Biodata of the Scientist
Division/Section:__CROP PROTECTION

A.Personal information
1.Name(With Title): **Dr. S.S. VEENA**

1.a. Qualification **Ph.D (Plant Pathology)**

2. Designation: **Principal Scientist**

3. Address (Personal): **11G, BLOCK A, SREEDHANYA PLANET X, KALLAMPALLY, MEDICAL COLLEGE PO, THIRUVANANTHAPURAM-695011, KERALA**

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5. Email: **veena.ss@icar.gov.in**

6. Countries visited: **Official - NIL**

B. Professional information

1. Area of specialization: **Plant Pathology**

2. Area of interest: **Fungal Pathology, Bio-intensive Management, *Phytophthora***

3. Number of institute projects completed (Add list): 2

4. Number of Institute projects being handled (Add list): 1

5. Number of externally funded projects completed (Add list): **As PI-NIL**

6. Number of externally funded projects being handled (Add list): **As PI-NIL**

7. Number of students guided for a) Ph.D **NIL**__b) M.Phil **NIL**_____c) M.Sc **40.**

8. Number of students being guided for a) Ph.D b) M.Phil c) M.Sc

8. a. information about the students under your guidance

Name of the student	Course undergoing (Ph.D/M.Phil/M.Sc)	Title of the project/Thesis	E-mail address

9. Information on guide ship

Guide ship for Ph.D/ M.Phil/ M.Sc	University	Subject
B.Sc.- M.Sc. Integrated	Kerala Agricultural	Biotechnology

Biotechnology	University	
Ph.D	Kerala University	Biotechnology

10. Number of Research papers (Add list): **77**
11. Number of Books/Book chapters (Add list): **8**
12. Number of Technical Bulletins (Add list): **4**
13. Consultancies offered (Add list and give a brief description):
14. Technologies developed (Add list and give a brief description): **7**
15. Patents/Copyrights obtained (Add list and give a brief description):
16. Any other information:

Number of institute projects completed

1. Exploitation of vermicompost for eco-friendly management of taro leaf blight and collar rot of elephant foot yam (PI-2010/1-ITC-H20/1550)
2. Management of Fungal Diseases of Aroids (HORT CTCRI SIL 2015 006 01462)

Number of Institute projects being handled

- Emerging fungal diseases and management strategies for major diseases of aroids (HORT CTCRI SIL 2013 010 01449)

Research papers:

1. Girija Suja, Janardanan Sreekumar, Gangadharan Byju, **Syamala Swayamvaran Veena**, Sarojini Amma Sunitha, Varadharajan Ramesh,Cherian Lintu Maria & Rakhi Kanjiramthottiyil Raj. 2021. Organic management of Chinese potato: growth, yield, quality, soil health, and economics. *International Journal of Vegetable Science*, DOI: 10.1080/19315260.2021.1907829.
2. Suja, G., Sreekumar, J.,Byju, G.,Jyothi, A.N. and **Veena, S.S.** 2021. Weed cloth, an option for integrated weed management for short-duration cassava. *Agronomy Journal*, 1-14.
3. Suja, G., Jyothi, A.N., Byju, G., **Veena, S.S**., Sreekumar, J., Indira, M and Ravi, V. 2020. Organic management fosters yield, soil health and profit in dwarf white yam. *Indian J. Hort.* 77(1): 140-148.
4. Anju, P. S., K. Susan John, S. Bhadraray, Jeena Mathew, S. Sunitha and **S. S. Veena.**2020. Optimum Nutrient Requirement of Elephant Foot Yam (*Amorphophallus paeoniifolius* (Dennst.) Nicolson) Under Coconut Gardens. *J. of Root Crops* **46 (1): 18-24.**
5. Sirisha Tadigiri, Kesava Kumar H and **Veena SS.** 2020**.** *In-vitro* evaluation of potential bio agents on hatching and mortality of root knot nematode, *Meloidogyne incognita.* Journal of Entomology and Zoology Studies 2020; 8(3): 767-770
6. Aswathy B Nair, **S. S. Veena**, M. N. Sheela, S. Karthikeyan, G. L. Sreelatha and V. R. Vishnu. 2019. Microbial Diversity in Rhizosphere Soils of Tropical Tuber Crops: Utilization for Pathogen Suppression and Growth Promotion. *J. of Root Crops* **45 (1): 53-63.**

