

## CHIRANTAN CHATTOPADHYAY

Indian Council of Agricultural Research: Agricultural Research Service (ICAR: ARS) retired on 31 Oct 2024 as Principal Scientist at the Central Seed Research Station for Jute & Allied Fibres, ICAR: CRIJAF, Bud Bud 713403, India.

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**Education:** Post-doctoral (Research Attachment) Experience: Rothamsted Research, UK, 2004.  
Ph.D. Mycology and Plant Pathology, Indian Agricultural Research Institute, New Delhi, India, 1992.  
M.Sc. (Ag.) Plant Pathology, Bidhan Chandra Krishi Viswavidyalaya, Mohanpur, West Bengal, India, 1989.

### Appointments:

2022 – 2024: Principal Scientist at the Central Seed Research Station for Jute & Allied Fibres, ICAR: CRIJAF, Bud Bud 713403, India  
2021 – 2022: Principal Scientist & Joint Director Academic (Actg) at the ICAR-Indian Institute of Agricultural Biotechnology [- ISO 9001: 2015 certified], Ranchi 834003, India  
2016-21: **Vice Chancellor**, *Uttar Banga Krishi Viswavidyalaya*, Pundibari, Coochbehar -736165, West Bengal, India  
2012-16: **Director**, National Centre for Integrated Pest Management (ICAR) - ISO 9001: 2008 certified, New Delhi 110012, India  
2009-12: Head, Division of Crop Protection, ICAR Indian Institute of Pulses Research, Kanpur, UP  
2007-09: Principal Scientist (ICAR: ARS), Plant Pathology, Dte of Rapeseed-Mustard Res (ICAR), Bharatpur  
1999-2007: Senior Scientist (ICAR: ARS), Plant Pathology, Dte of Rapeseed-Mustard Research (ICAR), Bharatpur  
1997-99: Scientist (ICAR: ARS) – Senior Scale, Plant Pathology, Dte of Oilseeds Research (ICAR), Hyderabad  
1993-97: Scientist (ICAR: ARS), Plant Pathology, Directorate of Oilseeds Research (ICAR), Hyderabad  
1992-93: Scientist (ICAR: ARS), Plant Pathology, National Acad. Agril. Res. Management (ICAR), Hyderabad  
(i) Member Secretary (1999-2001), first Quinquennial Review Team (1993-99) on Rapeseed-Mustard of the Indian Council Agril Res.  
(ii) Member Secretary, Research Advisory Committee, National Res. Centre Rapeseed-Mustard, Bharatpur (2002, 2007-09) and Indian Institute Pulses Res., Kanpur (2009). (iii) Member Secretary, Institute Research Council (IRC), Indian Institute Pulses Res., Kanpur (2009-12). (iv) Member of Management Committee, Directorate Groundnut Res. (erstwhile National Research Centre on Groundnut), Junagadh (2008-11) and Directorate Rapeseed- Mustard Res. (erstwhile National Res. Centre Rapeseed-Mustard), Bharatpur (2009-12); (v) Chairman, Research Advisory Committee (2017-2020; 2020-2023) of Central Sericultural Research & Training Institute (Central Silk Board, Ministry of Textiles, Govt of India), Berhampore 742101 (WB); Member, RAC (2021-24), ICAR-VPKAS, Almora; Nominated from Oct 2013 **from India to Commission for Agricultural Meteorology (CAgM-16) as Expert Team Member** for focused area on **pest/ disease modeling** of the World Meteorological Organization; **Expert, Advisory Committee** (13 Nov 2018-continuing) of Australian government through the Australian Centre for International Agricultural Research (ACIAR); Chairman, Peer Review Team (PRT) of ICAR, for verifying and evaluating IEA and Self-Study Report, Sri Karan Narendra Agricultural University, Jobner (Raj.); Vice-Chairman, Expert Committee on Agriculture and Horticulture of DSTBT (Govt WB; 07 Jul 2023 onwards).

