

Indian Phytopath News

A quarterly Newsletter of Indian Phytopathological Society

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From President's Desk

The year started with great hopes for Plant Pathologists, with 2020 designated as International Year of Plant Health. As a mark of significance, the Indian Phytopathological Society (IPS), successfully organized the 7th International Conference on



"Phytopathology in Achieving UN Sustainable Development Goals" from January 16-20, 2020, in collaboration with 13 National and International academic societies and Institutions and with participation of Scientists from 40 countries. The overall deliberations in the conference overarched the understanding that protecting plant health is paramount to ensure food security and human health. Emerging plant diseases due to climate change and outbreak of invasive diseases due to increased globalization are the two major challenges that significantly affect plant health. Emerging and re-emerging diseases often have relatively easy solutions, as the control measures are generally known, and only need strategic placement of effective management options. But the invasive pests are difficult to manage because being introduced for the first time neither they are expected to have known biology, behavior, etiology natural enemies or antagonists nor any pesticides registered for their management and hence are a major threat.

For the last few years, I have been feeling concerned about regular outbreak of invasive diseases and pests of crops in consecutive years, starting 2014 causing crop losses worth several thousand crores of INR. It started with introduction of South American Pinworm on tomato, spiraling whitefly on Coconut, Tropical race 4 of Panama wilt on Banana, blast on wheat and the last in series was FAW in maize in 2018 that spread to 20 states of India and many other countries by 2019. I was wondering what could be the next onslaught. My worst fear became a reality this year when the first case of invasive COVID-19 respiratory disease caused by a novel corona virus was detected in India on 30th January 2020, this time not infecting a crop, but human. After invading China and many other countries and causing severe loss of life in developed world the disease entered India. Thereafter, within 3 months the virus assumed the status of global pandemic. It becomes a long and arduous process, as the virus is now started figuring us out quicker than we could figure it out. By the time, the 21-day lockdown (starting

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March 25, 2020) due to COVID-19 would have ended on April 14, 2020, country would have suffered the worst ever economic loss of our lifetimes. Not just India, the whole world bore the brunt of the Corona virus, which continues to ravage the universe with loss of millions of lives and crippling global economy. Invasive pathogens whether of plants, animals or humans are one of the biggest challenges to biological health. Although loss of human lives cannot be equated with death of plants and animals, but in all cases economic losses due to pathogens are inevitable, which is bound to affect the GDP.

In United States alone, crop and forest production losses from invasive pests have been estimated at almost US\$40 billion per year. In India crop losses worth at least 1,90,000 crores INR (25.32 billion US\$) happen every year due to pests that includes pathogen, including invasive pests/ pathogens. But the seriousness with which loss of human life is viewed, is not received when crops die due to invasive pathogens. However, the crop losses due to pest and pathogens that happens every year in India, if managed effectively, could save 60-65 million tons of horticultural crops and 55-60 million tons of food crops, sufficient to feed 1.6 billion strong population (of India by 2050) even without having any increase in productivity. This is despite the use of 55-75,000 tons of pesticides. But then where are we failing? Are we fighting a losing battle with pathogens? Do we not have adequate knowledge of pathogen etiology, control measures or management strategies?

With my long experience in the field of plant protection for last 40 years as a Scientist, research manager, and as ADG (PP&B) in ICAR with opportunities of close interaction with plant protection authorities and industries I found a big gap between theory of pathogen management taught in the Universities and practice of plant protection developed by Industry and administered by plant protection authority. For example a researcher may recommend a pesticide for management of disease based on their effectiveness, without often knowing that a pesticide so recommended must possess prior label claim for use against the specific host-pathogen interaction. This is why quite often, off-label use of pesticides is practiced frequently by farmers in India, causing biosafety issues and/ or trade concerns. Similarly academia rarely engage in any interaction with industries for their latest protection strategy/technology or are hardly aware of new rules/ guidelines developed by the plant protection authorities. I am not sure how many students are aware about the status of guidelines for regulation of biostimulants recently prepared by ICAR that are under consideration of NRM division, or the status and provisions of Pesticide Management Bill regulating trade, use and manufacture of pesticides currently in Rajya Sabha, or approval of crop grouping and provisions of group MRL of pesticides. Similarly there is lack of coordination between academia and policy makers in framing subjects of biosecurity and biosafety to tackle exigencies in this era of globalization. It may also be true for policy makers and the Industries who may not be aware about a pathogen behavior, etiology and epidemiological information generated by researchers to launch an effective management protocol or policy.

