

# हंसराज महाविद्यालय

दिल्ली विश्वविद्यालय  
महात्मा हंसराज मार्ग,  
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**NAAC ACCREDITED 'A++' GRADE COLLEGE**

**2022-2023**

**Name of the Department/Society: Department of Botany in collaboration with MHRFDC, Hansraj College**

**Name of the Event: International Conference (ONLINE) on INSIGHTS INTO THE LATEST DEVELOPMENTS IN FUNGAL BIOLOGY (ILDFB -2022)**

**Date of the Event: 3<sup>rd</sup> September, 2022**

An international conference on the theme "Insights into the recent developments in Fungal Biology" organized by the Department of Botany, Hansraj College, in collaboration with Mahatma Hansraj Faculty Development Centre and Research Development cell was held on September 3, 2022, at Hansraj College Zoom platform. The convener of the conference was Dr. Ishwar Singh and the Departmental Coordinator was Dr. Romila Rawat Bisht. There were five lectures from eminent researchers and professors from India and abroad. Countries like USA and Australia had participated in the event. A very interactive and enthusiastic participation from various colleges and institutions of different States of India attended the International Conference. Seventeen participants also presented E-poster and explained the summary and outcomes of the same.

**Session I: Inaugural Address, Time: 9:15 A.M. to 9:55 A.M.**

Dr. Shrishail S. Navi

Department of Plant Pathology, Microbiology, and Entomology, Iowa, USA

Dr. Shrishail S. Navi is an eminent scientist from Iowa State University. He delivered the inaugural lecture of the conference. The title of his talk was "Biology and management options of major soil-borne fungi of soybean". Dr. Navi discussed the diversity of pathogen affecting the soybean crop. Out of 200 pathogens affecting soybean, at least 35 have been reported as economically important. Diversity of some of the major soil-borne pathogens (species of *Pythium*, *Fusarium*, *Macrophomina*, *Sclerotinia*, *Rhizoctonia*) is causing yield losses in soybean. An estimated yield loss of 2.8 mmt due to White mold or *Sclerotinia* stem rot and *Septoria* brown spot, 4.6 mmt due to *Phytophthora* stem and root rot, 5.7 mmt due to sudden death syndrome, 6 mmt in charcoal rot, 6.6 mmt seedlings used *Rhizoctonia*, *Pythium*, *Fusarium* and *Phomopsis* and 16.8 mmt due to Cyst nematode (16.8) were discussed. In addition, as reported in the literature, several management options, such as cultural practices, fungicides, micronutrients, and biocontrol agents (plant-based, fungi-based, and bacteria-based) were also presented.

**Session II, Time: 9:55 A.M. to 10:35 A.M.**

Dr. Madhurababu Kunta

Texas A & M University, USA

Department of Botany, MHRFDC [2022-23]

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Dr. Madhurababu Kunta gave a very interesting talk entitled “Fusion of Modern Molecular Tools and Classical Microscopy & Culture Methods: A Case Study of Sweet Orange Scab in the USA”. First he discussed the impact of sweet orange scab (SOS) caused by *Elsinoë australis* which their team reported for the first time in the US in 2010. The variable symptoms of small, flattened off-white pustules to the large coalesced lesion. Then he talked about how lack of specific SOS symptoms in grapefruit and sweet orange fruit made diagnosis difficult for regulatory purposes, and the initial identification was primarily dependent on the PCR technique. Finally, he discussed how molecular technique especially useful in early diagnosis. Molecular tools that were utilized: PCR and DNA sequencing of the partial elongation factor (TEF) and the internal transcribed spacer (ITS) was used to prepare Neighbor-joining phylogenetic trees. Quick and accurate diagnosis and understanding of fungal biology are crucial to safeguard crops from harmful emerging pathogenic fungi and implement regulatory actions to prevent the establishment and spread of pathogens. Overall, it was an interesting talk.

