooked foods</i>. Elsevier Applied Science Publishers, London, New York, 1986.

Course title	ATTAINMENTS IN PROCESSING OF VEGETABLE ORIGIN RAW MATERIALS INCLUDING HACCP ELEMENTS II		
Course code	FOOD S105	Course status	Optional
Study programme	Postgraduate specialist study <i>Food Safety and Quality</i>		
Semester	I		
Course lecturer	Vlasta Piližota, PhD, full professor		
Course associates	Andrija Pozderović, PhD, associate professor Tihomir Moslavac, PhD, assistant professor		
Course content	<p>Botanical and technological classification. The most commercially important groups and cultivars (fruits, vegetables, wine grapes and commodities for oil production). Postharvest technology and storage of raw material. Chemical composition, physical and chemical properties and changes with emphasize on certain compounds that can affect quality and safety of raw material and final products.</p> <p>The aim of preservation and processing of fruits, vegetables, wine grapes and commodities for oil production. Utilization of bio-products and waste material. Attainments in processing operations in processing technology. Attainments in product packaging. Novel technologies. Processing control and product quality control. Handling with final products.</p> <p>Seminars Certain topics from the processing of vegetative origin raw material (writing presentation).</p> <p>Labs Individual work in the laboratory. Selected analyzes are important for the quality of raw materials and oils.</p>		
General and specific knowledge acquired in course (objective)	Students acquire the domain knowledge and quality characteristics of raw materials of plant origin (fruits, vegetables, wine grapes and commodities for oil production) which are important for the quality of final products, with emphasis on the parameters that govern the specific technological process. Build the specific skills that students need with an understanding of production technology of vegetable oil feedstock. Students gain a broad knowledge of the characteristics of quality and sustainability of final products, and possible applications in the manufacture of various products in the food industry and basic HACCP.		
Teaching method	Lectures	Seminars	Labs
(hrs/week)			
(total)	40	15	-
Examination method	Oral examination		
Credits	10	Language	Croatian
Compulsory reading	<ol style="list-style-type: none"> 1. T. Lovrić i V. Piližota : Tehnologija konzerviranja i prerade voća i povrća, ur. akademik Milan Maceljki, Nakladni zavod, GLOBUS, Zagreb, 1994. 2. A.A. Kader: Postharvest technology of Horticultural Crops, Sec.Ed., Univ.of California, Division of Agriculture and Natural Resources, Publication 3311, 1992. 3. S. Nagy, C. S. Chen, P. E. Shaw, Fruit Juice Processing and Technology: AGSIENCE Inc., Auburndale, Florida, 1993. 4. D. Arthey, and P. R. Ashurst: Fruit Processing, Blackie Academic and Profesional, U.K., Chapman and Hall, 1996. 5. C.V.J. Dellino: Cold and Chilled Storage Technology, 2nd Edition, Blackie Academic & Profesional, 1997. 5. D.R. Heldman, R.W. Hartel: Principles of Food Processing, Chapmen and Hall, 1998. 6. HACCP trainings (seminars) 		

Recommended reading

1. D.A. Shapton, N.F. Shapton: Principles and Practices for the Safe Processing of Foods, Woodhead Publishing, Barnes&Noble, 1998
2. S. Mortimore, C. Wallace: HACCP: A Practical Aproach, Barnes&Noble, 1998
3. J. Farber, E.C.D. Todd: Safe Handling of Foods, Marcel Dekker, 2000
4. Internet and different journals

Course title	Attainments in processing of animal origin raw materials including HACCP elements II		
Course code	FOOD S106	Course status	Optional
Study programme	Postgraduate specialist study <i>Food Safety and Quality</i>		
Semester	I		
Course lecturer	PhD Dragan Kovačević, associate professor PhD Jovica Hardi, associate professor		
Course associates	-		
Course content	<p>Lecture programme (meat and fish): Manufacturers of equipment for the meat industry, technological improvements and new production lines. Spoilage of meat and fish products. Achievements in the conservation of meat and fish. The new meat and fish products, and new additives. Achievements in packaging meat and fish. Zoonoses and health-veterinary control in meat and fish processing (HACCP).</p> <p>Seminar's programme: The implementation of HACCP in the meat and fish processing industry.</p> <p>Lecture programme (milk and eggs): Achievements in farming milk production regarding to used systems and high microbiological quality of produced milk. Contemporary systems of storage as well as of milk transport to dairy industries. Microbial ecosystem of milk. Analyse of Critical Control Points (CCP) on reception lines. Analyse of Critical Control Points during primary milk treatment. Pasteurization requirements and clarification of milk. Role of homogenization in further thermal processes and fermentation. Basic standards in production of pasteurized and sterilized milk. Washing, disinfection and sterilization of milk equipments (CIP, COP, aseptic equipments, disinfection methods and agents). Starter cultures in dairy industry. Analyse of CCP in fermented milk production. Analyse of CCP in butter production. Analyse of CCP in cheese production. Importance of packaging in dairy industry. Sterilization of packaging materials. Packaging systems. Concentrated milk and powdered milk products. Humanized milk formulas. Methods and equipments for removing of microorganisms and their enzymes from milk. Ice cream and milk desserts. Novel trends in dairy industry. ISO as a postulate for introduction of HACCP.</p> <p>Achievements in production, storage and industrial usage of eggs. Microbial contamination of eggs. Microbiological analyses of eggs and egg products. Possible arrangements in protection of eggs and egg products against contamination.</p> <p>Seminar's programme (milk and eggs): HACCP elements in dairy industry. HACCP elements in production of eggs and egg products application in food industry. Quality administration according to existing ISO standards with special regard on HACCP.</p>		
General and specific knowledge acquired in course (objective)	<p>Higher consumer requests for nutritional and safe food (including labelling in harmony with highest standards for consumer protection) demands application of the brand-new processing, conserving and packaging technologies and application of the brand-new health-veterinary inspection concepts for meat and fish products, including HACCP.</p> <p>The basic aim of lectures and seminars is to capacitate students for guiding of primary milk processing in dairy industry. Furthermore, the aim of these lectures is to introduce the students with basic operation during milk processing, as well as with equipments for milk processing. All operations included to milk processing take to be analyzed according to effective standards regarding to HACCP. Learned knowledge provides that students can understand processes during production of different milk products, with special regard to microbiological, biochemical and functional point of view. Finally, students must be familiar with existent EU standards, connected to milk and eggs processing, which will be gradually introduced to Croatian legislative. As the most important, this imply acquisition of effective ISO standards and permanently use of HACCP.</p>		
Teaching method (hrs/week)	Lectures	Seminars	Labs

(total)	40	15	-
Examination method	Making of seminar work and final verbal exam		
Credits	10	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. Pearson, A. M., Dutson, T. R. (2001): HACCP in Meat, Poultry and Fish Processing, C.H.I.P.S., Weimar, Texas. 4. Hall G.M. (1997): Fish Processing technology, 2th ed., C.H.I.P.S., Texas. 5. 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. 6. Ljubica TRATNIK: Mlijeko – tehnologija, biokemija i mikrobiologija. Hrvatska mljekarska udruga. Zagreb, 1989. 7. Jasmina HAVRANEK: Mlijeko od farme do mljekare. Hrvatska mljekarska udruga. Zagreb, 2003. 8. Adnan Y. TAMIME, Barry A. LAW: Mechanisation and Automation in Dairy Technology. CRC Press. Sheffield, England, 2001. 9. Tetra Pak Processing Systems AB: Dairy processing handbook. Grafiska AB. Lund, Sweden, 1995. 		
Recommended reading	<ol style="list-style-type: none"> 1. Kovačević, D. (2004): Sirovine prehrambene industrije (meso i riba), PTF-Osijek, Osijek (sveučilišni udžbenik). 2. 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. 3. Živković, J. (2001): Higijena i tehnologija mesa (I. Dio), (II. dopunjeno izdanje), Veterinarski fakultet Sveučilišta u Zagrebu, Zagreb. 4. Dimitrije SABADOŠ: Kontrola i ocjenjivanje mlijeka i mliječnih proizvoda. Hrvatsko mljekarsko društvo. Zagreb, 1996. 5. A. T. ANDREWS, J. VARLEY: Biochemistry of Milk Products. The Royal Society of Chemistry. Cambridge, 1994. 6. Juliet HARBUTT: Svjetska enciklopedija sira. Naklada Fran. Zagreb, 2000. 7. Senadin DURAKOVIĆ i sur.: Moderna mikrobiologija namirnica. (Knjiga prva). Kugler. Zagreb, 2002. 8. Senadin DURAKOVIĆ, Lejla DURAKOVIĆ: Mikrobiologija namirnica – osnove i dostignuća. (Knjige I+II+III). Kugler. Zagreb, 2001. 9. Senadin DURAKOVIĆ, Lejla DURAKOVIĆ: Specijalna mikrobiologija. Kugler. Zagreb, 2000. 10. ČASOPISI: Mljekarstvo, Journal of Food Technology, Journal of Food Science, Journal of Dairy Science, Journal of Dairy Research. 		

**COURSE DESCRIPTION
(OPTIONAL)**

Course title	Food Toxicology		
Course code	FOOD S201	Course status	Elective
Study programme	Postgraduate specialist study <i>Food Safety and Quality</i>		
Semester	II		
Course lecturers	Klapec Tomislav, PhD, associate professor		
Course associates			
Course content	<p><u>Lectures:</u> Absorption, distribution, excretion and metabolism of toxicants Mechanism of action of toxicants Toxic effects in the organism Toxicants in food Determination of toxicants in food Risk assessment of toxicants Regulation of exposure to toxic substances</p> <p><u>Labs:</u> Determination of deoxynivalenol in grains by HPLC Spectrofluorimetric determination of aluminium in water Spectrofluorimetric determination of histamine in fish</p>		
General and specific knowledge acquired in course (objective)	This course focuses on sources, adverse health effects, prevention, decontamination, detection and legislation on food safety hazards.		
Teaching method	Lectures	Seminars	Labs
Hours total	15		10
Examination method	oral		
Credits	5	Language	Croatian and English
Compulsory reading	1. T. Klapec: <i>Osnove toksikologije s toksikologijom hrane</i> , Interna skripta, Prehrambeno tehnološki fakultet, Osijek, 2006.		
Recommended reading	1. T. Shibamoto, L.F. Bjeldanes: <i>Introduction to Food Toxicology</i> , Academic Press, San Diego, 1993. 2. A. Wallace Hayes (ur.): <i>Principles and Methods of Toxicology</i> , Taylor & Francis, Philadelphia, 2001. 3. B.G. Katzung (ur.): <i>Basic and Clinical Pharmacology</i> , McGraw-Hill, London, 2004. 4. C.D. Klaassen, M.O. Amdur, J. Doull: <i>Toxicology, A Basic Science of Poisons</i> , Macmillan Publishing Company, New York, 1986.		

Course title	Nutrition		
Course code	FOOD S202	Course status:	elective
Study programme	Postgraduate specialist study <i>Food Safety and Quality</i>		
Semester	II		
Course lectures	Milena Mandić, PhD, professor		
Course associates	Daniela Kenjeric, PhD, assistant professor		
Course content	Energy requirements. Nutrients (proteins, lipids, carbohydrates, vitamins, minerals, water). Foodstuffs of plant and animal origin. Genetically modified foods. Essentials of functional foods. Essentials of meal planning. Food-borne toxicants. Nutrition quality and the state of nourishment.		
General and specific knowledge acquired in course (objectives)	Nutrition has progressed from the prevention of dietary deficiency to the promotion of a state of well-being and health and the reduction of the risk of disease. The Nutrition Science has to accept this challenge and through the education of nutritionists, food technologists, other experts, and even nation has to influence public health, and prevention of chronic, non-communicable diseases.		
Teaching method	Lectures	Seminars	Labs
Hours total	20		5
Examination method	The exam will be written and oral.		
Credits	5	Language	Croatian
Compulsory reading	1. M.L. Mandić: <i>Znanost o prehrani</i> , Prehrambeno tehnološki fakultet, Osijek, 2003.		
Recommended reading	1. S. Rodwell Williams: <i>Essentials of Nutrition and Diet Therapy</i> , Mosby, St.Louis, 1999.		

