



Volumes 7 (1) & (2)

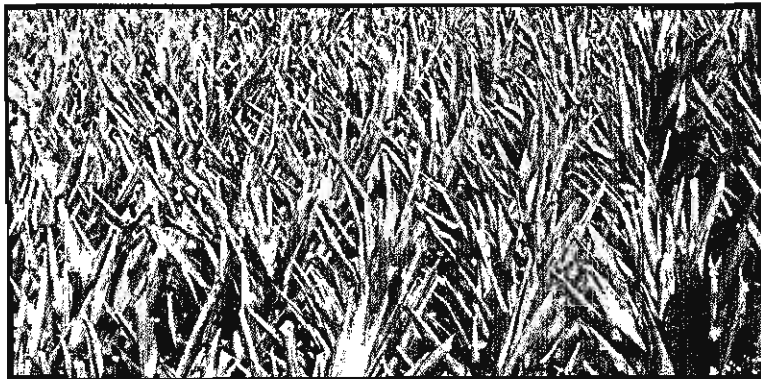
January-December 1996

IISR  
NL-12.

## SPOTLIGHT ON TURMERIC

**T**urmeric is one of the ancient and sacred spices of India. Among the members of the plant kingdom, perhaps there are no much plant species like turmeric so much identified with human civilization, religion, customs and belief. Turmeric has been used as a medicine, spice and dye from time immemorial in addition to its use in religious ceremonies. Though the antiquity of turmeric dates back to the Assyrians of 600 BC, it was Hinduism that influenced the transnational spread of turmeric. It is believed that from its Indo-Malayan centre of origin, the crop gradually spread out to distant Asian countries under the influence of Hindu religion during the post Aryan era.

Though all these facts are well known, it is the mayhem of the recent US patent on the wound healing (antibiotic) property of turmeric which demands to drive home these points once again and to ascertain our *locus standi*. However, as is already pointed out, the patent is not clear or silent on "the criteria of novelty and non-obviousness-the two prime conditions for granting patents" as well as "geographical indication" a clause in the TRIPS chapter and Biodiversity Convention of 1992 ("informed consent" and "material transfer").



*Turmeric - rooted firmly in Indian soil*

**Indian Institute of Spices Research**  
P.B. No: 1701; Marikunnu P.O; Calicut - 673 012, Kerala



As regards turmeric genetic resources and crop improvement are concerned, the Indian Institute of Spices Research (IICAR), Kozhikode is the apex organization. Collection, conservation, cataloguing and evaluation of turmeric germplasm have been one of the mandates of the Institute ever since its inception. As a result, today the Institute owns, perhaps, the world's largest genebank of *Curcuma*. This includes almost all of the land races in turmeric, improved varieties, breeding lines, related species and taxa as well, amounting to a total of 697 accessions.

The Institute has developed/released, so far, five high yielding and/or high curcumin varieties of turmeric including the two latest varieties developed through open pollinated progeny selection for the first time. A few other open pollinated progeny lines and high curcumin selections are also at the evaluation stage.

Thus, by virtue of both its origin and domestication turmeric is our wealth. India has a legitimate right on its genetic resources and claim on its patent.

## RESEARCH HIGHLIGHTS

### Enriching germplasm of spices:

Sixty new cardamom accessions comprising compound panicle, multi branched, compact panicle and sterile types are collected and conserved at IISR CRS, Appangala.

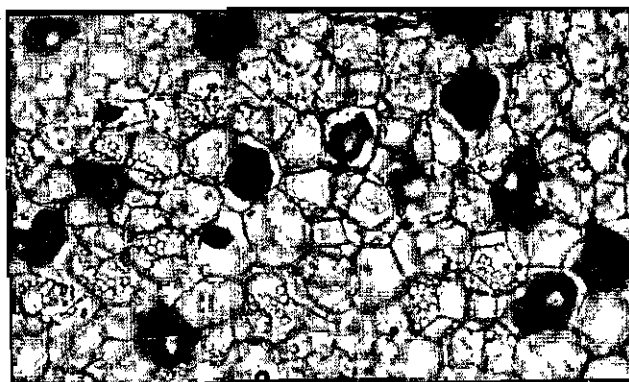
Five elite clove types were located in a survey in Kanyakumari district (Tamil Nadu) and the accessions are collected and added to the germplasm repository. *Myristica attenuatum*, a wild species, was also collected.

### Reproductive biology and cytogenetics of ginger

Studies on the floral structure in 56 accessions of ginger have ruled out any indication of 'Pin' type of heterostyly condition as an incompatibility mechanism. B chromosomes are observed in Acc. No. 9 and Acc. 248 of ginger.

### Anatomy of turmeric and ginger rhizomes

Anatomical studies on rhizomes of turmeric and ginger have confirmed that the new lateral rhizomes originate by axillary bud enhancement on the adaxial side of the scale leaves which is prominent in the nodol region. Procambial division, cambial division and dividing parenchyma are found to be the major means of rhizome enlargement both in ginger and turmeric. Ontogeny of oil ducts is found to be due to the development of intercellular spaces amongst a group of meristematic cell and also by lysis.



