

# Spices News

JULY - DECEMBER, 2024



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## Research Updates:

***Occurrence, complete genome sequencing, and development of diagnostics for black pepper virus F infecting black pepper in India***

Contributor: Dr. A. Ishwara Bhat

The occurrence of black pepper virus F (BPVF) was identified for the first time from India and its complete genome sequence was determined using overlapping fragments obtained through reverse transcription polymerase chain reaction (RT-PCR). The RNA 1 and RNA 2 of the Indian isolate of BPVF (BPVF-IND) contained 6376 and 3340 nucleotides potentially coding for proteins of 230.7 kDa and 114 kDa respectively. Comparison of the RNA 1 sequence of BPVF-IND with that of BPVF from Brazil (BPVF- BR-PA) and China (BPVF- ZYP-1) revealed an identity of 95% and 90% respectively, while RNA 2 showed an identity of 96% and 90%. The phylogenetic analysis of the Pro-Pol region of RNA 1 and coat protein region of RNA 2 revealed close clustering of all three BPVF isolates well separated from other species of the genus, Fabavirus. Diagnostics assays based on the RT-PCR and RT-recombinase polymerase amplification (RT-RPA) were developed for the sensitive detection of the virus that will help in the identification and propagation of virus-free black pepper plants.

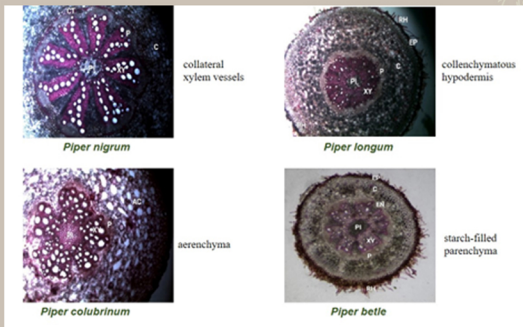
## Study on the root anatomy of *Piper colubrinum*

Contributor: Dr. Sharon Aravind

A preliminary study on the root anatomy of *Piper colubrinum*, *P. nigrum*, *P. betle* and *P. longum* revealed the presence of aerenchyma in *P. colubrinum*, collenchymatous hypodermis in *P. longum*, starch-filled parenchyma in the cortex of *P. betle* and bundles of conjoint, collateral xylem vessels in *P. nigrum*. Number of vessels per cross section, and steel

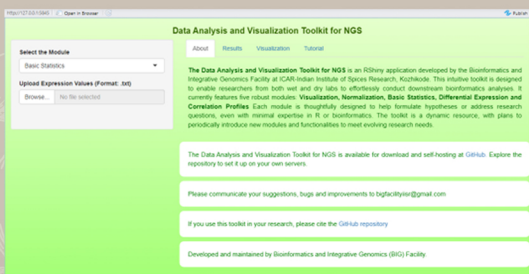
## Research updates

width is more in *P. nigrum* as compared to *P. colubrinum* and *P. betle*. The root architecture studies revealed the presence of sturdy roots in terms of length, weight, and spread of roots as compared to *P. nigrum* and *P. chaba*.



## Data Analysis and Visualization toolkit

Contributors: Dr. Sona Charles, Dr. TE Sheeja



The Data Analysis and Visualization Toolkit for NGS is an innovative RShiny-based application designed to simplify and enhance the analysis of Next-Generation Sequencing (NGS) data. Developed to cater to both wet and dry lab researchers, the toolkit offers an intuitive interface and robust analytical capabilities, empowering users to derive meaningful insights from complex datasets with minimal computational expertise. Its modular architecture and user-friendly design make it a versatile solution for a wide range of genomics research applications.

## Research updates

The toolkit is equipped with five core modules: Basic Statistics, Visualization, Normalization, Differential Expression Analysis, and Correlation Profiling. Each module is tailored to address specific needs in the downstream analysis pipeline of NGS data, providing researchers with the tools necessary to design hypotheses and answer research questions efficiently. The toolkit's ability to accept various input formats (.TXT, .CSV) and generate comprehensive outputs enhances its accessibility and usability. Results are presented in interactive dashboards, with options for download, ensuring seamless integration into research workflows.

### Wild species of *Myristica* collected

A wild species of *Myristica*, *M. beddomei* was collected from the Bhagamandala region of Kodagu district, Karnataka. Also, collected *M. malabarica* from Myladumpara region of Idukki.



*M. malabarica*



*M. beddomei*

## Outreach Activities

### Training programmes

- MIDH Farmers Training Programme on "Good Agricultural Practices for sustainable production of black pepper" at Arappaleswarar Auditorium, Kolli Hills, Namakkal, Tamil Nadu on 08 October 2024 (130 Participants)
- ATMA Tavanur – Training Programme on 14.08.24. (33 Participants)
- ATMA within state training – Thavinal Krishibhavan on 21.08.24. (26 Participants)
- General Training on Spices – MSSRF Wayanad on 30.09.24. (13 Participants)
- Promotion of RTP on Spices crop cultivation & business opportunities – RARS Pattambi on 16.10.24. (26 Participants)
- Exposure cum training tour on Ginger and Spices Value Addition, organized by Meghalaya Farmers Empowerment Commission during 11-15, November, 2024. (33 Participants)
- A session on sustainable production practices and post harvest processing of black pepper for farmers from Vanjiyaval Tribal Colony, sponsored by Spices Board during 26-28 November, 2024. (20 Participants)
- ATMA Perinthalmanna Exposure visit on 09.12.24. (30 Participants)