Course title	Rapid methods in food analysis		
Course code	FOOD S203	Course status	Elective
Study programme	Postgraduate specialist study <i>Food Safety and Quality</i>		
Semester	II		
Course lecturers	Vlasta Piližota, full professor		
Course associates	-		
Course content	<p>Rapid methods in food analysis of water and food products in the whole food chain, and a requirement for tighter control of the production process. Materials and methods. Kits, instruments and systems. Current methods and the current issues facing the requirements of microbiology and its associate test methods. Specific cases.</p> <p>Seminar Writing presentation</p>		
General and specific knowledge acquired in course (objective)	Analytical approach towards food analysis of raw material and semi and final food products.		
Teaching method	Lectures	Seminars	Labs
Hours total	20	5	-
Examination method	Oral examination		
Credits	5	Language	Croatian and English
Compulsory reading	<ol style="list-style-type: none"> 1. S.A. Clark, K.C. Thompson, C.W Keevil and M.H. Smith: Rapid Detection Assay for Water and Food, The Royal Society for Chemistry, 2001. 2. http://europa.eu.int/comm/food/rapidalert/report_2004_en.pdf 3. EUROPA - European Commission: Food and Feed Safety 		
Recommended reading	<ol style="list-style-type: none"> 1. www.ciaa.be 2. http://www.irmm.jrc.be 3. http://www.jrc.cec.eu.int 4. Different journals in the field of food quality and safety analysis. 		

Course title	Food chemistry		
Course code	FOOD S204	Course status	Elective
Study programme	Postgraduate specialist study <i>Food Safety and Quality</i>		
Semester	I		
Course lecturers	Vlasta Piližota, full professor		
Course associates			
Course content	Chemical and biochemical reactions which can lead to change of food quality and safety. Food as dispersed system. Food ingredients: water, carbohydrates, proteins, lipids, enzymes, vitamins, pigments, minerals, aroma compounds. Their role in complex biochemical systems and their changes during processing, storage and distribution of raw material and food products. Factors that effects those changes. Self-life of food. Chemical approach to sensorial properties.		
General and specific knowledge acquired in course (objective)	Analytical approach towards food chemistry, formulation of food products, processing of foods and stability during storage. Chemical composition and properties of foods. Insight into chemical and biochemical reactions that can occur in food during processing and storage.		
Teaching method	Lectures	Seminars	Labs
Hours total	20		5
Examination method	Oral examination		
Credits	5	Language	Croatian
Compulsory reading	<ol style="list-style-type: none"> 1. O.R. Fennema: Food Chemistry, 3 rd ed., by Marcel Dekker, Inc, N.Y., 1996. 2. Norman N. Potter, Joseph H. Hotchkiss: <i>Food Science</i> (3th ed.), Chapman&Hall, New York, 1995. 3. W. Baltes: Lebensmittelchemie (Dritte Auflage), Springer-Verlag Berlin, Heidelberg, 1992. 4. H.-D. Belitz, W. Grosch: Lehrbuch der Lebensmittelchemie (4. Auflag), Springer-Verlag, Berlin, Heidelberg, 1992. 5. A. L. Nelson: High-Fiber Ingredients, Eagan Press Handbook Series, 2003. 6. F. J. Francis: Colorants, Eagan Press Handbook Series, 2003. 7. P. R. Mathewson: Enzymes, Eagan Press Handbook Series, 2003. 8. C. E. Stauffer: Fats and Oils, Eagan Press Handbook Series, 2003. 		
Recommended reading	Different journal from food chemistry area.		

Course title	Food additives		
Course code	FOOD S205	Course status	Elective
Study programme	Postgraduate specialist study <i>Food Safety and Quality</i>		
Semester	II		
Course lecturers	Drago Šubarić, PhD, associate professor		
Course associates			
Course content	<p>Additives in food production. Legislation concerning application of additives in food production (Croatian and abroad). Classification and physico-chemical properties of food additives (preservatives, stabilizers, emulsifiers, thickeners, gelling agents, colorings, flavours, antioxidants, sweeteners, flavour enhancers, acidity regulators, enzymes, supplements...).</p> <p>Reactions with food components. Future perspectives in additive application in food production.</p>		
General and specific knowledge acquired in course (objective)	Up-to-date knowledge on additive application in food industry, interactions of additives with food components and development of novel additives		
Teaching method	Lectures	Seminars	Labs
Hours total	20	5	0
Examination method	Written report and oral exam		
Credits	5	Language	Croatian
Compulsory reading	<ol style="list-style-type: none"> 1. W. Baltes: Lebensmittelchemie. Springer Verlag, Berlin, Heidelberg, New York. 2000. 2. Food Chemistry (O. R. Fennema ur.), Marcel Dekker, Inc., New York, Basel, Hong Kong, 1996. 3. Food Additives (Collection of Analytical Methods for Food Additives, AOAC International, Arlington, USA). 		
Recommended reading	<ol style="list-style-type: none"> 1. Journals (scientific and professional) 2. Legislation documents 		

Course title	New Food Products Development		
Course code	FOOD S206	Course status	Elective
Study programme	Postgraduate specialist study <i>Food Safety and Quality</i>		
Semester	II		
Course lecturers	Vlasta Piližota, full professor		
Course associates			
Course content	<p>New food product definitions. Factors (positive and negative) affecting new food product development. Stages in new food product development. Market research. Scientific, technological and productive aspects in food product development. Development of packaging methods and principles for food products. Management in the process of the new food product development.</p> <p>Seminar Writing presentation.</p>		
General and specific knowledge acquired in course (objective)	Students acquire the domain knowledge of new food products development. Build the specific skills that students get with an understanding of the new food product production. Students gain a broad knowledge of the characteristics of the new food product the most important factors for market success.		
Teaching method	Lectures	Seminars	Labs
Hours total	20		5
Examination method	Oral examination		
Credits	5	Language	Croatian and English
Compulsory reading	<ol style="list-style-type: none"> 1. R.C. Baker, P.W. Hahn and K.R. Robbins, 1988, Fundamentals of New Product Development. Elsevier. Amsterdam-Oxford-New York-Tokyo 2. D. Best: Designing new products from a market perspective, 1991; In <i>Food Product Development: From Concept to Marketplace</i>, E. Graf and I.S. Saguy, Van Nostrand Reinhold, New York, U.S.A. 3. C.J. Nuese, 1995, Building the Right Things Right: A New Model for Product and Technology Development, Quality Resources, New York, U.S.A. 4. T.J. Hoban, 1998, Improving the Success of New Product Development. <i>Food Technology</i>, 52, 46 5. P. Hollingsworth, 1998, New Rules for Success in Food Research. <i>Food Technology</i>. 52, 77 5. A. L. Brody and J. B. Lord: <i>Developing New Food products for a Changing Marketplace</i>, Culinary and Hospitality Industry Publications Services, 2000. 		
Recommended reading	Different journals in the field of the new food products development. e.g.		

Course title	Sensory analysis		
Course code	FOOD S207	Course status	Elective
Study programme	Postgraduate specialist study <i>Food Safety and Quality</i>		
Semester	II		
Course lecturers	Antonija Perl, assistant professor		
Course associates			
Course content	<p>Lectures:</p> <p>Sensory evaluation in product development and product improvement/ optimization. Sensory evaluation in product quality control and shelf life estimation. Organization and conducting of the sensory study (determination of the project objective and test objective, screening of the samples, designing and conducting of the test, analysis and interpretation of the results).</p> <p>Practical classes will encompass specific tests for selection and training of panel members.</p>		
General and specific knowledge acquired in course (objective)	Through this course student gains additional knowledge on sensory analysis application and its performance in practice.		
Teaching method	Lectures	Seminars	Labs
Hours total	15		10
Examination method	Oral		
Credits	5	Language	Croatian
Compulsory reading	<ol style="list-style-type: none"> 1. M.L. Mandić, Lj. Primorac, T. Klačec, A. Perl, D. Kenjeric: <i>Senzorske analize. Interna skripta</i>, Prehrambeno tehnološki fakultet u Osijeku, 2002. 2. M.L. Mandić, A. Perl: <i>Osnove senzorske procjene hrane</i>. Prehrambeno-tehnološki fakultet, Osijek, 2006. 		
Recommended reading	<ol style="list-style-type: none"> 1. M. Meilgaard, G.V. Civille, B.T. Carr: <i>Sensory Evaluation Techniques</i>. CRC Press, London, 1991. 2. H. Stone, J.L. Sidel: <i>Sensory Evaluation Practices</i>. Academic Press, London, 1993. 3. R.L. McBride, H.J. MacFie: <i>Psychological Basis of Sensory Evaluation</i>. Elsevier, London, 1990. 4. H.T. Lawless, H. Heymann: <i>Sensory Evaluation of Food, Principles and Practices</i>. Chapman & Hall, New York, 1998. 6. D.H. Lyon Ed.: <i>Guidelines for Sensory Analysis in Food Product Development and Quality Control</i>. Chapman & Hall, New York, 1992. 		

BIOGRAPHY OF TEACHERS

Name and surname:

Marija Halt

Institution:

Faculty of Food Technology, Osijek

e-mail adress and web page:

Marija.Halt@ptfos.hr

Title and date of last promotion

Associate professor, 1999.

CV

Born: 30th September 1949, Aljmaš, Croatia

Basic education: elementary school in Osijek, high school of chemical orientation in Osijek

BSc thesis: Faculty of Agriculture and Food Technology Osijek, 16th November 1973. Microflora and entomofauna of wheat grain in some types of flour during storage.

MSc thesis: Faculty of Agriculture Beograd, Technological microbiology, 11th December 1979. Analysing contamination degree of cereal and their products in storage conditions with fungi as aflatoxin producers.

PHd thesis: Faculty of Agriculture Beograd. Flour contamination with aflatoxin B₁ and their effect on morphological and physiological properties of baker yeast *Saccharomyces cerevisiae* and quality of bread.

Employments: After graduation works in factory of biscuits and bread „Sloboda“ in Osijek. From 1974. works on Faculty of Food Technology in Osijek as an assistant on course Microbiology. After MSc (1980.) works as research assistant on course Microbiology (identification number 076414; CR2834) and as assistant professor on same course in 1986. In July 1999. selected as associate professor on course General microbiology.

Teaching activities: From 1974.-1999. independently lead student practice and final exam and from 1983. works as a co-lecturer on Microbiology course. In 1987. became a main lecturer on same course and in 1996. on Food microbiology course. Participated in 12 BSc thesis as assistant, 11 BSc thesis as main lecturer and co-mentor of one BSc thesis in a field of Microbiology and Food microbiology. On postgraduate – scientific study is a main lecturer on Food microbiology course from 1999. Author of one and co-author of two internal practicums for student practice in course of Microbiology and Food microbiology.

Scientific activities: Scientific work undistracted on contamination of food with microorganisms and their metabolic products, especially with mycotoxins with reference on aflatoxin. Demonstrated results on 16 national and 8 international conferences. As author published 33 scientific papers (28 in national and 5 in international scientific papers) and 2 professional papers. She was leader of 7 scientific research projects. In 1981. went on 2 months specialization at Faculty of Food Biotechnology in Zagreb in Laboratory for genetics of microorganisms. In microbiological laboratory of biscuits and bread factory „Sloboda“ and pasta factory „Croatia“ in Osijek she conducts scientific researches from 1992.-2000. From the beginning of employment on Faculty of Food Technology in Osijek she was involved in work of many commissions. From 1983.-1987. pursues job of sub-dean and board of directors member. Works as leader of Microbiology department from 2002.