### Technologies / concepts developed:

**Patent** for Bioformulation of soil fungus *Aspergillus niger* strain AN27 to biofungicide-cum-biofertilizer *Kalisena* Seed Dressing formulation (2003) [Patent no.123/ 191420 of Indian Class and C 05C 009/00 of International Class, vide The Gazette of India no. 48 of 29 Nov-05 Dec 2003; part-III, section 2]

Fusarium wilt resistant genotypes in safflower (1993-99)

Involvement of nematode (*Rotylenchulus reniformis*) in wilt complex of castor

Seed treatment with *Trichoderma viride* in castor for managing wilt complex (*Fusarium oxysporum* f. sp. *ricini* + *Rotylenchulus reniformis*), safflower for managing Fusarium wilt (*F. oxysporum* f. sp. *carthami*) and sesame for managing stem-root rot (*Macrophomina phaseolina*), *T. harzianum* formulations to substitute fungicides for management of major diseases in oilseeds Brassicas (AB, WR, SR, PM, CR, etc.), that is included in the IPM package of the respective crops (1993-2008)

Seed treatment (and foliar application) of 2% (w/v) aqueous bulb extract of *Allium sativum* for management of Sclerotinia rot, Alternaria blight, club root and white rust diseases of mustard, Alternaria blight of sunflower, safflower (1995-2007); Input management research in integrated pest management (IPM)

Forecasting of diseases (Alternaria blight, white rust) and aphid of rapeseed-mustard in major cropping areas of India (1999-2019) – please ref. online ([www.dmr.res.in/aphidforecast/index.php](http://www.dmr.res.in/aphidforecast/index.php)) software; forecasting system for diseases, insect-pests of rice (2012-16), pod fly of pigeonpea (2009-12, sucking pests of cotton (2012-15)

Identification of lines of *Brassica juncea* resistant to mixture of isolates of *Albugo candida* (2004), Indian mustard high yielding variety NRCR-02 for Zone II (Rajasthan, Punjab, Haryana, Delhi, Jammu, UP) tolerant to Alternaria blight, Sclerotinia rot diseases (2000-06); Indian mustard variety NRCHB 101 (2000-08), first Indian mustard hybrid NRCHB 506 (2004-08)

Integrated Pest Management technology package for Indian mustard (ICAR-CS-NCIPM-Technology-2024-032), rice (ICAR-CS-NCIPM-Technology-2024-069), chickpea (ICAR-CS-NCIPM-Technology-2024-069)

Technology: green nano-copper and copper silver nanocomposite formulation for controlling important fungal and bacterial pathogens in rice (*Oryza sativa*) and chickpea (*Cicer arietinum* L.) at ICAR IIBAB, Ranchi (ICAR-CS-NCIPM-Technology-2024-069)

## Grants:

**Principal Investigator (PI):** Plant Pathology programme, ICAR All India Coordinated Research Project on Rapeseed-Mustard (AICRP-RM), 2003-09, ICAR-funded, Indian Rupees 170 million for X Plan, 260 million for XI Plan; centres: 17 AICRP-RM centres.

**PI:** Functional Genomics of *Alternaria* blight of mustard under ICAR National Network on Transgenics in Crops, 2005-09, ICAR, 3.67 million Indian Rupees.

**Nodal Officer,** Experimental Agro-Advisory Services, 2005-09, funded by NCMRWF (MoES/ Govt. of India), 1,00,000 Indian Rupees per year.

**PI (Mustard):** Global Change Research on Climate and Crop Disease Risk Management: An International Initiative in the Asia-Pacific Region, 2005-08, Asia-Pacific Network Programme, US\$ 44600 (2.0 million Indian Rupees), involving Australia (UWS), USA, Cambodia, Bangladesh, WMO.

**PI (Mustard):** National Network on Management of *Alternaria* blight in *Brassica juncea* and vegetable crops, 2004-08, ICAR AP-Cess Fund Scheme, Indian Rupees 13 million (centres: NRCRM Bharatpur, GBPUAT Pantnagar, CCSHAU Hisar, PAU Ludhiana, RAU Dholi, IIHR Bangalore, IIVR Varanasi, IARI New Delhi).

**PI:** Development of weather-based forewarning systems for crop pests and diseases – Program 6: Mustard, 2001-04, National Agricultural Technology Project funding from World Bank, Indian Rupees 5.7 million (centres: NRCRM Bharatpur, BCKV Mohanpur, IARI New Delhi).