Histological localization of curcumin in turmeric

### New cardamom lines

CRS, Appangala, has identified three new cardamom lines viz. APG-223, APG-215 and APG-230 based on yield and quality evaluation over four years.

### New drought tolerant black pepper lines

Preliminary screening of 77 black pepper germplasm accessions for drought tolerance indicated that Acc. 892, 995, 1113, 1114 4057 and 4072 are relatively tolerant to drought.

### Effect of *Azospirillum* on black pepper

Soil inoculation of the N fixing bacteria *Azospirillum* has resulted in increased growth of black pepper variety, 'Sreekara', in terms of height and leaf area of the vines.

Application of VAM alone or VAM in combination with *Trichoderma* or *Gliocladium* is found to be effective in containing the foot rot disease of black pepper. Detailed investigations are on.

### **Bush pepper technology**

Technology for large scale growing of bush pepper under field conditions has been standardized. An yield of 0.75 to 1 t of dry black pepper (4th year) and 20-25 tonnes of green fodder per ha. could be obtained by growing Congosignal grass as an intercrop in bush pepper.

### **Classificatory analysis of pests of black pepper**

A classificatory assessment of the black pepper pests observed in the surveys conducted in 162 locations in Kerala, Karnataka and Tamil Nadu indicated that 18 genera/species of scale insects and mealy bugs infest black pepper among which *Lepidosaphes piperis* and *Aspidiotus destructor* are the most common ones, especially at higher altitudes.

### **Biological control of nematodes**

*Verticillium chlamydosporium* Goddard, a soil borne fungi used for biological control of plant parasitic nematodes was isolated for the first time from a black pepper garden in Kerala. Laboratory studies have indicated that it is highly effective against root knot nematodes and *Trophotylenchulus piperis* infesting black pepper. This native biocontrol agent is being included in the IPM package of spices.

### **Biological control of insect pest of spices**

Neem based pesticides such as neemgold (0.3%) and Nemazal (0.5%) are found effective against pollu beetle a major insect pest of black pepper. Similarly Dipal (0.3%), a commercial formulation of *Bacillus thuringiensis* is found effective against shoot borèr, a major insect pest of ginger and turmeric.

ginger, cardamom and vanilla.

- \* 'Synseed' technology was developed by encapsulating somatic embryos in sodium alginate beads in black pepper, cardamom, ginger, turmeric, cinnamon, camphor, vanilla, sage, lavender and anise.
- \* Plants were regenerated from anther derived callus in ginger.

### **Quality evaluation of spices**

Thirtythree cardamom accessions (Wynad selections) were evaluated for volatile oil and flavour profile. APG-221, performed consistently good for 3 years with an average oil content of 7.5% with 19 per cent 1 - 8, cineole and 55 per cent alpha terpneyl acetate.

Quality variation in relation to agroclimatic condition is confirmed with respect to curcumin content in turmeric.

### **PARTICIPATION IN SYMPOSIA/SEMINARS**

Dr.P.N.Ravindran, Mr.B. Krishnamoorthy, Dr. B. Sasikumar, Dr. J. Rema, Mr. Johnson K. George, Mrs. K.P.M. Dhamayanthi and Ms. Minoo Divakaran.

- Seminar on Crop Breeding in Kerala, Dept. of Botany, University of Kerala, Karivattom, 25th January 1996.

Dr. P Rajeev

- National Convention of the Society of Extension Education, TNAU, Coimbatore. 20-21 January 1996.

Dr. K.V. Peter, Dr. K.S. Krishnamoorthy, Mr. Anke Gowda

- National Seminar on Drought Management in Plantation Crops. Kottayam, 8 Feb, 1996.

Dr. Y.R. Sarma,

- National Symposium on Management of Threatening Plant Diseases of National Importance. Indian Phytopathological Society, PAU, Ludhiana, 14-15 Feb, 1996.

Dr. M.N. Venugopal and Dr. P Rajeev

- One day seminar on "Quality Management in Cardamom". Spices Board, Kothanally Somarvapat, Karnataka.

Mr. M. Anandaraj

- Workshop on 'On line information access and retrieval' School of Biotechnology, MKU, Madurai, 26-27 March, 1996.

Dr. Y.R. Sarma, Dr. A.K. Sadanandan, Dr. K.V. Ramana, Mr. Santhosh J. Eapen and Mr. K.D. Prathapan

- 'Pepper Seminar' organized by Thirunelly Service Co-operative Society, Thirunelly, 4 March, 1996.

Mr. S. Hamza.

- South Indian Regional Symposium on 'Water treatment for domestic/industrial sector. CWRDM, Kozhikode, 14 March, 1996.

Dr. M.V. Prasad

- Scientist training programme on MS-Windows at CMC, New Delhi, 18-22 March, 1996.

Mr. Zakeer Hussain

- Training on 'Mushroom Production', KAU, Vellayani, 26 Feb - 2 March, 1996.

