

Madridge Journal of Food Technology

ISSN: 2577-4182

Proceedings of
**4TH INTERNATIONAL
FOOD, NUTRITION & BIOPROCESS
TECHNOLOGY CONFERENCE**

October 22, 2020 | Virtual Conference





Madridge Journals

A

Madridge Journal of AIDS (MJA) - ISSN - 2638-1958

Madridge Journal of Analytical Sciences and Instrumentation (MJAI) - ISSN - 2638-1532

Madridge Journal of Aquaculture Research and Development (MJARD) - ISSN - 2638-2210

Madridge Journal of Agriculture and Environmental Sciences (MJAES) - ISSN - 2643-5500

International Journal of Aeronautics and Aerospace Engineering (IJAE) - ISSN - 2643-8224

B

International Journal of Biotechnology and Recent Advances (IJBR) - ISSN - 2639-4529

Madridge Journal of Behavioral & Social Sciences (MJBSS) - ISSN - 2638-2032

International Journal of Biochemistry and Pharmacology (IJBP)

Madridge Journal of Bioinformatics and Systems Biology (MJBSB) - ISSN - 2641-8835

C

International Journal of Chemistry and Research (IJCR) - ISSN - 2642-1615

International Journal of Chemistry and Research(MJCSR) - ISSN - 2640-5180

Madridge Journal of Cardiology (MJC)

Madridge Journal of Case Reports and Studies (MJCRS) - ISSN - 2639-4553

Madridge Journal of Clinical Research (MJCR) - ISSN - 2638-3535

International Journal of Cosmology, Astronomy and Astrophysics (IJCAA) - ISSN - 2641-886X

D

Madridge Journal of Dermatology & Research (MJDR) - ISSN - 2639-0353

Madridge Journal of Dentistry and Oral Surgery (MJDL) - ISSN - 2639-0434

Madridge Journal of Diabetes (MJD) - ISSN - 2639-0337

E

International Journal of Earth Science and Geology (IJEG) - ISSN - 2642-1569

F

Madridge Journal of Food Technology (MJFT) - ISSN - 2577-4182

H

International Journal of Hematology and Blood Research (IJHBR)

International Journal of Human Genetics and Genetic Disorders (IJHG)

I

Madridge Journal of Immunology (MJIM) - ISSN - 2638-2024

Madridge Journal of Internal and Emergency Medicine (MJIEM) - ISSN - 2638-1621

M

International Journal of Material Science and Research (IJMSR) - ISSN - 2638-1559

International Journal of Microbiology and Current Research (IJMR)

Madridge Journal of Molecular Biology (MJMB)

N

Madridge Journal of Nanotechnology & Nanoscience (MJNN) - ISSN - 2638-2075

Madridge Journal of Nursing (MJN) - ISSN - 2638-1605

Madridge Journal of Neuroscience (MJNS) - ISSN - 2638-1583

Madridge Journal of Novel Drug Research (MJNDR) - ISSN - 2641-5232

O

Madridge Journal of Oncogenesis (MJO) - ISSN - 2641-5267

Madridge Journal of Ophthalmology (MJOP) - ISSN - 2638-2040

Madridge Journal of Otorhinolaryngology (MJOL) - ISSN - 2640-5148

International Journal of Obesity and Nutritional Science (IJONS)

P

International Journal of Physics: Study and Research (IJPSR) - ISSN - 2639-0426

International Journal of Petrochemistry and Research (IJPR) - ISSN - 2638-1974

Madridge Journal of Pharmaceutical Research (MJPR) - ISSN - 2638-1591

International Journal of Pediatrics, Neonatology and Primary Care (IJPN)

International Journal of Proteomics and Computational Biology (IJPCB)

R

International Journal of Robotics Research, Applications and Automation (IJRA)

S

Madridge Journal of Surgery (MJS) - ISSN - 2638-2008

T

International Journal of Translational Medicine (IJTM)

International Journal of Traditional Medicine and Applications (IJTMA)

V

Madridge Journal of Vaccines (MJV) - ISSN - 2638-1966

Madridge Journal of Veterinary Medicine & Research (MJVMR)

