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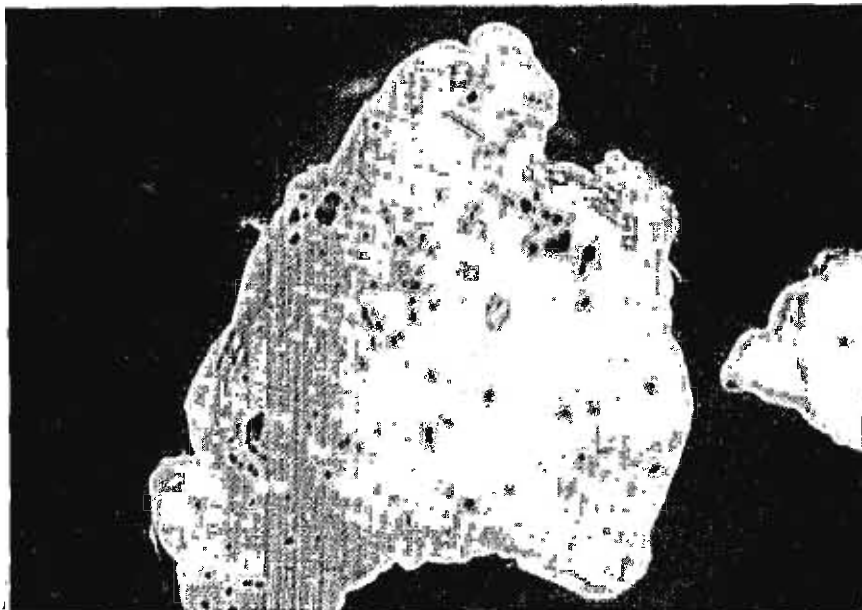
January-July 1997

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TRANSGENIC SPICES

 The application of genetically modified plants would be one of the major inputs to accomplish increased agricultural production at least for another few decades. So far, 21 transgenic crop varieties are either released or recommended for general cultivation.

Many countries have approved the large scale use of transgenic crops. India also started field experiments in open environments using transgenics of rape seed, tomato and cotton since 1995. Research on transgenic spices have just initiated in our country. Production of transgenic varieties may be the probable answer to solve *Phytophthora* foot rot disease of black pepper or rhizome rot of ginger, as it appears now. *Agrobacterium* mediated genetic transformation of black pepper and transient expression of *gus* (β glucuronidase) in ginger callus are some works done on genetic transformation of spices at IISR, Kozhikode, to begin with.



No guess - It is *gus* expression in ginger callus



Indian Institute of Spices Research
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The stable nature of the transgenic varieties is still a matter of confirmation. Further, the concerns raised over the biosafety of growing genetically modified organisms (GMOs) and consumer acceptance of genetically modified food products are issues still not completely settled. However, Government of India has set out the rules and regulations for handling Genetically Modified Organisms (GMOs) including transgenic plants in 1989 itself, through its Environment Protection Act, 1986 (EPA).

TURMERIC PATENT CANCELLED

Patent No.5, 401, 504 granted to Drs. Suman K. Das and Harihar P. Cohly of Mississippi Medical Centre, Jackson, USA on the wound healing property of turmeric is cancelled by the US Patent Office, on an appeal from Govt. of India (CSIR) and 'unequivocally' rejected all the claims made by the scientists. The Council of Scientific and Industrial Research (CSIR) needs to be congratulated for the initiative taken.

RESEARCH HIGHLIGHTS

Biotechnology

- Protoplasts were isolated from *in vitro* derived leaf tissue and cell suspension culture in cardamom and turmeric and plantlets were regenerated from isolated protoplast of *Piper colubrinum*.
- Kanamycin sensitivity of *Piper colubrinum* was assayed and 250 mg/l kanamycin was found to be the critical level for inhibiting callus growth and differentiation from leaf explants.
- Multiple shoots were induced in seedling explants of allspice
- Isozyme markers (acid phosphatase, esterase, catalase, SOD, peroxidase and polyphenol oxidase) were used to cluster ginger and turmeric germplasm.
- A somaclone of black pepper has been identified as a promising *Phytophthora* tolerant line.

Induction of flowering in Allspice

Application of Paclobutrazol 1g a.i. to allspice during August induced maximum flowering.

Pollengrain germination in ginger

Different artificial media were tried for pollen germination and pollen tube growth in ginger. Media containing 15% sucrose, 3% gelatin, 80ppm boric acid and 120ppm of $\text{Ca}(\text{NO}_3)_2$ in moist container at 20.5°C gave 29% germination.

