From President's Desk

Artificial Intelligence for Sustainable Disease Management in Contemporary Agriculture: Global and Indian Perspectives

Agriculture is a cornerstone of global food security, yet it continues to face substantial threats from pests and diseases worldwide. These issues contribute to significant crop losses worldwide. In India, where agriculture configures the backbone of the economy and prevail, the threat from biotic stress factors is particularly acute. Plant diseases, caused by diverse pathogens, are a significant challenge, leading to reduced crop yields, lower quality, and economic losses. Hence, in modern agriculture, the ever-increasing global food demand underscores the critical need for sustainability and precision in farming practices. In this context, "Artificial Intelligence (AI)" is emerging as a transformative tool, offering innovative solutions to detect, diagnose, predict, and manage disease outbreaks efficiently.

Early detection and targeted interventions are essential to safeguarding crops, and artificial intelligence (AI)-powered real-time diagnostics tools are emerging as game-changers in this domain. Combining the precision of molecular diagnostics with the power of AI, these tools are transforming the growers with user-friendly, precise, and actionable diagnostic tools and their plant health management. Traditional approaches, often reliant on visual assessments and manual interventions, suffer from limitations such as delayed detection and inefficiencies in control measures. AI-driven technologies are addressing these challenges by enabling early detection, predictive modeling, and precise management strategies, thereby enhancing both productivity and sustainability.

One of the critical contributions of AI in this domain lies in early disease and pest detection through image-based diagnostics. Tools employing machine learning

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algorithms, such as convolutional neural networks (CNNs), analyze high-resolution images of crops to identify subtle signs of biotic stress, often before visible symptoms manifest. The integration of spectral imaging systems with AI further improves the sensitivity of detection, enabling growers to act promptly to mitigate losses. Predictive analytics, powered by AI, uses historical data, weather conditions, and real-time field inputs to forecast potential pest outbreaks and disease risks. These capabilities are particularly beneficial in large-scale farming and regions prone to recurrent incidences of diseases and pests, including India.

Precision agriculture is another area where AI demonstrates transformative potential. By guiding automated systems, such as drones and robotic sprayers, AI enables targeted application of pesticides, significantly reducing chemical usage and environmental impact. Furthermore, AI assists in identifying compatible biocontrol agents for sustainable pest management practices. The integration of AI with molecular diagnostic techniques, such as quantitative real-time polymerase chain reaction (qPCR) and digital droplet PCR (ddPCR), enhances pathogen detection by enabling the identification of specific pest and disease strains. For instance, A case study in kiwifruit canker detection demonstrates how Generative Adversarial Networks (GANs) incorporated into intelligent imaging-based

qPCR platforms enhance detection accuracy and expedite processing, facilitating real-time decision-making. Likewise, Quantitative real-time PCR (qPCR), enhanced with fluorescent markers, can detect pathogen DNA with high sensitivity and specificity, often before symptoms appear. AI-powered software tools then analyse qPCR generated fluorescence data, enabling precise pathogen detection, real-time insights, and targeted interventions. Innovations like ligation probe-based OpenArrays™ enable multiplexed pathogen detection, aiding efficient disease surveillance even in resource-limited settings. Complementary methods like digital droplet PCR (ddPCR) enhance sensitivity and accuracy, particularly for low-abundance pathogens in complex environments, ensuring reliable diagnostics under challenging conditions. These tools monitor various pathogens in crops and support disease-resistant breeding.

In India, AI-powered mobile applications, such as Plantix and Pestoz, are increasingly empowering farmers by providing instant diagnostics based on images of affected crops. These platforms offer actionable recommendations tailored to local conditions, making advanced technologies accessible to smallholder farmers. Additionally, AI-driven tools are aiding in the monitoring of major crop diseases such as citrus greening, blast in rice, rust in wheat, and pink bollworm infestations in cotton, which are critical to the nation's agricultural productivity.

Globally, AI is being integrated with sensor networks and Internet of Things (IoT) devices to enhance pest and disease surveillance. IoT-enabled sensors collect real-time data on environmental parameters, which AI algorithms analyze to predict outbreak conditions. These systems enable continuous monitoring of large agricultural landscapes and support collaborative decision-making through cloud-based platforms. Advances in portable diagnostics, such as lab-on-a-chip devices and CRISPR-based pathogen detection, are further augmenting AI's role in field-deployable solutions, enabling timely interventions in resource-limited settings.

