

Union Minister of Agriculture visits ICAR-IISR, Kozhikode

Union Minister for Agriculture and Farmers Welfare Shri. Radha Mohan Singh visited ICAR-IISR, Kozhikode during 24-25 September 2016. He visited various laboratories of the Institute, Agricultural Technology Information Centre and interacted with the scientists and staff of IISR. The Minister chaired an exclusive review meeting on 24 September 2016 in which officials from ICAR research institutes in Kerala, Krishi Vigyan Kendras, Kerala Agricultural University and State Department of Agriculture participated. Ministers of State for Agriculture - Shri Sudarshan Bhagat and Shri Parshottam Rupala; ICAR Governing Body members - Shri Sanjay Shamrao Dhotre, Shri. R.P. Singh and Shri. Suresh Chandel were also present on the occasion. The Minister advised the ICAR institutes and University to take stock of all the farmer-centric 'front-line' extension programmes in the state during past two years. He suggested uploading the details of participating farmers with field photographs in the Krishi portals to give wide publicity.



IN THIS ISSUE

Research Update	2
Personalia	3
News and Events	4
Transfer of Technology	5
Krishi Vigyan Kendra	6
Publications	7



Shri. Radha Mohan Singh, Hon'ble union minister (extreme right on the dias) chairing the review meeting of officials. Also seen in the picture are Shri Parshottam Rupala (centre) and Shri Sudarshan Bhagat (extreme left), Ministers of State for Agriculture



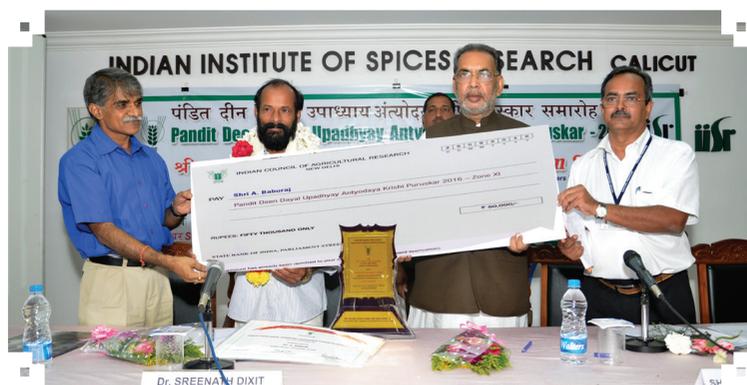
Hon'ble Union Minister & ICAR Board members visit Central Facility



Hon'ble Union Minister visiting ATIC and exhibition

Union Minister presents Deen Dayal Upadhyaya Anthyodaya Agriculture Award 2016 to Shri A Baburaj

The presentation ceremony of the prestigious Deen Dayal Upadhyaya Anthyodaya Agriculture Award for the year 2016 was held at ICAR-IISR on 25th September, 2016. The award was presented by Hon'ble Union Minister for Agriculture and Farmers Welfare Shri. Radha Mohan Singh to the winner Shri. A. Baburaj, an aqua farmer from Kadalundi, Kerala. The award carries a cash prize of Rs. 50,000/- and a citation. More than 100 farmers from Kozhikode District attended the function in which Dr. K. Nirmal Babu, Director, ICAR-Indian Institute of Spices Research, Kozhikode welcomed the gathering, Dr. Sreenath Dixit, Director, Agricultural Technology Application and Research Institute, Bengaluru, and Dr. B. Sasikumar, Head, Division of Crop Improvement & Biotechnology spoke on the occasion.



Shri. A. Baburaj (second from left) receiving the Deen Dayal Upadhyaya Anthyodaya Agriculture Award 2016 from the Hon'ble Union Minister Shri Radha Mohan Singh (second from right). Also seen in the picture are Dr Sreenath Dixit, Director ICAR-ATARI (extreme left) & Dr K. Nirmal Babu, Director, ICAR-IISR (extreme right).

Research Update

Black pepper germplasm

Three black pepper cultivars from two locations which recorded big canopy and high yield were collected and are being conserved at Appangala.

Sequencing of full-length transcripts in black pepper and small cardamom

Survey of transcriptomes by direct sequencing of full-length transcripts in the range of 1 to 3 kb was done in black pepper and small cardamom using SMRT Sequencing with PacBio RS II System. Using the PacBio protocol, we obtained 53689 reads of insert (ROIs) with mean read length of 2378 bp in black pepper and 56439 reads of insert with mean read length of 2267 bp in small cardamom. Numbers of polished high-quality isoforms recovered from black pepper and small cardamom transcriptomes were 8,380 and 9,270 respectively. Potential coding regions were also predicted from these sequences.