The biggest challenge thus lies in fostering a strong linkage and leveraging a close engagement among the three major stake holders- academics, industry and plant protection authorities (policy makers). The moment three stake holders join hands, as in case of management of deadly COVID-19 disease, we will be able to serve the purpose of crop protection and prevent unavoidable losses in crops due to pathogens, more effectively. To enable this the IPS has decided to initiate a column in its quarterly Newsletter from next issue, whereby the latest technologies launched by the industry or the policies developed by the policy makers related to plant protection, finds a mention for greater information of the students and researchers. Similarly, authorities and industries may get information about the latest management technology or advancement on pathogen etiology, their behavior or management technology to enable development and implementation of effective IPM strategy with involvement of all relevant stake holders. I'm certain that if we follow the aforementioned strategies and work steadfastly together, we can ensure that the security and sanctity of our crops will be maintained.

Jai Hind!

(P.K. Chakrabarty) President, IPS

Editorial

COVID-19 Pandemic: A global challenge and lesson for scientists

B.N. Chakraborty Chief Editor, IPS Newsletter



Viral pathogens continue to emerge as a serious issue to human and plant health. Most recently, an epidemic of COVID-19 originated at Wuhan, China has become pandemic causing havoc to human health and weakening the economic backbone of several countries. The disease is proved to be fast spreading through human to human transmission. However, this pandemic not only caused severe loss to the valued human health but also given a lesson to make coordinated efforts towards mitigating this global threat. As several international research organizations including World Health Organization (WHO) have been providing time to time advisories for its status, updated information on spreads, nature of symptoms, molecular structures and strains with the main target to develop strategies for preventing the global menace. Presently, there are no specific vaccines to develop immunity against the dreaded virus. In this direction, scientists around the world are working tirelessly towards developing new robust diagnostics, vaccines and other preventive cum therapeutic measures. At the moment, since reducing transmission in the community is the best weapon, a general lockdown is being imposed globally. The clinical conditions are characterized by respiratory failure that necessitates mechanical ventilation and support in an intensive care unit (ICU).

Plants are no strangers to diseases and devastating outbreaks. A long-standing concept from plant pathology that describes the spread of any disease explains why environmental measures matter. All biology is connected. This is the time for epidemiologists, plant pathologists, virologists, immunologists and bioinformaticians to come under the same umbrella and to coordinate their expertise towards common target to mitigate more effectively the emerging diseases like COVID-19. Henceforth, we need to devote more time for preparedness against such pandemic pathogens with respect to studies related to epidemiology, strainal variability, disseminations across the host species to have comprehensive preventive measures.

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Symposium/Training/Workshop Organized

IMS International Symposium: February 6-8, 2020

Indian Mycological Society (IMS), Department of Botany, University of Calcutta, organized an International Symposium on 'Nature, Microbes and Society', during February 6-8, 2020, at Science City, Kolkata.



IPS Northern Zone Symposium: January 9-10, 2020

National Symposium on "Plant disease management for food security under climate change scenario" and Annual meeting of Indian Phytopathological Society (North Zone chapter) were jointly organized by Indian Phytopathological Society (IPS), New Delhi, Society for Advancement of Wheat and Barley research (SAWBAR), Karnal and CCS Haryana Agricultural University, Hisar at ICAR-Indian Institute of Wheat and Barley research (IIWBR), Karnal, Haryana from January 9-10, 2020. A total of 92 delegates across the country participated in the symposium.

IPS 7th International Conference (IPSCONF2020)

The Indian Phytopathological Society (IPS), New Delhi organized its 7th International Conference on "Phytopathology in Achieving UN Sustainable Development Goals" at ICAR-Indian Agricultural Research Institute (IARI), New Delhi during January 16-20, 2020 along with 13 most prominent plant protection institutes/societies (IARI, NIPB, NBPGR, IASRI, NIAP, NCIPM, APS, SLAMPP, ISMPP, APP, ISMPP, South Asia Biotechnology Centre, FARMER) as Co-organizers and International Society for Plant Pathology (ISPP) as collaborator and it is the first time when these many societies have come closer in joining hands with IPS in celebrating the International Year of Plant Health. Altogether 708 delegates from 24



