

**Dr. HEERA.G**  
**Assistant Professor and PI**  
**AICRP on Mushrooms, RARS(SZ),**  
**Vellayani**

**Address:**  
**Ulloor Gardens 142, Ulloor,**  
**Thiruvananthapuram-695011**  
**Phone:**  
**+91 9895839660,8921541980**  
**Email:**  
[heera.g@kau.in](mailto:heera.g@kau.in)

## Summary

A person with an aptitude and desire to upgrade knowledge and skills continuously. My research work is dedicated to mycology especially mushrooms and bacteriology also interested in plant diseases and its management. My initial work was with the devastating disease Foot rot of the King of Spices. Significant accomplishments were made by building up a repository of major pathogens of blackpepper. My research instinct was further developed with the participation in the development of new black pepper varieties from Panniyur. In the fascinating world of mycology attention was directed to the world of mushrooms. Presently working with collection and identification of wild edible mushroom, identification of medicinal mushrooms for their bioactive compounds and biomedical enrichment of mushrooms. Strain improvement with interspecific hybridisation of milky mushroom gave a successful result with the development of hybrids. My current pursuit is oriented toward the enrichment of mushrooms for the development of nutraceuticals and development of better strains with superior attributes. Popularisation of mushroom cultivation and social empowerment of women in Kerala are the significant targets as a PI of AICRP on Mushrooms.

## Research Highlights

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- Worked as Associate in the Development of two black pepper varieties, Panniyur -8 and 9 from Pepper Research Station, Panniyur
  - Process of a interspecific cross between *Calocybe indica* and *C.gambosa*
  - Development of medicinally enriched edible mushrooms
  - Identified a potential medicinal mushroom *Cyathus* for anti neutetic properties
  - Working with the identification and isolation of bioactive molecules from *Cyathus*
  - Developed a culture repository of all the major pathogens of black pepper
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## Experience

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Joined Kerala Agricultural University as Assistant Professor (Plant Pathology) in the year 2010  
Worked as Assistant Professor ( Plant Pathology ) Pepper Research station, Panniyur till 2018.  
Working as Assistant Professor and PI AICRP on Mushrooms

## Education

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- Graduated in Agricultural Science from Kerala Agricultural University (1999)
  - Post Graduation in Plant Pathology from Kerala Agricultural University(2002)
  - Ph.D in Plant Pathology from Kerala Agricultural University (2006)
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## Area of Specialization

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Mycology , Mushrooms ,Bacteriology and plant disease mangement

## Awards & Recognitions

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- KSCSTE fellowship for doing M. Sc in Plant Pathology
  - KSCSTE Senior fellowship for doing Ph. D in Plant Pathology
  - Best AICRP – AICRP on Spices with the best centre Pepper Research station, Panniyur
  - Southern Zone Councillor of Mushroom Society of India
  - Best Oral presentation in International e conference Plant pathology : retrospect and Prospects- IPS- 23-26 March 2022
  - Third best paper presentation at International Conference on Biotechnological Initiative for Climate Resilient Agriculture, RPCAU, Pusa, 07-09- Jan 2022
  - Award for the best poster Anthracnose ; A menace to betel vine National Symposium “Emerging trends in plant health management in relation to climate change by Indian Phytopathological Society and UHS Bagalkot.
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## Research Projects

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### Ongoing

1. AICRP on Mushrooms

### Completed- AICRP on Spices

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1. Management of Phytophthora foot rot disease in black pepper ( Existing and New Plantation)
2. Studies on the management of Phytophthora causing foot rot in black pepper
3. Biological Management of slow decline in black pepper
4. Standardization of drip fertigation in black pepper
5. Development and adoption of microbial inoculant technology for farming systems of Kerala- GoK
6. Development of technologies including alternatives for banned pesticides for the management of pest and diseases of major crops in Kerala- RKVY

## Publications

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### Journal Articles

1. Anupama, T.V., Jacob, D., Heera,G., Jayaraj, P. And Neema,V.P. 2014. Evaluation of contrastingmangement systems on rhizosphere microbial population, quality and yield of black pepper. *Journal of Plantation Crops*. 42(1); 124-127
2. Heera, G., Suharban,M. And Geetha, D. 2015.Biotransformation of lignocellulosic agro waste to protein rich food- Milky mushroom. *International Journal of Agriculture , Environment and Biotechnology*. 8: 1091-1095.
3. Karthika , S.R. Sajeena, A., Girija, V.K., Jacob, John and Heera, G. 2017.Antifungal activities of organic preparations, botanicals and non hazardous chemicals against Rhizoctonia Kuhn. Causing sheath blight of rice. *Journal of Tropical Agriculture*. 55(1): 104-113.
4. Heera, G., Neema , V.P, Ajith, P.M. and Anupama T.V. 2016. Quality planting material production of black pepper ( *Piper nigrum* L.) under nursery conditions. *Advances in planting Material production in technology in Spices*. 12-122
5. Nisha A. and Heera G. 2021. Morphological and pathogenic variability of *Colletotrichum gloeosporioides* inciting anthracnose in betel vine (*Piperbetle*L.). *J. Farm Sci.*, 34 (2):196-203.

