ICAR – INDIAN INSTITUTE OF SUGARCANE RESEARCH
LUCKNOW 226002, UTTAR PRADESH

Personal Information

Name **Dr. R. Viswanathan**

Designation Director

External Funded Projects (ICAR-SBI)

On-going

1. Development and application of Diagnostics to viruses infecting sugarcane" under CRP on Vaccines and Diagnostics 2017 – 25, ICAR, New Delhi (Rs 72.85 lakhs)
2. CRISPR/Cas mediated targeted editing of virus resistance in sugarcane (Co-PI), 2020 – 23, DST-SERB (Rs 34.67 lakhs)

Completed

3. Development of Sugarcane bacilliform virus (SCBV) based VIGS vector for functional genomics in sugarcane (PI), 2019-22, DST-SERB (Rs 40.73 lakhs)
4. Dissecting the molecular interface between the biotrophic pathogen *Sporisorium scitamineum* and its host - Sugarcane (Co-PI), 2018 – 20, DBT, New Delhi (Rs 48.9 lakhs)
5. Deciphering *in planta* secretome of *Sporisorium scitamineum* x sugarcane interaction (Co-PI), 2018 –21, DST-SERB, New Delhi (Rs 24.55 lakhs)
6. Deciphering interacting partners of PAMPs / Effectors of *Colletotrichum falcatum* that trigger innate immunity in sugarcane (Co-PI), 2018 –21, DBT, New Delhi (Rs 75.03 lakhs)
7. Genetic control and genomic selection for important traits in sugarcane, and comparison of elite Indian and Australian germplasm (Co-PI), 2017-21, DBT, New Delhi, (Rs 175.0 lakhs)
8. Enhancing Sugar Productivity in Tamil Nadu through Institute-Industry Participatory Approach (Co-PI), 2016-20, SISMA-Tamil Nadu (Rs 46.2 lakhs)
9. ICAR – Outreach Project on "*Phytophthora, Fusarium* and *Ralstonia* Diseases of Horticultural & Field Crops (PI) 2014-17, ICAR, New Delhi, (Rs 19.488 lakhs)
10. Developing transgenic sugarcane lines resistance to SCSMV and SCYLV through RNAi approach (PI) 2013 –17, DBT, New Delhi, (Rs 64.23 lakhs)
11. Identification and characterization of antifungal genes and identifying sugarcane phytoalexins as marker for red rot resistance (PI), 2012-15, Sugar Development Fund, GOI, New Delhi (Rs 77.89 lakhs)

12. Development of mechanized system for effective sett/bud treatment of sugarcane (Co-PI) 2012-15, DST, New Delhi (Rs 26.73 lakhs)
13. Molecular elucidation of biotic elicitor-mediated defense-responsive genes/proteins in sugarcane x *C. falcatum* interaction (Co-PI), 2011-13, DST, New Delhi (Rs 50.00 lakhs)
14. Diagnosis and management of leaf spot diseases of field and horticultural crops-red rot of sugarcane (PI), 2009 –14, ICAR, New Delhi (Rs 43.20 lakhs)
15. Accredited Test Laboratory under National Certification System for Tissue Culture Raised Plants (NCS-TCP) (PI) 2009 – 13, DBT, New Delhi (Rs 39, 74,445 lakhs)