W

Madridge Journal of Women's Health and Emancipation (MJWH) - ISSN - 2638-1575



4TH INTERNATIONAL FOOD, NUTRITION & BIOPROCESS TECHNOLOGY CONFERENCE

October 22, 2020 | Virtual Conference



Upcoming
Conferences





Upcoming Conferences

<p>5th International Conference on Geology & Earth Science October 16, 2020 Virtual Conference</p>
<p>International Conference on Clinical Pharmacy October 19, 2020 Virtual Conference</p>
<p>4th International Food, Nutrition and Bioprocess Technology Conference October 22, 2020 Virtual Conference</p>
<p>3rd International Biotechnology and Research Conference October 23, 2020 Virtual Conference</p>
<p>International Plant Science and Molecular Biology Conference October 27, 2020 Virtual Conference</p>
<p>2nd International Conference on Virology December 09, 2020 Virtual Conference</p>
<p>7th International Nursing Conference December 10, 2020 Virtual Conference</p>
<p>2nd International Conference on Neurology and Neurosurgery December 11, 2020 Virtual Conference</p>

<p>International Chemical Engineering and Catalysis Conference December 14, 2020 Virtual Conference</p>
<p>3rd International Conference on Obesity and Weight Loss December 15, 2020 Virtual Conference</p>

Supporting Journal

Madridge Journal of Food Technology

<https://madridge.org/journal-of-food-technology>

MADRIDGE JOURNAL OF FOOD TECHNOLOGY

Madridge Journal of Food Technology (MJFT) (ISSN: 2577-4182) is a double-blinded peer-reviewed open access journal published by Madridge Publishers. MJFT includes a set of physical, chemical or biological methods and practices used to modify raw ingredients into food and its transmutation into other forms in the food processing industry. The journal of food technology provides an open-access platform to publish the original research papers and provides the rapid distribution of prominent research analysis in various disciplines comprising the processing and technology of food, food science, and engineering...

EDITOR-IN-CHIEF



Delia Ojinnaka
London South Bank University
UK

ASSOCIATE EDITOR



Eric Francelino Andrade
Federal University of Jequitinhonha and
Mucuri Valleys, Brazil

EDITORIAL BOARD MEMBERS



Suren N. Kulshreshtha
University of Saskatchewan
Canada



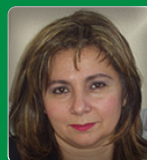
Henryk Zielinski
Polish Academy of Sciences
Poland



Giuseppe Zeepa
University of Turin
Italy



Pedro Jose Gonzalez Matarin
University of Almería, Spain



Eugenia Bezirtzoglou
Democritus University of Thrace
Greece



Gustavo Puglia Machado
São Paulo State University
Brazil



Vasco Augusto Pilao Cadavez
Polytechnic Institute of Braganza
Portugal



Jin Seop Bak
Kyonggi University, South Korea



Chung-Yi Chen
Fooyin University
Taiwan

For scope and other details of the journal, please visit our website at:
<https://madridge.org/journal-of-food-technology>

Submit your full-length manuscript at:
<https://madridge.org/journal-of-food-technology/submit-manuscript>



4TH INTERNATIONAL FOOD, NUTRITION & BIOPROCESS TECHNOLOGY CONFERENCE

October 22, 2020 | Virtual Conference



Keynote Forum



Vasudeva Singh

Department of Bio-Engineering and Technology, Gauhati University, India

Grain Processing with Special Reference to Rice

World produces around 2600 Million tons of Cereals and India produces around 270 Million tons. World produces around 700 MT of wheat and India produces around 100 MT. Paddy production in the World is around 750 MT and our country produces around 150 MT. Similarly, data is available for Coarse grains consisting of Millets, Legumes consisting of pulses.

Generally, paddy is processed to raw as well as parboiled rice. While processing paddy to raw rice precautions to be taken will be touched upon. Methods of parboiling of paddy, where open atmosphere, pressure parboiling will be touched upon.

Paddy is processed to steamed rice; in which way it is different from parboiled rice will be discussed. Preparation of Expanded rice, popped rice and Flaked rice will also be discussed. Similar attempts will be made to explain how other grains could be processed like rice will be touched upon. Weaning foods preparation and process conditions followed will be discussed while presenting. Attempts will be made to explain the steps, what is happening will also be touched upon.