Mr. P.S. Manoj

- Training on 'Landscape Architecture, 'REC, Kozhikode, 27-29 Feb., 1996

Mr. N. Sreejith

- Training programme on E-Mail at CMC, New Delhi. 11-15 March, 1996

Mr. Jose Abraham, Ms. K. Usha, Mr. T. Gopinathan & Mr. R.N. Subramanian

- Training cum Workshop on Computerization of Accounts, NAARM, Hyderabad. 21-23 April, 1996.

Dr. M. Aravindan, Mr. P.S. Manoj, Mr. Satheesan

- Training on Tissue culture techniques. Biotechnology Laboratory, IISR, Kozhikode.

Dr. M.V. Prasad

- Training on Management Information System of Agricultural Research, NAARM, Hyderabad. 11-22 June, 1996

Dr. P. Rajeev

- Seminar on 'Technology Assessment and Refinement for Diverse Risk prone Agriculture. Society of Extension Education, UAS, Bangalore. 25-26 May, 1996

Director, Scientist, Research Scholars and Research Associates.

- National Seminar on Biotechnology of Spices and Aromatic Plants (BIOSAAP). IISR, Kozhikode, 24-25 April, 1996.

Mr. K. Kandiannan

- Training on 'PC Trouble Shooting' Computer Maintenance Corporation (CMC), New Delhi, 22-27 April, 1996.

Dr. P.N. Ravindran., Dr. A.K. Sadanandan., Dr. K.V. Ramana., Mr. K. Nirmal Babu., Mr. Shaji Philip., Dr. T. John Zacharia

PLACROSYM - XII (Symposium on Plantation Crops), RRII, Kottayam, December, 1st 1996.

Dr. Y.R. Sarma and Dr. P.N. Ravindran

- DBT project monitoring committee meeting 15th July, 1997, New Delhi.

Dr. K.V. Peter, Dr. P.N. Ravindran, Mr. K. Nirmal Babu, Dr. Ravindra Mulge, P. Indulekha, D. Minoo, S.P. Geetha and A. Sajina

- National Symposium on Horticultural Biotechnology. Indian Institute of Horticultural Research, Bangalore, 28-30 Oct. 1996.

**GUEST LECTURES DELIVERED/INVITED PAPERS PRESENTED**

Sasikumar B (1996)

- Ginger and turmeric breeding in Kerala. Seminar on Crop Breeding in Kerala, Botany Department, University of Kerala, 25th Jan. 1996.

Black pepper breeding in Kerala. Seminar on Crop Breeding in Kerala, Botany Department, University of Kerala, Trivandrum, 25 Jan. 1996

Krishnamoorthy B (1996)

Tree spices breeding in Kerala. Seminar on 'Crop Breeding in Kerala', Botany Department, University of Kerala, Trivandrum, 25 Jan. 1996.

Sarma Y.R. (1996)

*Phytophthora* foot rot of black pepper-An overview. Symposium on Management of Threatening Plant Diseases of National Importance. Indian Phytopathological Society, PAU, Ludhiana 15th February, 1996.

Sarma Y.R. (1996)

*Phytophthora* of Plantation Crops - An overview of biotechnological approaches in disease management of spice crops. Annamalai University, 28 March, 1996.

Management of soil borne diseases - A wholistic approach. Annamalai University, 28 March 1996.

Large scale application of biocontrol agents for the pepper nursery disease management Thikkody: Farmer's Meet, 4th March, 1996

Sadanandan A.K. (1996)

Crop production and post harvest technology in spices. Pepper Seminar organized by Thirunelly Service Co operative Society, Thirunelly, 4 March, 1996.

Santhosh J. Eapen. (1996)

Plant parasitic nematodes and their management in spices. Pepper Seminar, Thirunelly Service Co-operative Society, Thirunelly 4 March, 1996.

Dr. T. John Zacharia (1996)

Value added spices - An overview, STED, Kalpetta, 25th March, 1996.

Sasikumar, B (1996).

'Spice crops'. *Karshakamela* at Koduvally Panchayat Hall, 7th June 1996.

### IISR scientists visit Sikkim

Dr. Y.R. Sarma and Dr. A.K. Sadanandan, Principal Scientists of IISR, Kozhikode visited Sikkim during 22-29 May '96 on an invitation from Govt. of Sikkim to advise the state government officials and ginger farmers about ginger cultivation and disease management.

