

**SVETOVNI DAN VARNOSTI HRANE  
2019  
World Food Safety Day 2019**

***1. KONFERENCA OB SVETOVNEM  
DNEVU VARNOSTI HRANE 2019  
1st Conference On World Food Safety Day  
2019***

Ljubljana, 7-6-2019  
Državni svet Republike Slovenije

Organizira/organized by  
Ministrstvo za kmetijstvo, gozdarstvo in prehrano  
Republike Slovenije (MKGP), Uprava za varno hrano,  
veterinarstvo in varstvo rastlin (UVHVVR),  
Informacijska točka Evropske agencije za varnost  
hrane (EFSA)  
European Declaration on Food, Technology and  
Nutrition Network  
in  
Državni svet Republike Slovenije

# **Svetovni dan varnosti hrane 2019**

## **World Food Safety Day 2019**

### **1. KONFERENCA OB SVETOVNEM DNEVU VARNOSTI HRANE 2019**

#### **1<sup>st</sup> Conference On World Food Safety Day 2019**

Z naslovom:

**Udejanjanje varnosti živil v stroki, praksi in  
izobraževanju**

Entitled:

**REALIZATION OF FOOD SAFETY IN PROFESSION, PRACTICE  
AND EDUCATION**

**Ljubljana, 7-6-2019  
Državni svet Republike Slovenije**

**Izbral in uredil  
Peter Raspor**

## **1. konferenca ob svetovnem dnevu varnosti hrane 2019**

Večavtorska monografija

*Urednik in selektor del:* prof. dr. Peter RASPOR, dr. h.c. mult.

*Posvetovalni odbor:* Janez Posedi , Matjaž Guček, Elizabeta Mičovič,  
Blaža Nahtigal, Peter Raspor, vodja

*Organizatorji:* Državni svet Republike Slovenije,

*Ministrstvo za kmetijstvo, gozdarstvo in prehrano Republike Slovenije (MKGP), Uprava za varno hrano, veterinarstvo in varstvo rastlin (UVHVVR), Informacijska točka Evropske agencije za varnost hrane (EFSA)*

*European Declaration on Food, Technology and Nutrition Network*

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## **Uvodnik / Editorial**



# Varnost in oskrba s hrano

Peter Raspor

Dogodek, ki je izzval strokovno srenjo, da se postavi na noge in pride v hram politike predstaviti svoja stališča, se imenuje Svetovni dan varne hrane 2019.

Eminentni predsedujoči in strokovno podkovani avtorji so pripravili izbor prispevkov in okroglo mizo, ki po dolgem času za skupno mizo spet združuje govorce iz nekdanjega, desetletja skupno povezanega prostora, ki se sedaj ponovno postavlja in se oblikuje pod imenom Zahodni Balkan.

Ta prostor deli in pretaka skupne kulturno povezane zgodbe in življenje, ki je zaznamovalo ljudi na tem prostoru. Tudi s hrano in načini prehranjevanja. Zapisi razmišljanj in stališč avtorjev so seveda njihova intelektualna lastnina in kulturna vrednota, ki so jo pripravljene deliti z vsemi pozitivno naravnanimi in s skrbjo spodbujenimi ljudmi. Posamezniki, ki se zavedajo da je jutrišnji dan na našem planetu lahko zelo drugačen. Tu so izbranci, ki jim je mar, kaj počnemo in kaj bomo počeli še naprej vzdolž živilsko prehranske oskrbovalne verige.

Ta zapis zato ponuja trinajst prispevkov pomembnih posameznikov in skupin, ki so osvetlili svoje videnje varne hrane in živil. V svoje analize so vtakali okolje, zdravje, izobraževanje, proizvodnjo in raziskovanje. Vse skupaj je prepleteno z zatečenim stanjem in politiko prehrane in pogledi ter izkušnjami delovnih posameznikov in skupin v Bosni in Hercegovini, Črni gori, Hrvaški, Makedoniji, Srbiji in Sloveniji. Upam, da vas bodo izzvali v vaših razmišljanjih in delih, ne jutri, pač pa že na današnji dan.

Pobudnik in eden od pripravljavcev dogodka »Svetovni dan varne hrane 2019«

Prof. dr. Peter Raspor

# Food and security

Peter Raspor

The event, which provoked the community of experts to come to the temple of politics to express their opinions, is called World Food Day 2019.

The eminent presidents and well known experts drafted their contributions at a round table, which again brought together speakers from the former common territory, which is being re-established under the term Western Balkans.

This space divides and intertwines the common stories of culture and life that marked the people in this area. It also made an impact on food and the way we enjoy it. The writing that reflects authors' views is their intellectual property and cultural value, but they are ready to share it with all positively and carefully motivated people. Individuals who are aware that tomorrow's day on our planet might be very different. Here are select individuals who care about what we are doing and what we will continue to do along the food supply chain.

This record therefore offers thirteen contributions from important individuals and groups that have highlighted their views on safe food. Everything is intertwined with the current state of art in the nutrition policy in terms of experience and the work of individuals and groups in Bosnia and Herzegovina, Montenegro, Croatia, Macedonia, Serbia and Slovenia. I hope that they will challenge you in your deliberations and actions, not tomorrow, but already today.

The initiator of the event "World Food Safety Day 2019"

Professor Dr. Peter Raspor

# **Program 1. konference/ 1<sup>st</sup> Conference program**



REALIZATION OF FOOD SAFETY IN PROFESSION, PRACTICE AND  
EDUCATION  
**Udejanjanje varnosti živil v stroki, praksi in izobraževanju/**

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**08.30h**

Jutranja kava/Morning coffee

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**09.00h**

WELLCOME/**Dobrodošlica**  
PRESIDENT NATIONAL COUNCIL OF THE REPUBLIC OF SLOVENIA/  
**Predsednik Državnega Sveta Republike Slovenije**  
**g. Alojz Kovšca**

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**9.15h**

SETTING UP STARTING-POINT/**Postavitev izhodišč stroke/**  
**predsedujoči/ Chairs:**

dr. Stanka Vадnjal, dr. Bojan Butinar, g. Matjaž Guček, dvm  
(predstavitev/presentation 15 min)

*dr. Aleksandra Pivec, Ministrica za kmetijstvo, gozdarstvo in prehrano,*  
*Republika Slovenija*

Živila v luči svetovnega dneva varne hrane/  
**Food in the frame of global food safety day**

*dr. Janez Posedi, generalni direktor UVHVVR, Republika Slovenija*  
Živila v precepu regulative in znanj različnih strok vzdolž živilsko predelovalne  
oskrbovalne verige/

**Food in the jam of regulation and skills of different disciplines along  
the food chain**

*prof. dr. Peter Raspor, European Declaration on Food, Technology and Nutrition  
Network*

From food to safe food: The development issue/  
**Od živila do varne hrane: vpliv razvoja**

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**10.00h**

STATE OF THE ART IN FOOD SAFETY EDUCATION/  
**Aktualno stanje izobraževanja na področju varnosti živil**  
**predsedujoči/ Chairs:**

prof. dr. Sonja Smole Možina, doc. dr. Tomaž Langerholc, prof. dr. Peter  
Raspor  
(predstavitev/presentation 15 min)

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**prof. dr. Frosina Babanovska-Milenkovska**, Fakultet za zemjodelski nauki  
i hrana  
Univezitet Sv. Kiril i Metodij, Skopje, MK

Študiji varnosti živil na dodiplomskem nivoju (BsC), ki vključujejo tehnologijo,  
hrano in zdravje /

**Food safety education at undergraduate level (BsC), where**

**technology, food and health is addressed**

**prof. dr. Aleksandra Marjanović**, Univerzitet u Sarajevu, Farmaceutski fakultet, BiH

Študiji varnosti živil na diplomskem (MSc) in doktorskem nivoju (PhD), ki vključujejo tehnologijo, hrano in zdravje/

**Food safety education at graduate levels (MSc and PhD), where technology, food and health is addressed**

*doc. dr. Elizabeta Mičović*, MKGP, SLO

Neformalna izobraževanja o varnosti živil, potrebe in izzivi/

**Informal education in food safety area: Needs and challenges**

*prof. dr. Blanka Vombergar*, ICP, Višja strokovna šola, Maribor, SLO

Vpeljava standardov kakovosti v izobraževalni proces: Pričakovanja in pomanjkljivosti? / **Implementation of quality standards in educational process: Expectations and deficiencies?**

*dr. Yelena Istileulova*, Evaluator of the European Commission

Trenutni izzivi za sisteme ocenjevanja kakovosti v visokem šolstvu/

**The current challenges for quality evaluation systems in higher education**

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**11.30h**  
**Kava/Coffee**

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**12.00h**

STATE OF THE ART IN FOOD SAFETY PRACTICE/

**Aktualno stanje prakse varnosti živil**

**predsedujoči/ Chairs:**

prof. dr. Darja Barlič Maganja, dr. Urška Blaznik, prof. dr. Peter Raspor  
(predstavitev/presentation 15 min)

prof. dr. **Boris Antunović**, Fakultet agrobiotehničkih znanosti u Osijeku, HR  
Ogrodje obvladovanja regulative o varnosti živil v EU? /

**Food safety Regulatory framework in EU**

prof. dr. **Enver Karahmet**, Poljoprivredni fakultet Sarajevo, BiH  
Vpeljava standardov kakovosti v proizvodni proces: Pričakovanja in pomanjkljivosti?/

**Implementation of quality standards in food chain: Expectations and deficiencies?**

Prof. dr. **Igor Tomašević**, Poljoprivredni fakultet Univerziteta u Beogradu, SRB

Potrebe po znanjih iz varnosti živil za evropske potrebe: problemi in perspektive integracije in harmonizacije/

**Necessities for food safety knowledge and skills at EU level: problems and perspectives of integrations and harmonization**

dr. **Vesna Daković**, Uprava za bezbjednost hrane, veterinu i fitosanitarne



poslove, MNE  
Znanja in veščine o varnih živilih med potrošniki/  
**Essential knowledge and skills about food safety among consumers**

doc. dr. **Andrej Ovca**, doc. dr. Mojca Jevšnik in prof. dr. Peter Raspor  
Univerza v Ljubljani, Zdravstvena fakulteta, SLO  
Bi model higienskega minimuma lahko rešil del zagat varnosti živil?/  
**Would hygienic minimum model solve some burning issues in food safety practice**

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**14.30h**

Panel DISCUSSION/

**Okrogla miza**

Moderator prim. prof. dr. Ivan **Eržen**, NIJZ Center za proučevanje in razvoj zdravja, (coordinates discussion/vodi diskusijo)-co-moderator dr. Blaža **Nahtigal** (minutes/ zapisnik) co-moderator doc.dr. Mojca **Jevšnik** (conclusions/zaključki)

Izzivi za dobre prakse varnosti živil in njihovo udejanjanje med nosilci živilske dejavnosti

∟

**Challenges for Good food safety practices and their realization among food business operators:**

Ali je za stanje v današnji živilsko prehranski oskrbovalni verigi higienski minimum še potreben?/

**Is the “hygiene minimum” necessary for the situation in today's food supply chain?**

(izjava panelista 2 min/ panelist statement 2 minutes)

Primer BiH/**Case BiH** - Aleksandra **Marjanović**

Primer Hrvaška/**Case Croatia** - Mirna **Fuka**

Primer Črna Gora/**Case Monte Negro** - Vesna **Daković**,

Primer Makedonija/**Case Macedonia** - Frosina **Babanovska-Milenkovska**

Primer Srbija/**Case Serbia** - Igor **Tomašević**

Primer Slovenija/**Case Slovenia** - Matjaž **Guček**

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**16.00h**

Zaključek dogodka/**Farewell**

prof. dr. **Peter Raspor**, predsednik programskega odbora



**Povzetki prispevkov vabljenih  
predstavitev/  
Summaries of invited lectures**



## Živila v luči svetovnega dneva varnosti živil

\*Aleksandra Pivec<sup>1</sup>

<sup>1</sup> Ministrstvo za kmetijstvo, gozdarstvo in prehrano, Republika Slovenija  
e-naslov: [aleksandra.pivec@gov.si](mailto:aleksandra.pivec@gov.si)

\* dr. Ministrica za kmetijstvo, gozdarstvo in prehrano

**Ključne besede:** živila, hrana, predelava, tehnologija, kmetijstvo, varnost

Hrana/živila niso vedno samo biološka nuja. Ta lastnost narave, ki v verigi podaja drug drugemu hrano v usta, je občudovanja vredna lastnost, ki postavlja vsakega, ki je višje v prehranski piramidi pred dilemo, ki se množi višje kot stopimo v te kompleksne mreže prehranjevanja. Za človeka je živilo več kot samo izpeljanka iz življenja in živeti od živeža še ne pomeni vsega, kar ponuja kultura hrane in prehrane. To je celovita dobrina, fiziološka, kulturna in duhovna (Raspor, 2015). Varnost hrane pomeni da so v živilih odsotne vse tiste snovi oziroma agensi, ki bi utegnili prizadeti človekovo zdravje ali življenje. Nevarnosti, ki se prenašajo s hrano, so lahko mikrobiološke, kemične ali fizikalne narave in so pogosto nevidne. Te nevarnosti poznamo kot patogene bakterije, viruse ali ostanke pesticidov in druga onesnaževala (Raspor in sod. 2018). Varnost hrane ima ključno vlogo pri zagotavljanju varne hrane v vseh fazah živilsko prehranske oskrbovalne verige - od pridelave, predelave, skladiščenja, distribucije, vse do priprave in porabe. Zaradi zaužitja varnostno neustrezne hrane je ocenjenih letno 600 milijonov primerov bolezni. Tveganja se prenašajo s hrano ter vodo in ogrožajo zdravje ljudi in vitalnost gospodarstva. Ti dogodki bolj prizadenejo ranljive in marginalizirane ljudi, zlasti ženske in otroke, prebivalstvo, ki je prizadeto zaradi konfliktov, in migrante. Ocenjujemo, da približno tri milijone ljudi po vsem svetu - v razvitih državah in državah v razvoju - vsako leto umre zaradi okužene hrane in vode (UN, World food safety day, 2019). Hrana je vir hranil in naše energije in s tem vpliva na naše zdravje in dobro počutje. Pogosto jemljemo pravico po varnosti živil, kot nekaj samoumevnega, toda v vse bolj zapletenem in medsebojno povezanem svetu, kjer prehranske vrednostne verige rastejo dlje, kot bi si mogoče želeli, so standardi in predpisi toliko pomembnejši za ohranjanje varnosti živil od njive do mize (Raspor, Jevšnik 2016). Varnost hrane in cilji trajnostnega razvoja so zato zelo tesno povezani. Varnost hrane je ključnega pomena za doseganje nekaterih ciljev trajnostnega razvoja. Svetovni dan varnosti hrane pa ga v ospredje postavi, da pomaga preprečevati, odkrivati in upravljati tveganja, povezana s hrano. Varna hrana prispeva h gospodarski blaginji, spodbujanju kmetijstva, dostopa do trga, turizma in trajnostnega razvoja. Tu se velja spomniti in izpostaviti izbor ciljev, ki smo si jih zastavili v okviru združenih narodov (UN 2019):

- Cilj 2 - Brez varnosti hrane ni zanesljive preskrbe s hrano. Prenehanje lakote pomeni, da imajo vsi ljudje dostop do varne, polnovredne in zadostne hrane skozi vse leto.
- Cilj 3 - Varnost hrane neposredno vpliva na zdravje ljudi in na vnos hrane. Bolezni, ki se prenašajo s hrano, je mogoče preprečiti.
- *Cilj 12 - Ko države okrepijo svoje regulativne, znanstvene in tehnološke zmogljivosti za zagotovitev varne hrane in pričakovane kakovosti v celotni živilsko prehranski oskrbovalni verigi, se usmerijo v bolj trajnostne vzorce proizvodnje in porabe hrane.*
- *Cilj 17 - Globaliziran svet z letnim izvozom hrane, ki trenutno presega 1,6 bilijona USD, in kompleksni prehranski sistemi zahtevajo mednarodno sodelovanje med sektorji, da bi zagotovili varno hrano. Varnost hrane je skupna odgovornost vlad, živilske industrije, proizvajalcev in potrošnikov.*

*Izhajajoč iz vsebinskih elementov in izzivov ki jih postavljajo pred človeštvo združeni narodi velja poudariti da je MKGOP v resoluciji »Resolucija: Naša hrana, podeželje in naravni viri po 2021« jasno pokazali da se zavedajo izzivov Slovenije saj so izpostavili, da se družbeni odnosi in pogledi na pridelavo hrane, kmetijstvo in podeželje zelo hitro spreminjajo. Sodoben potrošnik, državljan in javnost pričakujejo in zahtevajo, da bodo deležniki v verigi oskrbe s hrano, ob aktivni vlogi države:*

- zagotavljali varno in kakovostno hrano;
- varovali naravne vire in se ustrezno odzivali na podnebne spremembe;
- ohranjali vitalno podeželje.

*Ti elementi postavljajo pred vseh nas nabor nalog in aktivnosti, ki jim moramo začeti udeležati z vsako stopnjo naših aktivnosti v politiki ali praksi.*

**Viri:**

Food safety day 2019, <https://www.un.org/en/events/foodsafetyday/>

MKGP, 2019, Resolucija: »Naša hrana, podeželje in naravni viri po 2021«

STRATEŠKI OKVIR RAZVOJA SLOVENSKEGA KMETIJSTVA, PREDELAVE HRANE IN PODEŽELJA,

[http://www.mkgp.gov.si/fileadmin/mkqp.gov.si/pageuploads/zakonodaja/predpisi/6\\_21.3.2019/RESOLUCIJA\\_22\\_marec.pdf](http://www.mkgp.gov.si/fileadmin/mkqp.gov.si/pageuploads/zakonodaja/predpisi/6_21.3.2019/RESOLUCIJA_22_marec.pdf)

Raspor, P., Jevšnik, M., Raspor Lainšček, P.. Food risk communication in the case of microbial contamination. *Acta microbiologica Bulgarica*, ISSN 0204-8809, 2018, vol. 34, no. 1, str. 1-9.

Raspor, P.. Total food chain safety : how good practices can contribute?. *Trends in food science & technology*, ISSN 0924-2244. [Print ed.], 2008, vol. 19, str. 405-412.

Raspor, P., Jevšnik, M. Food supply chains vs. food supply nets. V: NEDOVIĆ, V.r (ur.), et al. *Emerging and traditional technologies for safe, healthy and quality food*, (Food engineering series, 1571-0297). Cham [etc.]: Elsevier. 2016, str. 9-32

## Food in the frame of global food safety day

\*Aleksandra Pivec<sup>1</sup>

<sup>1</sup> Ministrstvo za kmetijstvo, gozdarstvo in prehrano, Republika Slovenija  
e-naslov: [aleksandra.pivec@gov.si](mailto:aleksandra.pivec@gov.si)

\*dr. Ministrica za kmetijstvo, gozdarstvo in prehrano

**Key words:** Food, Processing, Technology, Agriculture, Safety

Food/food is not always just a biological necessity. For humans, food is more than just a source of life it also offers food and nutrition culture. This is a complete asset, physiological, cultural and spiritual elements which should be respected and cultivated for future generations (Raspor, 2015).

Food safety means that all harmful substances or agents likely to affect human health or even human life, are absent from the food. Food-borne hazards may be of microbiological, chemical or physical nature and are often invisible. These hazards are known as pathogenic bacteria, viruses or pesticide residues and other pollutants (Raspor et al. 2018)

Food safety plays a key role in ensuring safe food at all stages of the food supply chain – from production, processing, storage, distribution, to preparation and consumption. With an estimated 600 million cases of foodborne illnesses annually, unsafe food is a threat to human health and economies, disproportionately affecting vulnerable and marginalized people, especially women and children, populations affected by conflict and migrants. An estimated three million people around the world in developed and developing countries die every year from food and waterborne disease (UN, World Food Safety Day, 2019).

Food is a source of nutrients and our energy and thus affects our health and well-being. Often, we take the right to food safety as something self-evident, but in an increasingly complex and interconnected world where food chains extend longer than one might like. Consequently the standards and regulations are more and more important for maintaining food safety from the stable to the table (Raspor, Jevšnik 2016).

Food safety and the objectives of sustainable development are therefore very closely interconnected. Food security is key to achieving some of the objectives of sustainable development. The World Food Safety Day places it in the forefront to detect, prevent and manage food-related risks. Secure food contributes to economic prosperity, the promotion of agriculture, market access, tourism and sustainable

development. Here it is worth recalling and highlight the set of objectives as stated by the United Nations (UN, 2019)

Goal 2 — There is no food security without food safety. Ending hunger is about all people having access to safe, nutritious and sufficient food all year round.

- Goal 3 — Food safety has a direct impact on people's health and nutritional intake. Foodborne diseases are preventable.

- Goal 12 — When countries strengthen their regulatory, scientific and technological capacities to ensure that food is safe and of the expected quality throughout the food chain, they move towards more sustainable patterns of food production and consumption.

- Goal 17 — A globalized world with annual food exports currently in excess of USD 1.6 trillion and complex food systems demands international cooperation across sectors to ensure food is safe. Food safety is a shared responsibility among governments, food industries, producers and consumers.

Based on the material elements and challenges posed by humanity to United Nations, it is worth pointing out that the Resolution of "Our food, countryside and natural resources after 2021" of the ICCPR clearly showed that they are aware of the challenges of Slovenia because they pointed out that social relations and views on food production, agriculture and rural areas are changing rapidly. The modern consumer, the citizen and the public expect and demand that the stakeholders in the food supply chain, with the active role of the state:

- provide safe and quality food;
- protecting natural resources and responding appropriately to climate change;
- preserve vital countryside.

These elements set before us all a set of tasks and activities that we must implement with each level of our activities in politics or practice.

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## Od živila do varne hrane: Vpliv razvoja.

\*Peter Raspor<sup>1</sup>

<sup>1</sup>Univerza v Ljubljani - upokojen

e-naslov: [raspor2013@gmail.com](mailto:raspor2013@gmail.com) \*red. prof. dr., dr.h.c.mult., uni. dipl. inž.

**Ključne besede:** prehrana, predelava, tehnologija, raziskave, razvoj, varnost

Znanost o hrani skozi tehnologije: pridelavo, predelavo, vključno z varnostjo hrane zmore samo skupaj s socialnimi in kulturnimi vedami zagotoviti učinkovito upravljanje varnosti živil. Na eni strani varujemo potrošnike, po drugi strani pa si prizadevamo za ohranitev prehranske dediščine. Če razvoj obravnavamo kot stalen izziv v verigi preskrbe s hrano, bomo opazili, da se spremembe dogajajo na več ravneh, od vil do vilic:

1. Na ravni substratov - vključevanje številnih aditivov, ki v tradicionalnih živilskih procesih niso (bili) običajni.
2. Na tehnični ravni - vgradnja nove procesne opreme z zelo določeno procesno funkcijo.
3. Na procesni in organizacijski ravni vstopajo v delovanje nove informacijske tehnologije za obvladovanje procesov.
4. Na ravni pakiranja - zmanjšanje velikosti zavitkov na osebo.
5. Na ravni trgovine - absolutna dominacija globalnih trgovinskih mrež.
6. Na ravni priprave hrane - več priložnostnih jedi v primerjavi s tradicionalnim obedovanjem.
7. Na ravni prehranjevanja - iznajdba novih prehranjevalnih navad, ki se usmerjajo k izključevanju družine in zmanjševanju / odpravljanju družbenega življenja med jedjo.

Kaj je skupno vsem omenjenim izzivom? Izključitev ali vsaj omejevanje človeškega vpliva na verigo preskrbe s hrano. Varnost ima v teh trendih pomembno mesto v vsakodnevni praksi, ko se začnemo počutiti neprijetno in začnemo skrbeti glede hrane, njenega izvora, sestave, varnosti, vpliva na naše zdravje, okolje in tako naprej. V zadnjem stoletju se je v industriji in v obrtnih proizvodnih sistemih uveljavilo veliko novosti v predelavi živil. Metode predelave in konzerviranja hrane so tradicionalno povezane s številnimi temeljnimi rešitvami:

1. Uporaba visokotemperaturne obdelave izdelkov, da se doseže podaljšana stabilnost ali ohranitev živilskih izdelkov.
2. Ohladitev z namenom podaljšanje roka trajanja živila.
3. Odstranitev ali zmanjšanje vsebnosti vode v strukturi izdelka, s čimer se doseže daljši rok uporabnosti.
4. Spreminjanje sestave atmosfere za shranjevanje živil.
5. Pakiranje v funkciji ohranjanja, varnosti, trgovine in informiranja v verigi preskrbe s hrano, vključno s potrošnikom.

Posledično so nova odkritja v fiziki, kemiji, biologiji, biotehnologiji, mikrobiologiji, informatiki in inženirskih področjih omogočila hiter razvoj številnih ne-termalnih tehnik, kot so visokotlačna obdelava (HE),

impulzna električna polja (PEF) in drugih. Raziskave in razvoj na tem področju procesiranja hrane so potrdile, da so te tehnike primerne in koristne. Z ne-terminalnimi tehnikami lahko uničimo mikrobo in zmanjšamo škodljive fizikalne ali senzorične spremembe živil in rezultat je manj procesirana hrana. Dodatne spremembe v verigo je prinesel vstop umetne inteligence in robotike, ki je močno spremenila proizvodnjo in distribucijo hrane. Uporaba umetne inteligence je omogočila lažje vodenje, izvajanje in vzdrževanje kompleksnih operacij v procesiranju. Kombinacija UI in robotike bo omogočila zmanjšanje živilskih odpadkov pri proizvodnji in distribuciji. Poleg tega se v živilski industriji soočamo tudi z e-trgovino. Nadalje vstopajo v ponudbo tudi virtualne restavracije in drugi nekonvencionalni pristopi. Inovacije, povezane s sestavinami, ki uporabljajo znanje starih kultur, ki temeljijo na zdravstvenih koristih domače hrane, so odprle pot rasti domačih in lokalnih živil. Na družboslovni strani razvoja vzdolž živilsko prehranske oskrbovalne verige se soočamo z izzivi kulture varnosti hrane. To vključuje uporabo orodij, ki so lastna družboslovnim vedam. Posebej je to pomembno v učinkoviti komunikaciji za izmenjavo in za postavitev vrednot podjetja in zaposlenih. Na ta način bo mogoče še naprej zagotoviti varno prehrano in nenehno izboljševati standarde. Toda tudi, če se trudimo, se zgodi, da bomo nekega dne doživeli onesnaženje hrane in izbruh bolezni, kar bo prizadelo naše vsakdanje življenje in zdravje. Ko se bolezen, ki se prenaša s hrano, začne zaradi kontaminacije s hrano, zahteva zelo specifično vedenje in odziv odgovornih v oskrbi s hrano. V takem primeru si model za zaznavanje tveganj in dobre prakse za obveščanje o tveganjih prizadeva za ustrezne rešitve. Toda samo, če je podjetje v tem pogledu dobro pripravljeno in so potrošniki primerno izobraženi in seznanjeni o novostih v živilsko prehranski oskrbovalni verigi in razumejo zakaj se prehranjujejo tako kot se, lahko dosežemo pravi učinek. Zato je izobraževanje neprestana in ključna stalnica, ki mora spremljati razvoj in raziskave hrane in prehranjevanja.

