



Vol. 17 Issue 2
July - December 2006
Half yearly



SPICES NEWS

Indian Institute of Spices Research
Markunnu (P.O.), Calicut, Kerala, India

Research update

Mutations in the floral identity genes, which are conserved gene families across plant kingdom, result in conversion of floral meristem to inflorescence meristem. A multi-branching black pepper accession collected from a farmer's nursery a few years back, and maintained at the black pepper repository of Indian Institute of Spices Research, Kozhikode has now spiked, proving true to its character, where all the spikes are of proliferating nature.



Spike proliferation in Black pepper

Highlights

- ▶ Multi-branching black pepper
- ▶ Germplasm registration
- ▶ Molecular characterization and metabolite profiling of *Curcuma*
- ▶ Detection of adulterants in pepper powder
- ▶ Molecular characterization of traded black pepper
- ▶ Protocol for DNA isolation from dried black pepper
- ▶ Rainfall analysis and crop planning
- ▶ Nutrient management
- ▶ Characterization of *Phytophthora*
- ▶ *Piper yellow mottle virus* in Indian long pepper

INSIDE

- 1 Research Update
- 3 Personalia
- 8 Appointments/ Superannuation
- 8 News & Events
- 10 Transfer of Technology
- 11 Publications

A black pepper accession rich in caryophyllene was registered as a unique germplasm (INGR 06026).

In Chinese cassia, elite line D3 (IC No 370425) has been registered (INGR 06031) with NBPGR, New Delhi for its high bark oil (4.9%) and cinnamaldehyde (90.5%).

NBPGR (ICAR), New Delhi has accepted and registered our four cardamom accessions for its uniqueness. IC 349541 (APG 248) with branches throughout the panicle and maximum number of branches per panicle and high yield has been registered as INGR No. 06027; IC 349554 (APG 251) with compound panicle, basal branching and bold capsules has been registered as INGR No. 06028; IC 349599 (APG 306), a moderate yielder resistant to cardamom mosaic or 'katte' disease has been registered as INGR No. 06029 and IC 349634 (APG 343) resistant to rhizome rot and leaf blotch (fungal diseases) has been registered as INGR No. 06030

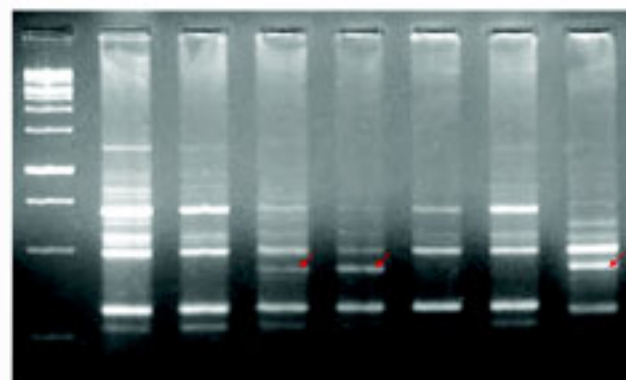
Molecular characterization (RAPD&ISSR) of 36 turmeric cultivars from different parts of the country indicated that cultivars collected from the same geographical area based on vernacular names will not be genetically distinct, notwithstanding the good genetic variability in this clonally propagated crop.

The 23rd State Variety Release Committee has approved four black pepper varieties viz., IISR Thevam, IISR Girmunda, IISR Malabar Excel and IISR Sakthi besides two high quality turmeric varieties viz., IISR Alleppey Supreme and IISR Kedaram for release.

Metabolite profiling of eleven *Curcuma* Spp. using rhizome essential oil GC/MS profile and dendrogram based grouping revealed clustering somewhat congruent with molecular/morphological identity of the species. Among the eleven *Curcuma* Spp. studied, five species such as *Curcuma comosa*, *C. montana*, *C. psuedomontana*, *C. sylvatica* and *C. malabarica* were investigated for the first time for their essential oil profile by GC/MS.

GC/MS profiling of the essential oil of cardamom has shown a total of 33 compounds in export grade Indian, 26 in Guatemalan and 35 in Sri Lankan cardamom, and 22 of them are common for all three produces. The quantitative result of Indian cardamom indicates the high yield of 1, 8-cineole (27.59%) and α -terpinyl acetate (41.65%) compared to the other produces.

Adulteration of powdered market samples of black pepper with ground papaya powder was detected using PCR techniques. Out of the five market samples of black pepper powder studied, two of them consistently amplified a papaya seed specific band with a molecular size of approximately 450 bp using RAPD primer OPJ-09. The 450bp band was cloned, sequenced and primers designed for developing papaya specific SCAR marker.



OPJ11-Market sample

Detection of papaya seed adulteration in market samples of black pepper powder. Red arrows indicates the papaya seed specific bands (~ 450 bp)

RAPD profiling of the traded black pepper from India, Vietnam, Indonesia and Malaysia revealed distinct genetic identity of the produces from the different countries.

β - Caryophyllene is the principal flavor component in black pepper essential oil. Percentage composition of this component in Panniyur-I at locations such as Ambalavayal, Peruvannamuzhi, Pampadumpara, Panniyur, Yercaud and Dapoli were evaluated. The content ranged from 9.7 – 27.7%.

A modified CTAB method was standardized to isolate genomic DNA from the powdered berries of export grade black pepper from India, Vietnam, Malaysia and Indonesia.

