



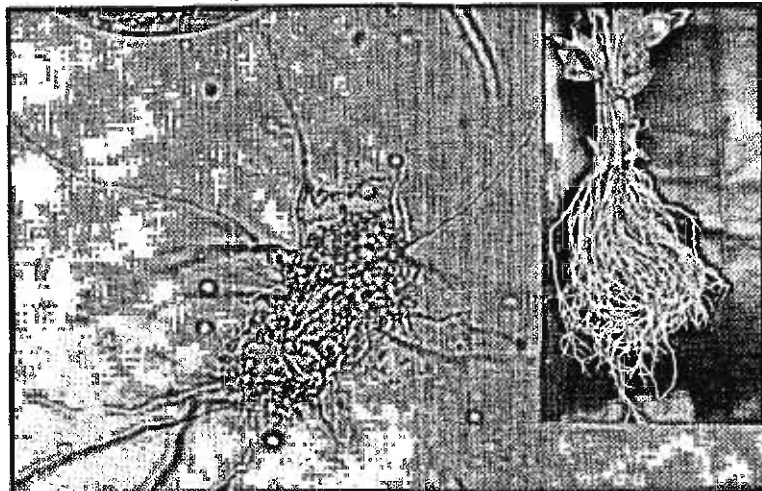
Volume 8 (2)

July-December 1997

*ZISR.  
NL-14*

## SOIL MICROBES SUPPRESS SPICES NEMATODES

**P**lant parasitic nematodes are a limiting factor in spices production and productivity in India. Though chemical pesticides are generally used for nematodes control in crop plants, the increasing awareness of 'clean spices' has necessitated the need for ecofriendly approaches in controlling the nematodes problem in spice crops. Biological control, involving antagonistic micro-organisms that compete with or directly attack the pathogen is an excellent option in this regard. Root knot nematode (*Meloidogyne* spp) and burrowing nematode (*Radopholus similis*) are two of the major nematodes affecting black pepper, cardamom, ginger and turmeric. Though many soil microbes including fungi, bacteria, protozoans, mites, predatory nematodes etc. are either



Mode of action of *Verticillium chlamydosporium* on the root knot nematode  
(Inset) *Verticillium* treated cardamom seedlings.



reported as parasites or predators of plant pathogens, only a few fungi and bacteria are considered the best candidates for control of parasitic nematodes.

Research done at the Indian Institute of Spices Research, Kozhikode have identified *Paecilomyces lilacinus*, *Trichoderma* spp, Vesicular Arbuscular Mycorrhizae (VAM) and *Verticillium chlamydosporium*, all soil borne fungi either alone or in various combinations are effective in reducing the root knot incidence and/or burrowing nematode infestations in black pepper and cardamom.

Certain soil bacteria such as *Pasteuria penetrans* and *Pseudomonas fluorescens* are also identified as effective biocontrol agents for controlling the nematode pests.

Large scale multiplication of these biocontrol agents to form a part of the integrated pest management of spices so as to produce 'clean spices' is envisaged at the Indian Institute of Spices Research, Kozhikode.

## RESEARCH HIGHLIGHTS

### **Trichoderma culture and multiplication**

Matured coconut water was observed a good medium for culturing *Trichoderma* whereas tea waste was a good substrate for mass multiplication of *Trichoderma harzianum* and *Gliocladium virens*.

### **Water requirement of black pepper in summer**

Irrigating black pepper trailed on *Erythrina* with seven litres of water<sup>1</sup> plant<sup>1</sup> day<sup>1</sup> during October-May enhanced the pepper yield (4.07 Kg vine<sup>-1</sup>) over unirrigated control (1.33 Kg vine<sup>-1</sup>).

### **Polyploid ginger**

Two polyploid lines of the ginger variety 'Varada' were induced by colchicine treatment.

### **Isozyme variability in ginger and turmeric**

Ginger and turmeric accessions from the same geographical area showed high percentage similarity in isozymes profile. Polyphenol oxidase and peroxidase isozymes are found ideal for the characterization of ginger and turmeric germplasm. Isozyme variability was more in turmeric than in ginger.

### **Karyotype variability in ginger**

Karyotype analysis was done in four distinct ginger accessions viz., 'Maran', 'China', 'Varada'(cultivars) and 'Sabarimala'(wild type). The karyomorphological characters were compared to estimate the extent of relationship among them. 'Sabrimala' was found very distinct from the cultivated types.

