

**Faculty of Technology and Technical Sciences - Veles  
University "St. Kliment Ohridski" - Bitola, Republic of North Macedonia**



**1<sup>ST</sup> INTERNATIONAL SCIENTIFIC CONFERENCE  
FOOD SCIENCE, NUTRITION, INNOVATIVE TECHNOLOGIES AND  
SUSTAINABILITY**

**BOOK OF ABSTRACTS**

**03 October 2025  
Veles, Republic of North Macedonia**

**Faculty of Technology and Technical Sciences - Veles  
University "St. Kliment Ohridski" - Bitola, Republic of North Macedonia**



**1<sup>st</sup> International Scientific Conference  
Food Science, Nutrition, Innovative Technologies and  
Sustainability**

# **Book of Abstracts**

**03 October 2025**

**Veles, Republic of North Macedonia**

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## **Program of the 1<sup>st</sup> International Scientific Conference, 2025**

**Theme:** *Food Science, Nutrition, Innovative Technologies and Sustainability*

**Location:** Faculty of Technology and Technical Sciences - Veles,  
University "St. Kliment Ohridski" - Bitola, Dimitar Vlahov 57, 1400 Veles, Republic of North  
Macedonia (<https://maps.app.goo.gl/2HKzpi1VmZAypuwj9>)

**Conference website:** <https://ttfv.uklo.edu.mk/conferences/?lang=en>

**Date 03 October 2025**

**Registration 9:30 AM - 10:00 AM**

**Opening Ceremony 10:00 AM - 10:15 AM**

**Google Meet link:** <https://meet.google.com/sko-uata-pcv>

### ***Welcome Remarks:***

- Prof. Dr.sc. Vezirka Jankuloska, Dean, Faculty of Technology and Technical Sciences – Veles, University "St. Kliment Ohridski" – Bitola, Republic of North Macedonia
- Rector/vice-rectors of the University "St. Kliment Ohridski" – Bitola, Republic of North Macedonia
- Prof. Dr.sc. Vesna Antoska Knights, Vice-Dean of Science & International Cooperation, Faculty of Technology and Technical Sciences – Veles, University "St. Kliment Ohridski" – Bitola, Republic of North Macedonia
- Prof. Dr.sc. Aleksandar Stanković, Vice-Dean for Science & International Cooperation, Faculty of Applied Sciences – Niš, Serbia

### ***Keynote Speech: 10:20 AM***

**Topic:** Application of NIR spectroscopy in the development of sustainable solutions for food and nutrition

**Speaker:** Prof. Dr.sc. Jasenka Gajdoš Kljusurić, PhD, Faculty of Food Technology and Biotechnology, University of Zagreb, Zagreb, Croatia

### ***Keynote Speech 15:00 PM***

**Topic:** Extraction of phenolic compounds from propolis with emulsion-based green solvents.  
Ayse Yilmaz, Sibel Uluata, Hakan Inci, Gokhan Durmaz

**Speaker:** Prof. Dr. Sc Gokhan Durmaz, PhD, Department of Food Engineering, Inonu University, Malatya 44280, Türkiye, Department of Food Science, University of Massachusetts Amherst, Amherst, MA 01003, USA

**10:40 AM - 11:55 AM**

Thematic Session: **Food Science**

Moderators: Anka Trajkovska Petkoska, Daniela Nikolovska Nedelkoska, Namik Durmishi

VALORIZATION OF FRUIT AND VEGETABLE BY-PRODUCTS: BIOACTIVE COMPOUNDS, EXTRACTION AND APPLICATIONS. Himanshu, Nishant Kumar.

GREEN SYNTHESIS OF CARBON QUANTUM DOTS USING DAIRY BY-PRODUCTS AND THEIR FOOD APPLICATIONS. Amrita Poonia.

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INFLUENCE OF THE TECHNOLOGICAL PROCESS AND WHEY PROPERTIES ON THE QUALITY OF ALBUMIN CHEESES. Tanja Stojanovska, Tatjana Kalevska, Vezirka Jankuloska, Viktorija Stamatovska, Daniela Nikolovska Nedelkoska, Nevena Gruevska.

SENSORY AND NUTRITIONAL IMPACTS OF PUMPKIN FLOUR ENRICHMENT IN WHEAT BREAD: A SYNTHESIS OF RECENT STUDIES. Durim Alija, Gafur Xhabiri, Namik Durmishi, Ismail Ferati, Daniela Nikolovska Nedelkoska.

**12:00 AM - 12:40 PM**

Thematic Session: **Functional food, Novel food, Innovative technologies for food and innovative products**

Moderators: Viktorija Stamatovska, Tatjana Kalevska, Jovana Krstic

HUMMUS AS A FUNCTIONAL FOOD: NUTRITIONAL CHARACTERISTICS, ANTIOXIDANT POTENTIAL AND HEALTH BENEFITS. Eleonora Delinikolova, Vezirka Jankuloska.