Colour value in chillies

The colour value of Bydgi chillies were evaluated. Its nesslerimetric colour value ranged from 48,000 to 2,00,008. Three superior accessions are identified.

Potassium source for black pepper

Studies on the source of potassium for black pepper showed that potassium sulphate as the best source of K compared to potassium chloride in increasing yield and quality of black pepper.

Stunted disease etiology

The casual agent of stunted disease of black pepper is now identified as Cucumber Mosaic Virus (CMV) based on electron microscopic study. This is being further investigated for confirmation.

'Pollu' beetle control by Neem products

Management techniques against 'pollu beetle' of black pepper using commercial neem products indicated that spraying of endosulfan (0.05%) during July followed by Neem gold (0.6%) (August, September and October) or spraying of Neem gold (0.6%) alone (July, August, September & October) was effective for management of the pest.

Biocontrol of ginger and turmeric shoot borer using *Bacillus thuringensis*

Biocontrol studies using commercial products of *Bacillus thuringensis* (Bt) against shoot borer of ginger & turmeric confirmed that spraying of Dipel (0.3%) (during July, August, September &

October) was effective for management of the pest.

Biochemical characterisation

Biochemical characterisation of *Phytophthora* tolerant black pepper lines indicated that the ratio of total phenols to orthodihydroxy phenols was high in susceptible lines suggesting the possible role of orthodihydroxy phenols in tolerance.

Interspecific hybridization in *Piper*

Two interspecific hybrids of black pepper, *Piper nigrum* x *Piper attenuatum* and *P. nigrum* x *P. barberi* are produced to transfer 'pollu beetle' resistance genes from the alien species to cultivated black pepper.

Field Evaluation of Biocontrol Agents

About 3000 ha. area are covered under field evaluation of biocontrol agents against *Phytophthora* foot rot disease of black pepper.

Salted Ginger

Product diversification in ginger has good scope. A new product of ginger namely salted ginger is prepared using tender rhizomes of bold ginger varieties having low fiber. Salted ginger looks very attractive with its baby pink colour and tastes good. This product is in great demand in countries like Japan and Middle East for meat and fish preparations.

Cassia cinnamon

A good quality cassia cinnamon (*Cinnamomum cassia*) is being evaluated for yield.

GERMPLASM ENRICHMENT

Sixty high altitude accessions of *Piper* from Nilgiris (Tamil Nadu), 20 accessions from Valparai (Tamil Nadu) and 6 accessions from Mudibe (Chickamagalore, Karnataka) were collected and added to the Black pepper Germplasm Repository. The ginger genebank was enriched with 48

accessions of cultivated type from Vadakkumcherry (Palaghat, Kerala) and Parakode (Pathanamthitta, Kerala) in addition to one collection each from Surat (Gujarat) Sikkim and Dehradun (UP). One collection of turmeric was made from Thatta (Quilon, Kerala). In Vanilla, 14 accessions were collected from Chickamagalur and Dakshina Kannada (Karnataka) besides one collection from Nilambur (Kerala).

In tree spices eight cultivated and five wild nutmeg types, three species of *Syzygium*, 5 accessions of *Cinnamomum* were collected from Anamalai Hills, Niligiris (Tamil Nadu); Nilambur, Koorachundu, Karuvarakundu (Kerala) and Chickamagalur, North & South Kannada (Karnataka). Paprika genebank was enriched with 55 exotic accessions (USA & Germany) and 12 indigenous lines.

SPARING SPICES GERMLASM

The Spices Germplasm Repository of the Indian Institute of Spices Research, Kozhikode is one of the largest in the world conserving land races, improved varieties, breeding lines, endangered types, polyploids & aneuploids, wild and related taxa of black pepper, ginger, turmeric, cardamom, tree spices and vanilla. The Institute gets a lot of requests for germplasm of various spices from within and outside country for research purpose.

Nine turmeric accessions were given to Islamic Republic of Iran (through NBPGR, New Delhi), 10 accessions to Regional Research Station (UAS), Brahmavar and 4 accessions to C. Z. Azad University of Agriculture and Technology, Kanpur. In case of ginger, 15 accessions were given to ARS, Anantharajupet (APAU), 6 accessions to RARS, Kumarakom (KAU) and 20 accessions to Regional Plant Resources Center, Bhubaneswar besides 2 accessions of ginger and 1 mango ginger to C. Z. Azad University of Agriculture and Technology, Kanpur.