List of publications

1. M.Halt, T. Klavec: Microbial populations of Croatia medicinal and aromatic plants and herbal teas and the effect of processing. ***Italian Journal of Food Sciences***, 17,3,1-6, 2005.
2. M. Halt, D. Kovačević, H. Pavlović, J. Jukić: Contamination of pasta and the raw materials for its production with moulds of the genera *Aspergillus*. ***Czech Journal of Food Sciences***, 22,2,67-72,2004.
3. M. Halt, T. Klavec, D. Šubarić, M. Macura, S. Bačani: Fungal contamination of cookies and raw materials for their production in Croatia. ***Czech Journal of Food Sciences***, 22,3, 95-98,2004.
4. Ž. Ugarčić-Hardi, D. Hackenberger, M. Halt, M. Sabo, A. Čota: Influence of wheat straw addition on bakery product quality. Proceedings of International Congress FLOR-BREAD/01, Ugarčić-Hardi, Žaneta (ur.), Osijek: Faculty of Food Technology in Osijek, 122-127, 2002

Qualifying publications:

1. M. Halt: Moulds and mycotoxins in herb tea and medicinal plants: *European Journal of Epidemiology*, 14, 269-274, 1998.
2. M. Halt: *Aspergillus flavus* and aflatoxin B₁ in the flour production. *European Journal of Epidemiology*, 10, 555-558, 1994.
3. M. Halt: Utjecaj aflatoksina B₁ na fermentativnu aktivnost pekarskog kvasca *Saccharomyces cerevisiae*. *Znanost u i praksa poljoprivredi i prehrambenoj tehnologiji*, 22, 407-415, 1992.
4. M. Todorović, M. Halt, J. Jukić, S. Biskupić: Ispitivanje mikroflore u toku proizvodnje i skladištenja duge tjestenine. *Mikrobiologija*, 27, 1, 17-27, 1990.
5. M. Halt, M. Šutić: Utjecaj aflatoksina B₁ na vegetativno razmnožavanje pekarskog kvasca *Saccharomyces cerevisiae* SCM. *Hrana i ishrana*, 30, 9-14, 1989.
6. M. Todorović, M. Halt, J. Jukić: Koagulaza pozitivne stafilokoke u hrani i hranivima. *Znanost i praksa u poljoprivredi i prehrambenoj tehnologiji*, 19, 5, 415-424, 1989.
7. M. Halt, M. Šutić: Utjecaj aflatoksina B₁ na neke morfološke osobine pekarskog kvasca *Saccharomyces cerevisiae* SCM. *Mikrobiologija*, 25, 2, 117-124, 1988.
8. M. Halt, M. Todorović: Utjecaj tehnološkog postupka proizvodnje na mikrofloru kaše jabuka. *Znanost i praksa u poljoprivredi i prehrambenoj tehnologiji*, 18, 432-447, 1988.
9. M. Halt: Kontaminacija pšeničnog brašna gljivama i aflatoksinom B₁. *Znanost i praksa u poljoprivredi i prehrambenoj tehnologiji*, 14, 491-512, 1984.
10. M. Todorović, M. Halt, M. Jakšić: Mikroflora bistrog voćnog soka «višnja» tokom tehnološkog procesa proizvodnje i skladištenja. *Znanost i praksa u poljoprivredi i prehrambenoj tehnologiji*, 12, 5, 103-113, 1982.

First name/ Surname:
Jovica Hardi
Institution:
Faculty of Food Technology, Osijek
E-mail(s), Web address(s):
Jovica.Hardi@ptfos.hr http://www.ptfos.hr/joomla/zpt/mljekarstvo/
Title and date of last election:
PhD, Associate professor ; 12. July 2005.
Curriculum vitae:
J. Hardi was born on 08. September 1956. in Brčko, BiH.
<p>Schooling: He finished elementary school in Baranja. He finished high school in Osijek 1974. Between 1981. and 1983. he attended post graduated study on PBF faculty in Zagreb. He defended successfully one's dissertation 1992.</p> <p>Employment: In his working career he worked in different places such as follows: Faculty of Food Technology - employee (1981); assistant on the course Technology of Milk and Dairy products (1982 – 1989); integrated wood-working plant "Gaj" from Slatina –Department of Biotechnology, head of department of new products development (1989 – 1990); Institute of Public Health in Osijek – analyst on development and introduction of some new analytical methods (1990 – 1991); Birotrade, Osijek – professional collaborator for laboratory equipment (1991 – 1992); Faculty of Food Technology – senior assistant on course of Technology of water and fuel, as well as on the course of Packaging in food industry (1996 – 1998); Faculty of Food Technology – head of sub-department of Technology of Milk and Dairy Products.</p> <p>Scientific, teaching and professional activity: He published 44 scientific works (22 cited in scientific bases) in journals and proceedings. He participated on 5 international, as well as on 22 Croatian scientific congresses (poster/oral presentation). Actually, he actively works on 5 scientific projects. He has been head of 1 international project. He was member of organizing committee of 5 scientific congresses. He published 3 papers in professional monographs. He reported two patents in the field of cheese aroma. He engaged in cooperation during the production of 10 new dairy products. He participated during the development of 9 international and 5 Croatian professional projects. He has been member of a few professional and scientific societies. He was mentor of 49 BSc theses. He was co-author of two lecture notes. He was first author of 10 temporary lecture notes for student education. He participated during the writing of student textbook, which will be published soon. He was mentor of 2 MSc and 1 PhD theses.</p>
Scientific papers list published in a last five years:
<ol style="list-style-type: none"> 1. Ž. Ugarčić-Hardi, D. Hackenberger, D. Šubarić, J. Hardi: Effect of soy, maize and extruded maize flour addition on physical and sensory characteristics of pasta. Italian Journal of Food Science, 15 (2), 277-286, 2003. 2. V. Slačanac, J. Hardi, H. Pavlović, D. Vuković, V. Čutić: Inhibitory effect of goat and cow milk fermented by ABT-2 culture (<i>Lactobacillus acidophilus</i> LA-5, <i>Bifidobacterium lactis</i> BB-12 and <i>Streptococcus thermophilus</i>) on the growth of some uropathogenic <i>E. Coli</i> strains. Italian Journal of Food Science, 16 (2), 209-219, 2004. 3. V. Slačanac, J. Hardi, D. Čuržik, H. Pavlović, M. Jukić: Production of antibacterial organic acids during the fermentation of goat and cow milk with <i>Bifidobacterium longum</i> BB-46. Acta Alimentaria, 34 (3), 2005. 4. H. Pavlović, J. Hardi, V. Slačanac, M. Halt, D. Kocevski: Inhibitory effect of goat and cow milk fermented by the use of <i>Bifidobacterium longum</i> Bb-46 on pathogenic <i>Serratia marcescens</i> and <i>Campilobacter jejuni</i> strains. Microbiological Research, 2005. 5. V. Slačanac, J. Hardi, D. Čuržik, H. Pavlović, M. Vlanić: Inhibitory effect of goat and cow milk fermented by probiotic bacteria <i>Bifidobacterium longum</i> Bb-46 on the growth of <i>Salmonella enteritidis</i> D strain. European Food Research and Technology, 2005. 6. V. Slačanac, J. Hardi: Influence of inulin addition on quality of goat and cow fermented milk produced by the use of ABT-2 culture. Milk Science International (Milchwissenschaft), 2005. 7. V. Slačanac, J. Hardi, H. Pavlović, D. Čuržik, M. Vlanić: Goat milk fermented with <i>Bifidobacterium longum</i> Bb-46 stronger inhibited the growth of <i>Staphilococcus aureus</i> than cow milk fermented with <i>Bifidobacterium longum</i> Bb-46. Microbiological Research, 2005.

8. J. Hardi, V. Slačanac: Ispitivanje kinetike koagulacije i reoloških svojstava fermentiranih mliječnih napitaka: utjecaj starter kulture, udjela mliječne masti i dodatka inulina. **Mljekarstvo**, 50 (3), 217-226, 2000.
9. J. Hardi, V. Slačanac, M. Vlainić: Usporedba instrumentalnih i senzorskih metoda za analizu kakvoće gruša fermentiranih mliječnih proizvoda. **Mljekarstvo**, 51 (2), 91-104, 2001.
10. V. Slačanac, J. Hardi, H. Pavlović, M. Vlainić, M. Lučan: Inhibicijski učinak kozjeg i kravljeg mlijeka fermentiranog bakterijom *Bifidobacterium longum* Bb-46 na rast uropatogenog soja *Candida albicans*. **Mljekarstvo**, 54 (4), 285-297, 2004.
11. M. Vilušić, J. Hardi: Utjecaj dugotrajnijeg čuvanja na reološka svojstva tekućeg jogurta primjenom metode smicanja. **Technologica Acta**, 1 (1), 55-60, 2004.
12. J. Hardi, Ž. Ugarčić-Hardi, L.J. Primorac: Aromatization of "Hostia" type of wafer blades with addition of several types of cheese aroma. U *Cereals Health and Life*. 11th International Cereal and Bread Congress. Proceedings. Gold Coast, Australia, 79-83, 2000.
13. J. Hardi, Ž. Ugarčić-Hardi, L.J. Primorac, V. Ferić, M. Brođanac: Effect of ingredients and processing on honey cake quality. U 11th International Cereal and Bread Congress. Proceedings. Gold Coast, Australia, 128-132, 2000.

Scientific papers that qualify teacher to perform teaching:

1. J. Hardi, Ž. Ugarčić-Hardi: Efficiency control of extruded product aromatisation with Emmental cheese aroma by GC headspace technique application. U *Proceedings of the European Conference on Food Chemistry – Euro Food Chem VIII*. Vienna, 361-364, 1995.
2. J. Hardi, D. Magdić: Monitoring of easy volatile components development of Gouda cheese aroma in the course of ripening at various temperatures. U *Proceedings of the Symposium Chemical Reactions in Foods III*. Prague, 254-258, 1996.
3. J. Hardi, V. Slačanac: Ispitivanje kinetike koagulacije i reološka svojstva fermentiranih mliječnih napitaka: utjecaj starter kulture, udjela mliječne masti i dodatka inulina. **Mljekarstvo**, 50 (3), 217-226, 2000.
4. J. Hardi, V. Slačanac, M. Vlainić: Usporedba instrumentalnih i senzorskih metoda za analizu kakvoće gruša fermentiranih mliječnih napitaka. **Mljekarstvo**, 51 (2), 91-104, 2001.
5. V. Slačanac, J. Hardi, H. Pavlović, D. Vuković, V. Čutić: Inhibitory Effect of Goat and Cow Milk Fermented by ABT-2 Culture (*Lactobacillus acidophilus* LA-5, *Bifidobacterium lactis* BB-12 and *Streptococcus thermophilus*) on the Growth of Some Uropathogenic *E. Coli* Strains. **Italian Journal of Food Science**, 16 (2), 209-219, 2004.
6. V. Slačanac, J. Hardi, H. Pavlović, M. Vlainić, M. Lučan: Inhibicijski učinak kozjeg i kravljeg mlijeka fermentiranog bakterijom *Bifidobacterium longum* Bb-46 na rast uropatogenog soja *Candida albicans*. **Mljekarstvo**, 54 (4), 285-297, 2004.
7. V. Slačanac, J. Hardi, D. Čuržik, H. Pavlović, M. Jukić: Production of antibacterial organic acids during the fermentation of goat and cow milk with *Bifidobacterium longum* BB-46. **Acta Alimentaria**, 34 (3), 2005.