Before 2010

16. Development of location specific varieties through collaborative research with sugar industry (Coimbatore) (Co-PI), 2006-09, Sugar Industries (Rs 15.07 lakhs)
17. Network project on Diagnostics of emerging plant viruses (PI), 2005-09, ICAR, New Delhi (Rs. 14.55 lakhs)
18. Identification and characterization of differentially expressed genes/proteins involved in sugarcane - red rot pathogen interaction (PI), 2005-09, DBT, New Delhi (Rs. 44.80 lakhs)
19. Induction of systemic acquired resistance (SAR) in sugarcane by biotic and synthetic signal molecules for the management of red rot disease caused by *Colletotrichum falcatum* (Co-PI), 2005-08, ICAR, New Delhi (Rs 14.76 lakhs)
20. Network project on Wilt of crops with special reference to cultural, morphological, molecular characterization and pathogenic variability of isolates in India (PI), 2004-07, ICAR, New Delhi (Rs. 8.50 lakhs)
21. Development and use of molecular markers for mapping genes for red rot resistance and sugar traits in sugarcane (Co-PI), 2003-2008, DBT (Rs 47.05 lakhs)
22. Isolation and characterization of antifungal genes from antagonistic microbes for the management of red rot disease of sugarcane (PI) (2001 - 05), AP-Cess Fund, ICAR, New Delhi (Rs 21.50 lakhs)
23. Studies on genetic transformation and foreign gene expression in sugarcane (Co-PI), 2000-02, ICAR, New Delhi (Rs 28.02 lakhs)

Publications

Papers published in Refereed Journals

2022

1. Agisha, V.N., K. Nalayeni, N.M.R. Ashwin, R.T. Vinodhini, K. Jeyalekshmi, S.K. Mouriya, A. Ramesh Sundar*, P. Malathi and **R. Viswanathan** (2022). Molecular discrimination of opposite mating type haploids of *Sporisorium scitamineum* and establishing their dimorphic transitions during interaction with sugarcane. **Sugar Tech** 24: 1430–1440 https://doi.org/10.1007/s12355-021-01085-0
2. Agisha VN, N.M.R. Ashwin, RT Vinodhini, K Nalayeni, A Ramesh Sundar*, P Malathi and **R Viswanathan** (2022) Transcriptome analysis of sugarcane reveals differential switching of major defense signaling pathways in response to *Sporisorium scitamineum* isolates with varying virulent attributes. **Frontiers in Plant Sciences** 13:969826 doi: 10.3389/fpls.2022.969826
3. Amalamol, D., N.M.R. Ashwin, K.V. Lakshana, M. Nirmal Bharathi, A. Ramesh Sundar*, R.K. Sukumaran, P. Malathi and **R. Viswanathan** (2022). A highly efficient stratagem for protoplast isolation and genetic

transformation in filamentous fungus *Colletotrichum falcatum*. **Folia Microbiologica** 67: 479–490 https://doi.org/10.1007/s12223-022-00950-z

4. Balan, S., K. Nithya, K.A. Cherian and **R. Viswanathan*** (2022) True seed transmission of *Sugarcane bacilliform virus* (SCBV) in sugarcane. **Sugar Tech** 24: 513–521 10.1007/s12355-021-01031-0

5. Geetha N., **R. Viswanathan**, T. Ramasubramanian, K.P. Salin, C. Yogamba, P. Nirmala Devi, S. Karthigeyan and N. Chitra (2022) *Phenacoccus saccharifolii* (Green) (Pseudococcidae: Hemiptera) on sugarcane in Tamil Nadu, India. **Current Science** 123: 1142-1151

6. Muthuramalingam TR, K. Nithya, B. Parameswari, **R. Viswanathan*** (2022) Ultrasensitive nano-gold labelled, duplex lateral flow immunochromatographic assay for early detection of sugarcane mosaic viruses. **Scientific Reports** 12:4144 https://doi.org/10.1038/s41598-022-07950-6

7. O'Connell A, Deo J, Deomano E, Wei X, Jackson P, Aitken KS, Manimekalai R, Mohanraj K, Kurup HG, Ram B, **Viswanathan R** and Lakshmanan P* (2022) Combining genomic selection with genome-wide association analysis identified a large effect QTL and improved selection for red rot resistance in sugarcane. **Frontiers in Plant Sciences** 13:1021182. doi: 10.3389/fpls.2022.1021182