Kurumulaku Samrakshana Samithi effective

An assessment of the effectiveness of Kurumulaku Samrakshana Samithi in black pepper production in Kerala has revealed that the Samithi is effective in increasing black pepper production in Kerala.

PARTICIPATION IN SYMPOSIA / SEMINARS

Dr. K. S. Krishnamurthy

Laboratory workshop on purification and characterisation of plant proteins and basic recombinant DNA techniques. IISC, Bangalore, 24th Feb - 3rd March 1997.

Dr. V.S. Korikanthimath, Dr. Rajendra Hegde
Dr.P.Rajeev and Dr.S.J. Anke Gowda

Seminar on Impact of working in the Western Ghat Forests. Ministry of Environment and Forests, Govt.of Karnataka, Madikeri, 3-5 March 1997.

Dr. V.S.Korikanthimath and Dr.Rajendra Hegde
Third National Agricultural Science Congress,PAU,Ludhiana, 12-15 March 1997

Sri.B.Krishnamurthy

Regional Official Language Conference, Mangalore,20-21 March 1997

Dr. Y.R. Sarma, M. Anandaraj and P.P.Rajan
Seminar on Biological control of foot rot of Black-pepper. Mistvally Small Tea growers Association, Pandalur, 29 March 1997.

Dr.A.K.Sadanandan and Mr.K.Kandiannan

Seminar on Vermicompost. CRC,IISR, Appangala,18 June 1997.

Dr.S.J.Anke Gowda,

Canopy temperature as a screening technique for drought avoidance in finger millets. National Seminar on Small Millets- Current Research Trends and Future Priorities as Food, Feed and in Processing for Value Addition. TNAU, Coimbatore, 23-24, April 1997.

GUEST LECTURES DELIVERED/INVITED PAPERS PRESENTED

Dr. P. Rajeev.

Group farming-A trial in Kerala .International Conference on Innovation and Creativity at Grass Root for Sustainable Natural Resources Management. IIM , Ahamedabad. 14th January 1997.

Dr. A.K.Sadanandan

Overall development in the field of spices cultivation . AIR, Golden Jubilee of Indian Independence, Quilon, 24th January 1997.

Dr. V. S. Korikanthimath and Dr. Rajendra Hegde

Agroforestry approach in the cultivation of spices. 3rd National Agricultural Sciences Congress held at Punjab Agricultural University, Ludhiana, 12-15 March 1997.

Dr.Y. R. Sarma

Status of rhizome rot of ginger in India. Extension officers of Horticulture Development of Sikkim. Sikkim, 21st June 1997.

Dr. K.V.Peter

Breeding for resistance to bacterial wilt in tomato and paprika pepper. Second International Bacterial wilt Symposium at Guadeloupe. 22-27th June 1997.

ICAR-IISR ANNUAL DAY

The ICAR-IISR joint annual day was celebrated on 16th July 1997 at IISR, Kozhikode. Cross country race, eating competition, cooking competition, quiz and memory test, singing competition and tug of war were arranged as part of the annual day celebrations wherein staff members of the Institute participated actively. Sri.M.P.Veerendra Kumar, Honble Union minister of State for Labour was the chief guest of the function and he gave away prizes to winners of various competitions.



Sri M.P. Veerendrakumar, Union Minister of State for Labour presenting prize.

PUBLICATIONS

REVIEW ARTICLE

Demeke, T., Sasikumar, B., Hucl P and Chibbar, R.N 1997. Random Amplified Polymorphic DNA (RAPD) in cereal improvement. *Maydica*, 42:133-142.

RESEARCH ARTICLES

Abdulla Koya, K.M., Devasahayam S, Selvakumaran, S and Mini K. 1996. Distribution and damage caused by scale insects and mealy bugs associated with black pepper (*Piper nigrum* L.) in India. *J.Ent. Res.* 20: 129-136.

Anandaraj, M., Ramana, K.V., and Sarma, Y.R., 1997. Sequential inoculation of *Phytophthora capsici*, *Radopholus similis* and *Meloidogyne incognita* in causing slow decline of black pepper. *Indian Phytopath.* 49: 297-299.

Anandaraj, M., Ramana, K.V and Sarma, Y.R 1996., Role of *Phytophthora capsici* in the etiology of slow decline disease of black pepper. *J.Plantn. Crops (suppl.)* 24:166-170.

Anandaraj, M and Sarma, Y.R. 1996. Toxic effect of some plant extracts on *Phytophthora capsici*, the foot rot pathogen of black pepper. *Indian Phytopath.*, 49: 181-184.