Name and surname:
Žaneta Ugarčić-Hardi
Institution:
Faculty of Food Technology Osijek
e-mail adress and personal web site:
Zaneta.Ugarcic-Hardi@ptfos.hr ; http://zpt.ptfos.hr/
Title (scientific-teaching or teaching) and date of last election
Dr. sc., full. prof. (Biotechnical sciences, Food technology, Engineering) Last election 17. December 2001
Curriculum Vitae
<p><u>Born:</u> Vinkovci, 31. October 1946</p> <p><u>Graduated:</u> from Technology faculty of Zagreb University (Department of chemical-technology, organic direction), 23. December 1971.</p> <p><u>PhD:</u> Eidgenössische technische Hochschule, ETH; Department of technical chemistry, Zürich, Switzerland, 9. June 1983, Thesis title: "Kraftmessmethode zur Bestimmung der Oberflächenspannung mittels Kegel, Kugel und Hohlcylinder unter Berücksichtigung des Wandeffektes"</p> <p><u>Employment and responsibilities:</u> 1972-1978, „Institute of research and development" food industry "Maggi", Kempptal, Switzerland, as a researcher. 1978 Eidgenössische technische Hochschule, ETH in Zürich, Department of technical chemistry. Since 1985 Faculty of food technology of J. J. Strossmayer University. From 2001 to 2005 Rektorat of J. J. Strossmayer University. Since 2005 Faculty of food technology of J. J. Strossmayer University</p> <p><u>Lectoral activity:</u> In September 1989 elected to scientific title scientific associate, in December 1989 to scientific-teaching title Assistent Prof. , for Technology of production and refinement of flour subject. In January 1994 elected in scientific title Associate professor. In December 2001 to title Full Professor at Faculty of food technology in Osijek on the same subject. Since 1989 lectures and «Knowledge of raw materials in the food industry». From 1992 to 1996 lectured at Faculty of food technology in Zagreb on pregraduate studies. Since 1992 lectures on same faculty «Advances in production technology and processing of flour» on postgraduate studies, and from 1998 same subject on postgraduate studies in Osijek. Mentored 49 graduate thesis and 3 masters, 5 internal text books.</p> <p><u>Professional activity:</u> She was a member of organizing and scientific committies of several national and international conferences. She is the main organizer on international Croatian Congress of Cereal Technologists «Flour-Bread ». Member of several national and international scientific and professional societies and technical boards. Delegate of the Republic of Croatia in the «International Association for Cereal Science and Technology. From 1997 to 1999 she was the head off he Department od food technology at the Faculty of food technology in Osijek. From 1999 to 2000 was a member of J. J. Strossmayer University Management board. From 1. November 2001 to 1. November 2005 served as a vice rector of science at the J. J. Strossmayer University.</p> <p><u>Scientific activity:</u> Published 83 scientific and professional papers in the field of cereals refinement. Participated with 42 papers in international and 35 papers in national scientific and professional conferences.</p> <p>Since 1986 she was the head on 5 and associate on 2 scientific projects financed by Ministry of Science and Technology and Ministry of Agriculture. As a part of scientific improvement she worked in Scientific research centre of «Nestle», Vevey, Switzerland (1973), Singen, Germany (1975), Perkin – Elmer AG, Küssnacht, Switzerland, Republic institute of cereal refinement, Detmold , Germany (1990 and 1999).</p> <p><u>Awards and accolades:</u> 1996 she was awarded the Food biotechnology faculty in Zagreb's for contribution in promoting science and profession. 2001 she was awarded with Faculty of Food Technology's letter for special contibution and achievements in teaching, scientific and professional activity. 2005 Medal from « International Association for Cereal Science and Technology» for perennial organization of „Flour-Bread“ Congress.</p>
List of papers published in the last five years
<ol style="list-style-type: none"> Z. UGARČIĆ-HARDI,; HACKENBERGER, D.: Influence of drying temperatures on chemical composition of certain croatian winter wheats. // Acta Alimentaria. 30 (2001), 2; 145-157 M. SABO; UGARČIĆ-HARDI Ž.Concentration of macro- and microelements in grain of some new

- winter wheat genotypes (*Triticum aestivum* L...). // *Acta Alimentaria*. 31 (2002), 3; 235-242.
3. KOCEVA KOMLENIĆ, D.; **UGARČIĆ-HARDI, Ž.**; HACKENBERGER, D.: Impact of pectin and carboxymethylcellulose on rheological properties wheat flour. // *Deutsche Lebensmittel-Rundschau*. 98 (2002), 9; 332-338
 4. SABO, M.; BEDE, M.; **UGARČIĆ-HARDI, Ž.**: Variability of grain yield components of some new winter wheat genotypes (*Triticum aestivum* L...). // *Rostlinna Vyroba*. 48 (2002, 5; 230-235 (članak).
 5. **Ž. UGARČIĆ-HARDI,**; HACKENBERGER, D.; ŠUBARIĆ, D.; HARDI, J.: Effect of soy, maize and extruded maize flour addition on sensory characteristics of pasta. // *Italian journal of food science*. 15 (2003), 2; 277-286
 6. **Ž. UGARČIĆ-HARDI,**; HACKENBERGER, D.; HACKENBERGER K., B.: New approach to the influence of flour moisture on the determination of the Falling number. // *Deutsche Lebensmittel-Rundschau*. 100 (2004), 8; 298-301
 7. KOCEVA KOMLENIĆ, D.; **UGARČIĆ-HARDI, Ž.**; HACKENBERGER, D.; TURK, I.: Changes of rheological properties of wheat flours with hydrocolloid addition. // *Proceedings of International Congress FLOUR-BREAD '01 / Ugarčić-Hardi, Žaneta (ur.)*. Osijek: Faculty of Food Technology in Osijek, 2002. 79-86
 8. KOVAČEVIĆ, D.; **UGARČIĆ-HARDI, Ž.**; KORDIĆ, J.; KOCEVA KOMLENIĆ, D.: Quality research on frozen flaky pastry by DTA application // *Proceedings of International Congress FLOUR-BREAD '01 / Ugarčić-Hardi, Žaneta (ur.)*. Osijek: Faculty of Food Technology, 2002. 43-51
 9. KOCEVA KOMLENIĆ, D.; **UGARČIĆ-HARDI, Ž.**; PRIMORAC, LJ.: Impact of pectin and carboxymethylcellulose on sensory properties of pasta // *Proceedings of the Euro Food Chem XII / Eklund, T. ; De Brabander, H. ; Deaseleire, E. ; Dirinck, I. ; Ooghe, W. (ur.)*. Brugge : Koninklijke Vlaamse Chemische Vereniging, 2003. 276-279
 10. KOCEVA KOMLENIĆ, D.; STRELEC, I.; **UGARČIĆ-HARDI, Ž.**; JUKIĆ, M.: Comparison of standard and colorimetric method for estimating pasta cooking loss // *Proceedings of International Congress FLOUR-BREAD '03 / Ugarčić-Hardi, Žaneta (ur.)*. Osijek : Faculty of Food Technology, University of J.J.Strossmayer in Osijek, 2004. 88-94
 11. KRSTANOVIĆ, V.; GRUJIĆ, O.; **UGARČIĆ-HARDI, Ž.**; MARIĆ, V.: Research on possibilities of wheat malt production from Slavonian bread-wheat varieties // *Proceedings of International Congress FLOUR-BREAD '03 / Ugarčić-Hardi, Žaneta (ur.)*. Osijek : Faculty of Food Technology Osijek, 2004. 80-87
 12. PRIMORAC, LJ.; PITLIK, N.; **UGARČIĆ-HARDI, Ž.**; JUKIĆ, M.: Quality parameters of certain bread types at Slavonian market // *Proceedings of International Congress FLOUR - BREAD '03 / Ugarčić-Hardi, Žaneta (ur.)*. Osijek : Faculty of Food Technology University of J.J. Strossmayer in Osijek, 2004. 230-236
 13. SABO, M.; JUG, D.; **UGARČIĆ-HARDI, Ž.**. Influence of reduced tillage on wheat quality properties // *Proceedings of International Congress FLOUR-BREAD '03 / Ugarčić-Hardi, Ž. (ur.)*. Osijek : Faculty of Food Technology, University of J.J.Strossmayer in Osijek, 2004. 70-79
 14. J. HARDI, **Ž. UGARČIĆ-HARDI,** LJ. PRIMORAC: Aromatization of "Hostia" Type of Wafer Blades with Addition of Several types of Cheese Aroma, 11th Cereal and Bred Congress, 50th Australian Cereal Chemistry Conference "CEREALS, HEALTH AND LIFE", Queensland, Australia, 08.-15. 09. 2000
 15. **Ž. UGARČIĆ-HARDI,** Pravci razvitka suvremene prerade žitarica u okviru prehrambene industrije istočne Hrvatske // *Strategija razvitka poljoprivrede i prehrambene industrije istočne Hrvatske / Marijan Jakšić, Katarina Pekanov (ur.)*. Osijek : HGK, CROMAR, Hrvatsko društvo ekonomista, 1999. 213-221
 16. **Ž. UGARČIĆ-HARDI,** M. Šubarić: Trendovi u proizvodnji prehrambenih proizvoda; Prvi kongres hrvatskih znanstvenika iz domovine i inozemstva, Zbornik sažetaka, Zagreb – Vukovar, 15.-19.11.2004., 80

Papers that qualify for lecture

1. **Ž. UGARČIĆ, A. NEVISTIĆ** (1989): Ispitivanje tehnološke kvalitete pasažnih brašna procesa krupljenja u mlinu PIK Đakovo. *Znanost i praksa u poljoprivredi i prehrambenoj tehnologiji* 15 (5), Osijek., 448-461.
2. **Ž. UGARČIĆ, S DAVIDOVIĆ** (1989): Ispitivanje mogućnosti primjene pšenične klice u izradi flipsa i krepera. *Znanost i praksa u poljoprivredi i prehrambenoj tehnologiji* 19 (5), Osijek., 371-383.
3. **Ž. UGARČIĆ, S. DAVIDOVIĆ, V. FERIĆ, J. KRIŠTO** (1991): Ispitivanje mogućnosti primjene odmašćenog sojinog brašna u proizvodnji kruha. *Hrana i ishrana* 32, Beograd., 201-203.
4. **Ž. UGARČIĆ, S. DAVIDOVIĆ, V. FERIĆ, M. BROĐANAC** (1991): Utjecaj dodatka pšenične klice na reološka i pecivna svojstva pšeničnog brašna. *Znanost u proizvodnji* 4, Osijek., 90-99.

5. **Ž. UGARČIĆ**, D. HACKENBERGER (1992): Technische Qualität der Mehlmischungen aus verschiedenen Winterweizensorten, Getreide, Mehl und Brot 46, 298-300.
6. **Ž. UGARČIĆ-HARDI**, LJ. PERIĆ, I. STRELEC, D. KOCEVA (1999): Comparison of Colorimetric Method and Spectrophotometric Methods for Colour Determination in Pasta, Lebensmittel - Untersuchung und - Forschung A, 208 (5-6), 383-387
7. **Ž. UGARČIĆ-HARDI**, B. K. HACKENBERGER, D. KOCEVA(1999): Determination of flour moisture influence on precise estimation of Falling Number, Proceedings of Second Croatian Congress of Cereal Technologists, Osijek 61-69.
8. **Ž. UGARČIĆ-HARDI**, J. HARDI, LJ. PRIMORAC: Effect of Ingredients and Processing on Honey Cake Quality, 11th Cereal and Bred Congress, 50th Australian Cereal Chemistry Conference "CEREALS, HEALTH AND LIFE", Queensland, Australia, 08.-15. 09. 2000
9. **UGARČIĆ-HARDI, Ž.**; HACKENBERGER, D.; HALT, M.; SABO, M.; ČOTA, A.: Influence of wheat straw addition on bakery product quality // Proceedings of International Congress FLOUR-BREAD '01/ Ugarčić-Hardi, Žaneta (ur.).Osijek: Faculty of Food Technology, 2002. 122-127
10. **UGARČIĆ-HARDI, Ž.**; KOCEVA KOMLENIĆ, D.; PITLIK, N.; KULEŠ, A.: Sensory quality of frozen flaky pastry with different fat shares // Proceedings of International Congress FLOUR-BREAD '01 / Ugarčić-Hardi, Žaneta (ur.).Osijek: Faculty of Food Technology in Osijek, 2002. 135-141
11. **UGARČIĆ-HARDI, Ž.**; KULEŠ, M.; KOCEVA KOMLENIĆ, D.; KULEŠ, A.; JUKIĆ, M.; SABO, M.: Comparison between conductometric and standard methods for ash determination in wheat flour II Proceedings of International Congress FLOUR-BREAD '01 / Ugarčić-Hardi, Žaneta (ur.).Osijek: Faculty of Food Technology in Osijek, 2002. 29-33

