Reignite Innovative Conferences

Agri-2020

Global Agriculture Conference Online Conference

November 18-19, 2020

Online Platform

GoToMeeting

Abstract Book

https://agriculture.thereignite.com/

About Us:

Reignite Innovative Conferences registered under the Telangana state of India. We are here to provide a great platform to all the academic people, researchers, scientists, and research scholars to discuss on latest innovations and research progress involved in all the branches of science. Through this platform, we want to explore new ideas and techniques for the development of the global world along with protecting nature which provides a better life for human beings. We are providing a good opportunity for young researchers by providing special space to discuss with eminent speakers one-on-one about what they are working on, and they may even give you advice on how to enhance your work. Our goal is to gather all the eminent speakers and young aspiring minds from all over the world to share knowledge, providing good networking, and provide access to various activities related to a particular subject with current findings and developments. Reignite aims to give a great service to all businesspeople, entrepreneurs, industrialists to exhibit their products and providing an opportunity for cost-effective marketing. We perceive that every brand is unique and unusual in its way. So, we recognize brand objectives, and all other needs to provide a satisfactory result. We not only believe in doing excellent work but also providing the best service to our esteemed clients. Launch your product through our platform and forge your business relationships. We are conducting the B2B meetings which are an adaptable and fast way to engage your guests in meaningful networking discussions with people who are truly relevant for your businesses and projects. We deliver a spectacular hospitality experience to the attendees.

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- To share ideas and innovative thoughts
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- Networking and build your knowledge base
- Explore yourself among this tremendously growing scientific world
- Providing a holistic experience of academic tourism
- Meet esteemed experts and influencers face to face
- Expand Your Resources
- Help Institutions or Organizations to organize the successful International Conferences/National Conferences/Seminars/Workshops
- Cost-effective marketing
- Chance to collaborate with research organizations and industries
- Encounter new vendors and suppliers
- Product promotion activities
- Strengthen your brand recognition

Note: We did not publish full-length articles. The presented research abstracts will be published in the conference abstract book.

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About Agri-2020:

Reignite Innovative Conferences happy to announce to you all that Agri-2020 was concluded with an outstanding participation of all global speakers. We would like to thank each participant for their contribution and interest in the conference. I appreciate the time they took to attend the conference and the information they shared at the meeting is highly informative.

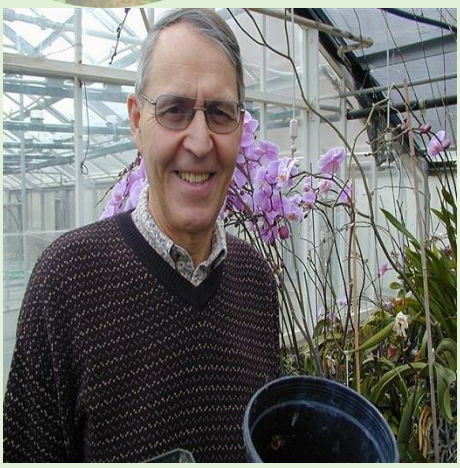
We are expressing our sincere gratitude to our Organizing Committee Members **Dr. Samson Soon** (Infrastructure University Kuala Lumpur, Malaysia), **Dr. Lilik Sutiarso**(Gadjah Mada University, Indonesia), **Dr. Dubravko Filipović** (University of Zagreb, Croatia), **Dr. Michael Orzolek** (Pennsylvania State University, USA) for their kind support. Even though they have a busy schedule, they provided their valuable time for our conference. It's our honor to have them for this online conference.

Reignite appreciating **Dr. Lucia M. Borines** (Visayas State University, Philippines), **Dr. Lisa Hickey** (University of Florida, USA), **Dr. Sabiha Imran** for their active participation.

We are happy to see the wonderful presentation from our Young researchers and students.

Reignite congratulating our awardees for their valuable presentations:
Best Young Researcher: **Martina Kadoić Balaško**, University of Zagreb, Croatia
Best Student Presentation: **Prashansa Gupta**, Manav Rachna International Institute of research & Studies, India

Agri-2020
Organizing Committee Members:



Michael Orzolek
Pennsylvania State University, USA

Dubravko Filipović
University of Zagreb, Croatia

Samson Soon
Infrastructure University Kuala Lumpur, Malaysia

Lilik Sutiarso
Gadjah Mada University, Indonesia

Dr. Mike Orzolek:

Present Position: Professor Emeritus of Vegetable Crops, Plant Science Dept., PSU, USA
Education:
PhD. in Horticulture, University of Maryland, 1974
M.S. in Horticulture, West Virginia University, 1969
B.S. in Biology, Alliance College, 1967

Professional History:
2012 – 2018: Director of Research and Development for Horticultural Crops, Stoller USA, Houston, Tx.
1988 – 2012: Professor, Department of Horticulture, The Pennsylvania State University
1981-1988: Associate Professor/Extension Vegetable Specialist, Department of Horticulture, The Pennsylvania State University
1974 – 1981: Extension Vegetable Specialist, University of Delaware, Research and Education Center, Georgetown, Delaware
1971 – 1974: Faculty Research Assistant, Department of Horticulture, University of Maryland
1969 – 1971: Instructor-Biology, Jefferson Community College, Watertown, NY

Research Projects:
Project # 4381 – Specialty Crop Production in High Tunnels – Leader – 50% of his time. : 60 months (April 1, 2010, through March 31, 2015)

Dr. Dubravko Filipovic:

Dubravko Filipovic is a full professor at the University of Zagreb Faculty of Agriculture and head of Agricultural Engineering Department since 2015. He has published over a hundred scientific papers in national and international scientific journals and conference proceedings, many expert papers in popular journals promoting the agricultural profession, four university textbooks, and one professional book in the area of agricultural engineering. In the 1990's he was the president of the Croatian Agricultural Engineering Society. He is a member of the organizing committee of the international symposium "Actual tasks of agricultural mechanization" for more than thirty years and a member of the editorial board of several international journals. Four times he was a chief editor of symposium proceedings. As a member of the technical committee TC23, he participated in the adoption of Croatian standards in the field of tractors and machinery for agriculture and forestry. He is a member of several international associations in the field of agricultural engineering like CIGR (International Commission of Agricultural and Biosystems Engineering), EurAgEng (European Society of Agricultural Engineers), and AAAE (Asian Association for Agricultural Engineering).

Dr. Samson Soon:

Dr. Samson Soon is the director at the Center for Molecular Sciences and Head of Technology Transfer and Commercialisation division at Infrastructure University Kuala Lumpur (IUKL), a private university located at the southern corridor of Kuala Lumpur, the capital city of Malaysia. He is also a senior faculty member at the Department of Science, Faculty of Engineering, Science, and Technology at the university.