Anandaraj, M and Sarma, Y.R. 1996. Epidemiology of *Phytophthora* foot rot disease of black pepper (*Piper nigrum*). In: Annual

Meeting and Symposium on Epidemiology and Management of Plant Diseases (Abstr).

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Dake, G.N., Anandaraj, M., Raju, C.A and Iyer, R. 1996. Effect of seed treatment and lining material on rhizome rot of ginger in storage. *J.Plantn. Crops* 24 (Suppl): 233-239.

Devasahayam S. 1997. Biological control of insect pests of spices. In : Anandaraj, M and Peter, K.V(Eds.) Biological control in spices IISR, Kozhikode pp.33-45.

Eapen, S. J. and Ramana, K. V. 1996. Biological control of nematodes of spices. In : Anandaraj, M and Peter, K. V. (Eds.) Biological control in spices. IISR, Kozhikode pp. 20-32.

John Zachariah, T. 1997. Essential oil and its major constituents in selected black pepper accessions. *Plant Physiol & Bio Chem.* 22: 151-153.

Korikanthimath, V.S and Rajendra Hegde. 1997. Degraded area afforestation in Western Ghats through agroforestry approach in cultivating cardamom and pepper. Proc. Workshop on Impact Assessment of Working in Western

- Ghats, Department of Forests, Govt. of Karnataka, Madikeri, March 1997 (Abstr.).
- Korikanthimath, V.S and Rajendra Hegde, 1997. Agroforestry approach in cultivation of cardamom and pepper on marginal lands for ecological and economic sustainability. Third Agril. Science Congress, PAU, Ludhiana, March 1997 (Abstr.).
- Krishnamoorthy, B., Sasikumar, B and Rema, J. 1996. Genetic variability and segregation of sex in nutmeg. J. Plantn. Crops, 24 (suppl): 468-472.
- Mini, C. and Peter, K.V. 1995. Evaluation of ornamental chillies and selection for dwarf clustered plant types. South Indian Hort. 43: 106-472.
- Rajeev, P. 1997. Group Farming A Trial in Kerala. International conference on innovations and creativity at grass roots for sustainable natural resources management. Indian Institute of Management, Ahmedabad. January 1997 (Abstr.).
- Remashree, A. B., Sherlija, K. K., Unnikrishnan, K and Ravindran, P. N. 1997. Histological studies on ginger rhizome (*Zingiber officinale* Rosc.). Phytomorphology, 47 : 67-75.
- Sadanandan, A.K, Bhargava, B.S and Hamza S. 1996. Leaf nutrient norms for black pepper (*Piper nigrum* L.) using DRIS. J. Plantn. Crops, 24(suppl.):53-59.
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- Sasikumar, B and Veluthambi, K. 1996. Strain and vector specificity in *Agrobacterium*-black pepper interaction. J Plantn. Crops 24 (suppl): 597-602.
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- Thankamani. C. K., Sivaraman. K., and Kandiannan. K. 1996. Response of clove (*Syzygium aromaticum* L.) seedlings and black pepper (*Piper nigrum*) cutting to propagation media under nursery condition. J. Spices & Aromatic Crops 5: 99-104.

POPULAR ARTICLES

- Dhamayanthi, KPM. 1997. Thulasi. Spice India (Tamil) 9(4): 11-13
- Edison, S and Johny A. Kallapurackal 1997. High yielding spice varieties and their package of practices. Deepika (Mal). 25th June 1997.
- John Zachariah, T. 1997. Spice as medicine and for flavour. Karshakashree (Mal.) 2.(6): 34-36.
- Krishnamurthy, B. 1997. Tejpat., Spice India (Tamil) 10(1):4-5.
- Krishnamurthy, B. 1997. Spices Trade. Spice India (Tamil) 10(2):11-13.
- Krishnamurthy, B. 1997. High yielding spice varieties. Spice India (Tamil) 10(3):9-12.
- Krishnamurthy, B. 1997. Spices in kitchen garden. Spice India (Tamil) 10(5):11-12.
- Krishnamurthy, B. 1997. Epicotyl grafting. A solution to sex problem in nutmeg. Spice India (Hindi) 10(3) :17-19.