In addition to its applications in disease diagnostics and biotic stress management, AI plays a pivotal role in disease forecasting and predictive modelling. By analyzing environmental data, historical disease patterns, and real-time inputs, AI systems can predict potential outbreaks, allowing farmers to take pre-emptive actions. In the global context, such predictive capabilities have been used to manage locust swarms and monitor diseases in high-value crops like vineyards and orchards. However, despite its promise, the widespread adoption of AI in agriculture faces several challenges. High initial costs for AI technologies and a lack of technical expertise among farmers, particularly in developing regions including India, limit their accessibility. Data quality and availability, especially in rural areas where high-resolution data may be scarce, also pose significant barriers. Moreover, infrastructure gaps, such as unreliable internet connectivity and limited access to advanced equipment, hinder the full integration of AI systems into agricultural practices. In India, where a large portion of farming is carried out by smallholders, ensuring that AI tools are affordable and easy to use is essential for their widespread adoption.

Future directions for AI in agriculture include the development of low-cost, field-deployable systems that can function with minimal infrastructure. Advances in lab-on-a-chip technology, CRISPR-Cas-based diagnostics, and portable AI-driven tools are expected to enhance the accessibility and affordability of disease management solutions. Additionally, the integration of AI with other emerging technologies, such as the Internet of Things (IoT) and blockchain, will enable real-time monitoring, data sharing, and decision-making, further improving disease surveillance and management. Collaborative efforts among governments, research institutions, and the private sector will be critical in overcoming the challenges associated with AI adoption, ensuring that it is accessible to farmers worldwide, especially in resource-constrained regions.

In conclusion, AI is set to revolutionize the field of plant disease diagnosis and management by providing precise, early, and scalable solutions. The integration of AI with molecular diagnostics tools like Point of care diagnostics is redefining plant disease management. Its integration into modern agriculture offers the potential for significant improvements in disease and pest management, crop yield, and sustainability. While challenges remain, particularly in terms of accessibility and infrastructure in developing nations like India, the continued evolution of AI technologies promises to make these tools more effective, affordable, and widely available.

D.K. Ghosh
President
Indian Phytopathological Society, New Delhi

Research Highlights

Development of simplified and quick amplification assay for indexing of a mandarivirus prevalent in kinnow mandarin

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Citrus yellow vein clearing virus (CYVCV) is an important graft transmissible mandarivirus and occurs widely in Kinnow mandarin. As Kinnow mandarin is clonally propagated, it is important to identify healthy mother plants so that healthy saplings are produced by nursery. A crude sap-based quick detection of the virus using recombinase enzyme was standardized for the detection of CYVCV infection in citrus plants. In this method a reverse transcribed recombinase polymerase amplification (RT-RPA) was optimized (Fig. 1). The method required preparation of crude sap, RPA enzyme, a pair of primer and amplification at 40C without the need of thermal cycler. The amplification reaction is completed in 25 min. Optimized assay was able to amplify CYVCV up to 10^{-7} dilution (equivalent to 0.1 pg/µl) with both RNA and crude saps as template and showed higher sensitivity in detection of CYVCV infection in field samples as compared to the conventional RT-PCR. Developed RT-RPA assay showed high specificity without any cross-reaction with other citrus pathogens. As this method is rapid and efficient, it can be easily used in resource constrained laboratory for selection of virus free mother stock and subsequent production of clean and healthy planting materials.
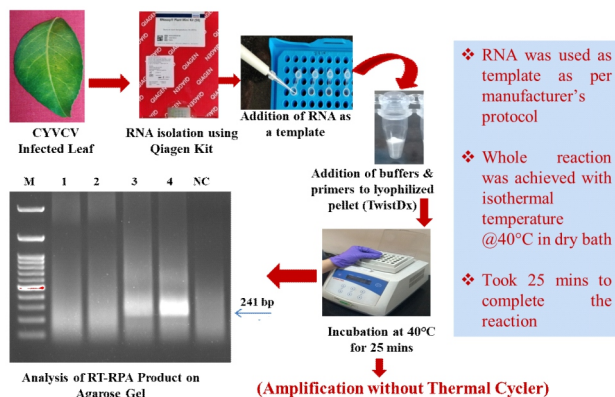(Source: *Curr Microbiol.* 81:103
https://doi.org/10.1007/s00284-024-03614-y)

Fig. 1. Schematic diagram of Recombinase Polymerase Amplification assay

New report of Athelia rolfsii causing sprout and shoot rot disease on sugarcane in India

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Sprout and shoot rot symptoms on freshly planted sugarcane setts (*Saccharum interspecific* hybrid L.) was found in a farmer field at Vadipatti, Madurai district, Tamil Nadu, India. Approximately, 30% of the setts in the affected fields showed sprout and shoot rot symptoms. The production of sclerotial bodies on infected plant parts indicated the fungal etiology of the disease. Pathogenicity test was fulfilled both on sugarcane sprouts, young shoots, and its host-range on tomato seedlings. Phenotypic, *ITS* and *Tef-1α* gene sequence based on molecular characterization confirmed the pathogen as *Athelia rolfsii* (anamorph, *Sclerotium rolfsii* Sacc.). Phylogenetic analysis of two isolates (Ssr and Scr) were clustered with other strains of *Athelia rolfsii*. This is the first report confirming the presence of sprout and shoot rot of sugarcane caused by *Athelia rolfsii* in India.
(DOI: https://doi.org/10.1007/s13313-022-00887-4).

