



# **National Academy of Biological Sciences**

Chennai

## **Summary Proceedings & Recommendations of**

*Eleventh NABS-National Conference*

*The 11<sup>th</sup> NABS-National Conference with the theme  
"Climate Change Driven Challenges on Indian  
Biodiversity: Innovative Solutions for Sustainable  
Development"*

*Jointly organized by*

**National Academy of Biological Sciences**

&

**Department of Microbiology**

School of Life Sciences, Pondicherry University,  
Puducherry, India

*from*

25 to 27 September 2019



Dr. V. A. Parthasarathy, President, NABS;  
Chief Patron- Prof. Gurmeet Singh, Vice Chancellor, Pondicherry University;  
Dr. T. Marimuthu, Secretary, NABS,

## Organizing Secretary



Program Convener



Program Convener

Dr. S. Sivasankari, UGC-PDF, PU; Dr. Joseph Selvin, Professor & Coordinator, Department of Microbiology, PU; Dr. P. Ramasamy, UGC-PDF, PU

**11<sup>TH</sup> NABS NATIONAL CONFERENCE**



**DEPARTMENT OF MICROBIOLOGY**  
School of Life Sciences, Pondicherry University  
Puducherry – 605 014, India



&  
**NATIONAL ACADEMY OF BIOLOGICAL SCIENCES (NABS)**  
Chennai – 600 096, Tamil Nadu, India

cordially invite you for the Inaugural Program of

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

On  
**25<sup>th</sup> September, 2019**

At  
**Convention-cum-Cultural Complex, Pondicherry University**

**Prof. Dr. Gurmeet Singh**  
Vice Chancellor, Pondicherry University, Puducherry  
*Presides*

**Prof. Dr. K. P. Viswanatha**  
Vice Chancellor  
Mahatma Phule Krishi Vidyapeeth, Rahuri, MS  
*Inaugurates & Delivers keynote address*

**Prof. Dr. R.R. Hanchinal**  
Consultant, Bioversity International  
Former Chairperson, Protection of Plant Varieties & Farmers Rights Authority  
Gol, New Delhi

&  
**Prof. Dr. P. Duraisamy**  
Vice Chancellor, University of Madras, Chennai  
*Guests of Honour*

**Prof. Dr. P.P. Mathur**  
Dean, School of Life Sciences, Pondicherry University  
Former Vice Chancellor, KIIT University  
*Felicitates*



## Summary Proceedings & Recommendations

### 11<sup>th</sup> NABS-National Conference on

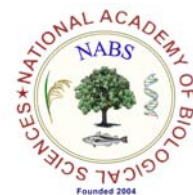
**"Climate Change Driven Challenges on Indian Biodiversity:  
Innovative Solutions for Sustainable Development"**