7. Tadigiri, S., Das, D., Allen, R. C., Vishnu, V. R., Veena, S. S. and Karthikeyan, S. 2020. Isolation and characterization of chemical constituents from *B. amyloliquefaciens* and their nematicidal activity. *Journal of Entomology and Zoology Studies* **8**(4): 136-140.
8. Madhavi Baiju, S. Sreelekha, R. Shiny, **S. S. Veena** and G. Byju. 2020. Site specific nutrient management of cassava improves soil quality. *International Journal of Current Microbiology and Applied Sciences*. 9(12): 416-424.
9. Fathima, J.A., Sreelekha, R., Shiny, R., **Veena, S.S** and Byju, G. 2020. Effect of site specific nutrient management of white yam on soil quality. *Int. J. Curr. Microbiol. App.Sci*. **9**(12): 3424-3431.
10. Anju, P.S., Susan John, K.,Bhadraray, S., Suja, G., Jeena Mathew, Nair, K. M., Sunitha, S. and Veena, S.S. 2020. Customized Fertilizer Formulations for Elephant Foot Yam (Amorphophallus paeoniifolius (Dennst.) Nicolson) under Intercropping in Coconut Gardens for Kerala, India. *Journal of the Indian Society of Soil Science*, 68 (2): 221-235.
11. Suresh Kuamar,J., Sanket J More, Byju, G., Sunitha, S., **Veena, S.S.,** Nedunchezhiyan M. and Ravi, V. 2019. Effect of new generation herbicides on weed management, corm yield and economics of elephant foot yam [*Amorphophallus paeoniifolius* (Dennst.) Nicolson]. *International journal on Chemical Studies.* 7(3): 1213-1218.
12. Viji,V.S. Veena, S.S., Karthikeyan, S. and M.L. Jeeva. 2019. Cassava based substrates - conducive media for mass multiplication of *Trichoderma asperellum. J. of Root Crops* **44 (1)** 41-46.
13. Susan John, K., Anju PS., Suja G., Jeena Mathew, Nair, KM., Sunitha S and **Veena SS**. 2018. Customized fertilizer formulations for tropical tuber crops under intercropping in coconut gardens: Development and experience in Kerala. Indian Micronutrient Manufactures Association J., 1(1):33-41.
14. Jyothi Lekshmi, O. B. P. R. Amrutha, M. L. Jeeva, A. Asha Devi, **S. S. Veena**, G. L. Sreelatha, M. G. Sujina and Tom Syriac.2018. Development of an efficient real-time PCR assay to accurately quantify resistant gene analogue expression in Taro (*Colocasia esculenta*). *J. of Root Crops* **44 (2)** 3-11.
15. Shahana, N., M.L. Jeeva, **S. S. Veena**, G. L. Sreelatha, M. G. Sujina and P. R. Amrutha.2018. Exploration of endophytes from tropical tuber crops against *Colletotrichum gloeosporioides* causing anthracnose in greater yam (*Dioscorea alata* L.*) in vitro.*). *J. of Root Crops* **44 (2)** 32-43.
16. Linet K Joseph, **S.S. Veena**, G. Byju, J. Sreekumar and S. Karthikeyan. 2018. Comparative analysis of antimicrobial activities of43 *Trichoderma* isolates against *Sclerotium rolfsii,* the pathogen causing collar rot disease in elephant foot yam. *J. of Root Crops* **44 (2)** 53-60.
17. Anjitha Nair, U. M., A. Asha Devi, **S.S.Veena**, B. S. Prakash Krishnan and R. S. Arya. 2018. Genetic diversity analysis of leaf blight resistant and susceptible taro [*Colocasia esculenta* (L.) Schott] genotypes using ISSR markers. *J. of Root Crops* **44 (2)** 44-52.
18. Anju, P.S., K. Susan John, S. Bhadraray, G. Suja, Jeena Mathew.,K.M. Nair, S. Sunitha and **S.S. Veena**. 2018. Development and Evaluation of Customized Fertilizer Formulations for Tuber Crops Grown as Intercrops in Coconut Gardens. Indian Journal of Fertilisers, Vol. 14 (10), pp.50-54.

19. Theertha. V. Kumar, **S.S.Veena**, S. Karthikeyan and J. Sreekumar.2018. Compatibility of *Trichoderma asperellum* with Fungicides, Insecticides, Inorganic fertilizers and Bio-pesticides. Journal of Root Crops, 43 (2): 68-75.

