



**CENTRE OF ADVANCED FACULTY TRAINING  
DIVISION OF PLANT PATHOLOGY  
INDIAN AGRICULTURAL RESEARCH INSTITUTE  
NEW DELHI**



## **Introduction**

The Division of Plant Pathology is nearly 100 years old. It was originally established in 1905 as Mycology section of Imperial Agricultural Research Institute (IARI) at Pusa, Bihar to initiate mycological and plant pathological research in India. The sectional status was raised to the status of Division of Mycology in 1943-44 after the Institute was shifted to New Delhi. Subsequently, it was named as Division of Mycology and Plant Pathology in 1947-48 and later it was designated as Division of Plant Pathology. Two Regional Stations were established at Pune (Maharashtra) and Kalimpong (West Bengal) in 1956 and 1939 as the nucleus of research on plant viruses.

Detection of pathogens, diagnosis of diseases and ultimately management of disease risks have been the main fabric of Divisional research. The Division has evolved over the years with four major sections, i.e., Mycology, Fungal Pathology, Bacteriology and Virology. Herbarium Cryptogamae Indiae Orientalis (HCIO) and Indian Type Culture Collection (ITCC), Center for Advanced Studies, (CAS) in Plant Pathology and Referral Center for virus testing of tissue culture raised plants are its "Life Lines". The Division has highly trained scientific, technical and field staff. It has well equipped laboratories to work on diagnosis and characterization of plant pathogens, electron microscopy, cloning of genomes, electrophoresis, sequencing, use of PCR in disease diagnosis, tissue culture, plant transformation etc. The mandates of the Division are

- **To conduct basic and applied research leading to detection, identification and management of plant pathogens**
- **To serve as a Centre for academic excellence in the area of Post-Graduate education in Plant Pathology**
- **To provide national leadership in plant pathological research through the development of new concepts and technologies**

### **Objective of CAFT**

CAFT in Plant Pathology, Division of Plant Pathology, Indian Agricultural Research Institute envisages imparting advanced training to the scientists and academic staff within the National Agricultural Research and Education System in the country to upgrade their skills in frontier areas of Plant Pathology.

**Scientists at Division of Plant Pathology, IARI (as on 24 Jan 2020)**

S.No.	Name	Designation
<b>Fungal Pathology</b>		
1	Dr. Rashmi Aggarwal	Head
2	Dr. Robin Gogoi	Principal Scientist
3	Dr. Parimal Sinha	Principal Scientist
4	Dr. M.S. Saharan	Principal Scientist
5	Dr. V. Shanmugam	Principal scientist
6	Dr. Laxman Prasad	Principal scientist
7	Dr. Bishnu Maya	Senior Scientist
8	Dr. Malkhan Singh Gurjar	Scientist (Sr. Scale)
9	Dr. Vaibhav K. Singh	Scientist (Sr. Scale)
10	Dr. G. Prakash	Scientist (Sr. Scale)
11	Dr. Srinivasa N.	Scientist (Sr. Scale)
12	Dr. Shumaila Shahid	Scientist
<b>Plant Virology</b>		
13	Dr. K. B. Pun	Principal Scientist
14	Dr. V. K. Baranwal	Professor
15	Dr. Bikash Mandal	Principal Scientist
16	Dr. G. P. Rao	Principal Scientist
17	Dr. Kajal Kumar Biswas	Principal Scientist
18	Dr. R. P. Pant	Principal Scientist
19	Dr. Anirban Roy	Principal Scientist
20	Dr R. K. Saritha	Scientist (Sr. Scale)
21	Dr Amalendu Ghosh	Scientist (Sr. Scale)
22	Dr. Basavaraj	Scientist (Sr. Scale)
<b>Bacteriology</b>		
23	Dr. A. Kumar	Principal Scientist
24	Dr. Dinesh Singh	Principal Scientist
25	Dr. Kalyan Kr. Mondal	Principal Scientist
26	Mrs Hemavati R.	Scientist
<b>Mycology</b>		
27	Dr. T. Prameela Devi	Principal Scientist
28	Dr T.K. Bug	Principal Scientist
29	Dr. Deeba Kamil	Senior Scientist
30	Dr. Amrita Das	Scientist (Sr. Scale)

### Human Resource Development:

Particulars of CAFT programme for HRD conducted during 2017-20

Year	No. of training	Topic	No. of trainee(s)	No. of participants	
				Internal	External
2017-18	2	Whole genome sequencing of plant pathogens- Methods and Applications	25	1	24
		Use of biotechnological and conventional tools in understanding virus-host interactions	23	-	23
2018-19	1	Advances in biological control of plant diseases	22	-	22
2019-20	1	Plant disease monitoring for timely management options	18	1	17

### Infrastructure development (equipment etc.)

Year	2016-17	2017-18	2018-19
Library	-	Rs 32,486 (books)	-

### Awards and Recognition

#### 2017-18

Faculty	Name of the Award
Dr Rashmi Aggarwal	Outlook Agriculture Conclave and Innovation Awards
Dr. V. K. Baranwal	Best teacher Award, IARI, New Delhi
Dr. Bikash Mandal	Fellow, West Bengal Academy of Science and Technology
	Fellow, National Academy of Biological Sciences
T. Prameela Devi	Dr. A. K. Sorbhoy memorial lecture award
Dr. Kalyan K. Mondal	SARP Associate Award 2017