## Outreach Activities

- ATMA Malappuram – Nilambur Block within state exposure visit on 12.12.24. (20 Participants)
- Vocational training programme for women coffee growers from Chundale, Kalpetta, Wayanad on 17.12.24. (15 Participants)

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### Exhibitions

- Participated in the 96th ICAR Foundation Day cum Technology Day at NASC Complex, New Delhi, on 15th and 16th July 2024 for showcasing institute technologies and promoting spice-based value-added products from startup incubatees.
- Attended 2nd ICAR-IIHR industry meet 2024 on 24th October 2024 and exhibited and demonstrated the technologies among stakeholders.

### Lectures Delivered

- Dr. Sona Charles delivered a lecture on “Introduction to Galaxy” in Integrated Systems at the Bioinformatics (ISB) workshop organised by Bioclues (virtually) on July 4, 2024
- Dr. K Kandianan delivered a talk on ‘Varietal advances and agronomic practices in black pepper’ at Arappaleswarar Auditorium, Kolli Hills, Namakkal, Tamil Nadu on October 8th, 2024.
- Dr. K Kandianan delivered talk on ‘The ill effect of climate change on cultivation and allied matters’ in the Environment study camp at Dr. M.S. Swaminathan Foundation, Kalpatta, organized by Green Movement Kozhikode on 7th July, 2024
- Dr. M. Shamsudheen delivered a lecture on ‘Scientific cultivation of black pepper’ in the capacity building programme under LEADS 2024-25 organised by ATMA, Wayanad at Project Directorate, ATMA, Kalpetta, Wayanad on 30-09-2024
- Dr Shivakumar M S delivered a lecture on ‘Varietal wealth and cultivation aspects of black pepper’ at farmers training programme at Markanje Village, Sulya, D.K. 10-07-2024





## Outreach Activities

- Dr Shivakumar M S delivered a lecture on Numet cultivation aspects in crop seminar organized by KVK, Chamara-jnagar on 08th October, 2024.
- Dr. Alfiya P V delivered a lecture on 'Spice processing and value addition' during the capacity building programme (LEADS) of ATMA, Wayanad at Block Panchayat Office Wayanad on 7th October, 2024.
- Dr. C. N. Biju delivered talk on "Pest and disease management in black pepper" during Capacity Building Programme for officials of Department of Agriculture and Farmer's Welfare, Wayanad organized by ATMA and LEADS, Wayanad at Kalpetta, Wayanad on 30.09.2024.
- Dr. C. N. Biju delivered talk on "Plant protection aspects of black pepper, cardamom, ginger and turmeric" during Quality Improvement Training Programme (QITP) organized by the Divisional Office, Rajakumary in collaboration with ICAR-KVK, Ambalavayal, Wayanad at ICAR-KVK, Ambalavayal, Wayanad on 13.12.2024.
- Dr. Alfiya P V delivered a lecture on Value addition in Spices - mainly focusing on Small Cardamom, Black Pepper, Turmeric & Ginger for the quality Improvement Training Programmes (QITP) to the Spices farming Community which is organized by the Divisional Office, Rajakumary in collaboration with KVK, Ambalavayal at KVK hall Ambalavayal on 13th December, 2024.
- Dr. Alfiya P V delivered a lecture on Novel trends in Food Processing during MSME Expo at Aspin Courtyard, Kozhikode Beach on 27th December, 2024.

## Capacity Building Programs attended by staff

Name	Name of Training Program	Organized by	Duration
Dr. Sona Charles	Metagenomics Data Analysis	ICAR-IASRI	22-24 July 2024
Dr. E Jayasree	Hands-on training on Statistical Analysis & exploring the role of Agriculture in Industry Domains	Indian Society of Agronomy, New Delhi	22-31 August, 2024
Dr. E Jayasree	Basics of Data Analysis using 'R'	Centre for e-Learning in collaboration with Dept. of Agricultural Statistics, College of Agriculture, Vellankkara, Kerala Agricultural University, Thrissur	09th to 13th September, 2024
Dr. Shamsudheen M	DGCA-approved Remote Pilot Course (Category: Rotorcraft VLOS, Class: Small)	Drone Destination, Gurugram, Haryana	21 to 26 November 2024
Dr Shivakumar M S	Two-day "NAAS-PAAS Editors Workshop" for the Professional Association of Agricultural Societies (PAAS)	NAAS, New Delhi	August 8-9, 2024