Dr. Soon is involved in the research and development of aptamers which are synthetic oligonucleotides that can form 3D nanostructures capable of binding tightly to a wide range of molecules and compounds. He investigates the structural molecular biology of aptamers and their specific binding mechanism towards targeted bacterial, viral, and toxin proteins. He innovated and licensed a novel platform called ICADD (In silico Conformational Aptamer Development by Design) for the design and development of aptamers using in silico modeling via a biocomputational approach. The new technology platform was recognized by the Ministry of Science, Technology and Innovation (MOSTI), Malaysia, and had received commercial support for technology innovation under the Malaysia Commercialisation Year 2019 program. He and his team of researchers work closely with the Department of Veterinary Services, Ministry of Agriculture and Food Industries (MAFI) to develop biosensors employing aptamers as Point-of-Care tests (POCT) for the rapid screening of zoonotic pathogens.

Dr. Soon received his Ph.D. in molecular virology from the Faculty of Veterinary Medicine, Universiti Putra Malaysia in 2001 and has over 20 years of experience in the commercialization of molecular biology systems.

Dr. Lilik Sutiarso:

Lilik Sutiarso is a Professor in the Department of Agricultural and Bio-systems Engineering at the Universitas Gadjah Mada (UGM) Indonesia where he has been a faculty member since 1990. From 2012 to 2016, he was appointed as a Dean of the Faculty of Agricultural Technology UGM and also the President of Indonesian Society of Agricultural Engineers (ISAE). Sutiarso completed his Ph.D. at Tsukuba University Japan in an intelligent control system on agricultural machinery, his M.Eng. at Asian Institute of Technology (AIT) Thailand in Agricultural Information Support System, and his B.Eng. at Universitas Gadjah Mada (UGM) Indonesia in Agricultural Machinery Design.

His specific areas of expertise, include agricultural machinery and system. In recent years, he has focused on model and simulation in the agricultural system, and in the application of soft computing for precision agricultural, also knowledge management system. He has actively collaborated with researchers in several other disciplines of computer, industrial and mechanical engineering. He is likewise a member of the Institution of Engineers Indonesia (IEI). In the Year 2017, he was certified by IEI as a Professional Engineer (PE). Currently, he is developing “Smart Agriculture – Research Center” in the Department of Agricultural and Bio-system Engineering UGM.

Global Agriculture Conference (Agri-2020), November 18-19, 2020	
Online Conference Agenda	
Day 1 (November 18, 2020)	
Session	**Morning Session (09:20 - 13:10)**
09:20 - 09:30	**Introduction**
Time	**Category: Keynote Presentation**
09:30 - 10:00	***Title: Aptamer-based Biosensor Applications in Agriculture***
	Abstract Track: Remote Sensing Technology/Biosensors
	Samson Soon, Infrastructure University Kuala Lumpur, Malaysia
10:00 - 10:30	***Title: Model of a Selective Agricultural Mechanization in the Digital Agricultural Revolution in Indonesia***
	Abstract Track: Agricultural Engineering
	Lilik Soetiarso, Gadjah Mada University, Indonesia
10:30 - 10:40	**Discussion**
	Category: Speaker Presentation
10:40 - 11:05	***Title: Nutrition, Phosphonate, and Fruit Load Regulation: Their Role in Jackfruit (Artocarpus heterophyllus) Health and Yield***
	Abstract Track: Plant pathology & Pest Management
	Lucia M. Borines, Visayas State University, Philippines
11:05 - 11:30	***Title: Characterization of Mango Genotypes of Eatern India for Bioactive Compunds***
	Abstract Track: Genetic Engineering and Plant Breeding
	Swosti Suvadarsini Das, ICAR-Central Institute for Subtropical Horticulture, India
11:30 - 11:35	**Discussion**
11:35 - 12:00	***Title: Functional State of Mandarin Plants under the Influence of Exogenous Plant Growth Regulators***
	Abstract Track: Plant Physiology and Biochemistry
	Oksana Belous, Russian Institute of Floriculture and Subtropical Crops, Russia
12:00 - 12:25	***Title: Farmer's Experiences Using Indigenous Knowledge to Adapt to Floods in Sustainable Development in Mekong Delta, Vietnam. (A case study in An Giang Province)***
	Abstract Track: Sustainable Agriculture
	Pham Xuan Phu, An Giang University, Vietnam
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	Category: Student Group Presentation
12:30 - 13:00	***Title: A Noval Approach to Use Bacteriocins as a Plant Growth Promoter for Precious Crop as a Natural Antimicrobial Agent***
	Abstract Track: Plant Biotechnology
	Mansi Bansal, Manav Rachna International Institute of research & Studies, India
	Riti Ajay, Manav Rachna International Institute of research & Studies, India
	Ayushi Singh, Manav Rachna International Institute of research & Studies, India
	Sanyog Gaur, Manav Rachna International Institute of research & Studies, India
13:00 - 13:10	**Discussion**

Global Agriculture Conference (Agri-2020), November 18-19, 2020	
Virtual Video Conference Agenda	
Day 1 (November 18, 2020)	
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	Abstract Track: Agriculture Safety Management
	Dubravko Filipović, University of Zagreb, Croatia
16:00 - 17:00	*Title: The Future of Vegetable Crop Production*
	Abstract Track: Crop Science
	Michael Orzolek, Pennsylvania State University, USA
17:00 - 17:10	Discussion
	Category: Speaker Presentation
17:10 - 17:35	*Title: Tri-County Agents Connect with Small Scale, Urban, Hobby and Community Garden Farmers through Video Mediums and Facebook Live*
	Abstract Track: Sustainable Agriculture
	Lisa Hickey, University of Florida, USA
	Category: Young Research Forum
17:35 - 17:55	*Title: Investigating Resistance in Insect Pests using Single Nucleotide Polymorphism Method*
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	Martina Kadoić Balaško, University of Zagreb, Croatia
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18:25 - 18:55	*Title: Study on Natural Antibacterial and Antifungal Components to Enhance Shelf Life of Agaricus bisporus*
	Abstract Track: Agronomy & Agribusiness
	Srishti Tanwar, Manav Rachna International Institute of research & Studies, India
	Anjali Kumari, Manav Rachna International Institute of research & Studies, India
	Varsha Solanki, Manav Rachna International Institute of research & Studies, India
	Maryam Jasmine Ehsan, Manav Rachna International Institute of research & Studies, India
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	Abstract Track: Agronomy & Agribusiness
	Prashansa Gupta, Manav Rachna International Institute of research & Studies, India
	Aastha Sharma, Manav Rachna International Institute of research & Studies, India
	Bhola Kumar Das, Manav Rachna International Institute of research & Studies, India
19:25 - 19:35	Discussion
Vote of Thanks	