Rainfall analysis and crop planning of high rainfall tract of northern agro-climatic zone of Kerala indicated that SWM (June – September) contributes maximum 3351.4mm (75%) and July is the rainiest month (1117.0 mm) (25%). CV is less during this period and highly dependable for crop production. Land preparation for annual crops has to be planned during 14 – 18 SMW (2 April – 5 May) and planting should be 18 – 21 SMW (05 – 27 May). Mulching is must after planting and first dose of manure and fertilizer application, shade regulation and prophylactic plant protection have to be practiced between 18 and 21 SMW. Second dose of manure and fertilizer, shade regulation and plant protection have to be planned 36 – 39 SMW (03 – 30 September).

Black pepper, ginger and turmeric were grown organically by applying FYM, vermi compost, ash and rock phosphate and *Trichoderma* & *Pseudomonas* sp. as bio control agents for rhizome rot control. In black pepper, highest average fresh yield of 2.9 kg vine⁻¹ was observed in organic system. The mean yield recorded in ginger (var. Varada, Rejatha and Mahima) was 18 kg/ 3 m² which is 24.5% and 68% higher over chemical and integrated farming, respectively. Turmeric (var. Alleppey Supreme and Prathiba) recorded a mean yield of 11.75 kg/ 3 m² under organic cultivation with a reduction of 19% rhizome yield as compared to the integrated system but showed 13.4% higher yield over conventional (chemical) farming.

The study on the possibility of replacing conventional potting mixture with alternate medium to grow black pepper rooted cuttings

indicated that leaf production, leaf area and total dry matter production were higher for the medium consisting of coir pith compost (C) granite powder (G) in 1:1 proportion along with *Azospirillum* and *Phosphobacteria* as nutrient source. The medium consisting of coir pith compost, granite powder, farmyard manure (CGF 2:1:1) was also cheaper compared to conventional potting mixture.

Three *Phytophthora* species viz., *P. palmivora*, *P. meadii* and *P. capsici* were characterized based on PCR amplification of ITS region using ITS 4 and 6 universal primers. The amplicons had a length of 864 bps, which comprises of the complete ITS1 (174bps), 5.8S ribosomal subunit (159bps), ITS2 region (419bps) along with partial sequences of 28S-large (59bps) and 18S-small subunit (53bps) genes of r DNA. The sequence analysis revealed that there was sequence similarity in two species *P. palmivora* and *P. meadii* with already reported sequences in the data bases whereas in case of *P. capsici* it matched with both *P. capsici* and *P. tropicalis*.

With the launching of ARISoft, the Indian Institute of Spices Research, Calicut has become fully automated.

Badnavirus infecting betel vine (*Piper betle* L.) and Indian long pepper (*P. longum* L.) were detected using primers designed for amplifying a portion of ORF I and ORF III regions of the virus in PCR. The sequenced region of ORF I contained 469 and 471 nucleotides in *P. betle* and *P. longum* isolates respectively, while ORF III region contained 597 nucleotides in both the isolates. Pair wise comparison of *Badnavirus* isolates infecting betel vine and Indian long pepper showed an identity of 87% and 88.7% at ORF-I and ORF-III respectively. Phylogenetic analysis also revealed close clustering of *Badnavirus* infecting betel vine and Indian long pepper with PYMoV isolates infecting black pepper indicating that *Badnavirus* infecting *P. betle* and *P. longum* in India is a strain of PYMoV.

DSpice@IISR, a digital Institutional Repository implemented at IISR holds the full text of research articles published from IISR, summary of theses, project reports etc.

Virtual screening, drug likeness, toxicity and ADME calculations and 955 descriptors were calculated for 210 lead compounds from turmeric. A database of lead compounds from Zingiberaceous plants is also being developed.

New projects

Network project on application of microorganisms in agriculture and allied sectors (AMAAS) under the theme nutrient management, PGPR and biological control (Principal Investigator: Anandaraj M)

Genetic transformation of black pepper to confer resistance against viruses (DBT) (Principal Investigator: Ishwara Bhat A)

Development of microsatellite markers and characterization of *Curcuma* (DBT) (Principal Investigator: Sasikumar B)

Induction of orthotrophy in plagiotropic grafts in nutmeg (Institute Funded) (Principal Investigator: Abirami K)

Screening of germplasm accessions of spices and evaluation of antibiosis resistance to major insect pests (Institute Funded) (Principal Investigator: Jacob TK)

Evaluation of legumes as intercrops in black pepper plantation (Institute Funded) (Principal Investigator: Kandiannan K)

Root stock intervention to manage root infection of *Phytophthora* and nematodes in black pepper (Institute Funded) (Principal Investigator: Mathew PA)

Studies on the nutraceutical properties of bioactive compounds in a few spices (Institute Funded) (Principal Investigator: Shamina Azeez)

Personalia

Awards/ Honours/ Recognitions

Anandaraj M
Devasahayam S
John Zachariah T

Fellow, Indian Society for Spices

Diby Paul
Anandaraj M
Kumar A

J S Pruthi award for the best research paper *Antagonistic mechanisms of fluorescent pseudomonads against *Phytophthora capsici* in*

black pepper (*Piper nigrum* L.). J. Spices Aromatic Crops, 2005, 14: 122-129.

**Srinivasan V
Hamza S**

J S Pruthi award for the best research paper *Evaluation of composted coir pith with chemical and biofertilizers on nutrient availability, yield and quality of black pepper (Piper nigrum L.)*, J. Spices Aromatic crops, 2005, 14: 15-20.

**Thankamani CK
Srinivasan V
Hamza S
Kandiannan K
Mathew PA**

Alapatti Prasada Rao best poster award for the research paper *Evaluating soil less mixture for the production of planting materials in black pepper*, SYMSAC-III, Bangalore 08-10 November 2006.