Name and surname:
Daniela Kenjeric
Institution:
Faculty of Food Technology, Osijek
e-mail address and web page:
daniela.kenjeric@ptfos.hr
Title and date of last promotion
Assistant professor, 2005
CV
<p>1. Education: 1995. Secondary school, SŠ Marko Marulić, Slatina 2000. Faculty of Food Technology Osijek (BSc) 2004. Faculty of Food Technology and Biotechnology, Zagreb (PhD)</p> <p>2. Work experience: 2000. Faculty of Food Technology, Osijek (scientific novice) 2000. younger assistant 2003. assistant 2004. higher assistant 2005. assistant professor</p> <p>3. Positions: 2001-2004 Committee for publicity of the Faculty of Food Technology</p> <p>4. Scientific (research) activity: Active participation in national and international scientific projects 1. Quality control and nutritional and toxic aspects of food: Senior researcher: Prof. dr. Milena L. Mandić (Ministry of Science and Technology, 1996-2002) 2. Quality and safety of food and nutrition: Senior researcher: Prof. dr. Milena L. Mandić (Ministry of Science and Technology, 2002-) 3. TP-02/0113-07 Investigation of methods for unequivocal identification of honey: Senior researcher: Prof. dr. Milena L. Mandić (2002-) 4. Croatian-Macedonian project: Identification of botanical origin and analysis of chemical parameters of honey from Croatia and Macedonia; Senior researcher: Prof. dr. Ljiljana Primorac: (2005-)</p> <p>As coauthor she has published 10 scientific papers (3 indexed in Current Contents, 7 in proceedings of international conferences), actively participated in 10 international and 2 national scientific conferences. She also gave 3 invited lectures.</p> <p>6. Professional and educational activity: Coauthor of one university script. During her employment she actively participated in teaching on 3 courses within the BSc study programme.</p>
LIST OF PUBLICATIONS IN THE LAST FIVE YEARS
<ol style="list-style-type: none"> Mandić-Puljek, M.; Mandić, M.L.; Perl, A.; Kenjeric, D. (2005) Calcium intake, food sources and seasonal variations in Eastern Croatia. <i>Coll Antropol</i> 29: 503-507. Perl, A.; Primorac, Lj.; Mandić, M.L.; Klapac, T.; Kenjeric, D.; Mandić, M. (2003): Dietary fibre intake in eastern Croatia as determined by an enzymatic-gravimetric method in duplicated portions. <i>Eur Food Res Technol.</i> 217:207-210. Primorac, Lj.; Mandić, M.L.; Klapac, T.; Folivarski, K.; Perl, A.; Kenjeric, D. (2003): Fat and fatty acids intake of adults in eastern Croatia. <i>Nutr Res.</i> 23:1453-1461.
QUALIFYING PUBLICATIONS
<ol style="list-style-type: none"> Mandić-Puljek, M.; Mandić, M.L.; Perl, A., Kenjeric, D. (2005) Calcium intake, food sources and seasonal variations in Eastern Croatia. <i>Coll Antropol</i> 29: 503-507. Perl, A.; Primorac, Lj.; Mandić, M.L.; Klapac, T.; Kenjeric, D.; Mandić, M. (2003): Dietary fibre intake in eastern Croatia as determined by an enzymatic-gravimetric method in duplicated portions. <i>Eur Food Res Technol.</i> 217:207-210. Primorac, Lj.; Mandić, M.L.; Klapac, T.; Folivarski, K.; Perl, A.; Kenjeric, D. (2003): Fat and fatty acids intake of adults in eastern Croatia. <i>Nutr Res.</i> 23:1453-1461.

Name and surname:
Tomislav Klačec
Institution:
Faculty of Food Technology, Osijek
e-mail address and web page:
tomi@ptfos.hr http://znk.ptfos.hr
Title and date of last promotion
associate professor, 19. 12. 2005
CV
Born in 1968, August 24, in Osijek, Croatia. Completed a high school of chemical orientation. Enrolled in the Faculty of Food Technology, University J. J. Strossmayer in Osijek in 1988, graduating in February 1994 as an excellent student. Accepted a young investigator's position at the Faculty of Food Technology in 1994. Finished the postgraduate study at the Faculty of Food Technology and Biotechnology in Zagreb by defense of the MS-thesis "Daily dietary intake of selenium in eastern Croatia". Defended the PhD-thesis in 2001 ("The role of dietary selenium intake in the etiology of endemic nephropathy"). Trained in sample preparation techniques and instrumentation (AAS, ICP-MS) used for elemental analysis (1995: TU, Graz; 2003: BOKU, Wien). Currently main researcher of a technological project (TP-04/0113-08) financed by Ministry of science, education and sports and also participates in one technological (TP-02/0113-07) and one research project (0113003). Led one incentive project for young researchers. Research interests include nutritional and epidemiological aspects of selenium, and selected toxicants. Lectured and instructed lab work on 'Sensory Analyses' and 'Quality Control in Food Industry'. Head of Subdepartment of Ecology and Toxicology at the Faculty and lectures on 'Food Toxicology' (undergraduate study) and 'Selected Chapters in Food Toxicology' (postgraduate study). Coauthored a book, 13 a1 category papers and attended a great number of national and international meetings. Awarded annual national science award for young researchers (field: biotechnical sciences) in 1998.
List of publications (last five years)
<ol style="list-style-type: none"> 1. Lj. Primorac, et al.: Adequacy of a food composition database to estimate fat and fatty acid intake. <i>Int J Food Sci Nutr</i>, 51, 25-32, 2000. 2. Lj. Glavaš-Obrovac, et al.: Anticancer effect of selenium compounds on human colonic carcinoma cells. <i>Acta Aliment</i>, 29, 295-306, 2000. 3. Z. Antunović, et al.: Changes in ewe milk composition depending on lactation stage and feeding season. <i>Czech J Anim Sci</i>, 46, 75-82, 2001. 4. Perl, et al.: Dietary fibre intake in eastern Croatia as determined by an enzymatic-gravimetric method in duplicated portions. <i>Eur Food Res Technol</i>, 217, 207-210, 2003. 5. Lj. Primorac, et al.: Fat and fatty acids intake of adults in eastern Croatia. <i>Nutr Res</i>, 23, 1453-1461, 2003. 6. T. Klačec, et al.: Selenium in selected foods grown or purchased in eastern Croatia. <i>Food Chem</i>, 85, 445-452, 2004. 7. M. Halt, et al.: Fungal contamination of cookies and raw materials for their production in Croatia. <i>Czech J Food Sci</i>, 22, 95-98, 2004. 8. S. Čavar, et al.: High exposure to arsenic from drinking water at several localities in eastern Croatia. <i>Sci Total Environ</i>, 339, 277-282, 2005. 9. V. Krstanović, et al.: Contamination of malt barley and wheat by <i>Fusarium graminearum</i> and <i>Fusarium culmorum</i> from the crop years 2001-2003 in eastern Croatia. <i>Microbiol Res</i>, 160, 353-359, 2005. 10. M. Halt & T. Klačec: Microbial populations of Croatian medicinal and aromatic plants and herbal teas. <i>Ital J Food Sci</i>, 17, 349-354, 2005.
Qualifying publications

1. Z. Mandić, et al.: Copper and zinc content in human milk in Croatia. *Eur J Epidemiol*, 13, 185-188, 1997.
2. T. Klapac, et al.: Daily dietary intake of selenium in eastern Croatia. *Sci Total Environ*, 217, 127-136, 1998.
3. M. Adam Perl, et al.: Adolescent acceptance of different foods by obesity status and by sex. *Physiol Behav*, 65, 241-245, 1998.

Name and surname:

Dragan Kovačević

Institution:

Faculty of Food Technology in Osijek

e-mail adress and personal website:

Dragan.Kovacevic@ptfos.hr <http://www.ptfos.hr/~dkovac/>

Date of most recent election to the scientific-teaching position

associate Professor (appointed January 21st 2003)

Curriculum vitae

Born:

He was born on 17th October 1968 in Osijek.

Graduated:

He graduated at the Faculty of Food Technology and Biotechnology in Zagreb on 22nd September 1992 on the topic: „Determination of Thermal Diffusivity on Surimi with Differential Thermal Analysis (DTA)“.

Master of science degree:

He won Master of Science Degree at the Faculty of Food Technology and Biotechnology in Zagreb on 22nd February 1994 on the topic: „Effects Of Crioprotectors On Thermophysical Properties Of Surimi“.

Doctor of science degree:

He won Doctor of Science Degree at the Faculty of Food Technology and Biotechnology in Zagreb on 12th January 1997 on the topic: “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; Head of Council for Research in Agriculture; Head of Board of Director of Croatian Food Agency; Head of Board of Director Board of Institute of Agriculture in Osijek.

Teaching activities:

He leads classes at following courses at undergraduate study: Meat and Fish Technology and Raw Materials of Animal Origin (co-lider). He leads classes at postgraduate study in: Meat and Fish Technology achievements, Technology of Traditional Meat Products and Food Process Engineering (co-lider). 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».

Professional activity:

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 was leader on the scientific project: „MZT 0113008 Optimizing and Modeling Freezing Food Processes“ and researcher on the technological project TP-01/0113-2 „Improving food freezing processes“ and researcher on the scientific project „O58201 Mathematical Modeling and Intelligent Management in Biotechnology“.

List of papers published in the last five years:

1. Kovačević, D.(2004): Sirovine prehrambene industrije - meso i riba, Prehrambeno-tehnološki fakultet, Osijek (sveučilišni udžbenik).
2. Kovačević, D. (2003): Hrvatski gospodarski labirint, Prehrambeno-tehnološki fakultet, Osijek (knjiga).
3. Kovačević, D.(2001): Kemija i tehnologija mesa i ribe, Prehrambeno-tehnološki fakultet, Osijek (sveučilišni udžbenik).
4. Mandić, M. L., Primorac, L., Klapac, T., Slemenšek, Ž., Njari, B., Kovačević, D. (2001): Zdravstvena sigurnost i kakvoća hrane u Zdravstvena sigurnost i kakvoća hrane, Ured za strategiju razvitka Republike Hrvatske, Zagreb.
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8. Kovačević, D., Kurtanjek, Ž.: EFFECT OF κ -CARRAGEENAN AND NaCl ON INITIAL FREEZING POINT OF EGG AND SURIMI, Acta Alimentaria, 29 (2000) 335-344.
9. Kovačević, D.: Hrvatsko gospodarstvo i globalizacija., Kemija u industriji, 11 (1999) 397-402.
10. 9.. Kovačević, D., Kurtanjek, Ž.: Određivanje toplinske difuzivnosti surimija Dickersonovom metodom, Kemija u industriji, 48 (1999) 231-235.
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16. 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-Ugrčić, Žaneta (ur.), Osijek, Faculty of Food Technology University of Josip Juraj Strossmayer, (2004) 115-122.
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List of other works that qualify teachers for teaching:

1. D. Kovačević, Ž. Kurtanjek (1997): Activity of NaCl and carragennan on thermal conductivity and enthalpy of frozen surimi prepared from Adriatic pilchard, Euro Food Chem IX, 24. - 26. 9. 1997, Interlaken, Switzerland, Proceedings Volume 3, No. 220, pp. 740-745
2. D. Kovačević, Ž. Kurtanjek (1994): Enthalpy Determination of frozen Surimi by Differential Thermal Analysis, Prehrambeno-tehnol. biotehnol. rev., 31 (4) 157 – 164.
3. D. Kovačević, Ž. Kurtanjek (1997): Model of cryoprotectants effects on thermal conductivity and enthalpy of surimi prepared from adriatic pilchard, Food technol. biotechnol., 35 (2) 113

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5. D. Kovačević(1998): Gospodarski razvitak hrvatskog Podunavlja, *Kemija u industriji*, 48 (2) 44-45.
6. D. Kovačević, Ž. Kurtanjek, T. Kajfeš (1998): Određivanje toplinske difuzivnosti Dickerson-ovom metodom, *Kemija u industriji*, 48 (6) 231-235.
7. D. Kovačević(1999): Hrvatsko gospodarstvo i globalizacija, *Kemija u industriji*, 48 (11) 397- 402.