Sprout rot   Shoot rot

Awards/Honours

- **Dr. A.K. Misra**, Former Project Coordinator AICRP, Subtropical Fruits and Head, Division of Crop Protection, ICAR-CISH, Lucknow received IPS Recognition award 2023 for his significant lifetime contributions in the field of Plant Pathology and for Indian Phytopathological Society during 76th Annual Meeting of the Society held at ICAR-IISR, Lucknow, U.P. on February 1st 2024.

- **Dr. Satish Kumar Verma**, Assistant Professor, Department of Botany, BHU has been awarded SERB International Research Experience (SIRE) fellowship for six months during 2023-2024 under the scheme of Science and Engineering Research Board, Ministry of Science and Technology, Govt. of India. In this fellowship, Dr. Verma worked with Dr. Angela Sessitsch and Dr. Stephane Compant at Bioresources Unit, Health & Bioresources Center, Austrian Institute of Technology, GMBH A-3430, Tulln, Vienna, Austria on *"Understanding the symbiotic relationship of endofungal bacteria of Trichoderma".* Dr. Verma also actively participated and delivered a talk on '*Indigenous seed endophytic bacteria of millets improve seedlings developments and protect from fungal diseases*' in Theodor Escherich Symposium-2024 during 17-18, January, 2024, organized by Graz University, Graz, Austria.

- **Prof. R.N. Kharwar**, CAS in Botany, Institute of Science, Banaras Hindu University, Varanasihas been elected Fellow of National Academy of Sciences India (NASI)- Prayagraj (Allahabad). It was conferred to him on December 03, 2023 by President NASI Prof. Balram Bhargava at BARC, Mumbai.

- **Prof. R.N. Kharwar**, CAS in Botany, Institute of Science, Banaras Hindu University, Varanasi has been elected President of Mycological Society of India (MSI) for the year 2024.

- **Dr. Sesha Kiran Kollipara**, Senior Scientist HRS Madanapalli Annamayya, Dr YSR Horticultural university has been selected for the prestigious INSA Visiting Scientist Programme for the year 2024-25 to work at Jawaharlal Nehru University New Delhi under the supervision of Prof. Supriya Chakraborty, Dean School of Life Sciences.

- **Ms. Allada Meena**, Ph.D. Scholar (Plant Pathology), College of Agriculture, GBPUA&T, Pantnagar, Uttarakhand have been awarded the "Young Plant Pathologist Award" on the occasion of the 9th International Conference on "Current Approaches in Agricultural, Biological and Applied Sciences for Sustainable Development (CAABASSD-2024)" held on March 01-03, 2024.

IPS Symposia 2023-24

IPS Delhi Zone Symposium

IPS Delhi Zone Symposium on "Seed Health and Disease Management for Agricultural Biosecurity" was jointly organized by ICAR-National Bureau of Plant Genetic Resources, New Delhi and the Indian Phytopathological Society (Delhi Zone) on January 17, 2024 at ICAR-NBPGR, New Delhi.

IPS Mid-Eastern Zone Symposium

The Mid-Eastern zonal chapter of Indian Phytopathological Society, New Delhi was organized at ICAR-Indian Institute of Sugarcane Research, Lucknow on 31st January 2024. The MJ Narasimhan Academic Merit Award and APS Travel Sponsorship Award Contest sessions were conducted for the recommendation of two awards for each category. The session was Chaired by Dr. R. Viswanathan and Co-chaired by Dr. Dinesh Singh. Dr. T. Makeshkumar. Dr. Jameel Akhtar, Dr. B.N. Chakraborty and Dr. Malkhan Singh Gurjar were jury members and Dr. S.K. Goswami was the convenor of the session. Dr. S.K. Goswami welcomed the dignitaries. A total of 4 research scholars participated in the MJ Narasimhan Academic Merit Award Contest and APS Travel Sponsorship Award Contest. The session ended with a vote of thanks by Dr. S.K. Goswami.

IPS Central Zone Symposium

The IPS Central Zone organized one-day symposium on "**Natural farming - A way forward to challenges, issues and opportunities**" on February 2, 2024 at Krishi Vigyan Kendra, ICAR-IISR, Lucknow, Uttar Pradesh during the IPS National Conference on "Plant Health for Food Security: Threats and Promises".

Keynote speaker Dr. Mamta Sharma, ICRISAT, Hyderabad delivered their talk on Host plant resistance

National Conference on Plant Health for Food Security: Threats and Promises (1-3 February, 2024)

The Indian Phytopathological Society (IPS), New Delhi and ICAR-Indian Institute of Sugarcane Research (IISR), Lucknow, jointly organized the National Conference on **"Plant Health for Food Security: Threats and Promises"** during 1-3 February, 2024.