8. Prasanth C.N., **R. Viswanathan***, P. Malathi, A. Ramesh Sundar (2022) Carbohydrate active enzymes (CAZy) regulate cellulolytic and pectinolytic enzymes in *Colletotrichum falcatum* causing red rot in sugarcane. **3 Biotech** 12: 48 https://doi.org/10.1007/s13205-022-03113-6

9. Sathyabhama M., **R. Viswanathan***, C.N. Prasanth, P. Malathi and A. Ramesh Sundar (2022) Differential host responses of sugarcane to *Colletotrichum falcatum* reveal activation of probable effector triggered immunity (ETI) in defence responses. **Plant Cell Reports** 41:1461–1476 DOI: 10.1007/s00299-022-02870-1

10. **Viswanathan R*** (2022) Sugarcane Diseases: Diagnostics and Management. **RASSA Journal of Science for Society** 4(1): 1-9

11. **Viswanathan R** (2022) Sustainable sugarcane production in India by managing major fungal diseases. **Journal of Mycopathological Research** 60(3): i-iii

12. **Viswanathan R***, T. Ramasubramanian, C. Chinnaraja, R. Selvakumar, T. Lakshmi Pathy, K. Manivannan, R. Nithyanantham (2022). Population dynamics of *Melanaphis sacchari* (Zehntner), the aphid vector of sugarcane yellow leaf virus under tropical conditions in India. **Tropical Plant Pathology** 47: 260–277 https://doi.org/10.1007/s40858-021-00483-9

13. **Viswanathan R*,** R. Selvakumar, N. Geetha, C.G. Balaji, A. Annadurai, Adhini S. Pazhani, P. Malathi, A. Ramesh Sundar, R. Nithiyanantham, K. Manivannan (2022) Epidemiology of sugarcane wilt: predisposition by root *borer Polyocha depresella* a myth or reality. **Indian Phytopathology** 75: 3-14 https://doi.org/10.1007/s42360-021-00398-01

14. **Viswanathan R***, R. Selvakumar, P. Malathi and A. R. Sundar (2022) Modified scale for evaluating sugarcane clones for *Fusarium* wilt resistance with plug method of inoculation. **Sugar Tech** 24: 502–512 https://doi.org/10.1007/s12355-021-01044-9

15. **Viswanathan R***, Sujeet Pratap Singh, R. Selvakumar, Dinesh Singh, Y.P. Bharti, M. L. Chhabra, B. Parameswari, Anuradha Sharma and Md. Minnatullah (2022) Varietal break down to red rot in the sugarcane variety Co 0238 mimics Vertifolia effect: characterizing new *Colletotrichum falcatum* pathotype CF13. **Sugar Tech** 24: 1479–1496 DOI 10.1007/s12355-021-01070-7

2021

16. Agisha, V.N., N.M.R. Ashwin, R.T. Vinodhini, K.Nalayeni, A. Ramesh Sundar*, P. Malathi and **R. Viswanathan** (2021).Protoplast-mediated transformation in *Sporisorium scitamineum* facilitates visualization of *in planta* developmental stages in sugarcane. **Molecular Biology Reports** https://doi.org/10.1007/s11033-021-06823-x

17. Anna Durai, A*., **R. Viswanathan**, A. S. Pazhany (2021) Exploring the sources of red rot resistance available in national breeding gene pool and their potential utilization for sugarcane improvement in India. **Sugar Tech** 23(4):843–853 https://doi.org/10.1007/s12355-021-00959-7

18. Ashwin N.M.R., K.V. Lakshana, D. Amalamol, A. Ramesh Sundar*, P. Malathi, V. Jayakumar, **R. Viswanathan** (2020) Tête-à-Tête during plant-pathogen interactions: intricacies involved and beyond. Plant Disease Research 35(2): 89-96 DOI No. 10.5958/2249-8788.2020.00020.7

19. Bagyalakshmi, K. and **R. Viswanathan*** (2021) Development of a scoring system for sugarcane mosaic disease and genotyping of sugarcane germplasm for mosaic viruses. **Sugar Tech** 23(5):1105–1117 10.1007/s12355-021-00995-3 (Springer)