## Outreach Activities

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

- Dr. A Ishwara Bhat attended the Strategy Workshop on Crop Protection Solutions: Group MRL & Minor Uses of Pesticides held at NAAS, New Delhi on 12-7-2024.
- Dr. A Ishwara Bhat attended the IMC meeting of ICAR-IIHR, Bengaluru on 28-08-2024 .
- Dr. A Ishwara Bhat attended the meeting of the Assessment Committee for Career Advancement Scheme for Scientists at ICAR-CTCRI, Thiruvananthapuram on 6-9-2024.
- Dr. A Ishwara Bhat attended the XXXV group meeting of AICRPS held during 22-24 October 2024 at CCSHAU, Hisar.
- Dr. A Ishwara Bhat conducted PhD qualifying Viva-voce examination of a PhD Scholar at the Division of Plant Pathology, ICAR-IARI, New Delhi on 29-11-2024.
- Dr. Sona Charles attended ADNAT/INBIX 2024 at Banaras Hindu University during 28-30 November 2024.
- Dr. E Jayasree attended (Virtual) the Research Committee meeting of Faculty of Ocean Science and Technology of Kerala University of Fisheries and Ocean Studies, Panangad, Kochi, Kerala, organized by Kerala University of Fisheries and Ocean Studies, Panangad, Kochi, Kerala 30th July, 2024.
- Dr. K Kandianan attended the XXXV Annual Group Meeting of ICAR- All India Coordinated Research Project on Spices at Chaudhary Charan Singh Haryana Agricultural University (CCSHAU), Hisar, Haryana, during 15-17 October 2024.
- Dr. Shivakumar M S attended the 1st Asia Pacific Congress on alternate crops at Royal Global University, Guwahati during 9-12 September 2024.
- Dr. Shivakumar M S attended the XXXV AICRP on Spices annual general body meeting CCS HAU, Haryana, during 14-17 October 2024.
- Dr. Alfiya PV attended the 58th ISAE Annual Convention on 'Engineering Innovations for Next-gen Digital Agriculture' and International Symposium on "Agricultural Engineering Education for Aspiring Youth in Transforming Agriculture" organized by Indian Society of Agricultural Engineers and Vasantrao Naik Marathwada Krishi Vidhyapeeth, Parbhani, Maharashtra.

### **Representation in external committees**

- Dr. Sona Charles attended the Doctoral Advisory Committee of Ms Oishee Mondal, Vellore Institute of Technology, Meeting of DAC, 23-10-2024

### **Awards/ Honours/ Recognitions**

- Dr. E Jayasree received the Best Technology certificate in Horticultural Sciences of ICAR for the technology 'Process for Instant soluble turmeric enriched spice flavoured dairy milk powder' for the team comprising E. Jayashree, Anees K. Rajeev P, Radha E. and Thankamani C.K. during the ICAR-Foundation Day celebration held at NASC complex, New Delhi on 16 July 2024.
- Dr. E Jayasree was recognized as Faculty in Agricultural Engineering (FPE) of IARI Hub Institute – IARI- Bengaluru Hub, vide. Notification of The Graduate School, ICAR-IARI, New Delhi, No.TGS-I/I-421/AC/2024 dated: 8 Aug, 2024.
- Dr. E Jayasree was accredited as Co-chairman/Member of PG/ Ph.D. students of Dr. Y.S.R. Horticultural University, West Godavari District, Andhra Pradesh, vide L. No. 1702/Dean(PGS)/2023, Dated: 20-08-2024.
- Dr. C. N. Biju was accredited as Co-Chairman/Member of PG and Ph.D students of Dr. Y. S. R. Horticultural University, Andhra Pradesh.



## Outreach Activities

- Dr. C. N. Biju served as resource person (Crop Protection Session) for the 37th Institute Research Committee meeting of ICAR-Directorate of Cashew Research, Puttur, Karnataka held on 08.10.2024.
- Ms. Saleena P., PhD Scholar received the Award of Excellence -2024 for her research paper entitled optimization of vacuum Impregnated Nutmeg Rind Candy using RSM Modeling- Effect on functional and nutritional Properties" under the best Research paper category, awarded by ICAR-IISR during the Institute Foundation Day program held on 1 July 2024.
- Dr. Alfiya P V received the Ph.D best thesis award during the 58th ISAE Annual Convention and International Symposium organized at Vasantrao Naik Marathwada Krishi Vidhyapeeth, Parbhani, held on 12 – 14 November 2024.

## Institute Technology Management Unit

- During the period 23 licenses were issued for various technologies developed by ICAR-IISR.
- One patent was filed, two designs filed for registration, four trademark applications filed and three copyright applications and three varieties were filed for PPV& FRA registration.
- Facilitated the consultancy visit of IISR scientist to black pepper plantations of TATA Coffee Ltd, Karnataka and New Ambadi Estates, Kanyakumari, Tamil Nadu.