### Session III, Time: 10:35 A.M. to 11:30 A.M.

Dr. Hema Kasinathan

Plant-Microbe Assay Development, Cambridge, Massachusetts, USA

Dr. Hema Kasinathan is an Associate Scientist at Invaio Sciences, Cambridge, MA. The title of her talk was “A few biotrophic plant pathogens: Biology and eco-friendly management practices”. She started her talk with the general introduction on biotrophic plant pathogens. The focus of her talk was mainly on Clubroot of Canola caused by *Plasmodiophora brassicae*. She discussed the impact of disease, the life cycle of the fungi and the effect of various factors such as pH, temp etc. on the disease impact and what are the challenges encountered while managing such disease. Her research revealed that the disease can be managed by adjusting the soil pH, early seeding, and proper selection of bio fungicides. Studies on the interaction of pH and temperature on root hair infection (RHI) and clubroot symptom development in canola roots revealed that high levels of clubroot could occur under optimum temperature, moisture, and spore load, even at alkaline pH of 7.5. The efficacy of bio fungicides against *P. brassicae* was influenced by pathogen load, host, growth media, and properties. She also discussed about the grape powdery mildew *Uncinulanecator* (syn. *Erysiphe necator*), a biotrophic ascomycete fungus, is one of the most important destructive diseases of grapevines worldwide. Her studies showed that the proper selection of grape cultivars could improve disease management.

### Session IV, Time: 11:30 A.M. to 12:10 P.M.

Dr. Benjamin Schwessinger

Division of Plant Science, Research School of Biology, ANU College of Science, Australian National University, Canberra, Australia

Dr. Benjamin Schwessinger is a Senior Scientist at Australian National University. His current work focuses on genome evolution and host adaptation of rust fungi. The title of his talk was “A new era of

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plant pathogen genomics in rust fungi from discoveries to applications. His talk focused on latest insight into rust fungi from a genomic perspective and applications arising from novel genomic insights. He started his talk with general introduction of rust fungi, and the crops that they infect. He focused on Myrtle rust fungus (*Austropucciniopsis*) and Wheat stripe rust fungi (*Puccinias triiformis* f. sp. *tritici*). Wheat stripe rust fungi has five spore stages (on wheat and barberry). It is dikaryotic during the epidemic stage on wheat. The sexual cycle of the fungi is geographically restricted. Dr Benjamin and his group studied the effect of long term asexual vs sexual reproduction on genome evolution and they found increased heterozygosity in long term asexuals. In Myrtle rust, Transposable elements (TEs) contributes to genome size expansion. TE expansion leads to increased AT genome composition. Phased genomes provide unique insights into rust evolution such as structural variation, allelic variation and single copy genes.

### Poster Session V, Time: 12:15 A.M. to 1:45 P.M.

The poster session of the international conference started at 12:15 pm. The session contained a total of 18 posters out of which 17 presented their work. Undergraduate and post-graduate students, research scholars, and faculty members of various institutes took participation. There were participants from different places of India, including Bilaspur, Darjeeling, Delhi, Haryana, Himachal Pradesh, Hooghly, Meghalaya, Telangana, Thanjavur and Uttar Pradesh. The judges of the session, Prof. Surinder Kaur from SGTB Khalsa College, University of Delhi, and Dr. Anju Tanwar from Government P.G. College, Ambala Cantt, Haryana had a brainstorming session with the participants. The judges are specialized in the field of Mycology and Phytopathology. Some of the topics covered in the presented posters were fungal siderophore production, plant growth promoting activities, antibacterial and fungal activity, endophytic fungi, soil fungal population, arbuscular mycorrhizal fungi, corticioid fungi, microbial bioformulation, Covid 19 associated mucormycosis, and phylloplane fungi. Four top poster presenters and a best speaker was awarded with certificates.