Keynote Presentations

- ***Title: Aptamer-based Biosensor Applications in Agriculture***
  Samson Soon, Infrastructure University Kuala Lumpur, Malaysia
- ***Title: Model of a Selective Agricultural Mechanization in the Digital Agricultural Revolution in Indonesia***
  Lilik Sutiarso, Gadjah Mada University, Indonesia
- ***Title: Comparison of Hand-transmitted Vibrations from the Handles of the Single-axle Tractors with Petrol and Diesel Engine***
  Dubravko Filipović, University of Zagreb, Croatia
- ***Title: The Future of Vegetable Crop Production***
  Michael Orzolek, Pennsylvania State University, USA

Aptamer-based Biosensor Applications in Agriculture

Samson Soon
Center for Molecular Science & Technology Infrastructure
University Kuala Lumpur

Abstract:

Agricultural activities involving crop productions and livestock rearing are constantly challenged to meet global food demand. Despite the technological revolutions in agriculture techniques that has enhanced crop and livestock productions, these increases are not without concern as widespread utilization of chemicals, i.e. pesticide, herbicide, antibiotics have become indispensable. Concentrations of these chemicals are increasing in agricultural lands and is finding its way to the food we consume. The reliable detection of these chemicals is still a challenge and requires sophisticated laboratory analysis that are time-consuming, laborious and expensive. The novel application of biosensors to detect these chemicals is gaining popularity as it has the advantage of being a self- contained integrated tool able to accurately measure the chemical levels on-site and at the fraction of the cost. One of the new class of biologic receptor molecules in great demand for the development of new biosensors is aptamers. These new types of nano probes are generally known as aptasensors. Aptamers are single-stranded RNA or DNA oligonucleotides that forms unique three-dimensional (3D) structures that can bind a wide range of molecules. Despite its clear potential as a next generation affinity molecule, the utilization of aptamers as “synthetic antibodies” is still complicated due to the inherent complexity related to its affinity designs. We developed a novel approach to establish high binding aptamers via a process called In silico Conformational Aptamer Development by Design (ICADD) that is efficient, low cost and rapid. High binding aptamers can be designed from natural tRNA sequences with specific folding properties and subjected to further screenings through three-dimensional (3D) structural modelling to predict and optimize binding affinities on the target molecule via computational molecular docking. The relevance and important contributions of aptamers as a novel biosensing platform for the detection of chemicals, infectious pathogens and toxins in the agriculture industry will be discussed.

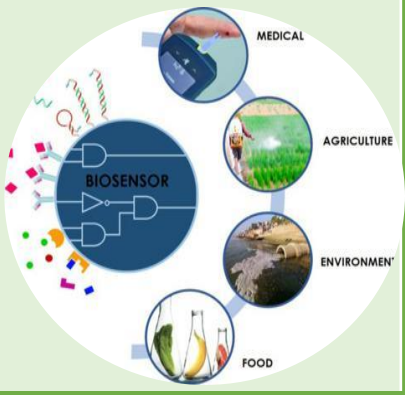
Biography:

Dr. Samson Soon is the director at the Center for Molecular Sciences and Head of Technology Transfer and Commercialization division at Infrastructure University Kuala Lumpur (IUKL), a private university located at the southern corridor of Kuala Lumpur, the capital city of Malaysia. He is also a senior faculty member at the Department of Science, Faculty of Engineering, Science, and Technology at the university.

Dr. Soon is involved in the research and development of aptamers which are synthetic oligonucleotides that can form 3D nanostructures capable of binding tightly to a wide range of molecules and compounds. He investigates the structural molecular biology of aptamers and their specific binding mechanism towards targeted bacterial, viral, and toxin proteins.

He innovated and licensed a novel platform called ICADD (In silico Conformational Aptamer Development by Design) for the design and development of aptamers using in silico modeling via a biocomputational approach. The new technology platform was recognized by the Ministry of Science, Technology and Innovation (MOSTI), Malaysia, and had received commercial support for technology innovation under the Malaysia Commercialization Year 2019 program. He and his team of researchers work closely with the Department of Veterinary Services, Ministry of Agriculture and Food Industries (MAFI) to develop biosensors employing aptamers as Point-of-Care tests (POCT) for the rapid screening of zoonotic pathogens.

Dr. Soon received his Ph.D. in molecular virology from the Faculty of Veterinary Medicine, Universiti Putra Malaysia in 2001 and has over 20 years of experience in the commercialization of molecular biology systems.



Model of a Selective Agricultural Mechanization in the Digital Agricultural Revolution in Indonesia

Lilik Sutiarso
Department of Agricultural and Biosystem Engineering, Faculty of Agricultural Technology, Universitas Gadjah Mada, Indonesia

Abstract:

Agricultural mechanization is a key indicator to characterize the level of development of a country's agriculture. It is absurd nowadays to speak of true agricultural growth without mechanization. Agricultural mechanization is a crucial input to agricultural crop production. However, it is frequently very capital intensive, compared to other inputs and it has repercussions on the efficiency of all other inputs used in crop production, including seeds, fertilizer, water, and labour. Whilst agricultural mechanization is indispensable for production, it can also have very detrimental effects on the environmental sustainability of farming (soil compaction and erosion, tillage, chemical pollution). However if the correct technologies are applied, for example: climate smart agriculture such as conservation agriculture; safe and efficient application of pesticides; precision application of fertilizers; soil compaction management; efficient harvesting; and natural resource conservation, then sustainable intensification can ensue. Sustainable mechanization means the use of intelligent, lean and efficient engineering technology solutions to minimize the impact of heavy machinery on the natural resource base – the soil and the landscape.

Digital agricultural revolution could help humanity to survive and thrive long into the future. Digital agriculture offers new opportunities through the ubiquitous availability of highly interconnected and data-intensive computational technologies as part of Industry 4.0. The main question is how to develop the selective agricultural mechanization especially in Indonesia in era of the digital agriculture recently.