### **Allspice grafting**

Approach grafting of rooted cuttings of Allspice on dwarf/semidwarf allspice was successful.

### **Economics of black pepper cultivation**

A study on the economics of black pepper cultivation showed that the cost of production of black pepper under mixed and monocropping system are Rs. 31/- and Rs. 28/- per kg, respectively. The major component of cost was labour.

### **Biocontrol of ginger rhizome rot & Phytophthora foot rot in black pepper**

Three isolates of fluorescent *Pseudomonads* were promising in suppressing the rhizome rot disease of ginger caused by *Pythium aphanidermatum*. Cell free culture filtrate of *Verticillium*

*chlamydosporium* showed varying degrees of inhibition of sporulation and zoospore germination of *P. capsici*.

### **Epidemiology of foot rot disease of black pepper**

Spatio Temporal Distance Class (ST Class) analysis of *Phytophthora* foot rot of black pepper indicated that disease spreads non-randomly and secondary spread is clustered around the previously affected vines. The population increase of *Phytophthora capsici* is dependant upon moisture build up in soil and related to the feeder root production during monsoon period.

#### **Mixed cropping of vanilla with coconut**

Vanilla - coconut mixed farming was found to be very remunerative. In a 24 acre farmer's plot at Kadur, Chickamagalure, Karnataka, vanilla planted at a distance of 5'x5' in coconut garden with drip irrigation system recorded very good yield of vanilla beans.

### **GERMPLASM ENRICHMENT**

A morphological variant of nutmeg characterised by wide canopy, longer, broader and thicker leaves, wavy leaf blades, bold nuts with thick reddish mace, more branches (5-6 in number) at regular intervals with swollen base was located in a farmer's plot at Ulliyeri in Kozhikode. Eleven new accessions of cardamom were collected from different estates. The other collections include 4 accessions each of vanilla and *Garcinia*.

### **PARTICIPATION IN SYMPOSIUM/ SEMINARS**

#### **Y.R.Sarma**

- Workshop on Biocontrol, Project Directorate of Biocontrol, Bangalore, 18-20 June, 1997.

#### **K.V. Peter, A.K. Sadanandan, Y.R. Sarma, P.N.Ravindran, K.V.Ramana, K. Nirmal Babu, T. John Zacharia and K.Kandiannan**

- XIV Workshop of AICRP on Spices, UAS, Bangalore, 8-10 July, 1997.

#### **K.A. Saju**

- XII Annual Convention of Indian Virological Society and Symposium on Resurgence of Vector Borne Viral Diseases. B.A. College of Agriculture, GAU, Anand, 1-2 August, 1997.

#### **K.V.Ramana and Santhosh J.Eapen.**

- Biennial Group Meeting of the AICRP on Plant Parasitic Nematodes, UAS, Bangalore 23-26 September, 1997.

#### **V.S.Korikanthimath and P.Rajeev.**

- Western Ghat Biodiversity Conference, Biodiversity Initiative Trust, Mangalore, Karnataka, 4-5 October, 1997.

#### **K.V. Peter, K.V. Ramana, A.K. Sadanandan, K.P. Prabhakaran Nair, V.S. Korikanthimath, M.N. Venugopal, B. Krishnamoorthy, M. Anandaraj, B. Sasikumar, Rajendra Hegde, Santhosh J. Eapen, M.V. Prasad, S.J. Anke Gowda, P. Rajeev, K.S. Krishnamoorthy, S. Devasahayam, J. Rema, K.Kandiannan, S.S. Veena, K.A.Saju and M. J. Mathew.**

- National Seminar on Water and Nutrient management for Sustainable Production and Quality of Spices, IISR, CRC, Appangala, Madikeri, 05-06 October, 1997.

#### **T.John Zacharia**

- 22nd Pepper Tech. Meeting of International Pepper Community. Cochin 06-07 October, 1997.

#### **M.J. Mathew**

- First National Symposium on Pest Management in Horticultural Crops. Environmental Implications & Thrusts. Bangalore, 15-17 October, 1997

**Y.R.Sarma, M. Anandaraj, S.S. Veena, P.P.Rajan and N. Beena**

- International Conference on Integrated Plant Disease Management for Sustainable Agriculture, IARI, New Delhi 10-15 November 1997.

**K.V.Peter**

- Interface between Principals of Colleges and R&D Institutions in Kerala. Kerala State Committee on Science & Technology, KFRI, Peechi, 15 November, 1997.

