



Dr. RAJAN.PP

Assistant Professor
Post Graduate Department of Botany
The Zamorin's Guruvayurappan College
Kozhikode - 14, Kerala

Puthanpurayil, Cherinchal, Karanthur. PO
Kunnamangalam, Kozhikode - 673 571

Email : rajanbotany@gmail.com

Teaching and Research Experiences:

1. Worked for Ph.D as CSIR research scholar from 1992-1997 under the guidance of Dr.YR. Sarma, Director (Rtd.), Indian Institute of Spices Research, Calicut on "Integrated Diseases Management of *Phytophthora* infections in Black pepper (*P.nigrum* L.)"
2. Worked as Research Associate at Indian Institute of Spices Research , Calicut from 1997 (August) to 1998 (April) in ICAR Ad-hoc scheme "Integrated Management of Rhizome rot of ginger".
3. Worked as Research Consultant at Indo-Swiss Project, Sikkim from April 1998 till March 2001 on disease management of ginger
4. Experience in designing the experiments and field trials in hill y state (Sikkim) as part of the disease management programme for 3 years
5. Worked as Research Associate at Indian Institute of Spices Research, Calicut from April 2001 to August 2002 in "National Network Project on *Phytophthora* diseases of Horticultural Crops (PHYTONET).
6. Worked as guest lecturer from September 2002 to December 2005 in Post Graduate Department of Botany, Zamorin's Guruvayurappan College, Calicut.
7. Presently working as lecturer (From December 2005), in Post Graduate Department of Botany Zamorin's Guruvayurappan College, Calicut.
8. Principal Investigator, UGC Major Research Project: Isolation, Identification and evaluation of botanicals and biocontrols against major fungal and bacterial pathogens of spice crops (2008-2011).

Research Accomplishments:

- * As part of the Ph.D programme, I have isolated and identified microorganisms from rhizosphere and rhizoplane of black pepper. These organisms were screened for their antagonism against the foot rot pathogen - *Phytophthora capsici*. The isolates, which were found effective in laboratory conditions and also under pot culture were short listed and the efficient isolates evaluated under field conditions at Pulpally (Wyanad).
 - * From the laboratory, pot culture and field evaluation studies, four isolates were found highly potential as antagonists against the foot rot disease. The most potential and effective isolate (P26) is being used extensively for foot rot disease management in Kerala, Karnataka, Tamil Nadu and Andhra Pradesh.
 - * Under integrated disease management (IDM) programme of foot rot of black pepper, pot culture studies conducted including host resistance, nutrition, cultural practices, soil amendments and plant extracts along with potential biocontrol agents found most effective in management of foot rot of black pepper.
 - * During the particular period (Ph.D programme), *Verticillium tenerum* was isolated and identified for the first time in rhizosphere of black pepper which was found suppressive to *Phytophthora capsici*.
 - * The etiology of rhizome rot of ginger in Sikkim was initiated and identified the complexity involving *Pythium* spp., *Fusarium oxysporum*, *Pratylenchus coffeae* and *Ralstonia solanacearum*. Fluorescent pseudomonas and Trichoderma were identified as biocontrol agents which are now under field level
 - * Prepared biodiversity register of The Zamorins's Guruvayurappan College in collaboration with Department of Zoology (ZG College), with the financial assistance from Kerala Biodiversity Board, during 2010.
- Member, Board of Studies, Botany. M.Sc, University of Calicut
 - Member, Board of Studies, Plant Science, M.Sc., University of Calicut
 - Additional chief of University Examinations, 2014 March, April, May
 - Member, Preparation of syllabus for the selection of college teachers, Kerala Public Service Commission, 2014
 - Member, Preparation of syllabus for the selection of HSA, Kerala Public Service Commission, 2014
 - Member of examiners - St. Joseph's College, Devagiri (Autonomous)

Publications:

- 1 **Rajan.PP** and Sarma.YR (1993): Biocontrol programmes on foot rot of *black pepper (P.nigrum L.) caused by Phytophthora caspici*. **Phytophthora news letter**, 1993, p.20
- 2 Sarma. YR, Anandaraj. M and **Rajan.PP** (1994): *Phytophthora* - a threat to black pepper, present status and future strategies of disease management. **Spice India**, Vol.7, No.11, pp. 10-13.
- 3 Sarma. YR, Anandaraj. M, Venugopal. MN, Suseela Bhai. R, **Rajan.PP**, Ramana. KV and Santhosh apen. J (1996): Eco-friendly disease management strategies in spice crops. **Planters Chronicle**, Vol. 19, pp. 15-18.
- 4 **Rajan. PP** and Sarma. YR (1997): Compatibility of Potassium Phosphonate (Akomin-40) with different species of *Trichoderma* and *Gliocladium virens*. Paper presented in symposium: Biotechnology of spices and aromatic plants (**BIOSAP**), Calicut
- 5 Sarma. YR, Anandaraj. M and **Rajan.PP** (1997): Management of foot rot of black pepper - biocontrol strategies: **Planters Chronicle**, pp. 55-58.
- 6 Beena. N, **Rajan. PP**, Sarma. YR and Anandaraj. M (1997): Control of ginger storage rot by agrochemicals and biocontrol. Paper presented in International conference on integrated plant disease management for sustainable agriculture, 10-15, November 1997, New Delhi.
- 7 Rajan.PP and Sarma.YR (1997): Effect of Nutrition on *Phytophthora* foot rot of black pepper (*P.nigrum L.*): Symposium on economically important diseases of crop plants, December 18-20, 1997, **IPS** (South Zone), IIHR, Bangalore, and UAS Bangalore
- 8 **Rajan.PP** and Sarma. YR (1997). *Verticillium tenerum* (Nees ex pers), a potential biocontrol agent against *Phytophthora capsici*, the foot rot pathogen of black pepper (*P.nigrum L.*). Paper presented in International conference on integrated plant disease management for sustainable agriculture, 10-15, November 1997, New Delhi.
- 9 Bindu. TK, hafi. PM, **Rajan.PP** and Sarma. YR (1998): Antifungal activity of *Uvaria narum* extracts. **Allelopathy Journal**, 5(1): 67-74.
- 10 **Rajan.PP**, Gupta. SR, Sarma. YR and GVH. Jackson (1999): Ginger diseases in Sikkim and their control with *Trichoderma harzianum*. Paper presented in **IPS** South zone symposium held at CPCRI, Kayamkulam, Kerala, India, December 14-16, 1999.
- 11 **Rajan.PP** (1999): Technical report of ginger pathogenicity and disease management studies, conducted as part of the GDTF programme (1998-1999), March 1999, submitted to Indo-Swiss Project, Sikkim (**ISPS**), Gangtok