20. Sujina, M. G., Sreelatha, G. L., Jeeva, M. L., Vishnu S. Nath, Akshara George, and **Veena, S.S**. Studies on endophytes associated with medicinally important *Saraca asoca* (Roxb.) Willd and their antagonistic activity against *Phytophthora colocasiae*: *J. of Root Crops* 43(2): 76-83.

21. Nedunchezhiyan, M., Byju, G., **Veena, S.S**. and Ravi, V. 2017. Herbicides and polythene mulching effects on yield of cassava. *Ind. J. Weed Sci*. 49(1): 58-62.

22. Ramakrishna, M., Rajesh Babu, D**., Veena, S. S**., Meera Pandey and Nageswara Rao, G.2017. A validated reverse-phase HPLC method for quantitative determination of ganoderic acids A and B in cultivated strains of *Ganoderma* spp.(Agaricomycetes) indigenous to India. *Int J Med Mushrooms*, 19(5): 457–465.

23. Nedunchezhiyan, M., Ravi,V., George,J and **Veena S.S**. 2017. Effect of weed control methods on the yield and starch content of storage roots of cassava (*Manihot esculenta*) and soil health. *Indian J. Agric. Sci.*, 87(3):342-349.

24. Suja, G. Byju, G., Jyothi, A.N., **Veena**, **S.S.** and Sreekumar, J. 2017. Yield, quality and soil health under organic vs conventional farming in taro. *Scientia Horticulturae* 218 (2017) 334–343.

25. PS Anju, K Susan John, Subhendu Bhadraray, G Suja, Jeena Mathew, KM Nair, S Sunitha, **SS Veena**.2017. Development of Protocol for Custom Mixed Fertilizers for Elephant Foot Yam under Intercropping in Coconut Gardens of the Two Agro-Ecological Units of Kerala. Journal of Root Crops. 42(2):66-74.

26. Lakshmipriya, P. Vishnu. S. Nath, **S.S. Veena**, K.N. Anith, J. Sreekumar and M.L. Jeeva. *Piriformospora indica*, a Cultivable Endophyte for Growth Promotion and Disease Management in Taro (*Colocasia esculenta (*L.). *Journal of Root Crops*, 2016, Vol. 42 (2): 141-148.

27. Nath V. S., Shyni, Jeeva M. L., **Veena S.S.** (2016) Genetic and Phenotypic characterization of *Phytophthora colocasiae* in taro Growing Areas of India. *Journal of Plant Pathology & Microbiology*. 10.4172/2157-7471.1000383.

28. Nath V. S., Shyni, Jeeva M. L., Hegde V. M., Devi, A., Misra R. S., **Veena S. S**., Raj M. (2016) A rapid and efficient method for *in vitro* screening of taro for leaf blight disease. Journal of Phytopathology. 164: 520–52 DOI: 10.1111/jph.12477

29. Nath V. S., Rajitha M., Darveekaran S. S., Hegde V. M., Jeeva M. L., Misra R. S., **Veena S.S**., Raj M. (2015) Identification of *Phytophthora colocasiae* genes differentially expressed during infection on taro *(Colocasia esculenta*). Physiological and Molecular Plant Pathology.89:78-86 10.1016/j.pmpp.2015.01.001.

30. Anish T.Anil, G.Suja, G. Byju and **S.S. Veena.** 2014. Organic management Impacts on Micro- environment in Cassava. *Journal of Root Crops*. 40 (1): 102-104

31. **Veena, S.S**, M.L.Jeeva, L.S.Rajeswari, A.Sabna, Pravi Vidyadharan, M. Nedunchezhiyan, J. Sreekumar and James George. 2014. Worm power against fungal diseases in aroids: prospects and future strategies. *Journal of Root Crops*. 39 (2): 136-147

32. Vishnu S Nath & Vinayaka Hegde, M. L. Jeeva & Raj Shekar Misra & **S.S. Veena** & Mithun Raj & Darveekaran Sree Sankar. 2014. Morphological, pathological and molecular characterization of *Phytophthora colocasiae* responsible for taro leaf blight disease in India. *Phytoparasitica*. 43:21–35 DOI 10.1007/s12600-014-0422-5