**PI:** Development of improved biocontrol agent for castor wilt management, 1998-99, Institute of Public Enterprises under the AP-Netherlands Biotechnology Programme, Indian Rupees 2.43 million.

**Co-PI:** Effect of climate change on pest and diseases of major food crops (mustard, groundnut, pigeonpea) – budget Rs 13.5 million (2011-12).

**Co-PI:** ACIAR-funded Indo-Australia-China Collaborative Project on Oilseed *Brassica* Improvement – July 2004 – June 2009 (for work on Sclerotinia rot: worth 125700 Australian \$).

**Co-PI:** DFID-funded Indo-UK Collaborative Project on Oilseed Brassica – Phase II – Dec 2002 – Jul 2007 (for work on white rust: worth Indian Rupees 6.8 million).

**Publications:** One patent; Peer reviewed Full paper: 96 (Foreign journal: 28; Indian journal: 68); Short communications: 12; Books: 13; Review chapters: 35 [Citations: 2716 (1321 since 2019); h-index: 31 (19 since 2019); i10-index: 71 (44 since 2019)]

## Selected Publications:

1. Roy Chowdhury, A.; ....; **Chattopadhyay, C.**; ..... 2024. Inhibitory role of copper and silver nanocomposite on important bacterial and fungal pathogens in rice (*Oryza sativa*). *Scientific Reports* 14:1779, doi.org/10.1038/s41598-023-49918-0.
2. Chatterjee, S.; ....and **Chattopadhyay, C.** 2021. Input-based assessment on integrated pest management for transplanted rice (*Oryza sativa*) in India. *Crop Protection* 141: doi.org/10.1016/j.cropro.2020.105444.
3. Gathala, M.; Laing, A.M.; .....; **Chattopadhyay, C.**; .... Gerard, B. 2020. Enabling smallholder farmers to sustainably improve their food, energy and water nexus while achieving environmental and economic benefits. *Renewable and Sustainable Energy Reviews* 120: doi.org/10.1016/j.rser.2019.109645
4. Yadav, M.S.; ... and **Chattopadhyay, C.** 2019. Prioritizing components of package of integrated pest management in Indian mustard (*Brassica juncea*) in India for better economic benefit. *Crop Protection* 120: 21-29. 10.1016/j.cropro.2019.02.008
5. Kumar, A.; Sharma, R.; ... and **Chattopadhyay, C.** 2018. Possible future climate for rice growing regions in India: visualising 2050 and pest-related impact thereof. *The Indian Journal of Agricultural Sciences* 88: 197-211.
6. Rana, V.; Patel, N.R.; **Chattopadhyay, C.** and Kumar, A. 2017. Development of forewarning model for brown plant hopper in rice using satellite and meteorological data. *J. Agrometeorology* 19: 192-195.
7. Kumar, A.; Bhattacharya, B.K.; Kumar, V.; Jain, A.K.; Mishra, A.K. and **Chattopadhyay, C.** 2016. Epidemiology and forecasting of insect-pests and diseases for value-added agro-advisory. *Mausam* 67: 267-276.
8. Saravanan, P.; Divya, S.; Venkatesan, P.; Tanwar, R.K.; Birah, A.; **Chattopadhyay, C.**; Jeyakumar, P.; Barik, A. 2015. Trend analysis of pests and diseases complex in *Bt cotton*. *J. Crop Prot.* 4 (4): 431-439.
9. Kumar, A.; **Chattopadhyay, C.**; Singh, K.N.; Vennila, S. and Rao, V.U.M. 2014. Trend analysis of climatic variables in pigeonpea growing regions in India. *Mausam* 65: 161-170.
10. Fondevilla, S.; **Chattopadhyay, C.**; Khare, N. and Rubiales, D. 2013. *Erysiphe* is able to overcome *er1* and *Er3*, but not *er2*, resistance genes in pea. *European Journal of Plant Pathology* 135: 557-563.
11. Meena, P.D.; ...**Chattopadhyay, C.** 2013. Non-chemical agents provide tenable, eco-friendly alternatives for the management of the major diseases .....Indian mustard (*Brassica juncea*) in India. *Crop Protection* 53: 169-174.
12. Bhattacharya, B.K. and **Chattopadhyay, C.** 2013. A multi-stage tracking for mustard rot disease combining surface meteorology and satellite remote sensing. *Computers and Electronics in Agriculture* 90: 35-44.
13. Kumar, V.; ..... and **Chattopadhyay, C.** 2012. Design and implementation of web-based aphid (*Lipaphis erysimi*) forecast system for oilseed Brassicas. *The Indian Journal of Agricultural Sciences* 82: 608-614.
14. Sarika; Iquebal, MA and **Chattopadhyay, C.** 2011. Modelling and forecasting of pigeonpea (*Cajanus cajan*) ...using Autoregressive Integrated Moving Average methodology. *Indian Journal of Agricultural Sciences* 81: 520-523.
15. Matis, J.M....and **Chattopadhyay, C.** 2008. Generalised aphid population growth models with immigration and cumulative-size dependent dynamics. *Mathematical Biosciences* 215: 137-143.
16. Dutta, S.... **Chattopadhyay, C.**; et al. 2008. Modelling regional level spatial distribution of aphid (*Lipaphis erysimi*) growth in Indian mustard using satellite-based remote sensing data. *International Journal of Pest Management* 54: 51-62.
17. Bhattacharya, B.K.....**Chattopadhyay, C.**; Agrawal, R.; et al. 2007. Predicting aphid (*Lipaphis erysimi*) growth in oilseed Brassica using near surface meteorological data from NOAA TOVS – a case study. *International Journal of Remote Sensing* 28: 3759-3773.