**Participation in Symposia/ Seminars/
Conferences/ Meetings**

Anandaraj M

Group meeting on drafting good agricultural practices (GAP) for pepper, IPC Secretariat, Jakarta, Indonesia, 15-17 November 2006.

Indian Phytopathological Society, Southern Zonal meeting, Central Plantation Crops Research Institute, Kasaragod, 27 November 2006.

Anke Gowda S J

In house seminar on intensive cultivation of pepper, Tata coffee estates, Madhikeri on 25 July 2006.

SYMSAC III: Crop and product diversification, Lalbagh, Bangalore, 08-10 November 2006.

Black pepper crop estimation at Central Coffee Research Station, Sub Station, Chettalli, 29 November 2006.

**Chempakam B
Devasahayam S
Sheeja TE
Suseela Bhai R**

PLACROSYM XVII, Kochi, 05-08 December 2006

Dinesh R

DBT Task Force meeting on biological nutrient management in plantations and other cash crops, KFRI, Trichur, 10 August 2006.

Ishwara Bhat A

National certification system for tissue culture raised plants at DBT, New Delhi, 27 July 2006.

Jacob TK

Sensitization workshop on process of knowledge management of KVK, KVK, Trivandrum, 12-15 September 2006.

KVK traveling QRT, TNAU, Coimbatore, 27 October 2006.

Training on ICT, MANAGE, Hyderabad, 30 October – 03 November 2006.

National conference on KVKs, Hyderabad, 26-27 November 2006.

Jayaraj K

Workshop on PERMISnet and Intelligent Reporting System (IRS), National Agriculture Science Complex (NASC), New Delhi, 21-22 July 2006.

John Zachariah T

South Asian Regional Seminar on food safety management systems (ISO 22000: 2005) organized by Bureau of Indian standards, New Delhi, 10-11 August 2006.

Workshop on Vision 2015 – strategy and action plan (Food Processing) organized by KINFRA, Calicut, 02 September 2006.

Review meeting of network project on development of chilli hybrids for paprika production', KAB-II, New Delhi, 02 November 2006.

SYMSAC III: Crop and product diversification, Lalbagh, Bangalore, 08-10 November 2006.

**Krishnamurthy KS
Prasath D
Srinivasan V**

SYMSAC III: Crop and product diversification, Lalbagh, Bangalore, 08-10 November 2006.

Kandiannan K

First Meeting of Mega Seed Project- Seed production in agricultural crops and fisheries, NASC Complex, New Delhi, 27-28 June 2006.

Group meeting of ICAR network Project- Climate change effects on growth and productivity of plantation crops with special reference to coconut and black pepper: Impact, adaptation and vulnerability and mitigation strategies, 10-11 August 2006.

SYMSAC III: Crop and product diversification, Lalbagh, Bangalore, 08-10 November 2006.

Seminar on contribution of science and technology for the development of Kerala, CUSAT, Cochin, 19-20 December 2006.

Krishnamoorthy B Prasannakumari N

38th meeting of Town Official Language Implementation Committee meeting, Calicut, 19 October 2006.

Parthasarathy V A

Scientific Advisory Committee Meeting, KVK, Peruvannamuzhi, 27 July 2006.

Governing Body Meeting of State Horticulture Mission, Trivandrum, 01 August 2006.

National Workshop on redesigning chemistry practical, Malabar Christian College, Calicut, 21 August 2006.

Inauguration and Keynote Address, DBT funded training program, CPCRI, Kasaragod, 21 August 2006.

Meeting of sub group on planting materials production, New Delhi, 31 August 2006.

Second Meeting of high tech horticulture, Pune & Dapoli, 16-17 September 2006.

ICAR Governing Body meeting, New Delhi, 19 September 2006.

Meeting of sub group on planting materials production, New Delhi, 17 October 2006.

Presentation of Vision 2025, ICAR, New Delhi, 26 October 2006.

Director's Conference, ICAR, New Delhi, 03-04 November 2006.

SYMSAC III: Crop and product diversification, Lalbagh, Bangalore, 08 November 2006.

Special GB meeting of State Horticulture Mission, Trivandrum, 09 November 2006.

PLACROSYM XVII, Cochin, 05-06 December 2006.

Sasikumar B

23rd State variety release sub committee meeting, Central Soil Testing Laboratory, Parottukonam, Thiruvananthapuram, 30 October 2006.

SYMSAC III: Crop and product diversification, Lalbagh, Bangalore, 08-10 November 2006.

Patents and intellectual property rights, NIT, Calicut, 04 December 2006.

Sheeja TE Thankamani C K

SYMSAC III: Crop and product diversification, Lalbagh, Bangalore, 08-10 November 2006.

Suseela Bhai R

Meeting on production of rooted black pepper cuttings in department farms, Directorate of Agriculture, Trivandrum, 23 August 2006.

IPS Southern Zone meeting, CPCRI, Kasaragod, 27 November 2006

Project presentation on stem rot and root rot disease of vanilla in Kerala State Science Technology and Environment, Shastra Bhavan Trivandrum, 28 November 2006.

Membership in committees/ professional societies

Anandaraj M

Member, Expert Committee on Normally Traded Commodities, NBA, Chennai

Ishwara Bhat A

External Examiner, viva voce examination of students of M.Sc. (Biotechnology) course supported by DBT, Govt. of India, University of Calicut, 07 July 2006.

Ishwara Bhat A Srinivasan V

Consultants to Shanam Plantations, Gundlupet, Mysore.