The main objectives of the conference were to provide a global platform for the researchers, scientists, entrepreneurs, farmers, students, scholars and industry working in different institutes, and organizations in the country to interact and share their perceptions and concerns on current challenges in agriculture and to review the progress of research in Plant Pathology. The conference was held for three days at ICAR-IISR, Lucknow from 1-3 February, 2024. The conference received an overwhelming response from researchers from all over the country. The conference was inaugurated on February 01, 2024 in the presence of the Chief Guest Dr. TR Sharma, DDG (Crop Science) ICAR, Guest of Honour Dr. AN Mukhopadhyay, Ex-VC, AAU, Jorhat, Guest of Honour Dr. PK Singh, Agriculture Commissioner, Ministry of Agriculture and Farmers' Welfare, Govt. of India, Guest of Honour Dr. SC Dubey, VC, Birsa Agriculture University, Ranchi and President, IPS, Dr. Kajal K.Biswas, Secretary, IPS, Dr. R Viswanathan, Director, ICAR-IISR, Lucknow and Organizing President, Dr. Dinesh Singh, Project Coordinator (Sugarcane) and Organizing Secretary of National Conference along with more than 600 participants across different states of India. The conference was inaugurated with the lighting of lamp and playing of ICAR song. At the outset, Dr. R Viswanathan, Director, IISR, Lucknow welcomed the dignitaries and delegates and in his welcome address, he threw light on technical sessions of the conference. He also briefed the delegates about the activities of IISR, Lucknow and contribution of Sugarcane Pathologists of IISR.

The three days IPS National Conference was held at IISR, Lucknow culminated on February 3rd, 2024. Over 500 delegates including Directors of ICAR institutes Dr. G Hemaprabha, Dr. DK Ghosh, Dr. R Selvarajan, Dr. Alok Srivastava, Dr. Subhash Chander, Dr. SN Sushil, Dr. RM Sundaram, Dr. T Damodaran and many other eminent scientists like Dr. AN Mukhopadhyay, Dr. C Manoharachary, Dr. BN Chakraborty, Dr. HB Singh, Dr. Rashmi Aggarwal, Dr. KV Subbarao, Dr. T Makesh Kumar, Dr. A Ishwara Bhat, Dr. Gopalakrishnan, Dr. Vinayaga Hegde, Dr Subaharan, Dr Rakesh Pandey, Dr Rajan Sharma, Dr. R Thangavelu, Dr. Srinivas Prasad, Dr. Celia Chalam, Dr. A Kundy Kumar, Professor Robin Gogoi, Dr KK Mondal, Dr SK Singh, Professor G Karthikeyan, Dr Sainamole Kurian, etc. from ICAR, SAUs, universities, sugar industry, private sector and students participated as delegates. Over 400 oral and poster research papers were presented in 14 thematic technical sessions. The valedictory session was presided over by Dr. J S Sandhu, former Deputy Director General (Crop Science), ICAR, New Delhi and former VC, SKNAU, Jobner, Rajasthan. Dr. SC Dubey, President, IPS and VC, BAU, Ranchi, Dr. T Damodaran, Director, ICAR-CISH, Lucknow, Dr. R Selvarajan, Director, ICAR-NRC on Banana, Trichy, Dr. Dilip Ghosh, President elect, IPS and Director, ICAR-Central Citrus Research Institute, Nagpur were present as guests of honour.

At the outset, Dr. R Viswanathan welcomed the delegates and expressed his thanks for their active participation and fruitful discussions over the 3 days. Dr. JS Sandhu, in his presidential address advised that small documentaries on the research achievements of stalwarts in the field of Plant Pathology should be made and screened during the conference in order to inspire the young minds. He felicitated various award winners of the conference including IPS Fellowship and, student winners of MJN Academic Merit award and IPS-APS travel grant award. Winners of the best oral and poster

papers under different themes were also announced.

Dr. Dilip Ghosh who took over the charge of President, IPS, New Delhi and expressed his happiness over the successful completion of National Conference and assured the delegates to initiate active national and international collaboration in the future. Dr. T Damodaran congratulated the organizing team & IISR and appreciated effective conduct of the conference & technical sessions. He also suggested new research strategies to mitigate invasive diseases in perennial crops. Dr. R Selvarajan applauded the pan India participation of the delegates and rich content in the technical sessions. Dr. Dinesh Singh, PC (Sugarcane) and Organizing Secretary proposed the vote of thanks.