countries participated in this mega-event of which 40 delegates were from outside India. There were 60 farmer delegates from different states of India such as Uttar Pradesh, Delhi, Madhya Pradesh and Chhattisgarh who participated in Scientist –Industry - Farmers Interface on 19th January, 2020. During the 4 days long conference, 21 technical sessions on 21 different themes were conducted. There were 8 plenary speakers, 8 award lectures, 10 Prof. M.J. Narasimahan Academic Merit Award Contestants, 3 APS Travel Sponsorship Award Contestants, 49 Keynote Lectures, 76 Invited Lectures, 130 Oral Presentations and 423 posters presented in the conference.

Felicitation to Awardees

The following eminent scientists were felicitated during inaugural function of IPSCONF2020:

A.P. Misra Lifetime Achievement Award: Prof. C. Manoharachary, Osmania University, Hyderabad, India IPS Recognition Award

- Dr. R.K. Khetarpal, Executive Secretary, APAARI, Bangkok, Thailand
- Dr. U. N. Saikia, Former Director of Post-Graduate Studies (AAU), Jorhat, Assam
- Dr. B.L. Puttoo, Former Head, Plant Pathology, SKUAST, Jammu, J&K, India
- Dr. G.S. Dubey, Former DRI-cum-Dean PGS, BAU, Ranchi, Jharkhand, India
- Dr. R.B. Somani, Former Dean, PGS, Head, Plant Pathology, Maharahstra, India

M.K. Patel Memorial Young Scientist Award: Dr. Malkhan Singh Gurjar, Scientist (Plant Pathology), ICAR-IARI, New Delhi

> K.C. Mehta and Manoranjan Mitra Award: Dr. M.S. Saharan, Principal Scientist (Plant Pathology), ICAR-IARI, New Delhi

> B.N. Chakraborty and Usha Chakraborty IPS Best Teacher Award; Dr. S.J. Kolte, Former Professor, Plant Pathology, GBPUAT, Pantnagar, Uttarakhand (presently Pune, M.S.).



Release of Publications

Following publications were released by the chief guest during the Inaugural function of IPSCONF2020:

- 1. Proceedings (Abstract book) of the 7th International Conference on "Phytopathology in Achieving UN Sustainable Development Goals".
- 2. Kheti (Special issue on Plant Health), a periodical published by ICAR-DKMA, New Delhi.
- 3. A compilation on "Major Accomplishments of Indian Phytopathological Society (2017-19)".
- "Powdery mildew disease of crucifers: Biology, ecology and disease management" by Dr. G. S. Saharan, Dr. Naresh K. Mehta and Dr. P.D. Meena.

PRESIDENTIAL ADDRESS AND AWARD LECTURES

The following award lectures were delivered by eminent scientist during conference.



Presidential Address: Advances in Mushroom Production: Key to Food, Nutritional and Employment Security **Dr. M.P. Thakur,** President-IPS, IGKV, Raipur, Chhattisgarh



S.P. Raychaudhuri Memorial Lecture: Plant Protection in India: Challenges Ahead Dr. S.N. Puri, Former Vice chancellor, CAU, Imphal



Mundkur Memorial Award Lecture: Exploring Potentials of PGPMs in Crop Disease Management

Dr. M.K. Naik, Vice Chancellor, UAHS, Shivamogga, Karnataka



J F Dastur Memorial Award Lecture: The continuous challenges of citrus greening disease and its impact on global citrus industry Dr. Dilip K. Ghosh, ICAR- Central Citrus Research Institute, Nagpur



Sharda Lele Memorial Award: Epidemiology and Management of Phytophthora Diseases of Tomato and Bell pepper in North Western Himalayas Dr. S.K. Gupta, YSPHUF, Solan, H.P., India



AK Sarbhoy Memorial Award: Fungal epiphytes to endophytes: A cryptic and potential resource for biodiversity, bioremediation and bioactive compounds

Dr. R.N. Kharwar, BHU, Varanasi, U.P., India



S.N. Dasgupta Memorial Lecture: Our understanding about phytoplasma research scenario in India Dr. G.P. Rao, IARI, New Delhi



D.P. Misra and R.N. Pandey IPS Best Women Scientist Award : Chickpea wilt: Variability of Foc isolates in central India **Dr. Om Gupta,** Director Extension, JNKVV, Jabalpur, M.P., India

PLENARY LECTURES

Eight plenary lectures were delivered by eminent scientist in the IPSCONF2020.