- Krishnamurthy, B and Rema, J. 1997. Nutmeg cultivation. *Karshakashree (Mal.)*.2(10):23-24.
- Krishnamurthy, B. 1997. Conservation of nutmeg germplasm: *ICAR News* 3(1):5-6.
- Krishnamurthy, B. 1997. New cinnamon varieties. *Spice India (English)*10(6):3-4.
- Krishnamurthy, B. 1997. High yielding 'black pepper varieties. *Spice India (Tamil)*. 10(6):11-14.
- Krishnamurthy, B. 1997. Cloves. *Spice India (Hindi)* 10(1):2-4.
- Rajendra Hegde, 1997. Optimum utilisation of paddy lands in Kodagu. *Malanadu Varthe (Kannada)*1 (21):9.
- Rajendra Hegde, 1997. Multistoried cropping system of Kodagu. *Malanadu Varthe (Kannada)*1(21):9.
- Rajendra Hegde, 1997. The new disease 'Kokke Kandu' in cardamom and its management. *Malanadu Varthe (Kannada)*1(22):38.
- Ravindra Mulge, Venugopal M.N and Korikanthimath V.S 1997. Insight on cardamom improvement. *Kisan World*, 24(2): 38.
- Sadanandan, A.K. 1996. Significance of organics in cultivation of spices. In: *Organic cultivation (Malayalam)*. (Ed.) Joseph, P.M, pp.41-45.
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- TECHNICAL PUBLICATIONS/REPORTS**
- Biological control in spices (Eds). Anandaraj, M and Peter, K.V. IISR, Kozhikode. pp.60.
- Vision 2020. Perspective Plan IISR (Eds). Ramana, K.V, Jose Abraham, Santhosh J. Eapen and Prasad, M.V. IISR, Kozhikode.
- Annual Report, All India Coordinated Research Project on Spices 1995-96, (Eds) Edison, S. & Johny A.Kallupurackal, IISR, Kozhikode.
- Proceedings of International Symposium on Plantation Crops (PLACROSYM XI) held at Kozhikode 30 Nov.- 3rd Dec. 1995. (Eds) Peter, K.V., Sarma, Y.R, Rajagopal, V., Ramana, K.V., Devasahayam.S., and Krishnamurthy, K.S. Indian Society for Plantation Crops, Kasaragod, pp.857.
- Research Highlights 1996-97, IISR, Kozhikode. (Eds.) Santhosh J. Eapen and Ramana K. V.
- Research Highlights 1996-97, AICRP on Spices (Eds) Edison, S. and Johny A.Kallupurackal. IISR Kozhikode. 1997.

XIV WORKSHOP (NATIONAL GROUP MEETING) OF AICRP ON SPICES

The Indian Council of Agricultural Research in collaboration with the University of Agricultural Sciences, Bangalore held the XIV National Group Meeting (XIV Workshop) of the All India Coordinated Research Project on Spices during 8-10 July, 1997 at UAS, Bangalore.

Dr.G.K. Veeresh, Vice Chancellor, UAS, Bangalore was the chief guest. The inaugural function was presided over by Dr.S.P. Ghosh,



Dr. S. P. Ghosh releasing the Research Highlights of AICRP(S). Dr. G. K. Veeresh, VC, UAS Bangalore and Dr. S. Edison PC (Spices) are also see

Deputy Director General (Hort.), Indian Council of Agricultural Research, New Delhi and the welcome was extended by Dr.S. M. Singlachar, Assoc. Director of Research, UAS,. It was followed by presentation of the progress report of the AICRPS by Dr. S. Edison. The workshop recommended release of three new spice varieties, one each in cardamom, mango ginger and fennel. Besides, the research programmes of the 28 coordinating centers were discussed. This workshop marked the Silver Jubilee (25th year) of AICRP on spices.

CONSULTANCY PROCESSING CELL

The Consultancy Processing Cell (CPC) of Indian Institute of Spices Research, Kozhikode is constituted as per direction from ICAR. The committee consists of the following members. Dr.P.N.Ravindran (Chairman), Dr.Y.R. Sarma, Dr.K.V.Ramana, Dr.A.K.Sadanadan, Mr.P.A. Mathew, Dr. V.S.Korikanthimath, Ms.K.Usha, Mr.T.Gopinathan as members and Dr.M.V.Prasad as convenor. The CPC gives broad guidelines for consultancy work, bring out consultancy information system, prepares and processes the training /consultancy/contract research /contract service proposals, identifies the terms for scientific consultancy assignment, coordinates the work relating to consultancy assignment and monitors the progress of work. The CPC processed and accepted 3 consultancy services and one contract research service, so far.

TRAINING ATTENDED

Mr.Santhosh J.Eapen,Dr.Rajendra Hegde and Dr. Ravindra Mulge attended the training programme on Computer Applications to Biological Research, held at CPMB, TNAU, Coimbatore, Jan.23-30,1997.