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## From food to safe food: The development issue

\*Peter Raspor<sup>1</sup>

<sup>1</sup>Univerza v Ljubljani - retired

e-naslov: [raspor2013@gmail.com](mailto:raspor2013@gmail.com) \*red. prof. dr., dr.h.c.mult., uni. dipl. inž.

**Keywords:** Food, Processing, Technology, Research, Development, Safety

Food science, technology and processing, including food safety, needs to be applied together with social and cultural sciences to ensure effective food safety management. We need to protect the consumer while also preserving food heritage. If we consider development as a permanent challenge in the food supply chain, we can notice several ongoing changes at different levels, from the farm to the fork:

1. At the level of substrates - inclusion of many additives, which did not use to be common in traditional food processes.
2. At the technical level - adoption of new processing equipment with very specific features.
3. At the processing and organizational level – new information technology for management of processes.
4. At the level of packing - reduction of packaging sizes for one person portions.
5. At the level of trade - absolute domination of global trading networks.
6. At the level of food preparation - more convenience foods over traditional food preparation.
7. At the level of nutrition - invention of new eating habits focused towards exclusion of family and reduction/elimination of social life during eating.

What do all the aforementioned challenges have in common? Exclusion or at least limitation of the human factor and its impact on the food supply chain. In these trends, safety has an important place in daily practice, when we start to get uncomfortable and we start to worry about a particular issue regarding food, its origin, composition, impact on our health or environment, and so on. In the last century, the field of food processing saw many innovations enter its industry and craft production systems. Food processing and preservation methods have been traditionally associated with an array of fundamental concepts:

1. Application of high-thermal processing to raise product temperatures to achieve long-term or extended stability or preservation of food items
2. Removal of thermal energy to reduce product temperature and extension of food shelf life
3. Elimination or reduction of water content from product structure, thus achieving extended shelf life
4. Variation of storage atmosphere reduction or change of gasses in contact with food.
5. Packaging in function of preservation, safety, trade and information in food supply chain including the consumer.

Consequently new discoveries in physics, chemistry, biology, biotechnology, microbiology, informatics and engineering fields enabled fast developments of several non-thermal techniques such as High-Pressure Processing (HPP), Pulsed electric fields (PEF) and others.

Food research and development found them very appropriate and useful. Usage of non-terminal techniques during processing can achieve microbial inactivation and reduce detrimental changes in physical or sensory properties of foods. Since these techniques are effective, the result are healthier and more natural foods. Additional impact has been made by the emergence of artificial intelligence and robotics, which has tremendously changed food production and distribution streams. The use of AI has made some complex techniques easier to implement, guide and maintain. The combination of both AI and robotics will enable us to reduce food waste in production. Additionally we face both E-commerce in the food industry and also virtual restaurants and so on. Innovation connected to ingredients using old knowledge based on health benefits of native foods has opened the path for the growth of native foods. On the soft side of development within food production and supply chain we face the rise of food safety culture. This includes utilizing the social science toolbox to engage the workforce using transparent and effective communication to share and establish company values and personal commitments. In this way, it is possible to drive food safety forward and continually improve standards, making food safety a daily habit for every employee. But even if we push as hard as possible we might one day experience food contamination and our daily life and health will be at least temporary damaged. When foodborne illness starts due to contamination with food it requires very specific behaviour and reactions of those responsible in the food supply chains towards consumers. In such cases, the Risk Perception Model and Good Practices for Risk Communication seeks proper solutions. But only if the company is well prepared in this regard and consumers are well educated about the innovations in the food supply chain and understand why they eat the way they do, can we achieve the desired effect. This is why education is an ongoing and key factor that must accompany development and research of food and eating habits.

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## Food safety education at undergraduate level (BsC), where technology, food and health is addressed

\*Frosina Babanovska-Milenkovska<sup>1</sup>

<sup>1</sup>University „Ss Ciril and Methodius“, Faculty of Agricultural Sciences and Food - Assistant Professor

e-mail: [frosibm@gmail.com](mailto:frosibm@gmail.com)

\*assist. prof. dr., dr. agric. sci.

**Keywords:** Food, Safety, Technology, Health, Education

Improving the living conditions of the population is one of the main tasks of any society. When talking about the quality of life, here is also the concern for the production and distribution of quality and healthy food. Food safety is a global concern and it is an important aspect of the public health. Each year millions of people worldwide suffer from food-borne diseases and illnesses resulting from the consumption of contaminated food.

Food safety is a shared responsibility between governments, industry, producers, Academy and consumers. Different governmental institutions and agencies, which include public health, agriculture, education and trade, should cooperate and communicate with each other and engage with civil society, including consumer groups, and the education especially should play an important role. On the other hand, the European legislation in all EU countries requires proper education and training of food operators involved in food handling activities.

Today, when consumer awareness is at a very high level, when competition in the food market is very high, when there is a globalization of the food supply chain, the production of safe food becomes very important, as well as the need for good education on food safety. The application of new technologies and the growing number of food additives used to extend the food's shelf life and diversity of products, requires serious analyzes to assess the risk of food safety and risk management. In order to enable the production and distribution of safe and high quality food products, today in the world are adopted certain standards in food production, which are closely related to the appropriate education of the employees, by acquiring knowledge, skills and competences. Thereby, it takes into account the needs of the food industry, as well as the legislation related to the quality and safety of food.

Food safety education for undergraduate students should provide them with the necessary knowledge and skills in order to: recognize and analyze the factors that influence the quality and safety of foods, from the properties of the raw materials for production, through the process of production, the storage conditions, their distribution and shelf

placement; identification of potential contaminants, planning and implementation of specific measures for their elimination; analysis of potential biological, physical and chemical contaminants during food production; planning, organizing, managing and improving the process for the production of quality and safe food; implementation and maintenance of the system for quality control and food safety; audit of systems for control and food safety; dealing with complex situations and ability to make decisions in emergency situations in terms of quality and food safety; knowledge of the legal provisions on quality and food safety; active monitoring of the world, especially the European trends in higher education and in the development of the food industry.

It is estimated that in the near future the production of healthy and safe food will become a global problem in the development of civilization, and the fear of consumers around the world is growing. The professional application of modern agrotechnical measures, optimization of processes in the food industry, is an imperative for the production of high quality food, can be provided only through the active participation of higher education professionals.

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## Образование за безбедност на храна на ниво на додипломски студии (BsC), кое се однесува на технологијата, храната и здравјето

\*Фросина Бабановска-Миленковска<sup>1</sup>

<sup>1</sup>Универзитет „Св. Кирил и Методиј“, Факултет за земјоделски науки и храна - Доцент

Е-мејл: [frosibm@gmail.com](mailto:frosibm@gmail.com)

\* доц. д-р, д-р земј. науки

**Клучни зборови:** Храна, Безбедност, Технологија, Здравје, Образование

Подобрувањето на условите за живот на населението е една од главните задачи на секое општество. Кога се зборува за квалитетот на животот, се подразбира и грижата за производство и дистрибуција на квалитетна и здравствено исправна храна. Безбедноста на храната претставува глобална загриженост и е важен аспект во јавното здравство. Секоја година, милиони луѓе ширум светот страдаат од болести предизвикани од храната и болести предизвикани со конзумирање на контаминирана храна. Безбедноста на храната претставува заедничка одговорност меѓу владите, индустријата, производителите, академијата и потрошувачите. Различни владини институции и агенции, кои ги вклучуваат: јавното здравство, земјоделството, образованието и трговијата, потребно е да соработуваат и да се вклучат во граѓанското општество, заедно со групите на потрошувачи, локалните заедници, а посебно важна улога треба да има образованието. Од друга страна, Европското законодавство во сите земји на ЕУ бара соодветна едукација и обученост на операторите со храна, кои се вклучени во активностите за ракување со храна. Денес кога свеста на потрошувачите е на многу високо ниво, кога конкуренцијата на пазарот со храна е многу голема, кога постои глобализација на синџирот на снабдување со храна, произведувањето на безбедни производи станува многу важно, како и потребата од добра едукација за безбедноста на храна. Примената на нови технологии и се поголем број на додатоци во производството на храна со цел продолжување на нејзиниот рок на употреба и разновидноста, бара сериозни анализи за проценка на ризикот на безбедноста на храната и управување со ризикот. За да се овозможи производство и дистрибуција на квалитетни и безбедни прехранбени производи денес во светот се усвоени одредени стандарди во производството на храна, кои се тесно поврзани со соодветна едукацијата на вработените, со стекнување на знаења, вештини и компетенции. При тоа се земаат во предвид потребите на прехранбената индустрија како и законската регулатива поврзана со квалитетот и безбедноста на храната.

Образованието за безбедноста на храната на додипломските студенти треба да им овозможи потребно знаење и вештини за: препознавање и анализа на факторите кои влијаат врз квалитетот и безбедноста на прехранбените производи, од својствата на суровините за производство, преку процесот на производство, условите на складирање, нивна дистрибуција и ставање во промет; идентификација на потенцијалните контаминенти, планирање и спроведување на специфични мерки за нивно елиминирање анализа на потенцијалните биолошки и хемиски контаминети во текот на производството на храна; планирање, организирање, управување и усовршување на процес за производство на квалитетна и безбедна храна; имплементација и одржување на системи за контрола на квалитетот и безбедноста на храната; ревизија на системите за контрола и безбедност на храната; справување со комплексни ситуации и способност за донесување на одлуки во итни ситуации по квалитетот и безбедноста на храната; познавање на законските одредби за квалитет и безбедност на храната; активно следење на светските, посебно на европските текови во високото образование и развојот на прехранбената индустријата. Се проценува дека во блиска иднина производството на здрава и безбедна храна ќе стане глобален проблем во развојот на цивилизацијата, а стравот на потрошувачите ширум светот е се поголем. Стручната примена на современи агротехнички мерки, оптимизацијата на процесите во прехранбената индустрија, иновацијата на нови технологии и производи, се императив за производство на високото квалитетна храна, која може да се обезбеди само преку активно учество на високо образовни кадри.

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## Obrazovanje o sigurnosti hrane na master i doktorskom studiju (MSc i PhD), koje uključuje tehnologiju, hranu i zdravlje

\*Aleksandra Marjanović<sup>1</sup>, Jasmina Đeđibegović<sup>1</sup>, Kenan Čaklovica<sup>2</sup>, Miroslav Šober<sup>1</sup>, Elma Omeragić<sup>1</sup>, Amila Turalić<sup>1</sup>, Aida Lugušić<sup>1</sup>, Faruk Čaklovica<sup>2</sup>

<sup>1</sup>Univerzitet u Sarajevu, Farmaceutski fakultet, BiH

<sup>2</sup>Univerzitet u Sarajevu, Veterinarski fakultet, BiH

e-mail: [aca1902@gmail.com](mailto:aca1902@gmail.com)

\*vanredni profesor

**Ključne riječi:** hrana, zdravlje, sigurnost, obrazovanje

U kurikulum integrisanog studija prvog i drugog ciklusa na Farmaceutskom fakultetu, Univerziteta u Sarajevu (diplomski studij, MSc), uključen je obavezan predmet "Bromatologija" i dva izborna predmeta "Funkcionalna hrana i dijetetski suplementi" i "Toksikologija i sigurnost hrane". Magistri farmacije stoga imaju dovoljno znanja i vještina da provode higijensko-sanitarnu kontrolu, posebno u vezi sa hranom, da učestvuju u promociji zdravlja i preventivnim akcijama, na individualnom, porodičnom ili na nivou zajednice, kao i da procjenjuju toksične efekte stranih supstanci u hrani i da dizajniraju i primjenjuju relevantne testove i analize. Takođe su osposobljeni da koriste i validiraju tehnike analize hrane; da primjenjuju napredne analitičke metode u kontroli kvaliteta hrane i njenih sastojaka u bilo kojem koraku proizvodnje, skladištenja ili distribucije; da ispravno dolaze do rezultata analize hrane i procesiraju ih i izražavaju u skladu sa specifikacijama i standardima; da analiziraju hazarde i procjenjuju hemijske, fizičke i nutritivne rizike koji mogu uticati na sigurnost hrane. U okviru programa studenti se stimulišu na istraživanje nutritivnog kvaliteta hrane, biodostupnosti mikronutrijenata i bioaktivnih spojeva. U okviru trećeg ciklusa (doktorski studij) studentima se nude dva predmeta iz ove oblasti: "Endokrini disruptori u hrani i okolišu" i "Kvalitet i sigurnost hrane". Ishodi učenja ovih predmeta uključuju sposobnost procjene i primjene analitičkih metoda za detekciju i određivanje EDC u hrani i okolišu; sposobnost samostalnog provođenja različitih analiza u kontroli hrane; sposobnost procjene i individualnog interpretiranja rezultata analize i primjene toksikoloških principa u određivanju sigurnosti hrane. Kao zdravstveni radnici magistri farmacije mogu aplicirati i za zdravstvene specijalizacije, koje odobrava Federalno Ministarstvo zdravstva i to u ovoj oblasti dvije specijalizacije (od 1970. godine): Sanitarna hemija i Toksikološka hemija. Prema posljednoj reviziji specijalizacija iz Sanitarne hemije je još u razmatranju, ali i dalje postoji u susjednim zemljama.

Veterinarski fakultet Univerziteta u Sarajevu svojim studentima nudi znanje iz širokog spektra oblasti, među kojima se ističe i oblast sigurnosti i tehnologije hrane. Fokus je prvenstveno stavljen na hranu animalnog porijekla, koja se izučava na obaveznim predmetima "Higijena i tehnologija mesa i mesnih prerađevina" i "Higijena i tehnologija mlijeka i mliječnih prerađevina". Na ovim predmetima, studenti imaju priliku da steknu sva osnovna znanja vezana za tehnologiju proizvodnje, prerade i kontrolne namirnice životinjskog porijekla koja su potrebna veterinarima u njihovom budućem radu.

Pored toga, studentima se nude i izborni predmeti na kojima mogu da nauče više o određenim oblastima vezanim za proizvodnju i sigurnost hrane, ali i za značaj ovih oblasti za javno zdravstvo. Na izbornom predmetu pete godine, Parazitoze u javnom zdravstvu, studenti stižu znanje o parazitarnim oboljenjima bitnim za ljude, među kojima se posebno ističu ona oboljenja koja se prenose hranom. Predmet "Nekonvencionalna animalna proizvodnja" studente upoznaje sa osnovama tehnologije dobijanja i obrade animalnih proizvoda koji nisu tipični za naše područje, dok na predmetu Veterinarsko javno zdravstvo studenti imaju priliku da nauče više o vezi između veterinarske medicine i zdravlja ljudi. Veterinarski fakultet nudi i postdiplomske nastave u vidu specijalističkog studija „Sigurnost hrane“ i studija „One Health“, trajanja dva semestra i vrijednosti 60 ECTS studijskih bodova. Doktorski studij „Veterinarska medicina i javno zdravstvo“ koji se odvija na Veterinarskom fakultetu pridaje veliki značaj oblasti sigurnosti hrane. Na Fakultetu zdravstvenih studija Univerziteta u Sarajevu u okviru drugog i trećeg ciklusa studija u oblasti Sanitarnog inženjersva dva predmeta ("Upravljanje vodom, hranom i ishranom" i Sanitarna inspekcija i metode sanitarnog praćenja") su povezane sa hranom i zdravljem i orjentisane na uticaj okolišnih faktora na zdravlje ljudi.

Svaki studijski program orjentisan na proizvodnju hrane ili zdravstvene studije uključuju predmete koji su usmjereni ili na osiguranje sigurne i zdravstveno ispravne hrane ili na značaj adekvatnog kvaliteta i sigurnosti hrane i mogućih implikacija na zdravlje ljudi. Ovo je naravno potpuno očekivano i opravdano i u skladu sa ishodima samog studija. U našoj zemlji veliki problem predstavlja međutim, priznavanje specijalizacija i prepoznavanje individualnih kvalifikacija.

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## Food safety education at graduate levels (MSc and PhD), where technology, food and health is addressed

\*Aleksandra Marjanović<sup>1</sup>, Jasmina Đeđibegović<sup>1</sup>, Kenan Čaklovica<sup>2</sup>, Miroslav Šober<sup>1</sup>, Elma Omeragić<sup>1</sup>, Amila Turalić<sup>1</sup>, Aida Lugušić<sup>1</sup>, Faruk Čaklovica<sup>2</sup>

<sup>1</sup>University of Sarajevo, Faculty of Pharmacy, BiH

<sup>2</sup>University of Sarajevo, Veterinary Faculty, BiH

e-mail: [aca1902@gmail.com](mailto:aca1902@gmail.com)

\* associate professor

**Keywords:** Food, Health, Safety, Education

In curriculum of integrated study programme of the first and second cycle at Faculty of Pharmacy, University of Sarajevo (graduate level, MSc) there are one compulsory subject Bromatology, and also two elective subjects "Functional food and dietary supplements" and "Food toxicology and food safety". As result, graduates in pharmacy have enough knowledge and skills to perform hygienic-sanitary control, especially in relation to food, to participate in health promotion and disease prevention activities, at the individual, family and community level; and to assess the toxicological effects of substances in food and to design and apply the relevant tests and analysis. They are also able to use and validate food analysis techniques; to apply advanced analytical methods to control quality of food and ingredients at any stage of production, storage or distribution; to correctly acquire, process and express the results of a food analysis according to food specifications and standards; to deeply analyze threats and evaluate the chemical, physical and nutritional risks that may influence food safety. The programme also develops research on food nutritional quality, bioavailability of micronutrients and bioactive compounds. At Faculty of Pharmacy in Sarajevo, two subjects are offered within third cycle, doctoral study: "Endocrine disrupting chemicals in food and environment" and "Food quality and food safety". After completing these courses, students are able to evaluate and apply analytical methods in order to detect and quantify EDCs in food; to perform different analytical methods in food control; to evaluate and individually interpret results of analysis, and to use toxicological principles in determining food safety. Since pharmacists are health professionals after graduation study (MSc) they can apply for specialization that is governed by Federal Ministry of health. Since 1970s, two specializations were tightly related to food safety and food quality: Sanitary chemistry and Toxicological chemistry. Latest revision omit Sanitary chemistry (under revision) but such specialization is still present in our neighboring countries.

Veterinary Faculty at University of Sarajevo offers its students with knowledge from a wide range of fields, with a great emphasis on the field of food safety and food technology. The focus lies primarily on areas related to food of animal origin, studied as a part of the compulsory subjects "Hygiene and Technology of Milk and Milk Products" and "Hygiene and Technology of Meat and Meat Products". These subjects give students all basic knowledge related to the technology of production, processing and control foods of animal origin necessary for veterinarians in their future work. In addition, students are offered elective courses in which they can learn more about certain areas related to food production and safety, but also to the importance of these areas for public health. At the fifth year of the elective course, Parasitoses in Public Health System, students gain knowledge of parasitic diseases important for humans, among which the food-borne diseases are particularly emphasized. The subject "Unconventional Animal Production" introduces students to the basics of the technology of breeding and processing of animal products that are not typical for this part of the world, while on "Veterinary Public Health" students have the opportunity to learn more about the links between veterinary medicine and public health. In addition, the Veterinary Faculty offers postgraduate education in the form of a specialization "Food Safety" and "One Health", that last for two semesters and is valued at 60 ECTS points. The Doctoral Study "Veterinary Medicine and Public Health" also emphasize food safety. At Faculty of Health studies, University of Sarajevo ongoing studies of second (MSc) and third (PhD) cycle in area of Sanitary engineering two subjects ("Management of water, food and nutrition" and "Sanitary inspection and methods for sanitary monitoring") are somewhat related to food and health, and on impact of environmental factors on human health. Each study programme related to food production or health studies involves subjects that are oriented on either ensuring that food is safe and harmless or aims on significance of adequate quality and safety of food and possible implications on human health. Moreover, this is actually completely justified and expected. In our education system, we generally have a major issue concerning the recognition of specializations and recognition of individual qualifications as well.

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## Neformalna izobraževanja o varnosti živil, potrebe in izzivi

\*Elizabeta Mičović<sup>1</sup>

<sup>1</sup>Ministrstvo za kmetijstvo, gozdarstvo in prehrano

e-naslov: [elizabeta.micovic@gov.si](mailto:elizabeta.micovic@gov.si) \*doc. dr., uni. dipl. inž. živ. tehn.

**Ključne beseda:** varna hrana, izobraževanje, usposabljanje, TAIEX, BTSF

Glavni cilji evropske politike so izboljšati zdravstveno varnost državljanov, spodbujati zdravje ter zbirati in širiti informacije in znanje. Nujno je sodelovanje v izobraževalnih procesih vseh deležnikov v živilsko prehranski oskrbovalni verigi, različnih strokovnjakov, saj so izzivi na področju zagotavljanja varne hrane zelo kompleksni in raznoliki. Učenje je pot k znanju, pridobivanje znanja in ustreznih veščin, pa je nujno za učinkovito obvladovanje tveganj in reševanje kriznih situacij na področju varne hrane.

Neformalna izobraževanja so zato še toliko bolj pomembna, saj so učinkovito orodje za doseganje ustreznega znanja in veščin pri ravnanju z živilom. Živilska zakonodaja določa, da morajo nosilci živilske dejavnosti zagotoviti, da so zaposleni pri delu z živilom ustrezno usposobljeni, skladno z naravo in zahtevnostjo dela ter pri opravljanju dela nadzorovani.

### 1. Interna usposabljanja nosilcev živilske dejavnosti

Načrt internega usposabljanja zaposlenih naj bi bil pripravljen in del dokumentacije osnovnih higienskih programov. Vključuje naj: pogostnost in udeležence usposabljanj, osebo odgovorno za usposabljanje in namen ter področje usposabljanja (čiščenje, osebna higiena, HACCP...). Pomembno je, da na koncu usposabljanj sledi preverjanje znanja in da je del dokumentacije tudi seznam udeležencev na usposabljanjih.

### 2. Zunanja usposabljanja

Med najpomembnejša zunanja usposabljanja vključujemo usposabljanja, kot so: specifična za posamezna področja tehnologije živil, TAIEX-tehnična pomoč in izmenjava informacij (*angl.: the Technical Assistance and Information Exchange*) in BTSF-boljše usposabljanje za varnejšo hrano (*angl.: Better Training for Safer Food*).

#### 2.1. Specifična usposabljanja za posamezna področja tehnologije živil

Ta usposabljanja so potrebna zaradi specifične določenih kategorij živil, tehnoloških postopkov, ki zahtevajo določeno znanje o živilskih sestavinah in določene veščine, kot na primer tehnologija proizvodnje čokolade, vina, piva ali proizvodnja tradicionalnih proizvodov.

#### 2.2. TAIEX

Cilj in namen tega načina usposabljanja je razumevanje in učinkovito izvajanje evropske zakonodaje, ki je namenjeno tretjim državam in državam kandidatkam za vključitev v Evropsko unijo. Vključuje različne oblike usposabljanj: delavnice, strokovne misije in študijske obiske. Delavnice so namenjene pojasnjevanju izvajanja zakonodaje v praksi, s čim več konkretnimi primeri. Strokovne misije so namenjene ožjemu krogu uslužbencev, z namenom konkretne pomoči pri pripravi zakonodaje oziroma prenosu evropske zakonodaje v nacionalni pravni red države. Študijski obiski običajno sledijo obema prejšnjima oblikama usposabljanj, s tem da predstavniki tretje države na obisku spoznajo način dela v praksi obiskane države članice.

### 2.3 BTSF

BTSF je pobuda Evropske komisije za usposabljanje, ki vključuje predpise o živilih in krmi, zdravju in dobrobiti živali in zdravju rastlin. Glavni cilji so poenotenje sistema nadzora na celotnem evropskem trgu, zagotavljanje poštenega trgovanja s tretjimi državami, izmenjava izkušenj med predstavniki različnih držav, obravnava različnih primerov iz prakse in reševanje specifičnih situacij.

Izzive na tem področju predstavlja veliko število majhnih in srednje velikih živilskopredelovalnih obratov z omejenim številom zaposlenih, kjer se soočamo s pomanjkanjem osnovnega znanja o živilih, higieni in ustreznim rokovanjem z živil. Posebno težavo predstavljajo začasno zaposleni delavci, pa tudi način preverjanja tega znanja s strani pristojnih inšpekcijskih organov.

V bodoče bi morali s skupnim, soodgovornim delovanjem vseh deležnikov vključenih v sistem zagotavljanja varne hrane, vsakega v skladu s svojimi pristojnostmi in možnostmi, izboljšati pogoje za izvajanje učinkovitih usposabljanj.

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## Informal education in food safety area: Needs and challenges

\*Elizabeta Mičović<sup>1</sup>

<sup>1</sup>Ministrstvo za kmetijstvo, gozdarstvo in prehrano  
e-mail: [elizabeta.micovic@gov.si](mailto:elizabeta.micovic@gov.si) \*doc. dr., uni. dipl. inž. živ. tehn.