Plenary Lecture 1: Role of plant protection and innovation in achieving sustainable development goals in Asia-Pacific **Dr. Ravi Khetarpal,** Executive Secretary, APAARI, Bangkok, Thailand



Plenary Lecture 2: Chitooligosaccharides as pathogen-associated molecular patters to induce immunity in plants Prof Appa Rao Podile, Vice Chancellor, University of Hyderabad, Hyderabad, India



Plenary Lecture3: Science and technology for a sustainable future: Adventures in plant disease resistance genetics

Prof. Robert F. Park, Plant Breeding Institute, The University of Sydney, Australia



Plenary Lecture 4 : Assessing the global burden of pathogens and pests on major food crops

Dr. Serge Savary, AGIR, INRA, Université de Toulouse, INPT, INP-EI Purpan, Castanet-Tolosan, France



Plenary Lecture 5 : Scenarios for sustainable management of plant parasitic nematodes

Dr. Becky Westerdahl, Cooperative Extension Specialist / Professor, Department of Entomology and Nematology, University of California, Davis, USA



Plenary Lecture 6 : Trichoderma, the most powerful Arsenal for Plant Disease Management

Prof. A.N. Mukhopadhyay, Former Vice Chancellor, AAU, Jorhat, Assam



Plenary Lecture7: Genome editing for stress tolerance of rice Dr. V. Viswanathan, Principal Scientist & Head (Plant Physiology), ICAR-IARI, New Delhi



Plenary Lecture8: Transcriptional profiling to gain insights into plant-virus interactions

Dr. H.R. Pappu, Samuel H. Smith Distinguished Professor, Department of Plant Pathology, Washington State University, Pullman, USA

Workshop on Biocontrol at SCP, CPGS-AS, Umiam, Meghalaya

A two days workshop on "Biocontrol of Crop Pests & Invasives and Utilization of Insects as Food in North East Region of India" was jointly organized by Directorate of Extension Education, CAU, Imphal, Manipur and ICAR-NBAIR, Bengaluru during 6-7th March, 2020 at College of Post Graduate Studies, School of Crop Protection, Umiam, Meghalaya. Total 62 participants from Assam, Tripura, Meghalaya, Mizoram and Arunachal Pradesh attended the workshop. Experts suggested setting up of biocontrol units, encouraged the farmers to adapt insects as a food and advocated for the better utilization of biocontrol agents in the north east region of India. The workshop was conducted under the Course Directorship of three faculties of the institutes namely, Dr. R. K. Tombisana Devi, Dr. Mahesh Pathak and Dr. Pranab Dutta.

Awards/Honours

- Dr. B. Parameswari, Senior Scientist (Plant Pathology), Division of Crop Protection, ICAR- Sugarcane Breeding Institute, Regional Centre, Karnal, Haryana has been selected for SERB Women Excellence Award 2020 by Science and Engineering Research Board (SERB) for the project "Development of recombinase polymerase amplification combined lateral flow dipstick kits for rapid detection of major viruses infecting sugarcane".
- Dr. Shamarao Jahagirdar, Professor of Plant Pathology & National PI (Soybean Pathology), Department of Plant Pathology, College of Agriculture, Dharwad received the prestigeous Prof. M Puttarudraiah Memorial Endowment National Award (Certificate, Citation & Cash Prize) for his outstanding contributions in the field of Plant Protection on 13th February, 2020 at Institution of Agriculture Technologists(R), Bengaluru, Kanataka. Dr. Jahagirdar has also been elected as Vice President of Society for Soybean Research & Development (SSRD), Indian Institute of Soybean Research, Indore for a period of three years (April 2020 to March 2023).



 Prof. Usha Chakraborty was conferred with the Honorary Fellowship of Indian Mycological Society, Department of Botany, University of Calcutta, during the Inaugural Ceremony of the International Symposium on 'Nature, Microbes and Society' held on February 6, 2020.