**B.Chempakam and Femeena Hassan.**

- National Seminar on the Technological Empowerment of Women in Agriculture, MSSR Foundation, Chennai, 03-04 December 1997.

**Y.R.Sarma, K.V.Ramana, M.Anandaraj, Santhosh J. Eapen, S.S. Veena, A.Kumar, P.P. Rajan N.Beena and M.N. Venugopal.**

- Economically important diseases of crop plants, UAS, Bangalore, 18-21 December, 1997.

**Santhosh J. Eapen, K.A. Saju, and M.J. Mathew.**

- Symposium on Important Disease of Crop Plants. Organized by IPS, Southern Chapter UAS, Bangalore, 18-20 December, 1997.

**GUEST LECTURES DELIVERED/PAPERS PRESENTED**

**K.V. Peter**

- Investment possibility in Kerala. Vijaya Bank Officers Meeting, Kozhikode, 17 August, 1997.

**K.V. Peter**

- R&D Programme in Spices. Canara Bank Officers Meeting, Kozhikode, 23 July, 1997.

**M.N. Venugopal, K.A. Saju & M.J. Mathew.**

- Effect of phytosanitation on recurrence of vein clearing virus (Kokke Kandu) disease of carda-

mom. National Symposium on Resurgence of Vector Borne Viral Diseases. Anand, Gujarat, 1-3 August, 1997.

**K.V. Peter**

- Issues and concerns in cardamom production. Second meeting of Kerala Agricultural Commission, CPCRI, Kasaragod, 21 August, 1997.

**S.J. Anke Gowda and K.S. Krishnamoorthy**

- Effect of moisture stress on growth of cardamom. National Seminar on Water and Nutrient Management for Sustainable Production and Quality of Spices, Madikeri, Karnataka, 5-6 October 1997.

**T.John Zacharia**

- Black pepper drying techniques at farm level. 22nd Pepper Technology Meeting. Cochin 6-7 October, 1997.

**A.K.Sadanandan, K.Kandiannan and S.Hamza**

- Soil Nutrient and Water Management for Sustainable Spices Production. National Seminar on Water and Nutrient Management for Sustainable Production and Quality of Spices, Madikeri, Karnataka, 5-6 October 1997.

**A.K. Sadanandan and S. Hamza**

- Effect of organics on nutrient-uptake, yield and quality of ginger. National Seminar on water and Nutrient Management for Sustainable Production and Quality of Spices, Madikeri, October 05-06, 1997.

**A.K. Sadanandan and S. Hamza**

- Effect of Organic Farming on Soil Quality, Crop Production and Quality of Spices. Third IFOAM-ASIA Scientific Conference and General Assembly, UAS, Bangalore, 1-4 December, 1997.

**K.V. Peter, B.Sasikumar, T. John Zacharia and P.N.Ravindran**

- Breeding Programme in black pepper for quality and product development. 22nd Pepper Technology Meeting, Cochin, 07-09 October 1997.

**M.J. Mathew, K.A. Saju and M.N. Venugopal**

- Efficacy of neem products on the cardamom aphids *Pentalonia nigronervosa* Caladi Van der Goot, the vector of 'Katte' and 'Kokke kandu' disease of cardamom. First National Symposium on Pest Management on Horticultural Crops. Environmental Implications and Thrust, Bangalore 15-17 October.

**S. Devasahayam**

- IPM in Spices - Challenges for the future. First National Symposium on Pest Management in Horticultural Crops. Environmental Implications and Thrust, Bangalore, 15-17 October, 1997.

**Y.R. Sarma**

- Biocontrol of plant diseases - Antibiotics/hyper parasitism/competition. Technical Co-operation for Developing Countries. Intern. Workshop on Application of Biotechnology, Biofertilizers and Biopesticides, New Delhi, 15-18 October, 1997.

**Y.R. Sarma**

- Status of disease management in *Phytophthora* disease of plantation crops-Presents cenário and future strategies. International Conference on Integrated Disease Management for Sustainable Agriculture, IARI, New Delhi, 10-15 November, 1997.

**T. John Zacharia**

- Quality analysis of major spices. One day Workshop organised by Fragrance and Flavours Association of India, Cochin, 15 October 1997.

**M.J. Mathew, K.A Saju, and M.N Venugopal.**

- Management of *Pentalonia nigronervosa* Caladi Van der Goot- vector of cardamom mosaic virus ('Katte') and cardamom vein clearing virus ('Kokke kandu') through eco-friendly vector control measures. Symposium on Economically Important Disease of Crop Plants, Bangalore, 18-20 December, 1997.