Biocontrol efficacy of *Streptomyces* against *Sclerotium rolfsii*

Sclerotium rolfsii is a soil borne pathogen, which commonly occurs in black pepper nurseries causing root rot. Biocontrol agents viz., *Trichoderma harzianum* and *Streptomyces* spp. were tested against the pathogen under *in planta* challenge inoculated conditions. The results indicated that IISRBPACT 1 (*Streptomyces* sp.) was very effective in reducing the number of roots infected by *Sclerotium rolfsii*. The isolate was found to enhance the growth of plants as evidenced from the plant growth parameters.

Characterization of *Beauveria bassiana* associated with allspice auger beetle

The incidence of auger beetle, *Sinoxylon anale* Lesne (Bostrichidae: Coleoptera), a destructive pest of cosmopolitan occurrence is reported for the first time





Sinoxylon anale infested twigs of allspice presenting a dieback symptom. • Inset: *B. bassiana* infected adults

on allspice trees from Kozhikode, Kerala. The insects bored through the basal region of fresh twigs resulting in dieback symptoms. Morphological characterization and sequencing of a partially amplified fragment of the mitochondrial CO1 gene revealed the insect to be *Sinoxylon anale*. An entomopathogenic fungus was isolated from infected cadavers of *S. anale* that was identified as *Beauveria bassiana* (Bals.-Criv.) Vuill., sensu stricto (s.s) (Ascomycota: Hypocreales) based on morphological and molecular studies. The fungus was virulent against adult beetles and this is the first record of *B. bassiana* naturally infecting *S. anale*. The findings were published in the Journal of Invertebrate Pathology.

Personalia

Awards/ Honours/ Recognitions

Deputation abroad

Senthil Kumar C M was awarded the **Chris J Lomer award by Society for Invertebrate Pathology (SIP), USA**. The award carried a certificate and his travel support to attend the International Congress on Invertebrate Pathology and Microbial Control and the Annual Meeting of the Society for Invertebrate Pathology held during 24-28 July 2016 in Tours, Loire Valley, France.

IISR Award of Excellence 2016

Dr Hamza S & Mr Sudhakaran A (Technical), **Mr Sayeed Mohammed V V** (Administrative) and **Smt. Chikkasakamma K M & Smt. Lalitha B M** (Skilled Support Staff) won the IISR award of excellence 2016

Ankegowda S J

External expert for selection of project assistant for CRP project on vaccines and diagnostics at CHES, Chettalli, 19 August 2016.

Inaugurated Karnataka Planter's Association field visit to Palanji estate, Chettalli, Bibi Plantations, Suntikoppa on 21 September 2016.

Field visit inauguration by Dr S.J. Ankegowda, Head, IISR RS, Appangala



Field visit inauguration by Dr S.J. Ankegowda, Head, IISR RS, Appangala

Jayashree E

Advisory Committee Member of Ms. Sankalpa K.B, Ph.D. (Agril. Engg.) and Ms. Bhavya Fransis, M.Tech. (Agril. Engg.), students of KCAET, Tavanur, KAU and conducted the comprehensive viva voce examinations of both on 26 September 2016.

John Zachariah T

Expert member for assessment of Scientists of CSIR-CFTRI conducted at CSIR-National Aerospace Laboratories, Bengaluru on 15 September 2016.

Krishnamurthy K S

External examiner for conducting final M.Sc. (Hort.) viva-voce, Department of Biotechnology, College of Horticulture, KAU, Vellanikkara on 23 September 2016.

Prasath D

External examiner for conducting final M.Sc. (Hort.) viva-voce, Department of Pomology and Floriculture, College of Agriculture, KAU, Padannakkad on 26 August 2016.

Santhosh J Eapen

Reviewer, Current Science

Suseela Bhai R

Reviewer - Indian Phytopathology, Scientia Horticulturae, European Journal of Plant Pathology, Journal of Spices and Aromatic Crops

Radio talk

Pradeep B

Location specific technologies to improve production in fresh water fish farming, 21 July 2016.

Prakash K M

Interview on Various insecticides and fungicides in pep- per plantation, 25 July 2016.