### Commercialization of Technologies:

Sl. No.	Name of Technology/ Know-How	Name of Contracting Party	Date of Licensing
1.	Cardamom Appangala 1	ICAR Krishi Vigyan Kendra (ICAR KVK), Bapooji Sevak Samaj, Idukki, Kerala	10-07-2024
2.	A micronutrient composition for cardamom and a process for its preparation	ICAR Krishi Vigyan Kendra (ICAR KVK), Bapooji Sevak Samaj, Idukki, Kerala	10-07-2024
3.	Black Pepper IISR Chandra	Dr. Narendran M. Nair Proprietor, Good Pepper Nursery Karuvellil, Kollam, Kerala	01-07-2024
4.	Black Pepper IISR Chandra	Mr. Sajith Kumar, K K Kanhileri, Kannur, Kerala	01-07-2024
5.	Black Pepper IISR Chandra	Mr. Sujay M S Proprietor, Black Gold Nursery Belagodu, Hassan, Karnataka	01-07-2024
6.	Black Pepper IISR Chandra	Mr. Avinash G B Proprietor, Haludbay Estate & Nursery, Aldur, Chikkamagaluru, Karnataka	01-07-2024
7.	Black Pepper IISR Chandra	Mr. Rajan Krishan Mundiyanikkal, Kushalnagar, Kodagu, Karnataka,	01-07-2024

## Institute Technology Management Unit

8.	Black Pepper IISR Chandra	Mr. K I Iftekhar Sakleshpura, Hassan, Karnataka	01-07-2024
9.	Black Pepper IISR Chandra	Pradeep Chandra Naik, Maruthi Bio secured Nursery Kadur, Chikmagalur, Karnataka	01-07-2024
10.	Black Pepper IISR Chandra	Deputy Director, Spices Board, Sakleshpur	29-08-2024
11.	Black Pepper IISR Chandra	Meghalaya Farmers Empowerment Commission, Meghalaya	12-08-2024
12.	Black Pepper IISR Chandra	Mrs. Sini Sunil, Kottayam, Kerala	18-09-2024
13.	Black Pepper IISR Chandra	Mrs. Leela, Uduma, Kasaragod	27-09-2024
14.	Black Pepper IISR Chandra	H M Majushree, Hanal Sakleshpur	27-09-2024
15.	Black Pepper IISR Chandra	Anantha Health Tech Services, Bangalore, Karnataka	27-09-2024
16.	Black pepper Variety IISR Chandra	Mr. Girish K N Chikmagalur, Karnataka	28-11-2024
17.	Black pepper Variety IISR Chandra	Mr. Poly John Thodupuzha, Idukki, Karnataka	16-12-2024
18.	Black pepper Variety IISR Chandra	Mr. Ajish Antony, Mananthavady, Wayanad, Kerala	16-12-2024
19.	Black pepper Variety IISR Chandra	Jeevani Krishikkottam, Pallikkal Malappuram, Kerala	18-12-2024
20.	Black pepper Variety IISR Chandra	Pulikkal Cooperative Bank Ltd, Pulikkal, Malappuram, Kerala	19-12-2024
21.	Black pepper Variety IISR Chandra	Mr. E K Devassia, Pulpally, Wayanad, Kerala	
22.	Black pepper Variety IISR Thevam	Jeevani Krishikkottam, Pallikkal Malappuram, Kerala	18-12-2024
23.	Black pepper Variety IISR Chandra		

## Institute Technology Management Unit

### Management of IP Portfolios:

IPRs	Application/ Registration No.	Name of Innovation/ Technology/ Product/ Plant Variety	Date of application Filed/ submitted	Date of Application Granted/ Registered**
Patent	202411070878	A jaggery-based product and a process for preparing the same	19-09-2024	Filed
Copyrights	1.SW-19375 2024	Site Specific Nutrient Recommendation for Spices (Spice Fert)	27-08-2024	Granted
	2..29356 2024- CO SW	Black pepper Drought Transcriptome database	20-09-2024	Filed
	3. 31684 2024- CO SW	"CloveSSRDB: Database of SSR Markers in Clove (Syzygium aromaticum)	14-10-2024	Filed
	2. REG 2024 0385	2. Ginger Variety IISR VAJRA	12-07-2024	Filed
	3.	3. Small Cardamom variety APPANAGALA 2	01-11-2024	Filed

### Agri Business Incubator

- Organized a webinar on 'Branding of Food and Agri Products' for agri-food tech entrepreneurs on 30th July 2024.
- Signed a Memorandum of Agreement with the Spices Board to collaborate on encouraging the production of pesticide-free spices through bio inputs.
- Organized webinars and branding consultancy sessions for food and agri startups, providing valuable tips and personalized suggestions for enhancing branding elements.
- Participated in various stakeholder consultations and meetings with entrepreneurs for negotiation and convergence.
- Organized an Entrepreneurship Development Programme on fruits and vegetables during 29-30 October 2024.
- Organized a webinar on 'Business Prospects in Spice Extraction' for agri-food tech entrepreneurs on 17th November 2024.
- Organized one day orientation programme for students with innovative ideas on 6th December 2024. This is designed for students with innovative startup ideas, provided a platform to explore various startup schemes, incubation facilities, and the essentials of Intellectual Property Rights.