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# Welcome

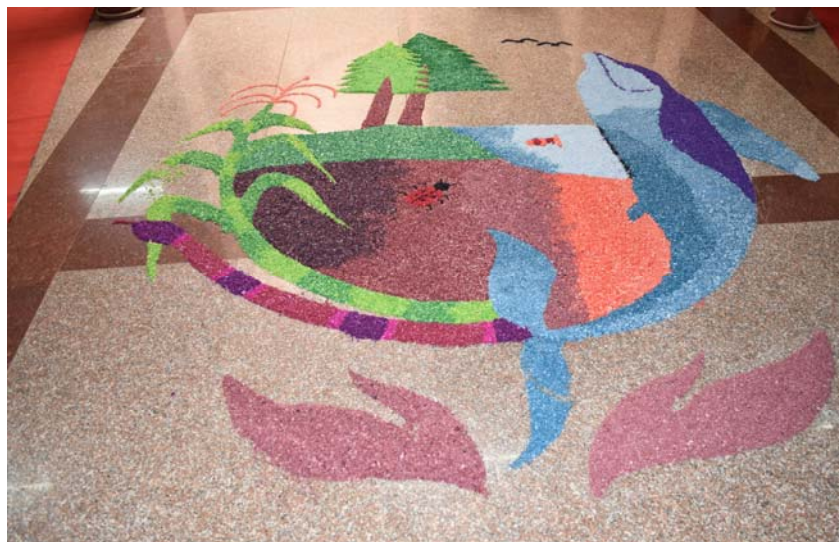
to

## 11<sup>th</sup> NABS-National Conference

*Venue*

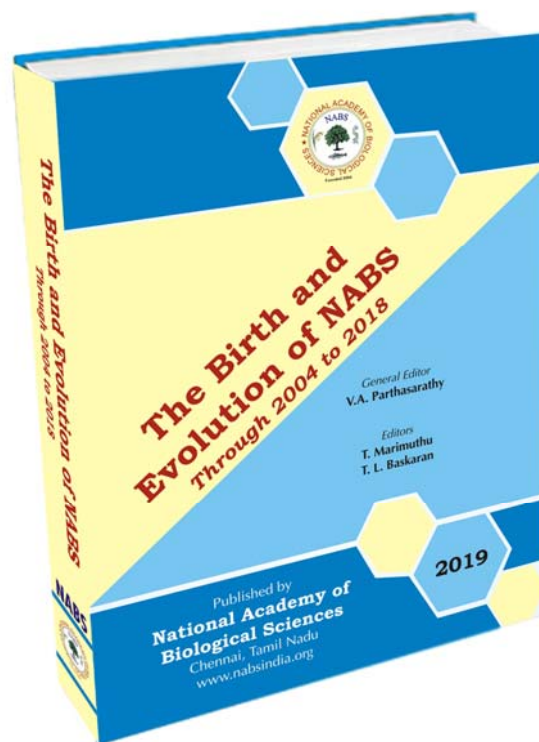
Convention cum Cultural Complex,  
Pondicherry University, Puducherry

*Dates:* 25 to 27 September 2019





## “The Birth and Evolution of NABS Through 2004 to 2018 Dedicated to Prof. S. Kannaiyan, the Founder of NABS



**The National Academy of Biological Sciences [NABS], established in 2004 by Prof. S. Kannaiyan, brings out a book entitled “The Birth and Evolution of NABS Through 2004 to 2018”**

**Prof. M. S. Swaminathan** has given an elegant foreword. The book is dedicated to the Founder President, Prof. S. Kannaiyan.

THE BOOK highlights the progress and achievements of NABS over more than a decade of its establishment; contains 13 chapters with photo galleries in (24pages) color.

**Chapter-1** speaks about the great visionary Prof. S. Kannaiyan and his achievements and the sub-chapters on Memoirs of Prof. S. Kannaiyan speaks volumes on his leadership qualities, administrative and research capabilities, as a teacher of microbiology, as a friend, colleague and so on written by 40 well-wishers of the Academy which befits as a tribute to Late Prof. SK. The book also suitably recognizes the founding office bearers of the Academy.

**Chapter-2** gives an overview of the Academy.

**Chapter-3** deals with Interactive Workshops/Seminars and Conferences organized by the Academy.

**Chapter-4** speaks about the Fellowships & Award holders: NABS- Best Woman Scientist Award, NABS- Best Scientist Award; NABS-Leadership Award, NABS-Young Scientist Award, NABS-Best Research Paper Awards, NABS-Recognition Awards, NABS-Best Scientific Publisher Award. Corporate Fellows, Corporate Life Members who have contribute to the growth of the Academy are also listed with details.

**Chapter-5** highlights about the Special Awards presented by NABS, the First Honorary Fellow- Prof. M.S. Swaminathan; Prof. S. Kannaiyan Memorial Laureates, Dr. APJ Abdul Kalam Memorial NABS-Life Time Achievement Awardees.

**Chapter-6** gives an over view of the NABS-Students Awards: Prof. M. S. Swaminathan and Carl Linnaeus Awards for M.Sc. and Ph.D. students.

**Chapter-7** describes how NABS recognizes eminent scientists of our country by naming several of the awards in their name. All the NABS recognized subject area are earmarked for various awards and suitably named after eminent scientists.

**Chapter-8** describes how Prof. SK Memorial NABS-Lecture Workshop is being supported by the Academy.

**Chapter-9** deals with the publication of NABS-News Letter

**Chapter-10** describes about Prof. S.K. Memorial Award Corpus Fund which was created to perpetuate the legacy of Prof. SK.

**Chapter-11** deals with Bylaws of National Academy of Biological Sciences [with amendments]

**Chapter-12** deals with Executive Council Members of National Academy of Biological Sciences (current) and Meetings.

**Chapter-13** describes about the Inter Academy Meet: NABS participation in the Silver Jubilee celebrations of NAAS.

**Chapter-14** contains photo galleries of NABS activities.

- **The Book is priced at Rs.1500/- per copy.**
- **The book was released during the inaugural function of 11<sup>th</sup> NABS-National Conference held at Pondicherry University, Puducherry on 25 September 2019.**
- **You may order the copy with the Secretary / Treasurer, NABS. [E-mail: secretarynabs@gmail.com ]**
- **NABS-Members, Fellows and All awardees can get it at Rs.500/- (concession price).**
- **But, members may buy a copy on a contributory basis!  
(Any amount above the price of the book).**