20. Gopi R*., B. Mahendran, K. Chandran, M. Nisha and **R. Viswanathan** (2021). Plant and weather factors on resistance of *Saccharum officinarum* germplasm against ring spot disease. **Sugar Tech** 23(4):720–729 https://doi.org/10.1007/s12355-020-00943-7 (Springer)

21. Jayakumar, V*., A. Ramesh Sundar and **R. Viswanathan** (2021) Biocontrol of *Colletotrichum falcatum* with volatile metabolites produced by endophytic bacteria and profiling VOCs by headspace SPME coupled with GC–MS. **Sugar Tech** 23: 94–107 https://doi.org/10.1007/s12355-020-00891-2

22. Nalayeni, K., N. M. R. Ashwin, L. Barnabas, T. Vinodhini, V. N. Agisha, A. Ramesh Sundar*, P. Malathi and **R. Viswanathan** (2021) Comparative expression analysis of potential pathogenicity-associated genes of high- and low-virulent *Sporisorium scitamineum* isolates during interaction with sugarcane. **3 Biotech** 11: Article number: 353 https://doi.org/10.1007/s13205-021-02893-7

23. Nandakumar M., **R. Viswanathan*,** P. Malathi and A.R. Sundar (2021). Selection of reference genes for normalization of microRNA expression in sugarcane stalks during its interaction with *Colletotrichum falcatum*. **3 Biotech** 11: 72 DOI 10.1007/s13205-020-02632-4 (Springer)

24. Nandakumar M., P. Malathi, A.R. Sundar, C.P.Rajadurai, M. Philip, **R. Viswanathan*** (2021). Role of miRNAs in the host–pathogen interaction between sugarcane and *Colletotrichum falcatum*, the red rot pathogen. **Plant Cell Reports** 40: 851–870 10.1007/s00299-021-02682-9

25. Nandakumar M., P. Malathi, A.R. Sundar, **R. Viswanathan*** (2021). Expression analyses of resistance-associated candidate genes during sugarcane-*Colletotrichum falcatum* Went interaction. **Sugar Tech** 23(5):1056–1063 10.1007/s12355-021-00976-6

26. Nandakumar M., P. Malathi, A.R. Sundar and **R. Viswanathan*** (2021). Host-pathogen interaction in sugarcane and red rot pathogen: Exploring expression of phytoalexin biosynthesis pathway genes. **Indian Phytopathology** 74:529–535

27. Nithya K., J. Vishnu Vardhan, S. Balasaravanan, D. Vishalakshi and K. Kaverinathan, **R. Viswanathan** (2021) First report of Maize yellow mosaic virus (MaYMV) infecting sugarcane in India and its molecular characterization. **Australasian Plant Pathology** 50:633–638 DOI : 10.1007/s13313-021-00809-w (Springer)

28. Parameswari B., K. Nithya, S. Kumar, S. K. Holkar, M. L. Chabbra, P. Kumar and **R. Viswanathan*** (2021) Genome wide association studies in sugarcane host pathogen system for disease resistance: an update on the current status of research. **Indian Phytopathology** 74:865–874

29. Prasanth C.N., **R. Viswanathan***, P. Malathi, A. Ramesh Sundar (2021) Development and characterization of genomic SSR marker for virulent strain specific *Colletotrichum falcatum* infecting sugarcane. **3 Biotech** 11: Article number:20 DOI: 10.1007/s13205-020-02572-z

30. Scindiya, M., P. Malathi*, K. Kaverinathan, A. Ramesh Sundar and **R**. **Viswanathan** (2021). Knock-down of glucose transporter and sucrose non-fermenting gene in the hemibiotrophic fungus *Colletotrichum falcatum* causing sugarcane red rot. **Molecular Biology Reports** 48: 2053–2061 https://doi.org/10.1007/s11033-021-06140-3

