



11th NABS-National Conference

Theme

Climate Change Driven Challenges on Indian
Biodiversity:
Innovative Solutions for Sustainable Development

Series No. 11

General Particulars

Date : 25 to 27 September, 2019
Venue : Convention-cum-Cultural Complex,
Pondicherry University, Puducherry

The eleventh NABS-National Conference on “*Climate Change Driven Challenges on Indian Biodiversity: Innovative Solutions for Sustainable Development*” was organized in collaboration with Department of Microbiology, School of Life Sciences, Pondicherry University, Puducherry, India for three days from 25 to 27 September 2019 at Convention-cum-Cultural Complex, Pondicherry University, Pondicherry University, Puducherry.

Coordinators

Prof. T. Marimuthu
Secretary
National Academy of Biological
Sciences, Chennai

Prof. T. L. Baskaran
Treasurer
National Academy of Biological
Sciences, Chennai

Organizing Secretary

Dr. Joseph Selvin
Professor & Coordinator
Department of Microbiology, Pondicherry University, Puducherry

Program Conveners

Dr. S. Sivasankari
UGC PDF
Department of Microbiology,
Pondicherry University, Puducherry

Dr. P. Ramasamy
UGC PDF
Department of Microbiology,
Pondicherry University, Puducherry

Day- 1: 25-09-2019 /03:00pm

Inaugural Function

Invocation	University Choir
Lighting the Ceremonial Lamp	: Chief Guest and Dignitaries
Mourning the demise of our beloved members of NABS	Observing 2 minutes silence
Welcome address	: Dr. Joseph Selvin <i>Organizing Secretary & Professor & Coordinator (Microbiology), School of Life Sciences, Pondicherry University, Puducherry</i>
Honouring the Guests on dais	: Dr. V. A. Parthasarathy <i>President, National Academy of Biological Sciences, Chennai</i>
Overview of NABS Activities	: Dr. D.J. Bagyaraj <i>Vice President, National Academy of Biological Sciences, Chennai</i>
About NABS News Letter	: Dr. M. Anandaraj <i>Editor-in-Chief, NABS News Letter National Academy of Biological Sciences, Chennai</i>
About 11 th NABS-National Conference	: Dr. T. Marimuthu <i>Secretary, National Academy of Biological Sciences, Chennai</i>
Release NABS book- “ <i>The Birth and Evolution of NABS- Through 2004 to 2018</i> ” & key note address by Chief Guest	: Prof. Dr. K.P. Viswanatha <i>Vice Chancellor Mahatma Phule Krishi Vidyapeeth, Rahuri, Maharashtra</i>
Conferring “ <i>Prof. S. Kannaiyan Memorial Award</i> ” for 2018 and 2019 on Prof. Dr. K. P. Viswanatha & Prof. Dr. Anil Kumar Srivastava & address as Guest of Honour.	: Prof. Dr. R.R. Hanchinal <i>Consultant, Bioversity International & Former Chairperson, Protection of Plant Varieties and Farmers Rights Authority, Government of India, New Delhi</i>
Conferring “ <i>Dr. APJ Abdul Kalam Memorial NABS-Life Time Achievement Award</i> ” for 2017 on Dr. Y. D. Gaur; for 2018 on Dr. Brahma Singh & Felicitation as Guest of Honour	: Prof. Dr. P. Duraisamy <i>Vice Chancellor University of Madras, Chennai</i>

Conferring “NABS-Recognition Award on Prof. Gurmeet Singh & Prof. P. Duraisamy & Felicitation	: Dr. V. A. Parthasarathy <i>President, National Academy of Biological Sciences, Chennai</i>
Release of NABS-News Letter (July 2019 issue) & Felicitation	: Prof. Dr. P.P. Mathur <i>Dean, School of Life Sciences, Pondicherry University & Formerly Vice Chancellor, KIIT University</i>
Release of Conference Abstract book & a Book on “Making Foods Safe & Free From Pathogens” authored by Renu Agrawal & Presidential address	: Prof. Dr. Gurmeet Singh <i>Vice Chancellor, Pondicherry University, Puducherry</i>
Vote of thanks	: Dr. T. L. Baskaran <i>Treasurer, National Academy of Biological Sciences, Chennai</i>
National Anthem	

Day-2: 26-09-2019

Technical Program

Prof. S. Kannaiyan Memorial Oration Chairman of Oration Session

Prof. R.R. Hanchinal, Former Chairperson, Protection of Plant Varieties and Farmers’ Rights Authority, Ministry of Agriculture and Farmers’ Welfare, GoI, New Delhi chaired the session.