News and Events

Interactive meeting of ICAR-IISR Scientists with UPASI Spices Committee members

An interactive session was held on 10th August 2016 on "Latest Scientific Advancements in Cultural Operations in Spice Crops" with UPASI Spices Committee members. Dr. K. Nirmal Babu, Director, ICAR- IISR initiated the discussion by welcoming the guests and highlighted the importance of pesticide free spices for domestic consumption and export. He also stressed the need for generation of adequate quality planting materials for establishing good plantations. Mr. C. Pemmaiah, Chairman, Spice Committee of UPASI appreciated the efforts of ICAR-IISR in generating good technologies for implementation by the planters in his introductory remarks. There were three technical sessions primarily oriented on promising varieties, production as well as processing technologies in black pepper. First session was on **"New varieties of spices that can be grown in different elevations"** by Dr. B. Sasikumar. Various topics such as influence of light quality on spike initiation, pollination and development, effect of weather especially, rainfall and cloudiness on expression of sex as well sexual transformation, location specific/ foot rot resistant varieties, drought tolerance and quality aspects were discussed. Second session was on **"Package of practices with special emphasis on foliar application & micronutrient use"** by Dr. V. Srinivasan. Production and availability of quality planting materials, requirement of stress period and its impact on yield, development of a fertilizer/nutrient package based on targeted yield, impact of soil nutrient status on yield, strategies for disease management were the major subjects highlighted during the session. In the third session: **"New technology on value addition of spices"** presented by Dr. N.K. Leela, discussions were mainly concentrated on issues such as appropriate harvesting stage of black pepper to obtain various value added products, availability of technologies to reduce microbial load in stored and marketed produce, sterilization and solarization methods to obtain quality produce. The technical sessions were followed by open discussion and one-to-one interaction. The participants expressed concern about monthly advisory on operation schedules for spice crops especially black pepper, carbendazim and metalaxyl residues in the produce and regarding licence details of institute technologies. The meeting concluded with a vote of thanks proposed by Dr. K. Kandiannan.

Consultancy Processing Cell

Biju C N, Sasikumar B & Srinivasan V visited the Travancore Rubber and Tea Company Ltd., Ambanaad, Kollam and Harrisons Malayalam Ltd., Kollam on 12 July 2016 as consultants to guide on scientific cultivation and production packages for improved yield in black pepper and clove.

Hindi News

Hindi Workshop

A Hindi workshop was organized to popularize official language on 21st September 2016 at ICAR-IISR, Kozhikode. Mr. Santhosh Kumar Ram, Assistant Manager (OL), Union Bank, Kozhikode delivered a lecture on Hindi noting and drafting.

Hindi Day and Fortnight Celebration 2016

Hindi Day was celebrated on 15th September 2016 and Hindi Fortnight from 19th September to 3rd October 2016. Dr. B. Sasikumar presided Hindi Fortnight inauguration function on 19th September. Many competitions like Alphabet to word writing, Caption writing and poem writing, Cross Word, Memory Test, Hindi Song, Hindi Anthakshari, Humorous Incident, Hindi noting and drafting etc. were conducted during the celebrations. The valedictory function was held on 3rd October 2016. Mr. Vasu, Deputy General Manager, State Bank of Travancore and Chairman, TOLIC was the Chief Guest. He distributed the awards and prizes to the winners of various competitions. Dr. K. Nirmal Babu, Director, ICAR-IISR emphasized the importance of Hindi language. During this occasion Masala Samachar (April-June 2016) and official language magazine Masaloon Ki Mehak was released by the chief guest.

News from SARANI

Sarani organized a lecture by famous historian Dr. M.G.S. Narayanan on the Institute Foundation Day, 1st July 2016.

Sarani celebrated Annual Day & Onam on 6th September 2016 in an excellent manner with colourful pookalam, fun games, hosting of onam sadya and stage programmes.



A glimpse of onam celebrations at IISR, Chelavoor





Transfer of Technology

Technology inputs and Advisory services from ATIC

Advisory services were offered to more than 300 stakeholders. Apart from this visitor facilitation services were provided to more than 1000 stakeholders across various categories. The use of digital communication was actively promoted for enhancing quality of the services like providing advisories on plant protection. The total revenue generated from the sale of technology and information products was Rs. 8,21,645 during July to September 2016.

Training and Exposure visits under PMKSY

The institute hosted several farmer groups during their exposure visit under the Prime Ministers Krishi Sinchai Yojana (PMKSY) during this period. IISR arranged lectures on water management in spice crops and visits to water harvesting structures along with training on irrigation and water saving technologies for improved spices production for the visiting groups. A total of 15 groups of farmers were provided customized exposure visit and training on water management and spices production. A total of 346 farmers benefitted from the programmes.