- 12 **Rajan.PP** (2000) Technical report on activities of GDTF laboratory (1999-2000), March 2000, submitted to Indo-Swiss Project, Sikkim (**ISPS**), Gangtok
- 13 **Rajan.PP**, Gupta. SR, arma. YR and GVH. Jackson (2000): Endophytic bacteria, its growth promotive and disease suppressive activities in ginger (*Zingiber officinale* Rosc.), Proc. Centennial Conference of Spice and Aromatic Plants (**CC-SAP**). Calicut, September 20-23, pp. 240-253.
- 14 **Rajan. PP** and Sarma. YR (2000). Effect of organic soil amendments and chemical fertilizers on foot rot pathogen (*Phytophthora capsici*) of black pepper (*P.nigrum* L.), Proc. Centennial Conference of Spice and Aromatic Plants (**CC-SAP**). Calicut, September 20-23, pp. 254-258.
- 15 **Rajan.PP** (2001) Technical report on activities of GDTF laboratory (2000-2001), March 2001, submitted to Indo-Swiss Project, Sikkim (**ISPS**), Gangtok
- 16 Sarma. YR, **Rajan.PP**, Beena. N, Diby Paul and Anandaraj. M (2000). Role of rhizobacteria on disease suppression in spices and future prospects. Seminar on Biological Control and **PGPR** for Sustainable Agriculture. Department of Plant Science, University of Hyderabad, April 3-4, 2000.
- 17 Sarma. YR, Anandaraj. M, Kumar. A, **Rajan. PP**, Diby Paul and Jizha. PJ (2000). PGPRs for the suppression of soul borne disease of black pepper (*P.nigrum* L.) and ginger (*Zingiber officinale* Rosc.). In fifth International **PGPR** workshop, Cordoba, Argentina, October 30- November 3, 2000.
- 18 Saju. KA, **Rajan. PP**, Anandaraj. M and Sarma. YR (2001). Loss of virulence of *Phytophthora capsici* on exposure to volatile metabolites of *Trichoderma* spp. National Symposium of Eco-friendly approaches for plant disease management, January 22-24, Chennai.
- 19 **Rajan. PP**, Sarma. YR and Anandaraj. M (2002). Management of foot rot disease of black pepper with *Trichoderma* spp., **Indian Phytopathology**, 55(1), 34-38.
- 20 **Rajan.PP**, Gupta. SR, Sarma. YR and GVH. Jackson (2002). Disease of ginger and their control with *Trichoderma harzianum*, **Indian Phytopathology**. 55(2), 173-177.
- 21 Sarma. YR, Anandaraj. M and **Rajan. PP** (2002). Integrated disease management of spice crops. In: Symposium on perspectives in integrated plant disease management, 13-14, February 2002, NRCC Nagpur.
- 22 Anoop.KP and **Rajan.PP** (2010). Evaluation of plant extracts against foot rot pathogen of black pepper, *Phytophthora capsici*. Paper presented in "Changing scenario of crop plants due to diseases in relation to climate change" **Indian Phytopathological Society** (Southern Zone), IISR, Calicut.

- 23 Sreeja.K., Unni. PN and **Rajan.PP** (2010). Conservation of biodiversity in selected Sacred Groves of Kakkodi Panchayath, Kozhikode, Kerala- a case study. Paper presented in **First Indian Biodiversity Congress**, IBC2010, National Seminar, 28-30, December 2010, Thiruvananthapuram, Kerala
- 24 Mohanakrishnan.M, Aldo Tava, **Rajan.PP** and Shafi. PM (2013). Composition and antifungal activity of the essential oil from *Curcuma ecalcarata* Sivar. & Balach. *Int. J. Pharm Biomed Soci*, 4(3), 96-99.

Trainings:

1. Attended training on basic techniques on VAM isolation, identification and characterization and multiplication, at TERI, New Delhi, January 1999
2. Attended training in Recent techniques in DNA sequencing and cloning at CIMAP, Lucknow, December 1-10, 2001.

Improvement of Professional competence: Symposia and seminars attended

- 1 National seminar on diseases of spices, April 7-9, 1994, Calicut
- 2 National Group meeting of *Phytophthora* workers, NRCS, September, 21-23, 1994.
- 3 International symposium on plantation crops (PLACROSYM), November 30-December 3, 1994, Calicut
- 4 National seminar on biotechnology of spices and aromatic crops, April 24-25, 1996, Calicut
- 5 Annual conference on Indian Phytopathological Society (Southern Zone), November 22-23, 1996, UAS Dharwad
- 6 International conference on Integrated disease management of sustainable agriculture, November, 10-15, 1997, IPS, New Delhi
- 7 South Zone symposium of IPS, held at CPCRI, Kayamkulam, December 14-16, 1999
- 8 Centennial conference on spices and aromatic plants (CC-SAP) at IISR, Calicut, September 20-23, 2000
- 9 Attended 17th Swadeshi Science congress at The Zamorin's Guruvayurappan College, Kozhikode-14.organsed by Swadeshi Science Movement On 6-7 November 2007.
- 10 Attended the National Educational Science exhibition on Biodiversity India conducted by Malabar Botanical Garden 9-13 Feb 2008 and the Meet the Scientists programme. The Post Graduate Department of Botany organised and arranged a stall on **Small Wonders of Nature**. Educated the college, school students and Public about the biodiversity covering bacteria, algae, fungi, bryophyte, pteridophyte and gymnosperm