Oration delivered by

Dr. K. P. Viswanatha, Prof. S. Kannaiyan Memorial Award Laureate (2018) & Vice Chancellor, Mahatma Phule Krishi Vidyapeeth, Rahuri, Maharashtra delivered the oration

Invited Lectures

In all 15 invited lectures were listed and presented.

Session-1

Chair	: Dr. V.A. Parthasarathy <i>President, NABS & Formerly Director, ICAR-IISR, Calicut</i>
Convener	: Dr. D. MubarakAli <i>Assistant Professor, School of Life Sciences, BSA Crescent Institute of Science and Technology, Chennai</i>
Speakers	:

01 **Dr. R. R. Hanchinal**
Honorary Research Fellow & Former Chairperson, PPV & FRA, GoI, New Delhi

Topic:

Effect of climate change on agrobiodiversity and ecosystem services:
Innovative approaches for sustainability.

02 **Dr. Mathimaran Natarajan**

Senior Scientist & Coordinator, IndoSwiss Project, University of Basal, Switzerland

Topic:

Agroecological approaches for sustainable food production in the era of
climate change.

Session-2**Chair**

: Dr. D. J. Bagyaraj

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

Convener

: Dr. Maheswaran Mani

*Assistant Professor, Department of Microbiology,
Pondicherry University, Puducherry*

Speakers

:

03 **Prof. Dr. K. Kathiresan**

*Honorary Professor, UGC-BSR Faculty Fellow, Formerly Dean & Director, Centre of
Advanced Study in Marine Biology, Faculty of Marine Sciences, Annamalai
University*

Topic:

Mangrove biodiversity: impact of climate change.

04 **Dr. B. Vasantharaj David**

*Chairman, Scientific/Academic Board, International Institute of Biotechnology, &
Toxicology, Padappai 601301, Chennai.*

Topic:

Impact of Climate Change on Insect Pests.

Session-3**Chair**

: Dr. M. Anandraj

*Editor, NABS-News Letter &
Former Director, ICAR-IISR, Calicut, Kerala*

Convener

: Dr. Regina Sharmila Dass

*Assistant Professor, Department of Microbiology,
Pondicherry University, Puducherry*

Speakers

:

05 **Dr. K. Balaraman**

*Former Deputy Director (Senior Grade), Vector Control Research Centre, (ICMR),
Puducherry.*

Topic:

Vectors and vector-borne diseases in relation to the tsunami – 2004.

- 06 **Dr. Brahma Singh**
Founder President, Indian Society for Protected Cultivation, Vice President, ISVS, Varansi.
Topic:
Plant Biodiversity of Ladakh, Union Territory; its conservation and sustainable utilization.

Session-4

- Chair** : **Dr. Mrs. Renu Agrawal**
Formerly Chief Scientist, Rural Development Coordinator, Project Advisor, CSIR-CFTRI, Mysore
- Co-Chair** : **Dr. M. Prakash**
Professor, Department of Genetics and Plant Breeding, Faculty of Agriculture, Annamalai University, Chidambaram - 608 002, Tamil Nadu
- Convener** : **Dr. Suchitra Rakesh**
Department of Microbiology, Central University of Tamil Nadu, Thiruvwarur
- Speakers** :

- 07 **Dr. S. K. M. Habeeb**
Associate Professor, Entomoinformatics-Bioinformatics Lab, Department of Genetic Engineering, School of Bioengineering, SRM Institute of Science and Technology, Kattankulathur, Tamil Nadu
Topic:
Importance of Bioinformatics and its applications in crops and allied research.
- 08 **Dr. V. S. Chandrasekaran**
Formerly Principal Scientist, ICAR-Central Institute of Brackish Water Aquaculture (CIBA), Chennai
Topic:
Climate Change and its impact on Fisheries and Aquaculture.
- 09 **Dr. Suseelendra Desai**
Principal Scientist, ICAR-Central Research Institute for Dry land Agriculture, Santoshnagar, Hyderabad-500 059
Topic:
Host-pathogen-biocontrol agent interactions in crop production systems under changing climate scenarios.
- 10 **Dr. Chenna Reddy Aswath**
Principal Scientist & Head, Division of Biotechnology, ICAR-Indian Institute of Horticultural Research, Bangalore – 560 089, Karnataka
Topic:
Bioreactor technology: An efficient method for mass production of secondary metabolites and planting material.