Kandiannan K Suseela Bhai R

Consultants to Travancore Rubber and Tea Company Limited, Ambanaad Estate, Kalthuritty, Kollam, Kerala, 31 October 2006

John Zachariah T

Member, expert panel for black pepper product committee of National commodity and Derivatives Exchange Ltd., Kochi, 18 September 2006.

Parthasarathy VA

Member, Research Council of TBGRI, Trivandrum

Project Coordinator, DBT network project on Zingiberaceae.

President, Indian Society for Spices

SYMSAC III: Crop and product diversification, Lalbagh, Bangalore, 08-10 November 2006.

Seminar on contribution of science and technology for the development of Kerala, CUSAT, Cochin, 19-20 December 2006.

Krishnamoorthy B Prasannakumari N

38th meeting of Town Official Language Implementation Committee meeting, Calicut, 19 October 2006.

Parthasarathy V A

Scientific Advisory Committee Meeting, KVK, Peruvannamuzhi, 27 July 2006.

Governing Body Meeting of State Horticulture Mission, Trivandrum, 01 August 2006.

National Workshop on redesigning chemistry practical, Malabar Christian College, Calicut, 21 August 2006.

Inauguration and Keynote Address, DBT funded training program, CPCRI, Kasaragod, 21 August 2006.

Meeting of sub group on planting materials production, New Delhi, 31 August 2006.

Second Meeting of high tech horticulture, Pune & Dapoli, 16-17 September 2006.

ICAR Governing Body meeting, New Delhi, 19 September 2006.

Meeting of sub group on planting materials production, New Delhi, 17 October 2006.

Presentation of Vision 2025, ICAR, New Delhi, 26 October 2006.

Director's Conference, ICAR, New Delhi, 03-04 November 2006.

SYMSAC III: Crop and product diversification, Lalbagh, Bangalore, 08 November 2006.

Special GB meeting of State Horticulture Mission, Trivandrum, 09 November 2006.

PLACROSYM XVII, Cochin, 05-06 December 2006.

Sasikumar B

23rd State variety release sub committee meeting, Central Soil Testing Laboratory, Parottukonam, Thiruvananthapuram, 30 October 2006.

SYMSAC III: Crop and product diversification, Lalbagh, Bangalore, 08-10 November 2006.

Patents and intellectual property rights, NIT, Calicut, 04 December 2006.

Sheeja TE Thankamani C K

SYMSAC III: Crop and product diversification, Lalbagh, Bangalore, 08-10 November 2006.

Suseela Bhai R

Meeting on production of rooted black pepper cuttings in department farms, Directorate of Agriculture, Trivandrum, 23 August 2006.

IPS Southern Zone meeting, CPCRI, Kasaragod, 27 November 2006

Project presentation on stem rot and root rot disease of vanilla in Kerala State Science Technology and Environment, Shastra Bhavan Trivandrum, 28 November 2006.

Membership in committees/ professional societies

Anandaraj M

Member, Expert Committee on Normally Traded Commodities, NBA, Chennai

Ishwara Bhat A

External Examiner, viva voce examination of students of M.Sc. (Biotechnology) course supported by DBT, Govt. of India, University of Calicut, 07 July 2006.

Ishwara Bhat A Srinivasan V

Consultants to Shanam Plantations, Gundlupet, Mysore.

Kandiannan K Suseela Bhai R

Consultants to Travancore Rubber and Tea Company Limited, Ambanaad Estate, Kalthuritty, Kollam, Kerala, 31 October 2006

John Zachariah T

Member, expert panel for black pepper product committee of National commodity and Derivatives Exchange Ltd., Kochi, 18 September 2006.

Parthasarathy VA

Member, Research Council of TBGRI, Trivandrum

Project Coordinator, DBT network project on Zingiberaceae.