### RESEARCH ARTICLES

1. Anandaraj, M and Leela, N.K. 1995. Toxic effects of some plant extracts on *Phytophthora capsici*, the foot rot pathogen of black pepper. *Indian Phytopath.* 49: 110-12.
2. Dake, G.N. and Manoj, P.S. 1995. Bacterial wilt of *Kaempferia galanga* L. caused by *Pseudomonas solanacearum* (Smith). *J. Spices and Aromatic Crops*, 4: 159.
3. Dake, G.N. 1995. Diseases of ginger (*Zingiber officinale* Rosc.) *J. Spices and Aromatic Crops*, 4: 40-48.
4. Geetha, S.P., Minoos, D., Samsudeen, K., Rema, J., Nirmal Babu, K. and Peter, K.V. (1996). *In vitro storage* : Prospects for conservation of germplasm of spices. National Symposium on Horticultural Biotechnology, Indian Institute of Horticulture Research (IIHR), Bangalore (Abstract).
5. Jose Abraham., Anandaraj, M., Ramana, K.V. and Sarma, Y.R. 1996. A simple method of indexing *Phytophthora* and nematode infections in black pepper (*P. nigrum* L.) *J. Spices and Aromatic Crops*, 5: 68-71.
6. Kandiannan, K., Sivaraman, K., Thankamani, C.K. and Peter, K.V. 1996. Agronomy of ginger (*Z. officinale* Rosc.) *J. Spices and Aromatic Crops*, 5: 1-27.
7. Krishnamoorthy, B., Krishnamoorthy, K.S. and Rema, J. 1995. Increase in fruit, seed size and seed per fruit in allspice (*Pimenta dioica* L. Nerr.) by hormonal application. *J. Spices and Aromatic Crops*, 4: 162-163.
8. Krishnamoorthy, B., Rema, J. and Peter, K.V.

1996. Tree spices breeding in Kerala. Proceedings of the Seminar on Crop breeding in Kerala (Ed. P.I. Kuriachan). Department of Botany, Kerala University, Kariavattom, Trivandrum, January 25, 1996. pp 82-90.
9. Krishnamoorthy, B., Rema J., T. John Zacharia, Jose Abraham and Gopalam, A. 1996. Navashree and Nithyashree - two high yielding and high quality cinnamon (*Cinnamomum verum* Bercht and Presl.) selections. J. Spices and Aromatic Crops, 5: 28-33.
  10. Mini, P.M., John C Zacharia., Samsudeen, K., Rema J., Nirmal Babu, K. and Ravindran, P.N. (1996). Micropropagation of *Cinnamomum verum* (Bercht and Presl.). National Seminar on Biotechnology of Spices and Aromatic Plants. (BIOSAAP), IISR, Kozhikode, India. (Abstract). P-5.
  11. Minoo, D., Geetha, S.P., Sajina, A., Samsudeen, K., Rema, J., Nirmal Babu, K. and Ravindran, P.N. (1996). Tissue culture for crop improvement in spices. National Symposium on Horticulture Biotechnology, IHR Bangalore (Abstract).
  12. Minoo, D., Sajina, A., Nirmal Babu, K. and Ravindran, P.N. (1996). Ovule culture of vanilla and its potential in crop improvement Proc. National Seminar on Biotechnology of Spices and Aromatic Plants (BIOSAAP), IISR, Kozhikode, April 24-25-1996 (Abstract) P-16.
  13. Peter, K.V. and Ravindran, P.N. 1996. Genetics and breeding of black pepper. 2nd International Crop Science Congress, New Delhi, November, 1996.
  14. Peter, K.V., Ravindran, P.N. and Nirmal Babu, K. (1996). Biotechnology Research in Spices. National Symposium on Horticultural Biotechnology, Indian Institute of Horticultural Research, Bangalore (Abstract).
  15. Rao, T.G.N, Sasikumar B and Johnson K. George. 1995. Field reaction of ginger germplasm to *Phyllosticta zingiberi*. Indian Phytopath. 48: 463-465.
  16. Ramana, K.V. and Santhosh J. Eapen. 1995. Parasitic nematodes and their management in major spices. J. Spices and Aromatic Crops, 4: 1-16.
  17. Ravindran, P.N., Krishnamoorthy, B., Sasikumar, B., Johnson K. George., Nirmal Babu, K., Rema, J., Nair, R.R., Mathew, P.A., Mulge, R., Dhamayanthi, KPM., Zacharia, T.J. and Peter, K.V. 1996. Genetic Resources of Spices in India - their utilization and conservation. 2nd International Crop Science Congress, New Delhi, November, 1996.
  18. Ravindran, P.N. and Peter, K.V. 1995. Biodiversity of major spices and their conservation in India. In: Proc. South Asia National Co-ordinator's Meeting on Plant Genetic Resources (Ed. R.K. Arora and V.R. Rao) IPGR office for South Asia, New Delhi, PP. 123-124.
  19. Ravindran, P.N., Rema, J., Nirmal Babu, K. and Peter, K.V. (1996) Tissue culture and in vitro conservation of spices - An overview. National Seminar on Biotechnology of Spices and Aromatic Plants, (BIOSAAP), IISR, Kozhikode; April 24-25, 1996. (Abstract) P-1.
  20. Sadanandan, A.K. 1996. Impact of drought on spice crops management aspects. Proc. National Seminar on Drought Management (Ed. Satheesan, K.V). Kottayam, 7-8 February, 1996. pp: 80-87.
  21. Santhosh J. Eapen, Ramana, K.V. and Sarma Y.R. 1996. Evaluation of *Pseudomonas fluorescens* isolates for control of *Meloidogyne incognita* in black pepper (*Piper nigrum* L.) National Seminar on Biotechnology of Spices and Aromatic Plants (BIOSAAP), IISR, Kozhikode, April 24-25, 1996 (Abstract). P-20.
  22. Sasikumar B., Ravindran P.N. and Peter, K.V. 1996. Black pepper breeding in Kerala. Proc. Seminar on Crop Breeding in Kerala (Ed. P.I. Kuriachan) Department of Botany,