Ms. S.S Veena, attended the 58th FOCARS at NAARM, Hyderabad.7th Jan-May 6th, 1997.

Ms.Prasanna Kumari, Hindi Translator attended a training on Translation conducted by Central Translation Bureau, Bangalore. 6th Oct.31st Dec.1996.

Mr. A.P. Sankaran, Assistant and Mr.P.K. Janardhanan,Sr.Clerk attended training programme on pay roll/GPF system at NAARM,Hyderabad.Feb.13-19,1997.

PHYTONET

The Indian Council of Agriculture Research has approved a megaproject **National Network of Phytophthora diseases of horticultural Crops (PHYTONET)** with its headquarters at IISR, Kozhikode covering 9 centres for a period of 5 years. The centres covered under the project are CPCRI RS, Vittal; IHR, Bangalore; NRC for Citrus, Nagpur; CTCRI, RS Bhubaneswar; RAU, Pusa; PAU Ludhiana; CPRI, Simla and Dr.YSPUH&F, Solan. Dr.Y.R.Sarma, Principal Scientist (Plant Pathology) IISR, Kozhikode is the network coordinator. The project envisages research on both basic and applied aspects of *Phytophthora* and molecular aspects of its taxonomy, disease resistance and biocontrol as a major strategy of disease management.

INDIAN INSTITUTE OF SPICES RESEARCH, KOZHIKODE BAGS THREE NATIONAL AWARDS

The Indian Institute of Spices Research, Kozhikode has bagged three national awards instituted by the Indian Council of Agricultural Research (ICAR), New Delhi. Sri.Chathuraman Misra, Hon'ble Minister for Agriculture (Govt.of India) presented the awards in a glittering function at New Delhi.

1. Team Award for the triennium 1994-1996 in Horticultural Sciences

The Research Team led by Dr.P.N.Ravindran, Principal Scientist, Division of Crop Improvement and Biotechnology, including Mr.K.Nirmal Babu, Dr.B.Sasikumar, Dr.J.Rema, Dr.K.Samsudeen, Ms.Minoo Divakaran, Ms.Mini P.Mathai, Ms.Manjula, Ms.Sajina Adam and Mr. John C. Zachariah have bagged the award for their contribution in spices

biotechnology. The award carries Rs.50,000 in cash, a gold medal and a citation.

2. Hari Om Trust Award 1995-96 for Horticulture

This award was given to the research team led by Dr.V.S. Korikanthimath, Scientist-in-charge, Cardamom Research Centre, (IISR) Appangala. Dr.M.N. Venugopal, Dr.Rajendra Hegde and Dr. Ravindra Mulge are the other members in the team. The team developed High Production Technology (HPT) in cardamom and demonstrated the same in several farmers plots. The team received Rs.20,000 in cash, a gold medal and a citation.

3. ICAR Young Scientists Award for the biennium 1995-96 in Agronomy and Soil Science

Dr. Rajendra Hegde, Scientist(Agron.), Cardamom Research Center, Appangala received this award. The award winning research proposal pertains to sustainable cardamom cultivation. The scientist received Rs.10000/- in cash and citation.

C.S.VenkataRam Memorial Award to IISR Scientists

Mr.Shaji Philip, Research Associate, Mr. M. Anandaraj, Sr.Scientist(Plant Pathology),and Dr.Y.R.Sarma, Principal Scientist (Plant Pathology) have bagged the C.S. VenkataRam Memorial Award for the best paper presented in PLACROSYM XII held at Rubber Research Institute, Kottaym during 27-29, Nov.1996

HONOURS/AWARDS



Dr.K.V. Peter- Nominated as Member Task Force of Department of Biotechnology (DBT) for Plantation Crops, Spices and Medicinal plants.

- Nominated as Member, Advisory Committee of Indian Institute of Plantation Management (IIPM), Bangalore.

- Nominated as Member, Biodiversity Board, Thiruvananthapuram.



Dr.S.Edison -Selected as Director, CTCRI, Thiruvanthapuram

-Selected Chariman, Site Selection Board for establishment of NRC(Seed Spices) at Rajasthan during IX Five year plan.



Dr.A.K.Sadanandan- Nominated as Member, Advisory Committee on Production and Export of Organic Spices, Spices Board.

-Nominated as Member, Task Force on Research, Education and Training under the Steering Committee of Agriculture, State Planning Board, Thiruvananthapuram



Dr.Y.R.Sarma - Selected as consultant to Indo-Swiss project at Sikkim on ginger diseases

DEPUTATIONS ABROAD

Dr.K.V.Peter, Director attended the second International Bacterial Wilt Symposium(2nd IBWS) at Guadelope, French West Indies during June 22-27, 1997 and presented a paper entitled 'Breeding for Resistance to Bacterial Wilt in Tomato and Paprika pepper'.