President, Indian Society for Spices

Sasikumar B

Vice President, Indian Society for Spices

Lectures delivered

- *Post harvest technology of Spices*, delivered at IHR, Bangalore, 10 July 2006 (*John Zachariah T*).
- *Bioinformatics – an emerging branch in life sciences*, delivered at Calicut University, 20 July 2006 (*Santhosh J. Eapen*).
- *Black pepper and ginger cultivation practices*, delivered in the training program organised by Sri Keshra Dharmasthala Grammeena Yojane and Department of Horticulture, Sullya, 22 July 2006 (*Anke Gowda SJ*).
- *SpiceNet and SpicE-Lib*, delivered in Study Circle Meeting, IISR, Calicut, 28 July 2006 (*Santhosh J. Eapen*).
- *Varieties and crop improvement in pepper, ginger and turmeric*, delivered to the participants of the national level training program on production management and value addition of major spices, IISR, Calicut, 22-29 August 2006 (*Sasikumar B*).
- *Applications of bioinformatics in spice research*, delivered in the training program on production management and value addition of major spices, IISR, Calicut, 24 August 2006 (*Santhosh J. Eapen*).
- *Implementation of IPM for managing pests and diseases of black pepper*, keynote address delivered during the 34th Annual Meeting of International Pepper Community meeting held at Kandy, Sri Lanka, 04-07 September 2006 (*Anandaraj M*).
- *Production technology of cardamom*, delivered to the participants of the national level training program on production management and value addition of major spices IISR, Calicut, 25 August 2006 (*Prasath D*).
- *Nematode problems in spices*, delivered in the training program on production management and value addition in major spices, IISR, Calicut, 28 August 2006 (*Santhosh J. Eapen*).
- *Performance of Idukki cardamom land races under Karnataka conditions*, delivered to the Field officers and Assistant Directors of Spices Board, IISR, CRC, Appangala, 07 September 2006 (*Prasath D*).
- *Fundamental aspects and applications of bioinformatics*, delivered in the UGC sponsored refresher course in biotechnology and bioinformatics, Calicut University, 07 October 2006 (*Santhosh J. Eapen & S. Balaji*).
- *Molecular techniques for detection of Plant viruses*, delivered at the UGC sponsored refresher course in biotechnology, Calicut University, 09 October 2006 (*Ishwara Bhat A*).
- *Bioinformatics: basics & applications*, delivered in the UGC sponsored seminar on emerging scenario in plant sciences, Providence College, Calicut, 14 October 2006 (*Santhosh J. Eapen*).
- *Viral diseases of plantation crops*, delivered at the winter school on breeding for resistance to diseases and insect pests in plantations crops, CPCRI Regional Station, Kayankulam, 24 October 2006 (*Ishwara Bhat A*).
- *Molecular methods for detection of plant pathogens*, delivered at the winter school on breeding for resistance to diseases and insect pests in plantations crops held at CPCRI Regional Station, Kayankulam, 24 October 2006 (*Ishwara Bhat A*).
- *Host plant resistance in integrated management of insect pests of spice crops*, delivered in the winter school on breeding for resistance to diseases and insect pests in plantation crops, CPCRI Regional Station, Kayamkulam, 25 October 2006 (*Devasahayam S*).
- *In vitro screening techniques for evaluation of disease resistance*, delivered in the winter school on breeding for resistance to diseases and insect pests in plantation crops, CPCRI Regional Station, Kayamkulam, 30 October 2006 (*Anandaraj M*).
- *Importance of micronutrients in plant nutrition*, delivered in workshop organized by Land Use Board, Government of Kerala, for AAOs and farmers, Malappuram, 04 November 2006 (*Srinivasan V, Hamza S*).
- *Bioinformatics – An Overview*, delivered in the DBT sponsored training on bioinformatics: tools & applications, IISR, Calicut, 14 November 2006 (*Santhosh J. Eapen*).
- *Biological databases and search methodologies*, delivered in the DBT sponsored training on bioinformatics: tools & applications, IISR, Calicut, 14 November 2006 (*Santhosh J. Eapen*).
- *Sequence, structure, function*, delivered in short course in bioinformatics, IISR, Calicut, 16 November 2006 (*Shamina Azeez*).
- *Varieties and crop improvement in pepper, ginger and turmeric*, delivered in spices production technology for officers of North Eastern States, IISR, Calicut, 20-22 November 2006 (*Sasikumar B*).
- *Integrated management of insect pests of black pepper, ginger and turmeric*, delivered in the training programme on spices production technology, IISR, Calicut, 21 November 2006 (*Devasahayam S*).
- *Nematodes and their management in major spices*, delivered in the training program on spices production technology for officers of NE States, IISR, Calicut, 21 November 2006 (*Santhosh J. Eapen*).
- *Organic farming practices*, delivered in organic seminar to conveners of agroclinics, Kodenchery Gram Panchayat, 24 November 2006 (*Hamza S*).

■ *Soil fertility maintenance under organic farming conditions*, delivered in organic seminar to conveners of agroclinics, Mukkam Gram Panchayat, 24 November 2006 (Hamza S).

■ *Diagnostics for the detection of plant pathogens*, delivered in the ICAR sponsored winter school on diagnostics and molecular characterization of pathogens of horticultural crops and their biocontrol organisms, Indian Institute of Spices Research, Calicut, 01 December 2006 (Anandaraj M).

■ *Molecular approaches for studying the genetic diversity of fungal pathogens and biocontrol agents*, delivered in the ICAR sponsored winter school on diagnostics and molecular characterization of pathogens of horticultural crops and their biocontrol organisms, Indian Institute of Spices Research, Calicut, 04 December 2006 (Anandaraj M, Kumar A).

■ *Species differentiation of Phytophthora based on ITS PCR*, delivered in the ICAR sponsored winter school on diagnostics and molecular characterization of pathogens of horticultural crops and their biocontrol organisms, Indian Institute of Spices Research, Calicut, 14 December 2006 (Anandaraj M, Sheji Chandran).

■ *Purification of virus*, delivered in the ICAR sponsored winter school on diagnostics and molecular characterization of pathogens of horticultural crops and their biocontrol organisms, IISR, Calicut, 04 December 2006 (Ishwara Bhat A).

■ *ELISA*, delivered in the ICAR sponsored winter school on diagnostics and molecular characterization of pathogens of horticultural crops and their biocontrol organisms, IISR, Calicut, 05 December 2006 (Ishwara Bhat A).

■ *PCR based detection of plant viruses*, delivered in the ICAR sponsored winter school on diagnostics and molecular characterization of pathogens of horticultural crops and their biocontrol organisms, IISR, Calicut, 07 December 2006 (Ishwara Bhat A).

■ *PCR based cloning*, delivered in the ICAR sponsored winter school on diagnostics and molecular characterization of pathogens of horticultural crops and their biocontrol organisms, IISR, Calicut, 08 December 2006 (Ishwara Bhat A).

■ *Agricultural research and development in Kerala: Status and strategy with reference to spices*, delivered in the seminar on contribution of science and technology for the development of Kerala, CUSAT, Cochin, 19 December 2006 (Kandiannan K).

Participation in trainings

Ishwara Bhat A

Intellectual property rights and WTO related issue, ASCI, Hyderabad, 31 July -04 August 2006

Jayaraj K

Information security for government officers, DOEACC Centre, NIT Campus, Calicut, 18 -22 September 2006

Prasath D

Awareness course on intellectual property rights, IGNOU (Indira Gandhi National Open University), New Delhi, May - July 2006.