- Kerala University, Kariavattom, Trivandrum, January 25, 1996 pp, 54-64.
23. Sasikumar, B., Ravindran, P.N., Johnson K. George and Peter, K.V. 1996. Ginger and Turmeric breeding in Kerala. Proc. Seminar on Crop breeding in Kerala (Ed. P.I. Kuriachan) Kerala University, Kariavattom, Trivandrum, January 25, 1996 PP., 72-75.
  24. Sasikumar, B., Johnson K. George and Ravindran, P.N. 1996. IISR Varada - a new high yielding ginger (*Z. officinale* Rosc.) variety. J. Spices and Aromatic Crops, 5: 34-40.
  25. Sasikumar, B. and Johnson K. George and John Zacharia, T. 1995. A note on a ginger type collected from the Western Ghat forests of India. J. Spices and Aromatic Crops, 4: 160-161.
  26. Sasikumar, B., Johnson, K. George., John Zacharia, T., Ratnambal, M.J., Nirmal Babu, K., and Ravindran, P.N. [1996]. IISR Prabha and IISR Prathibha-two new high yielding and high quality turmeric (*Curcuma longa* L.) varieties. J. Spices and Aromatic Crops, 5 : 41-48.
  27. Sajina, A., Minoo, D., Geetha, S.P., Samsudeen, K., Rema, J., Nirmal Babu, K and Ravindran P.N. 1996. Production of synthetic seeds in spices. National Seminar of Biotechnology of Spices and Aromatic Plants, (BIOSAAP) IISR, Kozhikode, April 24-25, 1996, [Abstract] P-9.
  28. Sajina, A., Geetha, S.P., Minoo, D., Rema, J., Nirmal Babu, K., Sadanandan, A.K. and Ravindran, P.N. 1996. Micropropagation of important herbal spices. National Seminar on Biotechnology of Spices and Aromatic Plants (BIOSAAP), IISR, Kozhikode, April 24-25, 1996 [Abstract] P-11.
  29. Samsudeen, K., Nirmal Babu, K. and Ravindran, P.N. 1996. Anther callus from diploid and tetraploid ginger [*Zingiber officinale* Rosc.] National Seminar on Biotechnology of Spices and Aromatic Plants (BIOSAAP), IISR, Kozhikode, April 24-25, 1996, (Abstract) P-15.
  30. Sivaraman, K. and Palaniappan, S.P. 1996. Turmeric - maize and onion intercropping system. II. Leaf area index and dry matter production. J. Spices and Aromatic Crops, 4: 145-155.
  31. Satheesan, K.V., George Mamen, Krishnakumar, K.N. and Sadanandan A.K. 1996. A bower ratio system for continuous measurement of consumptive water use of plantations. Proc. National Seminar on Drought Management in Plantation Crops. (Ed. Satheesan, K.V.) Kottayam, 7-8 February 1996. pp. 10-16.
  32. Selvakumaran, S. and Vasanthraj David, B. 1996. A new genus and three new species of white flies (Aleyrodidae: Homoptera) from the cardamom ecosystem, South India. J. Spices and Aromatic Crops, 5: 58-63.
  33. Sundararaju, P., Ramana K.V. and Santhosh J. Eapen. 1995. Observations on the development of *Trophotylenchulus piperis* in roots of black pepper (*Piper nigrum* L.). Agro Asian J. Nematol. 5: 166-168.

#### TECHNICAL PUBLICATIONS/REPORTS

IISR Research Highlights 1995-96. (Eds.) Santhosh J. Eapen. and Ramana, K.V., IISR, Kozhikode.

Indian Institute of Spices Research at a glance (Eds.) Santhosh J. Eapen and M.V. Prasad IISR. Kozhikode.

Research Highlights 1995-96 AICRP on Spices (Eds. Edison, S. and Johny A. Kallapurackal, IISR, Kozhikode.

*In vitro* Conservation of Spices germplasm Final Project Report - Peter, K.V., Ravindran, P.N., Nirmal Babu, K., Geetha, S.P., Manjula, C. Indian Institute of Spices Research, Kozhikode, India, 1996.

Rapid Clonal Propagation of Tree Spices-Final Project Report. - Ravindran, P.N., Nirmal Babu,

K., Rema, J., Minoo, D., Mini, P.M., Sajina, A. and Zacharia, C.J. Indian Institute of Spices Research, Kozhikode, India, 1996.

### POPULAR ARTICLES

Krishnamoorthy, B. 1996. Allspice in Plains. Spice India (Tamil), 9 (2): 12-13 and 18.

Krishnamoorthy, B. 1996 Summer care of tree spices. Spice India (Tamil), 9 (3): 13-14.