**K.A.Saju, M.N. Venugopal and M.J. Mathew**

- Vector population in relation to incidence of mosaic and vein clearing disease of cardamom. Symposium on Economically Important Disease of Crop Plants, 18-20 December, 1997, Bangalore.

**Santhosh J. Eapen, K.V. Ramana and Y.R.Sarma**

- Biological control of plant parasitic nematodes of major spice crops- Present status and future. Symposium on Important Disease of Crop Plants. IPS Southern Chapter, UAS, Bangalore, 18-20 December, 1997.

**S.S.Veena and C.K. Peethambaran**

- *Verticillium chlamydosporium* for the suppression of infection in black pepper. Symposium on Economically Important Disease of Crop Plants, UAS, Bangalore 18-20 December 1997.

**M. Anandaraj and Y.R.Sarma**

- ST Class - Spatiotemporal distance class analysis of *Phytophthora* foot rot disease of black pepper. Symposium on Economically Important Disease of Crop Plants, UAS, Bangalore, 18-20 December, 1997.

**A.Kumar**

- Variation in antifungal metabolite production of triazole tolerant biotypes of *Trichoderma viride*. Symposium on Economically Important Disease of Crop Plants, UAS, Bangalore 18-20 December, 1997.

## PUBLICATIONS

## Review Articles

Peter, K.V and Sasikumar, B. 1997. Spices. Silver Jubilee Souvenir, Indian Society for Plantation Crops, 105-118.

Ramana K.V. and Santhosh J. Eapen. 1997. Nematology in Kerala - An overview. In: Phytonematology in India (Ed) P.C. Trivedi. CBS Publishers & Distributors, New Delhi, 217-251.

Ramana K.V and Santhosh J. Eapen. 1997. Plant Parasitic nematodes associated with spices and condiments. In: Nematode disease in plants (Ed.) P.C. Trivedi, CBS Publishers & Distributors, New Delhi, pp. 217-251.

## Research Articles

Anandaraj, M and Sarma, Y.R. 1997. Mature coconut water for mass culture of biocontrol agents. *J. Plantation Crops*, 25: 112-114.

Bindu, T.K., Shafi, P.M., Rajan, P.P and Sarma, Y.R. 1998. Antifungal activities of *Uvarea narum* extract. *Allelopathy*, 5: 67-74.

Devasahayam, S, and Koya, K.M. A. 1997. IPM in Spices - challenges for the future. First National Symposium on Pest Management in Horticultural Crops. Environmental Implications and Thrusts 15-17 October, 1997. Bangalore (Abstract) p. 77.

Devasahayam, S. and Koya, K.M.A. 1997. Evaluation of plant products for antifedant activity against 'pollu' beetle, *Longitarsus nigripennis*, a major pest of black pepper. First National Symposium on Pest Management in Horticultural Crops. Environmental Implications and Thrust. 15-17 October, 1997, Bangalore (Abstract) p-85.

Korikanthimath, V.S., Ravindra Mulge, Hegde, R. and Hosmani, M.M. 1997. Coffee-cardamom-

black pepper and mandarin mixed cropping system - a case study. *J. Spices and Aromatic Crops*, 6: 1-7.

Korikanthimath, V.S., Ravindra Mulge and Hosmani, M.M. 1997. Preliminary evaluation of elite clones of cardmom for yield and yield parameters in clonal nursery. *J. Spices and Aromatic Crops*, 6:1-7.

Korikanthimath, V.S., Ravindra Mulge and Hosmani, M.M. 1997. Evaluation of elite cardamom growth parameters in clonal nursery. *Crop Research*, 14: 283-288.

Krishnamoorthy, B., Sasikumar, B., Rema, J., Johnson K. George and Peter, K.V. 1997. Genetic resources of tree spices and their conservation in India. *Plant Genetic Resources Newsletter*, 111: 53-58.

Kumar, A and Marimuthu, T. 1997. Decomposed coconut coir pith - a conducive medium for colonization of *Trichoderma viride*. *Acta. Phytopathologica*, 32 : 51-58.

Santhosh J. Eapen, Ramana, K.V & Sarma, Y.R. 1997. Evaluation of *Pseudomonas fluorescence* isolates for control of *Meloidogyne incognita* in black pepper. In: *Biotechnology of Spices, Medicinal and Aromatic Plants*. (Eds.) S. Edison, et.al. Indian Society for Spices, Kozhikode. pp 129-133.