Shiva KN

Winter School on breeding for resistance to diseases and insect-pests in plantation crops, CPCRI-RS, Kayamkulam, Kerala, 16 October - 6 November 2006.

Visits abroad

Anandaraj M

Visited Sri Lanka to deliver a keynote address on IPM at the 34th annual meeting of IPC, 04-07 September 2006.

Visited IPC Secretariat, Jakarta, Indonesia to participate in the group meeting on drafting good agricultural practices (GAP) for pepper, 15-17 November 2006.

Distinguished visitors

Dr Rajib Ghosh, Asst. Director, THAS HRC, Tripura, 07 August 2006.

Mr M. J. James, Asst. Ap. Advisor, Ministry of Labor, RDAT, Chennai, 21 August 2006.

Dr N. Murali Krishna, Dept. of Cardiology, MIMS, Calicut, 22 August 2006.

Mr C.P. Vijayakrishnan, Staff Reporter, Mathrubhumi, Calicut, 20 November 2006.

Dr Gautam Kalloo, Deputy Director General (Horticulture and Crop Sciences), ICAR, New Delhi, 22 November 2006.

Dr N. K. Tyagi, Member, Agricultural Scientists Recruitment Board, New Delhi, 21-24 December 2006.

Appointments

Name	Post	Date
Abirami K	Scientist	14 July 2006
Senthil Kumar R	Sr. Scientist (Horticulture)	28 August 2006
Shamina A	Sr. Scientist (Biochemistry)	31 August 2006

Promotions

Name	Post	Date
Aboobacker Koya VK	T9	11 October 2003
Kumar A	Senior scientist	11 April 2006
Prasath D	Scientist (Sr. Scale)	08 July 2005
Srinivasan V	Senior scientist	30 May 2006

Transfer/Retirement/Resignation

Name	Post	Date
Ravi S	T4	Relieved on 03 June 2006
Ravindran KK	SS Gr IV	Retired on 31 August 2006
Minoo Divakaran	T4	Resigned on 18 October 2006

News and events

Vigilance Awareness Week



The Vigilance Awareness Week was observed from 06-10 November 2006. The celebrations started with administering of pledge by the Director. There were 3 programmes viz., poster design, quiz competition and debate. The Poster design competition was held for school children with a topic 'Corruption on Society'. Seven schools participated and prizes were given to the best posters. The Quiz competition and debate were held for the staff members of IISR. The valedictory function was held on 10 November 2006.

Mid term IRC meeting

The mid term institute research committee meeting was held from 23-24 November 2006. Dr. V.A. Parthasarathy, Director, IISR reviewed all the projects including the ones funded by external agencies. Nine projects were closed and five new

projects were approved by the IRC for implementation.

Institute Joint Staff Council meeting

The VIII and IX meeting of the VI Institute Joint Council was held on 21 September and 22 December 2006 respectively. The meetings were presided over by the Director.

SARANI - IISR Recreation Club



The New Executive of IISR recreation club, with Dr.P. Rajeev as secretary and Ms.P.V.Sali as joint secretary took office. Onam was celebrated with fervor and gaiety. The Crop Improvement division won the rolling shield for the best flower carpet in the competition. A free eye care camp for the benefit of the staff was organized by M/s Agarwal Vasani Eye care center, Calicut on 08 November 2006.

DSpice@IISR- an Institutional Repository IISR

A digital Institutional Repository has been implemented at IISR using the DSpace open source platform. DSpice@IISR holds the full text of research articles published from IISR, summary of theses, project reports etc.

News from NICS

IISR hosted the Library Resource Sharing Meeting on 26 July 2006. Apart from the respective Directors of CPCRI, Kasaragod and IISR, Calicut, scientists-in-charge and library officials of the three institutes viz. CPCRI, IISR and NRCC and their regional stations participated in the meeting.

During the period 62 reference books, 2 theses, 18 technical reports and 7 CDs were added to the library collection. Access to online journals was streamlined through the new library portal, SpicE-Lib. There were 1010 internal and 179 external users during the reporting period.

Transfer of technology**Trainings**

A training programme 'Bioinformatics: Tools and Applications' was organized from 14 – 18 November 2006. Nineteen participants from various parts of the country participated in the program. Besides the Institute faculty, the guest faculty included Dr. P.R. Padma (Avinashilingam University, Coimbatore), Ms. Betsy Sheena Cherian (Kerala University, Trivandrum) and Ms. S. Praseetha (SIAS, Malappuram).

The ICAR sponsored winter school on "Diagnostics and Molecular Characterization of Pathogens of Horticultural Crops and their Biocontrol Organisms" was organized at Indian



Institute of Spices Research, Calicut-from 1-21 Dec 2006. The participants were from various ICAR Institutes and Universities spread over the length and breadth of the country. Special lectures on Open access, Plant Quarantine, WTO, Biodiversity and IPR issues were also included.

Five students from different universities undertook their M.Sc project work in Biotechnology under the guidance of the scientists of the institute.

Five post M. Sc. candidates under went hands on training in various techniques of Biotechnology.

Agricultural Technology Information Centre

Five training programs including a national level training sponsored by the Ministry of Agriculture and Cooperation, GOI were organized in which a total of 85 trainees participated.

The Institute participated in the exhibition in connection with the national workshop of KVKs held at Hyderabad during 25-27 November 2006.