In Indonesia, mechanization development was supported by making available appropriate, efficient, and low-cost machinery. Introduction of higher levels of production technology was focused on selected areas, for example; mechanization requirement in Java was focused on post-harvest handling, processing, irrigation and pest control. Also, selective policies of agricultural development in specific/well defined areas and considering the various levels of mechanization were needed. Efficient utilization of agricultural machinery was mainly considered. By taking advantage of the digital technology, it will cause improving economic, social and cultural, and environmental impacts (climate change adoption and adaptation, resilience, sustainability, etc.) through the use of different types of mechanization models.

Biography:

Lilik Sutiarso is a Professor in the Department of Agricultural and Bio-systems Engineering at the Universitas Gadjah Mada (UGM) Indonesia where he has been a faculty member since 1990. From 2012 to 2016, he was appointed as a Dean of the Faculty of Agricultural Technology UGM and also the President of Indonesian Society of Agricultural Engineers (ISAE).

Dr. Sutiarso completed his Ph.D. at Tsukuba University Japan in an intelligent control system on agricultural machinery, his M.Eng. at Asian Institute of Technology (AIT) Thailand in Agricultural Information Support System, and his B.Eng. at Universitas Gadjah Mada (UGM) Indonesia in Agricultural Machinery Design.

His specific areas of expertise, include agricultural machinery and system. In recent years, he has focused on model and simulation in the agricultural system, and in the application of soft computing for precision agricultural, also knowledge management system. He has actively collaborated with researchers in several other disciplines of computer, industrial and mechanical engineering. He is likewise a member of the Institution of Engineers Indonesia (IEI). In the Year 2017, he was certified by IEI as a Professional Engineer (PE). Currently, he is developing “Smart Agriculture – Research Center” in the Department of Agricultural and Bio-system Engineering UGM.

Comparison of Hand-transmitted Vibrations from the Handles of the Single-axle Tractors with Petrol and Diesel Engine

Dubravko Filipovic[1]*, Igor Djukic[2], Kresimir Copec[1], Igor Kovacev[1]

[1] Faculty of Agriculture, University of Zagreb, Croatia

[2] Faculty of Forestry, University of Zagreb, Croatia

Abstract:

The operators of the single-axle tractors are especially exposed to hand-arm transmitted vibrations. These vibrations can cause the complex of vascular, neurological and musculoskeletal disorders, collectively named hand-arm vibration syndrome. The objective of this paper was to measure and compare vibrations transmitted from the handles of two single-axle tractors (with petrol and diesel engine) to the operator's hands. The vibration levels were measured in stationary condition (at engine idling) and in soil tillage. The frequency-weighted acceleration was calculated, and the obtained vibration levels are then discussed in the regard to the operator's daily exposure limits recommended by the ISO 5349. The vibration total values in soil tillage for single-axle tractor with petrol engine were 11.76 m/s^2, 2.90 m/s^2 and 6.16 m/s^2, while the values for single-axle tractor with diesel engine were 22.47 m/s^2, 6.83 m/s2 and 7.95 m/s^2 on X, Y and Z axes, respectively. As expected, for both tractors significantly less vibration levels were measured in stationary condition at engine idling. According to the obtained results, from an ergonomic point of view, single-axle tractors with petrol engine are more acceptable for working in soil tillage. Considering the criteria of the ISO 5349, the daily working time of soil tillage with the single-axle tractors should be limited in order to protect the operator and work schedules should be arranged to include more vibration-free periods.

Biography:

Dubravko Filipovic is a full professor at the University of Zagreb Faculty of Agriculture and head of Agricultural Engineering Department since 2015. He has published over a hundred scientific papers in national and international scientific journals and conference proceedings, many expert papers in popular journals promoting the agricultural profession, four university textbooks and one professional book in the area of agricultural engineering. In the 1990's he was the president of the Croatian Agricultural Engineering Society. He is a member of the organizing committee of the international symposium "Actual tasks of agricultural mechanization" for more than thirty years and the member of the editorial board of several international journals. Four times he was a chief editor of symposium proceedings.

The Future of Vegetable Crop Production

Michael D. Orzolek

Prof. Emeritus Vegetable Crops, Plant Science Department,
Pennsylvania State University, USA

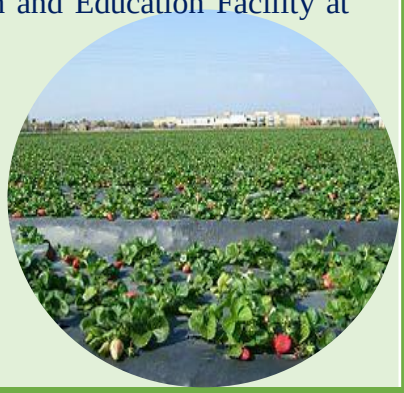
Abstract:

Climate change has had a dramatic effect on vegetable crop production worldwide. From drought to flooding from excessive rains, growers have had a difficult time trying to maximize crop yields and profits. Future vegetable crop production will have to find ways to mitigate the effect of climate change including soil health and environmental modification with plastics including high tunnels and plastic mulch. In their natural environment, plants are part of a rich ecosystem including numerous and diverse microorganisms in the soil. It has been long recognized that some of these microbes, such as mycorrhizal fungi or nitrogen fixing symbiotic bacteria, play important roles in plant performance by improving mineral nutrition. Addition of microbes to soil maintains and/or enhances soil health by increasing organic matter, increasing water infiltration rates, increasing soil tilth and in-creasing the water holding capacity of soil.

Because of the many advantages of using plastic film to grow horticultural crops, use of plasticulture in the United States and the world in general has grown 10% each year for the last 10 years. What has caused this growth of plasticulture use in the last 10 years? Plastic mulch film when placed in the field will increase soil temperature, maintain higher levels of soil moisture, maintain optimum soil tilth, reduce leaching of nutrients in the soil, reduce leaching of chemicals, reduce/eliminate weed problems, and generally reduce the time to maturity of the crops being grown on the plastic film

Biography:

Michael D. Orzolek is Professor Emeritus of Vegetable Crops, Plant Science Department, The Pennsylvania State University since 1981 with a three-way appointment – 60% Ex-tension, 22% Research and 18% Teaching. He has done extensive research on stand establishment, plastic mulches, high tunnels, weed management and tillage systems. Mike was also the Director of the Penn State Center for Plasticulture and the CP High Tunnel Research and Education Facility at Rock Springs, PA.



