**Dr. P.D. Meena**
Principal Scientist
(Plant Pathology)
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| 1. | Date of birth | : | 08-07-1964 |
| 2. | Education Qualification | : | Ph.D. (Botany), University of Rajasthan, Jaipur (2005); M. Sc. Ag. (Plant Pathology), RAU, Bikaner (1997); B. Sc. (Ag.), University of Rajasthan (1987) |
| 3. | Joining Date in ICAR | : | 15-03-1989 |
| 4. | Joining Date in DRMR | : | 16-11-1998 |
| 5. | Discipline/Specialization | : | Plant Pathology |
| 6. | Research Experience | : | 20 years |
| 7. | Training/advance exposure in the area of work | : | **Foundation Course on Agricultural Research and Project Management** (FOCARS) at the National Academy of Agricultural Research Management, Hyderabad during 01 June 1999 to 30 September 1999. Participated in the short course on **"Application of Epidemiological Principles in Plant Disease Control"** at Department of Plant Pathology, CCHAU, Hisar during Dec 11-20, 2000.Participated in the refresher course summer school on **"Forecasting techniques in Agriculture"** at Indian Agricultural Statistics Research Institute, New Delhi during 09-29 July 2003. Participated in the refresher course training programme on **"Plant Disease Management on Small Farms"** at CAS in Plant Pathology, GBPUA&T, Pantnagar during 03-23 Jan 2008. Undertaken three months research attachment training during April 06, 2007 - July 06, 2007 at **Rothamsted Research, Harpenden, UK** |

8. **Contribution to the Scientific advancement**

- Developed eco-friendly technology for the management of Sclerotinia rot, Alternaria blight, white rust, powdery mildew and club root pathogens in rapeseed-mustard by using garlic bulb aqueous extract (2 % w/v)
- Involved in the development white rust resistant lines including **NRCDR-515** (IC 555891)**, DRMR-2019** (IC0598622) INGR17077 **and DRMR-2035** (IC0598623) INGR17078 and Alternaria tolerant lines including **DRMR 2805** and **DRMR 2807** of Indian mustard.
- Helped in development and license high yielding *B. juncea* variety **NRCDR-02** (MDOC 43 X NBPGR 36) **Notification No. 122 (E)/ 06.02.07** (average yield 2213kg/ha) for cultivation under timely sown irrigated conditions of zone II in Rajasthan, Haryana, Punjab, **NRCHB-101**(BL 4 X Pusa Bold) for cultivation under late sown irrigated conditions in zone III, t**he first hybrid in India NRCHB-506** (MJA 05 X MJR 1) with an average yield 2239 (kg/ha) for timely sown irrigated conditions in zone III [notified vide S.0. 454(E) 11/ 02/2009], **NRCDR-601 (**NBPGR 272 X RK 9903**)** (average yield 2317 kg/ha) for timely sown irrigated conditions in zone II in Rajasthan, Haryana, and Punjab of an **Indian mustard (*Brassica juncea*) varieties.** Associated in the development and licensing of **Yellow sarson (*Brassica rapa* spp yellow sarson) variety NRCYS-05-02** (average yield 1439 kg/ha) for cultivation in all yellow sarson cultivating areas.

- Collected about 800 *Alternaria brassicae* isolates infecting rapeseed-mustard in India, purified, characterized and developed National Repository of 22 isolates and deposited with passport data at NBAIM, Mau (NAIMCC-F-02599-02620) and 30 *Sclerotinia sclerotiorum* isolates.
- Developed methodology for long term maintenance of *Alternaria brassicae* cultures using host extract media, and a new technique for screening of germplasm alongwith a new rating scale for Alternaria blight disease at cotyledonary stage (2016).
- Developed location specific weather based forecasting models for rapeseed-mustard diseases and image based user friendly software for risk analysis, decision support, disease identification and their management strategies in rapeseed-mustard.
- First report of Rhizoctonia leaf spot of groundnut caused by ***Rhizoctonia solani*** Kuhn during 1999, identified the Bacterial rot caused by ***Erwinia carotovora cv. carotovora*** (Jones) Bergy emerged as a new threat for rapeseed-mustard production system in India during 2010, ***Alternaria citri*** Ellis & Pears causing yellow leaf spot of rapeseed-mustard was reported first in India during 2012, first report of ***Nigrospora oryzae*** (Berk. & Broome) Petch causing stem blight disease of ***Brassica juncea*** become threat to rapeseed-mustard during 2013.
- Developed screening techniques for Alternaria blight at cotyledonary inoculation and stem inoculation technique for Sclerotinia rot during 2016.