Planting material worth Rs.71455, publications worth Rs 33636 and Bio control agents for Rs 23367 were sold. Advisory service was provided to 379 farmers and 492 students from various colleges and schools visited the institute.

Krishi Vigyan Kendra

KVK organized 44 training programs on various facets of agriculture and animal husbandry. About 1256 participants were benefited.

Two seminars were conducted on organic farming. About 23 extension personnel 222 farmers participated in the seminars.

Three OFTs on integrated management of stem bleeding in coconut, management of dairy animals during summer and management of Ranikhet disease in anaemic and worm-loaded birds were conducted.

The KVK also organized FLDs on

- Introduction of short duration variety of Oyster mushroom viz., Ananthan
- Intercropping of Njalipooan banana in coconut garden

- Introduction of CO 3 Hybrid Napier as component in homesteads
- High density planting of tissue culture Nendran banana
- Introduction of improved varieties of Anthurium for cut flower production
- Demonstration of broad breasted large white turkey in backyard system
- Rearing improved variety of Japanese quail
- Introduction of Malabari x Jamunapari crossbred goat

- * A farmers' study tour to Government Goat farm, Kommeri, Kannur was organized, in which 49 farmers participated.
- * A calf show and a calf rally were organized at Kayanna, Calicut on 28 October 2006.
- * The KVK also participated in an exhibition in connection with national Conference on KVKs from 26-27 November 2006 at APAU, Hyderabad.

Publications

Research papers

Balaji S, Kalpana R, Santhosh J. Eapen. 2006. PIR pairwise alignment – A slip up for signal peptides. *Bioinformatics* 1: 188-193.

Geethalakshmi P, Parthasarathy VA, Niral V. 2006. Polymorphism of isoperoxidases in coconut cultivars. *Indian J.Hort.* 63:73-75.

Jaleel Kizhakkayil, Elizabeth Thomas, John Zachariah T, Syamkumar S, Sasikumar B. 2006. A comparative quality appraisal of exported cardamom of India, Sri Lanka and Guatemala. *Natural Product Radiance* 5: 361-365.

Johnson K George, Sandeep Varma R, Ganga G, Utpala P, Sasikumar B, Saji KV, Parthasarathy VA. 2006. IISR markers for genetic diversity analysis in spices-an appraisal. *Indian J. Hort.* 63:302-304.

Kandiannan K, Chandaragiri KK. 2006. Influence of varieties, dates of planting, spacing and nitrogen levels on growth, yield and quality of turmeric (*Curcuma longa*). *Indian J. Agric. Sci.* 76: 432-434.

Krishnamoorthy B, Rema J, Leela NK, Mathew PA, John Zachariah T, Minoo Divakaran, Jayarajan K. 2006. Evaluation of *Cinnamomum cassia* Blume for yield and quality. *J. Non-timber Forest Products* 13: 61-62.

Kumar A, Anandaraj M. 2006. Method for isolation of soil DNA and PCR based detection of ginger wilt pathogen, *Ralstonia solanacearum*. *Indian Phytopathology* 59: 154-160.

Kumar SN, Anitha Karun, Thomas TS, Muraleedharan K, Parthasarathy VA. 2006. Influence of media composition on gas exchange parameters, biochemical composition and growth of zygotic embryo-cultured coconut (*Cocos nucifera* L.) plantlets. *Indian J. Hort.* 63: 113-121.

Madan MS, Ramana KV, Manoj KA, Anandaraj M, Suseela Bhai R, Meera I. 2006. Economic viability of large-scale production of the biocontrol agent *Trichoderma harzianum* Rifai. *J. Spices & Aromatic Crops.* 15: 48-51.

Maya KM, John Zachariah T, Krishnamurthy KS, Rema J, Krishnamoorthy B. 2006. Fatty acids and leaf amino acids in *Myristica fragrans* Houtt and related taxa. *Indian J. Hort.* 63: 316-318.

Suseela Bhai A, Ishwara Bhat A, Anandaraj M. 2006. Yellowing and Premature bean dropping in vanilla (*Vanilla planifolia* Andrews). *J. Plantation Crops* 34:115-117.

Utpala Parthasarathy, Parthasarathy VA. 2006. Chlorophyll concentration and biomass percentage of vegetation helps to identify vegetation of satellite image- A case study on plantation crops of the Kasaragod district of Kerala. *J. Plantation Crops* 34: 21-24.

Utpala Parthasarathy, Das MM, Muralidharan K. 2006. A comparative account of coconut cultivation in Assam and Kerala. *Indian Coconut Journal* 36: 9-14.

Utpala Parthasarathy, Saji KV, Jayarajan K, Parthasarathy VA. 2006. Biodiversity of *Piper* in South India-application of GIS and cluster analysis. *Current Sci.*91: 652-657.

Utpala P, Johny AK, Parthasarathy VA, Jayarajan K, Madan MS. 2006. The diversity of ginger cultivation in India –a GIS study. *J. Spices Aromatic Crops* 15: 94-98.

Venugopal MN, Prasath D, Ravindra Mulge. 2006. Rhizome rot resistant and high yielding cardamom variety (*Elettaria cardamomum* Maton) – IISR Avinash. *J. Spices Aromatic crops* 15: 14 – 18.

Venugopal MN, Prasath D. 2006. New cardamom varieties. *Indian Hort.* 51: 15.

Popular articles

Krishnamoorthy B. 2006. New techniques in clove cultivation. *Spice India (Tamil)*, 19(9): 5-9.

Krishnamoorthy B. 2006. Spices in home gardens. *Spice India (Tamil)*, 19(6): 8 –10.