FUNCTIONAL PROPERTIES AND HEALTH IMPACTS OF PREBIOTIC-ENRICHED CHEESE. Vlora Hyseni, Daniela Nikolovska Nedelkoska.

ETHNICITY, SOCIAL STATUS, LOCATION AND INCOME – FACTORS IN THE USE OF FUNCTIONAL DAIRY PRODUCTS. Nevena Gruevska, Selvije Zenku, Tatjana Kalevska, Daniela Nikolovska Nedelkoska, Vezirka Jankuloska, Tanja Stojanovska.

BUCKWHEAT WHOLE-GRAIN FLOUR AND ARONIA FRUIT IMPACT ON FLAVONOID CONTENT AND FUNCTIONAL PROPERTIES OF COOKIES. Valentina Simić, Jovana Krstić, Dušan Paunović, Danica Dimitrijević, Ivana Karabegović.

CHALLENGES TO INNOVATION IN THE FOOD INDUSTRY THROUGH THE IMPLEMENTATION OF NOVEL FOOD REGULATIONS. Vezirka Jankuloska, Eleonora Delinikolova.

**12:45 PM - 13:15 PM**

**Presentation of Analytical Equipment for Food Analysis**

*Andrijana Simić, Product Manager, and Petra Dragosavljević Proanalytica d.o.o., Belgrade, Serbia*

Topics include:

- Rapid N exceed device for total nitrogen/protein determination
- ANKOM TDF Analyzer for dietary fiber content
- ANKOM DELTA automated system for fiber analysis
- Ethos X microwave fat extraction system

**13:20 PM - 13:50 PM Coffee break and Cocktail**

**13:55 PM - 15:15 PM**

Thematic Session: **Nutrition**

Moderators: Nevena Gruevska, Katerina Temelkovska Ristevska, Durim Alija

CONSUMER ATTITUDES TOWARDS GOAT MILK AND GOAT MILK PRODUCTS IN NORTH MACEDONIA. Hava Miftari, Xhezair Idrizi, Gafur Xhabiri, Ismail Ferati, Daniela Nikolovska Nedelkoska

ENERGY BALANCE IN ATHLETES: PHYSIOLOGICAL IMPORTANCE, CONSEQUENCES OF IMBALANCE AND NUTRITIONAL STRATEGIES FOR OPTIMAL PERFORMANCE. Vladanka Bojkova, Valentina Velkovski, Aksu Samet, Tatjana Blazhevska, Vezirka Jankuloska.

NUTRITIONAL HABITS OF STUDENTS IN THE POLOG REGION. Emira Rushiti, Gafur Xhabiri, Durim Alija, Namik Durmishi, Rejhana Luma, Xhezair Idrizi.

IMPACT OF FREQUENT CONSUMPTION OF ACIDIC FOOD AND DRINKS ON DENTAL EROSION. Aksu Samet, Akgul Omeragic, Valentina Velkovski, Sezen Samet, Iskra Pechijareva Sadikarijo.

MULBERRY FRUIT AS MEDICINE IN TRADITIONAL MEDICINE. Danica Dimitrijević, Dušan Paunović, Jovana Krstić, Svetlana Ristić, Kristina Filipović.

A CROSS-SECTIONAL EVALUATION OF BMI IN RELATION TO NUT AND SEED CONSUMPTION, OIL USAGE, AND LIFESTYLE BEHAVIORS. Valbona Sallai Mazllami, Vesna Knights, Zora Uzunoska, Tatjana Blazhevaska.

THE EFFECT OF MEDITERRANEAN DIET AND OLIVE OIL CONSUMPTION ON BETTER NUTRITIONAL STATUS AND HEALTH. Gresa Ahma, Vezirka Jankuloska.

PERCEPTION OF THE ROLE OF NUTRITIONISTS AMONG PREGNANT WOMEN AND WOMEN PLANNING PREGNANCY. Bojana Ilkov, Vezirka Jankuloska

MAGNESIUM AND NUTRITIONAL HEALTH: NUTRITIONAL STRATEGIES TO REDUCE MAGNESIUM DEFICIENCY WITH FOOD FORTIFICATION. Neshe Salih, Vezirka Jankuloska, Daniela Nikolovska Nedelkoska, Tatjana Blazhevaska.

#### **15:30 PM - 16:10 PM**

Thematic Session: **Nutrition for chronic diseases, conditions and malnutrition**

Moderators: Tatjana Blazhevaska, Zlatko Lozanovski, Eleonora Delinikolova

OPTIMIZING DIETARY STRATEGIES IN THE CARE OF PATIENTS WITH DIABETES MELLITUS. Gabriel Zhivkovikj, Denis Arsovski, Angelka Jankulovska, Zlatko Lozanovski.