Name and surname
Milena L. Mandić
Institution
Faculty of Food Technology Osijek
e-mail address and personal web
milena.mandic@ptfos.hr
Title and date of last promotion
Full professor, permanent, December 1999, (biotechnical sciences, food technology, nutrition)
CV
<p>1. Education 1968. Secondary school 1972. Faculty of Pharmacy and Biochemistry, Zagreb 1978 Faculty of Science, Zagreb (Analytical Chemistry) (mr. sc.) 1983. Faculty of Pharmacy and Biochemistry, Zagreb (PhD)</p> <p>2. Work experience 1982. Institute of Public Health, Osijek 1982. Factory of Milk Powder, Osijek 1983. Faculty of Food Technology (assistant) 1989. assistant professor 1993. associate professor 1997. full professor 1999. full professor, permanent</p> <p>4. Position 1999-2002 vice dean for science 1997-1999; 2002- head of the Department 2002- expert for science programme CORDIS (EE 19982B47393) 2002 TEMPUS expert 2002- Coordinator for the TEMPUS programme 1999- Chair persons of the Committee for the publication, PTF 1999-2001 Committee for the biotechnical science, Ministry of the Science, member 2000-2005 Committee for the publishing of the University, member 2005- University council, member</p> <p>5. Research activities</p> <p style="text-align: center;">Manager of national projects</p> <p>2002-2007 Quality and safety of food and nutrition nutritional security, <i>Ministry of Science, Education and Sports</i>, 1997-2002 Dietetic investigation and food safety, <i>Ministry of Science, Education and Sports</i>, 1996-2002 Nutritionally-toxic aspect of food and diet, <i>Ministry of Science, Education and Sports</i>, 1990-1996 Chemical and biological contaminants of food and water on the Slavonia province, <i>Ministry of Science and Technology</i></p> <p>Active contribution to the national and international scientific projects</p> <p>1. Identification of botanical origin and analysis of chemical parameters of honey from Croatia and Macedonia, <i>Ministry of Science, Education and Sports</i>, researcher (2005-2007) 2. UNICEF project, manager Antoinette Kaić-Rak, Institute of Public Health of Croatia: Preventive and therapeutically oriented supplementation in prevention and control of iron deficiency in Croatia. 1998-2001. 3. Long-term project of the SIZ for scientific work SRH, project 1.03.04.04.04. Food Technology, The determination of exogenous contaminants in the food, 1988-1990 4. Programme of the scientific and investigation work, SIZ IV, code IV-29/0113 Food and Nutrition, 1983-1987</p>

Published as author and co-author 36 scientific papers (15 CC, 8 of secondary bases), was mentor of 3 master theses, 2 PhD theses, participated in the 18 international and 20 national conferences. She was five times invited speaker (one for the FAO-2001)

5. Professional and teacher activities:

Author or co-author of two books, one textbook, 2 chapters in the books, 5 internal scripts, and 4 professional papers.

She used to be a month on the professional education in the Republic Health Institute, Zagreb, as well as at the Faculty of Food Technology, Budapest, Hungary

She participated in 6 courses at the undergraduate and pre-graduate studies, and now she is the teacher for 2 courses. At PhD study at PTF as well as at Faculty of Technology and Biotechnology in Zagreb, she is the leader of two courses.

LIST OF PUBLISHED PAPERS (LAST 5 YEARS)

1. M.Mandić-Puljek, **M.L.Mandić** et al. (2005) Calcium intake, food sources and seasonal variations in Eastern Croatia. *Coll Antropol* **29**: 503-507.
2. Klapac T., **Mandić, M.L et al.** (2004) Selenium in selected foods grown or purchased in eastern Croatia. *Food Chem* **85** 445-452.
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6. Udžbenik:
7. 1. M.L.Mandić: Znanost o prehrani-Hrana i prehrana u čuvanju zdravlja, Osijek, Prehrambeno-tehnološki fakultet, 2003.

QUALIFYING PUBLICATIONS

1. M.Mandić-Puljek, **M.L.Mandić** et al. (2005) Calcium intake, food sources and seasonal variations in Eastern Croatia. *Coll Antropol* **29**: 503-507.
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7. **Primorac, Lj., Mandić, M.L., Klapac, T.,** Folivarski, K., **Perl, A.,** Sudar, R.: (2000) Adequacy of food composition database to estimate fat and fatty acid intake. *Int J Food Sci Nutr* **51**, 25-32
8. **Klapac, T., Mandić, M.L.;** Grgić, J., **Primorac, Lj.,** Ikić, M., Lovrić, T., Grgić, Z., Herceg, Z. (1998): Daily dietary intake of selenium in eastern Croatia. *Sci Total Environ* **217**, 127-136.
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10. Z.Mandić, **M.L.Mandić**, et al.: Copper and zinc content in human milk in Croatia, *Eur J Epidemiol* (1997) 13: 185-188
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Textbook:

1. M.L.Mandić: Znanost o prehrani-Hrana i prehrana u čuvanju zdravlja, Osijek, Prehrambeno-tehnološki fakultet, 2003.

Name and surname:
Tihomir Moslavac
Institution:
Faculty of Food Technology, Osijek
e-mail address and web page:
Tihomir.Moslavac@ptfos.hr
Title and date of last promotion
assistant professor, 19. 12. 2005.
CV
<p>Born: Virovitica, 12.12.1965. Graduated: Faculty of Food Technology, Osijek, 1992. M.Sc.: Faculty of Food Technology and Biotechnology, University of Zagreb, 1999., " Change in rheological properties of apple puree in cooling" Ph.D.: Faculty of Food Technology, Osijek, 16. october 2003., "Concentration of model solutions of alcohols, esters and aldehydes by reverse osmosis" Employment and Duties: 01.05.1993 - 1999., Faculty of Food Technology in Osijek, junior assistant for the course "The processes in the food industry with the basics of food engineering" and "Process Practicum," running laboratory and industrial practice. 1999 - 2003., Faculty of Food Technology in Osijek, assistant for the course "The processes in the food industry with the basics of food engineering", "Technological processes in the food industry", running laboratory and industrial practice, participation in drafting the final papers. 2003 - 2005., Faculty of Food Technology in Osijek, senior assistant for the course "The processes in the food industry with the basics of food engineering", "Technological processes in the food industry", "Basics of Food Technology" in undergraduate studies, part of teaching and running laboratory and industrial practice, participating in the preparation of final papers. 19.12.2005., Faculty of Food Technology in Osijek, an assistant professor with the above courses gives lectures and practice from the course "Technology of Oils and fats." Teaching activity: Undergraduate studies 1993 - 2005. / "The processes in the food industry with the basics of food engineering" (junior assistant, assistant, senior assistant), PTF Osijek. 2003 - 2005. / "Technological processes in the food industry", "Basics of Food Technology" (assistant, senior assistant), PTF Osijek. 2005. - / "The processes in the food industry with the basics of food engineering", "Technological processes in the food industry", "Basics of Food Technology", "Technology of Oils and fats" (Assistant Professor), PTF Osijek. Professional activity: Participated in the study "Wet milling of corn," and a number of preliminary and technological projects drives the food industry. He participated in the implementation of technological research development project TP-01/113-01 (2001 - 2004):" Development of membrane filter and application of membrane filtration in the food industry, researcher. Research activity: Research projects - national project Project: 113001 (1996 - 2002): "The development process of high-quality food products", researcher Project: 113004 (1996 - 2002): "Reconstruction and development processing of agricultural products in the Croatian Danube region", researcher Project: 0113004 (2002. - to date): " Improving the production process of high quality food and beverage", researcher.</p>
List of publications (last five years)
<ol style="list-style-type: none"> 1. A. Pozderović, T. Moslavac: Apple juice aroma concentration from evaporator condensate by reverse osmosis, I. Influence of process parameters on retention and final aroma concentration. <i>Acta Alimentaria</i> 28 (1) 71-83, 1999. 2. A. Pozderović, T. Moslavac, A. Pichler: Utjecaj udjela suhe tvari na reološka svojstva kaše jabuke kod niskih temperatura prije i tijekom smrzavanja. <i>Kemija u industriji</i>, 54 (7-8), 341 -

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4. A. Pozderović, **T. Moslavac**, A. Pichler: Concentration of aqueous solutions of organic components by reverse osmosis. II. Influence of transmembrane pressure and membrane type on concentration of different alcohol solutions by reverse osmosis. *Journal of Food Engineering*, 2005. (Available online at www.sciencedirect.com).

Qualifying publications

1. A. Pozderović, **T. Moslavac**: Apple juice aroma concentration from evaporator condensate by reverse osmosis, I. Influence of process parameters on retention and final aroma concentration. *Acta Alimentaria* 28 (1) 71-83, 1999.
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3. A. Pozderović , **T. Moslavac**, A. Pichler: Concentration of aqueous solutions of organic components by reverse osmosis. I. Influence of trans-membrane pressure and membrane type on concentration of different ester and aldehyde solutions by reverse osmosis. *Journal of Food Engineering*, 2005. (Available online at www.sciencedirect.com).

Name and surname:
Antonija Perl
Institution:
Faculty of Food Technology, Osijek
e-mail address and web page:
antonija.perl@ptfos.hr http://zmk.ptfos.hr
Title and date of last promotion
Assistant professor, January 13, 2004 (biotechnical sciences, food technology)
CV
<p>Born: February 18, 1973</p> <p>Education: BSc, Faculty of Food Technology, Osijek, biotechnical sciences, September 25, 1997 PhD, Faculty of Food Technology and Biotechnology, Zagreb, biotechnical sciences, June 06, 2002</p> <p>Work experience: August 03, 1998 - junior researcher at Faculty of Food Technology, Osijek (national scientific project 113003 Nutritive and toxic aspects of food and nutrition) September 16, 2002 – senior assistant at Faculty of Food Technology, Osijek January 13, 2004 – assistant professor (biotechnical sciences, food technology) December 07, 2005 – senior research associate (biotechnical sciences, food technology)</p> <p>Teaching activities: 1998/1999 academic year – labs on course Analytical Chemistry 1998/1999 – 2003/2004 academic year - labs on courses Quality Control in Food Industry, Food Science, Sensory Analysis 2004/2005 – academic year – labs and lectures on course Sensory Analysis</p> <p>Active contribution to the national and international scientific and professional projects:</p> <ol style="list-style-type: none"> 1. 113003: Nutritive and toxic aspects of food and nutrition (1998 – 2002) 2. 0113003: Quality and safety of food and nutrition (2002 -) 3. TP-02/0113-07: Investigation of methods for unequivocal identification of honey (2002 -) 4. TP-03/0079-01: Omega Chickens; Ministry of Science, Education and Sports, (2005-) 5. VIP 45/28: Botanical origin and quality of Mediterranean honeys, VIP project, Ministry of Agriculture, Fisheries and Rural Development (2003.-2005.) 6. Identification of botanical origin and analysis of chemical parameters of honey from Croatia and Macedonia, Ministry of Science, Education and Sports, (2005-2007) <p>Awards: 2002 - National award for science, category: young investigator, Croatian government 2002 - Award of CTS for young scientists „Vera Johanides“, CATS</p>
List of publications (last five years)
<p>Lj. Primorac, M.L. Mandić, T. Klapeć, K. Folivarski, A. Perl, R. Sudar: Adequacy of a food composition database to estimate fat and fatty acid intake. <i>Int. J. Food Sci. Nutr.</i>, 51, 25-32, 2000.</p> <p>I. Ručević, A. Perl, V. Barišić-Druško, M. Adam Perl: The role of the low energy diet in psoriasis vulgaris treatment. <i>Coll. Antropol.</i>, 27 (1), 41-48, 2003.</p>

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M. Mandić-Puljek, M.L. Mandić, **A. Perl**, D. Kenjeric: Calcium intake, food sources and seasonal variations in Eastern Croatia. *Coll. Antropol.*, 29(2), 503-507, 2005.

A. Perl, Lj. Primorac, D. Kenjeric: Comparison of methods for determination of crude and dietary fibre. In *Proceedings of 4th International Conference of PhD Students*. L. Lehoczky, L. Kalmar (Ed.). University of Miskolc. Miskolc, Hungary, pg. 339-344, 2003.

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D. Kenjeric, Lj. Primorac, F. Čačić, **A. Perl**: HPLC flavonoid profiles and identification of unifloral honeys. In *Proceedings of 4th International Conference of PhD Students*. L. Lehoczky, L. Kalmar (Ed.). University of Miskolc. Miskolc, Hungary, pg. 339-344, 2003.

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1. M. Adam Perl, M.L. Mandić, Lj. Primorac, T. Klačec, **A. Perl**: Adolescent acceptance of different foods by obesity status and by sex. *Physiol. Behav.*, 65, 241-245, 1998.