Speaker Presentations

- ***Title: Nutrition, Phosphonate, and Fruit Load Regulation: Their Role in Jackfruit (Artocarpus heterophyllus) Health and Yield***
  Lucia M. Borines, Visayas State University, Philippines
- ***Title: Characterization of Mango Genotypes of Eastern India for Bioactive Compounds***
  Swosti Suvadarsini Das, ICAR-Central Institute for Subtropical Horticulture, India
- ***Title: Functional State of Mandarin Plants under the Influence of Exogenous Plant Growth Regulators***
  Oksana Belous, Russian Institute of Floriculture and Subtropical Crops, Russia
- ***Title: Farmer's Experiences Using Indigenous Knowledge to Adapt to Floods in Sustainable Development in Mekong Delta, Vietnam. (A case study in An Giang Province)***
  Phu Xuan Pham, An Giang University, Vietnam
- ***Title: Tri-County Agents Connect with Small Scale, Urban, Hobby and Community Garden Farmers through Video Mediums and Facebook Live***
  Lisa Hickey, University of Florida, USA

Nutrition, Phosphonate, and Fruit Load Regulation: Their Role in Jackfruit (Artocarpus heterophyllus) Health and Yield

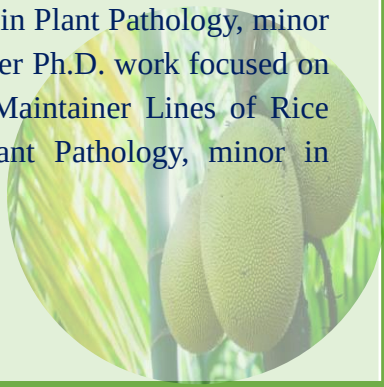
Lucia M. Borines
Visayas State University, Philippines

Abstract:

Jackfruit decline caused by *Phytophthora palmivora* is a problem for farmers in Eastern Visayas, Philippines. We hypothesized that poor nutrition has a significant role in disease severity. In this premise, fertilization regimes were designed, and in combination with phosphonate and fruit load regulation, were evaluated on their role to overall jackfruit heath. The fertilizer regimes included the Department of Agriculture recommendation (DA-RR), i.e., 500 g (16-16-16), 400 g (0-0-60), and 30 kg organic fertilizer (OM), ½ DA-RR, 1 ½ DA-RR, pure OM, rice hull + chicken dung, and an untreated check. The treatments were laid in a split-split plot design, each with four replicate trees. The fertilizer regimes were the main plot, with or without phosphonate (PhosPro-4-40-2: N P2O5 K2O + 887 g L-1 Potassium Phosphite) subplot, and with or without fruit load regulation was the sub-subplot. The treatment combinations were applied to 7-year-old trees and conducted in three years. Canopy rating, disease severity and canker rating, number of female flowers and fruits, and fruit yield were gathered. The application of DA-RR, 1 ½ DA-RR, and pure OM had improved tree canopy, reduced canker, and disease severity. OM and 1 ½ DA-RR caused a significant yield increase. The highest flower, fruit number, and yield, was given by OM, especially in trees without fruit regulation. Fruit load regulation had reduced canker and disease severity. Phosphonate had reduced canker and disease severity but was not sustained. Fertilization had generally increased the yield of jackfruit, with OM alone as the most promising treatment. All these suggest that fertilization was crucial in improving health and increasing jackfruit yield, especially OM. Although a higher fertilization rate is more costly, it is more sustainable in the long run since the fertilized trees were healthy and are expected to have more productive lives.

Biography:

Lucia Maramara-Borines is a professor and head of Plant Disease Diagnostic Laboratory at Visayas State University, Philippines. In 2001, She completed her Ph. D in Plant Pathology, minor in Plant Breeding from UP Los Baños, College, Laguna, Philippines. Her Ph.D. work focused on "Marker- aided Pyramiding of Bacterial Blight Resistance Genes in Maintainer Lines of Rice (Oryza sativa L.) Hybrids". She did her Master of Science in Plant Pathology, minor in Microbiology, 1986 from the University of the Philippines, Philippines.



Dr. Lucia conducted researches on diseases of vegetables, rice, abaca (Musa textilis Nee), and jackfruit. She acts as a resource person/speaker in seminars/training for agricultural technicians and farmers. Associate Editor of Science and Humanities Journal of the VSU Graduate School. She acts as a reviewer/referee for papers submitted to the Annals of Tropical Research, International Journal of VSU, and few other journals in Eastern Visayas SUC's.

Dr. Lucia published 35 research papers in International and National Journals. She garnered 76 awards (5 international fellowship and travel awards, 36 national awards, 33 local and regional research awards, six awards related to teaching.

Member of the following societies:

- The American Phytopathological Society (APS)
- The International Society for Horticultural Science (ISHS)
- The Philippine Phytopathological Society, Inc. (PPS)
- PhilFruit Association, Inc.
- Philippine Society for the Study of Nature (PSSN)
- The Honor Society of Agriculture Gamma Sigma Delta (UP) – Member
- Phi-Delta Honor Society of Science (VSU) – Member

Characterization of Mango Genotypes of Eastern India for Bioactive Compounds

Swosti Suvadarsini Das[1*], Kundan Kishore[2], Deepa Samant[2], Chintamani Panda[3], Sarat Chandra Sahoo[3]

[1]ICAR-Central Institute for Subtropical Horticulture, Kakori, Lucknow-226101

[2]Central Horticulture Exeriment Station (ICAR-IIHR), Aiginia, Bhubaneswar-751019

[3]College of Agriculture, Odisha University of Agriculture and Technology, Bhubaneswar- 751012

Abstract:

Characterization of germplasm involves identification of superior traits and its utilization in crop improvement. India being the centre of origin of mango the variability in mango germplasm are enormous. The variability in terms of bioactive compounds which are not only having nutritional quality but also exhibit medicinal properties in Eastern India are still lacking. An attempt was made to study the variability in nutritional quality of twenty indigenous mango germplasm. Wide variability exists between different mango genotypes with respect to Ascorbic acid (23.23-56.64 mg/100g), Total phenol (18.79-80.57mg GAE/100g), Total flavonoid content (9.34-34.49 mg QE/100g), Total antioxidant activity by DPPH free radical scavenging activity (12.1-43.1 % Scavenging activity) and Ferric reducing Antioxidant Property (0.25-6.91 Mmol $FeSO_4$ Equivalent/100g), total carotenoid content (0.61-8.68 mg/100g). Some of the promising mango genotypes rich in bioactive compounds identified were IIHR-B-M-5, IIHR-B-M-21, IIHR-B-M-43. Potential genotypes identified for superiority in bioactive compounds can be selected directly for breeding programme or may be used as a donor parent for hybridization in mango breeding.