Awards conferred in the National Conference 2024

A.P. Misra Lifetime Achievement Award: Dr. R.K. Jain, Former Dean, Jt. Director Education & Emeritus Scientist, ICAR-IARI, New Delhi

IPS Recognition Award

(i) Dr. Mushtaq Ahmad, Former Vice Chancellor, SKUAST (K), Shalimar, Srinagar, Jammu & Kashmir

(ii) Dr. A.K. Misra, Ex. Project Coordinator AICRP (STF) and Ex. Head, Crop Protection, ICAR-CISH, Lucknow, Uttar Pradesh

(iii) Dr. S.R. Niranjana, Former Vice Chancellor, Department of Studies in Biotechnology, University of Mysore, Mysuru, Karnataka

(iv) Dr. K.C. Puzari, Former Professor & Head (Plant Pathology), AAU, Jorhat, Assam

B.N. Chakraborty & Usha Chakraborty IPS Best Teacher Award: Dr. Palash Deb Nath, Professor, Department of Plant Pathology, Assam Agricultural University, Jorhat, Assam

K.C. Mehta and Manoranjan Mitra Award: Dr. Jameel Akhtar, Principal Scientist, ICAR-NBPGR, New Delhi

Honorary Fellow: Dr. D.V. Singh, Former Head (Plant Pathology), ICAR-IARI, New Delhi

S.P. Raychaudhuri Memorial Award: Dr. T.R. Sharma, DDG (Crop Science), ICAR, Krishi Bhavan, New Delhi (Title: Molecular biology of rice-*Maganporthe oryzae* interaction and its applications in rice improvement)

Mundkur Memorial Award: Dr. S.C. Dubey, ADG (Plant Protection & Biosafety), ICAR, Krishi Bhavan, New Delhi (Title: Diversity, diagnostics, epidemiology and management of diseases in pulse crops caused *Rhizoctonia solani*)

D.P. Misra & R.N. Pandey IPS Best Women Scientist Award: Dr. V. Celia Chalam, Principal Scientist (Plant Quarantine), ICAR-NBPGR, New Delhi (Title: Diagnostics, quarantine regulations and capacity development for biosecurity against transboundary plant viruses)

J.F. Dastur Memorial Award: Dr. L.M. Suresh, CIMMYT, ICRAF, Nairobi, Kenya (Tite: Tackling Maize Lethal Necrosis (MLN) in eastern Africa through multipronged approaches)

M.S. Pavgi Award: Dr. Dinesh Singh, Head & Principal Scientist (Crop Protection), ICAR-IISR, Lucknow, Uttar Pradesh (Title: Characterization of races, genetic diversity of *Xanthomonas campestris* pv. *campestris* causing black rot disease of crucifer crops and its management through eco-friendly approaches)

S.N. Dasgupta Memorial Award Lecture (2022): Dr. T. Makeshkumar, Head (Crop Protection), ICAR-CTCRI, Thiruvananthapuram, Kerala (Title: Strategies to maintain the health of tropical tuber crops against viral diseases)

Fellow of Indian Phytopathological Society (2022)

(i) Dr. Chandra Bhanu, Principal Scientist (Plant Pathology), ICAR-IIFSR, Meerut, Uttar Pradesh

(ii) Dr. Someshwar Bhagat, Principal Scientist (Plant Pathology), ICAR-CRURRS, Hazaribag, Jharkhand

(iii) Dr. Rajesh Kumar Pandey, Assistant Professor (Botany), Bundelkhand University, Jhansi, Uttar Pradesh

(iv) Dr. Sanjeev Sharma, Principal Scientist (Plant Pathology), ICAR-CPRI, Shimla, Himachal Pradesh

(v) Dr. Y.S. Amaresh, Assistant Professor (Plant Pathology), CoA, UAS Campus, Raichur, Karnataka

(vi) Dr. C.N. Biju, Senior Scientist (Plant Pathology), ICAR-IISR, Kozhikode, Kerala

(vii) Dr. Baswaraj Raigond, Senior Scientist, ICAR-IIMR, Regional Station, Solapur, Maharashtra

Prof. M.J. Narasimhan Academic Merit Award 2023-24
Total 13 candidates from eight zones were participated in the Prof. M.J. Narasimhan Academic Merit Award 2023-24.

Out of which the name of **Mr. Lham Dorjee,** *Divisions of Plant Pathology, ICAR-IARI, New Delhi, India* (Presentation title: Novel essential-oil grafted copper nanoparticles for sustainable disease management) and **Dr. Amrita Dasgupta,** *Department of Plant Pathology, Siksha O Anusandhan University, Bhubaneswar, Odisha* (Presentation title: Dynamics of plant diseases in rice based cropping system under various levels of nutrition and different regimes of conservation agricultural practices) awarded for Prof. M.J. Narasimhan Academic Merit Award contest 2023-24.