33. Vishnu S. Nath, Vinayaka M. Hegde, Muthulekshmi L. Jeeva, Raj S. Misra, **S.S. Veena,** Mithun Raj, Suresh K. Unnikrishnan & Sree S. Darveekaran. 2014. Rapid and sensitive detection of *Phytophthora colocasiae* responsible for the taro leaf blight

using conventional and real-time PCR assay. *FEMS Microbiol Lett* (2014) 1–10 . doi: 10.1111/1574-6968.12395

34. Nath VS., Hegde V., Jeeva M L., Misra R S., **Veena SS**., Raj M., Sankar DS. (2014) Genetic Diversity of *Phytophthora colocasiae* Causing Taro Leaf Blight: Analysis Using Start Codon Targeted (SCoT) Polymorphism. *Journal of Root Crops*. 39 (2): 168 -177

35. Vishnu Sukumari Nath, Neetha Soma John, Indira Parameswaran Anjanadevi, Vinayaka Mahabaleswar Hegde, Muthulekshmi Lajapathy Jeeva, Raj Shekhar Misra& **S.S.Veena** (2013). Characterization of *Trichoderma* spp. Antagonistic to *Phytophthora colocasiae* associated with leaf blight of taro. Annals of Microbiology doi: 10.1007/s13213-013-0794-7.

36. Nath V S., Sankar M S., Hegde V M., Jeeva M L., Misra R S., **Veena SS**., Raj M (2013) Analysis of genetic diversity in *Phytophthora colocasiae* using AFLP and RAPD markers. Annals of Microbiology. doi:10.1007/s13213-013-0651-8.

37. Nath V S., M S alias Sankar., V M Hegde., M L Jeeva., R S Misra., **SS Veena**., Raj M (2013) PCR-based approach for mining of resistant gene analogues in taro (*Colocasia esculenta*). *Archives of Phytopathology and Plant Protection*, 46(7):803-812

38. Nath V S., Sankar M S., Hegde V M., Jeeva M L., Misra R S., **Veena SS**., Raj M (2013) Molecular evidence supports hyper variability in *Phytophthora colocasiae* associated with leaf blight of taro. *European Journal of Plant Pathology*. DOI: 10.1007/s10658-013-0181-z.

39. Senthil @ Sankar, M. Vishnu S. Nath, Raj Shekhar Misra, M. L. Jeeva, Vinayaka Hegde and **Veena S.S**. 2013 Comparison of eliciting activity of a virulent and non virulent isolate o*f Phytophthora colocasiae* on taro. In: R. S. Misra and M. Nedunchezhiyan. Aroids opportunities and challenges. Regional centre, Central Tuber Crops Research Institute, Bubhaneswar, Orissa.

40. Soudamini Mohapatra, **S. S Veena**, Meera Pandey and M Deepa.2012. Biodegradation of Gamma-Hexachlorocyclohexane by Various *Pleurotus* Species Pesticide Research Journal Vol 24(2): 212-216.

41. Meera Pandey and **Veena.S.S**. 2012. Characterization and conservation of edible and medicinal mushrooms of Western Ghats of India. *Indian J. Trop. Biodiv.20(1):37-44*

42. Nath V S., M S alias Sankar, V M Hegde., M L Jeeva., R S Misra., **SS Veena**., Raj M (2012) Genetic diversity of *Phytophthora colocasiae* isolates in India based on AFLP analysis. *3Biotech*. DOI 10.1007/s13205-012-0101-5. (Springer)

43. Nath V S., M S alias Sankar., V M Hegde., M L Jeeva., R S Misra., **SS Veena**., Raj M (2012) Evaluation of fungicides on Indian isolates of *Phytophthora colocasiae* causing leaf blight of taro, *Archives of Phytopathology and Plant Protection*, 46(5):548-555

44. **Veena. S.S** and Meera Pandey (2012). Physiological and cultivation requirements of *Trametes versicolor*, a medicinal mushroom to diversify Indian mushroom industry. *Indian Journal of Agricultural Sciences* 82 (8): 672-675.

45. Vishnu Sukumari Nath, Muthukrishnan Senthil *alias* Sankar, Vinayaka Mahabaleswar Hegde, Muthulekshmi Lajapathy Jeeva, Raj Shekar Misra, **S. S. Veena**, Mithun Raj (2012). Analysis of Genetic Diversity in *Phytophthora colocasiae* using RAPD Markers. *The Asian and Australasian Journal of Plant Science and Biotechnology*. 6(1): 38-43.