31. Selvakumar, R*., **Viswanathan, R.** (2021). A low cost method for early detection of airborne *Puccinia* rust spores using glass slides and foldscope in the sugarcane field. **Indian Phytopathology** 74**:** 835–837 https://doi.org/10.1007/s42360-021-00342-2

32. **Viswanathan R*.** (2021). Sustainable sugarcane cultivation in India through threats of red rot by varietal management. **Sugar Tech** 23(2):239–253 DOI: 10.1007/s12355-020-00882-3

33. **Viswanathan R*** (2021) Red rot of sugarcane (*Colletotrichum falcatum* Went). **CAB Reviews** 16, No. 023, doi: 10.1079/PAVSNNR202116023

34. **Viswanathan R*** (2021). Impact of yellow leaf disease in sugarcane and its successful disease management to sustain crop production. **Indian Phytopathology** 74: 573–586 DOI:10.1007/s42360-021-00391-7

35. **Viswanathan R*.,** G. P. Rao and S. Solomon (2021). Measures to minimize the growing menace of red rot of sugarcane in subtropical India. **Sugar Tech** 23(6):1207–1210 DOI :10.1007/s12355-021-01013-2

36. **Viswanathan R***, R. Selvakumar, P. Govindaraj, M. L. Chhabra, B. Parameswari, Dinesh Singh, Sujeet Pratap Singh, Rakesh Mehra, Y. P. Bharti, Minnatullah, P. Kishore Varma, V. Ravichandran and Anuradha Sharma (2021) Identification of resistance to red rot in interspecific and intergeneric hybrid clones of sugarcane. **International Sugar Journal** 123 (1476): 840-848

37. **Viswanathan** R*, R. Selvakumar, P. Malathi and N. Prakasam (2021) Controlled condition testing (CCT): An ideal high-throughput method for screening of pre-release clones and progenies for red rot resistance in sugarcane. **Sugar Tech** 23(5):1045–1055 10.1007/s12355-021-00970-y

2020

38. Anandakumar, L., K. Bagyalakshmi, T. Raja Muthuramalingam, K. Nithya, B. Parameswari and **R. Viswanathan*** (2020). Reverse Transcription Loop-mediated Isothermal Amplification based rapid detection of *Sugarcane mosaic virus* and *Sugarcane streak mosaic virus* associated with mosaic disease of sugarcane. **Indian Phytopathology** 73:349-358.

39. Ashwin N. M. R., L. Barnabas, D. Amalamol, K.V. Lakshana, A. R. Sundar*, P. Malathi and R. Viswanathan (2020) Transcriptional reprogramming of major defense‐signaling pathways during defense priming and sugarcane‐Colletotrichum falcatum interaction. **Molecular Biology Reports** 47(11): 8911-8923.

40. Bagyalakshmi, K. and **R. Viswanathan*** (2020) Identification of the RNA Silencing Suppressor Activity of *Sugarcane streak mosaic virus* P1 gene. **Virus Disease** 31(3):333–340

41. Balan S, **R. Viswanathan*** and K. Anita Cherian (2020) Status of leaf fleck caused by Sugarcane bacilliform virus incidence and severity in different sugarcane growing areas of Kerala and Tamil Nadu. **Journal of Sugarcane Research** 10: 74-86

42. Ganesh Kumar V., **R. Viswanathan***, P. Malathi, A. Ramesh Sundar, C. N. Prasanth, M. Nandakumar (2020). Identification of differential expressed proteins and establishing a defense proteome of sugarcane in response to *Colletotrichum falcatum* infection. **Journal of Plant Pathology** 102: 685–702.