2. M.L. Mandić, **A. Perl**: Osnove senzorske procjene hrane. Faculty of Food Technology, Osijek, 2006.

Name and surname:
Vlasta Piližota
Institution:
Faculty of Food Technology, Osijek
e-mail address and web page:
Vlasta.Pilizota@ptfos.hr
Title and date of last promotion
full professor (for life), 2000
CV
<p>Vlasta Piližota was born in Osijek where she finished primary and high school and graduated Faculty of Agronomy and Food Technology (Department of Food Technology) University of Osijek in 1976. She employed with High School in Osijek as professor of Chemistry and Physics from 1976 to 1979 1977/1978 she enrolled Master program at the University of Zagreb. On 1 January 1979 she employed with Faculty of Food Technology (FFT) University J.J. Strossmayer in Osijek, Croatia as an assistant. She received her M.S. degree in Chemistry, in 1983 and Ph.D. degree in Biotechnology, from Faculty of Food Technology and Biotechnology University of Zagreb in 1985 On 1987 she became an assistant professor on Technology of Fruit and Vegetable Processing and Preservation. On 1992 she became an associate professor. On 1997 she was promoted to full professor and on 2000 to full professor for life. Besides Technology of Fruit and Vegetable Processing and Preservation she thought a part of the program on Raw Material in Food Industry, General Food Technology and Food Chemistry. On postgraduate study Food Engineering (Faculty of Food Technology University J.J. Strossmayer in Osijek) she perform lectures on Advancement in Fruit and Vegetables Preserving Technology, Food Chemistry, Development of New Food Products in Food Industry and Management with Waste in Food Industry. From 1991 to 1994 she was in two terms the Vice Dean for education and science of the FFT, from from 1994 to 1996, from 1996 to 1998, and from 2002 to 2004 the Dean of the FFT. Several times (1988, 1989, 1994, 1995, 1996, 1997, 1998, 1999/200, and 2001/2002, she was visiting scientist with USDA-ERRC, Philadelphia, Pennsylvania, USA. As a visiting professor (CEEPUS Network) she spent a month with Biotechnology Faculty University in Ljubljana, Slovenia, on 1998 an 2000, as well as in Italy. She was a leader of number of international (CRO-US, CRO-SLO, CRO-IT) and national scientific and professional projects, and at this moment she is a leader scientist on one national and two international (CRO-SLO, CRO – BandH) projects.</p>
List of publications (last five years)
<ol style="list-style-type: none"> 1.Ukuku, D.O., Pilizota, V., Sapers, G.M.: Effect of Hot Water and Hydrogen Peroxide Treatments on Survival os Salmonella and Microbial Quality of Whole and Fresh-Cut Cantaloupe. J. Food Prot. 67 (3) 432-457 (2004)(6). 2.N. Nedić Tiban, V. Piližota, D. Šubarić, M. Kopjar, J. Babić: Effects of Concentration and Temperature on Rheological Properties of Some Hydrocoloids, Proceedings of International Congress FLOUR-BREAD '03, 4th Croatian Congress of Cereal Technologists, ICC-International Association for Cereal Science and Technology, Opatija, November 19-22 (2003), Brašno-Kruh '03. Editor Žaneta Ugarčić-Hardi. Osijek: Faculty of Food Technology, Croatia, May, 2004, 158-166. 3.Pilizota V., Sapers G.M.: Novel Browning Inhibitor Formulation for Fresh-cut Apples. J. Food Sci. 69(4) SNQ 140-143 (2004). 4.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. Actual Tasks on Agricultural Engineering. Proceedings of the 32nd International Symposium on Agricultural Engineering / Košutić, Silvio (ur.). Zagreb: Agronomski fakultet Sveučilišta u Zagrebu, 405-414 (2004) 5.D. Šubarić, D. Kovačević, V. Piližota, N. Nedić Tiban, B. Miličević: Utjecaj temperature i hidrokoloida na reološka svojstva koncentrata proteina sirutke. Radovi Poljoprivrednog fakulteta, Univerziteta u Sarajevu, God. XLVIII, broj 53/2003, 95-104 (2003). 6.V. Piližota: Gli Alimenti Minimamente Trattati (Minimally Processed Foods), Italus Hortus, e Notiziario SOI di Ortoflorofruitticoltura, Rivista Bimestrale scientifica di orticoltura, floricoltura e frutticoltura, Vol.11, n. 1, 148-151, gennaio-febbraio (2004). Numero Speciale: Post-raccolta di Ortoflorofruitticoli: Innovazione, Qualità e Controllo. Fisciano (SA), Italia, 25-26 febbraio 2003.

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Name and surname:
Andrija Pozderović
Institution:
Faculty of Food Technology, Osijek
e-mail address and web page:
Andrija.Pozderovic@ptfos.hr
Title and date of last promotion
associate professor, 30.03.2000.
CV
<p>Born in 1950. in Gibarcu, municipalities Šid. After finish chemical school, he studied at the Biotechnology Department, Faculty of Technology, University of Zagreb, where he graduated from the 1974th year. At the same university 1978th years after completion of postgraduate studies, scientifically acquired a Master of Science, and in 1984. and the degree of Doctor of Science. Throughout the study, actively participates in events 1971st in Zagreb. Professional work begins after graduation 1974th The employment in the food industry, "Podravka" in Koprivnica, where he remained until moving to Faculty of Food Technology, University of Josip Juraj Strossmayer 1975th year. The Faculty currently an assistant professor until 1978. when he was elected to the position of research and teaching assistant in the field of biotechnology, in July 1987. was elected the academic title of professor in April 1992. g the academic title of associate professor, in March 2000. g was re-elected at the same position. On undergraduate and postgraduate teaching several subjects in the field of food engineering. The author has 25 papers and a series of technical papers in the field of bio-science in the field of food technology, food engineering branches. Holder or an associate in the nine preliminary and technological projects, studies and expertise in the field of food industry, the head of several research and development projects in the field of food technology. In addition to research and teaching activities at colleges and universities and has performed several important functions, the Director of Faculty (1991/92), Dean of Faculty (1992/94), Vice rector University (1994/97)</p>
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9. A. Pozderović, T. Moslavac, T. Vuković, D. Šubaić: Influence of membrane filtration on quality of white wine welsh Riesling, *International Conference Prospect for Viticulture and Enology, Book of Abstracts* 151, Zagreb 22-24.11.(2000).
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First name/ Surname:
Ljiljana Primorac
Institution:
Faculty of Food Technology Osijek
E-mail(s), Web address(s):
Ljiljana.Primorac@ptfos.hr
Title and date of last election:
Associate Professor, 24.11.2003.
Curriculum vitae:
<p><u>Place and date of birth:</u> Zagreb, February 21, 1957</p> <p><u>Education:</u> Graduation- Food Technology, University of Osijek, Faculty of Food Technology, 1980 MSc- Biotechnology, University of Zagreb, Faculty of Food Technology and Biotechnology, 1993 PhD- Food Technology, University of Osijek, 1998</p> <p><u>Position and responsibility</u> 1981 –present Faculty of Food Technology in Osijek 1981-2000 Assistant (Topics in food quality control, Quality control in food industry, Sensory analysis) 2000-2003 Assistant professor (Food quality control, Sensory analysis) 2003-present Associate professor, Head of Sub department of Food Quality and Laboratory of honey and bee product quality control</p> <p><u>Subjects:</u> Quality control in food industry, Food quality control, Food quality and safety management, Laboratory quality management (undergraduate and graduate study) ; Topics in sensory analysis, Food safety and quality management (Phd study)</p> <p><u>Professional activities</u> : Member of Panel on additives (Croatian Food Agency); Food legislation panels (Ministry of Agriculture, Forestry and Water Management)</p> <p><u>Projects:</u> (from 2002) Nutritionally-toxic aspect of food and diet, Ministry of Science, Education and Sports (1996-2002) Dietetic investigation and food safety, Ministry of Science, Education and Sports (1997-2002) Quality and safety of food and nutrition nutritional security, Ministry of Science, Education and Sports (2002-2007) The research of the methods for unequivocal identification of honey. Ministry of Science, Education and Sports (2002.-2005) Botanical origin and quality of Mediterranean honeys, VIP project, Ministry of Agriculture, Fisheries and Rural Development (2003.-2005.) Identification of botanical origin and analysis of chemical parameters of honey from Croatia and Macedonia, Ministry of Science, Education and Sports, researcher (2005-2007)</p>
Scientific papers list published in a last five years:
<ol style="list-style-type: none"> 1. Lj.Primorac, M.L. Mandić, A. Perl, D.Kenjerić: Quality evaluation of honey from Osijek market. U <i>Proceedings of the 2nd Central European Meeting and 5th Croatian Congress of food technologists, biotechnologists and nutritionists</i>. Food technologists, biotechnologists and nutritionists Society, Zagreb, Croatia, 270-274, 2005. 2. T. Klapac, M.L. Mandić, J. Grgić, Lj. Primorac, A. Perl, V. Krstanović: Selenium in selected foods grown or purchased in eastern Croatia. <i>Food Chem.</i>, 85 (3), 445-452, 2004. 3. 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. 4. 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.

5. A.Perl, Lj. Primorac, M.L. Mandić, T. Klapac, D. Kenjeric, M. Mandić: Dietary fibre intake in eastern Croatia as determined by an enzymatic-gravimetric method in duplicated portions. *Eur. Food Res. Technol.*, 217 (3), 207-210, 2003.
6. Lj. Primorac, M.L. Mandić, T. Klapac, K. Folivarski, A. Perl, D. Kenjeric: Fat and fatty acids intake of adults in eastern Croatia. *Nutr. Res.*, 23 (11), 1453-1461, 2003.
7. D. Koceva Komlenić, Ž. Ugarčić Hardi, Lj. Primorac: Impact of pectin and carboxymethylcellulose on sensory properties of pasta. *Proceedings of the Euro food chem XII. Strategies for safe food*. Koninklijke Vlaamse Chemische Vereniging. Brugge, Belgium, str. 276-279, 2003.
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11. J. Hardi, Ž. Ugarčić-Hardi, Lj. Primorac et al.: Aromatisation of "Hostia" type of wafer blades with addition of several types of cheese aroma. U *Proceedings of the 11th ICC Cereal and Bread Congress and of the 50th Australian Cereal Chemistry Conference*. Cereals 2000. Surfers Paradise, Australia, str. 79-83, 2000.
12. Ž. Ugarčić-Hardi, J. Hardi, Lj. Primorac et al.: Effect of ingredients and processing on honey cake quality. *Proceedings of the 11th ICC Cereal and Bread Congress and of the 50th Australian Cereal Chemistry Conference*. Cereals 2000. Surfers Paradise, Australia, str. 128-132, 2000.

Scientific papers that qualify teacher to perform teaching:

1. Lj. Primorac, M.L. Mandić, A. Perl, D. Kenjeric: Quality evaluation of honey from Osijek market. U *Proceedings of the 2nd Central European Meeting and 5th Croatian Congress of food technologists, biotechnologists and nutritionists*. Food technologists, biotechnologists and nutritionists Society, Zagreb, Croatia, 270-274, 2005.
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with addition of several types of cheese aroma. U *Proceedings of the 11th ICC Cereal and Bread Congress and of the 50th Australian Cereal Chemistry Conference. Cereals 2000.* Surfers Paradise, Australia, str. 79-83, 2000.

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14. Z. Mandić, M.L. Mandić, J. Grgić, Z. Grgić, T. Klapec, **Lj. Primorac**, D. Hasenay (1997): Copper and zinc content in human milk in Croatia. *Eur J Epidemiol* 13, 185-188.

