



First NABS-International Conference

on

“Life Sciences: Contemporary Approaches in Biological Sciences for Food, Health, Nutrition Security and Conservation of Biodiversity”

Series-12

General Particulars

Date : 26, 27 & 28 August 2021

**Venue : Faculty of Agriculture
Annamalai University
Annamalainagar
Chidambaram, Tamil Nadu**

Mode : Virtual

The 12th Series of the NABS conference as organized as an International event on virtual mode with the theme “Life Sciences: Contemporary Approaches in Biological Sciences for Food, Health, Nutrition Security and Conservation of Biodiversity” in collaboration with Faculty of Agriculture, Annamalai University, Annamalainagar, Chidambaram, Tamil Nadu from 26 to 28 August at the Faculty Seminar Hall.

Organizing Secretary

Dr. M. Prakash

Professor (Crop Physiology) &

Organizing Secretary-First NABS-International Conference on Life Sciences

Programme Coordinator-UGC SAP - DRS Phase I & II (2009-14; 2015-20)

Former Head, Department of Genetics and Plant Breeding,

Faculty of Agriculture, Annamalai University, Chidambaram- 608 002.

Mobile:9443405026 / Email: geeth_prakash@yahoo.co.in

Program Coordinators

Prof. Dr. T. Marimuthu

*Secretary, National Academy of
Biological Sciences (NABS), Chennai*

Dr. T. L. Baskaran

*Treasurer, National Academy of
Biological Sciences (NABS), Chennai*

Dr. S. Arivudainambi
Director-IQAC
Professor & Head, Department of
Agricultural Entomology, Faculty of
Agriculture, Annamalai University

Dr. S. Rameshkumar
Professor, Department of
Horticulture, Faculty of Agriculture,
Annamalai University

Inaugural Function Programme

Date: 26.08.2021

Time: 9.30 am

Mode: Virtual/ Online

Invocation	: Thamizhthai Vazhthu/University Choir
Lighting the Ceremonial Lamp	: Chief Guest and Dignitaries
Mourning the demise of our beloved members of NABS	: 2 minutes silence
Welcome address	: Dr. M. Prakash Organizing Secretary, First NABS-International Conference
Felicitation	: Dr. M. Ganapathy Dean, Faculty of Agriculture Annamalai University
Presidential Remarks / address	: Dr. V. A. Parthasarathy President, National Academy of Biological Sciences, Chennai
Overview of NABS Activities	: Dr. D.J. Bagyaraj Vice President, National Academy of Biological Sciences, Chennai
About the Conference	: Dr. S. Arivudainambi Director-IQAC Professor & Head, Department of Agricultural Entomology, Faculty of Agriculture, Annamalai University
Inaugural address and Release NABS Abstract Book	: Prof. Dr. Balaji Swaminathan, Professor and Head, Department of ENT, Rajah Muthiah Medical College & Hospital Syndicate Member & Member, Convener Committee, Annamalai University
Release of CD version of NABS Abstract book	: Dr. T. Marimuthu Secretary, NABS

Conferring “**Prof. S. Kannaiyan Memorial Award**” for 2020 and 2021 on **Dr. V. Sivasubra-manian & Dr. P. K. Chakrabarty & Felicitation as Guest of Honor / Special address**

: **Prof. Dr. R.R. Hanchinal**
Formerly Chairperson, Protection of Plant Varieties and Farmers Rights Authority, GoI, New Delhi & Vice Chancellor, UAS-D, Karnataka

Conferring “**Dr. APJ Abdul Kalam Memorial NABS-Life Time Achievement Award**” for 2019 & 2020 on **Dr. Kirti Singh & Prof. Dr. Palpu Pushpangadan & Felicitation as Guest of Honor / Special address Felicitations**

: **Prof. Dr. Anil Kumar Srivastava**
Member, Agricultural Scientists Recruitment Board, ICAR, New Delhi & Formerly Vice Chancellor National Dairy Research Institute, Karnal