43. Gopi R*, **R. Viswanathan**, K. Chandran, M. Nisha, B. Mahendran, P.P. Girishan and Mayalekshmi (2020) Distribution scenario of diseases in sugarcane germplasm at Kannur. **Journal of Sugarcane Research** 10, 186-197 https://doi.org/10.37580/JSR.2020.2.10.186-197

44. Holkar SK*, Parameswari, B, Kumar, A, Nithya K, Shingote P.R., Chhabra, M.L., Kumar, S, Kumar, P., **Viswanathan, R.,** Jain, R.K., Pathak, A.D. (2020). Present status and future management strategies for sugarcane yellow leaf virus: A major constraint to the global sugarcane production: An overview. **Plant Pathology Journal** 36(6): 1-22

45. Nandakumar, M., P. Malathi, A. Ramesh Sundar and **R. Viswanathan*** (2020). Use of green fluorescent protein expressing *Colletotrichum falcatum* for precise host-pathogen interaction studies in sugarcane. **Sugar Tech** 22(1):112–121

46. Nithya, K., B. Parameswari, A. Bertaccini, G. P. Rao and **R. Viswanathan*** (2020). Grassy shoot: the destructive disease of sugarcane. **Phytopathogenic Mollicutes** 10(1): 10-24 doi: 10.5958/2249-4677.2020.00002.X

47. Nithya, K., B. Parameswari, and **R. Viswanathan*** (2020). Mixed infection of sugarcane yellow leaf virus and grassy shoot phytoplasma in yellow leaf affected Indian sugarcane cultivars. **Plant Pathology Journal** 36(4): 364-377 https://doi.org/10.5423/PPJ.OA.06.2020.0092

48. Ovalle, W. and **R. Viswanathan*** (2020). Sustaining sugarcane production in Guatemala and Nicaragua through efficient disease management approaches. **Sugar Tech** 22(3):361–366

49. **Viswanathan R*** (2020). Fusarium diseases affecting sugarcane production in India. **Indian Phytopathology** 73:415–424

50. **Viswanathan R*** and N.M.R. Ashwin (2020) Brown spot of sugarcane: an emerging disease in South Western region in India. **Journal of Sugarcane Research** 10: 87-93 https://doi.org/10.37580/JSR.2020.1.10.87-9

51. **Viswanathan R***, P. Padmanaban and R. Selvakumar (2020). Emergence of new pathogenic variants in *Colletotrichum falcatum*, stalk infecting ascomycete in sugarcane: role of host varieties. **Sugar Tech** 22(3):473–484

52. **Viswanathan R*** and R. Selvakumar (2020) Varietal breakdown to red rot in sugarcane revealed by comparing two *Colletotrichum falcatum* inoculation methods. **Sugar Tech** 22(6):1063–1075

53. **Viswanathan R*,** R. Selvakumar, K. Manivannan, R. Nithyanandam and K. Kaverinathan (2020). Pathogenic behaviour of soil borne inoculum of *Colletotrichum falcatum* in causing red rot in sugarcane varieties with varying disease resistance. **Sugar Tech** 22(3):485–497

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51. Bagyalakshmi, K., B. Parameswari, **R. Viswanathan*** (2019). Phylogenetic analysis and signature of recombination hotspots in *Sugarcane mosaic virus* infecting sugarcane in India. **Phytoparasitica** 47:275–291.

52. Bagyalakshmi, K., **R. Viswanathan***, V. Ravichandran (2019). Impact of the viruses associated with mosaic and yellow leaf disease on varietal degeneration in sugarcane. **Phytoparasitica** 47: 591–604.

53. Elamathi, E., P. Malathi*, **R. Viswanathan** and A. Ramesh Sundar (2019). Identification and characterization of differentially expressed proteins from *Trichoderma harzianum* during interaction *with Colletotrichum falcatum* causing red rot in sugarcane. **Sugar Tech** 21: 765-772.

54. Garcés, F*., **R. Viswanathan**, N. Thompson, J.-H. Daugrois and S. Rutherford (2019) Challenges and advances in sugarcane pathology - keys to resolve emerging issues and to formulate innovative disease management strategies: the 2018 ISSCT Pathology Workshop. **Proceedings of the International Society of Sugar Cane Technologists**, 30: 1777–1783.