**Key words:** Safe Food, Education, Training, TAIEX, BTSF

The main objectives of European policy are to improve citizens' health security, promote health, and gather and disseminate information and knowledge. It is indispensable to participate in the educational processes of all stakeholders in the food supply chain, various experts, as the challenges in the field of food safety are very complex and diverse. Learning is the way to get knowledge, and the acquisition of knowledge and relevant skills is essential for effective risk management and crisis management in the area of food safety. Informal education is therefore all the more important because it is an effective tool for achieving appropriate knowledge and skills in handling food. Food law stipulates that food business operators must ensure that employees are adequately trained in food handling, in accordance with the nature and complexity of their work, and when supervising their work.

### 3. Internal training of food business operators

The plan for internal training of employees should be prepared as part of basic hygiene programs. It must include: frequency and training participants, person responsible for training, purpose and area of training (cleaning, personal hygiene, HACCP ...). It is important that the end of the training is followed by a knowledge test and that a part of the documentation and final list of all participants at the training.

### 4. External training

Among the most important external trainings, we include drill, such as: trainings for specific areas of food technology, TAIEX-Technical Assistance and Information Exchange and BTSF-better training for safer food Training for Safer Food).

#### 2.1 Trainings for specific areas of food technology

These training courses are necessary due to the specific nature of certain categories of foods, technological procedures that require specific knowledge of food ingredients and certain skills, such as the technology of chocolate, wine, beer production or the production of traditional products.

#### 2.2 TAIEX

The aim and purpose of this training is to understand and effectively implement European legislation that is relevant for third countries and candidate countries for integration into the EU. It includes various forms of training: workshops, expert missions and study visits. The workshops shall explain the implementation of legislation in practice,

with as many concrete examples as possible. Expert missions are aimed at the narrower circle of staff with the purpose of concrete assistance in drafting legislation or transposing European legislation into the national legal order of the state. Study visits usually follow the two previous forms of training, with the representatives of the third country visiting the meeting to learn about the method of work of the visited Member State.

#### 2.4 BTSF

The BTSF is an initiative of the European Commission for Training, which includes food and feed, health and animal welfare and plant health. The main objectives are to unify the official control system throughout the European market, to ensure fair trade with third countries, to exchange experiences between representatives of different countries, to deal with different cases from practice and to solve specific situations.

Challenges in this area represent a large number of small and medium-sized food business operators with a limited number of employees, where we are dealing with lack of basic knowledge of food, hygiene and proper handling of food. Particularly obstacles are the temporary employees, as well as the method of checking this knowledge by the competent authorities. In the future, with the joint, co-responsible action of all stakeholders involved in the food safety management system, each in accordance with its competences and possibilities, the conditions for effective training should be improved.

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## Višješolski študij živilstva in prehrane usmerjen v prakso in za prakso - standardi kakovosti v izobraževalnem procesu

\*Blanka Vombergar<sup>1</sup>

<sup>1</sup>Izobraževalni center Piramida Maribor, Višja strokovna šola  
e-naslov: [blanka.vombergar@guest.arnes.si](mailto:blanka.vombergar@guest.arnes.si)

\* doc. dr., uni. dipl. inž.

**Keywords:** izobraževanje, živilstvo, standardi kakovosti

Višješolski študij Živilstvo in prehrana je najvišja strokovna nadgradnja živilskega poklica in prehranskih znanj izven univerze. Študij se izvaja na višjih strokovnih šolah, je javno veljaven dveletni program ovrednoten s 120 ECTS. Vstopni pogoj za študente je zaključena srednja šola s poklicno ali splošno maturo. Področja živilskih tehnologij se hitro razvijajo in trendi v prehrani se spreminjajo. Pomembno je zagotavljanje varne hrane, ustrezne kontrole in nadzora ter zaščita potrošnika. Kratki študiji, ki dajejo strokovno nadgradnjo po srednji šoli, so zanimivi tako za študente, ki se hitro pojavijo na trgu dela, kakor tudi za delodajalce, ki dobijo v prakso usmerjen kader, z dovolj širokimi splošnimi in strokovnimi znanji, ki se hitro integrirajo v delovna opravila v neposredni praksi.

**PREDSTAVITEV IN CILJI PROGRAMA** Temeljni cilji programa so ponuditi strokovno-teoretična in praktično uporabna znanja. Program obsega vsebine s področja živilskih tehnologij, trajnostnega razvoja, živilske mikrobiologije, embalaranja in logistike, prehrano, dietetiko in gastronomijo. Študenti pridobijo znanja za načrtovanje, organiziranje in nadziranje tehnoloških in proizvodnih procesov, znanja iz živilske kemije in analitike živil. Spoznajo tudi vsebine iz ekonomije, organizacije dela in vodenja, strokovne informatike, trženja v živilstvu ter strokovnega tujega jezika. V drugi polovici študija lahko tudi izbirajo tehnološka ali prehranska področja. Cilj študija je, da študenti izoblikujejo odgovoren odnos do zagotavljanja kakovosti v proizvodnji živil in pri pripravi hrane, sodelujejo pri vrednotenju prehranjevalnih navad različnih skupin prebivalstva ter sodelujejo pri odločanju, izbiri in uporabi surovin v proizvodnji živil ter pri pripravi hrane.

**STANDARDI Z VIDIKA IZOBRAŽEVANJA O VARNOSTI ŽIVIL**  
Predavatelji šole izkazujejo večletne delovne izkušnje v praksi ter vidne dosežke na izbranem strokovnem področju. Šola je tesno povezana s podjetji, polovica predavateljev prihaja na šolo iz prakse in študentom prinaša najnovejše znanje. Celoten program obsega 2000 ur, od tega je 1200 ur predavanj in vaj. Poudarek je na laboratorijskem in pilotnem proizvodnem delu ter razvijanju inovativnih izdelkov. Študentje opravljajo tudi obsežno praktično izobraževanje v podjetjih v skladu s programom, to je 800 ur v dveh letih. V tem obdobju se lahko vključijo v proizvodne procese, postanejo koristni v delovnem okolju, večina jih opravlja tudi diplomatska dela v industriji ali organizaciji prehrane, tako da rešujejo trenutne probleme, opravljajo analize, ki jih želi podjetje ali razvijajo nove izdelke, spremljajo tehnološke postopke, jih vrednotijo,

opravljajo kemijsko in mikrobiološko analitiko ter se urijo v notranjih presojah in HACCP načelih. Pričakovana znanja študentov z vidika varnosti živil so poznavanje živilske zakonodaje, evropskih in slovenskih predpisov povezanih s hrano in okoljem, poznavanje aktualnih standardov, sistemov vodenja kakovosti, okoljskih smernic, certificiranja, modelov odličnosti, s področja varnosti živil pa poznavanje dejavnikov tveganja, zahtev za kakovost živil in ocene varnosti živil, zahtev za registracijo živilskih obratov, higienskih pravil, lastni notranji nadzor nosilcev dejavnosti, sledljivost, ravnanje z odpadki in sistem uradnega nadzora.

**STANDARDI Z VIDIKA DELOVANJA ŠOL:** Nacionalna agencija za kakovost v visokem šolstvu vsakih 5 let opravi zunanjo evalvacijo in preverja na višjih šolah njihovo delovanje, vpetost deležnikov v okolje, mednarodno sodelovanje, sodelujoče predavatelje, vključevanje študentov v procese, materialne pogoje in vodenje kakovosti na šoli s samoevalvacijo, notranjimi presojami in drugimi aktivnostmi za zagotavljanje kakovosti.

**PRILOŽNOSTI:** Šola ima lastno proizvodnjo pekovskih in slašičarskih izdelkov, sladoleda, mesa in mesnih izdelkov in učno prodajalno. V delavnicah delajo tudi dijaki srednje šole in študenti višje šole. V praksi vsi deležniki spoznavamo sisteme vodenja kakovosti v živilskih obratih, tehnološke procese, opravljamo notranji nadzor, ter se srečujemo z zunanjim nadzorom. Opravljamo kemijske in mikrobiološke kontrole, se srečujemo z označevanjem živil in predpisi, imamo tudi proizvodnjo ekoloških živil, poznamo postopke certificiranja.

**SKLEPI:** Proizvodnja živil in njihova varnost je velika odgovornost. Pomembno je znanje, ki ga pridobivajo mladi, odgovornost in etičnost, pa tudi sposobnost poiskati odgovor, ko nečesa ne znaš ali ne razumeš. Teh norm želimo naučiti naše študente, da bodo v proizvodne procese vstopali pripravljeni in odgovorni.

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## Higher Vocational Education (Short Cycle) of Food Technology and Nutrition Focused on Practice and for Practice - Quality Standards in the Educational Process

\*Blanka Vombergar<sup>1</sup>

<sup>1</sup>Education Centre Piramida Maribor, Higher Vocational College

e-mail: [blanka.vombergar@guest.arnes.si](mailto:blanka.vombergar@guest.arnes.si)

\* doc. dr., uni. dipl. inž.

**Keywords:** Education, Food Technology, Quality Standards

Higher education program Food technology and nutrition is the highest professional upgrade of the food and nutrition knowledge outside the university. We perform it at a higher professional school as a publicly valid two-year program valued at 120 ECTS. The entry requirement for students is the completed secondary school with a vocational or general matura examination. The areas of food technology are rapidly evolving and trends in nutrition are changing. It is important to ensure food safety, proper control, and consumer protection. Short studies that provide professional upgrading after secondary school are of interest both for students who are rapidly emerging in the labor market as well as for employers who receive practically oriented staff with a wide range of general and professional skills that quickly integrate into working tasks in direct practice. PRESENTATION AND OBJECTIVES OF THE PROGRAM: The basic objectives of the program are to offer theoretical and practical knowledge. The program covers the subject areas of all food technologies, packaging and logistics, sustainable development, food microbiology, composition and quality of foodstuffs, nutrition, dietetics and gastronomy, and program-related legislation, quality assurance and control. Students acquire skills for planning an organizing of technological and production processes, knowledge of food chemistry and food analysis. They learn about economics, organization of work and management, professional informatics, marketing in food industry and professional terminology in foreign language. Towards the end of studies they focus on individual technological or nutritional areas. Our aim is that students form a responsible attitude towards quality assurance in food production, participate in the evaluation of eating habits of different groups of people and participate in the decision-making, selection and use of raw materials in food production and in the preparation of food. QUALITY STANDARDS FROM THE POINT OF SAFE FOOD: Lecturers of the school exhibit several years of practical work experience and visible achievements in the field of expertise. The school is closely affiliated with companies, half of the lecturers come to school from the industry and introduce new developments to students. The entire program covers 2000 hours, of which 1200 hours of lectures and laboratory work

take place at school. The focus is on the laboratory work, the pilot production and the development of innovative products. Students perform extensive practical intercompany training according to the program, which presents 800 hours in two years. During this period, they can become involved in production processes. Most of them also carry out graduate work in the food industry, by solving current problems, conducting analyzes for the company, monitor technological processes, evaluate them, carry out different analysis, and take part in internal audits and HACCP principles. From the point of food safety students are familiar with food law, European and Slovenian food and environmental regulations, current standards, quality management systems, environmental guidelines, certification, models of excellence, food safety, risk factors, quality requirements for foodstuffs and food safety assessments, hygiene rules, internal control of operators, traceability, waste management and the system of official controls.

**QUALITY STANDARDS WITH THE ASPECT OF EDUCATION:** The National Agency for Quality in Higher Education carries out an external evaluation every 5 years and checks at higher schools their performance, involvement of stakeholders in the environment, international cooperation, participating lecturers, student involvement in processes, material conditions and quality management at school with self-evaluation, internal assessments and other quality assurance activities.**OPPORTUNITIES:** The school has the bakery and confectionery, meat production and ice-cream where are taught college and secondary school students. In practice, all stakeholders learn about quality management systems in food processing plants, technological processes, we perform internal controls, and we regularly meet with external supervision. We carry out our chemical and microbiological controls, we are faced with food labeling and regulations, we also have the production of organic foods, and we know the certification procedures.**CONCLUSION:** Food production and food safety are major responsibilities. The important standards for their future career are the knowledge, skills, responsibility, ethics, and resourcefulness acquired by the students.

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## The current challenges for quality evaluation systems in Higher Education

\*Yelena Istileulova, EC

<sup>1</sup>Evaluation expert of the European Commission (EACEA, EASME), Evaluation expert for support in communication at EC; Researcher on KPIs at Guild and LERU Universities (University of Ljubljana)

e-naslov: [yelena.istileulova@fulbrightmail.org](mailto:yelena.istileulova@fulbrightmail.org); [yelena.istileulova@uni-lj.si](mailto:yelena.istileulova@uni-lj.si)

\*PhD on Quality Accreditation, External Evaluation expert of EC (EACEA, EASME) on HE, on breakthrough innovation (Food), Fulbright Scholar, Oxford Researcher

**Keywords:** Accreditation, Challenges, Evaluation, Quality, Higher Education

Since the 1990s, almost every country has developed quality assurance (QA) mechanisms, but their examination reveal that many practices fail to theorize what quality means (Blanco-Ramírez, & Berger, 2014). There is a worldwide concern about higher education quality, because after decades of discussion involving thousand people from around the world, the way of clarifying its quality, performance and accountability are becoming challenges and concerns that apply to both private and public institutions, national or transnational (Hazelkorn et al., 2018). Only 42% of employers think that graduates are adequately prepared to move into work, and Ernst & Young removes degree classification from entry criteria, because "University is not equal to Success". The challenges are evident: 1. Quality concept used widely, but there is no agreement on how it should be measured and improved; 2. Performance involves question how higher education is assessed and evaluated, but like quality, the term "performance" raises the question "relative to what"?; 3. Accountability traditionally measured focus on QA and research excellence, but new accountability and transparency instruments emerged over recent decades, spanning from bottom-up self-assessment to top-down regulatory process of accreditation and performance-linked funding with other methods: benchmarking, classification or profiling (Hazelkorn et al., 2018, p. 8). Global rankings are widely criticised by institutions, academics, policy-makers with the trend to consider alternative rankings schemes. There are four ways of undertaking QA: *audit, accreditation, assessment and external examination*, but it is easier to understand why the concept of quality is such a complex one, if we look at the examples of definitions of quality based on 5 approaches (Table 1). In 45 B.C., the Roman statesman and philosopher Cicero created the Latin term "qualitas". The term goes back to Plato who shows that Socrates asks the question "What is knowledge?" checking the position of Protagoras and Heraclitus: the world is in constant flux and that the only thing we could know is the sensations we get through perceptions, Protagoras formulated it: "Man is the measure of all things." (Antman, 2013).

Table 1. Definition of Quality

Approaches	Quality definition	Definition for product	Definition for service
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for "quality"	(Garvin, 1984)	quality (Garvin, 1988)	quality (HE) (Seymour, 1993)
Transcendent approach (philosophy)	Quality is "innate excellence", Plato-based discussion	Defined a result of the producer's training & professional standing	Defined as a result of training, reputation, expertise of Faculty
Manufacturing-based (consumer)	Quality elements based on customer preference	Product confirms to the specifications, fit for which it was designed	Defined by degree offerings, curriculum, course content and improved learning
Product-based approach (economics)	Quality as a precise and measurable variable	Product-based quality is tied closely with assessment, presence or absence of ingredient, its value-added	Quality is defined by improved student learning & faculty, based on curriculum, assessment
The user-based (management)	Quality lies in the eyes of the beholder	the customer's needs, wants, desires, and preferences	formed by the market, curriculum, faculty programme, a difficult for HE
Value-based (man-t/cost/price)	Value-based of operations man-t	Generic, acceptable performance at an acceptable price.	defined based on rankings, powerful endorsement of value

Source: Istileulova Y. (2017) adapted from Garvin (1984), Koslowski (2006)

I approach to the quality evaluation from **five** different positions: as an external **Expert** of the EC innovation projects and as an **Evaluator** of HE, as an **Accreditor** of HEIs, as a **Researcher** and as a **Scientist**. As an **Evaluator** of EASME projects in assessing the Food industry's projects, I use the criteria of quality evaluation for the projects (Example). In the case of Food industry's project assessment, evaluation system includes the following criteria: 1. Impact, 2. Excellence and 3. Quality and Efficiency of the Implementation. Criterion is scored: 0 to 5. For instance, criteria of the **Quality and Efficiency of Implementation** includes:

- (1) Coherence & effectiveness of the work plan, appropriateness of the allocation of tasks and resources;
- (2) Complementarity of the participants within the consortium;
- (3) Appropriateness of the management structures, procedures, risk and innovation management;
- (4) Comments relating to main weaknesses identified

As an **Accreditor** of the HEIs, I use the criteria of institutional or programme accreditation (Example). As a **Researcher** of HEIs, who analyse the examples of the Guild and LERU Universities, I look at each university examples, its KPIs, benchmarking or other approaches (Example – challenge of Slovenia vs. other Guild Universities). Broadly speaking there are **four ways** of approaching quality: **audit, accreditation, assessment and external examination** (Harvey, 2018). As an **Evaluator** of HEIs in the HE, the concept of quality emerged in the early 1980s "from its more familiar industrial and commercial settings" (Newton, 2002, p. 45). The development of quality assurance in European higher education has been closely linked to the **Bologna Process** and the creation of the European Higher Education Area (EHEA) (Gouver & Loukkola, 2015). The launch of the Bologna Declaration coincides with major changes in the HE environment, such as the

emergence of a real European labour market and increased international competition (Campbell & Van der Wende, 2000, p. 21), where accreditation is a means to guarantee such minimum standards in favour of students, employers and society. The Bologna initiative demonstrates an agreement to guarantee the quality of programmes (Campbell & Van der Wende, 2000). After a decade when issues of quality assurance have been highlighted in the European debate on HE, this debate suddenly came to a new phase, with a focus on accreditation (Haakstad, 2001). The word "accreditation" became implemented with the "Salamanca message" of European universities (March, 2001) as one of quality assurance mechanisms (Cret, 2011). Quality assurance is viewed as "*a process where key elements of higher education are measured*" (Altbach, Reisberg and Rumbley, 2009, p. 4). Some governments linked rankings with accreditation, using the results how a particular HEI should be classified (e.g. teaching, teaching/research, research) or formally recognised (Hazelkorn, 2014). Serbia, Albania, Romania, Macedonia and the Czech Republic use rankings to classify or accredit universities. The AACSB accreditation process (used in business education), is similar to the industry's ISO9000 and ISO14000 by purpose (Miles et al., 2004). Dumond and Johnson (2013) compared different approaches to quality management: the AACSB accreditation standards and ISO 9001, hoping that with awareness and integration of some of the ISO 9001 components American AACSB will improve its process and product for business schools. Analogically, European EFMD, set up in 1971, is an industrial accreditation model similar to ISO certification (Sciglimpaglia et al., 2007). Hodgkinson and Kelly (2007) reviewed different approaches in quality assurance in HEIs with TQM, EFQM and BSC, and the processes on smaller scale shown in Table 2. For instance, EFQM model from Table 2 is used by EFMD as the accreditation framework for EQUIS (Example: Table 2. Models and Processes for Quality assurance, Hodgkinson and Kelly, 2007). As a **Scientist**, who covered all cases of public and private Universities' business schools with top International Accreditation (American AACSB and European EQUIS) in the region of CEE (Slovenia, Croatia, Poland and Russia) based on 44 interviews of accreditation experts in higher education, and survey Questionnaire in addition to the perception of Employers and 3 accreditors, I suggest my own theory of Global Accreditation that shows the power of global accreditation institutions through the illustrated 5 isomorphic changes in all business schools – mimetic, coercive, normative, bandwagon and information asymmetry, where the main change is the change of coercive values. They go through the changes that are not exactly linked to quality performance, but because accreditation is a way to gain a legitimacy. **Accreditation** is about two important things: first, about a **shift of power** from educators to bureaucrats, and second, the professional body represents its own interest: the organisations promote the powerful position of controlling body, where control, legitimated by public interest mixed by control based on self-interest (Harvey, 2004). EFMD is gaining and raising its power, thus, becoming engaged in power bargaining over adaptations of the global order. The performance element is included in Quality assurance (QA) and Quality enhancement (QE). Traditionally, quality of HE has

always placed an emphasis on QA, and QE is a relatively new concept (Mkhize & Cassimjee, 2013). Despite both QE and QA are concepts of one continuum, there are conflicts between academics and students on the perception about QA (Elassy, 2015). The difference between QA and QE (in Table 3). From the **Stakeholders'** view, there are the following challenges in higher education's quality from different donors:

- the metrics evaluate the quality of HEIs, with university rankings such as the "value added" ranking (IEG **WB**);
- The **OECD** with a feasibility study for HE outcomes with comparison between HEIs across countries;
- **European University Association** – policy measures and framework conditions for supporting the efficiency and effectiveness of universities across Europe suggests using 15 measures

I myself think that other stakeholders should be present to reflect **4 positions**: opinion of important well-known academics and dialogue with the spiritual leaders, technological challenges, the historical past experience and ethical issues (Examples: Noam Chomsky, prof. EMERITUS MIT, Michail Kazinski; Dalai Lama Dialogue; AI,)

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## Food safety Regulatory framework in EU

\*Boris Antunović<sup>1</sup>

<sup>1</sup>Faculty of Agrobiotechnical Sciences, Osijek, Croatia

e-naslov: [boris.antunovic@fazos.hr](mailto:boris.antunovic@fazos.hr)

\*red. prof. dr., dr.med.vet.

**Keywords:** Food, Safety, Legislation, EU

The purpose of food safety regulatory framework in EU is to assure that all processes along the production chain, from primary production to the consumer, are safe. Food chains can be diverse and complex, both in terms of the range of conditions at primary production, as well as in terms of processing and retail, particularly for complex foods. Therefore, it has to cover all the practices from stable to table. Passing legislation is the first important step, followed by controls, in order to assure that it has been properly implemented. The World Trade Organization (WTO) is a global international organization dealing with the rules of trade between nations. The two important WTO agreements (SPS and TBT), negotiated and signed by almost all the world's trading nations and ratified in their parliaments, are representing a basement for world food trade rules. The WTO rules are much relying on another important international player in global food network - *Codex Alimentarius* Commission (CAC), having main goals to protect the health of consumers and ensure fair practices in the international food trade. The CAC is using the tools, such as a collection of internationally recognized standards, codes of practice, guidelines, and other recommendations relating to foods, food production, and food safety. The European Union (EU), as a political and economic union of 28 member states, is participating in the CAC meetings and using its outputs while preparing laws, directives, decisions, recommendations and guides. The most important EU service for providing independent scientific advices on risks in the food chain, which can be used for regulatory purposes by the European Commission (EC), is the European Food Safety Authority (EFSA). It was founded based on the key element of the EU food safety legislation - General Food Law (EC, 178/2002). Decision on mandatory HACCP was a big step in replacing the responsibility on food safety to producers (EC, 471/2001). It has introduced the regular checks on general hygiene carried out by the operators in establishments. This was followed by Directive on Animal Health rules (EC, 99/2002), with the main aim to prevent the introduction or spread of animal diseases resulting from placing products of animal origin on the market. The main aim of the General Food Law Regulation (EC, 178/2002) - to ensure that all food placed in the EU market is safe, was much enforced with "hygiene package". It was represented by three important regulations covering Food Hygiene (EC, 853/2004), Hygiene rules for

foods of animal origin (EC, 853/2004) and Official controls for meat inspection (EC, 854/2004). In order to ensure the verification of compliance with feed and food law, animal health and animal welfare, the EC has put in place the Regulation on Official controls of feeds and foods (EC, 882/2004). For this purpose, each EU country has got a competent authority, which is in charge of realization of all goals and official controls through control methods: monitoring, surveillance, checks, revision, inspection, sampling and analysis, as well as control activities: inspection of raw materials and objects, documentations, audits of GHP and HACCP based systems. The concept of risk-based controls was introduced here, which means that controls do not have to be applied uniformly across all operators, but can be focused or prioritized where the risk is considered highest. In order to rebuild the trust of consumers in the integrity of the food chain, and taking in account the experiences with implementation of the Regulation (EC) 854/2004, the EC has recently prepared a new EU official control regulation (EC, 625/2017). In addition to the topics food safety and hygiene, even deeper focus is now on self-inspections, traceability, warranty, transparency, consumer information and combat of food fraud. Based on the revision of official controls on products of animal origin intended for human consumption, from 14 December 2019 Regulation (EC) 854/2004 will be replaced by the requirements in new Regulation (EU) 2017/625.

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## Regulatorni okvir sigurnosti hrane u EU

\*Boris Antunović<sup>1</sup>

<sup>1</sup>Facultet agrobiotehničkih znanosti, Osijek, Hrvatska

e-mail: [boris.antunovic@fazos.hr](mailto:boris.antunovic@fazos.hr)

\* red. prof., dr.med.vet.

**Ključne riječi:** hrana, sigurnost, legislativa, EU

Svrha regulatornog okvira za sigurnost hrane u EU je osigurati da svi procesi u proizvodnom lancu, od primarne proizvodnje do potrošača, budu sigurni. Hranidbeni lanci mogu biti raznoliki i složeni, kako u smislu raspona uvjeta u primarnoj proizvodnji, tako i u smislu prerade i maloprodaje, posebno za složene namirnice. Stoga regulativa mora obuhvatiti sve prakse od staje do stola. Donošenje zakonodavstva prvi je važan korak, nakon kojeg slijede kontrole, kako bi se osiguralo da se ono pravilno provodi.

Svjetska trgovinska organizacija (WTO) je globalna međunarodna organizacija koja se bavi pravilima međunarodne trgovine. Dva važna sporazuma WTO-a (SPS i TBT), o kojima su pregovarale i koje su potpisale gotovo sve države u svijetu, te ih ratificirale u svojim parlamentima, predstavljaju podlogu za pravila svjetske trgovine hranom.

Pravila WTO-a uvelike se oslanjaju na još jednog važnog međunarodnog igrača u globalnoj prehrambenoj mreži – Komisiju *Codex Alimentarius* (CAC), koja ima za glavne ciljeve zaštitu zdravlja potrošača i osiguranje poštene prakse u međunarodnoj trgovini hranom. CAC koristi alate kao što su skup međunarodno priznatih standarda, kodeksi prakse, te smjernice i preporuke koje se odnose na hranu, proizvodnju hrane i sigurnost hrane.