Dr. T. John Zachariah, Scientist Sr.Scale (Biochem.) participated in a training on Industrial Exploitation of Indigenous Medicinal and Aromatic Plants, organised by UNIDO, Vienna and ICS- Italy at the Institute of Medicinal Plant Development (IMPLAD), Chinese Academy of Traditional Medicine, Beijing, China from June 17-27, 1997.

TRANSFER OF TECHNOLOGY

Exhibition/Training

Cardamom Research Centre, IISR participated in Kodagu Utsav, 27-31, January 1997.

IISR, Kozhikode participated in an exhibition in

connection with the TRISSUR POORAM at Trishur from 17th April to 23rd May 1997.

IISR, Kozhikode organised a training course on "Onfarm Processing of Spices" from 6 to 7th January 1997. The course was attended by 4 officers from Uttar Pradesh, Andhra Pradesh and Karnataka.

IISR, Kozhikode carried out a bench mark survey in the adopted village Kodencherry during 18 to 21 March 1997.

A planting material sales counter was opened at Kodencherry panchayat (adopted village) during 6-15 July 1997 and sold black pepper, clove, nutmeg, allspices, cinnamon, bush pepper, arecanut and ornamental plants.

Radio Talks

Dr.K.V.Peter

Does and don'ts in processing of spices. AIR, Kozhikode

Dr. T. John Zachariah

Intrinsic qualities of spices and its application in the processing industry. AIR, Kozhikode

Dr. S. J. Anke Gowda

Drought management in cardamom. AIR, Madikeri

Dr. Ravindra Mulge

Answers to question on pepper cultivation. AIR, Madikeri

Dr. Rajendra Hegde

Answers to questions on mixed cropping in cardamom. AIR, Madikeri

Dr. Y.R. Sarma

Biocontrol strategies in foot rot of black pepper. AIR, Kozhikode

Mr. Santhosh J. Eapen

Wilt disease of black pepper. AIR, Kozhikode

Doordarshan on IISR

Doordarshan, Thiruvananthapuram, telecasted

the IISR programme on Biological Control of *Phytophthora* foot rot on 9th January, 1997.

MOU with RRL, Jammu

IISR, Kozhikode has entered into a MOU with RRL (Jammu) for fabrication and installation of a mini fermenter on turn key basis for large scale production of biocontrol inoculum.

REPUBLIC DAY CELEBRATIONS.

Republic day was celebrated on 26th January, 1997. Dr. K. V. Peter, Director and Dr. V. S. Korikanthimath, Scientist-in-charge, CRC, IISR, Appangala hosted the national flag at Kozhikode and Appangala, respectively. All the staff members participated in the function.

DDG (HORT.) VISITS IISR, KOZHIKOD

Dr. S. P. Ghosh, Deputy Director General (Hort.) ICAR, New Delhi visited IISR, Kozhikode and the research farm at Peruvannamuzhi on 24-25 April 1997.

He addressed the scientists and staff at the Institute/Peruvannamuzhi farm and also inaugurated the new canteen building at Peruvannamuzhi.

SRC MEETING

The XI Staff Research Council Meeting of IISR, Kozhikode was held from 1-3 May, 1997 at IISR, Kozhikode. Apart from scientists and Director of IISR, Kozhikode; Dr. P. C. Sivaraman Nair, Director of Research (Retd.) KAU; Mr. M. G. Thankappan, Director of Agril. (Govt. of Kerala); Mr. Koshi John, Director (Dev.) Spices Board, Kochi;



Dr. S.P. Ghosh, DDG (Hort.) inaugurating the new canteen building at Peruvannamuzhi farm

Dr.E.V.Nybe, Professor & Head ,Dept.of Plantation Crops(KAU); Mr.T.R. Rama Varma, Joint Director(Agril), Kozhikode and Mr.K.G.Thomas, Asst.Director, DCASD, Kozhikode participated in the SRC.

RAC MEETING

The Research Advisory Council Meeting was held on 24th April 1997 at IISR, Kozhikode. Dr.S.N.Rao, Chairman, Dr.K.V.Peter, Prof.T.N.Ananthakrishnan, Dr.C.K.George, Dr.R.K.Sharma, Prof.M.C.Nair and Dr.Y.R.Sarma, (Member Secretary, RAC) attended to meeting.