Farmers from Kancheepuram, Tamil Nadu during their exposure visit to IISR

Mass contact programmes

The institute participated in two national level agricultural exhibitions during August and September. The Kisan Mela, which was organized at Sugarcane Breeding Institute, Coimbatore was held during 26-27 August 2016 and the ICAR-IISR stall received large number of visitors. The institute also participated in the Kisan Mela organized on the sidelines of national meet on the prospects of coconut sector in India organized by ICAR-Central Plantation Crop Research Institute at its Kayamkulam Regional Station during 29-30 September, 2016. Hon'ble Union Minister for Agriculture & Farmers Welfare, Shri. Radha Mohan Singh visited ICAR-IISR pavilion along with Shri. V.S. Sunil Kumar, Minister for Agriculture, Government of Kerala on 29 September 2016. Apart from this, a technology awareness exhibition highlighting the improved technologies for spice production developed by the institute was organized at ICAR-IISR campus during 21-27 September 2016 benefitting more than one thousand stakeholders.



Dignitaries visiting ICAR-IISR pavilion at Kisan Mela-2016 at ICAR-CPCRI Regional Station, Kayamkulam

Model Training Course (MTC) organized at ICAR-IISR

Model training course sponsored by the Directorate of extension, Department of Agriculture and Farmers welfare Recent Advances in Production and Processing Technologies of Spices was organized from 17-26 August at ICAR-IISR, Kozhikode. The training was attended by 12 participants from the state departments representing Kerala, Karnataka, Telengana and Tamil Nadu.

Field demonstrations held at Mera Gaon Mera Gourav village

Two demonstrations on foliar spraying of micro nutrients in black pepper and two demonstrations on site specific nutrient management in black pepper were initiated in Kattippara Panchayath, Kozhikode.

Tribal Sub Plan (TSP)

Under the scheme an irrigation pump set was installed in Kallumukku Tribal hamlet in Meppadi, Wayanad district for promoting vegetable, banana and ginger cultivation in homesteads benefitting 15 tribal families.

Activities of ITM-BPD Unit

Entrepreneurship Development Programme:

- ITM-BPD unit conducted two-day Entrepreneurship Development Programme from 26th to 27th July 2016 on Spice/curry powder production. The Programme was conducted at IISR-Experimental Farm, Peruvanamuzhi, Calicut and 32 entrepreneurs participated.
- ITM-BPD unit conducted two-day Entrepreneurship Development Programme from 3-4th August 2016 on fruit and vegetable processing for women self help groups from Perambra, Kozhikode. The programme was conducted at conference hall of ATIC, IISR, Calicut and 32 women participated.





Demonstration on curry powder production



Hands on experience of trainees on jack fruit processing

Encashing on black pepper : An ex-bank official's experience – Success story

Down the memory lane of Mr. M. G, Hoysala, ex-bank employee recalls the day he realized the need for adopting technologies in order to stabilize yield level in a sustainable manner. Participating in a seminar organized by ICAR-IISR Regional Station, was an eye-opener for him, during which he acquainted pertinent information like varietal wealth in black pepper, various production, protection and processing technologies developed at ICAR-IISR, Kozhikode. He further enriched the knowledge by paying frequent visits to the station and interacting with the scientists. Initially the productivity of his vines was only 6 tonnes from an area of 40 acres. In consultation with the ICAR-IISR scientists, he improved the productivity by resolving the problems one by one. Initially priority was given to shade regulation, fertilizer scheduling, increasing organic inputs fortified with biocontrol and growth promoting organisms, regular monitoring for the occurrence of disease and irrigation during summer. "By adopting improved technologies, we could increase the production from 6 to 18 tonnes, a three-fold jump within a time span of 5 years. Further, we strengthened our irri-

gation system by constructing water harvesting structure like farm ponds and bore wells. Besides these, rain water harvesting structures were made between the coffee plants to enrich the soil moisture, adds Mr Hoysala. He currently spends Rs.0.55 lakhs for the implementation of various technologies as well as operational costs and earn a net income of Rs. 1 lakh per annum per acre both from coffee and black pepper. Mr. Hoysala stands as a role model for other farmers in his region.