Krishnamoorthy, B. 1996. Air layering in Cassia. Spice India (Tamil), 9 (5): 5-6.

Krishnamoorthy, B. 1996. Colour of young flushes and quality of cinnamon. Spice India (Tamil), 9 (6): 14-15.

Krishnamoorthy, B. 1996. *Pimento*, Spice India (Hindi), 9 (3): 11-12.

Krishnamoorthy, B., and Peter, K.V. 1996. Nursery management in tree spices. Spice India (Hindi), 9 (2): 7-9.

Peter, K.V and Dake, G.N. 1995. Spices Research, Development and Export - An overview. In: Rai Mangala and Sharma R.D. (Eds.) *Badalte Parivech me Krishi Anusandhan Avam Vikas Ke Naye Auyam* (Hindi). New Delhi, pp. 237-246.

Sasikumar, B., Johnson K. George and Ravindran, P.N. 1996. IISR Varada - A high yielding ginger variety for Kerala. *Karshaka Shree* (Mal.) March 1996, p. 52-57.

Sasikumar, B., Ravindran P.N. and Peter, K.V. 1996. Ginger varieties and cultural practices *Karshakashree* (Mal.), April 1996, P. 52-55.

Sasikumar, B. 1995. The green and glory of the golden berry. *Indian Spices* 32: 2-6.

Sasikumar, B. 1996. Tale and Treasure of Turmeric. *Indian Spices* 33 : 2-4.

Sasikumar, B. 1996. Bachelor's Button and Virgin's Bower. *Indian Spices*, 33: 4-5

Rajeev, P. and V.S. Korikanthimath 1996. Conversion of paddy land for ginger cultivation in Kodagu - mangement economics or ecology, *Indian Coffee*, LVX: 1-2.

Rajeev P. and V.S. Korikanthimath 1996. Adaptive trials in cardamom. *Kisan World*, 23: 70-72.

Ravindra Mulge, 1996. Organic farming myths and realities. *Spice India* (4): 19-20.

Ravindra Mulge, 1996. Harvesting and post harvest technology in cardamom. *Spice India*, 9 (3): 15-17.

Ravindran, P.N., Sasikumar, B. and Johnson K. George. 1996. Crop Improvement in Black pepper. *Kisan World*, 23: 53-54.

Sarma, Y.R., Anandaraj, K., Venugopal. M.N., Suseela Bai, R., Rajan, P.P., Ramana, K.V., Santhosh J. Eapen. 1996. Ecofriendly disease management strategies in spice crops. *Planter's Chronicle*, 91: 15-18.

### TRANSFER OF TECHNOLOGY

#### Training Programmes Conducted

Sl. No.	Course	Date	No. of Participants
1.	Training on Onfarm processing of Spices	7-8 February, 1996	20 officers from different states participated in the programme
2.	Nursery Management in Spices	14-15 February, 1996	22 officers from different states
3.	Spices Production Technology	14-18 May, 1996	6 officers of Spices Board.



### Off Campus Exhibition

IISR, participated in the exhibition conducted at Regional Engineering College, Kozhikode from 5-12 April 1996.

### Radio talks

1. Dr. Ravindra Mulge  
Discussion on organic farming. 10 January, 1996, AIR, Madikeri.
2. Dr. K.V. Peter  
Agricultural Research in India - Achievement, 22 Feb. 1996, AIR, Kozhikode.
3. Dr. Rajendra Hegde  
Discussion on future of cardamom. 15th March 1996, AIR, Madikeri.
4. Dr. Ravindra Mulge  
Nursery management in cardamom. 4th April, 1996, AIR, Madikeri.
5. Mr. Zakeer Hussain  
Role of KVK's in Rural Development. 10 May, 1996 AIR, Kozhikode.
6. Dr. Rajendra Hedge  
Important pre monsoon operations in cardamom. 8 June, 1996 AIR, Madikeri
7. Dr. Ravindra Mulge  
Hints to farmers - cardamom planting. 16 June, 1996 AIR, Madikeri

### IISR ADOPTS KODENCHERY PANCHAYAT

Kodenchery panchayat of Kozhikode district was adopted by IISR, Kozhikode for its allround development. A seminar cum exhibition was organised from 14-15 October, 1996. Sri. V.K. Rajan, Minister for Agriculture (Govt. of Kerala) inaugurated the seminar and exhibition.

### RAC MEETING

The first Research Advisory Committee Meeting of IISR, Kozhikode was held at Kozhikode during 12-13 January 1996. Dr. S.N. Rao, Chairman RAC, and the members Dr. R.N. Pal, ADG (PC), Mrs. Sarma, Dr. C.S. Narayanan, Dr. M.C. Nair and Prof. T.N. Ananthakrishnan participated.