Session-5

Chair : **Dr. Y. D. Gaur**
Professor Emeritus cum Executive Director at Bhagwan Parshuram Institute of Technology, New Delhi

Convener : **Dr. Sharmili Jagtap**
*Assistant professor, Department of Microbiology
Pondicherry University, Puducherry*

Speakers :

- 11 **Dr. A. Kumar**
Division of Plant Pathology, ICAR-Indian Agricultural Research Institute, New Delhi-110 012, India

Topic:

Exploration and exploitation of microbial volatile organic compounds: Innovative solutions for sustainable crop disease management.

- 12 **Dr. N. Parthasarathy**
Professor, Department of Ecology and Environmental Sciences, Pondicherry University, Puducherry

Topic:

Global tree and liana diversity in climate change scenario and challenges for conservation.

Session-6

Chair : **Dr. T. Senthil Kumar**
Professor, Bharathidasan University, Tiruchirappalli

Convener : **Dr. M. Sathiyabama**
*Assistant Professor, Bharathidasan University,
Tiruchirappalli*

Speakers :

- 13 **Dr. Pious Thomas**
CEO & Director, Thomas Biotech & Cytobacts Centre for Biosciences, 318, Talacauvery Layout, Amruthahalli, Bangalore

Topic:

Towards improved nutrition and food security: Commercial micropropagation of elite Papaya.

- 14 **Prof. C. Rajasekaran**
Professor, School of Biosciences and Technology (SBST), VIT University, Vellore- 632 014

Topic:

Conservation of Medicinal and Aromatic plants and *in vitro* elicitation of secondary metabolites from unexplored– A Case study.

15 **Dr. Raja Sudhakaran**

Assistant Professor (Senior), Aquaculture Biotechnology Laboratory, Department of Integrative Biology, School of Bio Sciences and Technology, VIT, Vellore.

Topic:

Understanding of *Enterocytozoon hepatopenaei* (EHP) in *Litopenaeus vannamei*.

Concurrent Session-Oral Presentations

In all SIX technical sessions were held (concurrent) on 26 & 27 September 2019. (i) Plant, Animal biodiversity and Fishery Sciences (13 oral presentations); (ii) Impact of climate change on Agriculture and Forest biodiversity (11 oral presentations); (iii) Plant Genetic Resources and Protection of Plant Varieties (10 oral presentations); (iv) Impact of Climate Changes on microbial (13 oral presentations); (v) Impact of climate changes on defense strategies (11 oral presentations) & (vi) Nutrition and Food Security (11 oral presentations).

Poster Presentations

In all 57 posters were presented

Carl Linnaeus / Prof. M.S. Swaminathan Award competition

This session was organized on the FN of 26 September 2019 which was chaired by Dr. B. Vasantharaj David, Chairman, Scientific/Academic Board, International Institute of Biotechnology, & Toxicology, Padappai 601301, Chennai; Co-Chaired by Dr. D. J. Bagyaraj, Vice President, NABS with the following panel members:

Dr. M. Subramanian, EC member & Formerly Director of Research, TNAU, Coimbatore; Dr. M. Anandaraj, EC member & Formerly Director, IISR, Calicut; Dr. A. Kumar, Principal Scientist, ICAR-IARI, New Delhi.

List of Participants who presented their papers for the Awards

Carl Linnaeus Award (PhD students)

- 1 **Aswathy V Nair**
Evidence based scientific validation of the antioxidant potential of *Phyllocephalum rangacharii* (Gamble) Narayana, an ethnomedicinal plant and its quantitative phytochemical evaluation..
- 2 **Ramachandran Lavania**
Extracellular polymer profiling of *Nostoc microscopicum* and *Calothrix desertica* with its anti-oxidant property assessment.
- 3 **Anitha Santhanakrishnan**
Evaluation of anti-insect properties of *Acorus calamus* Linn. emulsion oil and aerosol formulations against pulse beetle, *Callosobruchus maculatus* (Fabricius).