Name and surname:
Mirjana Sabo
Institution:
Faculty of Food Technology, Osijek
e-mail address and web page:
mirjana.sabo@ptfos.hr http://zkn.ptfos.hr
Title and date of last promotion
assistant professor, 2002.
CV
<p>1. Education:</p> <p>1970. Chemical technology 1979. Faculty of Agriculture, Osijek 1993. Faculty of Science, Zagreb (Biology-Ecology), MSc 1999. Faculty of Agriculture, Osijek, PhD</p> <p>2. Work experience:</p> <p>1971. Faculty of Food Technology, Osijek (technical assistant) 1985. Faculty of Food Technology, Osijek (expert assistant) 1995. Faculty of Food Technology, Osijek (assistant) 1999. Faculty of Food Technology, Osijek (higher assistant) 2002. Faculty of Food Technology, Osijek (assistant professor)</p> <p>3. Scientific activity</p> <p style="text-align: center;">Project researcher</p> <p>1. Scientific-research project 113011 (1996-1999) Production and technological quality of applicable wheat cultivars in Slavonija and Baranja region.</p> <p>2. Scientific-research project 0079053 (2003-2006) Symbiosis efficacy among <i>Galega orientalis</i> Lam. and <i>Rhizobium galegae</i>.</p> <p>3. Technological project TP-02/0113-07 (2002-2005) Research for methods for the undoubted honey identification.</p> <p>Till now as author published three scientific papers in a1 group, five in a2 groups and three in a3 groups (4 papers of a1 group are in press), and participated in 6 national and 4 international conferences.</p> <p>4. Expert and teaching activities</p> <p>Participated in preparation of Graduate programme Science of Food and Nutrition on Faculty of Food Technology Osijek. Author of course Biology and co-author of course Food-related risks. Also, author of internal practicum Biology (2005) and book co-author „Phylogenetic systematics of tree“ which is part of mandatory literature for the Biology course. Mentor of seven BSc thesis.</p>
List of publications (last five years)
<ol style="list-style-type: none"> 1. M. Sabo, T. Teklić, I. Vidović (2002): Photosynthetic productivity of two winter wheat varieties (<i>Triticum aestivum</i> L.). Rostlinna výroba, 48, (2) 80-86. 2. M. Sabo, and Ž. Ugarčić-Hardi (2002): Concentration of macro and microelements in grain of some new winter wheat genotypes (<i>Triticum aestivum</i> L.) 3. M. Sabo, M. Bede , Ž. Ugarčić Hardi (2002): Variability of grain yield components of some new winter wheat genotypes (<i>Triticum aestivum</i> L.). Rostlinna výroba, 48. (5) 230-235. 4. M. Sabo , M. Bede and V. Vukadinović (2001): Corelation between number of stomata and concentration of macro and microelemnts in some winter wheat genotypes (<i>Triticum aestivum</i> L.). Acta Agr. Hungarica, 49 (4) 319-327. 5. M. Sabo (2002): Photosynthetic productivity of six winter wheat genotypes (<i>Triticum aestivum</i> L.) Acta Agr. Hungarica, 50(4) 399-409. 6. M. Sabo, D. Jug, I. Jug (2004): Dynamic chloroplast pigments concentration in leaves of

soybean [*Glycine max* (L.) Merr.] under reduced tillage Archives Agronomy & Soil Science **51** (3) 2005 291-297.

7. **M. Sabo**, T. Lajdes, T. Bačić, Lj. Grgić and A. Lenđel (2004) Length and width of guard cells and variation in the appearance of stomata pores in some species of genus *Arum* from the Easter Slavonia and Baranya region. Acta Botanica Hungarica **46** (3-4) 385-393.
8. Ugarčić-Hardi, Ž., Hackenberger, D., Halt, M. **Sabo, M.** Čota, A. Influence of wheat straw addition on bakery product quality. (Book chapter. Conference paper) Flour – Bread '01: Proceedings of International Congress, 3rd Croatian Congress of Cereal Technologists, Opatija, 14-17. November 2001. Faculty of Food Technology, University to Josip Juraj Strossmayer, Osijek, Croatia: 2002.122-128. 4 ref.
9. Ugarčić-Hardi, Ž., Kuleš, M., Koceva Komlenić D. Kules, A. Jukic, M. **Sabo M.** Comparison between conductometric and standard methods ash determination in wheat flour. (Book chapter. Conference paper) *Flour – Bread '01: Proceedings of International Congress, 3rd Croatian Congress of Cereal Technologists, Opatija, 14-17. November 2001. Faculty of Food Technology, University to Josip Juraj Strossmayer, Osijek, Croatia: 2002. 29-33.*
10. **Sabo, M.**, Jug, D. Ugarčić-Hardi, Ž.: Influence of reduced tillage on wheat quality properties. (Book chapter. Conference paper) *Flour – Bread '03: Proceedings of International Congress, 4th Croatian Congress of Cereal Technologists, Opatija, 19-22. November 2003. Faculty of Food Technology, University to Josip Juraj Strossmayer, Osijek, Croatia: 2004. 29-33.*

Qualifying publications

1. **M.Sabo**, T. Teklić, I. Vidović (2002): Photosynthetic productivity of two winter wheat varieties (*Triticum aestivum* L.). Rostlinna výroba, **48**, (2) 80-86.
2. **M. Sabo**, and Ž. Ugarčić-Hardi (2002): Concentration of macro and microelements in grain of some new winter wheat genotypes (*Triticum aestivum* L.)
3. **M. Sabo**, M. Bede , Ž. Ugarčić Hardi (2002): Variability of grain yield components of some new winter wheat genotypes (*Triticum aestivum* L.). Rostlinna výroba, **48**. (5) 230-235.
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8. **M. Sabo**, Vukadinović, V. (1993): Dinamika koncentracije kloroplastnih pigmenata triju drvenastih vrsta ovisno o intenzitetu aeropolucije u Osijeku. Znan. Prak. Poljopr. Tehnol. **23** (3) 318-324.

Name and surname:
Drago Šubarić
Institution:
Faculty of Food Technology, Osijek
e-mail address and web page:
drago.subaric@ptfos.hr http://ptfos.unios.hr
Title and date of last promotion
associate professor; 2003.
CV
<p>Dr. sc. Drago Šubarić was born on 13 October 1963 in G. Kladari, the Republic of Bosnia and Herzegovina. He finished the primary and secondary school in Modriča and in 1983 he enrolled in the college of Food Technology at the Faculty of Food Technology in Osijek. He graduated in 1988 and started working as a technologist in PIK Belje in Meat industry. In 1990 he started working at the Faculty of Food Technology in Osijek.</p> <p>In 1990 he enrolled in the postgraduate study of Food Technology at the Faculty of Food Technology and Biotechnology in Zagreb. In 1994 he won a master's degree and his master's thesis was «The study of the rheological property changes of mixtures of hydrocolloids and starches at low temperatures». In the same year he was appointed assistant at the Faculty of Food Technology in Osijek where he held laboratory practice at the course of lectures Fruit and Vegetable Processing and Preservation and one part of laboratory practice at the course of lectures Raw Materials in Food Technology. On 3 June 1999 he won a doctor's degree with the doctoral thesis «Inhibition of polyphenol oxidase to prevent enzymatic browning» at the Faculty of Food Technology and Biotechnology, University of Zagreb.</p> <p>On 19 July 1999 he was appointed high assistant, on 30 March 2000 assistant professor and on 03.07.2003 associate professor.</p> <p>In the academic year 2000/01 he was appointed the course of lectures Technology of Carbohydrates and Confectioneries and on 31 January 2002 he was appointed as chair of the Department of Technology of Carbohydrates and Confectioneries.</p> <p>From October 2000 till October 2002 he was a vice-dean at the Faculty of Food Technology in Osijek and he is still a vice-dean in the second mandate. On 12 November 2002 he was appointed as chairperson of postgraduate study of Food Engineering at the Faculty of Food Technology (study for academic title of master and doctor of sciences in the scientific field of the 4th biotechnical science, field 4.04. food technology, branch 4.04.01 engineering). On this postgraduate study he is teaching the course Advancement in the Technology of Carbohydrates and Confectioneries. Dr. Šubarić is lecturer on postgraduate study "Environment and nature protection" which is jointly organised by University of Josip Juraj Strossmayer in Osijek and Institute of "Ruđer Bošković" and on postgraduate study "Food engineering" Faculty of Technology University of Tuzla.</p> <p>He is the author and co-author of 35 scientific works which were published and he took part in 35 Croatian and international scientific and professional meetings.</p> <p>Since he started working at the faculty he has taken part in the realization of many scientific projects financed by the Ministry of Science and Technology and in the realization of three international projects (HR-USA, HR-ITA and HR-SLO). At present he is taking part as a researcher in the realization of national project 0113001 («Production of food products of high quality») and as team leader of international project "Implementation of the system for the health safety of the food-GMP&HACCP" in company "Briz" Brčko. From 2004 he is team leader of VIP project ".</p> <p>From March 2004-May 2005 he was Senate member of University of Josip Juraj Strossmayer in Osijek. From March 2004 he is member of the Council for agricultural politics of the Government of the Republic of Croatia. During 2004 (from 08.03.2004-28.09.2004) he was board member of "Belje" d.d. in charge for production, where he was taking apart in realisation of several projects and measures related with agriculture and food industry. From May 2005 he is president of Scientific Committee of Croatian Food Agency.</p>
List of publications (last five years)
1. D. Šubarić , V. Piližota, T. Lovrić, R. Vuković, A. Erceg: Effectiveness of some crown compounds on inhibition of polyphenoloxidase in model systems and in apple. <i>Acta Alimentaria</i> 30 (I) 81-

- 87 (2001).
2. Lj. Tratnik, R. Božanić, G. Mioković, **D. Šubarić**: Optimisation of manufacture and quality of cottage cheese, *Food technol. biotechnol.* 39 (1) 43-48, (2001).
 3. N. Nedić Tiban, V. Piližota, **D. Šubarić**, D. Miličević, M. Kopjar: Influence of Hydrocolloids and sweeteners on flow behaviour of peach nectar. *Acta Alimentaria* 32 (4), 383-393 (2003).
 4. Ž. Ugarčić-Hardi, D. Hackenberger, **D. Šubarić**, J. Hardi: Effect of soy, maize and extruded maize flour addition on physical and sensory characteristics of pasta. *Ital. J. Food Sci.* 15 (2), 277-286 (2003).
 5. D. Kovačević, Ž. Kurtanjek, **D. Šubarić**: Effect of polydextrose and NaCl on the initial freezing point of chicken, egg and surimi. *Ital. J. Food Sci.* 15 (1), 105-114 (2003).
 6. **D. Šubarić**, D. Kovačević, V. Piližota, N. Nedić Tiban, B. Miličević: Rheology of whey protein concentrate solutions as a function of addition of hydrocolloids and temperature. *Works Fac. Agric. Univ. Sa.* 48(53), 95-104 (2003).
 7. D. Miličević, V. Piližota, **D. Šubarić**, N. Nedić Tiban: Influence of some hydrocolloids on the rheological properties of tomato products. *Works Fac. Agric. Univ. Sa.* 48(53), 105-116 (2003).
 8. D. Miličević, V. Piližota, **D. Šubarić**: Application of high pressure treatment on microbiological stability of food products. Proceedings of the 2nd DAAAM International conference on Advanced Technologies for Developing Countries. Str. 405-408 (2003).
 9. **D. Šubarić**, J. Babić, D. Kovačević, M. Kopjar, N. Nedić Tiban: Influence of guar and pectin on gelatinisation and retrogradation of starch. Proceedings of 4th International congress FLOUR-BREAD 2003, 123-130 (2004).
 10. 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, 158-167 (2004).
 11. D. Kovačević, Lj. Unbehend, **D. Šubarić**, J. Kordić: Determination of amidated pectin influence on dough initial freezing point by DTA application. Proceedings of 4th International congress FLOUR-BREAD 2003, 115-122 (2004).
 12. 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 // *Actual Tasks on Agricultural Engineering : Proceedings of the 32th International Symposium on Agricultural Engineering /* Košutić, Silvio (ur.), 405-414, (2004).
 13. B. Miličević, D. Kovačević, **D. Šubarić**, R. Miličević: Possibilities of fermentation process with immobilized yeast cells in pear's distillates production. *2nd Central European Meeting 5th Croatian Congress of Food Technologists, Biotechnologists and Nutritionists.* Opatija, 17.-20. 10. 2004. Proceedings, pp. 383 – 388 (2004).

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1. M. Jašić, N. Đonlagić, **D. Šubarić**, H. Keran,: Contemporary principles of politics and legislation in food production // TEMPUS IB JEP 16140-2001 / Sanchis, Vicente ; Grujić, Radoslav, (ur.). Banja Luka : Consortium of TEMPUS JEP project Nr. 16140-2001, (2005).
2. **D. Šubarić**, N. Đonlagić, M. Jašić, H. Keran: Integracija sistema upravljanja kvalitetom u prehrambenoj industriji sukladno međunarodnim standardima. 10. International Summer University, Tuzla, 04.-14. 07. 2005.
3. T. Opačak, V. Bareš, J. Babić, **D. Šubarić**, Lj. Glavaš-Obrovac: Antiproliferative Effect of Polyphenols and Red Wines on Several Human Tumour Cell Lines. *2nd Central European Meeting, 5th Croatian Congress of Food Technologists, Biotechnologists and Nutritionists.* Opatija, 17.-20. 10. 2004.
4. V. Piližota, **D. Šubarić**, N. Nedić, A. Palijan: Hydrogen Peroxide and Ascorbic Acid Treatment of Minimally Processed Pears. *Kem. Ind.* 49 (1) 7-11 (2000).
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Model Ice Cream Mixtures. *Prehrambeno-tehnol. biotehnol. rev.* 32, 67-70 (1994).

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