Vote of thanks

Dr. Kirti Singh
President, International Society for Noni Science & Formerly Vice Chancellor, Jaunpur, U.P.
: **Dr. S. Ramesh Kumar**
Professor, Department of Horticulture, Faculty of Agriculture, Annamalai University

National Anthem

Technical Sessions

Day-1: 26-08-2021

Prof. S. Kannaiyan Memorial Oration-1

Chair

: **Dr. V.A. Parthasarathy**
President, NABS

Co-Chair

: **Dr. N. Thajuddin**
EC Member of NABS & Professor of Microbiology Bharathidasan University, Tiruchirappalli, Tamil Nadu

Topic

: **Micro algae technology for industrial effluent treatment and restoration of polluted water bodies**

Oration by

: **Dr. V. Sivasubramanian**
SK Memorial Laureate (2020) & Director, Phycospectrum Environmental Research Centre (PERC), Chennai, India (delivered the Oration on virtual mode)

Prof. S. Kannaiyan Memorial Oration-2

Chair	: Dr. D. J. Bagyaraj <i>Vice President, NABS</i>
Co-Chair	: Dr. N. Mathivanan <i>EC Member, NABS & Director, CAS Botany & Registrar i/c, University of Madras, Chennai</i>
Topic	: Plant health management for food security: Need for advanced research and enabling policies
Oration by	: Dr. P. K. Chakrabarty <i>SK Memorial Laureate (2021) & Member (Plant Sciences) Agricultural Scientists' Recruitment Board, DARE, Ministry of Agriculture and Farmer's Welfare, GOI, New Delhi, (delivered the Oration on virtual mode).</i>

Concurrent Technical Sessions Agricultural Sciences-1

Chair	: Dr. S. Thirumeni <i>Professor, Pandit Jawaharlal Nehru College of Agriculture and Research Institute, Karaikal, Puducherry, India</i>
Co-Chair	: Dr. M. Venkatesan <i>Annamalai University</i>
Convener	: Dr. S. Suganthy <i>Annamalai University</i>
Lead Presentations	
Lead Scientist - 1	: Dr. Srinivasan Ramasamy <i>Flagship Program Leader for Safe and Sustainable Value Chains, World Vegetable Center, Taiwan</i>
Topic-1	: Sustainable vegetable production for health and prosperity in the post Covid-19 era
Lead Scientist-2	: Dr. S. Thirumeni <i>Professor, Pandit Jawaharlal Nehru College of Agriculture and Research Institute, Karaikal, Puducherry (U.T), India</i>
Topic-2	: Introgression of <i>qSSISFH-8.1</i>(<i>R'Saltol</i>) locus in rice through marker assisted backcrossing (MABC) for improving reproductive stage salt tolerance

- Lead Scientist-3** : **Dr. Viswanathan Chinnusamy**
Principal Scientist & Head i/c, ICAR-Indian
Agricultural Research Institute, New Delhi, India
- Topic-3** : **Deciphering the functions of DST and FTA
genes in abiotic stress tolerant rice by using
CRISPR-Cas9 genome editing**
- Lead Scientist-4** : **Dr. M. Pandiyan**
Professor, Agricultural College and Research
Institute, TNAU, Vazhavaachanur,
Tiruvannamalai, Tamilnadu, India
- Topic-4** : **Mung bean(*Vigna radiata* (L.) Wilczek) as an
ancestral source for several *Vigna* species
conferred through crossability percentage
and expression of morphological markers**

Oral Presentations

In all 9 oral presentations were listed and 8 were made during this session. The best oral- presentations were also selected for award.

Poster Presentations

- Chair** : **Dr. R. Gomathi**
Sugarcane Breeding Institute (ICAR), Coimbatore
- Co-Chair** : **Dr. J. Gokulakrishnan**
Annamalai University
- Convener** : **Dr. R. Anandan**
Annamalai University

In all 59 posters were listed and only 17 were presented during the session. The best poster presentations were also selected for award.