Dr.P.Das, DDG (Extn.) inaugurating the KVK training facility at Peruvannamuzhi.

NEW ICAR ADHOC SCHEMES SANCTIONED

Four new ICAR adhoc research projects are sanctioned to IISR, Kozhikode. They are

1. Effect of organic fertilizers on soil quality

productivity and quality of black pepper and cardamom.

2. Substitution of chemical fertilizers with organic and biological nutrient sources for a sustainable cardamom cultivation.
3. Production of haploids of cardamom (*Elettaria cardamomum* Maton) through anther culture/microspore culture.
4. Biological control of plant parasitic nematodes of major spices crops
5. *In vitro* conservation of spices

New Project Coordinator (Spices)

As Dr. S. Edison relinquished the charges of the Project Coordinator (Spices) to take over as Director, Central Tuber Crops Research Institute (CTCRI), Thiruvananthapuram, Dr. A.K. Sadanandan, Principal Scientist (Soil Science) IISR, Kozhikode assumed the charges of Project Co ordinator (Spices).

DISTINGUISHED VISITORS

Justice C.V.N.Shastry, Judge, High Court of AP, January 1997

Dr.K.L.Chadha, Ex.DDG(Hort.) ICAR, New Delhi. January 1997

Dr.V.L.Chopra, National Professor (Biotechnology) IARI, New Delhi. February 1997.

Dr.P.Das, DDG (Extn.) ICAR, New Delhi. June 1997.

PERSONNEL

Appointments

Name	Designation	Posted at	Date of joining
Sri.Devalsab Javoor	Research Associate	Appangala	13.01.1997
Sri.Vinayagopal	Research Associate	Kozhikode	13.01.1997
Dr.A.Kumar	Scientist (Pl.Path.)	Kozhikode	11.04.1997
Dr.K.Angappan	Scientist (Pl.Path.)	Kozhikode	28.04.1997
Dr. V. Srinivasan	Scientist (Soil Sci.)	Kozhikode	30.05.1997

Transfers

Name	Designation	From	To
Dr.K.Sivaraman	Sr.Scientist, (Agronomy)	IISR,Kozhikode	SBI,Coimbatore
Ms.S.S.Veena	Scientist (Pl.Path)	SBI,Coimbatore	IISR,Kozhikode
Sri.K.Jayarajan	T-II-3, Statistical Assistant	CPCRI,Kasaragod	IISR,Kozhikode
Sri.K.S.Sreekumar	Sr. Clerk	CMFRI,Kochi	IISR,Kozhikode
Sri.K.A.Somanna	T-II-3 (Farm Asst.)	IISR,Peruvannamuzhi	CRC,Appangala
Sri.C.Kelappan,	SS.Gr.II, Mazdoor	CPCRI, Kasaragod	IISR,Peruvannamuzhi
Sri.P.Chandu,	SS.Gr.II,	" "	" "
Sri.M.Venu Nair,	SS.Gr.I	" "	" "
Sri.E.K.Mohandas,	SS.Gr.I	" "	" "
Sri.K.Chandran Nair,	SS.Gr.I	" "	" "

Resignations

Mr.K.B.Patil,Artist-cum-Photographer resigned on 26.2.1997

Ms.K.L.Gayathri, Research Associate (Nematology) resigned on 31.3.97

Dr.Ravindra Mulge, Scientist (Hort.), Appangala resigned on 4.4.97

Dr.Deval Sab Javoor, Research Associate (Microbiology) resigned on 12.5.97

Ms.P.Indulekha, Sr.Research Fellow (Tissue Culture) resigned on 18.6.97.

Retirements

Dr.M.Aravindan,Principal Scientist and Chief Training Organiser (KVK) retired on superannuation on 31.1.1997.

Sri.M.K.Appaiah, Technical Officer, CRC, IIS Appangala, retired on superannuation on 31.5.9

WEDDINGS

Kum.Sunitha,Jr.Stenographer (KVK) IISF Kozhikode with Mr.Joy on 11 February 1997

Mr.K.Rajan, Field Asst., Peruvannamuzhi with Ms.Hemalatha on 2 March, 1997.

Congratulation and Best Wishes for the married couples!

Ph.D.AWARDED

Sri.K.Samsudeen has been awarded Ph.D degree in Botany by the University of Calicut.
Mr. S.J.Anke Gowda, Scientist (Pl.Physiology) CRC,Appangala has been awarded Ph.D in Plant Physiology by University Agricultural Sciences, Bangalore.