### SRC MEETING

The Xth Staff Research Council of IISR, Kozhikode was held from 6 to 8 May 1996 at IISR, Kozhikode. Apart from scientists and Director of IISR, Dr. C.K. George, Executive Director, Spices Board and Dr. V.K. Gupta, Professor and Head, Plant Pathology, Dr. Y.S. Parmar University of Horticulture and Forestry, Solan, attended at the meeting. In the plenary session held on May 8th forenoon, officials from Spices Board, Directorate of Cocoa, Arecanut and Spices Development, CWRDM, Agril. Department (Kerala) etc. participated. The IISR Research Highlights 1995-96 was released on the occasion.

### FAC MEETING

The farm advisory committee meeting of IISR was held on 11th April, 1996 at Peruvannamuzhi.

### DISTINGUISHED VISITORS

1. Dr. D. Devaraj, Director, CMFRI, Cochin, February 1996.
2. Dr. Jayant Patil, Member (Agriculture), Planning Commission, Govt. of India, April, 1996.
3. Dr. K.L. Chadha, DDG (Horticulture), ICAR, New Delhi, April, 1996.
4. Dr. R.N. Pal, ADG(PC), ICAR, New Delhi, April, 1996
5. Dr. I.S. Yadav, Director, IIHR, Bangalore, April, 1996.
6. Dr. S. Nagarajan, Director, Directorate of Wheat Research, Karnal, April, 1996.
7. Dr. A. Balasubramaniam, Principal, C. Kandaswamy Naidu College - Annamalai, Madurai, April, 1996.
8. Dr. M.S. Swaminathan, Chairman, MSS Foundation, Madras, May, 1996 and December, 1996.
9. Dr. C.K. George, Executive Director, Spices Board, Cochin, May, 1996.

10. Dr. V.K. Gupta, Prof. and Head, Plant Pathology, YSPH and F, Solan, H.P. May 1996.
11. Dr. B.N. Tiwari, IAS officer on special duty to Uttarkhand Development Project, May, 1996.
12. Dr. R.P. Sapkota, Director, Nepal Agricultural Research Council (NARC), Nepal, June, 1996.
13. Dr. S.K. Shrestha, Project Coordinator, Secondary Crop Development Project, Nepal, June, 1996.

### HONOURS/AWARDS

Dr. K.V. Peter, Director has been elected as Fellow of Indian Academy of Agriculture Sciences, New Delhi.

Dr. K.V. Peter, Director is nominated as Member (official side), CIJC, ICAR, New Delhi.

Dr. K.V. Peter, Director is nominated as Member Spices Board, Cochin for a period of three years from 29th March 1995.

Dr. K.V. Peter, Director is elected as Executive Councillor of Indian Society of Vegetable Science.

Dr. K.V. Peter, Director is nominated as Councillor (South Zone) of Indian Society of Plant Genetic Resources, New Delhi.

Dr. P.N. Ravindran HD, Crop Improvement and Biotechnology - as Editor of the Monographs on Black pepper. Cardamom and Cinnamon to be published by Harwood Publishers, the Netherlands.

Dr. T. John Zacharia, Scientist Sr. Scale (Biochem.) is recognized as a research guide in Biochemistry/Plant Physiology by the Calicut University.

### IISR ANNUAL DAY

IISR Annual day was celebrated on 1 July, 1996. Mr. K.K. Sreedharan Nair, Editor, Mathrubhumi, was the chief guest. Cultural programmes were

arranged and staff along with family members participated in the function.

### HINDI CELL

Mr. B. Krishnamoorthy, Sr. Scientist, participated in the meeting held at DCASD, Kozhikode on 2 July 1996 in connection with organising a joint Hindi Workshop at IISR, Kozhikode as a part of Hindi week celebration.

### PMC MEETING OF BIOCONTROL

Project Monitoring Committee (PMC) of the mission mode project of the Department of Biotechnology Govt. of India on Development, Production and Demonstration of Biological Control Agents under IPM was held during 10-11 September 1996 at IISR, Kozhikode.

### INTERFACE WITH EXPORTERS

An interface between All India Spices Exporters Forum (AISEF) and Scientists of IISR was held from 11.10.1996 to 12.10.1996 at IISR, Kozhikode. Mr. Y. Jayashankar, IAS, Chairman and Dr. C.K. George Executive Director represented the Spices Board. Twelve exporters under the leadership of Mr. Ramkumar Menon attended. Key note address was delivered by Dr. K.L. Chadha, DDG(H), ICAR. Apart from the presentations by IISR scientists, Mr. Sanjay Mariwala, Kancor Flavours presented the problems of exporters vis-a-vis the research needs.

### PERSONALIA

#### Ph.D Awarded

Sri. V.S. Korikanthimath, Scientist in-charge, CRC, Appangala, IISR, has been awarded Ph.D in Agronomy by UAS, Dharward.

Sri. P. Rajeev, Scientist, Agril. Extension, CRC, Appangala has been awarded Ph.D in Agril. Extension by IARI, New Delhi.

Sri. M.V. Prasad, Scientist (Agril. Extension) IISR, Kozhikode has been awarded Ph.D in Agril. Extension by Andhra Pradesh Agril. University, Hyderabad.