Pregelatinization of cereals or any other grain will also be spoken. With pilot plant demonstrations, this phenomenon will be discussed upon.

Attempts will also be made to explain the phenomena of making dhals from the pulses. Attempts will also be made to explain the preparation of Sago from tapioca roots.

Biography:

After retiring from CSIR-CFTRI as a Chief Scientist during 2013, worked as an Emeritus Medical Scientist (ICMR) at University of Mysore and at present working as a Professor, under DBT sponsored Food Science Project, Gauhati University. Published 77 research papers, inventor of several processes, one Patent was commercialized to 30 industries. Handled several National & International projects. Guided 70-80 M.Sc students for their Dissertation and Investigation problems and produced 6 Ph.D candidates. Guided 4 candidates from Korea, Sudan, Nigeria and Ethiopia for their Post Doctoral Research at CSIR-CFTRI, Mysore. Faculty member and Course Co-ordinator of M.Sc Food Technology, HRD courses of CFTRI. Recipient of several awards, delivered 60-70 invited lectures, innumerable oral lectures, and presented 60-70 posters at National & International Conferences. Serving FSSAI, New Delhi in several capacities. Also, as a member of Research Advisory Committee, ICAR-Central Institute of Post Harvest Engg and Technology, Ludhiana, Punjab.

Prakash Kondekar

Indian Institute of Naturopathy, India

Foodborne Diseases and Treatments

Many foods of plant origin like, fruits, vegetables, can become contaminated with antimicrobial-resistant bacteria and antibiotic resistance genes (ARGs).

Microbiological contamination of foods of plant origin is responsible for foodborne illnesses worldwide. Water can also be an important source of antimicrobial residues. Best management practices should be adhered to concerted efforts should be made to mitigate their contamination at all stages of the food chain. If a heavy metal contaminates food and people eat it, they may subsequently get ill. If they do, they have a foodborne illness. Substances that get into food and make people ill are 'food contaminants.'

Food poisoning symptoms may include cramping, nausea, vomiting, or diarrhoea. Amebiasis is a disease caused by the parasite *Entamoeba histolytica*. It can affect anyone, although it is more common in people who live in tropical areas with poor sanitary conditions. Botulism is a rare but serious illness caused by a toxin that attacks the body's nerves.

Although anybody can become infected, some people are more vulnerable, like..

- Babies and young children *Older adults *Pregnant women.
- People with kidney or liver disease, HIV/AIDS or diabetes.

The most common germs that cause foodborne disease are:

- *Norovirus* **Salmonella* **Clostridium perfringens*.
- *Campylobacter* **Staphylococcus aureus* (*Staph*).

Treatment-Most food poisoning is mild and resolves without treatment. Ensuring adequate hydration is the most important aspect of treatment. Doctors treat botulism with a drug called an antitoxin. If you have wound botulism, your doctor may need to surgically remove the source of the toxin-producing bacteria and give you antibiotics.

Biography:

Hon Director, Indian Institute of Naturopathy, Mumbai. BSc (Hons)LLB MDH ND Ayurved - Ratna FRSH (London) Bowtech (UK). Presented papers in UK, USA, Germany, Mauritius, Singapore, UAE, Vietnam, Italy & Spain. In India, conducted 505, Health Management workshops. Invited by AICR for their International Conf on Food Nutrition 2003 every year. Member of American Diabetic Association. Awarded by Bombay Para Medical Association. Awarded by American Institute of Intellectuals in 2005. Received National Education Award in 2018 in India. Invited by American Universities, in Portland, Kennmore, UTI in 2019. Nehru Science Centre, workshop for International Women Day, 8th March 2020. In Covid-19 pandemic period, conducted 16 # solo webinars, for UK, USA, Dubai, Saudi-Arabia, Malaysia, Phillipine etc.