18. Li, C.X.; ... **Chattopadhyay, C.**; et al. 2007. The importance of the type and time of inoculation and assessment in the determination of resistance in *Brassica napus* and *B. juncea* to *Sclerotinia sclerotiorum*. *Australian J. Agricultural Res.* 58: 1198-1203.
19. Li, C.X.; .....**Chattopadhyay, C.**; et al. 2007. Expression and relationships of resistance to white rust (*Albugo candida*) at cotyledonary, seedling and flowering stages in *Brassica juncea* germplasm from Australia, China and India. *Australian Journal of Agricultural Research* 58: 259-264.
20. **Chattopadhyay, C.** et al. 2005. Forecasting of *Lipaphis erysimi* on oilseed Brassicas in India – a case study. *Crop Protection* 24: 1042-1053.
21. **Chattopadhyay, C.** et al. 2005. Epidemiology and forecasting of Alternaria blight of oilseed Brassica in India – a case study. *Zeitschrift für Pflanzenkrankheiten und Pflanzenschutz (Journal of Plant Diseases and Protection)* 112: 351-365.
22. Desai, A.G.; **Chattopadhyay, C.**; et al. 2004. *Brassica juncea* powdery mildew epidemiology and weather based forecasting models for India – a case study. *Zeitschrift für Pflanzenkrankheiten und Pflanzenschutz (Journal of Plant Diseases and Protection)* 111: 429-438.
23. Roy, S..... **Chattopadhyay, C.** et al. 2005. Thermal requirement of oilseed Brassica cultivars at different phenological stages under varying environmental conditions. *Indian Journal of Agricultural Sciences* 75: 717-721.
24. Meena, P.D.; ..**Chattopadhyay, C.** et al. 2004. Identification of critical stage for disease development and biocontrol of Alternaria blight of Indian mustard (*Brassica juncea*). *Journal of Phytopathology* 152: 204-209.
25. Kalpana Sastry, R. and **Chattopadhyay, C.** 2003. Development of fusarium wilt-resistant genotypes in safflower (*Carthamus tinctorius*). *European Journal of Plant Pathology* 109: 147-151.
26. Meena, R.L.; Meena, P.D. and **Chattopadhyay, C.** 2003. Potential for biocontrol of white rust of Indian mustard (*Brassica juncea*). *Indian Journal of Plant Protection* 31: 120-123.
27. **Chattopadhyay, C.** and Varaprasad, K.S. 2001. Potential of bioagents in castor wilt management. *Indian Journal of Plant Protection* 29: 1-7.
28. **Chattopadhyay, C.** 1999. Yield loss attributable to Alternaria blight of sunflower (*Helianthus annuus* L.) in India and some potentially effective control measures. *International Journal of Pest Management* 45: 15-21.
29. Kalpana Sastry, R. and **Chattopadhyay, C.** 1999. Effect of soil solarization on *Fusarium oxysporum* f. sp. *carthami* population in endemic soils. *Indian Phytopathology* 52: 51-55.
30. **Chattopadhyay, C.** and Bineeta Sen. 1996. Integrated management of Fusarium wilt of muskmelon (*Cucumis melo* L.) caused by *Fusarium oxysporum* Schlecht. *Indian Journal of Mycology and Plant Pathology* 26: 162-170.