Europska unija (EU), kao politička i ekonomska zajednica sastavljena od 28 država članica, sudjeluje na sastancima CAC-a i koristi zaključke pri izradi zakona, direktiva, odluka, preporuka i vodiča. Najvažniji servis EU-a za pružanje neovisnih znanstvenih savjeta o rizicima u prehrambenom lancu, koji se može koristiti za regulatorne svrhe od strane Europske komisije (EC), je Europska agencija za sigurnost hrane (EFSA). Osnovana je na temelju ključnog elementa EU zakonodavstva o sigurnosti hrane - Općeg zakona o hrani (EC, 178/2002).

Odluka o obveznoj primjeni HACCP sustava bila je veliki korak u prebacivanju odgovornosti za sigurnost hrane na proizvođače (EC, 471/2001). Uvedene su redovite provjere opće higijene koje provode operateri u objektima. Slijedila je Direktiva o pravilima za zdravlje životinja (EC, 99/2002), čiji je glavni cilj spriječiti unošenje ili širenje bolesti životinja koje su posljedica stavljanja proizvoda životinjskog podrijetla na tržište.

Glavni cilj Uredbe o općem zakonu o hrani (EC, 178/2002) - stvoriti uvjete da sva hrana na tržište EU-a bude sigurna, uvelike se osnažio

„higijenskim paketom“. Ovaj paket predstavljaju tri važna propisa koji pokrivaju: Higijenu hrane (EC, 852/2004), Higijenska pravila za hranu životinjskog podrijetla (EC, 853/2004) i Službene kontrole u inspekciji mesa (EC, 854/2004). Kako bi se osigurala provjera usklađenosti sa zakonima o hrani i hrani za životinje, zdravlju životinja i dobrobiti životinja, Europska komisija je uvela Uredbu o službenim kontrolama hrane i hrane za životinje (EC, 882/2004). U tu svrhu svaka zemlja EU-a ima nadležno tijelo koje je zaduženo za realizaciju svih ciljeva i službenih kontrola putem kontrolnih metoda: praćenje, nadzor, provjere, revizije, inspekcije, uzorkovanja i analize, kao i kontrolne aktivnosti: inspekcija sirovina, predmeta i dokumentacije, te revizije DHP i HACCP sustava. Uveden je koncept kontrola utemeljenih na riziku, što znači da se kontrole ne moraju primjenjivati ravnomojerno na sve operatore, već se mogu usredotočiti ili odrediti kao prioriteta tamo gdje se rizik smatra najvišim.

Kako bi se ponovno izgradilo povjerenje potrošača u integritet prehrambenog lanca, te uzimajući u obzir iskustva u provedbi Uredbe (EK) 854/2004, Europska komisija nedavno je pripremila novi propis EU-a o službenim kontrolama (EC, 625/2017). Osim tema o sigurnosti hrane i higijeni, sada je još dublji fokus na samoprovjere, sljedivost, jamstvo, transparentnost, informiranje potrošača i borbu protiv prijevara s hranom. Na temelju revizije službenih kontrola proizvoda životinjskog podrijetla namijenjenih za prehranu ljudi, od 14. prosinca 2019. Uredba (EZ) 854/2004 bit će zamijenjena zahtjevima opisanim u novoj Uredbi (EU) 2017/625.

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## Implementation of quality standards in food Implementation of quality standards in food chain: Expectation and deficiencies

\*Enver Karahmet<sup>1</sup>, Almir Toroman<sup>1</sup>, Senita Isaković<sup>1</sup>

<sup>1</sup>University of Sarajevo Agricultural and Food Sciences Faculty

\*Assoc. Prof. e-mail: [enverkarahmet@yahoo.com](mailto:enverkarahmet@yahoo.com)

[e.karahmet@ppf.unsa.ba](mailto:e.karahmet@ppf.unsa.ba)

**Keywords:** Implementation, Quality, Food chain, Standards.

Implementing a quality management system is a good way of ensuring the quality and hygiene of the food production and it also increases the traceability of food products through the whole food chain. The main purpose of a food safety standard is to provide consumers with safe food (Lusk et al, 2011). The quality of foods is often associated with the sensory, nutritional and economic aspects of food (McDonald et al, 2005), but it is so much more than that. The quality of food is also correlated to the product safety, i.e. the guarantee the producer gives to the consumer that the food is safe and will not cause any sickness or harm. For this reason, a number of effective control systems have been created.

To protect public health, support fair food trade and contribute security e should continuously improve control system of production. Globalization of the food supply can expose populations worldwide to food hazards. This needs careful consideration, particularly in the context of countries that heavily rely on food imports for their food security. Risk based imported food inspection helps minimizing exposure to food hazards in food trade, while making more efficient use of the available resources, that may be scarce for many developing or transition countries (FAO). According to many authors especially food supply chains should be interested in implementing the concept of quality management. By improving food safety and quality along the chain we are doing before of all:

- Protection public health,
- supporting fair food trade and
- contribute to food security and economic development

Ensuring food safety is a public health priority, and an essential step to achieving food security. Effective food safety and quality management systems are key not only to safeguarding the health and well-being of people but also to fostering economic development and improving livelihoods by promoting access to domestic, regional and international markets. The Food Safety and Quality Programme supports an

integrated and multidisciplinary approach to food safety management and holistic and feasible “food chain” solutions to specific food safety problems (Nordenskjold 2012).

There are several benefits of implementing a standard in the business, the competitive advantage is increased and it is easier to establish on new markets. A standard provides a method of preventing problems and crisis and it can also help to handle requirements from authorities, the market and others. The main purpose of a food safety standard is to provide consumers with safe food (Lusk et al, 2011). The continuous development of industry’s competitiveness and technology means that organizations wanting to stand out in the market by the quality of offered products and services, as well as the attention to customer needs must strive to integrate key processes and management concepts.

Impact of standardized quality management system to the functioning of the food supply chain and to develop a general model of quality management in the food chain, which by combining the concept of quality management and logistics will increase the efficiency of the entire supply chain. It should be emphasized that the quality and safety of food is a cumulative value. They are created by both the characteristics of the product itself shaped by the adopted technology and formulation, as well as by the factors and conditions accompanying the formation. These include methods of supply, production and distribution, mechanisms of control, applied standards and standardized systems and concepts of quality management (Zimon 201).

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## Implementacija standarda kvaliteta u prehranbenom lancu: očekivanja i nedostaci

\*Enver Karahmet<sup>1</sup>, Almir Toroman<sup>1</sup>, Senita Isaković<sup>1</sup>

<sup>1</sup>Univerzitet u Sarajevu Poljoprivredno – prehrambeni Fakultet

\*Vanr. Prof. e-mail: [enverkarahmet@yahoo.com](mailto:enverkarahmet@yahoo.com)

[e.karahmet@ppf.unsa.ba](mailto:e.karahmet@ppf.unsa.ba)

**Ključne riječi:** Implementacija, standardi, kvalitet, prehrambeni lanac,

Implementacija sistema upravljanja kvalitetom je dobar način da se osigura higijenska i zdravstvena sigurnost proizvodnje hrane i da se poveća sljedivost prehrambenih proizvoda kroz prehrambeni lanac. Osnovna svrha implementacije standarda sigurnosti hrane je da se potrošačima osigura zdravstveno sigurna hrana (Lusk et al, 2011). Kvalitet hrane se često povezuje sa senzornim, nutritivnim i ekonomskim aspektima hrane (McDonald et al, 2005), ali je mnogo više od toga. Kvalitet hrane je također povezan sa sigurnošću proizvoda, tj. garancija koju proizvođač daje potrošaču da je hrana sigurna i da neće uzrokovati bolest ili štetu. Iz tog razloga, stvoren je veliki broj efikasnih sistema kontrole.

Da bi se zaštitilo zdravlje potrošača, podržala fer trgovina hranom i doprinijela sigurnost treba stalno poboljšavati sistem kontrole proizvodnje i prerade hrane. Globalizacija lanca proizvodnje i prerade hrane izlaže stanovništvo širom svijeta opasnostima koje mogu biti uzrokovane hranom. Ovo je potrebno pažljivo razmotriti, posebno u kontekstu zemalja koje se u velikoj mjeri oslanjaju na uvoz zdravstveno sigurne hrane. Inspekcija uvoza hrane pomaže umanjiti izlaganje opasnostima koje su vezane za trgovinu hrane, a istovremeno efikasnije koristiti raspoložive resurse, koji mogu biti oskudni za mnoge zemlje u razvoju ili zemlje u tranziciji (FAO). Prema mišljenju mnogih autora, lanci snabdijevanja hranom bi trebali biti posebno zainteresirani za implementaciju koncepta upravljanja kvalitetom. Poboljšanjem sigurnosti i kvaliteta hrane duž lanca radimo prije svega na:

- Zaštiti javnog zdravlja,
- podržavanju fer trgovine hranom i
- doprinosimo sigurnosti hrane i ekonomskom razvoju

Obezbeđivanje sigurnosti hrane je prioritet javnog zdravlja i bitan korak u postizanju proizvodnje i prodaje zdravstveno sigurne hrane. Efikasni sistemi upravljanja sigurnošću i kvalitetom hrane su ključni ne samo za očuvanje zdravlja i dobrobiti potrošača, već i za poticanje ekonomskog razvoja i poboljšanje životnih uslova promociju pristupa domaćim, regionalnim i međunarodnim tržištima. Program sigurnosti i

kvaliteta hrane podržava integrirani i multidisciplinarni pristup upravljanja sigurnošću hrane i holistički izvodljivo rješenje za konkretne probleme obezbjeđenja sigurne hrane uopće u prehrambenom lancu (Nordenskjöld 2012).

Postoji nekoliko prednosti uvođenja standarda u poslovanje, povećava se konkurentnost i lakše uspostavljanje na novim tržištima. Standard obezbjeđuje metode za sprečavanje problema i rješavanje kriza i takođe može da pomogne u rešavanju zahtjeva od strane vlasti, tržišta i drugih. Osnovna svrha implementacije standarda sigurnosti hrane je da se potrošačima osigura zdravstveno sigurna hrana (Lusk et al, 2011). Kontinuirani razvoj konkurentnosti i tehnologije u prehrambenoj industriji znači da kompanije koje žele da se istaknu i ostanu na tržištu po kvalitetu svojih proizvoda i usluga, kao i pažnji prema potrebama kupaca, moraju težiti integraciji ključnih procesa i koncepta sistema upravljanja kvalitetom.

Uticaj standardiziranog sistema upravljanja kvalitetom na funkcionisanje lanca snabdjevanja hranom i razvoj opšteg modela upravljanja kvalitetom u lancu ishrane jeste kombinacija koncepta upravljanja kvalitetom i logistikom pa time povećava efikasnost cjelokupnog lanca snabdjevanja hranom. Treba naglasiti da je kvalitet i sigurnost hrane kumulativna vrijednost. One su stvorene i karakteristikama samog proizvoda koje su oblikovale usvojena tehnologija, kao i faktorima i uslovima koji prate sigurnost proizvoda. To uključuje metode snabdjevanja, proizvodnje i distribucije, mehanizme kontrole, primjenjenih standarda i standardiziranih sistema i koncepte upravljanja kvalitetom (Zimon 201).

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## Essential knowledge and skills about food safety among consumers

\*Vesna Dakovic<sup>1</sup>

<sup>1</sup>Administration for Food Safety, Veterinary and Phytosanitary Affairs-director

e-naslov: [vesna.dakovic@ubh.gov.me](mailto:vesna.dakovic@ubh.gov.me)

**Keywords:** Food, food safety, administration

Agriculture is still a substantial or major component of the Balkan national economies, in particular in terms of employment and in terms of exports. Agricultural products are among the main goods traded between Balkan countries suggesting potential complementarities. The promotion of sustainable agrofood development requires that "enabling environments", in particular those aimed at ensuring food safety, innovation, continuing promoted and maintained human resource development and capacity building.

Food safety is pervaded in broad number of scientific disciplines and backed up with state and international policies in order to have social, reflected in public health, and economic sense, as an essential prerequisite for food trade.

Merging services responsible for food safety, veterinary and phytosanitary policies of Ministry of Health and Ministry of Agriculture and Rural Development in 2016 in a single government body, Administration for Food Safety, Veterinary and Phytosanitary Affairs, brought to a common approach to all policies related to food safety, improvement and enforcement of food safety system in Montenegro. Improvement has been made in developing food safety policies, implementation of international regulations, and understanding of obligations and requirements for farmers and producers. The coverage of consumers' understanding of the role of government in ensuring safe food improved significantly. However, the level of consumer interest and responsibility in emerging risks in food chain needs to continue to increase.

Although food safety is the main responsibility of producer, but even so of everyone, state has the main role and has to continue to strengthen and evolve, continuing to back up numerous small scale producers in awaited accession to the European Union.

Future policies should refine roles and accountabilities of all stakeholders in food safety management process, based on multiple criteria that can be used in the decision-making considering human,

animal and environmental health in order to prioritize food safety issues.

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## Necessities for food safety knowledge and skills for EU level: problems and perspectives of integrations and harmonization

Igor Tomašić\*,

University of Belgrade, Faculty of Agriculture, Nemanjina 6, Belgrade, Serbia.

\*professor. dr.

e-naslov: [igor.tomasic@yahoo.com](mailto:igor.tomasic@yahoo.com)

**Keywords:** Food, food safety,

In today's world, responsibility for food safety is divided between food operators accountable for the safety of their products and required to employ preventive measures, notably HACCP related and public authorities exercising second-level control and checking the measures taken by the operators. Even consumers, given the importance of the post-purchase phases have an active role in the maintenance of food safety. The necessity for food safety knowledge and skills along the food chain are evident and we would say even crucial for all food industry stakeholders. Food safety knowledge and skills are necessary to protect consumers and the food industry from unskilled practices in food production. Training of food handlers is critical for preventing food borne diseases (FBD), and the need for continuous education for all involved, with records kept of these activities, is indispensable. Continuing training should be planned and enhanced to emphasize content directed at health risks and for improving the knowledge, attitudes, and practices of food handlers (Stedefeldt et al., 2015).

The food security team and other people who perform activities that have an impact on food safety should be competent and have adequate education, training, skills, and experience. It is the responsibility of the organization to identify these necessary skills, provide training, or take actions to ensure that the staff has these competencies. The organization should also ensure that the people responsible for the monitoring, correction, and corrective action of the food safety management system are trained (ISO, 2005). Increasing the food safety standards implies food safety education (Käferstein, Motarjemi, & Bettcher, 1997). Recommendations such as of the Codex Alimentarius (2009) and food safety laws and standards have been published in order to serve the experts, professionals, foodservice owners and food handlers as their guidance on appropriate procedures to reduce the risk of FBD outbreaks. Without a doubt, individuals engaged in food operations must be informed about them and properly trained. We have evidence that food handlers that had mandatory training were more effective in relation to good food-handling practices

in comparison with companies that had a voluntary program (Karaman, Cobanoglu, Tunalioglu, & Ova, 2012).

However, food safety training occurs in a determined political, economic, social, institutional, financial and juridical context. It cannot make up for inadequacies of infrastructure (slaughterhouses, laboratories), of personnel, of resources or of funds, nor can it mitigate the constraints of a given political or territorial structure (FAO, 2005). All of this varies significantly among different EU member states and even more between EU and non-EU countries. In order to prevent discrepancies in the food safety knowledge and skills at EU level, the integration and harmonization of food safety training and education may be the answer. We say may be only because we already know that the transmission of food safety training and education cannot guarantee that it will generate necessary food safety knowledge and skills that will eventually lead to a decrease in the number of FBD.

So let us take a look at a Serbian case study, developing (member candidate) country that has to cope with often limited resources and is lacking food safety educated and/or highly trained personnel within the food industry workforces and veterinary inspectors. This is why Serbia applied the academic food safety training and education approach, also criticized that does not correspond to traditional practices (FAO, 2005), using the rationale of the HACCP to identify priority problems and effective solutions. Training programmes for industry/employees were initially a key role of government; however, this activity has since been taken over by academia or private consultants. Food safety training methodology addressed two major dimensions of food safety regulation: the economic impact, especially in the framework of (limited) international trade, and public health, particularly at local or regional level. Is there evidence that this approach was successful and to what extent?

Serbian meat industry survey conducted in 2013 (Tomašević et al., 2013) revealed that one of the major difficulties faced when implementing/operating HACCP was the need to retrain supervisory/managerial and production staff. The staff training cost and in particular the cost of external consultants was also deemed as important. When the level of food safety knowledge, among 352 Serbian meat handlers, was investigated their knowledge score was significantly associated with the age, education and participation in the food safety training. (Smigic, Antic, Blagojevic, Tomasevic, & Djekic, 2016). Meat handlers that were <24 years old scored 59%, whereas older participants had better scores, with those aged between 45-54 having the highest obtained knowledge scores of 66%. As expected, the participants with the lowest education (only primary school) scored the lowest values (59%), and the highest educated participants (holding university degree) scored the highest values (76%). This

survey provided very important information on the level of food safety knowledge among Serbian meat handlers and difference/gaps in the knowledge among workers from different roles within the meat chain (slaughtering, processing and retail). This was of special importance, as these results served as a base for further improvement in the knowledge and training/educational material and emphasized the need for continuous food safety training among meat workers.

According to the analysis of 48,246 microbiological test results were collected from 130 meat processing plants and 220 meat retail facilities over a seven-year period: 41 months before and 43 months after the food safety re-training has occurred, a strong positive effect on meat handling practices was observed. Significant reductions were perceived in the number of hygiene indicator organisms on all types of surfaces examined and types of meat establishments investigated. The improvement of process hygiene was articulated as aerobic colony count reduction of at least  $1.0 \log_{10}$  CFU/cm<sup>2</sup> for food contact surfaces and over  $2 \log_{10}$  CFU/cm<sup>2</sup> for cooling facilities (refrigerators, freezers and other meat cooling devices). The period after re-training was also marked by a steady decline of positive *Enterobacteriaceae* and *Staphylococcus* samples. The improved hygienic conditions in Serbian meat establishments encouraged producers to use lower amounts of nitrite. Samples from 268 different meat-producing plants (20,106 in total) revealed that food safety (re)trained meat operators decreased average residual nitrite concentrations in all categories of meat products by 30.65% (Tomasevic et al., 2017). They have also contributed to the decline of average sulphite concentrations for all categories of meat preparations and fresh processed meat products by 43% (from 33.6 to 19.3 mg kg<sup>-1</sup>). Due to the increased knowledge about chemical hazards in meat processing, a better alignment of practices with the legal provisions was also achieved. The share of non-compliant samples dropped from 18.6% before to 8.3% after the additional food safety training and education has happened (Tomasevic et al., 2018).

The same also benefited Serbian dairy industry where increasing hygiene awareness of farmers and producers through training improved the safety of milk (Smigic, Djekic, Tomasevic, & Miocinovic, 2012; Tomašević et al., 2016). Positive effects of enhanced skills and knowledge were also observed on process hygiene in other types of Serbian food establishments (Djekic et al., 2016). The absence of national food poisoning statistics or national foodborne disease databases are the main obstacle to fully recognize the impact of improved food safety knowledge and skills on food safety and public health in Serbia. However, Serbian case study clearly demonstrates the necessity for food safety knowledge and skills and calls for its integrations and harmonization at EU level including the EU candidate member states.

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## Bi model higienskega minimuma lahko rešil del zagat varnosti živil?

Andrej Ovca<sup>1</sup>, Mojca Jevšnik<sup>2</sup>, Peter Raspor<sup>3</sup>

Univerza v Ljubljani, Zdravstvena fakulteta,<sup>1</sup>doc. dr., dipl. inž., [andrej.ovca@zf.uni-lj.si](mailto:andrej.ovca@zf.uni-lj.si) <sup>2</sup>doc. dr., dipl. san. inž., [mojca.jevsnik@zf.uni-lj.si](mailto:mojca.jevsnik@zf.uni-lj.si)  
<sup>3</sup>red. prof. dr., dr.h.c.mult., uni. dipl. inž., [raspor2013@gmail.com](mailto:raspor2013@gmail.com)

**Ključne besede:** Usposabljanje, Higiena živil, Higienski minimum, Dobra higienska praksa.

Tveganje za proizvodnjo in promet zdravstveno neustreznega živila se zaradi človeškega faktorja po ugotovitvah domačih in tujih raziskav povečuje, saj se zaposleni, ki pri svojem delu prihajajo v stik z živilom, udeležujejo usposabljanj na delovnem mestu, ki ga zaradi neurejenosti področja pogosto izvajajo nekompetentne osebe brez ustreznega strokovnega in pedagoškega znanja (Jevšnik in sod., 2008). »Obveščanost, izobraženost in usposobljenost vseh deležnikov živilske dejavnosti za zagotavljanje varne in kakovostne hrane« (Resolucija, 2015) je cilj, ki je bil že v preteklosti zasledovan z osnovnimi in obnovitvenimi tečaji na področju higiene živil in osebne higiene za delavce, ki so delali v proizvodnji in prometu z živilom (t. i. higienski minimum). Vsebina tečajev in pogoji za izvajalca so bili takrat opredeljeni v posebnem pravilniku. Z uvedbo evropskega pravnega reda je pričel veljati Pravilnik o higieni živil (2002), ki je že vključeval koncept notranjega nadzora in permanentnega usposabljanja s strani odgovorne osebe pri nosilcu živilske dejavnosti (NŽD). Omenjeni pravilnik je predvideval tudi nabor minimalnih znanj o higieni živil in načelih sistema HACCP, ki jih je morala odgovorna oseba obvladovati. Odgovornost za usposabljanje se je iz strokovnih institucij tako prenesla na delodajalca oz. njegovo odgovorno osebo. Zakonodajni okvir na obravnavnem področju je danes opredeljen z Uredbo o higieni živil (Uredba ..., 2004), ki v zvezi z usposabljanjem zaposlenih daje poudarek na uvajanju in izvajanju dobre higienske prakse in uporabi načel sistema HACCP. Vendar pa podrobnih pogojev glede ravni znanja oseb, ki pri delu prihajajo v stik z živilom in glede znanja odgovorne osebe pri NŽD ne predvideva. Prav tako niso predvideni minimalni pogoji za izvajalce izobraževanj / usposabljanj. Opredeljen je zgolj cilj – in sicer da so zaposleni, ki delajo z živilom, usposobljeni v vseh vidikih higiene, skladno z zahtevnostjo njihovega dela, oz. da so odgovorne osebe primerno usposobljene za uporabo načel HACCP. Podrobnejša razlaga pojma »ustrezno usposabljanje« le-tega opredeljuje precej široko in nakaže več možnih načinov. Poleg organiziranih programov usposabljanja so dopustne tudi bolj ohlapne oblike, kot so kampanje obveščanja, ki jih pripravijo strokovne organizacije ali pristojni organi (Evropska komisija, 2012). Nedavna raziskava med zaposlenimi v malih živilskih obratih v Sloveniji glede poznavanja zahtev za

zagotavljanje varnosti živil, pokaže višji nivo znanja med starejšimi zaposlenimi, ki so se še udeleževali tečajev higienskega minimuma (Jevšnik in sod., 2018). V trenutni situaciji je tako NŽD naložena odgovornost za izvedbo, ki se je pogosto ne zaveda in prepuščena odločitev, da usposabljanje izvaja interno oz. ga prepusti zunanjemu izvajalcu. Vsebinsko so NŽD na voljo splošna higienska stališča, ponekod panožne smernice in aktualna obvestila Nacionalnega inštituta za javno zdravje ter Uprave za varno hrano, veterinarstvo in varstvo rastlin. Glede izbora zunanjih izvajalcev pa so NŽD prepuščeni trgu. K ureditvi področja izobraževanja in usposabljanja zaposlenih bi lahko pomembno pripomogla vpeljava in posodobitev nekdanjega modela t. i. »higienskega minimuma«. Panožna združenja in panožne smernice v tem oziru predstavljajo ključen okvir za izvedbo programov usposabljanja zaposlenih. Tako bi v panožnih smernicah opredelili minimalne standarde znanja za zaposlene in odgovorne osebe pri NŽD upoštevajoč tveganja, utemeljena v kategoriji obrata (vrsta živil, delovni procesi, ipd.). Poleg tega pa bi opredelili tudi minimalne kriterije za izvajalce usposabljanj. Posledično bi panožna združenja lahko vpeljala sistem certificiranja izvajalcev usposabljanj, kar bi članom omogočila izbiro med naborom kompetentnih oseb z ustreznim strokovnim in pedagoškim znanjem. V drugem koraku bi bilo smiselno vse to nadgraditi s sistemom prostovoljnega certificiranja malih živilskih obratov, ki se sklicujejo na panožne smernice. Omenjeni sistem bi lahko vzpostavila in implementirala panožna združenja, ki pripravljajo smernice. Posledično bi tak sistem po vzoru nekaterih drugih držav (Evropska komisija, 2009) v sodelovanju s pristojnim nadzornim organom lahko vodil v manj pogost uradni nadzor.

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## Would hygienic minimum model solve some burning issues in food safety practice?