The following other candidates were recommended for commendation award:

(i) **Dr. M.V. Ruppavalli**, *Department of Plant Pathology, TNAU, Coimbatore, Tamil Nadu* (Title: Unravelling the antagonistic potential of *Coniothyrium minitans* – a mycoparasite on *Sclerotinia sclerotiorum* of cabbage)

(ii) **Mrs. P.R. Amrutha**, ICAR-CTCRI, Thiruvananthapuram, Kerala (Title: Management of greater yam (*Dioscorea alata* L.) anthracnose caused by *Colletotrichum gloeosporioides* (Penz.) Penz. & Sacc. employing endophytes from medicinal plants)

(iii) **Ms. Mehjebin Rahaman**, *Department Plant Pathology, AAU, Jorhat, Assam* (Title: The study of two efficient rhizospheric microflora *Trichoderma harzianum* MC2 and *Trichoderma harzianum* NBG as biocontrol agent against diseases in solanaceous crop)

(iv) **Ms. Sushanti Thokchom**, *CPGSAS, Umiam, Shillong, Meghalaya* (Title: Mitigating chilli fruit rot disease through harnessing underexplored epiphytic Yeasts as biocontrol agents)

(v) **Dr. Bulbul Boblina**, *Department of Plant Pathology, CoA, OUAT, Odisha* (Title: Studies on prevalence, pathogenic variability, epidemiology and management of Areolate mildew in Cotton)

(vi) **Dr. Sushree Suparna Mahapatra**, *Department of Plant Pathology, SOADU, Bhubaneswar, Odisha* (Title: Identification of resistance sources against Cercospora leaf spot in mung bean)

(vii) **Ms. Kavita Kushwaha**, *Rani Lakshmi Bai Central Agricultural University, Jhansi, Uttar Pradesh* (Title: Unveiling the biocontrol and plant growth potential of endophytic fungi against pea root rot complex in Himachal Pradesh, India)

(viii) **Ms. Pavleen Kour**, *Division of Biochemistry, SKUAST-J, Jammu, Jammu and Kashmir* (Title: Exploring biochemical disparities: mycelium vs. fruit body in Cordyceps militaris – a comparative analysis)

(ix) **Mr. Dharmappa Chavan**, *Division of Plant Pathology, ICAR-IARI, New Delhi* (Title: Understanding the biochemical and molecular basis of resistant in soybean against MYMIV)

(x) **Ms. Ajita Singh**, *Sardar Vallabhbhai Patel University of Agriculture and Technology, Modipuram Meerut, Uttar Pradesh* (Title: Management of chickpea wilt for achieving SDG-2: zero hunger for food security)

(xi) **Mr. Veeresh D.A.**, Department of Mycology & Plant Pathology, BHU, Uttar Pradesh (Title: A detailed study on leaf spot causing pathogen *Curvularia tuberculata* on Capsicum (*Capsicum annum* var. *grossum* (L.) Sendt.))

APS-IPS TRAVEL SPONSORSHIP AWARD
Total 6 candidates participated and contested for APS-IPS Travel Sponsorship from 4 zones of the Society. All the participants have been recommended for final selection by American Phytopathological Society.

(i) **Ms. Shenaz Sultana Ahmed**, *Department of Plant Pathology, AAU, Jorhat, Assam, India* (Title: Encapsulation of microbial bioagents for development of bioinoculant kit for sustainable disease management)

(ii) **Ms. Baby Wangkhem**, *Department of Plant Pathology, CoA, Central Agriculture University-Imphal, Iroisemba, Manipur* (Title: One tube detection method of Citrus Huanglongbing and

Citrus tristeza virus based on RPA/ RT-RPA and CRISPR-Cas12a)

(iii) **Ms. Irtifa Lateef**, *Division of Plant Pathology, SKUAST-K, Shalimar, Srinagar, Jammu & Kashmir* (Title: Anthracnose resistance gene mapping on Pv10 in common bean cv. KRC-5)

(iv) **Ms. Sehla Khursheed**, *SKUAST-K, Shalimar, Srinagar, Jammu & Kashmir* (Title: Spatiotemporal population dynamics of *Wilsonomyces carpophilus* (Lev.) causing shot hole of stone fruits using SSR markers)

(v) **Mr. Bidwan Ranjan Sahoo**, *Department of Plant Pathology, Siksha 'O' Anusandhan, Bhubaneswar, Odisha* (Title: Revolutionizing tomato crop security: A breakthrough in automated disease identification using machine learning and DCNN)

(vi) **Ms. Mansi Mishra**, *ICAR-IISR, Lucknow, Uttar Pradesh* (Title: Host pathogen interaction studies of *Rhizoctonia solani* Kuhn. causing sheath blight in rice)

Symposia/Workshop: Organized

Workshop on Plant Diseases for DNA Club Schools of Tripura

A workshop cum Sensitization Programme under the Project on Live Specimen for DNA Club School was organized by College of Agriculture, Tripura on 29.02.24 at The Institute of Engineers with the Financial Support by Tripura Biotechnology Council. Different DNA Club Schools of Tripura (50 numbers) were supplied with Plant Disease Specimen Kit and Participants were sensitized about major diseases and disorders of Plants. The participants were briefed about the about major plant diseases and disorders of Tripura. Two technical literatures were also released on this occasion.