55. Jayakumar V*, A. Ramesh Sundar and **R. Viswanathan** (2019). Biological suppression of sugarcane smut with endophytic bacteria. **Sugar Tech** 21: 653–660.

56. Nisha M*, K. Chandran, D. Manjunatha, **R. Viswanathan** and P.P. Gireesan (2019). Genetic variability for agro morphological traits among the interspecific hybrids of *Saccharum*. **Journal of Sugarcane Research** 9(1): 55 – 63

57. Prasanth C.N., **R. Viswanathan***, P. Malathi and A. Ramesh Sundar (2019) Comparative transcriptome analysis of candidate secretory effector proteins from Colletotrichum falcatum infecting sugarcane. **Agri Gene** 13 (2019) 100089.

58. Scindiya, M., P. Malathi, K. Kaverinathan, A. Ramesh Sundar and **R**. **Viswanathan*** (2019). RNA-mediated silencing of PKS1 gene in *Colletotrichum falcatum* causing red rot in sugarcane. **European Journal of Plant Pathology** 153: 371–384.

59. **Viswanathan R***, C. G. Balaji, R. Selvakumar, P. Malathi, A. Ramesh Sundar, A. Annadurai, Adhini S. Pazhany, K. Manivannan and R. Nithyanantham (2019) Identification of sources of resistance to wilt caused by *Fusarium sacchari* in Indian sugarcane parental population. **International Sugar Journal** 121 (1451): 838-846.

60. **Viswanathan R*,** R. Karuppaiah, K., Bagyalakshmi, Sanju Balan and K. Kaverinathan (2019). Emergence of leaf fleck caused by *Sugarcane bacilliform virus* in sugarcane as a serious disease under field conditions in India. **International Sugar Journal** 121: 146-153.

61. **Viswanathan R*** and P. Malathi (2019) Biocontrol strategies to manage fungal diseases in sugarcane. **Sugar Tech** 21(2): 202–212.

2018

62. Anandakumar, L., K. Bagyalakshmi, K. Nithya, B. Parameswari and **R. Viswanathan*** (2018) Reverse transcription loop-mediated isothermal amplification (RT-LAMP) assay for rapid diagnosis of *Sugarcane yellow leaf virus* in sugarcane. **Sugar Tech** 20:708-716.

63. Ashwin, N.M.R., E. Leonard Barnabas, A. Ramesh Sundar*, P. Malathi, **R. Viswanathan**, A. Masi, G. K. Agrawal and R. Rakwal (2018) CfPDIP1, a novel secreted protein of *Colletotrichum falcatum*, elicits defense responses in sugarcane and triggers hypersensitive response in tobacco. **Applied Microbiology and Biotechnology**, 102: 6001–6021.

64. Barnabas L., N.M.R Ashwin, K. Nalayeni, A. Ramesh Sundar*, P. Malathi, **R. Viswanathan** (2018). Genetic and pathogenic variability among the Indian isolates of *Sporisorium scitamineum* causing sugarcane smut. **Journal of Sugarcane Research** 138-154.

65. Elamathi, E., Malathi*, P., **Viswanathan, R**. and Ramesh Sundar, A. (2018). Expression analysis on mycoparasitism related genes during antagonism of *Trichoderma* with *Colletotrichum falcatum* causing red rot in sugarcane. **Journal of Plant Biochemistry and Biotechnology** 27(3): 351–361.

66. **Viswanathan R*** (2018) Changing scenario of sugarcane diseases in India since introduction of hybrid cane varieties: path travelled for a century. **Journal of Sugarcane Research** 8 (1): 1 – 35.