4TH INTERNATIONAL FOOD, NUTRITION & BIOPROCESS TECHNOLOGY CONFERENCE

October 22, 2020 | Virtual Conference



Scientific Session Abstracts



Scientific Session:

October 22, 2020 | Virtual Conference

Session Introduction

- Title:** Isolation and Identification of Lactic Acid Bacteria from Honey of *Apis mellifera* Sold in Kuala Terengganu, Malaysia
Mohd Nizam Lani, Universiti Malaysia Terengganu, Malaysia
- Title:** Role of Cowpea Isoflavones and Vitamin D as Therapeutic Agents in the Osteoporosis Treatment using Human Osteoblasts as Model: Possible Involvement of OPG-RANKL Pathway
Challa Suresh, National Institute of Nutrition, India
- Title:** Is the Addition of Capsicum Peppers to Monovarietal Virgin Olive Oil a Potential Strategy to Increase its Oxidative Stability?
Monica R. Loizzo, University of Calabria, Italy
- Title:** Effect of Vacuum Evaporation on Chemical Composition and Physical Parameters of Fermented Cabbage Juice
Liene Jansone, Latvia University of Life Sciences and Technologies, Latvia

Isolation and Identification of Lactic Acid Bacteria from Honey of *Apis mellifera* Sold in Kuala Terengganu, Malaysia

Mohd Nizam Lani^{1*}, Muhammad Azam Antong¹, Fauziah Tufail Ahmad¹ and Nik Hafizah Nik Ubaidillah²

¹Universiti Malaysia Terengganu, Malaysia

²MARDI Kuala Terengganu, Malaysia

There are nearly 20,000 known species of bees in seven to nine recognized families, though many are undescribed and the actual number is probably higher. They are found on every continent except Antarctica, in every habitat on the planet that contains insect-pollinated flowering plants. Bees honey obtain all of their nutritional requirements from a diverse combination of pollen and nectar. Pasar Payang has been a major attraction to tourists and local people to buy local food and groceries including honey. The objective of this study was to isolate and identify lactic acid bacteria (LAB) from honey of *Apis mellifera* that sold in Pasar Payang, Kuala Terengganu. The isolation of LAB from these samples was performed using MRS agar, MRS agar with 0.8% CaCO₃ and MRS with 1% glucose. Colonies were purified with a streaking method followed by morphological and biochemical analysis using Gram staining, catalase test and oxidase test. These isolates were further characterised phenotypically using API 50 CHL. The six species of lactic acid bacteria were confirmed as *Lactobacillus casei*, *Lactobacillus plantarum*, *Lactobacillus delbrueckii* subs. *bulgaricus*, *Lactobacillus mucosae* and *Weissella confuca*. All strains were more than 87 % similarity to various species of LAB. Some microorganisms have ability to produce enzyme to help the quality of the honey strains LAB were tested for enzyme detection using API ZYM. Three selected strains (strain 01, 03 and 04) of LAB were tested for their enzyme activity using API ZYM. Results show that those three strains may exhibit more than one of the following enzymes which are esterase, protease, glucosidase and valine aminopeptidase. All seven strains showed antimicrobial activity against the ten pathogens were generally had low inhibition effects against the pathogens. Then, LAB were tested on their antibiotic based on the common antibiotic used in medical practice and health therapy. In conclusion, this study confirmed the presence of LAB and their antimicrobial, enzyme detection and antibiotic resistance were evaluated.

Role of Cowpea Isoflavones and Vitamin D as Therapeutic Agents in the Osteoporosis Treatment using Human Osteoblasts as Model: Possible Involvement of OPG-RANKL Pathway

Challa Suresh

National Institute of Nutrition, India

Osteoporosis (OSP) a bone metabolic disorder apart from age and post menopause, arises mainly due to imbalance in the bone remodeling process. Bone remodeling is a recurring and uninterrupted biological process, which safeguards the preservation and renewal of the bone environment by two cells namely Osteoblasts and Osteoclasts. Osteoprotegerin (OPG), RANKL (Osteoprotegerin ligand) and RANK a tri-molecular structure also majorly helps in supporting the remodeling of the bone by maintaining proper balance. Plant based compounds specially isoflavones as the natural dietary source, are widely gaining importance in the treatment of major health indispositions like osteoporosis (OSP) due to their lesser side effects and remarkable health benefits. Hence in the present study, MG-63 cells, the widely studied human osteoblasts which resemble human fibroblasts, are experimented with isolated active constituents of cowpea i.e. daidzein and genistein [CP- (*Vigna Unguiculata*, Fabaceae family)] and vitamin D (VD) along with synthetic grade daidzein (Dz), genistein (Ge), as positive controls individually and in combinations and 17- β estradiol (17- β E) to determine the expression levels of proteins namely, OPG, RANKL and RANK, both at protein level, functional level and at mRNA level with or without inhibitor. The levels of the OPG and RANKL which were upregulated initially, did not show any changes in the expression levels after an estrogen antagonist ICC 182 780 exposure, at protein level but diminished expression was observed at m-RNA level. Thus, functional cowpea isoflavones could help in improving the OPG and RANKL expression thereby helping in proper bone remodeling.