IPS Award Declaration 2020-21

- A.P. Misra Lifetime Achievement Award: Prof. B.L. Jalali, Ex-Director of Research, HAU, # 601, Neelkanth Apartments, Plot No. G24, Sector 21-C, Part-III, Faridabad, Haryana
- S.P. Raychaudhuri Memorial Lecture: Dr. M. Anandaraj, Former Director (ICAR-IISR, Calicut), 48A "Madhoovan" 2nd Main, Railway Men Layout, Thanisandra, Bangalore, Karnataka
- IPS Recognition Award:
- Dr. Basant Ram, Former Vice Chancellor (NDUA&T, Faizabad), 1/794, Sector H, Jankipuram, Lucknow-226021, Uttar Pradesh
- Dr. H. Shekar Shetty, Emeritus Professor, 758, Nandini, Bogadi II Stage, North, Manasgangotri, Mysore, Karnataka
- Dr. R.P. Thakur, Principal Plant Pathologist (Retd.), H.No. 34-4-13/1, Thakur Niwas, Raghavendranagar Colony, Sainikpuri PO, Secunderabad, Telangana

- Dr. Srikant Kulakarni, Former Professor & Head (Plant Pathology), NO. 54, 'Sai Suvaha', Krishi Gangothri GKVK Layout, Behind Jakkur Flying School, Near Sobha Appts, Bangalore, Karnataka
- Mundkur Memorial Award: Dr. C. Chattopadhyay, Vice Chancellor, Uttar Banga Krishi Vishwavidyalaya, P.O. -Pundibari, Dist. Coochbehar, West Bengal
- M.S. Pavgi Memorial Award: Dr. R. Viswanathan, Principal Scientist & Head, Division of Crop Protection, ICAR-Sugarcane Breeding Institute, Coimbatore, Tamil Nadu
- J.P. Verma Memorial Award: Dr. D.K. Jha, Professor, Secretary, AMI (Guwahati Unit), Department of Botany, Gauhati University, Guwahati 781014, Assam, India
- B.N. Chakraborty and Usha Chakraborty IPS Best Teacher Award: Dr. Robin Gogoi, Principal Scientist, Division of Plant Pathology, ICAR-Indian Agricultural Research Institute, New Delhi,
- J.F. Dastur Memorial Award: Dr. Kajal Kumar Biswas, Principal Scientist, Division of Plant Pathology, ICAR-Indian Agricultural Research Institute, New Delhi
- M.K Patel Memorial Young Scientist Award: Dr. G. Prakash, Scientist (SS), Department of Plant Pathology, ICAR-Indian Agricultural Research Institute, New Delhi
- K.C. Mehta and Manoranjan Mitra Award: Dr. Apurba Kumar Chowdhury, Professor and Head, , Department of Plant Pathology, Uttar Banga Krishi Viswavidyalaya, (North Bengal Agriculture University), Coochbehar, West Bengal
- Sharda Lele Memorial Award: Prof. V. Devappa, Professor & Head, Department of Plant Pathology, College of Horticulture (UHS Campus), Bengaluru, Karnataka
- S. Sinha Memorial Award: Dr. Pramod Kumar Gupta, Scientist (Plant Pathology) Technical Officer O/o Directorate of Extension Services, JNKVV-Jabalpur, Madhya Pradesh

Fellow of Indian Phytopathological Society (FPSI) 2019

- Dr. Ritu Mawar, Senior Scientist (PP), Plant Pathology Section, Division of Crop Improvement and Pest Management, ICAR-Central Arid Zone Research Institute, Jodhpur (Rajasthan) -INDIA
- **Dr. D.K Banyal,** Professor, Department of Plant Pathology, CSK Himachal Pradesh Agricultural University, Palampur, Himachal Pradesh
- Dr. Manas Kumar Bag, Principal Scientist (Plant Pathology), Crop Protection Division, ICAR-National Rice Research Institute, Cuttack, Odisha
- **Dr. M.S Saharan,** Principal Scientist, Division of Plant Pathology, ICAR-Indian Agricultural Research Institute, New Delhi
- **Dr. Sushil Kumar Singh,** Assistant Professor (Plant Pathology), Department of Plant Pathology, N.D. University of Agriculture & Technology, Kumarganj, Faizabad, Uttar Pradesh
- Dr. S.K. Tripathi, Professor & Head, College of Agriculture (JNKVV), Rewa, Madhya Pradesh
- Dr. Shripad H. KulKarni , Professor, Department of Plant Pathology, UAS, Dharwad, Karnataka
- Dr. Rupankar Bhagawati, Principal Scientist & Officer In-charge (I/C), ICAR-NRRI-RRLRRS, Gerua, Hajo, Kamrup, Assam