46. Vishnu Sukumari Nath, Muthukrishnan Senthil *alias* Sankar, Vinayaka Mahabaleswar Hegde, Muthulekshmi Lajapathy Jeeva, Raj Shekar Misra, **S.S.Veena** (2012). A Simple and Efficient Protocol for Rapid Regeneration and Propagation of Taro (*Colocasia esculenta* (L.) Schott.) *in Vitro* from Apical Meristems. *International Journal of Plant Developmental Biology* 6 (1): 64-66
47. **Veena. S.S** and Meera Pandey (2012). Medicinal mushrooms - a novel crop for horticultural diversification in India. *International Research Journal of Plant Science.* Vol. 3(1) :8-11
48. M. Nedunchezhiyan, S. K. Jata, G. Byju and **S.S.Veena** (2011). Effect of Tuber CropWastes/Byproducts on Nutritional and Microbial Composition of Vermicomposts and Duration of the Vermicomposting Process. *Journal of Botany*. Volume 2011, Article ID 801703, 6 pages, doi:10.1155/2011/801703
49. **Veena. S.S** and Meera Pandey (2011). Paddy Straw as a Substrate for the Cultivation of Lingzhi or Reishi Medicinal mushroom, *Ganoderma lucidum* (W. Curt.:Fr.)P.Karst.in India. *International Journal of Medicinal Mushrooms,* 13 (4): 397-400.
50. **Veena. S.S,** Manu M Stephen, Nedunchezhiyan M, Neetha Soma John, Anjana Devi I.P & Jeeva M.L (2011). Microbial diversity in vermicompost and its utilization as potential bio- control agents. In: M. S. Sajeev, M. Anantharaman, G. Padmaja, M. Unnikrishnan, V. Ravi, G. Suja and Vinayaka Hegde (eds). Climate Change and Food Security: Challenges and opportunities for Tuber Crops, CTCRI, Thiruvananthapuram.pp 394-398.
51. Meera Pandey and **Veena S.S**. (2011). Potential of Mushrooms in Commercial Agri-horticultural System *Proc. 98th Indian Science Congress,* 3-7th Jan 2011 at SRM University, Kattankulathur, Tamilnadu *Part II* : Abstracts of Symposium/Invited Lecture. pp 18-19
52. **Veena. S. S** and Meera Pandey (2010). A simple method for culture conservation of some commercial mushrooms. ***Mycosphere*** 1(3): 191-194.
53. **Veena. S. S** and Meera Pandey (2010) Effect of Spawn Substrate and Spawn rate on Cultivation of *Ganoderma lucidum. Journal of Mycology and Plant Pathology* 40(1): 158-161
54. **Veena. S. S,** Anadaraj, M & Sarma Y.R (2010). Variabilty in the sensitivity of *Phytophthora capsici* isolates to potassium phosphonate. *Indian Phytopathology* 63 (1):71-75
55. D. Minoo, V. N. Jayakumar, **S. S. Veena,** J. Vimala, A. Basha, K. V. Saji, K. Nirmal babu, K. V. Peter (2008) Genetic variations and interrelationships in *Vanilla planifolia* and few related species as expressed by RAPD polymorphism. *Genet Resour Crop Evol* 55:459-470.
56. Soudamini Mohapatra, Meera pandey, A. K. Ahuja, **Veena S. S,** Sandhya R (2008). Degradation of Lindane and Imidacloprid in soil by *Calocybe indica*. *Pesticide Research Journal* Vol 20 (1): 143-145
57. Anilkumar R, Vasu K, Suseela Bhai R, Velayudhan KT, **Veena. S.S,** Ramachandran V and Unnikrishnan G (2008). Translocation and distribution of ^{32} P labelled potassium phosphonate in black pepper (*Piper nigrum* L). In: K.S. Krishnamurthy, D. Prasath, K. Kandiannan, R. Suseela Bhai, K.V. saji and V. A. Pathasarathy (Eds.). Piperaceae Crops- Technologies and Future Prospectives, Indian institute of Spices Research, Calicut, November, 2008. Pp 353