## Arrival of Delegates to the Conference Hall



*From Left to Right:*  
 Dr. Brhama Singh, Dr. P. P. Mathur, Dr. Hanchinal & Dr. P. Duraisamy are received.  
 Prof. Gurmeet Singh is being received; Prof. Gurmeet Singh greets Dr. M. Anandaraj  
 Dr. V.A. Parthasarathy, Dr. P. Duraisamy, Dr. K. Balaraman, Dr. K.P. Viswanatha &  
 Dr. T. L. Baskaran



## A. Proceedings of 11<sup>th</sup> NABS-National Conference

### Inaugural Function

- The inaugural function of the conference was organized on 25 September 2019 by 03:15pm at Convention cum Cultural Complex of Pondicherry University, Puducherry.
- After the University Antham, Kuthuvilakku was lit by the dignitaries as a mark of auspicious beginning of the conference.



#### *Dignitaries on the dais- Left to Right*

Dr. Joseph Selvin, Dr. T. Marimuthu, Dr. D.J. Bagyaraj,  
Dr. R.R. Hanchinal, Dr. K.P. Viswanatha, Dr. Gurmeet Singh,  
Dr. P. Duraisamy, Dr. V.A. Pathasarathy, Dr. P.P. Mathur,  
Dr. M. Anandaraj & Dr. T.L. Baskaran

## Lighting the Lamp of Love



Chief Guest, Dr. K.P. Viswanatha & other Guests light the Lamp of Love as a mark of inauguration of 11<sup>th</sup> NABS-National Conference

The Guests and Delegates condole the demise of NABS members

**Delegates condole the sad demise of our beloved members of NABS who passed away recently by observing two minutes SILENCE**

**Dr. Shiva Shankar**, Former Profess of Agronomy at Faculty of Agriculture, AU & Former Professor & Head Department of Agronomy, UAS Bangalore; Founder President and Patron, Environment Protection Institute, Bangalore; he is a NABS Fellow and recipient of Dr. APJ Abdul Kalam Memorial NABS-Life Time Achievement Award- attained eternal bliss on 26 January 2018.

**Prof. N. Anand**, the Founder Vice President, NABS & recipient of Dr. APJ Abdul Kalam Memorial NABS- Life Time Achievement Award (for 2016) & Formerly Vice Chancellor of VELS University, Chennai & Dean (Research) and Director, Centre for Advanced Studies in Botany, University of Madras, Chennai passed away on 22-12-2018 at his residence at Chennai.

**Dr. K. Samiayyan**, Professor & Head, Department of Plant Protection, Horticultural College and Research Institute for Women, Tiruchirappalli- 620 009 & Formerly Dean, Mother Teresa College of Agriculture (affiliated to TNAU), Pudukkottai; Member of Executive Council of National Academy of Biological Sciences and Fellow of NABS attained eternal bliss on 11 December, 2018.

**Dr. M. Vivekanandan**, Formerly Director, School of Engineering & Technology; Professor & Head, Department of Biotechnology, School of Life Sciences, Bharathidasan University, Tiruchirappalli & Fellow of NABS passed away on 11<sup>th</sup> May 2019

**NABS-ians brief about NABS, NABS-NL & 11<sup>th</sup> NABS-National Conference**



*From Left to Right:*

- Dr. Joseph Selvin welcomes the guests and delegates
- Dr. D. J. Bagyaraj briefs about the activities of NABS;
- Dr. M. Anandaraj explains the role of NABS-News Letter;
- Dr. T. Marimuthu briefs about the 11<sup>th</sup> NABS-National Conference



## Releasing conference documents and other related books



### From Left to Right:

- Dr. K.P. Viswanatha released NABS-Book on "The Birth and Evolution of NABS-Through 2004 to 2018" [row-1]
- Prof. Gurmeet Singh released Conference Abstract cum Souvenir and a book on "Making Food Safe and Free from Pathogens"
- Dr. P.P. Mathur released NABS-News Letter (July 2019 issue)



**Conferring 'Prof. S. Kannaiyan Memorial Award'  
& 'Dr. APJ Abdul Kalam Memorial NABS-  
Life Time Achievement Award'**



Dr. R. R. Hanchinal  
confers 'Prof. S.  
Kannaiyan Memorial  
Award' (2018) on  
Dr. K.P. Viswanatha



Dr. P. Duraisamy  
confers 'Dr. APJ Abdul  
Kalam Memorial NABS-  
Life Time Achievement  
Award' (2017) on  
Dr. Y. D. Gaur