Climate Change & Biodiversity

- Chair** : **Dr. Chenna Reddy Aswath**
EC Member of NABS & Principal Scientist & Head
Division of Floriculture & Medicinal Crops, ICAR-
Indian Institute of Horticultural Research,
Bangalore
- Co-Chair** : **Dr. S. Babu**
Annamalai University
- Convener** : **Dr. R. Jayasankar**
Annamalai University

Lead Presentations

- Lead Scientist-1 : Dr. Dilip Kumar Jha**
Professor of Aquaculture and Aquatic Resources Management, Faculty of Animal Science, Veterinary Science and Fisheries, Agriculture and Forestry University, Rampur, Chitwan, Nepal
- Topic-1 : Implications of climate change on fisheries and aquaculture**
- Lead Scientist-2 : Dr. N. V. Naidu**
Director of Research (Retd.), Acharya N.G. Ranga Agricultural University
- Topic - 2 : The need for biodiversity conservation for sustainable food production, livelihood and food security in the era of climate change**
- Lead Scientist-3 : Dr. H. Vijayaraghavan**
Dean, Adhiyaman College of Agriculture and Research (affiliated to TNAU), Krishnagiri, Tamil Nadu, India
- Topic-3 : Impact of global warming and climate change: Future perspectives on agricultural ecosystems - A mini survey**
- Lead Scientist-4 : Dr. U. Surendran**
Senior Scientist & Head i/c Land and Water Management Research Group Centre for Water Resources Development and Management, Kozhikode, Kerala
- Topic-4 : Water and Nutrient Management Strategies for climate resilient agriculture**

Oral Presentations

In all 4 oral presentations were listed and only three were made during the session. The best oral presentations made were also selected.

Poster Presentations

- Chair : Dr. N. V. Naidu**
Director of Research (Retd.), ANGRAU
- Co-Chair : Dr. Raj Praveen**
Annamalai University
- Convener : Dr. J. Padmanaban**
Annamalai University

In all 6 posters were listed and only 4 were presented during the session. The best poster presentations made were also selected.

Day-2:27-08-2021

Basic Sciences-1

Chair : Dr. N. Thajuddin

*EC Member of NABS & Professor of Microbiology,
Bharathidasan University, Tiruchirappalli, Tamil
Nadu*

Co-Chair : Dr. P. Balabaskar

Annamalai University

Convener : Dr. P. Sivasakthivelan

Annamalai University

Lead Presentations

Lead Scientist-1 : Dr. Alvin Kah-Wei Hee

*Department of Biology, Faculty of Science,
Universiti Putra Malaysia, Serdang, Malaysia*

**Topic-1 : Beyond chemical bonds: Unravelling the
mystery of oriental fruit fly and its love
potion**

Lead Scientist-2 : Dr. M. Deiveeka Sundaram

*EC Member of NABS & Formerly Head, Faculty of
Agriculture, Department of Agricultural
Microbiology, Annamalai University,
Annamalainagar, Tamil Nadu*

**Topic-2 : Management of institutional wastes. A case
study**

Lead Scientist-3 : Dr. N.Thajuddin

*EC Member of NABS & Professor of Microbiology,
Bharathidasan University, Tiruchirappalli, Tamil
Nadu*

Topic-3 : Microalgae- From taxonomy to technology

Lead Scientist-4 : Dr. N. K. Krishna Kumar

*Former Deputy Director General, ICAR, New
Delhi*

**Topic-4 : Insect biodiversity, ecosystem services and
sustainable agriculture**

Oral Presentations

In all two oral presentations were listed and all the two were made during the session. The best oral presentations were also selected for award.

Poster Presentations

Chair : Dr. P. Nallathambi

*EC Member of NABS & Principal Scientist (Plant
Pathology), IARI- Regional Station Wellington, Tamil
Nadu*

Co-Chair : Dr. S. Thirumenthi

*Professor, Pandit Jawaharlal Nehru College of
Agriculture and Research Institute, Karaikal,
Puducherry (U.T), India*

Convener : Dr. R. Parthasarathi

Annamalai University

In all 18 poster presentations were listed and 10 were presented during the session. The best poster presentations made were also selected.