58. R. Suseela Bhai, M Anandaraj, Y R Sarma, **S S Veena** & K V Saji (2007). Screening of black pepper (*Piper* nigrum L.) germplasm for resistance to foot rot disease caused by *Phytophthora* capsici Leonian. *Journal of Spices and Aromatic Crops* 16(2): 115-117.
59. Meera Pandey & **Veena S. S** (2007) Mushrooms for aesthetic Industry. *Mushroom Biology and Biotechnology* . Eds: R. D. Rai, S. K. Singh, M. C. Yadav and R P Tewari, Mushroom Society of india pp 259 – 264.
60. **Veena. S. S** & Meera Pandey (2006). Evaluation of the locally available substrates for the cultivation of indigenous *Ganoderma* isolates. *J. Mycol.Pl. Pathol* 36 (3) : 434 - 438.
61. **Veena. S. S** & Meera Pandey (2006) Effect of temperature and humidity on yield and quality parameters of *Ganoderma lucidum*. *Mushroom Research* 15(2): 125-128.
62. **Veena. S. S,** Anadaraj, M & Sarma Y.R (2006) Compatibility of Potassium Phosphonate with *Trichoderma harzianum***.** *J. Mycol.Pl. Pathol.*36 (2) : 171-174
63. Meera Pandey and **Veena S.S.** 2004. Mushroom gardening –A novel aspect in landscaping. In: Sathanarayan Reddy B.S, Janakiram, T, Balaji S. Kulkarani and Naryanswamy P. (Eds). Emerging trends in Ornamental Horticulture.pp- 175-178.
64. P. Mohamed Shafi, M . K. Geetha Nambiar, Robin A. Clery, Y.R Sarma and **Veena,S.S** 2004. Composition and antifungal activity of the oil of *Artemesia nilagirica* (Clarke) Pamp, *Journal of Essential Oil Research* 16 : 377-379
65. Indira Devi, G. Geetha Parameswaran. and **Veena, S.S** (2004) Synthesis and characterization of lanthanide (III) perchlorate complexes of some Schiff base ligands. *Asian Journal of Chemistry* 16 (1): 493-500
66. Indira Devi, G . Geetha Parameswaran. and **Veena, S.S** (2004)Antifungal studies of transition metal complexes of schiff bases derived from anthracene carboxaldehyde-L-Tyrosine. *Asian Journal of Chemistry.* 16 (2): 884-890
67. Marykutty, P.V., Geetha Parameswaran. and **Veena, S.S** (2004). Physico- chemical Studies, Thermal Decomposition Kinetics and Antifungal Studies of some bivalent metal complexes of Camphor –2- aminophenol. *Asian Journal of Chemistry.* 16 (2): 891-898
68. Marykutty, P.V., Geetha Parameswaran. and **Veena, S.S** (2004). Structural and antifungal studies of metal complexes of 1,3- cyclohexane dione – 2 aminophenol and 2 amino thiophenol. *Proceedings of the XVI Kerala Science Congress, CWRDM, Kozhikode*, Jan 29 - 31, 2004.
69. Meera Pandey and **Veena. S. S**. (2003). Mushroom cultivation- An appropriate technology for the rural areas. *Proceedings of the International Seminar on Downsizing Technology for rural Development*, RRL, Bhuvaneswar, Oct 7-9, 2003. pp. 202-209.
70. Sarma, Y.R, Anandaraj, M, Suseela Bhai, R, **Veena, S.S** and Rajan, P.P 2002. Wrong Plant Disease Diagnosis results in heavy crop loss- Vanilla bean (pod) rot a case study. *ISS News letter* 4(1): 6
71. Sarma, Y.R**.,** Anandaraj, M., Kumar, A & **Veena, S.S.** 2001 Phyllody disease of black pepper. *Indian Journal of Arecanut, Spices and Medicinal Plants.* 3: 18
72. **Veena, S.S.**and Peethambaran, C.K 2000 Variability of *Phytophthora capsici* isolates from black pepper. *Indian Phytopathology* 53 : 371
73. **Veena, S.S**., Peethambaran, C.K and Sarma, Y.R 2000 *Phytophthora katsurae* Ko and Chang as the causal agent of bud rot of coconut in some parts of Kerala, India. *Proceedings –Indian Phytopathological Society –Golden Jubilee International Conference on Integrated Management for Sustainable Agriculture*.Vol I pp- 495 –496