Functional State of Mandarin Plants under the Influence of Exogenous Plant Growth Regulators

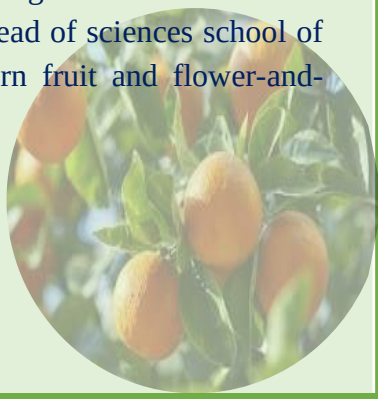
Oksana Belous*, Platonova N
Subtropical Scientific Centre of the Russian Academy of Sciences, Russia

Abstract:

The objects of research are mandarin plants (*Citrus reticulata var. unshiu Tan*.) dwarf varieties "Miyagawa Vase". The research was carried out in 2016-2019 at the field and laboratory conditions: mandarin plantations in the experimental and technological Department of the fruit crops sector of the Center and the laboratory of plant physiology and biochemistry, using classical and modern methods of plant physiology and biochemistry, as well as STATGRAPHICS Centurion XV programs. The goal is to study the effectiveness of using new-generation exogenous growth regulators on mandarin plants to increase productivity, product quality, and crop resistance to environmental factors. The expediency of using exogenous Phyto regulators to increase the productivity of plants and the quality of fruits of dwarf mandarin in specific weather conditions of the summer period: under the influence of high temperatures and drought. The features of the influence of exogenous growth regulators of regulatory action on the growth and development of mandarin plants are revealed. The prospects of various physiologically active substances (obstactin, nanoelisitor, siliplant) for increasing the resistance of mandarin plants to adverse factors of the spring and summer period, increasing their productivity and fruit quality have been proved. Treatment of plants with growth regulators did not affect the content of green pigments in the leaves. An active growth of shoots was established and an increase in the number of remaining fruits on the tree was noted when treated with growth regulators.

Biography:

Belous O. is a Dr. Biol. Sci., professor, head of Plants Biochemistry and Physiology Laboratory of Russian Institute of Floriculture and Subtropical Crops (Sochi, Russia). She researches concern is studying of physiology of mineral nutrition, water status of plants, physiology-and-biochemistry adaptation mechanisms to abiotic and biotic factors, accumulation of biological activity substances into plants. She has over 200 publications and has been serving as an editorial board member of reputed Journals from Russian and other counters. She are head of sciences school of Subtropical Center: "Physiology of adaptability of subtropical, southern fruit and flower-and-decorative crops".



Farmer's Experiences Using Indigenous Knowledge to Adapt to Floods in Sustainable Development in Mekong Delta, Vietnam. (A case study in An Giang Province)

Phu Xuan Pham

Department of Rural Development and Natural Resources Management, Faculty of Agriculture and Natural Resources, An Giang University, Vietnam

Abstract:

This research was carried out to explore the role of the appropriateness of farmer's indigenous knowledge and their adaptive capacity to floods in An Giang province. KAP (Knowledge-Attitude-Practice), PRA (KIP and focus group discussion) and household survey have been applied to collect data. The results showed that local people used several effective indigenous knowledge's for coping with floods. However, the valuable indigenous knowledge has not been recorded yet, nor documented in written materials for sharing to young generation and communities; some indigenous practices are not suitable with the current requirement for flood adaptation strategies.

Biography:

Dr. Phu Xuan Pham is currently lecturer and researcher of Rural Development and Natural Resources Management Department, Faculty of Agriculture and Natural Resources, An Giang University, Vietnam. His research focuses on indigenous knowledge, Vulnerable livelihoods, Livelihood adaptation and resilience to climate change and disater reduction, social learning, and climate change adaptation in the Mekong region. He performs as livelihood and climate change policy advisor for Oxfam, VRN, Green IDEA, RDViet and WARECOD to undertake research and development activities in the fields of livelihood, natural resources management , water, energy and climate resilience components. He has strong background in the fields of integrated rural development and agriculture. He has done a number of studies in such related fields and the research results have been published on international scientific journals.

Tri-County AgentsSmall Scale, Urban, Hobby and Community Garden Farmers Connect with through Video Mediums and Facebook Live

Lisa Hickey [1]*, S. Bostick[2], J. Ryals[3]
[1]UF/IFAS Manatee County Extension, USA
[2]UF/IFAS Sarasota County Extension, USA
[3]UF/IFAS Collier County Extension, USA

Abstract:

Small scale producers often visit non-science-based websites in search of general and specific information about horticulture and livestock, disease and pest pressure and cultural conditions required to grow crops.

Objective: During the COVID-19 pandemic, alternative educational outreach was required to continue supporting the needs of agricultural producers.

Methods: Several Sustainable Agriculture and Food Systems Extension Agents teamed up and utilized Facebook Live or posted videos on their county Facebook page to reach a wide range of urban and rural small-farm producers on an array of agricultural topics. Using this platform gives exposure to science-based information on social media platforms where many producers are already active. An added benefit to using Facebook Live and videos is that community gardeners and home gardeners can access the same information, which provides them with tools for increased success in growing food for home consumption.

Results: From a non-existent number of downloads in March 2020, the current downloads grew to more than 6,000 views. To date, 21% (n=1,207) of the viewers engaged in comments and 12% (n=146) of the engaged audience requested additional information on cultural requirements.

Conclusion: Though there was a learning curve, three food systems agents adopted new methods of outreach to their clientele. Many growers have expressed their appreciation for the information in this alternative teaching style.

Biography:

Lisa Hickey is a Sustainable Agriculture and Food Systems Extension Agent for the University of Florida, Manatee County Extension Services. She earned her master's degree in Horticulture Science through the University of Florida. She has worked for the University of Florida IFAS Extension, Manatee County since March 2007 and her role as an educator is to transfer her horticultural knowledge to receptive individuals and change daily behavior by focusing on positive environmental impacts through sustainable activities.

An example of sustainable webinars that Lisa provides to her community covers the journey of a crop seed from the time the farmer plants the seeds to the moment that food crop ends up on the consumer's plant.

She discusses the major components of food systems from a global angle down to the local facets. She discusses how each key food system component has environmental, societal, and economic aspects woven in. What are the farmers, processors, distributors, retailers, waste recovery, restaurants, and most importantly, what are the consumers' sustainability roles? During the pandemic, she and a team of sustainability agents created short videos to keep a science-based connection with farmers. Each video weaves in sustainable food system components.