Prof. M. S. Swaminathan Award (M.Sc. students)

- 1 **Kavinilavu, M.**
Diversity of arthropods in Bhendi ecosystem, *Abelmoschus esculentus* L. (Moench).
- 2 **Sowmiya, C.**
Abundance, foraging behaviour and efficiency of insect pollinators and their effect on moringa yield.
- 3 **Mary Roshni, A.**
Salinity tolerance and transcriptome analysis in rice (*Oryza sativa* L.).
- 4 **Ashwini, N**
Humic acid and bio-inoculants as a function of quantitative and qualitative attributes of guava (*Psidium guajava* L.) under meadow orcharding.

Valedictory Function **[27 September 2019/ 02:30pm]**

Welcome Address	: Dr. T. L. Baskaran <i>Treasurer, National Academy of Biological Sciences, Chennai</i>
Honoring Guests	: Dr. D. J. Bagyaraj <i>Vice President, National Academy of Biological Sciences, Chennai</i>
Presents Report on Proceedings of 11 th NABS National Conference	: Dr. Joseph Selvin <i>Organizing Secretary & Professor & Coordinator, School of life Sciences, Pondicherry University, Puducherry</i>
Presents the recommendations of the Conference	: Dr. M. Subramanian <i>Executive Council Member of NABS & Former Director of Research, TNAU, Coimbatore</i>
Presents Best Oral Presentation Awards & Felicitates	: Dr. H. Pratap Kumar Shetty <i>Dean, Research Pondicherry University, Puducherry, India</i>
Presents Best Poster Presentation Awards & Felicitates	: Dr. R. Smitha <i>Director, Department of Sciences, Technology & Environment, Government of Puducherry, Puducherry</i>
Presents Carl Linnaeus Award & Felicitates	: Dr. R. R. Hanchinal <i>Former Chairperson, Protection of Plant Varieties & Farmers' Rights Authority, Government of India, New Delhi</i>
Presents mementos to Organizing Secretary, Program Conveners &	: Dr. V. A. Parthasarathy <i>President, National Academy of Biological Sciences, Chennai</i>

Delivers Presidential address

Presents Prof. M.S. Swaminathan Award, Students Skill Awards & delivers valedictory address

: **Dr. S. Balakrishnan**
Director (SEI & RR)
Pondicherry University, Puducherry

Vote of Thanks

: **Dr. T. Marimuthu**
Secretary, National Academy of Biological Sciences,
Chennai

During the Valedictory Function Student Awards, Student Skill Awards, Best Oral /Poster presentation awards were presented. The details are listed below:

Presentation of Student Awards

Dr. R.R. Hanchinal, Formerly Chairperson, PPV & FRA, GoI, New Delhi presented **“Carl Linnaeus Award”** to Ms. Aswathy V Nair of *Ethnomedicine and Ethnopharmacology Division, Jawaharlal Nehru Tropical Botanic Garden and Research Institute, Palode, Trivandrum* for her presentation of the paper entitled- *“Evidence based scientific validation of the antioxidant potential of Phyllocephalum rangacharii (Gamble) Narayana, an ethnomedicinal plant and its quantitative phytochemical evaluation”* and offered felicitations.

She was presented with a Cash Prize of Rs.5000/- and Certificate of Award

Dr. S. Balakrishnan, Director (SEI & RR), Pondicherry University and the Chief Guest of valedictory function presented **“Prof. M. S. Swaminathan Award”** to Ms. C. Sowmiya, Ph.D. Scholar, Department of Agricultural Entomology, TNAU, Coimbatore for her presentation of the paper entitled- *“Abundance, foraging behaviour and efficiency of insect pollinators and their effect on moringa yield”* and delivered valedictory address

She was presented with a Cash Prize of Rs.4000/- and Certificate of Award

Presentation of Best Oral Presentation Awards

Dr. H. Pratap Kumar Shetty, Dean-Research, Pondicherry University and guest of Honor presented the Best Oral Presentation Awards to the students and scientists and offered felicitations.

The awardees are listed below:

For Scientists

Themes:

- 1. Plant, Animal biodiversity and Fishery Sciences**
- 2. Impact of climate change on Agriculture and Forestry biodiversity**
- 3. Plant Genetic Resources and Protection of Plant Varieties**

First Place	Jothibas, K. The effect of root exudates flavonoids on rhizosphere bacteria associated with soybean (<i>Glycinemax</i>) roots.
Second Place	Dhanasekaran Biological extraction of indigo dye from <i>Indigofera tinctoria</i> L.
Third Place	Asif Jamal, G.A. Utilization of 3G's on its anti pathogenicity effect on <i>Saccharum officinarum</i> L.