Dr. P. Duraisamy  
confers 'Dr. APJ Abdul  
Kalam Memorial NABS-  
Life Time Achievement  
Award' (2018) on  
Dr. Brahma Singh

## Conferring 'NABS-Recognition Award'

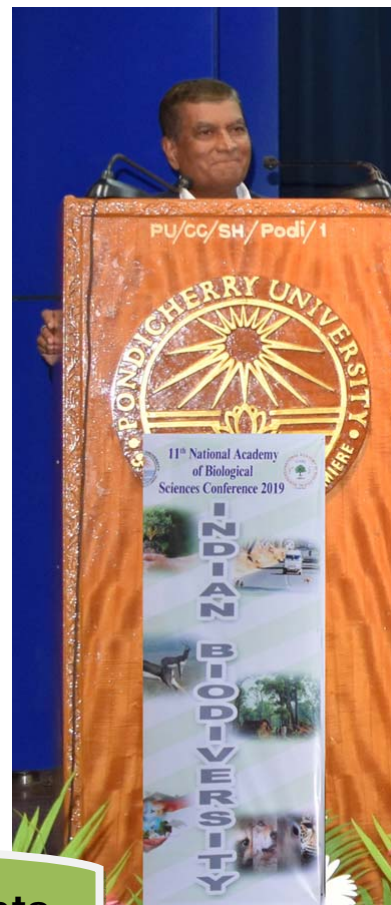
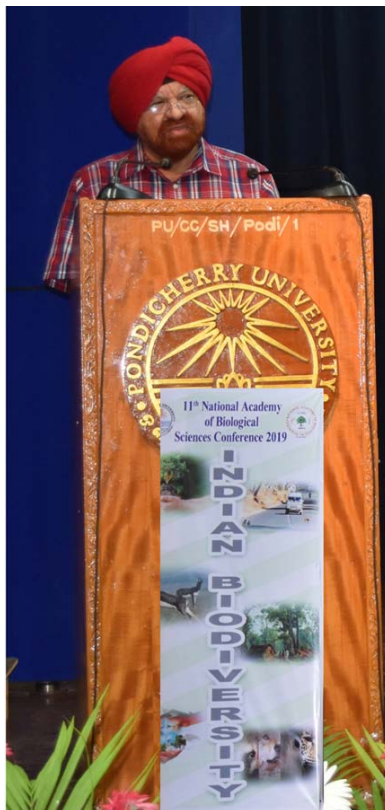
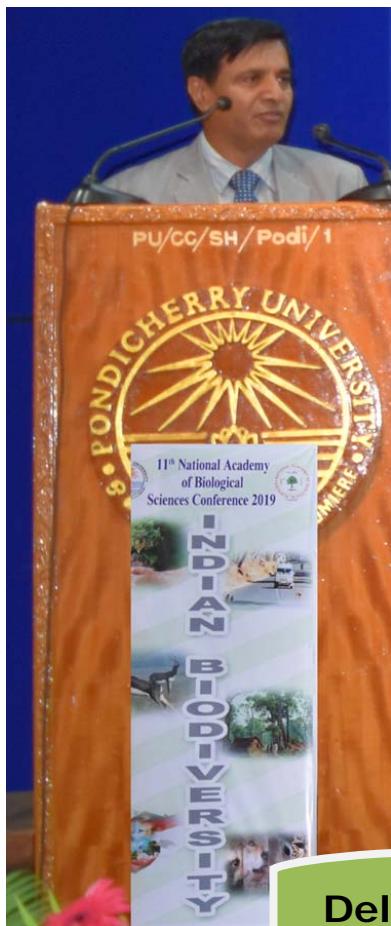


**Top to Bottom:**

**Dr. V.A. Parthasarathy, President, NABS  
Confers "NABS-Recognition Award" on  
Prof. Gurmeet Singh, Vice Chancellor, Pondicherry University  
and P. Duraisamy, Vice Chancellor, University of Madras**

**The Guests of Inaugural function  
deliver their speeches**





**Delegates- Scientists, Students**



## B. Technical Sessions

### 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**  
*President, NABS & Formerly Director, ICAR-IISR, Calicut*
- **Convener** : **Dr. D. MubarakAli**  
*Assistant Professor, School of Life Sciences, BSA Crescent Institute of Science and Technology, Chennai*
- 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 Basel, Switzerland*

#### **Topic:**

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

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**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.

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**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.

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**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, Thiruvavur

**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  
mircopropagation 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*.