Young Research Forum

- ***Title: Investigating Resistance in Insect Pests using Single Nucleotide Polymorphism Method***
  Martina Kadoić Balaško, University of Zagreb, Croatia
- ***Title: Flight Mill Methodology in Assessing Flight Propensity of the Box Tree Moth, Cydalima perspectalis (Walker) (Lepidoptera: Pyralidae)***
  Helena Viric Gasparic, University of Zagreb, Croatia

Investigating Resistance in Insect Pests using Single Nucleotide Polymorphism Method

Martina Kadoić Balaško [1] *, Katarina M. Mikac[2], Renata Bažok[1], Darija Lemić[1], Maja Čačija[1]

[1]University of Zagreb Faculty of Agriculture, Croatia
[2]Centre for Sustainable Ecosystem Solutions, School of Earth, Atmospheric and Life Sciences, Faculty of Science, Medicine and Health, University of Wollongong, Australia

Abstract:

Production of the most important arable (maize and potato) and perennial crops (apple) in Croatia is threatened by many insect pests, of which the most important are the western corn rootworm, WCR, (*Diabrotica virgifera virgifera LeConte*), Colorado potato beetle, CPB, (*Leptinotarsa decemlineata* Say) and Codling moth, CM, (*Cydia pomonella L.*). These three pests have shown resistance to insecticides (CPB and CM) and to management strategies (WCR) used to control them. Insect resistance to pesticides is a serious and growing problem in agricultural production systems. Therefore, there is a need for effective resistance monitoring programs that are capable of the early detection of resistance and will allow for the implementation of insect resistance management (IRM) strategies that can occur in a timely manner. Single Nucleotide Polymorphisms (SNPs) has become an affordable and readily accessible means of generating important data on a species. Through genotyping of SNPs an understand of the genomic structure, populations differentiation, gene flow, dispersal and adaptive potential of WCR, CPB and CM populations will be possible. Using SNPs, detection and monitoring of resistant and non-resistant variants of WCR, CPB and CM will be performed in a novel application of this genetic marker. The existence of such biomarker that detects resistance-related change in the genome would allow quick detection and monitoring of resistant variants as the first step towards the implementation of anti-resistant strategies. It is a new approach to the study of genetic changes using innovative population genetics techniques and certainly provides new insights into the important field of insect resistance development and control.

Biography:

Martina Kadoić Balaško is a research assistant on Department of Agricultural Zoology at the Faculty of Agriculture. She is a 2nd year PhD student at the Faculty of Agriculture. She finished her MS in Plant protection (2017). Her research is based on topics of insect resistance and population genetics. Currently she is involved as an investigator in two scientific projects founded by Croatian science foundation and Croatian Ministry of Agriculture and one teaching project for Harmonization and Innovation in PhD Study Programs for Plant Health in Sustainable Agriculture. Until now she is an author of 6 papers cited in WOS/Scopus as well as several other publications in referred journals. She also presented scientific work on 10 national and international congresses.

Flight Mill Methodology in Assessing Flight Propensity of the Box Tree Moth, Cydalima perspectalis (Walker) (Lepidoptera: Pyralidae)

Helena Viric Gasparic [1]*, Mikac K. M[2], Dominguez Davila J. H[3], Pajac Zivkovic I[1], Bjelis M[4], Lemic D[1]

[1]University of Zagreb Faculty of Agriculture, Department of Agricultural Zoology, Croatia

[2]University of Wollongong, Faculty of Science, Medicine and Health, School of Earth, Atmospheric and Life Sciences, Australia

[3]South Coast Structural Engineers, Australia

[4]University of Split, University Department of Marine Studies, Croatia

Abstract:

The box tree moth, *Cydalima perspectalis* (Walker) (Lepidoptera: Pyralidae), is a pest native to East Asia. It presents highly invasive and economically important pest of box trees, Buxus spp. in Europe which are of great cultural importance. International trade of Buxus plants is considered as a main introduction pathway. *C. perspectalis* causes severe damage by feeding on the leaves and the bark of box trees causing them to dry out and die. In southern Europe it has at least three generations. The natural dispersal velocity of adults is 7-10 km per year. In general, insect dispersal by flight is one of the most difficult and intractable ecological processes to study in the field. Knowledge of *C. perspectalis* flight propensity (e.g. distance, velocity, duration) is of great importance for assessment of spread and mitigation measures. Insect flight behavior is difficult to observe in natural environment, especially long-distance flights. Therefore, our aim was, using flight mill, provide an easy and cheap method of testing flight propensity and patterns of slow-fast flights and long-short flight characteristics. In this study, four flight mills´ chambers were used to measure the flight propensity. Speed, distance, duration and the number of individual flights were recorded for *C. perspectalis* wild population. Flight mill was placed under naturally occurring conditions (12:12h photoperiod, 24 °C and 45 - 55% humidity). Presentation will show the methodology of *C. perspectalis* flight behavior investigation

Biography:

Helena Virić Gašparić, M.Sc. works as an assistant at the University of Zagreb Faculty of Agriculture. She is also a doctoral student of final year of the Agricultural sciences study. Her research interests are Entomology, Pests in arable and vegetable crops, Integrated pest management, Biological insecticides, Phytopharmacy and ecotoxicology, Residues of plant protection products and Innovative technologies in Agriculture. Beside teaching, she is involved in several scientific, expert and teaching projects. As a co-author or author she has published more than 20 scientific papers, one book and one chapter in book. She has participated in more than 10 scientific conferences with oral or poster presentations. From 2017 she is a secretary of the Croatian Plant Protection Society counting more than 500 members. She is also one of the leaders of the Entomological group, popular and successful extracurricular activity for students at the Faculty of Agriculture

Student Group Presentations

- ***Title: A Novel Approach to Use Bacteriocins as a Plant Growth Promoter for Precious Crop as a Natural Antimicrobial Agent***
  Mansi Bansal, Riti Ajay, Ayushi Singh, Sanyog Gaur, Manav Rachna International Institute of research & Studies, India
- ***Title: Study on Natural Antibacterial and Antifungal Components to Enhance Shelf Life of Agaricus bisporus***
  Srishti Tanwar, Anjali Kumari, Varsha Solanki, Maryam Jasmine Ehsan, Manav Rachna International Institute of research & Studies, India
- ***Title: Bacteriocin: A Promising Bio-preservative in Diary and Meat Industries***
  Prashansa Gupta, Aastha Sharma, Bhola Kumar Das, Manav Rachna International Institute of research & Studies, India

A Novel Approach to Use Bacteriocins as a Plant Growth Promoter for Precious Crop as a Natural Antimicrobial Agent

Mansi Bansal, Riti Ajay, Ayushi Singh, Sanyog Gaur
Manav Rachna International Institute of research & Studies, India