74. **Veena,S.S** and Sarma,Y.R 2000 Uptake and translocation of potassium phosphonate and its protection against *Phytophthora capsici* in black pepper. In: Ramana, K.V, Santhosh J Eapen, Nirmal Babu, K, Krishnamoorthy,K.S and Kumar,A (Eds.) *Spices and Aromatic plants- Challenges and Opportunities in the New Century*, Indian Society for Spices, Calicut, Kerala pp. 243-248.
75. Kumar, A, Anandaraj, M, Srinivasan,V, **Veena,S.S** and Sarma,Y.R 2000 Coconut water amended coirpith;a conducive medium for mass multiplication of biocontrol agent *Trichoderma* spp. In: Ramana, K.V, Santhosh J Eapen, Nirmal Babu, K, Krishnamoorthy,K.S and Kumar,A (Eds.) *Spices and Aromatic plants- Challenges and Opportunities in the New Century*, Indian Society for Spices, Calicut, Kerala pp 267-273
76. **Veena, S.S.**and Peethambaran, C.K 1998 Biocontrol strategy for management of *Phytophthora* infection in black pepper. In: Damodaran,A.D (Ed.) *Proceedings of the 10 th Kerala Science Congress* 2-4 Jan, 1998 , Kozhikode pp-147-150.
77. **Veena, S.S.,** Rema Devi,L and Peethambaran, C.K. 1993 Fluctuations in water potentials of leaf surface for the management of powdery mildew of pumpkin, *Cucurbita moschata.* In : Damodharan, A.D (Ed.)*Proceedings of the 5 th Kerala Science Congress*, Kottayam.pp-149

Books/Book chapters

1. **Veena, S. S.** C. Visalakshi Chandra, M. L. Jeeva and T. Makeshkumar. 2021. Postharvest Diseases of Tropical Tuber Crops and Their Management. In: Postharvest handling and diseases of horticultural produce. Dinesh Singh, Ram Roshan Sharma, V. Devappa, and Deeba Kamil (Eds).CRC Press, 6000 Broken Sound Parkway NW, Suite 300, Boca Raton, FL 33487-2742. 397-414 (437pp)
2. Jeeva, M.L., **Veena, S.S**., Makeshkumar, T.(2021). Integrated Disease Management in Tropical Tuber Crops. In: Recent Advances in Root and Tuber Crops. Sanket J. More, Namrata Ankush Giri, Suresh Kumar J, Visalakshi Chandra C, Sirisha Tadigiri (Eds). 406 pp. ISBN: 978-93-90757-44-2, e-ISBN: 978-93-90757-47-3
3. Jeeva, M. L., **Veena, S.S**., Makesh Kumar, T. and Arutselvan, R. 2020. Potential strategies to mitigate emerging diseases of tropical tuber crops. In: *Proceedings of the International Webinar on Harnessing the Potential of Tropical Tuber Crops Under Changing Climate* (HPTTC 2020), Byju G., Sanket J. More and Jaganathan D. (Eds.). ICAR-Central Tuber Crops Research Institute, Thiruvananthapuram, Kerala, India. pp. 70-82.
4. Meera Pandey and **Veena S.S** (2015). Diversity and conservation of medicinal mushrooms of India in K.K. Janardhanan and T.A. Ajith (Eds). Developments in medicinal mushroom biology and therapeutic properties. Pp 155-174
5. M. Senthil Sankar, Vishnu. S. Nath, Raj Shekhar Misra, M.L. Jeeva, Vinayaka Hegde and **S.S. Veena**. 2013. Comparison of eliciting activity of culture filtrates from a virulent and a non- virulent isolate of *Phytophthora colocasiae* on taro. In: Aroids Opportunities and challenges. R. S. Misra and M. Nedunchezhiyan (eds.). Allied publishers private limited. pp.631. ISBN 978-81-8424-827-2
6. **Veena. S.S** (Veena Ashok). 2011. History of Plant Pathology of Horticultural Crops. In: The Science of horticulture. K. V. Peter (ed). Vol. 1, New India Publishing Agency, New Delhi. pp 179-198.

7. Meera Pandey, Nita Khandekar and **Veena S.S**. 2011. Status and problems of mushroom industry in Karnataka – A Few case studies In: Diversity and Production of Edible Mushrooms. S. Kannaiyan, T. Marimuthu and K. Lenin (eds.) Associated Publishing Company. viii, 184 p,ISBN : 81-85211-91-4
8. Meera Pandey and **Veena S.S.** 2010. Medicinally important mushrooms. In Lifestyle Horticulture. Editors T. Janakiram, K.V. Prasad, K.P. Singh & Kishem Swaroop. Vol 48, page-118-124.