Mr Hoysala with his black pepper

Krishi Vigyan Kendra

Front Line Demonstration

KVK has initiated five new FLDs during the period covering crop science (3), animal science and fisheries (one each).

On Farm Testing

Three new OFTs, one on grafted black pepper, one on poultry breeds and another on scientific farming of milkfish (*Chanos chanos*) in brackish water ponds have been initiated.

Training Programmes

A total of 36 training programmes were organized for farmers, rural youth including women and 1307 persons attended these programmes. Two NFDB



NFDB Training – Ornamental fish culture





A view of KVK mobile sales unit

Producers Company, four one day training programmes to Tamil Nadu state farmers, jack fruit processing, dairy management, plant propagation were the other important training programmes organized by KVK during the period.

KVK Mobile sales unit

During the period KVK mobile sales unit visited Kunnamangalam and Perambra blocks of Kozhikode district. During the visit, field visits to farmers field and onsite sale of planting materials, micro-nutrient mixture, bio control agents etc. were carried out.



Skill Development Training on Coconut value added products

sponsored trainings for total sixty participants on “Ornamental fish culturing” and “Fish processing techniques” were organized during the period. Three days Inter-KVK organized skill development training on “coconut value added products development” twenty six progressive farm women promoted by Perambra Coconut

Publications

Research papers

Cissin J, Suseela Bhai R, Vinita K B, Nirmal Babu K & Anandaraj M 2016 Cross species amplification of microsatellite loci from *Phytophthora* spp to assess genetic diversity among the *Phytophthora* isolates from black pepper. *Journal of Spices and Aromatic Crops* 25(2): 104-112.

John Zachariah T, Leela N K & Lijini K R 2016 Quality profile and antioxidant activity of cinnamon bark powder at varying temperature. *Journal of Plantation Crops* 44: 114-118.

Narendra Chaudhary, Ramesh Kumar, Sindhu S S, Saha T N, Ajay Arora, Sharma R R, Sarkar S K, Ganesh B Kadam & Girish K S 2016 Effect of post harvest treatments and harvesting stage on vase life and flower quality of cut oriental lily. *Journal of Applied and Natural Science* 8(3): 1286-1289.

Pervez R, Eapen S J, Devasahayam S, Jacob T K, Ali M A & Thyagarajan P 2016 *Oscieius* spp., an alternative to *Heterorhabditis* spp., for eco-friendly management of cardamom root grub (*Basilepta fulvicorne* Jacoby). *Annals of Plant Protection Sciences* 24(2): 385-391.

Prakash K M, Manoj P S & Ratha Krishnan P 2016 Rocky terrain is not a barrier to the ginger women. *Indian Journal of Arecanut, Spices and Medicinal Plants* 18(12): 38-39.

Prasath D, Eapen S J & Sasikumar B 2016 Performance of turmeric (*Curcuma longa*) genotypes for yield and root-knot nematode resistance. *Indian Journal of Agricultural Sciences* 86(9): 1189-1192.

Ratha Krishnan P & Kirtesh Dudawat 2016 Nursery management information system: An efficient tool for nursery management. *Indian Forester* 142(6): 542-546.

Ratha Krishnan P & Venkatesan K 2016 Partitioning of rainfall in *Acacia* species of Indian Thar Desert. *Indian Journal of Agroforestry* 18(1): 10-15.

Senthil Kumar C M, Jacob T K, Devasahayam S, D’Silva S & Nandeesh P G 2016 Characterization and virulence of *Beauveria bassiana* associated with auger beetle (*Sinoxylon anale*) infesting allspice (*Pimenta dioica*). *Journal of Invertebrate Pathology* 139: 67-73.

Sreeja K, Anandaraj M & Suseela Bhai R 2016 *In vitro* evaluation of fungal endophytes of black pepper against *Phytophthora capsici* and *Radopholus similis*. *Journal of Spices and Aromatic Crops* 25(2): 113-122.

Srinivasan V, Thankamani C K, Dinesh R, Kandiannan K, Zacharia T J, Leela N K, Hamza S, Shajina O and Ansha O 2016 Nutrient management system in turmeric: Effect on soil quality, rhizome yield and quality. *Industrial Crops and Products* 85: 241-250

Sruthi D & Zachariah T J 2016 Phenolic profiling of *Piper* species by Liquid Chromatography-Mass Spectrometry (LCMS). *Journal of Spices and Aromatic Crops* 25(2): 1217.