## Hindi Anubhag

### राजभाषा कार्यान्वयन समिति की बैठक

जुलाई-दिसंबर 2024 की अवधि में राजभाषा कार्यान्वयन समिति की दो बैठकें आयोजित की गयी। बैठकें दिनांक 29 जुलाई 2024 तथा 29 नवंबर 2024 को निदेशक डॉ. आर. दिनेश की अध्यक्षता में संपन्न हुई। समिति ने राजभाषा कार्यान्वयन की गतिविधियों की समीक्षा करके सुधारने के लिए सुझाव दिया।

### हिंदी कार्यशाला

जुलाई-दिसंबर 2024 की अवधि में भाकृअनुप-भारतीय मसाला फसल अनुसंधान संस्थान, कोषिकोड, प्रायोगिक प्रक्षेत्र एवं कृषि विज्ञान केंद्र, पेरुवण्णामुषि के अधिकारियों तथा कर्मचारियों के लिए दो कार्यशालाएं आयोजित की गयीं।

पहली कार्यशाला 18 सितंबर, 2024 को आयोजित की गयी। प्रस्तुत कार्यशाला में डॉ. आर. सुरेंद्रन (डॉ. आरसु), सेवानिवृत्त विभागाध्यक्ष, हिंदी विभाग, कालिकट विश्वविद्यालय ने "राजभाषा के स्वरूप" पर व्याख्यान दिया।

दूसरी कार्यशाला दिनांक 11 दिसंबर, 2024 को आयोजित की जिसमें डॉ. पी. प्रिया, प्रोफसर, सरकारी कला एवं विज्ञान महाविद्यालय, कोषिकोड ने "राजभाषा का सरल और शुद्ध प्रयोग एवं हिंदी टिप्पणी" पर व्याख्यान दिया।



### हिंदी सप्ताह

राजभाषा हिंदी की प्रोन्नति के लिए भाकृअनुप-भारतीय मसाला फसल अनुसंधान संस्थान, कोषिकोड में 18 सितंबर से 25 सितंबर तक हिंदी सप्ताह मनाया गया। उद्घाटन समारोह दिनांक 18.9.2024 को संपन्न हुआ। डॉ. आर. सुरेंद्रन (डॉ. आरसु) सेवानिवृत्त विभागाध्यक्ष, हिंदी विभाग, कालिकट विश्वविद्यालय ने समारोह का उद्घाटन किया। उद्घाटन भाषण में उन्होंने भाषा के विभिन्न स्वरूप पर विस्तृत रूप से व्याख्यान दिया। उद्घाटन के बाद हिंदी स्मरण शक्ति परीक्षा आयोजित की। उसमें सभी उपस्थित सभी अधिकारियों ने भाग लिया। उसी दिन दूसरे सत्र में हिंदी कार्यशाला आयोजित की। इसमें डॉ. आरसु ने राजभाषा हिंदी के स्वरूप पर व्याख्यान दिया।

## Hindi Anubhag



दिनांक 18.09.2024 को डॉ. आर. सुरेंद्रन (डॉ. आरसु) हिंदी सभा के उद्घाटन करते हुए।

### हिंदी प्रकाशन

- मसालों की महक 2024



राजभाषा पत्रिका मसालों की महक 2024 का विमोचन

### राजभाषा रिपोर्ट

संस्थान के राजभाषा कार्यान्वयन की तिमाही एवं वार्षिक रिपोर्ट तैयार करके भारतीय कृषि अनुसंधान परिषद, नई दिल्ली को भेज दिया। तिमाही रिपोर्ट एवं वार्षिक रिपोर्ट राजभाषा विभाग, नई दिल्ली को ऑनलाइन भर दिया।

## Major Events

### ICAR-IISR starts off Golden Jubilee Celebrations



Reminiscing the saga of spices research, ICAR – Indian Institute of Spices Research, Kozhikode ushered into its 50th year of spice research by celebrating the foundation day at the headquarters on July 1st, 2024. Prof. Prasad Krishna, Director, National Institute of Technology, Calicut was the chief guest of the program and complemented the ICAR-IISR fraternity for their enormous effort in creating a significant mark in spices research in the country and making the institution a pride of the nation. The Spice Awards 2024 instituted by ICAR-IISR were presented to Mrs. Sopna Kallingal from Thrissur and M/s Diya Foundation, Kamrup, Assam. Mrs Sopna Kallingal was selected considering her contributions in enterprise diversification and integrated crop management strategies promoting spice-based cropping system while M/s Diya foundation was recognized by the award committee for their efforts in promoting spice farming among small and marginal farmers of North Eastern Region.

### Best Technology Award at ICAR Foundation Day



In a matter of pride for ICAR-IISR, the process of instant soluble turmeric enriched spice flavoured dairy milk powder' has been recognized by the Indian Council of Agricultural Research. Dr. E Jayashree, Principal Scientist and the lead developer of the technology received certificates from the Honourable Minister of Agriculture and Farmers Welfare Shri. Shivraj Singh Chouhan during the 96th ICAR Foundation Day Celebrations held at ICAR headquarters New Delhi.

## Major Events

### Independence Day Celebration



### Swachhta hi Sewa

Dr. D Prasath, Project Coordinator, AICRP on Spices administered the Swachhta pledge to the staffs and students of ICAR – IISR, marking the inauguration of Swachhta activities.





## Major Events



### Workshop on Branding Consultancy

The Agribusiness Incubator at ICAR - Indian Institute of Spices Research, in collaboration with Kerala Startup Mission, organized an insightful workshop on "Branding Consultancy" for selected startups. The session was led by Sri Ajay S Nair, Brand Strategist & CEO of Fresh Mind Ideas, who shared expert tips on enhancing branding elements and provided personalized feedback by reviewing the current labels of each startup.