Sarma, Y.R., Anandaraj, M., Venugopal, M.N. and Ramaña, K.V. 1998. Major disease of black pepper and cardamom and their control. *Pathological Problems of Economic Crop Plants and their Management* [Ed.] S.M. Paul Khurana Scientific Publishers, Jodhpur.

Sarma, Y.R. Anandaraj, M. and Rajan, P.P. 1997. Management of foot rot of black pepper - Biocontrol strategies. *Planter's Chronicle*, 92:555-558.

Veena, S.S, Peethambaran, C.K. and Sarma, Y.R. 1997. *Phytophthora katsurae* as the casual agent of bud rot of coconut in some parts of Kerala. International Conference on Integrated Plant Diseases Management for Sustainable Agriculture. New Delhi, 10-15 November, 1997 (Abstract).

### Popular Articles

Anke Gowda, S.J and Venugopal, M.N. 1997. Make profit by growing bush pepper. *Spice India* (Kannada), 10(8): 18-19.

Anke Gowda, S.J. 1997. Drip irrigation in horticultural crops. *Andolana Kodagu* (Kannada), 27<sup>th</sup> Sept 1997, 7:2.

Anke Gowda, S.J. 1997. Cultivation practices and uses of nutmeg. *Spice India* (Kannada), 10(10) : 20-21.

Anke Gowda, S.J. Rajendra Hegde and Korikanthimath, V.S. 1997. Rainfed cultivation practices of cardamom. *Spice India* (Kannada), 10(11): 7-8.

Femeena Hassan. 1997. Fish and duck culture together. *Karshkasree* (Mal.), September 1997, 40-42.-

Femeena Hassan. 1997. Prospects of pearl spot culture. *Malayala Manorama*, 12<sup>th</sup> December 1997.

Krishnamoorthy, B. 1997. New techniques to propagate female nutmeg plants. *Spice India* (Mal.) 10 (8):19.

Krishnamoorthy, B. 1997. Good quality cinnamon varieties. *Spice India*. (Mal.) 10(9) : 8&10.

Krishnamoorthy, B. 1997. Vegetative propagation in cassia. *Spice India* (Tamil), 10(9): 8&10.

Krishnamoorthy, B. 1997. Dwarf clove - Prepared for a leap. *Spice India* (Mal.) 10 (10):12.

Krishnamoorthy, B. 1997. We will grow vanilla. *Spice India* (Mal.) 10 (10) : 12-13.

Krishnamoorthy, B. 1997. Dwarf clove *Karshakasree* (Mal.) April 98:69.

Krishnamoorthy, B. 1997. Tree spices breeding in Kerala. *Spice India* (Hindi), 10 (5) : 10-16.

Krishnamoorthy, B. 1997. Dwarf clove. *Spice India*, 10 (6) :2

Krishnamoorthy, B. 1997. Black pepper. *Spice India* (Tamil), 10(12) : 7-10.

Krishnamoorthy, B and Balakrishnan, M. 1997. Changing male nutmeg tree into female. *Spice India* (Mal.) 10(12) : 7 & 9.

Krishnamoorthy, B. 1997 Cultivation and improvement of cinnamon. *ICAR News*, 3(3):7.

Krishnamoorthy, B. 1997. Simple technologies in black pepper cultivation. *Spice India* (Tamil), 10 (7): 10-12.

Krishnamoorthy, B. 1997. High production technology in cardamom. *Spice India* (Tamil), 10 (11): 10-12.

Mathew, M.J. 1997. Root grubs in cardamom *Karshakasree* (Mal.) March 97, p. 31-33.

Mathew, M.J. and Anke Gowda, S.J. 1997. Control of root grubs in cardamom. *Spice india* (Kannada), 10(7) : 2.

Rajendra Hegde, 1997. Towards organic farming in plantation. Memoir '97 Souviner College of Horticulture, Mudigere, UAS, Bangalore pp 1-4.

Rajendra Hegde. 1997. Land preparation and planting plan of cardamom. *Spice India* (Kannada), 10 (6): 15-21.

Rajendra Hegde. 1997. Need for judicious use of ground water. *Andolana Kodagu* (Kannada) 3 [233] :2.

Prakash, K.M. and Manoj, P.S. 1997. Yellow leaf disease of arecanut. *Karshakasree* (Mal.), July 1997, 30-32.