### Valedictory session, Time: 1:45 A.M. to 2:45 P.M.

Prof. Rupam Kapoor

Department of Botany, University of Delhi, Delhi-110007, India

Prof. Rupam Kapoor is an eminent mycologist. She had worked on various aspects of fungal biology. The title of her talk was "Decrypt some Novel Factors of Virulence in *Botrytis cinerea*". Prof. Roopam started from the basics and went upto the advanced level. She very well explained the biology and mode of action of *Botrytis cinerea*. *Botrytis cineraria* is a belligerent necrotrophic pathogen adept to cause grey mould rot in standing crops as well as harvested produce, ensuing colossal economic losses worldwide. Hence, it is essential to reveal the molecular premise of pathogenicity and virulence in *B. cinerea*. Her team identified some novel genes that control virulence of *B. cinerea*. They raised monokaryotic transformants using *Agrobacterium tumefaciens* mediated transformation. These transformants were exposed to pathogenicity screening, and after several cycles of screening three insertion mutants that showed consistently compromised virulence were selected. Further functional characterization of these mutants

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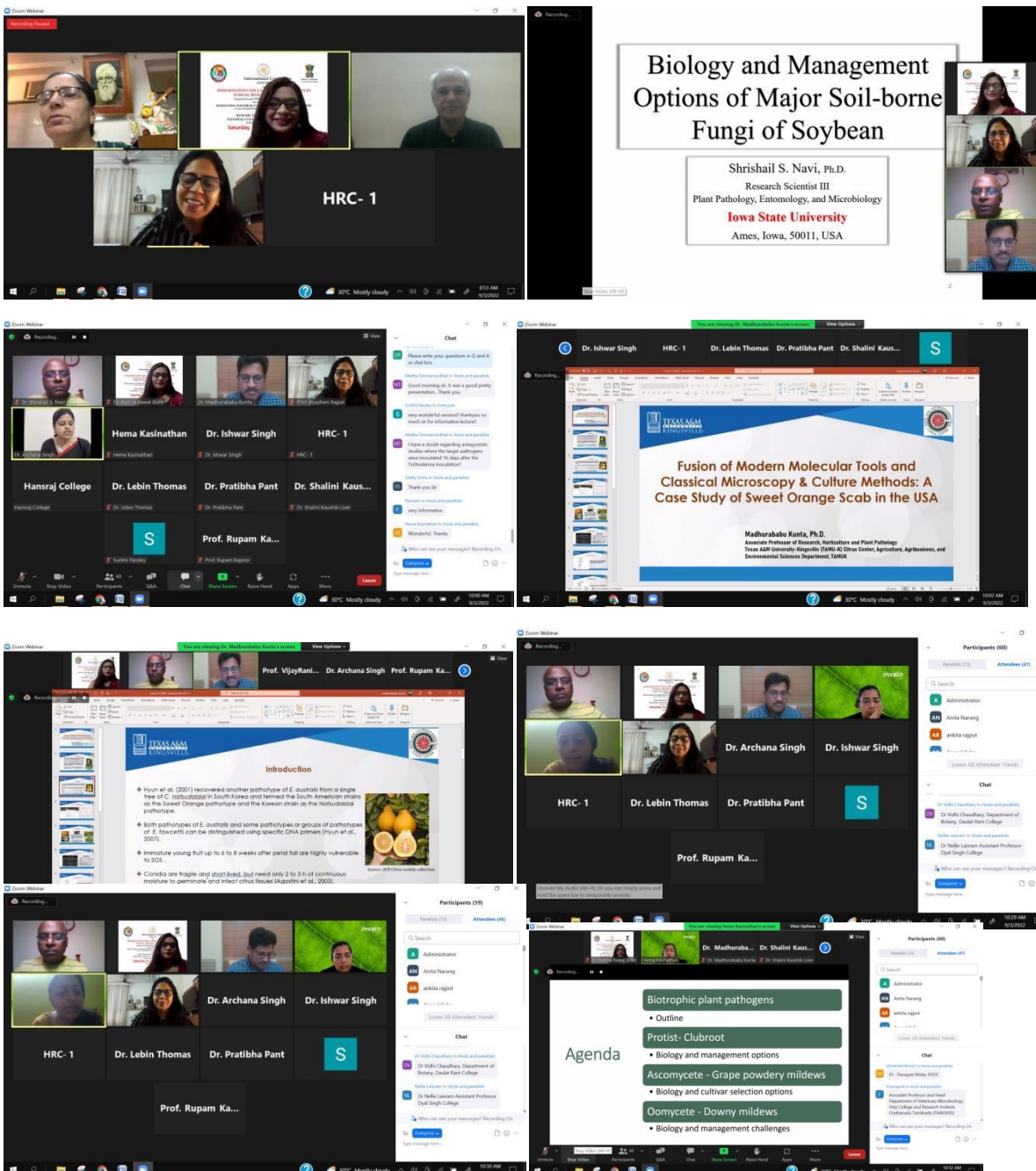
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led to the association of novel components modulating virulence of *B. cinerea* viz. Diacylglycerol O-acyl transferase 2 (DGAT2), Kinesin-like protein (KLP7) and nucleopore complex protein 184 (NUP184). Indeed, it was an insightful work explained lucidly by Prof. Kapoor.