Subramanian P, Maheswarappa H P, Zachariah T J, Surekha R, Selvamani V & Ravi Bhat 2016 Performance of black pepper in coconut based high density multi-species cropping system under different nutrient managements. *Journal of Plantation Crops* 44(2): 90-95.

Vinitha K B, Anandaraj M & Suseela Bhai R 2016 Virulence of *Phytophthora* isolates from *Piper nigrum* L. and their sensitivity to metalaxyl-mancozeb. *Journal of Plantation Crops* 44(2): 67-76.

Book chapters

Pervez R & Eapen S J 2016 Entomopathogenic nematodes: An emerging biopesticide. In: Arshad Warsi (Ed.), *Biopesticides and Bioagents: Novel tools in integrated pest management*. AAP-CRC Press, USA, pp.234-252.

Sasikumar B, Swetha V P, Parvathy V A & Sheeja T E 2016 Advances in adulteration and authenticity testing of herbs and spices. *Advances in Food Authenticity*



Testing – Improving quality throughout the food chain. Woodhead Publishing, UK, pp.585-624.

Popular articles

Chinthana K L, Sharon D' Silva, Ankegowda S J, Narendra Chaudhary, Biju C N & Srinivasan V 2016 Organic farming in three spices. *Spice India* 29(7): 18-24.

Chinthana K L, Sharon D'Silva, Ankegowda S J, Narendra Chowdary, Biju C N & Srinivasan V 2016 Muru Samabara Belegalali savayava Krishi (Kannada). *Spice India* 29(7): 25-30.

Hamza S, Srinivasan V and Thankamani C K 2016 Alankarathinum ruchikootinum kuttikurumulagu (Malayalam), *Krishiyankanam* 22(2):20-21

Hamza S, Srinivasan V and Dinesh R 2016 Ulpadanavum gunanilavaravum kootansushmaposhaga mishrithangal (Malayalam), *Krishiyankanam* 22(2):30-31

Manoj P S, Prakash K M & Ratha Krishnan P 2016 Jaiya pachakkari krishiyile penkoottayma (Malayalam), *Krishiyankanam* 21(6): 26-27.

Pradeep B & Subal N M 2016 Chilavu kuranja alankara malsya krishi reethikal (Malayalam). *Jalakarshakan* September, 20-24p.

Sharon Aravind, Ankegowda S J, Mohd. Faisal Peeran, Narendra Chaudhary & Alagupalamuthirsolai M 2016 Elam-Sugandhavynjanangalude Rani (Malayalam). *Krishiyankanam* 22(2): 15-19.

Suseela Bhai R & Praveena R 2016 Rogankalum prathivithikalum- Sugandhivilakalil (Malayalam). *Karshakan* 24(9): 59-64.

Suseela Bhai R, Eapen S J & Bhat A I 2016 Kurumulakinte vatta rogam niyanthrikkam (Malayalam). *Krishiyankanam* 22(2): 22-26.

Papers presented in symposia/ seminars/ workshops /conferences

Kandiannan K, Spices for plantation based cropping system. In: National seminar on Plantation based cropping system for improving livelihood security at ICAR-CPCRI, Kasaragod on 23 July 2016.

Senthil Kumar CM, Jacob TK, Devasahayam S, D'Silva S, Nandeesh PG, Characterization and virulence of *Beauveria bassiana* associated with auger beetle (*Sinoxylon anale*) infesting allspice (*Pimenta dioica*). In: International Congress on Invertebrate Pathology and Microbial Control, Tours, France held during 24-28 July 2016.

PhD Awarded

Name	Title of the thesis	University	Guide
Dr. Nandakishore O P	A comparison on morphology, biochemistry and molecular markers of Indian <i>Garcinia</i> spp. in relation to geographical variation	Mangalore	Dr. Utpala Parthasarathy

New Appointments

Name	Post	Date of joining
Dr. Pratibha Prabhakaran	SRF (Bioinformatics)	22-08-2016
Ms. Anju P S	Bioinformatics Trainee	05-09-2016

Promotion

Name	Promoted to the post of	w.e.f
Dr. K. Nirmal Babu	Director	01-07-2016
Dr. C.M. Senthil Kumar	Sr Scientist (PB-4)	04-04-2015
Mr. K. Jayarajan	Asst Chief Technical Officer	07-09-2013

Retirement



Smt. KM Chikkasakamma
SSS (31-08-2016)

A PDF version of the newsletter is also available at : <http://www.spices.res.in/newsletter/index.php>



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