Krishnamoorthy B. 2006. Nutmeg in Grenada. *Spice India (Hindi)*, 18(6): 4-7.

Krishnamoorthy B, Prasannakumari N. 2006. Curry leaf – a medicinal tree spice. *Spice India (Hindi)*, 18(5): 5-7.

Krishnamoorthy B, Prasannakumari N. 2006. Dill. *Spice India (Hindi)*, 18(9): 10-12.

Sasikumar B, Sandeep Varma R. 2006. Biodiversity as in Ramayana. *Karshakasree (Mal.)* 12(2): 32-33.

Sasikumar B, Elizabeth Thomas. 2006. Indian cardamom is superior in quality. *Karshakan (Malayalam)* 14(11): 60.
Thankamani CK, Mathew PA. 2006. An alternate medium for growing black pepper rooted cuttings. *Spice India (Malayalam)* 19(9): 24-25.

Book

Parthasarathy VA, Rajeev P. 2006. Major spices – Production and Processing Indian Institute of Spices Research, Calicut, Kerala, 317p.

Book chapters/ Reviews

Anandaraj M, Santhosh J Eapen. 2006. Achievements in biological control of diseases of spice crops with antagonistic organisms at Indian Institute of Spices Research, Calicut. In: Current Status of Biological Control of Plant Diseases Using Antagonistic Organisms in India (Eds Ramanujam B, Rabindra RJ), PDBC, Bangalore, India, pp 189 – 215.
Bhat AJ, Mathew PA, Nair RR, Madan MS. 2006. Vanilla. In: Major spices-Production and Processing (Eds Parthasarathy VA, Rajeev P), IISR, Calicut, Kerala, India, pp 191-227.

Krishnamoorthy B, Rema J, Leela NK, Jacob TK. 2006. Nutmeg In: Major spices – Production and Processing (Eds Parthasarathy VA, Rajeev P), Indian Institute of Spices Research, Calicut, Kerala, pp 274-288.

Kumar A, Sasikumar B, Srinivasan V, John Zachariah T and Rajeev P. 2006. Ginger. In: Major spices – Production and Processing (Eds Parthasarathy VA, Rajeev P), Indian Institute of Spices Research, Calicut, Kerala, pp 115-151.

Rema J, Leela NK, Jacob TK, Krishnamoorthy B. 2006. Cinnamon and Indian cassia In: Major

spices – Production and Processing (Eds Parthasarathy VA, Rajeev P), Indian Institute of Spices Research, Calicut, Kerala, pp 289-307.

Rema J, Leela NK, Krishnamoorthy B, Mathew PA. 2005. Chemical composition of *Cinnamomum tamala* essential oil- a review. *J. Medicinal and Aromatic Plant Sciences* 27: 515-519.

Sasikumar B. 2005. Genetic Resources and Breeding of black pepper in India. *Focus on Pepper* 2(2): 33-42.

Shiva KN, Prasath D, John Zachariah T, Parthasarathy VA. 2006. Chilli and Paprika In: Major Spices-Production and Processing (Eds Parthasarathy VA, Rajeev P), IISR, Calicut, pp 228-273.

Srinivasan V, Hamza S, Dinesh R, Parthasarathy V A. 2005. Nutrient management for black pepper (*Piper nigrum* L.). *Focus on Pepper* 2 (2): 15-32.

Zachariah TJ, Leela NK. 2006. Volatiles from Herbs and Spices. In: Handbook of Spices and Herbs, Vol 3, (Ed Peter KV) Wood head publishing Limited, Cambridge, UK.

Technical publications

Santhosh J. Eapen (Ed.) 2006. Bioinformatics: Tools & Applications – Training Manual, Indian Institute of Spices Research, Calicut.

Santhosh J. Eapen, Kumar A, Anandaraj M, Johnson K. George (Eds) 2006. Diagnostics and Molecular Characterization of Pathogens of Horticultural Crops and their Biocontrol Organisms – Training Manual, Indian Institute of Spices Research, Calicut.

Utpala Parthasarathy, Ishwara Bhat A, Jayarajan K, Prasath D, Dinesh R (Eds). 2006. Completed Projects-Salient Findings, Technical Bulletin No. 9, Indian Institute of Spices Research, Calicut, 193 p.

Radio talks

Date	Topic	Speaker
17.07.06	Soft rot of ginger and control of quick wilt of black pepper	Manoj PS
21.07.06	Participated in the interface (Samvadam) on spices jointly organized by Doordarshan, Trivandrum and Spices Board, Kochi	Santhosh J. Eapen Sasikumar B
10.08.06	Earthworm species and feeding habits	Prakash KM
02.09.06	Suitable fruit crops for homesteads	Prakash KM
10.10.06	Live TV programme by Doordarshan, Trivandrum on tree spices	Rajeev P
18.10.06	Earthworms suitable for composting	Prakash KM

SPICES NEWS

A newsletter of Indian Institute of Spices Research
An Institution of Indian Council of Agricultural Research (ICAR)
Marikunnu P.O., Calicut-673012, Kerala, India

Publisher

Parthasarathy V A
Director, IISR, Calicut

Editors

**Dinesh R, Rajeev P,
Sushamadevi C K**

Cover Design &

**Photo Credit
Sudhakaran A**

**Acknowledgements
To all contributors**

Printed at: Modern Graphics, Kaloore, Kochi - 17,
Ph : 2347266, E-mail : moderngraphics@rediffmail.com

A PDF version of the newsletter is also available at [http:// www.iisr.org/newsletter/index.htm](http://www.iisr.org/newsletter/index.htm)