Agricultural Sciences-2

Chair : Dr. Rameshkumar

Annamalai University

Co-Chair : Dr. CT. Sathappan

Annamalai University

Convener : Dr. K. Elayaraja

Sugarcane Breeding Institute (ICAR), Coimbatore

Lead Presentations

Lead Scientist-1 : Dr. K.G. Mandal

*Director, ICAR-Mahatma Gandhi Integrated
Farming Research Institute, Motihari, Bihar, India*

**Topic-1 : Increasing water use efficiency in rice
through efficient irrigation**

Lead Scientist-2 : Dr. Sivakumar Uthandi

*Professor, Department of Agricultural
Microbiology, Tamil Nadu Agricultural University,
Coimbatore, India*

**Topic-2 : Microbial volatile organic compounds (mVOC)
induced biotic and abiotic stress responses in
crop plants**

Lead Scientist-3 : Dr. K. Pakeeratharan

*Head , Department of Agricultural Biology,
Faculty of Agriculture, University of Jaffna, Sri
Lanka*

**Topic-3 : Gel free SNP technology to characterize host
plant resistance in genomics era**

Lead Scientist-4 : Dr. M.K. Kalarani

*Professor & Head, Department of Crop
Physiology,
Tamil Nadu Agricultural University, Coimbatore*

**Topic-4 : Physiological function of melatonin in plants
under abiotic stress.**

Oral Presentations

In all 23 oral presentations were listed and 16 were made during the session. The best oral presentations made were also selected.

Poster Presentations

Chair : **Dr. K. Balakrishnan**
Formerly Professor, TNAU

Co-Chair : **Dr. B. Sunil Kumar**
Annamalai University

Convener : **Dr. D. Dhanasekaran**
Annamalai University

In all 75 poster presentations were listed and 31 were presented during the session. The best poster presentations made were also selected.

Agricultural Sciences-3 (including Social Sciences)

Chair : **Dr. S. Arivudainambi**
Annamalai University

Co-Chair : **Dr. G. Sathiyarayanan**
Annamalai University

Convener : **Dr. R. Kanagarajan**
Annamalai University

Lead Presentations

Lead Scientist-1 : **Dr. S. Nakkeeran**
Professor of Plant Pathology, TNAU, Coimbatore

Topic-1 : **Harnessing the potential of endophytome for the management of fungal nematode complex in banana**

Lead Scientist-2 : **Dr. M. Mohan**
Principal Scientist, ICAR – NBAIR, Hebbal, Bengaluru, India

Topic-2 : **Genome basis of insect diversity and evolution of gene families in insects**

Lead Scientist-3 : **Dr. M.R. Ramasubramaniyan**
National Agro Foundation, Chennai, Tamil Nadu, India

Topic-3 : **Learn farming for sustainable crop productivity improvement: Experiential learning from farmers participatory trials**

Lead Scientist-4 : **Dr. Jayaraj Jayaraman**
Department of Life Sciences, The University of the West Indies, St. Augustine, Trinidad and Tobago

Topic-4 : Seaweed extracts as plant biostimulants, bioelicitors and stress alleviators

Oral Presentations

In all seven oral presentations were listed and five were made during the session. The best oral presentations made were also selected.

Poster Presentations

Chair : Dr. (Mrs.) B. Meena

Associate Professor, Coconut Research Station (TNAU), Aliyarnagar, Pollachi, Tamil Nadu

Co-Chair : Dr. T. Selvamuthukumar

Annamalai University

Convener : Dr. A. Senthil

Tamil Nadu Agricultural University, Coimbatore

In all 36 poster presentations were listed and only 14 were presented during the session. The best poster presentations made were also selected.