9. **Current Research Projects & Future planning of research**

**Externally funded project:**

- ✓ Technology assessment and refinement of oilseed based production system through institute village linkage programme under rainfed agro ecosystem in flood prone eastern plain zone of Rajasthan
- ✓ National Network for Management of Alternaria blight in *Brassica juncea* and Vegetable Crops worth Rs. 168.138/= lakh for three years w.e.f. 01 April 2004 to 31 March 2007.
- ✓ Indo-UK Collaborative Project on Oilseed Brassica crops
- ✓ ICAR - Network Project on Transgenics in Crops (Functional Genomics component for Alternaria and Drought
- ✓ ICAR- Outreach Programme on Diagnosis and management of Leaf Spot Diseases in field and Horticultural Crops worth Rs. 33.10 lakh for three years w.e.f. 12 June 2009.
- ✓ Induced mutagenesis for isolation of Alternaria blight resistant mutant in *Brassica juncea* approved by Board of Research in Nuclear Sciences (BRNS), Department of Atomic Energy (DAE), Govt of India worth Rs. 2452300/= for three years w.e.f. 1 April 2015.

**Institute Project**

- PI of Management of Alternaria blight disease in Rapeseed-Mustard crops
- Co-PI of Management of Sclerotinia rot of Rapeseed-Mustard crops
- Co-PI of Genetic enhancement of Indian mustard by characterizing and introgression the novel traits
- Co-PI of Development of application softwares for rapeseed-mustard information management
- PI of Development of simple technique for germination of oospore in *Albugo candida*
- PI of Management of Collar rot (caused by *Sclerotium rolfsii*) in rapeseed-mustard crops
- PI of All India Co-ordinated Research Project-Rapeseed-Mustard

10. **Awards/ Recognitions**
- ✓ Dr. P.R. Kumar Outstanding Brassica Scientist Award (2011) by Society for Rapeseed-Mustard Research
- ✓ Fellowship (FISMPP) by Indian Society of Mycology & Plant Pathology (2012)
- ✓ Fellowship (FPPAI) by Plant Protection Association of India (2012)

- ✓ DRMR Best Scientist Award (2013) Directorate of Rapeseed-Mustard Research
- ✓ Fellowship (FISOR) Indian Society of Oilseeds Research (2015)
- ✓ Fellowship (FSRMR) Society for Rapeseed-Mustard Research (2017)

11. **Publication (Research Paper best 20)**

1. **Meena, P.D.**, R.B. Gour, J.C. Gupta, H.K. Singh, R.P. Awasthi, R.S. Netam, S. Godika, P.S. Sandhu, R. Prasad, A.S. Rathi, D. Rai, L. Thomas, G.A. Patel and C. Chattopadhyay. (2013). Non-chemical agents provide tenable, eco-friendly alternatives for the management of the major diseases devastating Indian mustard (*Brassica juncea*) in India. *Crop Protection* 53: 169-174.
2. **Meena P.D.,** S.J. Jambhulkar, Riteka Gupta, H.S. Meena and Dhiraj Singh**. (**2016). Rapid screening technique for Alternaria blight resistance in Indian mustard (*Brassica juncea* L.) using cotyledonary leaf method. *Journal of Plant Pathology* 98 (3): 463-469.
3. **Meena, P.D.,** R.L. Meena, C. Chattopadhyay and A. Kumar. (2004). Identification of critical stage for disease development and bio-control of Alternaria blight of Indian mustard *(Brassica junce*a). *Journal of Phytopathology* 152: 204-209.
4. **Meena, P.D.**, Riteka Gupta, H.S. Meena, Pankaj Sharma and S. Jambhulkar. (2017). Pathogenic variability within Indian *Alternaria brassicae* isolates using seed, cotyledon and leaf of *Brassica* species. *Journal of Phytopathology* 165 (4): 238-248.
5. **Meena, P.D.**, C. Chattopadhyay, A. Kumar, R.P. Awasthi, R. Singh, S. Kaur, L. Thomas, P. Goyal and R. Chand. (2011). Comparative study on the effect of chemicals on Alternaria blight in Indian mustard – A multi-location study in India. *Journal of Environmental Biology* 32: 375-379.
6. **Meena, P.D.**, R.P. Awasthi, S. Godika, J.C. Gupta, Ashok Kumar, P.S. Sandhu, P. Sharma, P.K. Rai, Y.P. Singh, A.S. Rathi, R. Prasad, D. Rai and S.J. Kolte. (2011). Eco-friendly approaches managing major diseases of Indian mustard. *World Applied Sci. J.* 12: 1192-1195.
7. **Meena, P.D.**, R.L. Meena and C. Chattopadhyay. (2008). Eco-friendly options for management of Alternaria blight in Indian mustard *(Brassica juncea*). *Indian Phytopathology* 62: 65-69.
8. **Meena, P.D.**, P. Goyal and P. Sharma. (2011). Pathogenic variability among *Alternaria brassicae* population infecting oilseed Brassicas in India. *Indian Journal of Plant Protection* 39: 212-214.
9. **Meena, P.D.**, A.K. Sharma, S.K. Jha and C. Chattopadhyay.(2006). Impact of fungal diseases on mustard yield- farmers' perception and garlic clove extract in management of Sclerotinia rot. *Indian Journal of Plant Protection* 34: 229-232.
10. **Meena, P.D.**, C. Chattopadhyay, P.S. Meena, P. Goyal, and Vijay R. Kumar. (2014). Shelf life and efficacy of talc-based bio-formulations of *Trichoderma harzianum* isolates in management of *Sclerotinia* rot of Indian mustard (*Brassica juncea*). *Annals of Plant Protection Sciences* 22 (1): 127-135.
11. **Meena, P.D.**, Riteka Gupta, Pankaj Sharma, Asha Rani, AK Jha, HS Meena, Manju Bala, Dhiraj Singh and P Chowdappa. (2016). Variability and growth response among *Alternaria brassicae* isolates causing black spot disease in oilseed Brassica. *Journal of Oilseed Brassica* 7 (2): 126-138.
12. **Meena, P.D.**, Riteka Gupta, Asha Rani, Pankaj Sharma and Dhiraj Singh. (2016). Effect of summer temperatures on survival of *Alternaria brassicae* in infected Indian mustard debris and thermal death point variations amongst geographical isolates. *J. Oilseed Brassica* 7 (1): 45-51.
13. **Meena, P.D.**, K. Mondal, S.K. Jha, C. Chattopadhyay and A. Kumar. (2010). Bacterial rot: a new threat for rapeseed-mustard production system in India. *J. Oilseed Brassica* 1: 39-41.
14. **Meena, P.D.** and P. Sharma. (2012). Methodology for production and germination of oospores of *Albugo candida* infecting Oilseed *Brassica. Vegetos* 25: 115-119.