## Honours:

**Fellow, National Academy of Agricultural Sciences – India**

**Fellow, National Academy of Biological Sciences – India**

**ICAR Award: NCIPM received the Award for Best Annual Report for 2015-16 under small institute category**

**ICAR Award: Rajashri Tandon Rajbhasha Puraskar, First Prize** for small institute category of 2014-15 to ICAR: NCIPM for usage of Hindi as official language in “k” and “kha” regions.

**Prof. B.B. Mundkur Memorial Award Lecture** of Indian Phytopathological Society, 25-27 Mar 2021

**Dodla Raghava Reddy Memorial Gold Medal** from Plant Protection Association of India for outstanding contributions in plant protection in 2016.

**ICAR: NCIPM ISO 9001: 2008 certified since March 2014, having sustained its audit in 2015, 2016.**

Conferred **DD Kisan Samman 2016** by Prasar Bharati

**Prof. S.B. Chattopadhyay Memorial Lecture**, Indian Mycological Society, 2014

**Prof V.P. Bhide Memorial Award Lecture, 2010** and **Dr R. Prasada Memorial Award Lecture 2019** of the Indian Society of Mycology and Plant Pathology.

**Shri PP Singhal Memorial Award, 2012-13** (Soc. Plant Protection Sciences)

Nomination to Commission for Agricultural Meteorology (CAGM-16) as **expert for pest/ disease modelling of the WMO**

**Bioved Agri-Innovation Award – 2015** (Bioved Research Institute of Agriculture & Technology)

**ICAR Award** for Uttar Banga Krishi Viswavidyalaya for its students securing highest number of ICAR-AIEEA PG

Scholarships in Engineering and Technology in 2018; **ICAR Pandit Deen Dayal Upadhyay Rashtriya Krishi Vigyan Protsahan Puraskar 2016-17** to *Krishi Vigyan Kendra*, Uttar Dinajpur and Award for Best *Krishi Vigyan Kendra* for Zone V under ICAR Project National Initiative on Climate Resilient Agriculture to *Krishi Vigyan Kendra*, Coochbehar for 2019, both *Krishi Vigyan Kendras* being under the *Uttar Banga Krishi Viswavidyalaya*.

**Fellow of Indian Mycological Society (FIMS).**

**Fellow of Indian Society of Oilseeds Research (FISOR).**

**Fellow of Society of Rapeseed-Mustard Research (FSRMR).**

Bioved Honorary Fellowship Award 2018 by the Bioved Research Institute for Agriculture, Technology & Sciences

**President** of Society of Plant Protection Sciences (2017-continuing); **Vice-President** of Plant Protection

Association of India (2010-12), Society of Plant Protection Sciences (2014-16); **Returning Officer** for Election of office bearers of the Indian Society of Pulses Research and Dev. for 2010-12.

**Fellow** of Indian Society of Mycology and Plant Pathology (FISMPP).

**Convenor** of Technical Session (9) on Epidemiology and Disease Assessment, 2<sup>nd</sup> Asian Congress of Mycology and Plant Pathology, 19-22 Dec 2007, organized by the Indian Soc. Mycol. Pl. Pathol. & Osmania University, Hyderabad.

**Hexamar Agricultural Research and Development Foundation (HARDF) Award for Outstanding Research in Integrated Disease Management** for 2005 by the Indian Society of Oilseeds Research, Rajendranagar, Hyderabad. **Best Paper Award for two papers** [Second Global Conference on Plant Health – Global Wealth organised by the Indian Soc. Mycol. Pl. Pathol., MPUAT, Udaipur, 25-29 Nov 2005].