Andrej Ovca<sup>1</sup>, Mojca Jevšnik<sup>2</sup>, Peter Raspor<sup>3</sup>

University of Ljubljana, Faculty of Health sciences, e-mail: <sup>1</sup>assist. prof., [andrej.ovca@zf.uni-lj.si](mailto:andrej.ovca@zf.uni-lj.si) <sup>2</sup>assist. prof., e-mail: [mojca.jevsnik@zf.uni-lj.si](mailto:mojca.jevsnik@zf.uni-lj.si) <sup>3</sup>full. prof., dr.h.c.mult., [raspor2013@gmail.com](mailto:raspor2013@gmail.com)

**Keywords:** Training, Food hygiene, Hygienic minimum, Good hygiene practice.

According to the research findings the risk for production of unsafe food is increasing due to the human factor, as professional food handlers attend trainings often carried out by incompetent persons without appropriate professional and pedagogical background (Jevšnik in sod., 2008). "Awareness, education and competence in the field of food safety of all links in food supply chain" (Resolution, 2015) is a goal that has already been followed in the past with basic and periodic courses in the field of food and personal hygiene for food handlers in food business sector (so-called "hygienic minimum"). The content of the courses and conditions for the provider were defined and standardized in the official rules. With the introduction of the European legal order, new Rules on hygiene of foodstuffs (2002), which already contained the concept of internal control and permanent training provided by food business operator (FBO) or the responsible person at FBO, came into force. These rules additionally contained minimum level of knowledge related to food hygiene and principles of HACCP system for the responsible person at FBO. With these rules the responsibility for training was transferred from professional institutions at national level to the FBOs. The legal framework related to the training of food handlers is currently defined by the Regulation on the hygiene of foodstuffs (2004), which emphasizes implementation of good hygiene practices and the principles of the HACCP system. However, minimum level of knowledge for food handlers and responsible persons at FBO are not defined. There are also no minimal requirements for the providers of food safety training. However, there is clear goal that that food handlers are trained in food hygiene matters commensurate with their work activity and that responsible persons are appropriately trained to apply the HACCP principles. A more detailed explanation of "appropriate training" is defined quite broadly and can be done in several possible ways. In addition to organized training programs, more loose forms such as information campaigns prepared by professional organizations or competent authorities are also permissible (European Commission, 2012). A recent study regarding knowledge of food safety requirements among food handlers in small-scale food companies in Slovenia showed a higher level of knowledge among older employees who attended "hygienic minimum" courses in the past (Jevšnik et al., 2018). In the

current situation, the FBOs (although often unaware) are responsible for training of food handlers. FBOs are left alone with the decision to carry out the training internal or by external provider. In general, basic hygienic recommendations for food handlers, guides to good practice and notifications by the National Institute of Public Health and Administration of the Republic of Slovenia for Food Safety, Veterinary Sector and Plant Protection are available to the FBOs. However, regarding the selection of training providers FBOs are left to the rules of free market. Modernization and upgrade of the former model of "hygienic minimum" could significantly contribute to the standardization in the field of food safety training. Professional associations and their guides to good practice for hygiene and for the application of HACCP represent a crucial framework for the implementation of training programs. In the guides to good practice, minimum standards of knowledge for food handlers as well as for responsible persons could be defined according to the risks originating from the nature of the food, the way the food is handled, etc. In addition, minimum standards for providers of food safety trainings could be also defined. Consequently, professional associations could introduce a certification system for training providers, enabling their members to choose between a set of competent providers with appropriate professional and pedagogical background. In the second step, it would make sense to upgrade all this with a system of voluntary certification for small-scale food companies that use guides to good practice. Consequently, such a system would (in cooperation with the competent authority) lead to less frequent official controls following the example of some other countries (European Commission, 2009).

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## **Predavatelji/ Lecturers**

**Antunović, Boris**

**Babanovska-Milenkovska, Frosina**

**Dakovic, Vesna**

**Istileulova, Yelena**

**Karahmet, Enver**

**Marjanović, Aleksandra**

**Mičovič, Elizabeta**

**Ovca, Andrej**

**Pivec, Aleksandra**

**Posedi, Janez**

**Raspor, Peter**

**Tomašić, Igor**

**Vombergar, Blanka**



### **Boris Antunović**

**Curriculum vitae:** Born in 1967 in Osijek, Croatia. On the Faculty of Veterinary Medicine, Zagreb, graduated in Food Safety – Hygiene of Products of Animal Origin in 1994 - diploma Doctor of Veterinary Medicine (DMV), in 2000 diploma Bachelor of Science (BSc) in Animal Hygiene, Ecology and Ethology and in 2003 PhD in Veterinary Parasitology and Molecular Biology. PhD thesis prepared in Istituto Superiore di Sanita – Rome, Italy, under the scholarship of the Italian Government. Beside university education, has attended more than 30 international workshops and trainings as a trainer or trainee (EFSA, JRC, FAO). In 2007 got Core Certificate in Food Safety Risk Analysis from the University of Maryland, Joint Institute for Food Safety and Applied Nutrition (USA). **Pedagogical work:** Head of Department for Animal Products and Food Safety on the Faculty of Agrobiotechnical Sciences in Osijek, Croatia. Full university professor in the field of Food Safety, Animal Health and Welfare, scientific adviser in Food Safety and Veterinary Public Health. **Research work:** A wider field of hygiene and food safety with special interest in risk analysis, food microbiology and animal welfare. **Bibliography:** Published more than 100 scientific and professional papers; 38 original scientific papers in Web of Science (WoS), cited 586 times. As a member of EFSA Scientific Committee (2011-2012), published 9 opinions as a co-author. Was awarded with the Certificate of Recognition by EFSA in 2012. **Additional assignments:** Director General of the Croatian Food Agency (2004-2007), National Consultant for the FAO (2005-2007), International Team Leader for the European Commission – EU Delegation in Kiev (Ukraine) (2017-2018). Member of European Biosafety Association (EBSA), Croatian Academy of Agricultural Sciences, University Federation of Animal Welfare (UFAW) – national coordinator for Croatia. Science Communication Manager (SCM) for the EU COST action “Riskbased meat inspection and integrated meat safety assurance” (RIBMINS).



**Frosina Babanovska-Milenkovska,**

**CV:** Born in 1969 in Kumanovo, North Macedonia. In 2000 BSc in Food and Biotechnology, Faculty of Technology and Metallurgy, University Ss." Cyril and Methodius" (UKIM) Skopje (Comparison of physical and chemical and organoleptic characteristics of red wines from certain vineyards, in 1999). From March 2002-Dec. 2009, worked at Institute for Public health, in Skopje, as Senior Food Analyst at accredited laboratory for food chemistry control (ISO 17025). From 2005-2007, multidisciplinary and international master study in Food Quality and Safety, Faculty of Agricultural Science and Food, UKIM in Skopje, (Development of analytical methods for determination of some artificial sweeteners used in food industry). From 2008-2009, Long-life learning in Innovations in Food Processing, Faculty of Technology and Metallurgy, UKIM, Skopje (subjects: Food quality and safety; Food Additives; Nutritional value of food; and Chromatographic methods). Since Dec.2009-2018, Assistant in scientific field of Food engineering, Fruits and vegetables processing. In 2015, PhD in Agricultural sciences, Faculty of Agricultural Science and Food, UKIM in Skopje, (Influence of the pepper varieties (*Capsicum annum* L. ssp. *macrocarpum*) on the quality and nutritional composition of the final products obtained with different processing technologies). In 2017, BSc in Agricultural science Faculty of Agricultural Science and Food, UKIM in Skopje, (Production technology of refreshing soft drinks fortified with vitamins.). From 2018, Assistant Professor in scientific field of Food engineering, Fruits and vegetables processing. **Educational activity:** Demonstrating theoretical and practical laboratory lessons, on the undergraduate studies for following subjects: Fruits and vegetables processing, Production of soft drinks and Technology of alcoholic and non-alcoholic drinks processing – part for non-alcoholic drinks. Also, exercises in different subjects, in accordance with the applicable programs, in Technological microbiology; Sensory properties of food; Functional food; Standardization, storage and preservation of fresh fruits and vegetables, and Standardization of agricultural products. **Research work:** In field of Food engineering, Fruit and vegetables processing, food quality and safety, including the application of some analytical methods at laboratory for food control. **Bibliography:** Publication of 28 original scientific articles in International Scientific Journals, co-author of three teaching materials for students, author of expert texts in the field of Fruit and Vegetable processing, in the Newsletter: Consumers and food, issued by the Food and Veterinary Agency and the Consumers' Organization of Macedonia. **Additional assignments at FASF:** Internal verifier according to MKC EN ISO / IEC 17025: 2006, for accredited laboratories, at the Faculty of Agricultural Sciences and Food, UKIM in Skopje. **Additional assignments out of FASF:** Food consultant, External Consultant for Implementation of HACCP Principles in differed food sectors. An external consultant and trainer for Implementation of HACCP Principles at Economic Chamber of Macedonia, Skopje, Macedonia, and an external consultant and trainer in private food consulting companies, Small and medium food processing companies. Official trainer by the JRC European Commission IRMM, Belgium in the field of Metrology in Chemistry, TrainMiC.



### **Vesna Daković**

**Biography:** Born in Nikšić Montenegro in 1977, and graduated at the Faculty of Economy of University of Montenegro in 2007. Gained Master of Science title in the field of entrepreneurial Economy - University of Donja Gorica, won the topic: »Public and Private Partnerships«. Enrolled at the PhD studies at same University, Faculty of International Finance and Business. Fluent in English. Since December 1998, she has been working as a director of a private company "Vilusi" doo. She

worked in the NGO sector, business association, as an advisor and chair of the Committee on Agriculture and Rural Development. She represented the civil sector in the EU as a member of the EU-Montenegro Civil Society Consultative Committee. From April 2016, appointed Director of the Food Safety, Veterinary and Phytosanitary Directorate. Delegate of Montenegro to the OIE - International Organization for Animal Health. **Memberships:** President of the Committee on Agriculture and Rural Development in Montenegro Business Alliance; Member of the EU-Montenegro Civil Society Consultative Committee; Member of the Association of Economists and Managers of Montenegro; Member of several working groups in the Ministry of Agriculture and Rural Development and the Ministry of Sustainable Development and Tourism for the drafting of laws and by-laws Member of Working Group for EU Negotiation Chapter 12: Food Safety, Veterinary and Phytosanitary Policy. **Pedagogical work:** Teaching assistant at the Faculty of International Economy, finances and business, University Donja Gorica. **Research field:** Rural development, food safety, Animal Health and welfare, Agriculture. **Bibliography:** Participant in a large number of seminars, conferences, workshops, round tables, etc. Participant in a large number of seminars, conferences, workshops, round tables. Author of several articles in domestic and international journals.



### **Yelena Istileulova**

Yelena is born in the USSR, in Kazakhstan in 1966. She got her first degrees as an Engineer-Economist of Water Resources at the Institute of Irrigation, Land Reclamation and Construction and as a Teacher of Piano in 1990. After 2 years of her work at this Institute, she goes to study in 2 programs: post-graduation course of Macroeconomics at the Academy of Management and the first international MBA program in CIS countries - at KIMEP, where she wins program in the Lancashire University. After her graduation in 1994, she started working on the European Tacis projects on banking, agriculture and ISO standards and teaching Economics on MBA programs. As an Adviser to the European banking project (1998-2000), she wins the British Council grant to develop her proposed project in the Oxford University in UK. Simultaneously, she wins a prestigious Fulbright Scholarship at the Bureau of Labour Statistics in Washington, DC for her publications about Labour market. After these scholarship in the US, UK, and International Policy Fellowship on policy issues in Hungary she moves to work to the United Nations, UNDP project "Integrated Water Resources Management" and does her expertise for FAO (Food and Agricultural Organisation) from 2003 to 2006. In 2005 she is invited to work as a Managing Director of the Investment Fund of Kazakhstan on Human Resources Management, and later start consulting, developing HR Motivation Maps for international Telecommunication company "Ducat". In 2009 Yelena set up the Center for Research and Development for the private Business school IAB, and in 2010 she becomes the National Tempus Expert of the Bologna process performing these activities till 2015. She wins the Erasmus Mundus grant for doctoral Erasmus Mundus program in October, 2010 and select Faculty of Economics of the University of Ljubljana, Faculty of Economics for the Bologna PhD program. Since 2011 Yelena is approved as an external evaluation expert for the European Commission in the field of higher education and since 2014 – for assessment of breakthrough innovations in Food, Energy and some other industries, from 2018 – she is approved as an Evaluation expert for the European Commission. Yelena develops her Theory of Global Accreditation in her PhD "Effects of International Accreditation on Institutional Change of Business schools, and this thesis is submitted by the Faculty for the 2019 European Doctoral Thesis' competition. At present, she does a short-term research on Key Performance Indicators for the Rectorate of University of Ljubljana, evaluate projects for the European Commission, and participates in institutional and programs' accreditation of HEIs. Yelena has 40 scientific publications. She also got 9 international prizes (four 1st & five 2nd) from International Musical Festivals organised by the Russian center of Science and Culture in Ljubljana as a composer and performer of her romances, including the romances about scientists (Baron Valvazor, Nikola Tesla, Jakob Bruce, Konstantin Tsiolkovsky), introducing the new trend about Science in Music





### **Enver Karkamed**

Born in Kiseljak 1964 Bosnia and Herzegovina. He graduated at the Veterinary Faculty in Sarajevo in 1995. Teacher assistant in the field of Obstetrics and reproduction of domestic animals has been from 1996 – 2002. Post-graduate studies Reproduction of domestic animals from 2000 to 2002 ended at the Veterinary Faculty in Sarajevo. The second postgraduate study completed "Feed Manufacturing Technology" from 2002-2004 and defended Master Thesis at the University of Life Sciences, As - Norway titled as „The Effect of High Temperature and Long Term Conditioning of Wheat and Corn Based Diets on Digestibility of Starch in Broiler“. PhD thesis defended in 2011 at the Agriculture and Food Sciences in Sarajevo titled as „Seasonal variations in deposition of fat in the body of rainbow trout *Oncorhynchus mykiss (Walbaum 1792)* and its effect on yield and quality of meat in cages at commercial breeding farm“. Currently work as associate professor at Institute for Food Technology at Agricultural and Food Sciences Faculty University of Sarajevo at courses: Hygiene and sanitation, Hygiene and sanitation in food production lines, Food safety, Water control in food industry, Environmental protection in food industry, Fish processing and quality controlling. As Project coordinator and team member were in several international and local projects. He has published more than 60 scientific and professional papers in BøH and abroad and two books. Fields of interest: Food safety, Hygiene and controlling of Food Processing, Fish processing, quality control, projecting and implementation different standards in food industry.



### **Elizabeta Mičovič**

**Življenjepis:** Rojena 1960 v Kopru, 1979–1984 – študij na Biotehniški fakulteti, Oddelek za živilstvo na Univerzi v Ljubljani. Leta 1984 se je zaposlila v Mercator Embi in kasneje v Žitu Gorenjki kot živilska tehnologinja, vodja razvoja in vodja HACCP tima. Na Biotehniški fakulteti Univerze v Ljubljani je 2003 zaključila magisterij, 2011 pa na Fakulteti za varnostne vede, Univerze v Mariboru doktorat s področja varstvoslovja. V letu 2002 je postala zdravstvena inšpektorica, 2005 državna uslužbenka na Ministrstvu za zdravje in leta 2010 na Ministrstvu za kmetijstvo, gozdarstvo in prehrano. Od leta 2016 deluje na področju odnosov z javnostmi, posebej s komuniciranjem tveganj na področju varne hrane in krme. **Pedagoško delo:** Leta 2018 habilitirala na Univerzi v Mariboru, na Fakulteti za kmetijstvo in biosistemske vede, kot predavateljica za program Varnost hrane v prehrabeni verigi - nosilka dveh predmetov: Komunikacija in Označevanje/oglaševanje živil. Od leta 2006 za Evropsko komisijo redno predava v programih TAIEX, na različnih področjih zagotavljanja varne hrane. Od leta 2014 je kot predavateljica vključena v program usposabljanja BTSF na področju izvajanja dobre higienske prakse in HACCP. **Raziskovalno delo:** Raziskave na področju kakovosti živil, razvoja funkcionalnih izdelkov, ocene izpostavljenosti aditivom, zagotavljanja varne hrane in pravic potrošnikov, varstvoslovja: viktimologije (potrošnik kot morebitna žrtev nepoštenih praks). **Bibliografija:** SICRIS izpis obsega 44 enot, od tega 6 izvirnih in preglednih znanstvenih člankov.

### **Elizabeta Mičovič**

**Biography:** Born 1960 in Koper, 1979-1984 - studies at the Biotechnical Faculty, Department of Food Science at the University of Ljubljana. In 1984 she was employed at Mercator Emba and later in Žit Gorenjka as a food technologist, development manager and head of the HACCP team. She completed her MA in Biotechnical Faculty at the University of Ljubljana in 2003, and in 2011 she received a doctorate in the field of security in the Faculty of Security Sciences, University of Maribor. In 2002, she became a health inspector, a 2005 civil officer at the Ministry of Health, and in 2010 at the Ministry of Agriculture, Forestry and Food. Since 2016 he has been working in the field of public relations, especially by communicating risks in the field of safe food and feed. **Pedagogical work:** In 2018 she habilitated at the University of Maribor, Faculty of Agriculture and Biosystems, as a lecturer in the Food Safety Program in the food chain - the holder of two subjects: Communication and labeling / advertising of foodstuffs. Since 2006, she regularly lectures on the TAIEX programs in various fields of food safety for the European Commission. Since 2014 she has been involved in the BTSF training program in the field of good hygiene practice and HACCP as a lecturer. **Research work:** Research in the field of food quality, development of functional products, estimates of exposure to additives, food safety and consumer rights, security science: victimology (consumer as potential victim of unfair practices). **Bibliography:** The SICRIS list 44 units, of which 6 are original scientific and review articles.



### **Aleksandra Marjanović**

**Biography:** Born in 1980 in Sarajevo; 1998–2003 – master study in Pharmacy, University of Sarajevo (diploma thesis: "Determination of chlorophenoxy herbicides by TLC in clinical toxicology"); 2010-Master of science in Pharmacy, University of Sarajevo (master thesis: "Investigation of the possibility for determination of polychlorinated biphenyls in fish tissue using immunoassay"); 2013-PhD in Pharmacy, University of Sarajevo (doctoral thesis: "Use of passive sampling systems in determination of endocrine disrupting chemicals and genotoxic compounds in water"); 2005-2008 specialization in Toxicological chemistry, Federal Ministry of Health, FBiH; 2007-HACCP manager (Bio-Base/TÜV Adria); 2016-Training of experts in toxicology of phytopharmaceutical products; 2014-Training in analysis of PAHs in biological samples and in 2008 -Training on instrumental techniques for analysis of POPs in samples from environment and biota (Norwegian Institute for water research, Oslo, Norway). **Teaching:** Associate professor in toxicology (subjects: "Toxicological chemistry", "Misuse of drugs in sport", "Food Toxicology and food safety"-master study and subjects "Endocrine disrupting chemicals in food and environment", "Food quality and food safety"-doctoral study; subject "Principles of toxicology"-Interdisciplinary master study of nutrition at University of Sarajevo); mentor of more than 70 diploma and master thesis. **Research work:** Toxicology, especially ecotoxicology and food toxicology and food safety; risk assessment, pharmaceutical analysis. **Bibliography:** 89 publications (19 original scientific papers). **Additional informations:** Head of the Poisoning control center at Faculty of Pharmacy, University of Sarajevo



### **Andrej Ovca**

**Življenjepis:** Rojen 1984 v Ljubljani, 2002–2006 študij sanitarnega inženirstva na Univerzi v Ljubljani - 2006 diploma (»Obvladovanje hladne verige v trgovinah in razumevanje le-te med potrošniki«), 2006–2010 - magistrski študij znanosti o okolju na Univerzi v Novi Gorici, 2010 - magisterij (»Izolacija in karakterizacija cinkovih spojin v izbranih komponentah vegetarijanske prehrane«), 2011–2018 - Interdisciplinarni doktorski študijski program Bioznanosti - smer

živilstvo na Biotehniški fakulteti na Univerzi v Ljubljani, 2018 - doktorat (»Skladnost formalnega izobraževanja na področju varnosti živil s potrebami živilsko-prehransko-oskrbovalne verige«).

**Pedagoško delo:** Docent za področje sanitarnega inženirstva. Soavtor univerzitetnega učbenika Higiena objektov in procesov.

**Raziskovalno delo:** Širše področje higiene in varnosti živil s posebnim zanimanjem za človeka kot dejavnik tveganja pri zagotavljanju varnosti živil.

**Bibliografija:** COBISS-izpis obsega 187 enot, od tega 16 izvirnih in pregledni znanstveni članek, 2 poglavje v monografski publikaciji.

**Dodatne zadolžitve na UL ZF:** Predstavniki Zdravstvene fakultete v Ljubljani v mednarodni zvezi za okoljsko zdravje (IFHE), Oddelčni koordinator za mednarodno sodelovanje, učitelj tutor.

**Dodatne zadolžitve izven UL ZF:** Glavni urednik revije Sanitarno inženirstvo (International Journal of Sanitary Engineering Research), urednik spletnega portala Sanitarc.si, član Evropske zveze za javno zdravje (The European Public Health association), član mednarodne zveze za okoljsko zdravje (International Federation of Environmental Health).

### **Andrej Ovca**

**Biography:** Born 1984 in Ljubljana, 2002-2006 studies of sanitary engineering at the University of Ljubljana - 2006 ("Managing the cold chain in trade and understanding it among consumers"), 2006-2010 - Master's degree in Environmental Science at the University of Nova Gorica , 2010 - MA, 2011-2018 - Interdisciplinary doctoral study program Bioznanosti - life in Biotechnical faculties at the University of Ljubljana, 2018 - PhD ("Compliance of formal education in the area of animals with the needs of the food and nutrition-supply chain").

**Pedagogical work:** Assistant Professor for Sanitary Engineering. Co-author of university teacher Hygiene facilities and processes.

Research work: A wider field of hygiene and food safety with special interest in human risk in ensuring the safety of life.

**Bibliography:** The COBISS list 187 units, of which 16 original, 1 review scientific article, 2 monograph chapters.

**Additional assignments:** Representative of the Faculty of Medicine in Ljubljana in the International Organization for Environmental Health, Departmental Co-ordinator for International Cooperation, teacher tutor. Editor-in-Chief of International Journal of Sanitary Engineering, Member of the European Public Health Alliance, Member of the International Association for Environmental Health.



### **Aleksandra Pivec**

Rojena je 1972 na Ptuju. Leta 1999 je diplomirala na Fakulteti za kemijo in kemijsko tehnologijo Univerze v Ljubljani, kjer je kasneje zaključila tudi doktorski študij kemijskega inženirstva na temo optimizacije procesov vinske fermentacije. Svojo poklicno pot je začela kot mlada raziskovalka na Fakulteti za kemijo in kemijsko tehnologijo Univerze v Ljubljani ter strokovna raziskovalna sodelavka v Znanstveno-raziskovalnem središču (ZRS) Bistra Ptuj. V ZRS Bistra Ptuj je 17 let delovala na področju priprave, vodenja in koordinacije nacionalnih in mednarodnih razvojnih, znanstveno - raziskovalnih in aplikativnih projektov ter šest let opravljala funkcijo direktorice inštitucije. Njeno delovanje je bilo osredotočeno na vodenje inštitucije, načrtovanje, pripravo in izvajanje aktivnosti za pospeševanje in vodenje lokalnega in regionalnega razvoja območja statistične regije Spodnje Podravje ter ustvarjanje povezav med znanstveno raziskovalno in izobraževalno sfero (fakultete, inštituti in druge RR institucije) ter gospodarskimi subjekti, za učinkovit prenos znanj v prakso. Aktivno je delovala pri pripravi razvojnih strategij na različnih področjih in za različne deležnike lokalnega in regijskega okolja, pripravi in vodenju znanstvenih in razvojnih projektov, pripravi publikacij ter pridobivanju sredstev iz skladov EU. Zaradi velikega števila pripravljanih in izvedenih projektov dobro pozna način dela evropskih institucij in črpanje sredstev iz evropskih skladov. Kot svetovalka za prenos tehnologij deluje na področju podjetniških svetovanj in izvedbe projektov prenosa tehnologij iz znanstveno raziskovalnih inštitucij v gospodarstvo. Izvedla je večje število predavanj iz področij regionalnega razvoja, področja razvoja novih izdelkov ter področja črpanja evropskih sredstev ter učinkovite priprave projektov in projektne vodenja. Od septembra 2016 do septembra 2018 je bila zaposlena na Uradu vlade RS za Slovence v zamejstvu in po svetu, od julija 2017 kot državna sekretarka. Zadolžena je bila za področje razvoja in pomoči pri povezovanju razvojnih interesov in aktivnosti med Slovenci, ki živijo v zamejstvu in po svetu ter matično domovino in rojaki v Sloveniji na področjih kulture, izobraževanja, gospodarstva, mladih in EU sodelovanja. 13. septembra 2018 je prevzela vodenje Ministrstva za kmetijstvo, gozdarstvo in prehrano.



### **Janez Posedi**

Rodil se je leta 1967 v Frankfurtu, Zvezna Republika Nemčija. Študiral je na Univerzi v Ljubljani, kjer je na Veterinarski Fakulteti pridobil naziv doktor veterinarske medicine (1994). Na Univerzi v Ljubljani je pridobil tudi naziva Magister znanosti iz področja veterinarske mikrobiologije (2000) in Doktor znanosti na področju Parazitologije (leta 2003).

Od marca 2015 je Generalni direktor Uprave Republike Slovenije za varno hrano, veterinarstvo in varstvo rastlin.

Od leta 2016 je delegat pri Svetovni organizaciji za zdravje živali (OIE).

Od leta 1994 do leta 2015 je bil zaposlen na Veterinarski fakulteti Univerze v Ljubljani. Tam se je naprej ukvarjal s tuberkulozo živali nato pa s parazitologijo. Bil je namestnik predstojnika Inštituta za mikrobiologijo in parazitologijo (od 1.12.2009 do 15.6.2015), vodja Nacionalnega referenčnega laboratorija za parazite (od 1.5.2007 do 15.6.2015), vodja Laboratorija za parazite na Enoti za diagnostiko kužnih in drugih bolezni na Nacionalnem veterinarskem inštitutu - NVI (od 1.8.2008 do 15.6.2015), vodja Enote za parazitologijo na Inštitutu za mikrobiologijo in parazitologijo (od 12.11.2004 do 15.6.2015), vodja Nacionalnega referenčnega laboratorija za parazite (od 1.5.2007 do 15.6.2015), vodja Enote za parazitologijo na Inštitutu za mikrobiologijo in parazitologijo (od 12.11.2004 do 15.6.2015) in vodja Sprejemnice vzorcev na Nacionalnem veterinarskem inštitutu - NVI (od 1.1.2003 do 1.10.2005).