67. **Viswanathan R*,** P. Padmanaban, D. Mohanraj, N. Prakasam, N. Singh, R. Selvakumar, P. Malathi and A. Ramesh Sundar (2018). Status of red rot resistance in wild relatives of sugarcane, *Saccharum spontaneum*, interspecific hybrids and intergeneric hybrids. **Journal of Sugarcane Research** 8(2): 169 – 184.

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70. Ashwin, N. M. R., L. Barnabas, A. Ramesh Sundar*, P. Malathi, **R. Viswanathan**, A. Masi, G. K. Agrawal, R. Rakwal (2017) Advances in proteomic technologies and their scope of application in understanding plant–pathogen interactions. **Journal of Plant Biochemistry and Biotechnology** 26: 371–386

71. Barnabas, L., N. M. R. Ashwin, A. Ramesh Sundar*, P. Malathi, and **R. Viswanathan** (2017). Putative orthologs of *Ustilago maydis* effectors screened from the genome of sugarcane smut fungus -*Sporisorium scitamineum*. **Australasian Plant Pathology** 46:147–156

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Other crops

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Awards and Recognitions

Fellow of National Academy of Agricultural Sciences (FNAAS) by National Academy of Agricultural Sciences, New Delhi during 2016

Hari Om Ashram Trust Award for the Biennium 2016-17 in Crop & Horticultural Sciences, ICAR, New Delhi (2018)

Sir T. S. Venkatraman Award for Outstanding Research Contribution in Sugarcane Agriculture for the biennium 2006-2007 (2008) for the best research work in sugarcane;

Dr. M. Puttarudriah Memorial Endowment National Award - for the outstanding contributions in the field of Plant Protection in the country (2012)

Biotechnology Overseas Associateship 2007-08, DBT, New Delhi.

M.S. Pavgi Memorial Award 2020, Indian Phytopathological Society, New Delhi

TNAU Distinguished Alumnus Award 2021, Tamil Nadu Agricultural University, Coimbatore

Lifetime Contribution Award for the contribution in the field of Sugarcane Crop Protection, Society for Sugar Research and Promotion, New Delhi (2022)

Noel Deerr Gold Medals (2000, 2002, 2022) and **STAI Silver medal** (2001), Sugar Technologists Association of India (STAI), New Delhi.

Late Janab Peer Mohamed Award (gold medal) and Nathaniel Memorial Award (gold medal) by Tamil Nadu Agricultural University, Coimbatore for the best Ph. D. thesis in Plant Protection (2000).

Sir Syed Ahmed Khan memorial award (AMU Centenary Award -Above 45 years) from Aligarh Muslim University for the best research work in Plant Pathology in the country (2021).

Outstanding Agriculture Scientist Awards – 2020 for the commendable contribution to Plant Pathology and Higher Education by Dr. B. Vasantharaj David Foundation, Chennai

TNAU merit awards such as **Robertson Prize, Food and Agricultural Organization Prize, The Glogstoun Prize and Kees Prize** for the Academic excellence in B. Sc (Agriculture) programme from Tamil Nadu Agricultural University, Coimbatore (1983-87).

Member, Pathology Section, International Society of Sugar Cane Technologists, Reduit, Mauritius for the periods 2013-2016 and 2016-2019.

Principal Investigator (Plant Pathology), All India Coordinated Research Project (AICRP) on Sugarcane and serves from 2011 onwards.

Vice President, Society for sugarcane Research and Development (SSRD), Coimbatore (2015-17 & 2021-23)

President, Indian Phytopathological Society (South Zone), New Delhi (2012)

Convener, National Academy of Agricultural Sciences -Coimbatore Chapter, since 2018

Fellowships from scientific societies

Fellow of Indian Phytopathological Society (2012),

Fellow of Indian Society of Mycology and Plant Pathology (2013),

Fellow of National Academy of Biological Sciences (2013)

Fellow of Indian Virological Society (2014)

Fellow of Society for Sugar Research and Promotion, New Delhi (2019)

Fellow of Society for Sugarcane Research and Development, Coimbatore (2020)