Vote of Thanks was presented by Dr Romila Rawat Bisht, Associate Professor, Department of Botany, Hansraj College.



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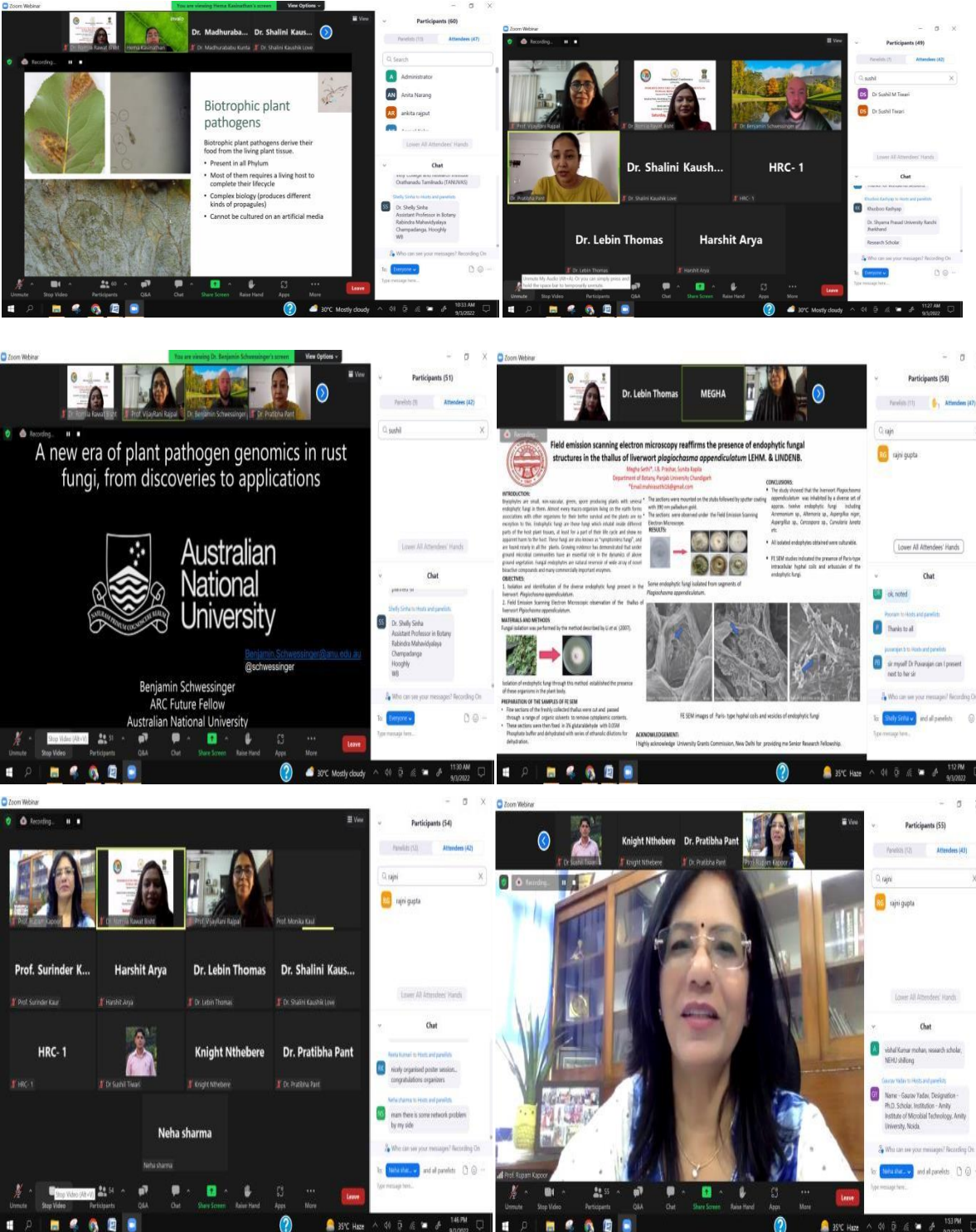
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### ATTENDANCE:

Mr. Akshay Kumar Verma	Ms. Neha Sharma
Dr. Anita Narang	Dr. Nellie Laisram
Ms. Ankita	Ms. Palvi Sharma
Ms. Anmol Kalra	Dr. Pamil Tayal
Dr. Anupama Shukla	Dr. Pooja Jha Maity
Ms. Asha	Dr. Poonam Sabrwal
Mr. Ashwani Singh	Ms. Prabha Toppo
Dr. B.Puvarajan	Ms. Rajni Devi
Mr. Bishal Pun	Prof. Rajni Gupta
Mr. Debamalla Pathak	Dr. Ranjana Mallick
Dr. Deepali	Dr. Ranjna Nagpal Koul
Dr. Devayani Muley	Dr. Reeta Kumari
Dr. Elangbam Geetanjali	Mr. Rewaj Subba
Mr. Gaurav Yadav	Ms. Richa Vaishnav
Prof. Geeta Saxena	Ms. Ruby Panwar
Prof. Harmeet Kour	Ms. Sangeeta Kumari
Mr. Harsh Kumar	Dr. Sarita Kumari
Mr. Harshit Arya	Dr. Shalini Lal
Mr. Jai Soren	Dr. Shelly Sinha
Prof. Jitendra Rajak	Ms. Shikha Solanki
Ms. Kavita Meena	Mr. Shubham Thakur
Mrs. Khusboo Kashyap	Dr. Smita Tripathi
Mr. Knight	Ms. Sruthi O P
Dr. Kuldeep Kumar Koul	Ms. Surbhi Pandey
Dr. Lebin Thomas	Dr. Sushil M. Tiwari
Dr. Mandeep Kaur	Ms. Vanama Sowmya
Ms. Medha Timmanna Bhat	Dr. Vibha Chauhan
Ms. Megha Sethi	Dr. Vidhi Chaudhary
Mr. Mukul Machhindra Barwant	Mr. Vikas Kumar
Dr. Naghma Praween	Mr. Vishal Kumar Mohan

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BROCHURE:



Ministry of Education  
Government of India

**International Conference  
(ONLINE)**

on

**INSIGHTS INTO THE LATEST DEVELOPMENTS IN  
FUNGAL BIOLOGY ( ILDFB -2022)**

Organised by the DEPARTMENT OF BOTANY  
in association with

**MAHATMA HANSRAJ FACULTY DEVELOPMENT CENTRE**  
(Under PMMMNMTT Scheme of MoE, Govt. of India)

and

**RESEARCH DEVELOPMENT CELL  
HANSRAJ COLLEGE, UNIVERSITY OF DELHI**  
(NAAC Grade A+, CGPA:3.62)

**Saturday, September 3, 2022**

**(9:00 AM-3:00 PM)**