Biography:

Suresh Challa obtained his Master's Degree in Biochemistry from Sri Venkateswara University, Tirupati and received Gold Medal. He has obtained his Ph.D in Biochemistry from the same university. His research interests include Nutritional Biochemistry and Biochemical Toxicology both in vitro and in vivo models. He is presently serving as a Scientist F and Senior Deputy Director at National Institute of Nutrition and his research involves in addressing the pathologies associated with Osteoporosis and different therapeutic approaches in combating the disease and studying the intracellular effects of Cowpea isoflavones using both in vitro and in vivo models. He has been supervising students for Ph.D in several universities in the subjects of Biochemistry, Biotechnology and Nutrition. To his credit he has published more than 50 both national and international journals and participated in more than 25 national and international conferences and delivered research presentations. He is an active member of several professional bodies and societies.

Is the Addition of *Capsicum Peppers* to Monovarietal Virgin Olive Oil a Potential Strategy to Increase its Oxidative Stability?

Monica Rosa Loizzo^{1*}, Mariarosaria Leporini¹, Vincenzo Sicari², Tiziana Falco¹ and Rosa Tundis¹

¹University of Calabria, Italy

²University "Mediterranea" of Reggio Calabria, Italy

Extra virgin olive oil (EVOO) plays a crucial role in the Mediterranean diet and its nutritional properties are the main reason for the increment of its consumption worldwide. Within the "GLASOIL" project (ID CUP J77H18000280006) different Calabrian (Italy) monovarietal extra virgin olive oils (EVOOs) from *Olea europea* cultivars namely Carolea, Dolce di Rossano, Ottobratica and Roggianella were investigated in order to select the best cultivar for the production of an olive oil-based dressing. This study investigated the effects of *Capsicum annum* L. Mirasol, Amando, and Topepo picante, *C. chinense* Jacq. Aji limo and Red mushroom and *C. baccatum* L. Bishop crown and Aji Angelo cultivars to the quality parameters, including oxidative stability of flavoured olive oils (FOOs) obtained by the addition of pepper powder (1%) to EVOOs. The total phenols, flavonoids, and carotenoids content was quantified in all pepper extracts, EVOO, and FVOOs phenolic fractions. In order to evaluate the impact of pepper addition on oxidative stability of FOOs, Oxitest test was applied. Different antioxidant assays such as DPPH, ABTS, β -carotene bleaching, and FRAP were applied to investigate the antioxidant potential of samples. Bishop crown showed the highest phytochemicals content, whereas Aji Angelo had the highest amount of capsaicinoids. Among EVOOs, Roggianella EVOO showed the highest antioxidant activity as well as the highest induction time (39.6 h). Remarkably, FOO obtained by the addition of Bishop crown pepper to Roggianella EVOO exhibited a higher induction time with respect to the corresponding EVOO. Due to their high content in bioactive compounds and antioxidant potential *C. baccatum* pepper could be proposed as flavouring agents able to enhance the oxidative stability of monovarietal oils.

Biography:

Monica Rosa Loizzo is Associated Professor in Food Science Technology at University of Calabria. Monica Rosa Loizzo has specific abilities on the main separative techniques to determine the chemical composition of different food matrix. She got specific abilities on methods to evaluate the health properties of phytochemicals rich-food. Moreover, her research interest including the influence of technological processes on the overall quality of food with particular reference to compounds able to prolong the shelf-life. Her h index is 40. She is referee of several national and international Institutions and member of the Management Committee of COST Action "Eurocaroten".