Guide: **Sabiha Imran**, Manav Rachna International Institute of research & Studies, India

Abstract:

Bacteria produce and excrete a versatile and dynamic compounds to defend against microbial competitors and mediate local population dynamics. These include a wide range of broad-spectrum non-ribosomally synthesized antibiotics, lytic enzymes, metabolic by-products, proteinaceous exotoxins, and ribosomally produced antimicrobial peptides (bacteriocins). Recent studies have projected use of bacteriocins in agriculture and in veterinary medicine ,as bio stimulants of plant growth and development and as biocontrol agents. For example, bacteriocins such as Cerein 8A, Bac-GM17, putidacin, Bac 14B, amylocyclicin have been studied for their mechanisms of anti-microbial activity. Bac IH7 promotes tomato and musk melon plant growth. Thuricin 17 (Th17) is the only bacteriocin studied extensively for plant growth promotion, including at the molecular level. Th17 functions as a bacterial signal compound, promoting plant growth in legumes and non-legumes. In Arabidopsis thaliana and Glycine max Th17 increased phytohormones IAA and SA at 24 h post treatment. At the proteome level Th17 treatment of 3-week-old A. thaliana rosettes led to >2-fold changes in activation of the carbon and energy metabolism pathway proteins, 24 h post treatment. In addition, it stimulates plant growth, particularly in the presence of abiotic stres.In the presence of stress, it increases the size of the overall niche space, within plant roots, for B. thuringiensis NEB17. Through its anti-microbial activity, it could also enhance plant growth via control of specific plant pathogens. None of the isolated bacteriocins have been examined as broadly as thuricin 17 on plant growth promotion.Our proposed work on Bacteriocin are in the process to study the potentiality of bacteriocin on cauliflower and tomatoes as both are the precious crop and subjected to many microbial attack.

Study on Natural Antibacterial and Antifungal Components to Enhance Shelf Life of Agaricus bisporus

Srishti Tanwar, Anjali Kumari, Varsha Solanki, Maryam Jasmine Ehsan
Manav Rachna International Institute of research & Studies, India

Guide: **Sabiha Imran**, Manav Rachna International Institute of research & Studies, India

Abstract:

Increasing demand in agricultural business is a concerning issue in today's world. In agriculture, fungal invasions cause heavy loss and affect food security and food safety. Chemical pesticides are available to control these pathogens, but these are associated with environmental and public health concerns. In recent years, there is a growing trend towards nature friendly methods of pathogen control. Use of allelochemicals from mushrooms is a promising field. In the present study, antifungal activity of an edible mushroom, *Agaricus bisporus* will be investigated. For this purpose, different organic solvent extracts of *A. bisporus*, are evaluated against plant pathogenic fungal species viz. *Macrophomina phaseolina*, *Aspergillus flavus*, *Fusarium oxysporum*, *Drechslera australiensis* and *Alternaria alternate*. To check the antifungal property of A.bisporus, serial dilution method is to be used. Six levels of treatments of each n-hexane, chloroform and ethyl acetate (0, 5, 10, 15, 20 and 25mg/ml)need to be applied against all organic solvent extracts reduces the fungal growth in some species up to 50% in *D. australiensis* and 44% each in *A. alternata* and *F. oxysporum*, then we will go for Gas Chromatography Mass Spectroscopy (GCMS) analysis .We get a data regarding cobweb-disease which looks like growth of fungal mycelia over the surface of the mushroom. The colonies on the surface rapidly overwhelmed the mushrooms and developed several spores within 3–4 days. The colonized surface turned pale brown or yellow. The fruit body eventually turned dark brown and became rancid. As of now presently we focused on evaluation of antibacterial activities of methanolic and acetone extracts of *Agaricus bi*sporus using agar well diffusion method against the mix microbiota isolated from Garden soil and successfully get positive results, further on we are focusing on evaluation of antifungal activities of *Agaricus bisporous*.

Bacteriocin: A Promising Bio-preservative in Diary and Meat Industries

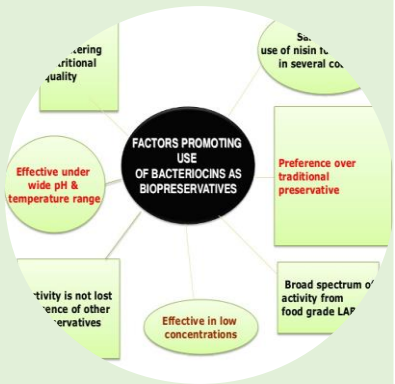
Prashansa Gupta, Aastha Sharma, Bhola Kumar Das
Manav Rachna International Institute of research & Studies, India

Guide: **Sabiha Imran**, Manav Rachna International Institute of research & Studies, India

Abstract:

Bacteriocins are the ribosomally synthesized antimicrobial peptides which are derived from bacteria. They act as a defense system mechanism and help in competing with closely or non-closely related bacterial strains for survival. Bacteriocins can be classified on the basis of the bacterial strains they are derived from and their mechanism. As a result of their large diversity and versatility they have found various applications in studies of multiple drug resistance, food technology as well as cancer therapy. Nisin is currently the only food preservative being used commercially. It inhibits pathogenic food borne bacteria from spoilage of meat and dairy products. For dairy products bacteriocins from gram positive LAB bacteria are being researched as way to target harmful bacteria without causing any toxic side effects. There are many research groups who showed the effect of bacteriocin as a broad and narrow spectrum antimicrobial agent that could enhance the shelf life of dairy and meat products.

The use of bacteriocins as a natural bio preservative in food processing results in increased nutritional value of food, lower acid content and overall better quality of food. Freshly cut fruits and vegetables require alternate pathways rather than relying on artificial preservatives which could help maintain the quality and still be minimally processed, one such bacteriocin used for this is enterocin. The future work in our project will be focusing on study the detailed study of the bio-preservative effect at the molecular level on the causative species.



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Acronyms

ICADD	In silico Conformational Aptamer Development by Design
KAP	Knowledge-Attitude-Practice
OM	Organic Fertilizer
DA-RR	Department of Agriculture recommendation
IRM	Insect Resistance Management
SNPs	Single Nucleotide Polymorphisms
GCMS	Gas Chromatography Mass Spectroscopy
RNA	Ribonucleic acid
DNA	Deoxyribonucleic acid
tRNA	Transfer ribonucleic acid

Units

m	meter
s	sec
%	Percentage
mg	milli gram
L	Liter
mol	mole
Km	Kilo meter
°C	Degree Centigrade

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Global Agriculture Conference
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