### Webinar on Intellectual Property Rights for the Agri & Food Sectors

The Agri Business Incubator at ICAR - Indian Institute of Spices Research, Kozhikode, in collaboration with the Kerala Startup Mission, hosted a webinar on "Intellectual Property Rights for the Agri & Food Sectors" on 30th September 2024, from 11:00 AM to 12:00 PM. The session included the topics on Patents in the Agri & Food Sectors, Trademarks and Branding, and IP Management for Agri & Food Startups.



### Training on 'Technological Solutions for Sustainable Spice Production and Processing'

ICAR-All India Coordinated Research Project on Spices (AICRP on Spices), ICAR-IISR, Kozhikode, conducted a training programme on "Technological Solutions for Sustainable Spice Production and Processing" for the Meghalaya Basin Management Agency (MBMA), Meghalaya during 23-27 September 2024 at ICAR-IISR, Kozhikode, Kerala. The training provided an in-depth exploration of innovative spice farming and processing techniques. The event featured



## Major Events



ICAR-IISR expert-led sessions on the economics of spice production, high-yielding varieties for the North East Hill (NEH) states, organic cultivation strategies, and bio-intensive plant health management. Practical sessions were also conducted for the team, including sustainable cultivation practices, processing technologies, and value addition and commercialization opportunities.

### ***MIDH Training program on Good Agricultural Practices***

ICAR-IISR conducted a training program on 'Good Agricultural Practices for the sustainable production of black pepper' for the farmers of Kolli Hills region, Namakkal, Tamil Nadu. The program was sponsored by Directorate of Arecanut and Spices Development, Kozhikode under the Mission for Integrated Development of Horticulture (MIDH) Scheme.

### ***Annual Group Meeting of AICRPS***

XXXV Annual Group Meeting of All India Coordinated Research Project on Spices was held at College of Agriculture, Chaudhary Charan Singh Haryana Agricultural University during 15 - 17 October.



### ***Vigilance Awareness Week***

The Vigilance Awareness Week was observed at ICAR - Indian Institute of Spices Research from 28th October to 3rd November with several activities. The VAW culminated in a lecture by Mr. Ganesh Kumar N, DySP of the Vigilance and Anti-Corruption Bureau, Northern Range, Kozhikode. Various competitions were held at the nearby schools as part of the VAW observance during these days. A Vigilance Awareness Rally was also conducted by the staff and students of the institute up to Chelavoor, during which pamphlets on anti-corruption were distributed to the public.

## Major Events



### ***IISR gets NABL Accreditation for its labs***

The Spices quality and Organic Manure testing laboratories of ICAR - Indian Institute of Spices Research secured accreditation from the National Accreditation Board for Testing and Calibration Laboratories (NABL) with effect from 14.11.2024. This recognition under ISO/IEC 17025: 2017 is a benchmark for quality testing of Spices and Organic Manures.



### ***Training Program on Ginger Production for Meghalaya Farmers***

ICAR - Indian Institute of Spices Research, conducted a five-day training program on 'Ginger Production and Processing' from 11-15 November 2024 for 26 farmers from the 'Khasi-Jaintia Farmers Association (KJFA)' and five Horticulture officers from the Meghalaya State Agriculture Department and one promising entrepreneur. This training was sponsored by the 'Meghalaya Farmers' (Empowerment) Commission (MFEC)' of the Government of Meghalaya.

## Major Events

### ***Inauguration of CTGC Facility***

Dr. Suresh Kumar Chaudhari, DDG (NRM), inaugurated the Carbon Dioxide and Temperature Gradient Chamber (CTGC) facility, along with the newly established enriched compost unit on 30th November 2024 at ICAR - Indian Institute of Spices Research.



### ***Orientation program on Start-ups for college students***

A one-day orientation session aimed at raising startup awareness among students was organized on 6th December, 2024, at the institute. The program, organized by the Agribusiness Incubator, provided a platform for students to share their entrepreneurial ideas and explore the opportunities available to them. Over 40 students from colleges across Kannur, Kasaragod, Wayanad, Malappuram, and Kozhikode districts actively participated in the session, offering insights into their ideas and receiving guidance from experts.



### ***Entrepreneurship Awareness Program***

Agribusiness Incubator of ICAR-IISR along with MSME Development & Facilitation Office, Thrissur, organized an Entrepreneurship Awareness Program on 12th December. The programme was inaugurated by Dr. P Rajeev, Principal Scientist, IISR. The sessions were headed by Sreejith M, Industries Extension Officer, DIC Kozhikode; Rajkumar T P, Financial Literacy Counsellor; Gayatri, District Resource Person, PMFME, Vishesh Agarwal, Assistant Director, MSME and Dr. Maneesha S R, Scientist, IISR among others. Rosy K P, an entrepreneur from Ferokh, Kozhikode also shared her entrepreneurial journey experience to the participants in the program.