Sasikumar, B. 1997. Black pepper - cultivars and varieties. Tenth year Celebration of Regional Coffee Research Station, Thandikudi, Souvenir.

Sasikumar, B., Saji, K.V and Peter, K.V. 1997. Vanilla. *Karshakasree* (Mal.) Sept. 1997. p 28-36.

Sasikumar, B., Rajeev, P. and Peter, K.V. 1997. Cardamom - Increase production through scientific way. *Karshakasree* (Mal.), January 1998.p. 26-28.

Sasikumar, B. 1997. A weak and awkward patent- The turmeric patent. *Indian Spices*, 34: 17-18.

Sasikumar, B. 1997. India is getting aged. *Yojana* (Mal.), 26:1.

Sasikumar, B. 1997. India needs an effective legislation to protect and exploit biodiversity. *Yojana* (Mal.) 26: 40-41.

#### TECHNICAL PUBLICATIONS/REPORTS

**Annual Report 1996-97**, Indian Institute of Spices Research, Kozhikode. (Eds.) Santhosh J. Eapen and Ramana, K.V, IISR, Kozhikode.

**IISR at a glance (Hindi)** (Eds.) Ms. N. Prasannakumari and Krishnamoorthy, B. IISR, Kozhikode

**Biotechnology of Spices, Medicinal and Aromatic Plants**. Proc. National Seminar held at Kozhikode, April 24-25, 1996 (Eds.) Edison, S., Ramana, K.V., Sasikumar, B., Nirmal Babu, K. and Santhosh. J. Eapen. Indian Society for Spices, Kozhikode.

**Annual Report 1996-97**, All India Coordinated Research Project on Spices (Eds.) Sadanandan, A.K., Johny A. Kallupurackal & Mrs. Vasugi, C., AICRP [Spices], Kozhikode.

**Proceedings of the Group Meeting (XIV Workshop) of Research Workers of AICRPS** (Eds.) Edison, S and Johny A. Kallupurackal, IISR, Kozhikode.

#### NATIONAL SEMINAR ON SPICES PRODUCTION

The Indian Society for Spices along with IISR and ICAR organized fifth national Seminar during 5-6 October 1997 at Madikeri, Coorg, Karnataka. The theme of the seminar was '**Water and Nutrient Management for Sustainable Production and Quality of Spices**'. The seminar was inaugurated by Sri. M.C. Nanaiah, Hon'ble Minister for Law, Parliamentary Affairs, Information and Publicity, Govt. of Karnataka in a meeting presided over by Dr. K.L. Chadha, National Professor, IARI, New Delhi at Hotel Coorg International, Madikeri. Dr. G.K. Veeresh, Vice-Chancellor, UAS, Bangalore delivered the keynote address. Dr. K.V. Peter Director, IISR, Kozhikode, Mr.S.K. Patanayak, IAS Director of Horticulture, Govt. of Karnataka and Dr. R.N. Pal, ADG (PC), ICAR, New Delhi offered felicitations. There were three technical sessions viz, 'Integrated nutrient management', 'Water use efficiency' and 'Developmental problems and strategies. Altogether there were 27 oral presentations and 10 poster presentations.

#### NATIONAL SYMPOSIUM

The Indian Council of Agricultural Research in collaboration with the Indian Institute of Spices Research, Kozhikode, Indian Society for Spices Kozhikode and Regional Science Centre, Kozhikode is organising a three day Golden Jubilee Symposium 'Spices, Medicinal and Aro-



matic Plants'- Biodiversity, Conservation and Utilization (NS-SMAP) at Kozhikode during Aug. 10-11, 1998.

### TRAINING ATTENDED

**Kandiannan, K.** Data Collection and acquisition Techniques. Centre for Advanced Studies in Agricultural Meteorology, College of Agriculture, Pune, 3-17 February, 1997.

**Rajeev, P.** Training on Management of Common Property Resources, IIM, Ahmedabad 3-13 June, 1997.

**Prakash, K.M.** Tropical Mushroom cultivation, TTC Avinashalingam, Coimbatore 4-14 August, 1997.

**Femeena Hassan.** Training Methodology, TTC Avinashalingam, Coimbatore 4-14 August, 1997.

**Santhosh J. Eapen.** Summer School on Problems and progress of Nematology during the past decade IARI, New Delhi 1-30 August, 1997.

**Kumar A., and Sreenivasan V.** Sixtyth Foundation Course for Agricultural Research Scientists (FOCARS), NAARM, Hyderabad, May-September, 1997.