Vividhlaxi Audyogik Samshodhan Vikas Kendra (**VASVIK**) **award 2004** for contribution by way of research in **Agricultural Sciences & Technology** by VASVIK apex committee (Patel Extrusion Group, Mumbai).

**Councillor** of Plant Protection Association of India (2002-04).



**Fellow** of Indian Phytopathological Society (FPSI).

**Fellow** of Plant Protection Association of India (FPPAI).

**Pesticides India Award** of the Society of Mycology and Plant Pathology jointly with Dr Bineeta Sen (Indian Agril Research Institute, New Delhi) for the paper entitled “Integrated management of Fusarium wilt of muskmelon (*Cucumis melo* L.) caused by *Fusarium oxysporum* Schlecht.”.

Indian Phytopathological Society (IPS) **Best Poster Medal** jointly with Dr R. Kalpana Sastry (Scientist, Dte Oilseeds Res., Hyderabad) at the 48th Annual Meeting of the IPS, Punjab Agril Univ., Ludhiana during 14-16 Feb 1996 for the paper entitled “Effect of soil solarisation on *Fusarium oxysporum* f. sp. *carthami* population in endemic soils”.

**IARI Senior Fellowship** for Ph.D. in Mycology & Plant Pathology at the Indian Agril Research Institute, New Delhi.

**Certificate of Merit** for ranking first with the highest OGPA during the 2-year M.Sc. (Ag.) course in Plant Pathology at the Bidhan Chandra Krishi Viswavidyalaya, Mohanpur 741252 (WB).

**Junior Fellowship of the Indian Council of Agricultural Research** for 2-year M.Sc. (Ag.) course in Plant Pathology at Bidhan Chandra Krishi Viswavidyalaya, Mohanpur 741252 (WB).

**University Merit Scholarship** during 4-year B.Sc. (Ag.) Honours course at Bidhan Ch. Krishi Viswavidyalaya, Mohanpur (WB).