QUANTIFICATION OF DAILY GLYCEMIC OSCILLATIONS IN HOSPITALIZED PATIENTS TREATED WITH INSULIN: BIOCHEMICAL PARAMETERS AND NUTRITIONAL INTERFERENCE. Zlatko Lozanovski, Valentina Velkovski, Angelka Jankulovska, Erzindzan Bajramoska.

NUTRITIVE HABITS IN HASHIMOTO'S THYROIDITIS, A QUESTIONNAIRE AND COMPARATIVE STATISTICAL ANALYSIS. Besim Sermahaj, Zora Uzunoska, Vesna Antoska Knights.

DIETARY MANAGEMENT OF HYPERTENSIVE PATIENTS: A CASE STUDY FROM KOSOVO. Nazmi Velija, Zora Uzunoska, Vesna Knights.

THE IMPACT OF DIETARY PATTERNS ON MALE INFERTILITY. Biljana Markovska, Valentina Velkovski.

#### **16:15 PM - 17:25 PM**

Thematic Session: **Microbiological, chemical and biochemical analysis of food, food quality and safety**

Moderators: Valentina Velkovski, Gorica Pavlovska, Sanja Petrovic

SYNTHESIS AND SPECTROPHOTOMETRIC ANALYSIS OF 3,5-BIS(ARYLIDENE)-4-PIPERIDONES. Zlatko Lozanovski, Valentina Velkovski.

NATURAL ANTIMICROBIAL AND ANTIOXIDANT ADDITIVES IN EDIBLE PACKAGING FOR IMPROVED MICROBIOLOGICAL STABILITY OF FOOD. Aneta Stajikj, Daniela Nikolovska Nedelkoska, Anka Trajkovska Petkoska.

PREDICTING BIOACTIVE PROPERTIES OF AROMATIC PLANTS ENRICHED HONEYS WITH NIR SPECTROSCOPY AND CHEMOMETRIC MODELS. Jasenka Gajdoš Kljusurić, Vesna Knights, Berat Durmishi, Smajl Rizani, Gorica Pavlovska, Valentina Velkovski, Ana Jurinjak Tušek, Maja Benković, Davor Valinger, Tamara Jurina

CURCUMIN AND ITS STRUCTURAL ANALOGUES: A REVIEW OF SYNTHETIC STRATEGIES, ANALYTICAL METHODS AND PHARMACOLOGICAL POTENCIAL. Zlatko Lozanovski, Valentina Velkovski, Angelka Jankulovska, Daniela Petkovska, Denis Arsovski, Gabriel Zhivkovikj.

ASSESSMENT OF MICROBIOLOGICAL AND PHYSICO-CHEMICAL CONTAMINATION OF DRINKING WELL WATER IN THE GJAKOVA REGION. Florjana Zogaj, Tatjana Blazhevaska, Vesna Knights, Gorica Pavlovska, Valentina Velkovski, Nina Dimovska.

IMPROVING THE PHOTOSTABILITY OF VITAMIN B12 FOR PHARMACEUTICAL AND FOOD APPLICATIONS VIA LIPOSOMAL DELIVERY. Sanja M. Petrović, Saša Savić, Aleksandar Lazarević, Dragan Cvetković, Jelena Zvezdanović.

IMPACT OF VEGETABLE PROCESSING ON LEAD AND CADMIUM CONCENTRATIONS: A REVIEW. Katerina Temelkovska Ristevska, Tatjana Kalevska, Viktorija Stamatovska, Valentina Velkovski, Gorica Pavlovska.

ASSESSMENT OF VITAMIN C, PHYTOCHEMICALS, AND ANTI-NUTRIENTS IN SPINACH (*SPINACIA OLERACEA L.*). Arbnore Bytyç i, Hyrije Koraqi, Anka Trajkovska Petkoska.

CINNAMON UNDER THE LENS: HEAVY METALS AND FOOD SAFETY. Sasa Savic, Sanja Petrović, Stefana Utvic, Jana Cvetkovic.

### **17:30 PM - 18:00 PM**

Thematic section: **Modeling and optimization in Food Technology and Nutrition**

Moderators: Jasenka Gajdoš Kljusurić, Vladimir Kitanovski, Slobodan Stefanović

BASIC CHARACTERISTICS, APPLICATION, OPERATING COSTS, AND COMPARATIVE ANALYSIS OF PISTON-AXIAL PUMPS IN OIL HYDRAULICS IN PROCESS ENGINEERING. Dragana Trajković, Slobodan Stefanović, Milan Stefanović.

DISINFECTION OF DRINKING WATER. Nemanja Stanković, Milan Stefanović, Slobodan Stefanović, Jovana Krstić, Dušan Paunović

OPTIMIZATION OF SEED THROUGHPUT IN SCREW PRESSING OF FODDER RADISH SEEDS. Vesna S. Zlatković, Nada L. Grahovac, Ivana B. Banković Ilić, Petar M. Mitrović, Zoran B. Todorović, Ana M. Marjanović Jeromela, Vlada Veljković.