**Jose Abraham and Jayaraj K.** Training programme on MS OFFICE, NOVELL, NETWORK 4.1 AND VISUAL C++. UAS, Bangalore, 4-12 September, 1997.

**Saji K.V.,** Training programme on techniques in exploration and collection of agricultural biodiversity. NBPGR, New Delhi, 20-29 September, 1997.

**Kandiannan. K.** Drip Irrigation system CWRDM, Kozhikode, 15-20 December, 1997.

**Anke Gowda, S.J. and Rajeev P.** Training workshop on 'Devarakadus', the hot spot of

biodiversity. Ponnampet, Coorg, Karnataka 27-28 December 1997.

**Padmini, K.** Sixtyfirst Foundation course for Agricultural Research Scientist (FOCARS), NAARM, Hyderabad, 30th January, 1998.

### NEW PROJECT SANCTIONED/ EXTENDED

A new AP Cess Fund Project- "**Substitution of chemical nutrients with organic and biological nutrient sources for the sustainable cultivation of cardamom**" is sanctioned to IISR, CRC, Appangala (**Young Scientist Scheme**).

An ICAR adhoc project "**In vitro conservation of spices germplasm**", IISR, Kozhikode.

Extension has been granted for a period of one year for ICAR adhoc scheme "**Biological control of scale insects infesting black pepper**" from 29-07-97 to 28-7-98, operating at IISR, Kozhikode.

### VISITING SCIENTIST

Prof. (Dr.) K. P. Prabhakaran Nair, renowned agricultural scientist has joined IISR, Kozhikode as a visiting scientist.

### TRANSFER OF TECHNOLOGY

#### Planting material

50,000 rooted cutting of black pepper were distributed to the farmers during the 2nd half of the year 1997.

#### Scientists - Exporters Interface Proceedings

The proceedings of the first interface between scientists and spices exporters held at IISR, Kozhikode during 11-12 October 1996 was published by Spices Board entitled as "*Issues on Spice Trade - Production and Quality Improvement*".

## Exhibition and Kisan Mela

KVK - Participated in exhibition cum sale of planting materials organized by Kodenchery Panchayat, 6-15 July, 1997.

KVK - IISR participated in exhibition organised by Khadi and Village Industrie Commission, Kozhikode, 8-30 December 1997.

### KVK, Peruvannamuzhi

The KVK has organised need based training programmes. A total of 23 training programmes were conducted and 703 trainees attended the programme during the period as detailed below.

#### Training Programmes conducted at KVK

Category of Trainees	No. of Training Programmes	No. of Participants
Practicing farmers/farm women	16	474
Rural youth	6	150
Extension functionaries	1	79

### Radio Talks

**Rajendra Hegde** : Planting plan of cardamom. AIR, Madikeri, 5th June, 1997.

Management of pepper wilt. AIR, Madikeri, 10th November, 1997.

Answers to the farmers question. AIR, Madikeri, 12th August, 1997.

**K.V. Peter** : New Disease of black pepper. AIR, Kozhikode, 13th August, 1997.

**K.D. Prathapan** : Azhukkal disease of Cardamom. AIR, Kozhikode, 1st September, 1997.

**Femeena Hassan** : Ornamental fish rearing. AIR, Kozhikode, 12th September, 1997.

**Santhosh J. Eapen** : Integrated approach to control of wilt disease of black pepper. AIR, Kozhikode, 6th October, 1997.

**K.V. Saji** : Future of vanilla cultivation in Kerala. AIR, Kozhikode, 13th December, 1997.

**P.S. Manoj** : Harvesting process of nutmeg. AIR, Kozhikode, 21st December, 1997.

**S.J. Anke Gowda** : Maintenance of cardamom in winter season. AIR, Madikeri, 7th December, 1997.

**Femeena Hassan**, Fish and duck culture together. AIR, Kozhikode, 15th December, 1997.

### CONSULTANCY SERVICE

As a part of consultancy service Dr. K.V. Ramana, Dr. M. Anandaraj, Mr. S. Devasahayam and Dr. B. Sasikumar visited various pepper plantations of M/S. Tata Tea Limited at Valparai during 10-12 December, 1997 and gave suggestion to manage the pepper vines.

In another consultancy service Dr. Y. R. Sarma, Principal Scientist (Plant Pathology) visited Sikkim (Indo-Swiss Project on Ginger Disease) during June, September and December and gave necessary guidance and advice.