Themes:

4. Impact of Climate Changes on microbial biodiversity

5. Impact of climate changes on defense strategies

6. Nutrition and Food Security

First Place	Anirban Roy Innovative multiplexed CRISPR-Cas9 approach for imparting resistance against chilli leaf curl virus
Second Place	Aravind, S. Genome Mining of <i>Bifidobacterium longum</i> NCIM 5672 for probiotic functionalities and its application using CRISPR Cas system
Third Place	Prakash M Halami Genomic view of <i>Bacillus licheniformis</i> MCC 2514: a probiotic culture with new antibiotic producing ability

For Students

Themes:

1. Plant, Animal biodiversity and Fishery Sciences

2. Impact of climate change on Agriculture and Forestry biodiversity

3. Plant Genetic Resources and Protection of Plant Varieties

First Place	Walter Devaa, J. Seasonal investigation of water quality indices of trout streams in South India – A conservatory approach.
Second Place	Mouniga. R. Influence of chemicals on host infectivity of entomopathogenic nematodes, <i>Heterorhabditis indica</i> (Poinar, 1992) and <i>Steinernema glaseri</i> (Glaser, 1932).
Third Place	Darsana Rajaputhran Fungal contamination of chillies in local markets of Mumbai, Maharashtra.
Third Place	Rajkumar, G. Phytogeography, endemism and conservation of the genus, <i>Humboldtia</i> Vahl in Western Ghats.

Themes:

4. Impact of Climate Changes on microbial biodiversity

5. Impact of climate changes on defense strategies

6. Nutrition and Food Security

First Place

Kiran Kumar, V.

Artificial carbon capture coupled NEW resource recovery: Tubular Plant Microbial Fuel Cell as sustainable carbon negative system.

Second Place

Manju, P.

Paddy type Tubular Plant Microbial Fuel Cell with Biochar Anodes – Effect on the biomass production, NEW resource recovery and greenhouse gas emission

Third Place

Sheik Syed Ishack

Development of microbial consortium for wastewater treatments

Presentation of Best Poster Presentation Awards

Smt. R. Smitha, Director, Department of Science, Technology & Environment, Government of Puducherry presented the Best Poster Presentation Awards and offered felicitations.

The awardees are listed below:

Theme: 1

Plant, Animal biodiversity and Fishery Sciences

First Place

Sewali Ghosh

Identification of antimicrobial peptide from NGS RNAseq data of tea mosquito bug *Helopeltis theivora*.

Second Place

Peer Muhamed Noorani, K.

Biodegradation of emerging pollutants using fresh water microalgae.

Theme: 2

Impact of climate change on Agriculture and Forestry biodiversity

First Place

Sowmiya, C.

Influence of weather factors on pollinator abundance of *Apis hymenopterans* visiting moringa flowers

Second Place

Roshny Prasad

Predictive functional profiling of soil microbial communities response to methane activity.

Theme: 3

Plant Genetic Resources and Protection of Plant Varieties

First Place

Mariadoss, A.

In vitro Organogenesis of *Allium humile* Kunth: An endemic plant of Nanda Devi Biosphere Reserve

Second Place **Shalini, K.**
Molecular characterization of *Puntius* and *Dawkinsia* species from Southern Western Ghats of India.

Theme: 4
Plant Genetic Resources and Protection of Plant Varieties

First Place **Abubakkar Siddik**
Impact of climate changes on microbial biodiversity.

Second Place **Kishore, J.**
Modulation of iron uptake by gallic acid: Inhibiting the biofilm formation by *Pseudomonas aeruginosa*.

Theme: 5
Impact of climate changes on defense strategies

First Place **Angeline Jessika Suresh**
Compliance of microbiome from marine ecosystem towards climate change reveals the secret?

Second Place **Praveen, N.M.**
Impact of carbon dioxide by launch vehicles delays ozone healing.

Theme: 6
Nutrition and Food Security

First Place **Sathya, R.**
Biodiversity of freshwater microalgae documented in-campus, Chennai, Tamil Nadu

Second Place **Jancy Shopia**
Quantitative determination of Sudan-I in food samples at graphene nanoflakes modified electrode.