V obdobju med novembrom 2000 in novembrom 2001 se je na Visoki veterinarski šoli Hannover usposabljal na področju veterinarske parazitologije s poudarkom na diagnostiki in molekularni helmintologiji. Od leta 2005 je habilitiran kot višji strokovni sodelavec za področja Mikrobiologija, Parazitologija in Molekularna biologija. Opravil je tudi izobraževanja oziroma usposabljanja iz Biotehnoška varnost, Aktivni in pasivni monitoringi glede živalskih kužnih bolezni, Osnove analize rizika.

Od leta 2015 je član sveta Javne agencije za zdravila in medicinske pripomočke, od leta 2015 član sveta Slovenske Akreditacije in od leta 2013 član Sveta za varno hrano

Je član Veterinarske zbornice in Mednarodne komisije za trihinelozo (International Commission on Trichinellosis).

Bil je član mednarodnega organizacijskega odbora na 12. Mednarodnem kongresu o trihinelozii (12th International Conference on Trichinellosis (ICT12) in 14. Mednarodnega kongresu o trihinelozii (14th International Conference on Trichinellosis (ICT14), prav sem član Sveta za varno hrano. V COBISS-izpis obsega 57 enot, od tega 13 izvirnih znanstvenih člankov.

Med leti 2004 in 2015 je aktivno deloval v sindikatih. Od oktobra 2011 do 2015 je bil predsednik Konfederacije Sindikatov Slovenije PERGAM. Bil je član Ekonomsko socialnega svet Republike Slovenije, Sveta zavoda za pokojninsko in invalidsko zavarovanje, Sveta za visoko šolstvo. Od decembra 2013 do 2015 je bil član Nadzornega sveta družbe Paloma d.d. Bil je tudi član Ekonomsko socialnega strokovnega odbor (ESSO), ki je posvetovalno telo uprave Slovenskega Državnega Holdinga (SDH).

## Peter Raspor



**Življenjepis:** Rojen v Dolgi poljani, 1954. Maribor: Pekovska šola (1971), živilska tehnična šola (1975). Ljubljana: Živilska tehnologija, BF Univerza v Ljubljani. Diploma na živilstvu (1983) Zagreb: Doktorat s področja biotehnologije (1987) London: Institute Labatt 1989 podoktorska specializacija. Docent za področje biotehnologije in industrijske mikrobiologije (1989), izredni profesor (1992), redni profesor (1996). Ustanovitev katedre za biotehnologijo (1992) **Dela:** Mlinotest Ajdovščina (1969-86), Labatt (1987-89), Univerza v Ljubljani (1989-2013). Univerza na Primorskem (2014-16). **Pedagoško delo:** Postavil je podiplomski študij biotehnologije na UL (1994); dodiplomski študij biotehnologije na BF (2004). Mentoriral je 55 disertacij, 18 magisterijev, 145 diplom, med njimi ducat nagrajencev. **Raziskovalno delo:** Vodil je več deset projektov: živilstvo, industrijsko mikrobiologijo in biotehnologijo ter varnost živil. **Bibliografija:** SICRIS obsega 1810 enot, 214 znanstvenih člankov, preko 100 vabljenih predavanj **Nagrade in priznanja:** Za svoje delo je med drugim prejel tri častne doktorate in tri najvišje državne nagrade. **Drugo:** Sodeloval pri postavitvi LUI inkubator na UL, pomagal pri nastanku 5 biotehnoških podjetij. Vključen v sisteme kakovosti ISO in v mednarodne presoje kakovosti v visokem šolstvu. Snoval in vodil je sprejetje dveh deklaracij: o mikrobiologiji leta 2004, in deklaracijo o hrani, prehrani in tehnologiji leta 2008. Postavil je tri kongresne mreže, ki so začele svojo pot v Ljubljani, CEFood 2002, FEMS 2004 in EFFoST 2008.

**Biography:** Born in Dolga Poljana, 1954. Maribor: Bakery school (1971), food technical school (1975). Ljubljana: Food Technology, BF, UL Graduate diploma in food technology (1983), Zagreb: Doctorate in Biotechnology (1987) Faculty of Food Technology and Biotechnology, London Labatt Institute (1989). Postdoctoral specialization Assistant Professor in Biotechnology and Industrial Microbiology (1989), associate professor (1992), full professor (1996). Establishment of the Department of Biotechnology (1992). **Working activity:** Mlinotest Ajdovščina (1969-86), Labatt (1987-89), University of Ljubljana (1989-2013). University of Primorska (2014-2016). **Pedagogical work:** He established post-graduate biotechnology study at UL (1994); undergraduate biotechnology study at BF (2004). He mentored 55 dissertations, 18 master's degrees, 145 diplomas, among them a dozen of prize winners. **Research work:** He has led dozens of projects. food, industrial microbiology and biotechnology, and food safety. **Bibliography:** SICRIS lists 1810 bibliographic units, 214 scientific articles, 27 expert articles, a few dozen book chapters, several patents, over 100 invited lectures. **Awards and recognitions:** He has received three honorary doctorates and three top state awards for his work. **Additionally:** He helped set up the LUI incubator at UL, 5 biotech companies. He was involved with ISO and international audits in higher education for research and teaching. He established and led the adoption of two declarations: on microbiology in 2004, and a declaration on food, nutrition and technology in 2008. He set up three congressional networks that began their journey in Ljubljana, CEFood 2002, FEMS 2004 in EFFoST 2008.

## Igor Tomašević



**Biography:** Born March 1974. is Associate Professor with a demonstrated history of working at Faculty of Agriculture University of Belgrade. He is skilled in Food Science & Technology, Sensory Evaluation, Food Chemistry, Food Safety and Quality Management Systems and has a background in Meat Industry and IT. Also, he is a strong education professional with a Doctor of Philosophy (PhD) focused in Biotechnology from University of Belgrade. He is fluent in both English and Spanish language. His professional training took place at Texas AM University (USA), University of Jerusalem (Israel), University of Ghent (Belgium), IRTA Catalan Meat Research Center, University of Valencia (Spain). **Memberships:** His membership of professional organizations includes American Meat Science Association (AMSA), ISO/Technical Committee 34/SC 17 Management systems for food safety (National level) and Institute of Food Technologist (IFT). **Pedagogical work:** Associate Professor at Faculty of Agriculture and University of Belgrade teaching (1) Meat Processing; (2) Technology of Meat By-products; (3) Meat and Milk Processing; (4) Animal Source Food Technology Basics; (5) Food Safety Management (Bachelor Level); (1) Trends in Meat Technology (Master Level) and (1) Advances in Meat Science; (2) Advances in Meat Technology (PhD Level). Supervised 30 Bachelor, 10 Master and 5 PhD Thesis. **Bibliography:** So far, he has coauthored 62 papers in 30+ scientific journals included in the ISI Web of Knowledge, 2 University books and 4 Chapters in international scientific monographies. He received Top Reviewer for Agricultural Sciences Publons Award in 2018.





## **Blanka Vombergar**

**Življenjepis:** Rojena 1956 v Mariboru, 1974–1979 študij na Biotehniški fakulteti, Oddelek za živilsko tehnologijo UL. Leta 1979 se je zaposlila na Biotehniški fakulteti, oddelku za agronomijo kot stažistka raziskovalka. Na Biotehniški fakulteti UL 1985 zaključila magisterij Genetika kmetijskih rastlin, leta 2010 pa doktorirala na podiplomskem študiju bioloških in biotehnoloških znanosti, področje agronomije. Leta 1986 opravila enoletno specializacijo iz živilske mikrobiologije na Tehnološki fakulteti v Novem Sadu. Od 1984 do 1995 zaposlena v mesni industriji TMI Košaki Maribor kot vodja laboratorija kontrole kakovosti, raziskav in razvoja. Od 1995 dalje

deluje v živilsko prehranskem šolstvu, od leta 1999 kot ravnateljica Višje strokovne šole za živilstvo in prehrano na Izobraževalnem centru Piramida Maribor. S Centrom za poklicno izobraževanje RS in Gospodarsko zbornico Slovenije sodelovala pri pripravi poklicnih standardov za področje živilstva in prehrane, z Obrtno zbornico Slovenije pa pri pripravi mojstrskih izpitov mesarski mojster, kjer je še vedno članica izpitnih komisij za teoretični in praktični del izpita. Od 1996 do 2009 sodelovala pri nastajanju in prenovi srednješolskih poklicnih in strokovnih programov s področja živilstva, je soavtorica prvega višješolskega programa Živilstvo (potrjen v Sloveniji leta 1998) ter prenovljenega programa Živilstvo in prehrana (2008). Sodeluje v uredništvih strokovnih revij ter več zbornikov s področja živilstva in prehrane.

**Pedagoško delo:** Docentka za področje varnost hrane. Od 1994 do 2009 višješolska predavateljica za predmet Ekotropologija na Ekonomsko poslovni fakulteti UM. Predavateljica višje šole za predmetna področja Prehrana in zdravje, Prehrana in dietetika, Prehrana z gastronomijo in kulinariko, Sestava in kakovost živil s tehnologijami. Je mentorica in somentorica pri več kot 50 diplomskih delih na visokošolskem in višješolskem študiju. Soavtorica recenziranega srednješolskega učbenika Tehnologija mesa in recenziranega študijskega gradiva Tehnologija mesa za višješolski program Živilstvo in prehrana, avtorica in soavtorica več študijskih gradiv s področja prehrane.

**Raziskovalno delo:** Sodelovanje v projektih s področja genetike in žlahtnjenja rastlin, pridelovanja poljščin, beljakovin v žitih, čiščenja in higijene v obratih. Raziskovalno delo na področju flavonoidov in taninov v ajdi. Razvoj tehnologij in postopkov izdelave test iz žit in poljščin (ajda, proso, ječmen, oves), razvoj pekovskih in slašičarskih izdelkov iz tatarske ajde.

**Bibliografija:** SICRIS izpis obsega 456 enot, od tega 13 izvirnih in preglednih znanstvenih člankov. **Dodatne zadolžitve:** Je predsednica Društva živilskih in prehranskih strokovnih delavcev SV Slovenije, predsednica Slovenskega društva za promocijo ajde Fagopyrum ter vodja projekta zdrave prehrane pri Društvu za zdravje srca in ožilja za Maribor in Podravje. Podpredsednica IBRE (International Buckwheat Research Association) 2013 -2016.



**Pripravljalni odbor in  
predsedujoči/  
Acting Committee and Chairs**

**Barlič Maganja, Darja**

**Blaznik, Urška**

**Butinar, Bojan**

**Eržen, Ivan**

**Guček, Matjaž**

**Langerholc, Tomaž**

**Mojca, Jevšnik**

**Nahtigal, Blaža**

**Raspor, Peter**

**Smole Možina, Sonja**

**Vadnjal, Stanka**



### Darja Barlič Maganja

**Življenjepis:** Rojena 1961 v Trbovljah, študirala na Fakulteti za Farmacijo Univerze v Ljubljani. Leta 1987 se je zaposlila kot mlada raziskovalka na Inštitutu Jožef Stefan (Odsek za biokemijo in molekularno biologijo). Na Biotehniški fakulteti Univerze v Ljubljani je zaključila magisterij, leta 1996 pa doktorat iz področja mikrobioloških znanosti. Od leta 1995 do 2007 je bila zaposlena na Veterinarski fakulteti Univerze v Ljubljani, kjer je bila vodja Laboratorija za molekularno virologijo. V letu 1997 je bila raziskovalka na Državnem inštitutu za živalske virusne bolezni v Tuebingenu, Nemčija. Od leta 2007 je dejavna na Univerzi na Primorskem na Fakulteti za vede o zdravju na pedagoških in vodilnih mestih (prodekanja za študijske in študentske zadeve, dekanja Fakultete za vede o zdravju). Kot nacionalni ekspert za javno zdravje

je v letih 2010 in 2011 vodila Center za laboratorijsko dejavnost na Inštitutu za varovanje zdravja (IVZ). **Pedagoško delo:** Redna profesorica in znanstvena svetnica za področje mikrobiologije, predavateljica in nosilka predmetov Mikrobiologija, Farmakologija, Nutraceutika, Preprečevanje bolnišničnih okužb in Okoljsko zdravje na študijskih programih Zdravstvena nega, Dietetika in Management trajnostnega razvoja, mentorica in somentorica študentom pri raziskovalnih nalogah za Prešerenove in Krkine nagrade in pri diplomskih, magistrskih in doktorskih nalogah. **Raziskovalno delo:** Raziskave s področja mikrobnih povzročiteljev bolezni pri ljudeh in živalih in s področja molekularne diagnostike in tipizacije virusov in bakterij. Od leta 2014 je vodja programske skupine »Varstvena biologija od molekul do ekosistema«. Vodila je tudi dva raziskovalna projekta ARRS in sodelovala na domačih (ARRS, CRP, TIA) in mednarodnih projektih (COST, EUREKA, okvirni programi EU). **Bibliografija:** COBISS izpis obsega 373 enot, od tega 76 izvirnih in preglednih znanstvenih člankov, 5 strokovnih člankov, 191 prispevkov predstavljenih na različnih znanstvenih in strokovnih konferencah in 6 poglavij v znanstvenih monografijah. **Dodatne zadolžitve:** članica uredniškega odbora strokovne revije »Zdravstveno varstvo«, članica domačih in mednarodnih strokovnih združenj (SMD, SBD, FEMS, FEBS, IUMS, IUBS, ESVV).

**Curriculum vitae:** Born in 1961 in Trbovlje, she studied at the University of Ljubljana, Faculty of Pharmacy. In 1987 she was employed as a young researcher at Josef Stefan Institute (Biochemistry and Molecular Biology Department). She finished master studies and her doctoral thesis in the field of microbiological sciences at the Biotechnical Faculty of the University of Ljubljana. In the period from 1995 to 2007 she was employed at the Veterinary Faculty of the University of Ljubljana as a head of the Molecular Virology Laboratory. During the year 1997 she was a visiting researcher at the National Institute of Animal Virus Diseases in Tuebingen, Germany. Since 2007 she has been active at the University of Primorska, Faculty of Health Sciences at pedagogical and management positions (vice-dean for Academic and Student Affairs, dean of the Faculty of Health Sciences). In years 2010 and 2011 she worked as a national expert for public health and a head of Public Health Laboratories at the Institute of Public Health (IPH). Pedagogical work: Full Professor and Scientific Advisor in Microbiology, lecturer and subject holder of Microbiology, Pharmacology, Nutraceutics, Prevention of Hospital Infections and Environmental Health at study programs Health Care, Dietetics and Management of sustainable development, mentor and co-mentor for students in research tasks for Prešeren and Krka Prizes, and for graduation, master and doctoral theses. Research work: Research in the field of microbial pathogens in humans and animals and in the field of molecular diagnostics and typing of viruses and bacteria. Since 2014 she is leading the program "Conservation biology from molecules to ecosystems". She also conducted two ARRS research projects and participated in domestic (ARRS, CRP, TIA) and international projects (COST, EUREKA, EU Framework Programs). Bibliography: The full bibliographic display comprises 373 bibliographic units, of which 76 are scientific articles, 5 professional articles, 191 articles presented at various scientific and professional conferences and 6 separate chapters in scientific monographs. **Additional duties:** Member of the editorial board of the journal "Zdravstveno Varstvo" (Slovenian Journal of Public Health), member of national and international professional associations (SMD, SBD, FEMS, FEBS, IUMS, IUBS, ESVV, ISID)..



### Urška Blaznik

**Življenjepis:** Rojena 1970 v Kranju, študirala na Univerzi v Ljubljani, Fakulteti za kemijo in kemijsko tehnologijo (univ. dipl. kem. 1993, smer biokemija). Na isti fakulteti leta 2003 končala Specializacijo iz sanitarne kemije in leta 2015 v doktorskem programu Biomedicina doktorirala na Medicinski fakulteti Univerze v Ljubljani. Kot analizni kemik se je leta 1993 zaposlila v Sanitarno-kemijskem laboratoriju regionalnega Zavoda za zdravstveno varstvo v Kranju. Dvanajst let kasneje se je pridružila področju varnosti živil in ocenjevanju tveganja za zdravje ljudi na Nacionalnem inštitutu za javno zdravje v Ljubljani, kjer še vedno dela kot zdravstvena raziskovalka. **Raziskovalno delo:** Njena področja raziskovanja so povezana z javnim zdravjem in prehrano, bolj podrobno z oceno izpostavljenosti kemijskim dejavnikom tveganja v živilih, varnostjo živil in v zadnjem obdobju s preoblikovanjem živil in raziskovanju prehranskih vnosov ter zaužitih količin živil v populaciji. Kot aktivna raziskovalka sodeluje pri evropskih in nacionalnih projektih ARRS s področja prehrane in varnosti živil. V zadnjem času je dejavna pri razvoju metodologije ocenjevanja kumulativnih vplivov kemikalij na zdravje ljudi, v okviru evropskega projekta EuroMix, kar je bilo tudi področje njene doktorske disertacije. **Bibliografija:** Celoten bibliografski izpis obsega 95 bibliografskih enot, od tega 10 znanstvenih člankov, 8 strokovnih člankov, 34 prispevkov na različnih znanstvenih in strokovnih posvetovanjih in 4 samostojna poglavja v znanstvenih monografijah. **Dodatne zadolžitve:** Je aktivna članica Delovne skupine Ministrstva za zdravje za pripravo načrta za zmanjševanje vnosa soli pri prebivalcih Slovenije, deluje kot strokovna podpora Ministrstvu za zdravje in Zdravstvenemu inšpektoratu na področju varnosti sestavin prehranskih dopolnil in vodi razvoj sistema nutrivigilance v Sloveniji. Je članica Sveta za varno hrano Ministrice za kmetijstvo, gozdarstvo in prehrano. Tesno sodeluje z Evropsko agencijo za varnost hrane (EFSA) kot članica v Ekspertni delovni skupini za nova živila ter kot predstavnica Slovenije v EFSA Svetovalnem forumu.

**Curriculum vitae:** Born in 1970 in Kranj, she studied at the University of Ljubljana, Faculty of Chemistry and Chemical Technology (BSc 1993, Biochemistry). At the same Faculty in 2003 she finished the Specialization in Sanitary Chemistry and in 2015 she received her doctorate at the Medical Faculty of the University of Ljubljana in the doctoral program Biomedicine. As an analytical chemist, she was employed in the Chemical Sanitary Laboratory of the Regional Institute of Public Health in Kranj in 1993. Twelve years later, she joined the Department of food safety and risk assessment for human health at the National Institute of Public Health in Ljubljana, where she is still working as a medical researcher. Research: Her fields of research are related to public health and nutrition, in more detail by assessing the exposure of chemicals in foods, food safety and recently by food reformulation, dietary intakes and food consumption in the population. As an active researcher she participates in European and national projects in the field of nutrition and food safety. Recently, she has been active in the development of a methodology for assessing the cumulative effects of chemicals on human health, in the framework of the EuroMix project, which was also the subject of her doctoral dissertation. Bibliography: The full bibliographic display comprises 95 bibliographic units, of which 10 are scientific articles, 8 professional articles, 34 articles in various scientific and professional conferences and 4 separate chapters in scientific monographs. Additional duties: She is an active member of the Working Group for reducing the salt intake of the inhabitants of Slovenia at the Ministry of Health. She acts as a professional support to the Ministry of Health and the Health Inspectorate in the field of safety of food supplements. She is a leader of the nutrivigilance system in Slovenia. She is a member of the Food Safety Council of the Minister of Agriculture, Forestry and Food. She works closely with the European Food Safety Authority (EFSA) as a member of the Expert Working Group on Novel Foods and as a representative of Slovenia in the EFSA Advisory Forum.

**Bojan Butinar**

**Življenjepis:** Rojen 1957 v Kopru, 1975-1981 študij kemije na UL, 1981 diploma (Sinteza in karakterizacija nekaterih amino kompleksov kroma (III)), 1981-1992 razvojni oddelek tovarne IPLAS, 1988-1989 specializacija iz fizikalne kemije na IJS, 1992-1998 status zasebnega raziskovalca, od 2004 do 2016 zaposlen na ZRS Koper kot raziskovalec, potem na UP ZRS, od 2017 na ZRS Koper kot znanstveni sodelavec, od 2006 do 2016 na UP FVZ kot docent za področje kemije, 2010-2012 interdisciplinarni doktorski študij Bioznanosti na UL, 2012 doktorat (Zasnova analitičnega postopka ugotavljanja pristnosti in stopnje predelave bučnega olja). **Pedagoško delo:** 1981-1982 poučevanje kemije na Gimnaziji Bežigrad, 1992-1994 poučevanje kemije na Gimnaziji Sežana, 2006-2012 predavatelj kemije na UP FVZ, od 2012 do 2016 docent na UP FVZ in nosilec in avtor predmetov Osnove kemije in Kemija. **Raziskovalno delo:** 1981-1992 raziskovanje utrjevanja poliestrskih smol, raziskovanje sinteze nizkomolekularnih polielektrolitov in njihove uporabe v formulacijah za obdelavo velikih odprtih hladilnih sistemov, od 1992 raziskovanje v polju oljčnega olja, oljk in oljčnih listov (biofenoli), postavitve akreditiranega laboratorija za preskušanje oljčnega olja, pristnost bučnega in oljčnega olja, metrološki segment za veličino 'množina snovi' (mol) v matrici oljčnega olja. **Bibliografija:** COBISS izpis obsega 194 enot, od tega 19 izvirnih znanstvenih člankov, 2 pregledna znanstvena članka, 3 samostojni znanstveni sestavki ali poglavje v monografski publikaciji, prispevki v 1 znanstveni in 6 strokovnih monografijah, soavtorstvo pri patentu **Zadolžitve na ZRS Koper:** znanstveni sodelavec, odgovorni analitik v akreditiranem laboratoriju, nosilec ciljnih raziskovalnih projektov, sodelovanje v projektu »Oleum« H2020, ki razvija inovativne metode za sledenje pristnosti in ugotavljanja potvorb oljčnega olja **Zadolžitve izven ZRS Koper:** član sveta za oljkarstvo pri MKGP RS, predstavnik Slovenije pri mednarodnem svetu za oljke (IOC), pooblaščen predstavnik RS pri Evropski komisiji za oljčno olje v Bruslju (AGRI C2).

**Curriculum vitae:** Born 1957 in Koper, 1975-1981 studies Chemistry at UL, 1981 Diploma (Synthesis and characterization of certain amino complexes of chromium (III)), 1981-1992 Development Department of IPLAS, 1988-1989 specialization in physical chemistry at IJS, 1992-1998 status of Private researcher, from 2004 to 2016 employed at ZRS Koper as a researcher, then at UP ZRS, from 2017 at ZRS Koper as a research fellow; from 2006 to 2016 at UP FVZ as assistant professor of chemistry, 2010-2012 interdisciplinary doctoral studies in bioscience on UL, 2012 Doctorate (The establishment of an analytical procedure for assessment of the genuineness and the degree of processing of pumpkin seed oil). **Pedagogical work:** 1981-1982 teaching chemistry at the Bežigrad General upper secondary school, 1992-1994 teaching chemistry at Sežana general upper secondary school, 2006-2012 Lecturer of chemistry at UP FVZ, from 2012 to 2016 assistant professor at UP FVZ and the holder and author of 2 courses Basic chemistry and Chemistry. **Research work:** 1981-1992 research in the field of the hardening of polyester resins, exploration of the synthesis of low-molecular polyelectrolites and their use in formulations for the treatment of large open refrigeration systems, from 1992 research in the field of olive oil, olives and olive leaves (biophenols), the establishment of an accredited laboratory for the testing of olive oil, the genuineness of olive and pumpkin seed oil, a metrological segment for the amount of substance unit (mol) in the olive oil matrix **Bibliography:** The full COBISS display comprises 194 bibliographic records, of which 19 original scientific articles, 2 review articles, 3 independent scientific component parts or chapters in a monograph, contributions in 1 scientific and 6 professional monographs, co-authoring of one Patent **Additional assignments at ZRS Koper:** Research fellow, responsible analyst in accredited laboratory, holder of research projects, participation in H2020 Project "Oleum", which develops innovative methods for tracking authenticity and detection of frauds in Olive oil **Additional duties outside ZRS Koper:** Member of the Oliveculture council of the Republic of Slovenia, Slovenian representative in the International Olive Council (IOC), authorized representative of the Republic of Slovenia in the European Commission for Olive Oil in Brussels (AGRI C2).



### Ivan Eržen

**Življenjepis:** Rojen 1957 v Ljubljani, 1976–1982 študij medicine na Univerzi v Ljubljani –specializacija iz epidemiologije, 1985–1987 – magistrski študij na Medicinski fakulteti Univerze v Ljubljani, 1987 – magisterij, 1989–2004 – doktorat na Univerzi v Ljubljani(»Stopnja izpostavljenosti prebivalcev Slovenije vnosu svinca, kadmija in živega srebra s hrano«). **Pedagoško delo:** redni profesor za področje javnega zdravja. Soavtor univerzitetnih učbenikov Javno zdravje ter Zdravje in okolje.

**Raziskovalno delo:** Raziskovalno delo je usmerjeno predvsem v epidemiološko proučevanje razširjenosti dejavnikov tveganja za zdravje ter njihov vpliv na posamezne skupine prebivalstva. **Bibliografija:** COBISS-izpis obsega 530 enot, od tega 47 izvirnih znanstvenih člankov (od katerih se 3 uvrščajo v prvo četrtino področnih revij v SSCI, SCIE), 1 pregledni znanstveni članek, 27 objavljenih znanstvenih prispevkov na konferencah ter številni strokovni članki. **Dodatne zadolžitve na UL in MB in LJ:** predstojnik katedre na Medicinski fakulteti v Mariboru, predstavnik Medicinske fakultete Ljubljana v programskem svetu interdisciplinarnega doktorskega študija Varstvo okolja Univerze v Ljubljani. **Dodatne zadolžitve izven univerze:** Dolgoletni direktor območnega zavoda za zdravstveno varstvo, direktor Nacionalnega inštituta za javno zdravje od ustanovitve do 2018, področni urednik revije Zdravstveno varstvo (IF 0,76), Predsendik Svetovne konference strateškega pristopa pri ravnanju s kemikalijami (SAICM), član različnih strokovnih združenj v Sloveniji in tujini in številne druge...