#### 2018-19

Faculty	Name of the Award
Dr. Rashmi Aggarwal	NAAS Fellow, Pathologist of Distinction (PoD) by APS, Nanaji Deshmukh ICAR Team Award, Wajid Khan Award for outstanding contribution in Plant Pathology
Dr V K Baranwal	Sharda Lele Award
Dr. GP Rao	S.N. Dasgupta Memorial Award
Dr. M. S. Saharan	Borlaug Global Rust Initiative Gene Stewardship Award Dr. K. C. Mehta and Dr Manoranjan Mitra Award
Dr. Vaibhav K Singh	Nanaji Deshmukh ICAR Team Award

2019-20

<b>Faculty</b>	<b>Name of the Award</b>
Dr M S Saharan	Sh. V. P. Gokhale Award
Dr GP Rao	SN Das Gupta Award Fellow of Royal Association for Science led Socio Cultural Development
Dr Bikash Mandal	Dr BP Pal Memorial NABS Best Scientist Award

**Publications**2017-18

1. Aggarwal, R., Sharma, S., Gupta, S., Manjunatha, C., Singh, V. K. and Kulshreshtha, D (2017). Gene based analysis of *Puccinia* species and development of PCR based marker for the detection of *Puccinia striiformis* f. sp. *tritici* causing yellow rust of wheat, *Journal of General Plant Pathology* 83 (4) 205–215.
2. Aggarwal, R., Sharma, S., Manjunatha, C., Kulshreshtha, D., and Singh, V. K (2017). Development and validation of a novel and Rapid detection assay for *Puccinia striiformis tritici* causing stripe rust of wheat based on Loop Mediated Isothermal Amplification. *Australasian Plant Pathology* 46:577–583.
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8. Basavaraj, Kumar A., Holkar S. K., Jain R. K. and Mandal B. (2017). First Report of *Groundnut bud necrosis virus* Infecting Periwinkle (*Catharanthus roseus*) in India. *Plant Disease*, <https://doi.org/10.1094/PDIS-02-17-0259-PDN>. NAAS rating 9.19
9. Bashyal BM, Rawat K, Sharma S, Kulshreshtha D, Gopala Krishnan S, Singh AK, Dubey H, Solanke AU, Sharma TR and Aggarwal R (2017). Whole Genome Sequencing of *Fusariumfujikuroi* Provides Insight into the Role of Secretory Proteins and Cell Wall Degrading Enzymes in Causing Bakanae Disease of Rice. *Front. Plant Sci.* 8:2013. doi: 10.3389/fpls.2017.02013
10. Bashyal, B. M., Rawat, K., Singh, D., Gopala S. K., Singh, A. K., Singh, N. K and Aggarwal, R. (2017). Screening and identification of new sources of resistance to sheath blight in wild rice accessions. *Indian Journal of Genetics and Plant Breeding*, 77 (3): 341-347.
11. Bashyal, B.M., Kharayat, B.S., Kumar, J., Dubey, S.C. and Aggarwal, R. (2017). An improved method for rapid isolation and quantification of *Rhizoctoniasolanifrom* mungbeanrhizospheric soil. *Research Journal of Biotechnology* (Accepted). 159.
12. Bharti, P., Jyoti, P., Kapoor, P., Sharma, V., Shanmugam, V. andYadav, S.K. (2017). Host-induced silencing of pathogenicity genes enhances resistance to *Fusariumoxysporum* wilt in tomato. *Molecular Biotechnology*. 59(8): 343-352. (NAAS 2016: 7.88) Impact Factor 1.634.
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  35. Srinivasa, N., Deeba Kamil, Avinash Singode and Deekha Gupta. (2017).Molecular and Biochemical characterization of potential isolates of *Trichodermas* pecies effective against soil-borne pathogens. *Int. J. Curr. Microbiol. App. Sci.* 6(6): 3132-3149.
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  37. Yadav SK, Lal SS, Bag TK, Srivastava AK and Zodape ST. (2017). Evaluation of fertilizer potential of sea weed (*Kappaphycus* and *Gracilaria*) saps in potato crop in North Eastern Hill Region of India. *Journal of AgriSearch* 4 (3): 194-197.
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- intraspecific relationship. *Genetics and Molecular Biology*. DOI:<http://dx.sdoi.org/10.1590/1678-4685-GMB-2017-0171>.
2. Aggarwal, R., Sapna Sharma, Sangeeta Gupta, Sagar Banerjee, B M Bashyal, SC Bhardwaj (2018). Molecular characterization of predominant Indian wheat rust pathotypes using URP and RAPD markers. *Indian J of Biotechnology*. Vol 17: 327-336.
  3. Vignesh Kumar P, Sharma S , Rishi N, Baranwal V. K. (2018). Efficient immunodiagnosis of Citrus yellow mosaic virus using polyclonal antibodies with an expressed recombinant virion-associated protein. *3 Biotech* 8:39.
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### Financial Statement

#### Expenditure under CAFT during 2017-20

S.No.	Head of the Account	Expenditure 2016-17	Expenditure 2017-18	Expenditure 2018-19
1.	<b>Operating cost of Training</b>	3,03,056	13,09,348	5,12,223
2.	<b>TA/DA</b>	-	50,248	-
3.	<b>Recurring Contingency</b>	14,208	3,84,015	1,26,992
4.	<b>Books</b>	-	32,486	-
<b>Total</b>		<b>3,17,264</b>	<b>17,76,097</b>	<b>6,39,215</b>