Sri. K.S. Krishnamoorthy, Scientist (Plant Physiology) IISR, Kozhikode has been awarded Ph.D in Plant Physiology by UAS, Bangalore.

Dr. K.V. Ramana, Principal Scientist (Nematology) is now the officer in charge for Project Monitoring Team (PMT)

**New SRC and Study Circle secretaries/officer-in-charge, PMT**

Mr. Santhosh J. Eapen, Scientists Sr. Scale (Nemat.) is the new SRC secretary while Dr. (Mrs.) B. Chempakam, Sr. Scientist (Biochemistry) is the new study circle secretary.

**Deputation Abroad**

Mr. B. Krishnamoorthy, Sr. Scientist (Plant breeding) attended the International Training Course on 'Conservation and Utilization of Plant Genetic Resources,' organized by DSE/ZEL from 13th Sept. to 9th Oct. 1996 in Leipzig, Germany.

**Appointments**

Name	Designation	Posted at	Date of joining
Sri. T.P. Jyothi	Mali (Grade 1)	Appangala	1-1-1996
Sri. P.K. Balan	SS Gr.I (Mazdoor) Tractor Driver (A)	Peruvannamuzhy	15-1-1996
Sri. M.J. Mathew	Research Associate	Appangala	22-1-1996
Ms. Minoo Divakaran	Research Associate	Kozhikode	30-3-1996
Ms. A. Sajina	Sr. Research Fellow	Kozhikode	30-3-1996
Ms. Geetha S. Pillai	Research Associate	Kozhikode	30-3-1996
Mr. V.V. Padmanabhan	Technical Assistant (T-11-3) Computer Programmer cum-Operator	Kozhikode	13-5-1996
Mr. C. Ramesh Babu	Jr. stenographer	Appangala	6-5-1996
Ms. N. Beena	Research Associate	Kozhikode	9-5-1996
Mr. Kishore Bhojraj Patil	(T-11-3) Artist cum Photographer	Kozhikode	15-6-1996
Ms. K.L. Gayathri	Research Associate	Kozhikode	12-6-1996
Ms. P. Indulekha	Sr. Research Fellow	Appangala	17-6-1996
Mr. G.M. Hiremath	Research Associate	Appangala	22-7-1996

**Promotions**

Name	Promoted as	With effect from
Smt. K.P.M. Dhamayanthi	Scientist Sr. Scale	24-3-1995
Sr. V. Sivaraman	T-11-3	1-1-1995
Sri. K.T. Muhammad	T-11-3	1-1-1995
Sri. N.A. Madhavan	T-11-3	1-1-1995
Sri. N. Vijayaraghavan	T-11-3	1-1-1995
Sri. N. Chandrahasan	T-11-3	1-1-1995
Sri. K. Balan Nair	T-11-3	1-1-1995



Dr. S. P. Ghosh

Dr. S.P. Ghosh, an eminent horticulturist has taken over as the new DDG (Hort.) ICAR, New Delhi. Director, Scientists and staff members, IISR, Kozhikode congratulate him and convey the best wishes.

### New DDG (Hort.)

### Resignations

Dr. P. Sundararaju, Research Associate (Nematology) resigned on 27-1-1996.

Ms. S.M. Lakshmi, Sr. Research Fellow, DBT Project (Biocontrol) resigned on 31-1-96.

Mr. N. Sreejith, Technical Assistant (T-11-3) Computer Programmer cum-Operator resigned on 12-4-96.

Mr. John C. Zacharia Sr. Research Fellow, CRC, Appangala resinged on 30-4-96.

Mr. Zakeer Hussain, Technical officer (Agricultural extension) of KVK resigned on 17.7.96

### Transfers

Dr. (Ms.) B. Chempakam, Senior Scientist (Biochemistry) is transferred from CPCRI, Kasragod to IISR, Kozhikode.

Mr. K.V. Saji, Scientist (Econ. Botany) is transferred from DOR, Hyderabad to IISR, Peruvannamuzhi.

Ms. S.S. Veena, Scientist (Plant Pathology) is transferred from SBI, Coimbatore to IISR, Kozhikode.

Mr. K. Krishnadas, T<sub>2</sub> Mechanic-cum-Pump Operator transferred from IISR, Puzhi to IISR, Kozhikode.

Mr. K.T. Muhammed, Tech, Asst. (T-11-3) transferred from IISR, P'muzhi to IISR, Kozhikode.

Mr. B.T. Velayudhan, SS Gr. II (Watchman) transferred from P'muzhi to IISR, Kozhikode.

Mr. Jaimon Thomas, JTA (T2) is transferred from CTRI RS, Hunsur to IISR, Peruvannamuzhi.

### WEDDING

Mr. P.S. Manoj, Technical officer (KVK) with Ms. Bobby on 25-1-1996. Congratulation and Best Wishes to the couple.

Editor: **Dr. B. Sasikumar**, Members: **Dr. Johny 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 : 0091-495-370294  
Email : iisrspices @x400.nicgw.nic.in

Printed at: Modern Graphics, Cochin - 17. Ph. 347266, 342158