### Professional Activities:

- **Chief Editor of *Journal of Oilseed Brassica*** (2009-12), **Member of Editorial Board of the Indian Journal of Agricultural Sciences (2018- continuing), *Journal of Mycopathological Research*, *Journal of Mycology and Plant Pathology*, *Indian Journal of Plant Protection*, *The Journal of Plant Protection Sciences* and *Sarson News*; **Co-Chairman** of General **Publication Core Committee** of *Indian Phytopathol. Soc.*, **Referee** for *Crop Protection* (Elsevier Publ.), *BioControl* (Kluwer Acad. Publ.), *Crop Pasture Science* (*Australian Journal of Agricultural Research*), *Journal of Plant Interactions*, *Journal of the Science of Food and Agriculture*, *Indian Phytopathology*, *Indian Journal of Agricultural Sciences*, *Natural Product Radiance*, *Journal of Oilseeds Res.*, etc.**
- Attended training programme on Leadership for the 21st Century: Chaos, Conflict and Courage during 02-07 Feb 2014 at Harvard University John F. Kennedy School of Government (Executive Education), Cambridge, MA, USA
- Academician.....published the following: (a) **Chattopadhyay, C.** 2020. Plant Pathology and the New Education Policy: a few thoughts. *Journal of Mycopathological Research* 58(3): i-iii (editorial); **Chattopadhyay, C.** 2021. Plant pathology in the era of new education policy: challenges and opportunities. *Indian Phytopathology* 74: doi.org/10.1007/s42360-021-00406-3 (in press).
- Attended Workshop on Climate and Agricultural Risk Management, Phnom Penh, Cambodia, 15-22 Nov 2009
- Mentored five Ph.D. and nine M.Sc. graduate programmes.
- Served on a panel of judges in professional competitions and chaired sessions in professional meets.
- Attended Review and Planning Workshop on Climate and Crop Disease Risk Management: an International initiative in the Asia-Pacific Region, Dhaka (Bangladesh), 11-13 Feb 2008.
- Attended 16<sup>th</sup> Biennial Australasian Plant Pathology Society Conference on Back to Basics: Managing Plant Diseases, Adelaide, 24-27 Sep 2007 (including Workshop on Scientific Writing, 24 Sep 2007)
- Attended 15<sup>th</sup> Australian Research Assembly on Brassicas, Geraldton (Western Australia), Australia, 10-14 Sep 2007. Worked as Visiting Scientist for five months at Rothamsted Research, Harpenden, Hertfordshire, UK under the Indo-UK Collaborative Project on Oilseeds Brassicas (on deputation from ICAR), 15 Apr-15 Sep 2004
- Attended a Course on Technical Writing organized by the Biotechnology and Biological Sciences Research Council (BBSRC) at Rothamsted Research, Harpenden, Hertfordshire, UK, 21-22 June 2004.
- Attended the International training on Crop-Disease-Weather Relationship and Forewarning System, Institute of Arable Crops Research, Rothamsted, Harpenden, Hertfordshire, UK, 20-31 May 2002.
- Course Co-ordinator of the training programme on IPM in Sunflower organized by the Directorate of Oilseeds Research, Hyderabad for participants from private firms at the Directorate during 22-25 Jan 1997.
- Program Co-ordinator, International Training Program on Sesame Pathology for Kenyan Scientist organised with sponsorship of the Government of Kenya at Directorate of Oilseeds Research, Hyderabad, 18 Sep-18 Nov 1996. Organized ICAR-sponsored Winter School on Advances in Rapeseed-Mustard Research Technology for Sustainable Production of Oilseeds, for 25 participants (State Agricultural Universities, Research Institutes of 13 states of India), 15 Dec 2004 – 04 Jan 2005
- Coordinator, Training Programme for Plant Pathologists under AICRP Chickpea, IIPR, Kanpur, 15-22 Feb 2010.
- Ten one/ three / four/ 21 – day training programmes have been organised by the NCIPM during Sep 2013 – August 2015 at Jharnapani (Nagaland), Umiam (Meghalaya), Agartala (Tripura), Sitapur (UP), Bengaluru, Puducherry, Kanpur, Modipuram, Jaipur, Jabalpur, Kalyani, Ludhiana, Hyderabad and New Delhi (including one 21-day Winter School on Recent Advances in IPM, one ten-day Short Course on Recent Advances in Mass Production of Biological Control Agents). Accordingly, during Sep 2013 – Jan 2016, **completed training on Integrated Pest Management (IPM) in important crops of different states to 476 personnel of Krishi Vigyan Kendras** (out of 643 existing KVKs) of all eight zones / Agricultural Technology Application Research Institutes (ATARIs) of the country.

### Member of Professional Societies:

Life Member, Indian Phytopathological Society, Plant Protection Association of India, Indian Society of Mycology and Plant Pathology (formerly Society of Mycology and Plant Pathology) Life Member, Indian Society of Oilseeds Research, Indian Mycological Society, Indian Science Congress Association, National Academy of Biological Sciences, Indian Society of Pulses Research and Development, Society of Plant Protection Sciences

Founder Life Member, Society of Rapeseed-Mustard Research, Boshi Sen Society for Sustainable Mountain Agriculture

**Countries visited:** UK, USA, Australia, Bangladesh, Cambodia, Malawi, Brazil, Nepal

- ICAR Sponsored **Executive Development Programme on Leadership Development** during 25-29 Jun 2013 at ICAR NAARM, Hyderabad.
- **Leadership for the 21<sup>st</sup> Century: Chaos, Conflict and Courage** during 02-07 Feb 2014 at **Harvard University John F. Kennedy School of Government** (Executive Education), **Cambridge, MA, USA.**

**Chattopadhyay, C.; Tanwar, R.K.; Birah, A.; Bhagat, S.; Sehgal, M.; Ahmad, N.; Mehta, N. 2018. *Handbook of Integrated Pest Management*. Indian Council of Agricultural Research, ix + 768 p. ISBN: 978-81-7164-179-6.**

भगत, सोमेश्वर; बिराह, अजंता और चट्टोपाध्याय, चिरंतन. 2024. *समेकित नाशीजीव प्रबंधन के लिए रणनीति : कम जहर अधिक लाभ*. NIPA Genx Electronic Resources & Solutions Pvt Ltd., New Delhi-110034, India, xx + 767 + xxv p. ISBN: 978-81-19103-10-2.