### Ivan Eržen

**Curriculum vitae:** Born in 1957 in Ljubljana, 1976-1982 studies of medicine at the University of Ljubljana - specialization in epidemiology, 1985-1987 - Master's degree at the Faculty of Medicine, University of Ljubljana, 1987 - Master's ("A new approach to the study of the epidemiological characteristics of benign meningoencephalitis" 1989-2004 - doctoral study program at the Faculty of Medicine at the University of Ljubljana, 204 - doctorate ("Degree of exposure of inhabitants of Slovenia to the introduction of lead, cadmium and mercury with food"). **Pedagogical work:** Full professor in the field of public health. Co-author of university textbooks Public Health and Health and the Environment. **Research work:** Research work focuses primarily on the epidemiological study of the prevalence of risk factors for health and their impact on individual population groups. Bibliography: The COBISS lists 530 units, of which 47 are original scientific articles (3 of which are ranked in the first quarter of the series in SSCI, SCIE), 1 review scientific paper, 27 published scientific contributions to conferences and a number of professional articles. **Additional assignments** at UL and MB and LJ: Head of the Department at the Faculty of Medicine in Maribor, representative of the Ljubljana Medical Faculty in the program council of an interdisciplinary doctoral study Environmental protection at the University of Ljubljana. **Additional duties outside the university:** Long-term director of the regional health care institute, director of the National Institute of Public Health since its inception until 2018, editor-in-chief of the Healthcare Journal (IF 0.76), World Chemical Strategic Approach Advisor (SAICM) various professional associations in Slovenia and abroad and many other ...





### **Matjaž Guček**

**Življenjepis:** Rojen 1964 v Celju, 1984–1990 študij veterine na Veterinarski fakulteti v Ljubljani. Diplomiral leta 1990. 1990-1995 veterinar praktik na Veterinarski postaji Laško, 1995-2000 opravljal naloge pooblaščenega veterinarja na Veterinarskem zavodu Slovenije. 2000-2004 uradni veterinar na Veterinarski upravi RS Območni urad Celje. Od leta 2007 je vodja Sektorja za Živila, krmo in zdravila, najprej na Veterinarski upravi RS, po reorganizaciji leta 2013 pa na Upravi RS za varno hrano, veterinarstvo in varstvo rastlin. Od 2003-2006 soorganiziral in vodil več TAIEX dogodkov na temo varne hrane s poudarkom na živilih živalskega izvora. Je kontaktna točka OIE za področje varne hrane živalskega izvora. 2015 in 2016 je sodeloval v mednarodnem projektu Evropske Komisije – Dobre higienske prakse na področju zakola živali (Share of Best Practice in Slaughter Hygiene). Kot nacionalni ekspert je sodeloval v presojah Urada za zdravje, presoje in analize (bivši FVO) v Braziliji, Ruski federaciji, Srbiji in Avstriji in sicer na področju perutninskega mesa. Ima opravljen tečaj za notranjega presojevalca skladno z ISO 9001:2008 in certifikat za uporabo načel HACCP v praksi (The Royal Institute of Public Health, UK). Trenutno je predstavnik RS v Stalnem odboru EK za rastline, živali, krmo in živila – Sekcija biološka tveganja v prehranski verigi. Je tudi član delovne skupine Sveta EU za področje veterine, član Komisije za zoonoze in Ekspertne skupine za navzkrižno skladnost.

**Curriculum vitae:** Born 1964 in Celje, 1984–1990 veterinary studies at the Veterinary Faculty in Ljubljana. Graduated in 1990. In 1990 -1995 private veterinary practitioner at the Veterinary practice in Laško, from 1995 to 2000, performed the tasks of an authorized veterinarian at the Veterinary Institute of Slovenia. 2000-2004 official veterinarian at the Veterinary Administration of the Republic of Slovenia Regional Office Celje. Since 2007, he is head of the Food, Feed and Veterinary Medicine Division, first at the Veterinary Administration of the Republic of Slovenia, and after the reorganization in 2013, at the Administration of the Republic of Slovenia for Food Safety, Veterinary Sector and Plant Protection. Since 2003-2006, he co-organized and led several TAIEX events on food safety with an emphasis on foods of animal origin. It is the focal point of the OIE for the safe of food of animal origin. In 2015 and 2016 he participated in the international project of the European Commission "Share of Best Practice and Slaughter Hygiene". As a national expert, he participated in the audits of the Directorate 'Health and Food Audits and Analysis', (formerly FVO) in Brazil, the Russian Federation, Serbia and Austria in the field of poultry meat. Has passed the internal auditor course in accordance with ISO 9001: 2008 and obtained the certificate for the application of HACCP principles in practice (The Royal Institute of Public Health, UK). He is currently a representative of the Republic of Slovenia in the EC's Standing Committee on Plants, Animals, Feed and Food - Section of Biological Risks in the Food Chain. He is also a member of the Council Working Party of Veterinary Experts, a member of the Commission for Zoonosis and the Cross-Compliance Expert Group at the Ministry for Agriculture, Forestry and Food.



### **Mojca Jevšnik**

**Življenjepis:** Rojena 1972 v Celju, 1991–97 – študij na Visoki šoli za zdravstvo, Oddelek za sanitarno inženirstvo UL. Leta 1997 se je zaposlila na Zavodu za zdravstveno varstvo v Celju in v letu 1998 kot asistentka na Visoki šoli za zdravstvo UL, sedaj Zdravstveni fakulteti (ZF). Na Biotehniški fakulteti UL je 2001 zaključila magisterij, 2008 pa doktorat s področja živilstva. V letu 2002 je bila imenovana kot presojevalka standarda ISO 9001 in 2003 vodilne presojevalke sistema HACCP pri SIQ. Je notranja presojevalka sistemov kakovosti IFS in ISO 22000. V obdobju od 2006-08 je bila predstojnica Oddelka za

sanitarno inženirstvo, sedaj je članica senata ZF. **Pedagoško delo:** Docentka za področje sanitarno inženirstvo (SI), predavateljica in nosilka predmetov na dodiplomskem študijskem programu SI: Osnove higiene in etika, Higiena objektov in procesov, sonosilka predmetov Komunalna higiena, Tehnologija in varnost živil, Dobre prakse v živilski verigi; sonosilka pri podiplomskih predmetih Novi trendi v SI in Metode vzorčenja. Je mentorica in somentorica pri diplomskih, magistrskih in doktorskih nalogah. Urednica in soavtorica univerzitetnega učbenika Higiena objektov in procesov. **Raziskovalno delo:** Raziskave na področju higiene objektov in procesov ter varnosti in kakovosti živil na različnih stopnjah živilske verige. Vodi laboratorij za higieno objektov in procesov. **Bibliografija:** SICRIS izpis obsega 392 enot, od tega 49 izvirnih in preglednih znanstvenih člankov. **Dodatne zadolžitve:** Aktivna članica Zbornice sanitarnih inženirjev Slovenije ter Inštituta za sanitarno inženirstvo. Predsednica Certifikacijskega odbora TÜV SÜD Sava d.o.o.

**Curriculum vitae:** Born 1972 in Celje, 1991-1997 Bachelor study of sanitary engineering at University of Ljubljana. In 1997 she was employed at the Health Care Institute in Celje and in 1998 as an assistant at the University of Ljubljana's College of Health Studies. At the Biotechnical Faculty, UL she was graduated in 2001 and a PhD in 2008 in the field of food. In 2002, she was appointed as an auditor of the ISO 9001 and 2003 leading auditor of the HACCP system at SIQ. She is an internal auditor of quality systems IFS and ISO 22000. From 2006 to 2008 she was a Head of the Sanitary Engineering Department. **Pedagogical work:** Assistant professor in the field of sanitary engineering, lecturer at the undergraduate sanitary engineering study program - subjects: Fundamentals of Hygiene and Professional Ethics, Hygiene of Premises and Processes, Technology and Food Safety, Good Practices in the Food Chain; postgraduate subjects: New trends in Sanitary Engineering and Sampling methods. She is a mentor and co-mentor at graduation, master and doctoral theses. Editor and co-author of university textbook "Hygiene of premises and processes". **Research work:** Research in the field of hygiene of premises and processes and the food safety and quality in food supply chain. She is a Head of the Laboratory for the Hygiene of Premises and Processes. **Bibliography:** In total 392 units among which 49 original and review scientific papers. **Additional assignments:** Active member of the Chamber of Sanitary Engineers of Slovenia and the Institute of Public and Environmental Health. Chairman of the Certification Committee TÜV SÜD Sava d.o.o.



### **Tomaž Langerholc**

**Življenjepis:** Rojen 1977 v Kranju, 1996–2001 – študij kemije na Fakulteti za kemijo in kemijsko tehnologijo na Univerzi v Ljubljani, (smer biokemija), 2001 – diploma (»Invariantna veriga pri pljučnih tumorjih«), 2003–2007 – enovit doktorski študij biomedicine na Univerzi v Ljubljani, 2007 doktorat (izražanje cistatina F in njegova vloga pri antigenski predstavitvi) kot mladi raziskovalec na Institutu Jožef Stefan. Od 2008 dalje zaposlen na Univerzi v Mariboru, Fakulteta za kmetijstvo in biosistemske vede (sedaj izredni profesor za področje varna hrana), in vodja Katedre za mikrobiologijo, biokemijo, molekularno biologijo in biotehnologijo. Delo v tujini: 2001-2002 Tehnična univerza v Münchnu (München, Nemčija); 2017-2018 Švedska agencija za hrano (Uppsala, Švedska). **Pedagoško delo:** Nosilec predmetov in predavatelj biokemije in mikrobiologije na več dodiplomskih smereh (Agrikultura in okolje, Biosistemsko inženirstvo, Ekološko kmetijstvo) in na magistrskem programu Varnost hrane v prehrabeni verigi (predmeti Biološki faktorji tveganja, Presoje tveganj, GSO, nova in funkcionalna hrana). Vodja magistrskega programa Varnost hrane v prehrabeni verigi. Mentor ali somentor pri magistrskih (16) in doktorskih (4) nalogah. **Raziskovalno delo:** Prispevki s področja biokemije proteinov, funkcionalnih celičnih modelov črevesja, probiotikov, črevesnih patogenov, biodostopnosti onesnaževal v hrani in rangiranja prehranskih tveganj. **Bibliografija:** COBISS-izpis obsega 204 enote, od tega 35 znanstvenih člankov. **Nagrade in priznanja:** študentska Prešernova nagrada za diplomsko delo, Krkina nagrada za doktorsko delo, štipendija EU-FORA organizacije EFSA za študij presoje tveganja.

**Curriculum vitae:** Born 1977 in Kranj, 1996-2001 – 1st degree study of chemistry at the Faculty of Chemistry and Chemical Technology at the University of Ljubljana (2001) – Bachelor thesis ("Invariant Chain in Lung Cancer"), 2003-2007 - Doctoral Biomedicine programme at the University of Ljubljana, 2007 PhD as a young researcher at Jožef Stefan Institute (Expression of cystatin F and its role in antigen presentation). Since 2008 he has been employed at the University of Maribor, Faculty of Agriculture and Life Sciences (currently as an associate professor in the field of food safety) and the Head of the Department of Microbiology, Biochemistry, Molecular Biology and Biotechnology. Work abroad: 2001-2002 Technical University of Munich (Munich, Germany); 2017-2018 Swedish National Food Agency (Uppsala, Sweden). **Pedagogical work:** Courses in biochemistry and microbiology in several undergraduate study programmes (Agriculture and Environment, Biosystems Engineering, Organic Agriculture) and Master's programme Food Safety in the Agri-food Chain (courses Biological risk factors, Risk assessments, GMOs, novel and functional foods). Head of the Master's programme Food safety in the Agri-food Chain. Mentor or co-mentor to master (16) and doctoral (4) students. **Research work:** Contributions in the field of protein biochemistry, functional cell models, probiotics, intestinal pathogens, bioavailability of food contaminants and risk ranking. **Bibliography:** In total 204 units, of which 35 are scientific articles. **Awards and acknowledgments:** Student Prešeren's award for graduate thesis, Krka's award for doctoral thesis, EFSA EU-FORA scholarship for risk assessment study.



### **Blaža Nahtigal**

**Življenjepis:** Rojena 1965 v Ljubljani, 1990 zaključila diplomski študij (Določitev celokupne koncentracije kislin v medu s potenciometrično titracijo), leta 1996 magistrski študij (Primerjava določanja fosfatov v izdelkih iz perutninskega mesa s kromatografsko in spektrofotometrično metodo) in 2004 doktorski študij (Vsebnost maščobnih kislin, holesterola in holesterol oksidov v običajnih in omega-3 jajcih, pripravljenih na različne načine) na UL, Biotehniški fakulteti, Oddelku za živilsko tehnologijo. 1998 zaključila program izpopolnjevanja pedagoško andragoške izobrazbe na UL, Filozofska fakulteta. 1990 se je zaposlila na Biotehniški fakulteti, Oddelku za živilsko tehnologijo UL kot mlada raziskovalka in asistentka, 1995 na IVZ Višnja Gora kot srednješolska učiteljica, 2005 na Ministrstvu za obrambo kot višja svetovalka za prehrano. Od leta 2006 je zaposlena na Ministrstvu za kmetijstvo, gozdarstvo in prehrano, sedaj kot sekretarka na Upravi za varno hrano, veterinarstvo in varstvo rastlin, kjer opravlja naloge EFSA informacijske točke in Codex kontaktne točke. **Pedagoško delo:** Asistentka za področje analize živil, srednješolska učiteljica za področja prehrane in varnosti živil, vabljen predavateljica za predstavitve vsebin v povezavi z delovanjem EFSA in Codex Alimentarius, somentorica pri diplomskih in magistrskih nalogah. **Raziskovalno delo:** Raziskave na področju analize živil in varnosti hrane. **Bibliografija:** COBISS izpis obsega 158 enot. **Dodatne zadolžitve:** Članica Slovenskega prehranskega društva.

**Curriculum vitae:** Born in 1965 in Ljubljana, graduated in 1990 (Determination of the total acidity of honey by the potentiometric titration technique), received a M.Sc. degree in 1996 (A comparison between the chromatographic and spectrophotometric method of establishing phosphates in poultry meat products) and doctoral degree in 2004 (Contents of fatty acids, cholesterol and cholesterol oxides in ordinary and omega-3 enriched eggs, prepared in different ways) at the University of Ljubljana, Biotechnical Faculty, Department of Food Technology. In 1998 she completed the postgraduate complementary education, pedagogic-andragogic training program at the UL, Faculty of Philosophy. In 1990, she was employed at the UL, Biotechnical Faculty, Food Technology Department as a young researcher and assistant, 1995 at the IVZ Višnja Gora as a high school teacher in the field of nutrition and food safety, 2005 at the Ministry of Defense as a Senior Adviser for nutrition. Since 2006, she has been employed at the Ministry of Agriculture, Forestry and Food, now as a secretary at the Administration for Food Safety, Veterinary Sector and Plant Protection, where she performs the tasks of the EFSA Focal Point and Codex Contact Point. **Pedagogical work:** Assistant at the field of food analysis, high school teacher in the field of nutrition and food safety, invited lecturer for issues related to EFSA and Codex Alimentarius, co-mentor at the graduation and master theses. **Research work:** Research in the field of food analysis and food safety. **Bibliography:** The COBISS printout comprises 158 units. **Additional responsibilities:** Member of the Slovene Nutrition Society.



**Peter Raspor**

**Življenjepis:** Rojen v Dolgi poljani, 1954. Maribor: Pekovska šola (1971), živilska tehnična šola (1975). Ljubljana: Živilska tehnologija, BF Univerza v Ljubljani. Diploma na živilstvu (1983) Zagreb: Doktorat s področja biotehnologije (1987) London: Institute Labatt 1989 podoktorska specializacija. Docent za področje biotehnologije in industrijske mikrobiologije (1989), izredni profesor (1992), redni profesor (1996). Ustanovitev katedre za biotehnologijo (1992) **Dela:** Mlinotest Ajdovščina (1969-86), Labatt (1987-89), Univerza v Ljubljani (1989-2013). Univerza na Primorskem (2014-16). **Pedagoško delo:** Postavil je podiplomski študij biotehnologije na UL (1994); dodiplomski študij biotehnologije na BF (2004). Mentoriral je 55 disertacij, 18 magisterijev, 145 diplom, med njimi ducat nagrajencev. **Raziskovalno delo:** Vodil je več deset projektov: živilstvo, industrijsko mikrobiologijo in biotehnologijo ter varnost živil. **Bibliografija:** SICRIS obsega 1810 enot, 214 znanstvenih člankov, preko 100 vabljenih predavanj **Nagrade in priznanja:** Za svoje delo je med drugim prejel tri častne doktorate in tri najvišje državne nagrade. **Drugo:** Sodeloval pri postavitvi LUI inkubator na UL, pomagal pri nastanku 5 biotehnoških podjetij. Vključen v sisteme kakovosti ISO in v mednarodne presoje kakovosti v visokem šolstvu. Snoval in vodil je sprejetje dveh deklaracij: o mikrobiologiji leta 2004, in deklaracijo o hrani, prehrani in tehnologiji leta 2008. Postavil je tri kongresne mreže, ki so začele svojo pot v Ljubljani, CEFood 2002, FEMS 2004 in EFFoST 2008.

**Biography:** Born in Dolga Poljana, 1954. Maribor: Bakery school (1971), food technical school (1975). Ljubljana: Food Technology, BF, UL Graduate diploma in food technology (1983), Zagreb: Doctorate in Biotechnology (1987) Faculty of Food Technology and Biotechnology, London Labatt Institute (1989). Postdoctoral specialization Assistant Professor in Biotechnology and Industrial Microbiology (1989), associate professor (1992), full professor (1996). Establishment of the Department of Biotechnology (1992). **Working activity:** Mlinotest Ajdovščina (1969-86), Labatt (1987-89), University of Ljubljana (1989-2013). University of Primorska (2014-2016). **Pedagogical work:** He established post-graduate biotechnology study at UL (1994); undergraduate biotechnology study at BF (2004). He mentored 55 dissertations, 18 master's degrees, 145 diplomas, among them a dozen of prize winners. **Research work:** He has led dozens of projects. food, industrial microbiology and biotechnology, and food safety. **Bibliography:** SICRIS lists 1810 bibliographic units, 214 scientific articles, 27 expert articles, a few dozen book chapters, several patents, over 100 invited lectures. **Awards and recognitions:** He has received three honorary doctorates and three top state awards for his work. **Additionally:** He helped set up the LUI incubator at UL, 5 biotech companies. He was involved with ISO and international audits in higher education for research and teaching. He established and led the adoption of two declarations: on microbiology in 2004, and a declaration on food, nutrition and technology in 2008. He set up three congressional networks that began their journey in Ljubljana, CEFood 2002, FEMS 2004 in EFFoST 2008.

### Sonja Smole Možina



**Življenjepis:** Rojena l. 1963 v Ljubljani. Na Biotehniški fakulteti je l. 1986 končala študij živilske tehnologije ter se l. 1987 zaposlila kot asistentka stažistka. L. 1996 doktorirala s področja mikrobioloških znanosti s temo molekularno-genetske karakterizacije kvasovk iz okolja in industrijskih procesov. L. 1997 je na BF UL postala docentka za področje industrijske mikrobiologije, l. 1999 pa predstojnica Katedre za živilsko mikrobiologijo z mlado, a uspešno raziskovalno skupino. Leta 2002 je postala izredna, leta 2008 redna profesorica mikrobiologije. **Poučuje** splošno in živilsko mikrobiologijo ter mikrobiološko varnost živil na študijih mikrobiologije, biotehnologije ter živilstva in prehrane na BF UL ter kot stalna

gostujoča profesorica MSc študija SIFC, »Varnost v živilski proizvodno-prehranski oskrbovalni verigi«, šestih univerz EU, s koordinatorskim Univerze BOKU na Dunaju (A). Na BF UL je dolgoletna koordinatorica tematske mreže CEEPUS ("Za boljšo varnost hrane v EU") in koordinatorica področja živilstva doktorskega programa Bioznanosti. Od l. 2014 vodi Katedro za biotehnologijo, mikrobiologijo in varnost živil na Oddelku za živilstvo, BF UL. **Glavna področja raziskovalnega dela** so mikrobna ekologija hrane in živilskih procesov, stresni odziv in mikrobiološka odpornost v okolju proizvodnje hrane, izkoriščanje naravnih bioaktivnih snovi in stranskih proizvodov živilstva za izboljšanje varnosti, kakovosti in trajnosti živil. **Bibliografija:** 740 enot COBISS, 103 originalni znanstveni članki, 5 preglednih znanstvenih člankov, 34 poglavij v monografijah ali univerzitetnih učbenikih. WEB/SCOPUS 2009-2019 navaja 1228/1384 čistih citatov, h-indeks 19. **Druge mednarodne zadolžitve:** Članica uredniškega odbora raziskovalnih revij in slovenska predstavnica v zvezi ICFMH in COST.

**Curriculum vitae:** Born in Ljubljana in 1963. Graduated in Food Science and Technology in 1986 at Biotechnical Faculty Ljubljana. After that she started postgraduate study of Microbiology and defended PhD thesis in Molecular characterization of ascomycetous yeasts from environment and industrial processes in 1996. She started **teaching** at BF UL as assistant professor in 1997, associate professor in 2002 and full professor in 2008 in the fields of general and food microbiology on different levels of study programmes Microbiology, Biotechnology, Food Science and Nutrition. She is a regular guest professor at MSc study of SIFC (»Safety in the Food Chain«) at BOKU, Vienna (Austria). At BF UL she is coordinating thematic CEEPUS network (»For Better Food Safety in EU«) and the field of Food Technology at doctoral programme of Biosciences. From 2014 she is the Head of Chair of Biotechnology, Microbiology and Food Safety. **Research interests include** microbial ecology of food and nutrition, microbiology of food processing, microbial stress response and resistance in food-related environment, bioactive components from plant origin, including by-products and waste materials from food and related industries and their potential for improving safety, quality and shelf-life of food products. **Bibliography:** 740 units in COBISS, 103 original scientific papers, 5 review articles, 34 book chapters (in monographies, university textbooks). In WEB/SCOPUS 2009-2019 currently 1228/1384 pure cites, h-index 19. **Other international professional functions:** Member of the editorial board of several research journals and Slovenian representative for the education in the International Commission for Food Microbiology and Hygiene (ICFMH) and in COST network.



### Stanka Vadnjak

**Življenjepis:** Rojena 1962 v Ljubljani, 1980-1988 – študij na Veterinarski fakulteti Univerze v Ljubljani. Po zaključku študija je bila zaposlena na Veterinarskem zavodu ljubljanske regije in v podjetju Jata Reja. Leta 1992 se je zaposlila kot mlada raziskovalka na Inštitutu za higieno živil in bromatologijo na Veterinarski fakulteti in leta 1995 zaključila magisterij in nato leta 1998 doktorirala. Na Veterinarski fakulteti je zaposlena kot asistent na Inštitutu za varno hrano, krmo in okolje. Sodelovanje v komisijah in vodstvene funkcije: namestnica predstojnika Inštituta za higieno živil in bromatologijo (2001 – 06), Komisija za študijske in študentske zadeve na Veterinarski fakulteti, 2006-. - V.D. predstojnice Inštituta za higieno živil in bromatologijo (2006 – 09), vodja Nacionalnega referenčnega laboratorija: NRL za koagulaza pozitivne stafilokoke (2007-), vodja Mikrobiološkega laboratorija na Inštitutu za higieno živil in bromatologijo (2007-2016), namestnica predstojnice Inštituta za higieno živil in bromatologijo (2009 -16), namestnica vodje

Laboratorija za mikrobiološke preiskave živil NVI (2013 -16), podeljen naziv "Specialistka za veterinarsko javno zdravstvo in varno hrano" (Veterinarska zbornica (2013), namestnica predstojnice Inštituta za varno hrano, krmo in okolje (2016- vodja Enot za varno hrano Inštituta za varno hrano, krmo in okolje (2016-). **Pedagoško delo:** Asistent – "Higiena in nadzor mleka, mlečnih izdelkov in živil rastlinskega izvora", "Higiena in nadzor mesa, rib in izdelkov", v letih 2007- 2009 nosilka predmeta »Higiena in tehnologija živil« na VŠZ, sedaj asistentka pri predmetu "Tehnologija in varnost živil" (ZF). Somentorica študentom pri raziskovalnih nalogah za Prešernove nagrade in mentorica ali somentorica pri diplomskih in magistrskih nalogah. **Raziskovalno delo:** V letih od 1998 do 2001: Sladkovodne ribe v Sloveniji - ostanki onesnaževalcev in zdravil (L4-0771); V letih od 2006 do 2008: Uvedba in validacija metod določanja ostankov nekaterih veterinarskih zdravil v živilih živalskega izvora (CRP V4-0320); V letih od 2008 do 2010: Tipizacija salmonel in kampilobakterjev za zagotavljanje varne hrane (CRP V4-0529); V letih od 2010 do 2012: Virusna in mikrobiološka kontaminacija školjk ter prisotnost morskih biotoksinov v školjkah (CRP V4-1085); V letih od 2011 do 2014: Obvladovanje mikrobne adhezije na kontaktnih površinah (CRP L1-467); Zagotavljanje varne hrane: problematika kontaminacije perutnine in perutninskega mesa s kampilobaktri v Sloveniji (CRP V4-1110); Ugotavljanje izvora in širjenja *L. monocytogenes* v rejah živali in proizvodnji živil za zagotavljanje varne hrane (CRP V4-1106); V letih od 2014 do 2016: Dejavniki bakterijskih in virusnih okužb klapavic (CRP V4-1402); Je članica programske skupine »Zdravje živali, okolje in varna hrana« **Bibliografija:** COBISS izpis obsega 179 enot, od tega 77 izvornih in preglednih znanstvenih člankov. **Dodatne zadolžitve:** v času zapisa članica strokovnih združenj (SMD, SPD, AGRA - Komisija za ocenjevanje mesa in mesnih izdelkov).