International Conference on Fungal Biology and Plant-Microbe Interactions 2024 (ICFBPMI-2024)

The International Conference on Fungal Biology and Plant-Microbe Interactions 2024 (ICFBPMI-2024) was organized during February 16-18, 2024 (Convener: Prof. RN Kharwar). The conference, organized by the Department of Botany, BHU, Varanasi, featured a wide range of themes focusing on cutting-edge research in fungal biology and plant-microbe interactions. The event brought together renowned scientists, researchers, students, and industry professionals from around the world to discuss and exchange ideas on various aspects of fungal biology, plant health, and sustainable agriculture.

Workshop on "Genomic advances in disease diagnostics and management in temperate fruit crops"

Three-day workshop was organized under the SSR initiative of DST-SERB on "Genomic advances in disease diagnostics and management in temperate fruit crops" from 6th to 8th March 2024 at ICAR-CITH Srinagar for faculties from colleges, universities and research institutes. A total of 25 trainees participated in the workshop from Kashmir University, SKUAST-K, ICAR-IGFRI, Degree colleges and ICAR-CITH Srinagar.

IPS Election Result 2024

Election result of the Society for the year 2024 is as follows:

Joint Secretary: Dr. Lakshman Prasad, ICAR-Indian Agricultural Research Institute, New Delhi, India (nominated by the EC members)

Zonal Chapters

Zonal President (Central Zone): Dr. B. Vidyasagar, College of Agriculture, PJTSAU, Hyderabad, Telangana, India

Zonal Councillor (Central Zone): Dr. G. Rajesha, ICAR-Indian Institute of Millets Research, Hyderabad, Telangana, India

Zonal President (Delhi Zone): Dr. Aundy Kumar, ICAR-Indian Agricultural Research Institute, New Delhi, India

Zonal Councillor (**Delhi Zone**): Dr. Nitika Gupta, ICAR-Indian Agricultural Research Institute, New Delhi, India

Zonal President (Eastern Zone): Dr. Someshwar Bhagat, ICAR-NRRI-Central Rainfed Upland Rice Research Station, Hazaribag, Jharkhand, India

Zonal Councillor (Eastern Zone): Dr. Amrita Banerjee, ICAR-NRRI-Central Rainfed Upland Rice Research Station, Hazaribag, Jharkhand, India

Zonal President (Mid-Eastern Zone): Dr. Prashant P. Jambhulkar, Rani Lakshmi Bai Central Agriculture University, Jhansi, Uttar Pradesh, India

Zonal Councillor (Mid-Eastern Zone): Dr. Rajesh Kumar Pandey, Bundelkhand University, Jhansi, Uttar Pradesh, India

Zonal President (Northern Zone): Dr. Pradeep Kumar, CSK Himachal Pradesh Agricultural University, Palampur, Himachal Pradesh, India

Zonal Councillor (Northern Zone): Dr. Shikha Sharma, CSK Himachal Pradesh Agricultural University, Palampur, Himachal Pradesh, India

Zonal President (North-Eastern Zone): Dr. Durga Prasad Awasthi, College of Agriculture, Tripura, Agartala, Tripura, India

Zonal Councillor (North-Eastern Zone): Dr. Utpal Dey, Krishi Vigyan Kendra, (Central Agricultural University (I), Sepahijala, Tripura, India

IPS Awards Result 2024

The IPS award result for the year 2024 is as follows:

A.P. Misra Lifetime Achievement Award: Dr. R.D. Rawal, Principal Scientist & Ex-Head (Retd.), Bengaluru, Karnataka

S. P. Raychaudhuri Memorial Lecture: Dr. Himanshu Pathak, Director General, Indian Council of Agricultural Research, New Delhi

IPS Recognition Award

(i) **Dr. V.B. Nargund**, ICAR-Emeritus Professor (Plant Pathology), #69, Ishavasyam, Adhyapak Nagar, Navanagar, Hubli, Karnataka

(ii) **Dr. D.P. Singh**, Former Principal Scientist (ICAR-IIWBR, Karnal), C13, Gamma 1, Greater Noida, Gautam Budha Nagar, UP

(iii) **Prof. Partha Sarathi Nath**, Former Head and Professor, Bidhan Chandra Krishi Viswa Vidyalaya, Mohanpur, West Bengal

(iv) **Dr. K.D. Thakur**, Former Head, College of Agriculture, Nagpur, MS

Mundkur Memorial Award: Dr. R. Viswanathan, Director, ICAR-Indian Institute of Sugarcane Research, Lucknow, Uttar Pradesh

K.C. Mehta and Manoranjan Mitra Award: Dr. S.C. Bhardwaj, IIWBR-RS, Shimla, Himachal Pradesh