Workshop on Molecular Interventions for Climate Resilient Agriculture

Chair : Dr. M. Prakash

Professor of Crop Physiology, Annamalai University

Speaker : Prof. Jayaraj Jayaraman

Department of Life Sciences, The University of The West Indies, St. Augustine, Trinidad and Tobago

Topic-1 : Biotic Stress

Speaker : Dr. S. Thirumeni

Pandit Jawaharlal Nehru College of Agriculture & Research Institute, Karaikal, Puducherry

Topic-2 : Abiotic Stress

Health Sciences (Medical, Food & Nutrition)

Chair : Prof. Venkateswarlu Kanamarlapudi

Swansea University, UK

Co-Chair : Dr. Renu Agrawal

Project Advisor, Out-Reach Program-CSIR-CFTRI, Mysore

Convener : Dr. John Christy

Annamalai University

Lead Presentations

- Lead Scientist-1** : **Prof. Suresh Chandra Babu**
*International Food Policy Research Institute,
Washington DC, USA*
- Topic-1** : **Bio economy and food system transformation: Global experience from the climate change, nutrition and health nexus**
- Lead Scientist-2** : **Dr. P.V. Vara Prasad**
Distinguished Professor and Director, Kansas State University, USA
- Topic-2** : **Sustainable agricultural intensification for global food and nutrition security and enhancing climate resilience**
- Lead Scientist-3** : **Dr. C. Anandharamakrishnan**
Director, Indian Institute of Food Processing Technology (IIFPT), Thanjavur, Tamilnadu, India
- Topic-3** : **Future Foods**
- Lead Scientist-4** : **Dr. Thilageswary Kumutharanjan**
Unit of Siddha Medicine, University of Jaffna
- Topic-4** : **Efficacy of Thripala choornam and Murukam paddai Thailamon- patients with karappan noi (Exzema)**
- Lead Scientist-5** : **Prof. Venkateswarlu Kanamarlapudi**
Swansea University, UK
- Topic-5** : **Investigation of potential new treatments for diabetes, cancer and COVID-19**
- Lead Scientist-6** : **Dr. Veda Krishnan**
Fulbright Fellow, Whistler center for Carbohydrate Research, Food Science, Purdue University, West Lafayette, Indiana
- Topic-6** : **Microstructure, matrix composition, interactions, and molecular configuration share insights into ultimate inherent glycemic potential (IGP) of pearl millet (*Pennisetum glaucum*)**

Oral Presentations: In all 5 were listed and 3 were presented.

Poster Presentations: In all 14 were listed and 6 were presented.

Energy and Environmental Science

Chair : **Dr. K. Kathiresan**
Annamalai University

Co-Chair : **Dr. P. Sudhakar**
Annamalai University

Convener : **Dr. KR. Saravanan**
Annamalai University,

Lead Presentations

Lead Scientist-1 : **Dr. K. Kathiresan**
*Honorary Professor, CAS in Marine Biology,
Annamalai University, Tamil Nadu, India*

Topic-1 : **Mangrove forests of India**

Lead Scientist-2 : **Dr. N. Vigneshwaran**
*ICAR-Central Institute for Research on Cotton
Technology, Adenwala Road, Matunga, Mumbai,
India*

Topic-2 : **Agricultural Input Nanomaterials and their
Environmental Impact**

Lead Scientist-3 : **Dr. V. Arutchelvan**
*Department of Civil Engineering, Annamalai
University, Annamalai Nagar, Tamil Nadu, India*

Topic-3 : **Integrated waste management through
symbiotic macro culture**

Poster Presentations:

In all 5 poster presentations were listed and 3 were presented.

Special Lecture-1

Chair : **Dr. D. J. Bagyaraj**
Vice President, NABS

Co-Chair : **Dr. Chenna Reddy Aswath**
*EC Member of NABS &
Principal Scientist & Head
Division of Biotechnology, ICAR-Indian Institute
of Horticultural Research, Bangalore, Karnataka*

Speaker : **Prof. Dr. P. Pushpangadan**
*Dr. A.P.J. Abdul Kalam Memorial NABS-
Life Time Achievement Laureate
Amity Institute for Herbal and Biotech Products
Development, Trivandrum, Kerala, India*

Topic : **Functional food and nutraceuticals and
development of special diet for enhancing
health**

Special Lecture-2

Speaker : **Dr. RS. Jayasomu**

Chief Scientist, Editor, Indian Journal of Experimental Biology (IJEB), Head, Research Journals (Biological Sciences), Head, Raw Materials, Herbarium and Museum, Delhi (RHMD); & CSIR-NIScPR, New Delhi