**Curriculum vitae:** Born in 1962 in Ljubljana, 1980-1988 - studies at the Veterinary Faculty of University of Ljubljana. After completing her studies she was employed at the Veterinary Institute of the Ljubljana region and in the company Jata Reja. In 1992, she was employed as a young researcher at the Institute for Food Hygiene and Bromatology of Veterinary Faculty and in 1995 she completed her master's degree and then received a PhD in 1998. She is employed at the Institute of Food Safety, Animal Nutrition and Environment of Veterinary Faculty as a Teaching Assistant. Participation in committees and management functions:- Deputy Head of the Institute for Food Hygiene and Bromatology (2001-2006)- Commission for students and student affairs at the Veterinary Faculty (member, 2006-)- V.D. Head of the Institute for Food Hygiene and Bromatology (2006-2009)- Head of the National Reference Laboratory: NRL for positive staphylococci coagulase (2007 -)- Head of the Microbiology Laboratory at the Institute of Food Hygiene and Bromatology (2007 -2016)- Member of the Commission for Study and Student Affairs at the Faculty of Veterinary Medicine (2008 -)- Deputy Head of the Institute of Food Hygiene and Bromatology (2009 -2016)- Deputy Head of the Laboratory for Microbiological Food Inspection NVI (2013 -2016)- awarded the title 'Specialist for Veterinary Public Health and Food Safety' (Veterinary Chamber) (2013)- Deputy Head of the Institute for Food Safety, Feed and Environment (2016-)- Head of the Food Safety Unit at the Institute for Food Safety, Feed and Environment (2016-)-Pedagogical work: Teaching Assistant: "Hygiene and control of milk, dairy products and foodstuffs of plant origin", "Hygiene and control of meat, fish and products", years 2007-2009 Carrier of the topic "Hygiene and food technology" at University of Ljubljana, Faculty of Health Sciences, now Teaching Assistant in the subject of "Technology and food safety".Co-mentor students in research tasks for Prešernova nagrada and mentor or co-mentor at the thesis and master's theses.Research work: From 1998 to 2001: Freshwater fish in Slovenia - Residues of contaminants and drugs (L4-0771); Between 2006 and 2008: Introduction and validation of methods for the determination of residues of certain veterinary medicinal products in foodstuffs of animal origin (CRP V4-0320); From 2008 to 2010: The typology of salmonella and campylobacter for the provision of food safety (CRP V4-0529); In the years 2010 to 2012: Viral and microbiological contamination of shellfish and the presence of marine biotoxins in bivalve molluscs (CRP V4-1085); Between 2011 and 2014: Control of microbial adhesion on contact surfaces (CRP L1-467); Providing safe food: problems of contamination of poultry and poultry meat with campylobacters in Slovenia (CRP V4-1110); Determination of the origin and spread of *L. monocytogenes* in animal breeding and food production for the provision of food safety (CRP V4-1106); Between 2014 and 2016: Factors of bacterial and virus strains of mussels (CRP V4-1402);She is a member of the program group "Animal Health, Environment and Food Safety" Bibliography: The COBISS printout contains 179 units, of which 77 are original and transparent scientific articles. Additional assignments: at the time of writing, a member of professional associations (SMD, SPD, AGRA - Commission for evaluation of meat and meat products).





**Predsedujoči in sodelujoči v  
okrogli mizi/  
Chairs and participants in  
round table**



**Eržen, Ivan**

**Mojca Jevšnik**

**Nahtigal. Blaža**

**Babanovska-Milenkovska, Frosina**

**Dakovic, Vesna**

**Guček, Matjaž**

**Marjanović, Aleksandra**

**Mrkonjć Fuka Mirna**



**Ivan Eržen**

**Življenjepis:** Rojen 1957 v Ljubljani, 1976–1982 študij medicine na Univerzi v Ljubljani –specializacija iz epidemiologije, 1985–1987 – magistrski študij na Medicinski fakulteti Univerze v Ljubljani, 1987 – magisterij, 1989–2004 – doktorat na Univerzi v Ljubljani(»Stopnja izpostavljenosti prebivalcev Slovenije vnosu svinca, kadmija in živega srebra s hrano«). **Pedagoško delo:** redni profesor za področje javnega zdravja. Soavtor univerzitetnih učbenikov Javno zdravje ter Zdravje in okolje.

**Raziskovalno delo:** Raziskovalno delo je usmerjeno predvsem v epidemiološko proučevanje razširjenosti dejavnikov tveganja za zdravje ter njihov vpliv na posamezne skupine prebivalstva. **Bibliografija:** COBISS-izpis obsega 530 enot, od tega 47 izvirnih znanstvenih člankov (od katerih se 3 uvrščajo v prvo četrtino področnih revij v SSCI, SCIE), 1 pregledni znanstveni članek, 27 objavljenih znanstvenih prispevkov na konferencah ter številni strokovni članki. **Dodatne zadolžitve na UL in MB in LJ:** predstojnik katedre na Medicinski fakulteti v Mariboru, predstavnik Medicinske fakultete Ljubljana v programskem svetu interdisciplinarnega doktorskega študija Varstvo okolja Univerze v Ljubljani. **Dodatne zadolžitve izven univerze:** Dolgoletni direktor območnega zavoda za zdravstveno varstvo, direktor Nacionalnega inštituta za javno zdravje od ustanovitve do 2018, področni urednik revije Zdravstveno varstvo (IF 0,76), Predsendik Svetovne konference strateškega pristopa pri ravnanju s kemikalijami (SAICM), član različnih strokovnih združenj v Sloveniji in tujini in številne druge...

**Ivan Eržen**

**Curriculum vitae:** Born in 1957 in Ljubljana, 1976-1982 studies of medicine at the University of Ljubljana - specialization in epidemiology, 1985-1987 - Master's degree at the Faculty of Medicine, University of Ljubljana, 1987 - Master's ("A new approach to the study of the epidemiological characteristics of benign meningoencephalitis" 1989-2004 - doctoral study program at the Faculty of Medicine at the University of Ljubljana, 204 - doctorate ("Degree of exposure of inhabitants of Slovenia to the introduction of lead, cadmium and mercury with food"). **Pedagogical work:** Full professor in the field of public health. Co-author of university textbooks Public Health and Health and the Environment. **Research work:** Research work focuses primarily on the epidemiological study of the prevalence of risk factors for health and their impact on individual population groups. Bibliography: The COBISS lists 530 units, of which 47 are original scientific articles (3 of which are ranked in the first quarter of the series in SSCI, SCIE), 1 review scientific paper, 27 published scientific contributions to conferences and a number of professional articles. **Additional assignments** at UL and MB and LJ: Head of the Department at the Faculty of Medicine in Maribor, representative of the Ljubljana Medical Faculty in the program council of an interdisciplinary doctoral study Environmental protection at the University of Ljubljana. **Additional duties outside the university:** Long-term director of the regional health care institute, director of the National Institute of Public Health since its inception until 2018, editor-in-chief of the Healthcare Journal (IF 0.76), World Chemical Strategic Approach Advisor (SAICM) various professional associations in Slovenia and abroad and many other ...

### **Mojca Jevšnik**



**Življenjepis:** Rojena 1972 v Celju, 1991–97 – študij na Visoki šoli za zdravstvo, Oddelek za sanitarno inženirstvo UL. Leta 1997 se je zaposlila na Zavodu za zdravstveno varstvo v Celju in v letu 1998 kot asistentka na Visoki šoli za zdravstvo UL, sedaj Zdravstveni fakulteti (ZF). Na Biotehniški fakulteti UL je 2001 zaključila magisterij, 2008 pa doktorat s področja živilstva. V letu 2002 je bila imenovana kot presojevalka standarda ISO 9001 in 2003 vodilne presojevalke sistema HACCP pri SIQ. Je notranja presojevalka sistemov kakovosti IFS in ISO 22000. V obdobju od 2006-08 je bila predstojnica Oddelka za

sanitarno inženirstvo, sedaj je članica senata ZF. **Pedagoško delo:** Docentka za področje sanitarno inženirstvo (SI), predavateljica in nosilka predmetov na dodiplomskem študijskem programu SI: Osnove higijene in etika, Higiena objektov in procesov, sonosilka predmetov Komunalna higiena, Tehnologija in varnost živil, Dobre prakse v živilski verigi; sonosilka pri podiplomskih predmetih Novi trendi v SI in Metode vzorčenja. Je mentorica in somentorica pri diplomskih, magistrskih in doktorskih nalogah. Urednica in soavtorica univerzitetnega učbenika Higiena objektov in procesov. **Raziskovalno delo:** Raziskave na področju higijene objektov in procesov ter varnosti in kakovosti živil na različnih stopnjah živilske verige. Vodi laboratorij za higieno objektov in procesov. **Bibliografija:** SICRIS izpis obsega 392 enot, od tega 49 izvirnih in preglednih znanstvenih člankov. **Dodatne zadolžitve:** Aktivna članica Zbornice sanitarnih inženirjev Slovenije ter Inštituta za sanitarno inženirstvo. Predsednica Certifikacijskega odbora TÜV SÜD Sava d.o.o.

**Curriculum vitae:** Born 1972 in Celje, 1991-1997 Bachelor study of sanitary engineering at University of Ljubljana. In 1997 she was employed at the Health Care Institute in Celje and in 1998 as an assistant at the University of Ljubljana's College of Health Studies. At the Biotechnical Faculty, UL she was graduated in 2001 and a PhD in 2008 in the field of food. In 2002, she was appointed as an auditor of the ISO 9001 and 2003 leading auditor of the HACCP system at SIQ. She is an internal auditor of quality systems IFS and ISO 22000. From 2006 to 2008 she was a Head of the Sanitary Engineering Department. **Pedagogical work:** Assistant professor in the field of sanitary engineering, lecturer at the undergraduate sanitary engineering study program - subjects: Fundamentals of Hygiene and Professional Ethics, Hygiene of Premises and Processes, Technology and Food Safety, Good Practices in the Food Chain; postgraduate subjects: New trends in Sanitary Engineering and Sampling methods. She is a mentor and co-mentor at graduation, master and doctoral theses. Editor and co-author of university textbook "Hygiene of premises and processes". **Research work:** Research in the field of hygiene of premises and processes and the food safety and quality in food supply chain. She is a Head of the Laboratory for the Hygiene of Premises and Processes. **Bibliography:** In total 392 units among which 49 original and review scientific papers. **Additional assignments:** Active member of the Chamber of Sanitary Engineers of Slovenia and the Institute of Public and Environmental Health. Chairman of the Certification Committee TÜV SÜD Sava d.o.o.



### **Blaža Nahtigal**

**Življenjepis:** Rojena 1965 v Ljubljani, 1990 zaključila diplomski študij (Določitev celokupne koncentracije kislin v medu s potenciometrično titracijo), leta 1996 magistrski študij (Primerjava določanja fofdatov v izdelkih iz perutninskega mesa s kromatografsko in spektrofotometrično metodo) in 2004 doktorski študij (Vsebnost maščobnih kislin, holesterola in holesterol oksidov v običajnih in omega-3 jajcih, pripravljenih na različne načine) na UL, Biotehniški fakulteti, Oddelku za živilsko tehnologijo. 1998 zaključila program izpopolnjevanja pedagoško andragoške izobrazbe na UL, Filozofska fakulteta. 1990 se je zaposlila na Biotehniški fakulteti, Oddelku za živilsko tehnologijo UL kot mlada raziskovalka in asistentka, 1995 na IVZ Višnja Gora kot srednješolska učiteljica, 2005 na Ministrstvu za obrambo kot višja svetovalka za prehrano. Od leta 2006 je zaposlena na Ministrstvu za kmetijstvo, gozdarstvo in prehrano, sedaj kot sekretarka na Upravi za varno hrano, veterinarstvo in varstvo rastlin, kjer opravlja naloge EFSA informacijske točke in Codex kontaktne točke. **Pedagoško delo:** Asistentka za področje analize živil, srednješolska učiteljica za področja prehrane in varnosti živil, vabljen predavateljica za predstavitve vsebin v povezavi z delovanjem EFSA in Codex Alimentarius, somentorica pri diplomskih in magistrskih nalogah. **Raziskovalno delo:** Raziskave na področju analize živil in varnosti hrane. **Bibliografija:** COBISS izpis obsega 158 enot. **Dodatne zadolžitve:** Članica Slovenskega prehranskega društva.

**Curriculum vitae:** Born in 1965 in Ljubljana, graduated in 1990 (Determination of the total acidity of honey by the potentiometric titration technique), received a M.Sc. degree in 1996 (A comparison between the chromatographic and spectrophotometric method of establishing phosphates in poultry meat products) and doctoral degree in 2004 (Contents of fatty acids, cholesterol and cholesterol oxides in ordinary and omega-3 enriched eggs, prepared in different ways) at the University of Ljubljana, Biotechnical Faculty, Department of Food Technology. In 1998 she completed the postgraduate complementary education, pedagogic-andragogic training program at the UL, Faculty of Philosophy. In 1990, she was employed at the UL, Biotechnical Faculty, Food Technology Department as a young researcher and assistant, 1995 at the IVZ Višnja Gora as a high school teacher in the field of nutrition and food safety, 2005 at the Ministry of Defense as a Senior Adviser for nutrition. Since 2006, she has been employed at the Ministry of Agriculture, Forestry and Food, now as a secretary at the Administration for Food Safety, Veterinary Sector and Plant Protection, where she performs the tasks of the EFSA Focal Point and Codex Contact Point. **Pedagogical work:** Assistant at the field of food analysis, high school teacher in the field of nutrition and food safety, invited lecturer for issues related to EFSA and Codex Alimentarius, co-mentor at the graduation and master theses. **Research work:** Research in the field of food analysis and food safety. **Bibliography:** The COBISS printout comprises 158 units. **Additional responsibilities:** Member of the Slovene Nutrition Society.



**Frosina Babanovska-Milenkovska,**

**CV:** Born in 1969 in Kumanovo, North Macedonia. In 2000 BSc in Food and Biotechnology, Faculty of Technology and Metallurgy, University Ss." Cyril and Methodius" (UKIM) Skopje (Comparison of physical and chemical and organoleptic characteristics of red wines from certain vineyards, in 1999). From March 2002-Dec. 2009, worked at Institute for Public health, in Skopje, as Senior Food Analyst at accredited laboratory for food chemistry control (ISO 17025). From 2005-2007, multidisciplinary and international master study in Food Quality and Safety, Faculty of Agricultural Science and Food, UKIM in Skopje, (Development of analytical methods for determination of some artificial sweeteners used in food industry). From 2008-2009, Long-life learning in Innovations in Food Processing, Faculty of Technology and Metallurgy, UKIM, Skopje (subjects: Food quality and safety; Food Additives; Nutritional value of food; and Chromatographic methods). Since Dec.2009-2018, Assistant in scientific field of Food engineering, Fruits and vegetables processing. In 2015, PhD in Agricultural sciences, Faculty of Agricultural Science and Food, UKIM in Skopje, (Influence of the pepper varieties (*Capsicum annum* L. ssp. *macrocarpum*) on the quality and nutritional composition of the final products obtained with different processing technologies). In 2017, BSc in Agricultural science Faculty of Agricultural Science and Food, UKIM in Skopje, (Production technology of refreshing soft drinks fortified with vitamins.). From 2018, Assistant Professor in scientific field of Food engineering, Fruits and vegetables processing. **Educational activity:** Demonstrating theoretical and practical laboratory lessons, on the undergraduate studies for following subjects: Fruits and vegetables processing, Production of soft drinks and Technology of alcoholic and non-alcoholic drinks processing – part for non-alcoholic drinks. Also, exercises in different subjects, in accordance with the applicable programs, in Technological microbiology; Sensory properties of food; Functional food; Standardization, storage and preservation of fresh fruits and vegetables, and Standardization of agricultural products. **Research work:** In field of Food engineering, Fruit and vegetables processing, food quality and safety, including the application of some analytical methods at laboratory for food control. **Bibliography:** Publication of 28 original scientific articles in International Scientific Journals, co-author of three teaching materials for students, author of expert texts in the field of Fruit and Vegetable processing, in the Newsletter: Consumers and food, issued by the Food and Veterinary Agency and the Consumers' Organization of Macedonia. **Additional assignments at FASF:** Internal verifier according to MKC EN ISO / IEC 17025: 2006, for accredited laboratories, at the Faculty of Agricultural Sciences and Food, UKIM in Skopje. **Additional assignments out of FASF:** Food consultant, External Consultant for Implementation of HACCP Principles in differed food sectors. An external consultant and trainer for Implementation of HACCP Principles at Economic Chamber of Macedonia, Skopje, Macedonia, and an external consultant and trainer in private food consulting companies, Small and medium food processing companies. Official trainer by the JRC European Commission IRMM, Belgium in the field of Metrology in Chemistry, TrainMiC.



### **Vesna Daković**

**Biography:** Born in Nikšić Montenegro in 1977, and graduated at the Faculty of Economy of University of Montenegro in 2007. Gained Master of Science title in the field of entrepreneurial Economy - University of Donja Gorica, won the topic: »Public and Private Partnerships«. Enrolled at the PhD studies at same University, Faculty of International Finance and Business. Fluent in English. Since December 1998, she has been working as a director of a private company "Vilusi" doo. She worked in the NGO sector, business association, as an advisor and chair of the Committee on Agriculture and Rural Development.

She represented the civil sector in the EU as a member of the EU-Montenegro Civil Society Consultative Committee. From April 2016, appointed Director of the Food Safety, Veterinary and Phytosanitary Directorate. Delegate of Montenegro to the OIE - International Organization for Animal Health.

**Memberships:** President of the Committee on Agriculture and Rural Development in Montenegro Business Alliance; Member of the EU-Montenegro Civil Society Consultative Committee; Member of the Association of Economists and Managers of Montenegro; Member of several working groups in the Ministry of Agriculture and Rural Development and the Ministry of Sustainable Development and Tourism for the drafting of laws and by-laws Member of Working Group for EU Negotiation Chapter 12: Food Safety, Veterinary and Phytosanitary Policy. **Pedagogical work:** Teaching assistant at the Faculty of International Economy, finances and business, University Donja Gorica. **Research field:** Rural development, food safety, Animal Health and welfare, Agriculture. **Bibliography:** Participant in a large number of seminars, conferences, workshops, round tables, etc. Participant in a large number of seminars, conferences, workshops, round tables. Author of several articles in domestic and international journals.





### **Matjaž Guček**

**Življenjepis:** Rojen 1964 v Celju, 1984–1990 študij veterine na Veterinarski fakulteti v Ljubljani. Diplomiral leta 1990. 1990-1995 veterinar praktik na Veterinarski postaji Laško, 1995-2000 opravljal naloge pooblaščenega veterinarja na Veterinarskem zavodu Slovenije. 2000-2004 uradni veterinar na Veterinarski upravi RS Območni urad Celje. Od leta 2007 je vodja Sektorja za Živila, krmo in zdravila, najprej na Veterinarski uprava RS, po reorganizaciji leta 2013 pa na Upravi RS za varno hrano, veterinarstvo in varstvo rastlin. Od 2003-2006 soorganiziral in vodil več TAIEX dogodkov na temo varne hrane s poudarkom na živilih živalskega izvora. Je kontaktna točka OIE za področje varne hrane živalskega izvora. 2015 in 2016 je sodeloval v mednarodnem projektu Evropske Komisije – Dobre higienske prakse na področju zakola živali (Share of Best Practice in Slaughter Hygiene). Kot nacionalni ekspert je sodeloval v presojah Urada za zdravje, presoje in analize (bivši FVO) v Braziliji, Ruski federaciji, Srbiji in Avstriji in sicer na področju perutninskega mesa. Ima opravljen tečaj za notranjega presojevalca skladno z ISO 9001:2008 in certifikat za uporabo načel HACCP v praksi (The Royal Institute of Public Health, UK). Trenutno je predstavnik RS v Stalnem odboru EK za rastline, živali, krmo in živila – Sekcija biološka tveganja v prehranski verigi. Je tudi član delovne skupine Sveta EU za področje veterine, član Komisije za zoonoze in Ekspertne skupine za navzkrižno skladnost.

**Curriculum vitae:** Born 1964 in Celje, 1984–1990 veterinary studies at the Veterinary Faculty in Ljubljana. Graduated in 1990. In 1990 -1995 private veterinary practitioner at the Veterinary practice in Laško, from 1995 to 2000, performed the tasks of an authorized veterinarian at the Veterinary Institute of Slovenia. 2000-2004 official veterinarian at the Veterinary Administration of the Republic of Slovenia Regional Office Celje. Since 2007, he is head of the Food, Feed and Veterinary Medicine Division, first at the Veterinary Administration of the Republic of Slovenia, and after the reorganization in 2013, at the Administration of the Republic of Slovenia for Food Safety, Veterinary Sector and Plant Protection. Since 2003-2006, he co-organized and led several TAIEX events on food safety with an emphasis on foods of animal origin. It is the focal point of the OIE for the safe of food of animal origin. In 2015 and 2016 he participated in the international project of the European Commission "Share of Best Practice and Slaughter Hygiene". As a national expert, he participated in the audits of the Directorate 'Health and Food Audits and Analysis', (formerly FVO) in Brazil, the Russian Federation, Serbia and Austria in the field of poultry meat. Has passed the internal auditor course in accordance with ISO 9001: 2008 and obtained the certificate for the application of HACCP principles in practice (The Royal Institute of Public Health, UK). He is currently a representative of the Republic of Slovenia in the EC's Standing Committee on Plants, Animals, Feed and Food - Section of Biological Risks in the Food Chain. He is also a member of the Council Working Party of Veterinary Experts, a member of the Commission for Zoonosis and the Cross-Compliance Expert Group at the Ministry for Agriculture, Forestry and Food.



**Aleksandra Marjanović**

**Biography:** Born in 1980 in Sarajevo; 1998–2003 – master study in Pharmacy, University of Sarajevo (diploma thesis: "Determination of chlorophenoxy herbicides by TLC in clinical toxicology"); 2010-Master of science in Pharmacy, University of Sarajevo (master thesis: "Investigation of the possibility for determination of polychlorinated biphenyls in fish tissue using immunoassay"); 2013-PhD in Pharmacy, University of Sarajevo (doctoral thesis: "Use of passive sampling systems in determination of endocrine disrupting chemicals and genotoxic compounds in water"); 2005-2008 specialization in Toxicological chemistry, Federal Ministry of Health, FBiH; 2007-HACCP manager (Bio-Base/TÜV Adria); 2016-Training of experts in toxicology of phytopharmaceutical products; 2014-Training in analysis of PAHs in biological samples and in 2008 -Training on instrumental techniques for analysis of POPs in samples from environment and biota (Norwegian Institute for water research, Oslo, Norway). **Teaching:** Associate professor in toxicology (subjects: "Toxicological chemistry", "Misuse of drugs in sport", "Food Toxicology and food safety"-master study and subjects "Endocrine disrupting chemicals in food and environment", "Food quality and food safety"-doctoral study; subject "Principles of toxicology"-Interdisciplinary master study of nutrition at University of Sarajevo); mentor of more than 70 diploma and master thesis. **Research work:** Toxicology, especially ecotoxicology and food toxicology and food safety; risk assessment, pharmaceutical analysis. **Bibliography:** 89 publications (19 original scientific papers). **Additional informations:** Head of the Poisoning control center at Faculty of Pharmacy, University of Sarajevo



**Mirna Mrkonjć Fuka**

**Curriculum vitae:** Born in 1976 in Zagreb, 1995-2002 studies of biology at the University of Zagreb - specialization in ecology, 2003-2006 - doctoral study program at the Technical University Munich - 2007 - Ph.D. ("Structural and functional diversity of proteolytic genes in an arable field"). **Pedagogical work:** Assistant professor in the field of microbial ecology and food microbiology. Coordinator of seven courses at undergraduate and graduate study programmes at Faculty of Agriculture University of Zagreb and visiting teacher at BOKU Austria and Huazhong University China. **Research work:** functional and structural diversity of bacterial communities in complex ecosystems (especially artisanal food), molecular typing of lactic acid bacteria and analysis regarding to sources of antibiotic resistance in food chain and inhibition of growth of spoilage and pathogenic microbiota. Bibliography: The google scholar lists 98 units, of which 23 are original scientific articles (9 of which are ranked in the first quartile), 2 book chapters and 30 are the published scientific contributions to conferences. **Additional assignments** Head of the Department of microbiology at the Faculty of Agriculture University of Zagreb. **Additional duties outside the university:** Member of Scientific Committee for Contained use of GMO – Ministry of health from 2013; Member of the Steering Committee of the Institute of Agriculture in Poreč, Croatia from 2015; Member of the Organizing Committee of the congress "Power of microbes in industry and end environment", 2017 and 2019; Section editor of the journal "Agriculae Conspectus Scientificus" and Frontiers in Food microbiology. **Additional Information:** Winner of several grants and awards (DAAD, FEMS, ERASMUS, CEEPUS, The society of university teachers, scholars and other scientists in Zagreb,) for scientific and academic work and participating in several international (Tempus IV Program (2015-2017), See-Era. Net Plus (2010-2012), European Regional Development Fund (2006-2007), DFG-German Research Foundation (2002-2005)) and national projects (MZOS 2007-2013) of which she was leader of bilateral projects with Germany (2012-2013), Austria (2014-2015), Slovenia (2016-2017) and China (2018-2019) as well the leader of the project founded by Croatian Science Foundation (2014-2017) and Croatian Ministry of agriculture (2014-2015).

## Varnosti izziv

Ključ znanje in potreba,  
vsakega in vseh nas,  
svet ugotavlja da živilom,  
varnost že pretresa glas.

S hrano res ravnamo,  
malomarno in povprek.  
V družbi je že znano  
saj presitost ni le rek.

So liderji se priučili,  
da hrana je le element,  
kako ljudi se v stisko sili,  
saj varnost je le instrument.

Nuja varnosti nas tlači,  
da naredimo nekaj več,  
da se s hrano ne berači,  
še manj pa meče preč.

Tako postavljamo pomnike,  
da nas spominjajo na rek:  
Kar se v svoja usta nese,  
je primerno za vse povprek.

A klic varnosti ostaja,  
v niz nevarnosti zazrt.  
Kaj stroka nam prodaja,  
bo slehernik zatrt?

Črta varnosti ne klone  
in se vleče v nedogled.  
Vprašanje pa ne utone:  
kako nevarnost prav zatret?

(P.Raspor)