Jeersannidhi Award: Dr. Sanjay Kumar Singh, ARI, Pune, Maharashtra

Sharda Lele Memorial Award: Dr. Raj Kumar Mishra, ICAR-IIPR, Kanpur, Uttar Pradesh

A.K. Sarbhoy Memorial Award (2023): Dr. Manas Kumar Bag, ICAR-NRRI, Cuttack, Odisha

J.F. Dastur Memorial Award: Dr. Nareshkumar Manilal Gohel, AAU, Anand, Gujarat

B.N. Chakraborty & Usha Chakraborty IPS Best Teacher Award: Dr. C. Jeyalakshmi, Pandit Jawaharlal Nehru College of Agriculture, Karaikal, Puducherry

S. Sinha Memorial Award: Dr. Bishnu Maya Bashyal, ICAR-IARI, New Delhi

M.K. Patel Memorial Young Scientist Award: Dr. D. Pramesh, UAS, Raichur, Karnataka

IPS Best Corporate Award: Dr. R.G. Aggarwal, Chairman, Dhanuka Agritech. Ltd.

Pravasi Fellow

(I) **Dr. Jayaraj Jayaraman**, Professor of Biotechnology and Plant Microbiology, The University of the West Indies, St. Augustine, Trinidad and Tobago.

(ii) **Dr. N.V.P.R. Ganga Rao**, Senior Scientist – Breeding, Eastern & Southern Africa Program CIMMYT-Nairobi

Fellow of Indian Phytopathological Society (FPSI)

(i) Dr. L.M Suresh, Maize Pathology Lead - Sub Saharan Africa, CIMMYT, ICRAF, Nairobi, Kenya

(ii) Dr. Sanjay Kumar Goswami, Senior Scientist (Plant Pathology), ICAR-IISR, Lucknow, Uttar Pradesh

(iii) Dr. Bireswar Sinha, Professor, Nagaland University, Medziphema, CAU, Kohima, Nagaland

(iv) Dr. Efath Shahnaz, Associate Professor (Plant Pathology), SKUAST-K, Srinagar, Jammu & Kashmir

(v) Dr. A. Jeevalatha, Senior Scientist (Plant Pathology), ICAR-IISR, Kozhikode (Calicut), Kerala

(vi) Dr. Ram Niwas Sharma, Assistant Professor (Plant Pathology), CoA (SKNAU, Jobner), Kumher, Rajasthan

(vii) Dr. R.S. Jayalakshmidevi, Vice Chancellor, ANGRAU Guntur (Dist), Lam, Andhra Pradesh

(viii) Dr. Kamal Dev Sharma, Professor and Head, CSK HPAU, Palampur, Himachal Pradesh

(ix) Dr. Mamta Sharma, Theme Leader and Principal Scientist, ICRISAT, Patancheru, Hyderabad, Telangana

(x) Dr. Popy Bora, Senior Scientist (Plant Pathology), AAU-ARRI, Titabor, Jorhat, Assam

IPS Best Reviewer Award

(i) Mr. Girma Ababa, Researcher, Ethiopian Institute of Agricultural Research, Holetta, Ethopia

(ii) Dr. R. Gopi, ICAR-SBI Research Centre, Kannur, Kerala

(iii) Dr. Arjunan Jeevalatha, Division of Plant Protection, ICAR-IISR, (Calicut), Kerala

(iv) Dr. Nithya Kadirvel, Division of Crop Protection, ICAR-SBI, Coimbatore, Tamil Nadu

(v) Dr. Yamini Agrawal, Shaheed Rajguru College of Applied Sciences for Women, Delhi

Obituary

- **Dr. M.M. Shenoi** (Mohandas Shenoi) was born on 14th July, 1949. He completed M.Sc in Plant Pathology from Mysore University and got PhD degree in 1975 under the guidance of Dr. Ramalingam for his work on epidemiology Solghum vulgare. He joined Central Seri Culture Institute at Mysore in 1977, and joined as ARS Scientist at CRRI, Cuttack in 1978. He worked there on Tungro virus for six years and then took transfer to Tobacco Research Station at Hunsur in Karnataka. He continued research on tobacco crop and extension activities and made significant contributions to the tobacco growers of Karnataka. He succumbed to hepato cellular carcinoma on 12/1/2024.

- **Dr. Rohini Iyer**, Former Head, Division of Crop Protection. CPCRI, Kasaragod has reached the abode of heaven on April 24, 2024. She was a wonderful human being and her contributions on plant pathological problems of plantation and spice crops are well known. After retirement, she started an NGO along with her husband, Dr Iyer and played a vital role in enhancing the farmers income and rural youth for establishing self-employment initiatives in Kerala.

Publication

"Guide Book of Fruit Diseases" edited by Dr. A.K. Misra is published by Today and Tomorrow. Book covers diseases of 15 fruit crops. The book was released by Prof. A.N. Mukhopadhyay at ICAR-CISH, Lucknow on 4th July, 2023.