Effect of Vacuum Evaporation on Chemical Composition and Physical Parameters of Fermented Cabbage Juice

L. Jansone*, S. Kampuse and Z. Kruma

Latvia University of Life Sciences and Technologies, Latvia

Fermentation of the cabbage results in approximately one third of its weight cabbage juice that is formed in the fermentation process. Although juice is recognized as by-product, it contains significant amounts of the bioactive compounds. In order to reduce food waste, innovative solutions are being developed for valorisation of by-products. The aim of the current study is to evaluate effect of vacuum evaporation on chemical composition and physical parameters of fermented cabbage juice.

In current study, freshly collected fermented cabbage juice from three different varieties ('Ramkila', 'Selma', 'Kilpatons') were used. Concentration was performed using vacuum evaporation and for products total phenol content, antiradical activity, titratable acids, pH, soluble solids, and microbial analyses (total plate and lactic acid bacteria count) were performed.

Freshly collected fermented cabbage juice with dry matter average 8 °Brix was concentrated on a vacuum evaporator at 45°C to a 30 °Brix to obtain strongly flavoured concentrate.

Concentration of the juice using vacuum evaporation preserves biologically active compounds like phenols and antiradical activity. There is no significant influence of evaporation process on total phenol content in varieties 'Ramkila' and 'Selma' samples. Both fermented juices and concentrates are a good source of lactic acid bacteria (LAB) but it is variety dependent. Variety 'Selma' samples showed sufficient amount of bacteria (fermented juice - $2,3 \times 10^5$ LAB count and concentrated fermented juice - $2,15 \times 10^5$ cfu g⁻¹ LAB count) to qualify it as source of probiotics. Variety 'Ramkila' fermented juice initially contains a smaller amount of total plate count bacteria ($2,6 \times 10^4$ cfu g⁻¹) and thus also lactic acid bacteria ranging from $2,3 \times 10^3$ in fermented juice to $5,5 \times 10^3$ cfu g⁻¹ in concentrate.

Concentrated fermented cabbage juice is a source of different biologically active compounds, as well as probiotics and can be used as a valuable raw material for innovative food products.

Key words: fermented cabbage juice, concentrate, vacuum evaporation.

Acknowledgement: This study was supported by European Innovation Partnership for Agricultural Productivity and Sustainability Working Group Cooperation project 18-00-A01612-000020.

Biography:

Liene Jansone currently is an 3rd year PhD student in Latvia University of Life Science and Technologies, Faculty of Food Technologies.

4TH INTERNATIONAL FOOD, NUTRITION & BIOPROCESS TECHNOLOGY CONFERENCE

October 22, 2020 | Virtual Conference



E-Poster Presentations



Food Matrices Enriched with Horseradish Products and Their Bioavailability

Lolita Tomsone*, Zanda Kruma, Ruta Galoburda, Kristine Majore, Sanita Sazonova and Ruta Kazemaka
Faculty of Food Technology, Latvia University of Life Sciences and Technologies, Latvia

Horseradish is a plant of the cruciferous family rich in bioactive compounds. By enriching various food matrices with such plant products, it is possible to provide benefits to final consumers. The aim of the study was to investigate the effect of horseradish products on the physicochemical properties of different food matrices, as well as to evaluate the in vitro bioavailability. Horseradish products (microencapsulated leaf and root juice, leaf and root pomace) were added to food matrices such as pasta, butter cookies, fresh pork chops and minced pork. Food matrices without added horseradish products were used as controls. The total phenol content (TPC) and antioxidant activity was determined before and after treatment in an in vitro model of the human digestive tract, and calculated their bioavailability index (PAC). Food matrices enriched with horseradish products had significantly higher TPC and antioxidant activity than control samples. In previous studies horseradish leaves had a higher content of bioactive compounds than horseradish roots. Consequently, added horseradish leaf products showed higher efficiency than root products. The added horseradish products increased the TPC bioavailability index (PAC) in the analyzed food matrices. Horseradish products have a higher potential of functional ingredients and the results of the study show a significant benefit of enriching the analyzed food matrices with phenolic compounds. The TPC bioavailability index also confirmed high bioavailability. Further research is needed to optimize the formulations of functional food matrices, making them more attractive to final consumers, as well as examining the health effects of added bioactive compounds.