15. **Meena, P.D.,** P.R. Verma, G.S. Saharan, and M. Hossein Borhan. (2014). Historical perspectives of white rust caused by *Albugo candida* in Oilseed Brassica. *J. Oilseed Brassica,* 5 (Special): 1-41.
16. **Meena, P.D.**, Lijo Thomas and Dhiraj Singh. (2014). Assessment of yield losses in *Brassica juncea* due to downy mildew (*Hyaloperonospora brassicae*). *J. Oilseed Brassica,* 5 (1): 73-77.
17. Praval Pratap, **P.D. Meena**, B.K. Singh H.S. Meena, S.S. Meena, P. Sharma, Rita Majumdar and Dhiraj Singh. (2014). Development and evaluation of Alternaria blight tolerant lines in Indian mustard (*Brassica juncea*). *J. Oilseed Brassica* 5 (2): 141-148.
18. **Meena, P.D.**, Manju Bala, P. Sharma, and Dhiraj Singh. (2014). Interaction and tolerance to *Alternaria brassicae* in Indian mustard (*Brassica juncea*) genotypes. *J. Oilseeds Res*. 31: 136-139.
19. Pravel Pratap, A.K. Thakur, **P.D. Meena**, H.S. Meena, P. Sharma, D. Singh and Rita Majumdar. (2015). Genetic diversity assessment in Indian mustard (*Brassica juncea* L.) for Alternaria blight tolerance using SSR markers. *J. Oilseed Brassica* 6 (1): 175-182.
20. Gohar Taj, **PD Meena**, Priyanka Giri, Dinesh Pandey, Arvind Kumar and Anil Kumar. (2015). Pathogenesis mechanisms employed by *Alternaria* species. *J. Oilseed Brassica* 6 (2): 213-240.

**Books**

1. **Meena P.D.**, Vijay R. Kumar, C. Chattopadhyay. (2012). ***Epidemiology and Biocontrol of Alternaria blight in Oilseed Brassica***. Lambert Academic Publishing, Germany, pp 141. ISBN 978-3-8465-5242-1.
2. Dar Z.A., **P.D. Meena** and Ashwani Kumar. (2012). ***Principals of Plant Breeding***. Pointer Publications, Jaipur, pp 257. ISBN 978-81-7132-725-6.
3. Saharan G.S., P.R. Verma, **P.D. Meena** and Arvind Kumar. (2014). ***White rust of crucifers: Biology, Ecology and Management***. Springer Verlag, Frankfurt, Germany, pp. 244, ISBN 978-81-322-1791-6.
4. Arvind Kumar, S.S. Banga, **P.D. Meena** and P.R. Kumar. (2015). ***Brassica Oilseeds Breeding and Management***. CABI International, UK, 280pp, ISBN-13: 978 1 78064 483 7.
5. Saharan G.S., Naresh Mehta and **P.D. Meena**. (2016). **Alternaria blight of crucifers: Biology, Ecology and Management**. Springer Verlag, Singapore, pp. 326, ISBN 978-981-10-0019-5.
6. Kumar P. Suresh, Manish Kanwat, Rajesh A. Alone, **P. D. Meena** and Vinod Kumar. (2017). **Climate Change and Sustainable Agriculture**. Daya Publications, New Delhi, pp. 364, ISBN978-93-85516-72-6.
7. Saharan, Govind Singh, Naresh Mehta, Prabhu Dayal Meena. (2018). **Downy Mildew Disease of Crucifers: Biology, Ecology and Disease Management.** Springer Verlag, Singapore, LVI, 357, ISBN 978-981-10-7499-8.

12. **Other achievement if any**

Secretary, Society for Rapeseed-Mustard Research since inception (2008) & Managing Editor of the Journal of Oilseed Brassica (2012-18)

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