## Publications

### Research Papers

- Malavika, P., Greeshma, M. and Bhat, A.I. 2024. Occurrence, Complete Genome Sequencing, and Development of Diagnostics for Black Pepper Virus F Infecting Black Pepper in India. *Journal of Phytopathology*. 172:e13418, <https://doi.org/10.1111/jph.13418>.
- Archana Ravindran E. Jayashree A. Jeyakumari K. Anees P. V. Alfiya. 2024. Physicochemical characterization of microencapsulated spice oleoresin blend using various carrier agents, *Journal of Food Science and Technology*. <https://doi.org/10.1007/s13197-024-05982-6>.
- Alfiya, P. V., & Jayashree, E. (2024). Solar-biomass and dielectric drying of mace: An investigation on renewable and fourth generation drying technologies. *Solar Energy*, 277, 112717./doi.org/10.1016/j.solener.2024.112717
- P V Alfiya, S Murali, DS Aniesrani Delfiya and Manoj P Samuel. (2024). Design and development of biomass-fueled convective dryer for marine products: energy, exergy, environmental, and economic (4E) analysis. *Biomass Conversion and Biorefinery*. doi.org/10.1007/s13399-024-06001-6

### Book Chapter

- Charles, S. and Lopus, M. (2024). Bioinformatics Tools and Resources for Plant Transcriptomics. In *Bioinformatics for Plant Research and Crop Breeding*, J.-T. Chen (Ed.). <https://doi.org/10.1002/9781394209965.ch10>
- Charles, S., Subeesh, A., Dhanya, V.G., Malathi, V.M. (2024). Opportunities and Prospects of Artificial Intelligence in Plant Genomics. In: Chaudhary, A., Sethi, S.K., Verma, A. (eds) *Unraveling New Frontiers and Advances in Bioinformatics*. Springer, Singapore. [https://doi.org/10.1007/978-981-97-7123-3\\_5](https://doi.org/10.1007/978-981-97-7123-3_5)
- R. Suseela Bhai, A. I. Bhat, C. N. Biju, A. K. Vijayan and K. A. Saju. (2024). Diseases of black pepper and cardamom. In: *Handbook of Spices in India: 75 Years of Research and Development*. (Eds.). P. N. Ravindran, K. Sivaraman, S. Devasahayam and K. Nirmal Babu. Springer Link. pp. 3623-3673.
- Mangalassery, S., Adiga, J.D., Veena, G.L., Binitha, N.K., Anil Kumar, K.S. (2024). Cashew (*Anacardium occidentale* L.). In: Thomas, G.V., Krishnakumar, V. (eds) *Soil Health Management for Plantation Crops*. Springer, Singapore. [https://doi.org/10.1007/978-981-97-0092-9\\_6](https://doi.org/10.1007/978-981-97-0092-9_6)
- Mangalassery, S., Adiga, J.D. and Veena, G.L., 2024. Organic nutrient management in cashew. In: Talang, H., Das, T.K. and Monica Singh. (Eds). *Improved production technology of cashew in North Eastern region*. ICAR-Krishi Vigyan Kendra, Tura & ICAR-Research Complex for NEH Region, Meghalaya. 43-49.
- Krishnamurthy, K.S., Sharon, A., Meena, R.S., Janakiram, T., Nirmal Babu, K. (2024). Improved Varieties of Spice Crops. In: Ravindran, P.N., Sivaraman, K., Devasahayam, S., Babu, K.N. (eds) *Handbook of Spices in India: 75 Years of Research and Development*. Springer, Singapore. [https://doi.org/10.1007/978-981-19-3728-6\\_6](https://doi.org/10.1007/978-981-19-3728-6_6)
- Akshitha, H.J., Sharon, A., Shivakumar M.S., Prasath D., Ankegowda S. J., Muhammed Faisal P., Honnappa Asangi & Balaji Rajkumar M. (2024). Cardamom: A Leading Spice Crop for Food, Flavor, and Health. In: Sabu, K.K., Kole, C. (eds) *The Cardamom Genome. Compendium of Plant Genomes*. Springer, Cham. [https://doi.org/10.1007/978-3-031-71829-8\\_1](https://doi.org/10.1007/978-3-031-71829-8_1)
- Korikanthimath VS, Ankegowda SJ and Akshitha HJ. 2024. Cardamom. Ravindran PN, K Sivaraman, S Devasahayam and K Nirmal Babu (eds.), *Handbook of Spices in India: 75 Years of Research and Development*, ISBN 978-981-19-3727-9, ISBN978-981-19-3728-6 (eBook) <https://doi.org/10.1007/978-981-19-3728-6>, Springer Nature Singapore Pte Ltd., Singapore
- Prasath, D., Akshitha, H.J. and Shivakumar, M.S. (2024). Genetics and Breeding of Cardamom. In: Sabu, K.K., Kole, C. (eds) *The Cardamom Genome. Compendium of Plant Genomes*. Springer, Cham. [https://doi.org/10.1007/978-3-031-71829-8\\_3](https://doi.org/10.1007/978-3-031-71829-8_3)