Topic : **Analysis of research output in terms of publications on food, health, nutrition security and conservation of biodiversity**

Carl Linnaeus and Prof. MSS Award Competition Session [For Ph.D. & M.Sc. Students]

Judging Committee

Chairman : **Dr. D. J. Bagyaraj**

*Vice President, NABS
Formerly Professor & Head
Department of Agricultural Microbiology, UAS,
Bangalore & Chairman, Centre for Natural
Biological Resources and Community
Development (CNBRCD, Bangalore)*

Members

1 : **Dr. N. Mathivanan**

*EC Member, NABS &
Director, CAS Botany &
Registrar i/c, University of Madras, Chennai*

2 : **Dr. T. L. Baskaran**

*Treasurer, NABS &
Formerly Professor of Plant Pathology, TNAU*

3 : **Dr. A. Kumar**

*Division of Plant Pathology, ICAR-
Indian Agricultural Research Institute, New Delhi,
India*

4 : **Dr. Chenna Reddy Aswath**

*Principal Scientist & Head, Division of
Biotechnology, ICAR-Indian Institute of
Horticultural Research, Bangalore, Karnataka*

Presentation of Papers for Carl Linnaeus Award Competition

Vanthana, M.

*Department of Plant
Pathology, CPPS, TNAU*

: Induction of *in planta* resistance by flagellin (Flg) and elongation factor-TU (EF-Tu) of *Bacillus amyloliquefaciens* (VB7) against groundnut bud necrosis virus in tomato

- Karmel Reetha, A.** : Consortium of antagonist and oil cake against tomato damping off caused by *Pythium aphanidermatum* under *in vivo*
Department of Plant Pathology, Faculty of Agriculture, Annamalai University, Tamil Nadu
- Priyadarshini , V. M.** : Enhancing nutrient content of Bush bean (*Lablab purpureus* var. *typicus*) using Biostimulants
Department of Horticulture, Annamalai University Tamil Nadu
- Rakavi, B.** : Validating the Physiological potential of Zero monopodial compact cotton TCH 1819 culture and effect on metabolomics plasticity under water deficit scenario.
Department of Crop Physiology, TNAU Coimbatore.

Presentation of Papers for Prof. M.S. Swaminathan Award Competition

- Sreenayana B** : Exploring the diversity of *Trichoderma koningiopsis* for the management of fungal nematode complex in cucumber under protected cultivation
Department of Plant Pathology, CPPS, TNAU, Coimbatore
- S. Kathiresan** : Awareness and Adoption of Climate Resilient Recommended Farm Technologies in Rearing Livestock and Fisheries in Namakkal District of Tamil Nadu
Department of Agricultural Extension, Annamalai University, Tamil Nadu

Valedictory & Plenary Session 28-08-2021

- Welcome Address** : **Dr. S. Ramesh Kumar**
Professor, Department of Horticulture, Faculty of Agriculture Annamalai University
- Honoring the Chief Guest** : **Dr. M. Ganapathy**
Dean, Faculty of Agriculture, Annamalai University
- Presentation of Recommendations of the conference Felicitations** : **Dr. M. Prakash**
Professor & Organizing Secretary
Dr. M. Ganapathy
Dean, Faculty of Agriculture Annamalai University

Presidential address

Dr. D. J. Bagyaraj

*Vice President, NABS &
Chairman, Centre for Natural
Biological Resources and Community
Development (CNBRCD) &
Formerly Professor & Head
Department of Agricultural
Microbiology, UAS Bangalore*

**Presenting Best Oral/Poster
Presentation Awards; Carl
Linnaeus & Prof. MSS Awards
and Valedictory address by
Chief Guest**

: Dr. M. Srinivasan

*Dean, Faculty of Marine Sciences
Syndicate Member & Member,
Convener Committee, Annamalai
University*

Vote of Thanks

: Dr. S. Arivudainambi

*Director-IQAC
Professor & Head, Department of
Agricultural Entomology, Faculty of
Agriculture, Annamalai University*

National Anthem

-----End of Statement-----