- Dr. Hirendra Kumar Chourasia, Associate Professor, University Department of Botany, TM Bhagalpur University, Bhagalpur, Bihar
- Dr. Sanjay Kumar Singh, Senior Scientist cum Associate ٠ Professor, Department of Plant Pathology, Dr. RPCAU, Pusa, Samastipur, Bihar
- Dr. P.D .Meena, Principal Scientist (Plant Pathology), ICAR-Directorate of Rapeseed-Mustard Research, Sewar, Bharatpur, Rajasthan
- Dr. A.K. Vijayan, Head, Plant Pathology Division, Indian Cardamom Research Institute, Spices Board, Myladumpara Kailasanadu, Idukki, Kerala
- Dr. Deeba Kamil, Senior Scientist, Division of Plant Pathology, • ICAR-Indian Agricultural Research Institute, New Delhi
- Dr.Jameel Akhtar, Principal Scientist, Division of Plant Quarantine, ICAR-National Bureau of Plant Genetic Resources, Pusa Campus, New Delhi

MJ Narasimhan Medal for Best Research Paper published in Indian Phytopathology (2018)

The published paper entitled "Pathogenic variability in Phytophthora capsici from black pepper (Piper nigrum L.) as revealed by transcriptome analysis" authored by Anandaraj M, Vinitha Kakkattil Balakrishnan, Umadevi Palaniyandi and Monica V. Chandran has been awarded with MJ Narasimhan Medal for Best Research Paper (2018).

Prof. M.J. Narasimhan Academic Merit Award 2019-20

Total 10 candidates from different zones participated in the Prof. M.J. Narasimhan Academic Merit Award 2019-20 contest. The award was conferred to Mr. Ankit Kumar Ghorai. Department of Plant Pathology, Bidhan Chandra Krishi Viswavidyalaya, Mohanpur, Nadia for presentation of the paper "Population structure analysis of Ralstonia solanacearum in West Bengal, India and influence of crop rotation on its survival in the rhizospheres of various crops".

APS Travel Sponsorship 2020

This year following 3 candidates participated for APS Travel Sponsorship and all the names have been recommended. The final winner will be selected by APS.

- Darshan K, Division of Plant Pathology, ICAR-IARI, New Delhi, India: Transcriptomic and Metabolomic approaches to unravel the antagonistic mechanism of Chaetomium globosum against Bipolaris sorokiniana.
- V. Kavi Sidharthan, Division of Plant Pathology, ICAR-Indian Agricultural Research Institute, New Delhi: Unravelling the virome of Indian grapevines (Vitis vinifera L.) through comparison of mRNA and sRNA viromes
- Praveen, B., Agricultural College, Bapatla, ANGRAU, Guntur, Andhra Pradesh: Studies on Cercospora Leaf Spot of Greengram In Relation To Weather, Host Plant Resistance and Disease Management.

Editorial Board - Newsletter







Prof. B.N. Chakraborty Chief Editor bncnbu@gmail.com



Dr. Robin Gogoi Ex-officio r.gogoi@rediffmail.com

kalyanmondal@yahoo.com





prameelancha@vahoo.co.in



deebakamil@gmail.com



iassu75@pau.edu



Dr. Abhishek Sharma abhishek@pau.edu



Dr. M.A. Siddiqui mansoor_bot@yahoo.co.in Dr. B. Srinivasulu beyyalas@gmail.com

Dr. K. Sesha Kiran seshakiran.kollipara@gmail.co







Dr. C. Uma Maheswari

entist_thambi@yahoo.co.irmaheswari_ars@yahoo.co.in ntiamerenao@asia.com





Dr. D.L. Wasule

Dr R M Gade gadermg@gmail.com

Dr. P. Nallathambi

Dr. Arup K. Mukherjee dhirajwasule@yahoo.com arupmukherjee@yahoo.com

Dr. N. Tiameren Ao

Dr. M.K. Bag





Dr. Sushant Banik susanta.iari@gmail.con

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		(CZ: Central Zone; DZ: Delhi Zone; EZ: Eastern Zone; MEZ: Mid Eastern Zone; NZ: Northern
		Zone; NEZ: North Eastern Zone; SZ: Southern Zone; WZ: Western Zone)

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