6. Sharma, V. P., Heera G, Satish Kumar and Manoj Nath. 2020. Development and identification of high yielding strain of *Calocybe indica* based on the multi location trials. *Mushroom Res.* 29(1):47-50
7. Heera, G., Suharban, M. and Geetha D. 2020. Solarisation – An effective low-cost substrate sterilization technique for the cultivation of milky mushroom (*Calocybe indica*). *Mushroom Res.* 29 (1): 51-56
8. Aparna, R.S., Heera, G., Susha, S. T. and Sreeja. S.J .2022. Effect of medicinal plant extracts on mycelial growth of *Pleurotus florida* . *Mushroom Res.*31 (1) : 109-112, 2022
9. Vijeth, S., Heera, G., and Ayisha, R. 2022 Single spore isolation and interspecific hybridization of *Calocybe* spp. *Mushroom Res.* 31 (1) : 49-60
10. Divya,B., Heera G., Joy Michal Johnson., , Radhika, N.S. and Sreekala, G.S.2022. Efficacy of new generation and combination fungicides under *in vitro* for the management of anthracnose of nutmeg (*Myristica fragrans* Houtt.) *Biological Forum – An International Journal* 14(2): 1206-1210

## Papers presented in Seminar and Symposium

1. Attended and presented a paper at National Seminar on Planting material production in Spices by Directorate of Arecanut and Spices, Calicut in April 21-22, 2016

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2. Integrated Management of Fusarium and Sclerotium in black pepper National Symposium “Emerging trends in plant health management in relation to climate change by Indian Phytopathological Society and UHS Bagalkot

3. Anthracnose; A menace to betel vine . National Symposium “Emerging trends in plant health management in relation to climate change by Indian Phytopathological Society and UHS Bagalkot.

4. Cultural characterization of a potent native isolate of Milky mushroom and Birds nest fungi - National Web Conference on Mushroom: Opportunities and Challenges. 15-17 April 2021.

5. Birds nest fungi- Cradle of potentiality- National Web Conference on Mushroom: Opportunities and Challenges. 15-17 April 2021

6. Evaluation of oyster and milky mushroom for their suitability to Kerala- International Conference on Biotechnological Initiatives for climate resilient Agriculture – Dept of Agr Biotechnology and molecular biology, Central Agricultural University , Pusa 7-9 Jan 2022

7. Strain improvement of *Calocybe* spp . by hybridization.- International Conference on Biotechnological Initiatives for climate resilient Agriculture – Dept of Agr Biotechnology and molecular biology Central Agricultural University , Pusa. 7-9 Jan 2022

8. Development of improved strains of *Calocybe* spp through inter specific hybridization- International e conference Plant Pathology : Retrospect and Prospects- IPS- 23- 26 March 2022

9. Effect of medicinal amendments on yield and bioactive compounds of oyster mushroom, *Pleurotus florida* National Seminar on Fundamental And Applied Dimensions In Plant Sciences. JNTBGRI 24-25 March 2022

### *Trainings attended*

1. Hands on training on Microbial identification- Biochemical, Genotypic and Mass Spectrometric methods by NCRMI, 15 February to 7 March 2017

2. Quarantine Pathogens: Seed Health Testing Methods and Molecular diagnostic techniques organised by NIPHM, Hyderabad, 7- 14 September 2015

3. Advanced National Mushroom training on Mushroom production and Processing technology organised by Indira Gandhi Viswavidyala and NADCL, 2-23 March 2021

## Student Guidance (Major Advisor/ Advisory Committee member)

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**M. Sc.** Completed: 5 , Ongoing: 2

**Ph. D** Ongoing : 2

## **Other Institutional Responsibilities**

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1. Currently acting as student Advisor/faculty mentor to 10 Undergraduate students.
2. Currently south zone councillor of the Mushroom Society of India.

## **Membership in Professional Associations**

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1. Life member of Indian Phytopathological Societ
2. Life Member of Mushroom Society of India
3. Life member of Indian Society for Plantation Crops