### DISTINGUISHED VISITORS

Mr. Srivastava, IAS Additional Secretary, Ministry of Agriculture, Govt. of India.

Dr. M. Aravindakshan, Chairman, Coconut Board, Cochin.

Dr. K.V. Ahammed Bavappa, Chairman, QRT.

**PERSONALIA****Ph.D Awarded**

- \* Mr. M. Anandaraj has been awarded Ph.D in Botany by the University of Calicut.
- \* Mr. K. Nirmal Babu has been awarded Ph.D in Botany by the University of Calicut.
- \* Ms. A. Shameena has been awarded Ph.D in Biochemistry by the University of Calicut.

\* Ms. S.S. Veena has been awarded Ph.D in Agriculture (Plant Pathology) by Kerala Agricultural University

\* Mr. N.M. Usman has been awarded Ph.D in Botany by the University of Calicut.

**Diploma in Journalism.**

Mr. S. Hamza, Technical Officer is awarded Post Graduate Diploma in Journalism by the School of Communications and Management Studies, Public Relation Society of India, Kerala.

**Appointments**

Name	Designation	Posted at	Date of joining
Ms. A. Gayathri	Research Associate	Appangala	13-10-1997
Mrs. C. Vasugi	Scientist (Horticulture)	Kozhikode	04-12-1997
Mr. K.S. Rajendran	Scientist (Pl. Pathology)	Kozhikode	22-12-1997

**Promotions**

Name	Promoted to	Post at
Sri. Abubacker Koya	Farm Superintendent (T7)	Peruvannamuzhi
Smt. K.M. Puttissiddamma	SS Gr. II	CRC, Appangala
Sri. S. Mahadeva	"	"
Sri. B.K. Poovappa	"	"
Sri. K.M. Kunhikanaran	"	"
Sri. K. Ahammed Koya	"	"
Sri. I. Unni Nair	"	"
Sri. M. Koru	"	"
Sri. P. Sadanandan	"	"
Smt. H.B. Nagamma	"	"

**Resignations**

Dr. A. Shamina, Research Associate (Biochemistry) resigned w.e.f. December 30, 1997.

Mr. M. G. Prakash, Sr. Research Fellow (Plant Pathology) resigned w.e.f. December 06, 1997.

## HONOURS/AWARDS

### J.S. Pruthi Award to IISR Scientists

The first J.S. Pruthi Award for the best research paper published in the Journal of Spices and Aromatic Crops was bagged by Dr. B.Sasikumar, Mr. Johnson K.George, Dr. T. John Zacharia, Dr. M.J.Ratnambal, Dr. K. Nirmal Babu and Dr. P.N.Ravindran for the research paper 'IISR

Prabha and IISR Prathibha - Two high yielding and high quality turmeric varieties" published in J. Spices and Aromatic Crops, 5 (1):1996.

**Corrigendum** : Team Research Award for the Triennium 1994-96 is Horticultural Sciences : The research team that won this award include Ms. Geetha S.Pillai, Research Associate, IISR, Kazhikode. The omission of her name in the last issue of Spices News is regretted.



Dr. B. Sasikumar receiving the J.S. Pruthi Award from Mr. M.C. Nanaiah, Hon'ble Minister for Law, Parliamentary Affairs and Information and Publicity, Govt. of Karnataka.

### Weddings

Mr. B. Satheesan, KVK, Peruvannamuzhi with Ms. Sulaja on 15th September, 1997

Dr. K.Nirmal Babu, Scientist (Sr. Scale), IISR, Kozhikode with Ms. Minoo. D on 26 October, 1997.

Mr. Krishnadas, Technical Assistant, IISR, Kozhikode with Ms. Tharamol on 4 December, 1997.

Dr. S. Shanmughavelu, Technical Officer, KVK, Peruvannamuzhi with Ms. Sasikaladevi on December 08, 1997.

*Congratulation and Best wishes to the  
Married Couples*

Editor : **Dr. B. Sasikumar**, Members : **Dr. Johnny A. Kallapurackal, P.A. Sherief**, IISR, Kozhikode.  
Published by **Dr. K. V. Peter**, Director, IISR, Kozhikode, Telephones : 371410, 370906  
Telex : 0804-250 NRCS IN, Grams : Research, Calicut, Fax : 0091-0495-370294  
E-mail: iisrspices@x400.nicgw.nic.in  
Printed at: Modern Graphics, Cochin-17, Ph. 347266, 342158