Technical Bulletins

1. G. Byju, **S.S. Veena**, V. Ramesh, G. Suja, V. Ravi, S. Sunitha,M.N. Sheela, C.A. Jayaprakas, M.S. Sajeev, A. Asha Devi, Shirly Raichal Anil, J. Sreekumar, T. Makeshkumar,A.N. Jyothi, M.L. Jeeva, P. Murugesan, Saravanan Raju,C. Mohan, H. Kesava Kumar, K.I. Asha, V.S. SanthoshMithra, Vivek Hegde, E.R. Harish, A.V.V. Koundinya,R. Muthuraj, D. Jaganathan, V.R. Sasankan,D.T. Rejin, R. Shiny.2020. Deluge of August 2018 in Kerala State,India: Changes in Soil Properties. Technical Bullettin Series: 78. ICAR- CTCRI.
2. Vinayaka Hegde, M.L. Jeeva, T. Makeshkumar. R.S. Misra and **S.S.Veena (2010).** Diagnostic Techniques for Diseases of tropical Tuber crops. CTCRI, Thiruvananthapuram. 56 p.
3. Anandaraj,M and **Veena,S.S** 2000 Diseases of Tree spices and Vanilla. In: Madan,M.S & Jose Abraham(Eds.) Spices Production Technology, Agricultural Technology Information Centre, Indian Institute of Spices Research, Calicut pp-84-85
4. Meera Pandey, Tewari, R.P and **Veena,S.S** (2004) Technical bulletin on Edible mushroom cultivation.

Technologies developed

- **Management of taro leaf blight incidence**

Foliar application with Metalaxyl-Mancozeb (0.1%) as prophylactic (45 days after planting) and repeat application of the same at 15 days intervals, until symptoms considerably subside. Treating the cormels with Metalaxyl-Mancozeb (0.05%) prior to planting significantly reduces field incidence of TLB. (Fig.1)

- **Organic management of taro leaf blight incidence**

Prior to planting, treat the cormels with *Trichoderma* enriched (@5g/kg corm) cowdung slurry. Apply *Trichoderma* enriched vermicompost @100 g/plant at the time of planting and during intercultural operations. **or**

Prior to planting, treat the cormels with 10% vermiwash and apply vermicompost @ 100 g/plant at the time of planting. Foliar and soil application of 10% vermiwash before rain and at 15 days interval during monsoon.

- **Management of collar rot disease in elephant foot yam**

Follow strictly the following practices
Use disease free corms for planting, plough deeply to bury or kill sclerotia and hyphae of the pathogen in the field, improve drainage in field, remove infected plants from the field and follow crop rotation.
Chemical management

Treat the corms three days before planting with combination fungicide, mancozeb + carbendazim (0.2%).
Drench the plants immediately after intercultural operations with the same fungicide (0.2%).
Remove infected plants carefully and give an additional drenching with the fungicide to the nearby plants.

- **Organic management of collar rot disease in elephant foot yam**

Follow strictly the following practices

Use disease free corms for planting, plough deeply to bury or kill sclerotia and hyphae of the pathogen in the field, improve drainage in field, remove infected plants from the field and follow crop rotation.

Organic management

Treat the corms with *Trichoderma* enriched cowdung slurry, three days before planting (@ 5 g/kg corm).
Apply *Trichoderma* enriched FYM @ 3kg/pit at the time of planting.
Apply *Trichoderma* enriched vermicompost to the collar region @ 150 g/plant immediately after intercultural operations.
Remove infected plants carefully and give an additional application of *Trichoderma* enriched vermicompost to the nearby plants.

- **Management of post harvest rot in elephant foot yam**

Chemical management

Dip the corms in combination fungicide, mancozeb + carbendazim (0.2%) before storing the corms.

- **Organic management of post harvest rot in elephant foot yam**

Dip the corms in *Trichoderma* incorporated (@5g/kg corm) cow dung slurry or 0.7% *Nanma* (ICAR- CTCRI developed bio-pesticide) for 10 minutes – before storing the corms.

- **Mass multiplication of *Trichoderma* in cassava based substrates**

Mass multiplication of *Trichoderma* protocols in leftover cassava tuber, cassava powder, cassava rind, cassava tuber extrcat and cassava leaf waste obtained after extraction of bio-pesticide.

Management of taro leaf blight incidence