SMART BIOBASED TIME TEMPERATURE ECOLABELS FOR REAL TIME FRESHNESS MONITORING IN COLD CHAIN LOGISTICS. Vladimir Kitanovski, Monika Lutovska, Zoran Trifunov, Sani Demiri, Olga Popovska, Stevan Kjosevski.

THE USE OF THE SIMPLEX METHOD IN MODELING AND OPTIMIZATION IN NUTRITION. Vesna Knights, Tamara Jurina, Valbona Sallai Mazllami, Jasenka Gajdoš Kljusurić.

INTEGRATED (STATISTICAL) ANALYSIS OF HONEY ENRICHED WITH AROMATIC HERBS. Berat Durmishi, Vesna Knights, Viktorija Stamatovska, Demokrat Nuha, Smaj Rizani, Arbrie Bytyci.

BODY MASS REDUCTION WITH THE KETOGENIC DIET: COMPARATIVE STATISTICAL ANALYSIS USING THE WISHNOFSKY MODEL. Gordana Markovik, Vesna Antoska Knights, Tatjana Blazhevska, Jasenka Gajdoš Kljusurić.

### **18:00 PM - 18:30 PM**

Thematic section: **Food, Sustainability and Environment**

Moderators: Filip Cvetković, Tanja Stojanovska, Boban Panovski

ANALYSIS OF THE ATTITUDES OF CITIZENS IN THE REPUBLIC OF NORTH MACEDONIA WITH REGARD TO THE PROTECTION AND IMPROVEMENT OF THE ENVIRONMENT. Biljana Petrovska, Natasha Petrovska.

TRENDS AND SUSTAINABILITY OF COW MILK PRODUCTION IN KOSOVO OVER THE YEARS. Indrit Loshi, Shyhrete Muriqi, Vesna Antoska Knights, Jasenka Gajdoš Kljusurić

THE ROLE OF STANDARDS IN PROVIDING HEALTHY FOOD FOR CONSUMERS. Aleksandar Stanković, Filip Cvetković, Vasko Shutarov, Boban Panovski, Ljubica Mihajlović.

TYPES OF ORGANIZATION IN THE ENVIRONMENT AND FACTORS SHAPING THE ORGANIZATIONAL STRUCTURE. Slobodan Stefanović, Jasmina Gligorijević, Milan Stefanović.

THE IMPACT OF INFLUENCERS ON FOOD AND BEVERAGE INDUSTRY CONSUMER BEHAVIOR. Jasmina Gligorijević, Miloš Stojanović.

GLOBAL AND REGIONAL SECURITY CRISES AND FOOD SECURITY IN WESTERN BALKANS COUNTRIES. Dano Mavrak, Aleksandar Stankovic.

DIGITAL MARKETING IN THE PROMOTION OF HEALTHY EATING: TRENDS AND PRACTICES. Boban Panovski, Aleksandar Stanković, Filip Cvetkovic, Nemanja Stankovic.

### **18:30 PM Certificate Ceremony and Conference Closing**

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# **FOOD SCIENCE**

# COMPARATIVE EVALUATION OF FATTY ACID PROFILES IN COMMON MEAT CUTS

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## Abstract

Meat production and consumption in North Macedonia have undergone notable shifts influenced by economic development and changing dietary habits. Meat serves as a vital source of essential nutrients, particularly high-quality protein and biologically active fatty acids that play a significant role in cardiovascular health. This study aimed to assess the nutritional quality of pork and poultry meat by conducting a comparative analysis of their fatty acid profiles, using standard chemical composition methods. An analysis of pork and poultry meat production and consumption was conducted to reflect the dietary habits of Macedonian citizens. Between 2020 and 2024, total pork production reached 67,961 tons, while poultry production amounted to 9,202 tons during the same period. In 2024, average household consumption was estimated at 23.7 kg of pork and 46.5 kg of poultry meat. The analysis revealed that chicken breast contains a low fat content of 2.4 g per 100 g and features a favorable ratio of polyunsaturated to saturated fatty acids, primarily attributed to higher levels of linoleic and linolenic acids. Conversely, pork cuts such as neck and belly exhibited considerably higher fat content, ranging from 13.02 to 18.75 g per 100 g, along with elevated concentrations of saturated fatty acids, particularly palmitic and stearic acids. These findings underscore the nutritional advantage of poultry as a leaner meat option with a healthier fat composition. Considering these differences, it is recommended to prioritize poultry consumption to promote improved lipid balance and to mitigate long-term health risks associated with excessive intake of saturated fats.

**Keywords:** meat consumption, nutritional quality, fatty acids.