Acknowledgments: This research was funded by European Regional Development Fund Post-doctoral Research Support Program (project No.1.1.1.2/16/I/001), grant number 1.1.1.2./VIAA/1/16/187.

Biography:

Dr.sc.ing., Mg.oec. L.Tomsone has been working in science since 2010 and has participated in several scientific projects-research as a researcher and leading researcher:

*ERDF Post-doctoral Research Support Program (project No.1.1.1.2/16/I/001), grant number 1.1.1.2./VIAA/1/16/187;

*State Research Programme „Sustainable use of local agricultural resources for development of high nutritive value food products (Food)” (VPP2014-2017”;

*Project No. K24 (2012.–2013.) within the framework of the cooperation programme between Latvia and France in science and technology development areas “OSMOZE”.

Identification of Gastrointestinal Digestion Stable Antihypertensive Fish Peptides from Atlantic Mackerel (*Scomberscombrus*)

SoheilaAbachi Hokmabadinazhad^{1*}, Jacinthe Thibodeau², Ismail Fliss³, André Marette⁴, Laurent Bazinet⁵ and Lucie Beaulieu⁶

¹Institute of Nutrition and Functional Foods, Université Laval, Canada

²Laboratory of Food Processing and ElectroMembrane Processes, Université Laval, Canada

³Institute of Nutrition and Functional Foods, Université Laval, Canada,

⁴Department of Medicine, Cardiology Axis of the Quebec Heart and Lung Institute, Canada

⁵Laboratory of Food Processing and ElectroMembrane Processes, Université Laval, Canada

⁶Institute of Nutrition and Functional Foods, Université Laval, Canada

High blood pressure has been recognized as one of the main risk factors of cardiometabolic syndrome. In addition, there is a link between the occurrence of insulin resistance and hypertension consequently initiating type-2 diabetes. Hypertension is medicated by various classes of synthetic drugs; however, adverse effects have repeatedly been reported. To avoid and reduce side effects, natural alternatives such as marine biopeptides have been shown effective in the treatment and prevention of hypertension and its associated complications. The aim of present work was to fractionate and identify antihypertensive peptides by means of measuring the angiotensin-converting enzyme (ACE) inhibition capacity of fractions combined with UPLC-MS identification. Fractions were produced using different techniques of solid phase extraction (SPE), pressure-driven ultrafiltration (UF) and electrodialysis with UF membrane (EDUF). According to our results the hydrophobic fraction of SPE with the IC₅₀ value of 5 µg of protein was the most potent anti-ACE product. Findings of the study suggest that separation technique plays an important role in the isolation efficiency of antihypertensive biopeptides since the IC₅₀ values of EDUF and UF fractions were higher and or insignificantly different from the IC₅₀ value of the hydrolysate, 8.8 µg of protein. Importantly, the hydrophobic fraction's activity was retained through in-vitro gastrointestinal digestion system. In conclusion, polarity regardless of other properties, was the most important factor for anti-ACE activity of the fraction. In addition, the presence of leucine at either of the extremities and or leucine rich motifs could well explain the hypotensive effect of the active fractions.

Biography:

Soheila Abachi studied the antimicrobial activity of Atlantic Canada fruits/berries against *Streptococcus pyogenes*, its adhesion, biofilm formation and eradication at the Dalhousie University, Canada and graduated as M.Sc. in 2016. She right after joined the research group of professor Dr. Lucie Beaulieu at the Institute of Nutrition and Functional Foods, Université Laval, Canada to work on the marine biopeptides. She has several publications in the field of plant bioactives and will soon publish a number of research and review articles in the field of marine biopeptides.

INDEX

Challa Suresh	16
L. Jansone	18
Lolita Tomsone	20
Mohd Nizam	15
Monica Rosa Loizzo	17
Prakash Kondekar	11
SoheilaAbachi Hokmabadinazhad	21
Vasudeva Singh	10



Next in Series

*5th International
Food, Nutrition
& Bioprocess
Technology
Conference*

E-mail: foodnutrition@madridge.com

Website: <https://foodtech.madridge.com/>