## Publications

### Popular Article

- Biju, C.N., Jeevalatha, A., Bhat, A.I., Peeran, M.F., Praveena, R. and Sarathambal, C. 2024. Rogo ko kum karne keliye gareloo sangarodh: Kaayik pravirdhatha masaalo ka varthamaan parihaara avaum bhavishya ki sambhavanayam. Masaalo ki Mehak 2024, 6-12.
- Bhat, A.I., Srinivasan, V., Biju, C.N. and Krishnamurthy K.S. 2024. Kaali mirchi ke vishaanu rog aur oska prabandhan. Masaalo ki Mehak 2024, 1-5.
- Bhat, A.I. and Biju, C.N. 2024. Elaachi ke vishaanu rog aur oska prabandhan. Masaalo ki Mehak 2024, 13-16.
- Mohammed Faisal Peeran and Biju, C. N. (2024). Monsoon associated diseases and their management in major vegetatively propagated spices. Spice India. 37(7): 13-20.
- Thankamani CK, Jayashree E and Alfiya P V. 2024. KurumulakuKrishiyum samrambhakthasadhyadakalum. Kerala Karshakan, August 2024, 48-51.
- Alfiya P. V and Jayashree E. 2024. Commercial Dryers for Spice Processing, Kerala Karshakan, 12(04): 37 -42.
- Alfiya P. V and Jayashree E. 2024. Masala Prasamskaran keliye Vaanijya dryer. Masaloom ke Mehak. pp. 17-24.

### Training Manual

- Training Manual for Workshop on R for Bioinformatics
- Training Manual on Production and Processing of ginger Nov 11-15, ICAR-Indian Institute of Spices Research, Kozhikode

### Technical Bulletin

- Mukesh Sankar, S., Cheekilote, N., Biju, C. N., Aravind, S., Dekka, K. K., Dekka, T. N., Kumar, A., Maiti, C. S., Bilashini Devi, M., Shadap, A., & Prasath, D. (2024). Spices to new heights: Rising NER through ICAR-AICRPS. ICAR-All India Coordinated Research Project on Spices, Kozhikode, Kerala: ICAR-Indian Institute of Spices Research.

### Other publications

- Mukesh Sankar, S., Biju, C. N., Sharon Aravind, Akshitha, H. J., Nafid, C. and Prasath, D. (Eds.). 2024. Spices Varieties and Technologies for Farmers Welfare (2024). ICAR-All India Coordinated Research Project on Spices, ICAR-IISR, Kozhikode, Kerala, India. p. 40.
- Mukesh Sankar, S., Cheekilote, N., Biju, C. N., Aravind, S., Dekka, K. K., Dekka, T. N., Kumar, A., Maiti, C. S., Bilashini Devi, M., Shadap, A. and Prasath, D. (2024). Spices to new heights: Rising NER through ICAR-AICRPS. ICAR-All India Coordinated Research Project on Spices, Kozhikode, Kerala, India. p. 44.

### Papers presented in symposia/seminars/workshops/conferences

- Mukesh Sankar, S., Biju, C. N., Sharon Aravind, Akshitha, H. J., Nafid, C. and Prasath, D. (Eds.). 2024. Spices Varieties and Technologies for Farmers W• Alfiya P. V. and Jayashree E. 2024. Development, optimization, techno-economic and exergy evaluation of infrared convective dryer for turmeric slices. In: Souvenir and Book of Abstract (Eds: Smitha Khodke, Pravin, Kapse, Suman, Jadhav, Madhukar More, Hemant Dershpande, Pramodini More, Ashwini Gawande, Amol Khapre) Published by Director of Instruction and Dean, VNMMKV, during the 58th ISAE Annual Convention on 'Engineering Innovations for the Next-gen Digital Agriculture' & International Symposium on 'Agricultural Engineering Education for Aspiring Youth in Transforming Agriculture' held at Vasantharo Naik Marathwada Krishi Vidyapeeth, Parbhani, Maharashtra during 12-14 Nov. 2024, pp: 221.





## Publications

- Dr. Shivakumar MS presented a paper on Piper peepuloides - A potent alternative crop of Meghalaya with remarkable medical properties in 1st Asia pacific congress on alternate crops at Royal Global university, Guwahati 9-12 September 2024
- Alfiya P V and Jayashree E. 2024. Development, optimization, techno-economic and exergy evaluation of infrared convective dryer for turmeric slices. In: Book of Abstracts, 58th ISAE Annual Convention on 'Engineering Innovations for Next-gen Digital Agriculture' and International Symposium on "Agricultural Engineering Education for Aspiring Youth in Transforming Agriculture". Indian Society of Agricultural Engineers and Vasantrao Naik Marathwada Krishi Vidhyapeeth, Parbhani, Maharashtra, India, 221 p.

## Students Corner

### PhD Awarded

Name	Thesis Title
Neenu Maria George	Improvement of red ginger ( <i>Zingiber officinale</i> Rosc.) through in vitro and in vivo studies.
Aswathi A P	A study on genetic diversity and marker trait association analysis in turmeric ( <i>Curcuma longa</i> L.)

## Personalia

### New Appointment

Name	Post
Mr. Abdul Rasheed TK	Assistant Administrative Officer
Mr. Amaan Usmani	Assistant
Mr. Anuj Kumar	Assistant
Ms. Lakshmi Arora	Assistant

### Retirement

Name	Post	Date
Dr. N.K. Leela	Principal Scientist	31.07.2024



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