### View of few speakers



*Left to Right:*

Prof. R.R. Hanchinal; Dr. K. Kathiresan;  
Dr. B. Vasantharaj David; Dr. K. Balaraman; Dr.  
Brahma Singh; Dr. Chenna Reddy Aswath & Dr.  
Suseelendra Desai delivered lead lectures

### 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).



## Student Award Competitions

### Judging Panel

Chair	:	Dr. B. Vasantharaj David
Co-Chair	:	Dr. D. J. Bagyaraj
Members	:	Dr. M. Subramanian
		Dr. M. Anandaraj
		Dr. A. Kumar

**Prof. M. S. Swaminathan Awardee received a Certificate and a cash prize of Rs.4, 000/-**

**Carl Linnaeus Awardee received a Certificate and a cash prize of Rs.5, 000/-**

### List of papers presented for competition

#### 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.*

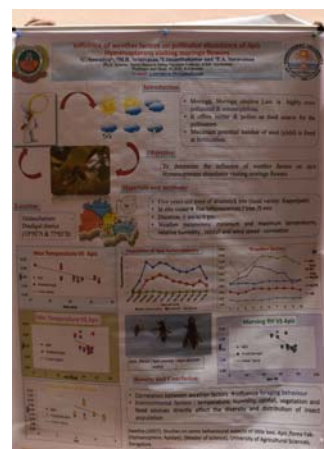
### The Winners of the Awards

**Carl Linnaeus Award:** **Ms. Aswathy V Nair** was presented with a Cash prize of Rs.5000 and Certificate of Award.

**Prof. M. S. Swaminathan Award:** **Ms. C. Sowmiya** was presented with a Cash Prize of Rs.4000/- and Certificate of Award.

### Poster Presentations

Separate Poster sessions were arranged during the conference. In all 57 posters were listed. The best poster presentations were awarded with certificate.



## C. Annual General Body Meeting of NABS

- The 14<sup>th</sup> Annual General Body Meeting was held on 27 September 2019 at Pondicherry University, Puducherry.
- Dr. V. A. Parthasarathy, President, NABS presided. Dr. D. J. Bagyaraj, Vice President, NABS; Dr. T. Marimuthu, Secretary, NABS; Dr. T. L. Baskaran, Treasurer, NABS; Dr. M. Anandaraj, Editor-in-Chief of NABS News Letter were present.
- Dr. R. R. Hanchinal, Prof. S. Kannaiyan Memorial Award Laureate was present as a special guest.
- The President, NABS welcomed the members of NABS, Fellows, awardees and other delegates of the conference.
- AGM condoled the death of our beloved members of NABS- Dr. Shiva Shankar (26-01-2018); Dr. K. Samiayyan (11-12-2018); Prof. N. Anand (22-12-2018); Dr. M. Vivekanandan (11-05-2019).
- The agenda items of the AGM were discussed and presentations were made: The Treasurer presented the audits and accounts for the financial year ending 2018 and 2019 which was approved. The Secretary presented the annual report of NABS and his proposals were approved by AGM. The Editor-in-Chief of NABS-News Letter presented a brief history of the News Letter and its role in sharing the activities of NABS with its members.
- The Secretary, NABS requested the President to confer Fellowships for 2017 & 2018 while Prof. R.R. Hanchinal was requested to confer all other awards of NABS for 2017 & 2018.







*Left to Right:*

Dr. T. Marimuthu, Secretary; Dr. T.L. Baskaran, Treasurer,  
Dr. D. J. Bagyaraj, Vice President, Dr. R. R. Hanchinal, Special  
Guest, Dr. V.A. Parthasarathy, President and Dr. M. Anandaraj,  
Editor-in-Chief of NABS-NL & Members of NABS

## Conferment of Fellowship & Awards

### Fellowship [for 2017]



#### *Left to Right:*

Dr. Anjani Kumar Jha, Dr. R. Elanchezhian, Dr. K. Premkumar, Dr. A. Ramesh Sundar, Dr. N.P. Singh, Dr. V. Soniya and Dr. Varughese George receive Fellowship from President, NABS



## Fellowship [for 2018]





### Fellowship [for 2018]



### Associate Fellowship [for 2018]



From Left to Right: (from page 24 to 25): Dr. Elangovan Vellaichamy, Dr. K. Kathiresan, Dr. Kolla Sreedevi, Dr. Krishna Gopal Mandal, Dr. P. G. Padmaja, Dr. P. Ponmurugan, Dr. K.R. Prabavathy, Dr. Usha Chakraborty and Dr. B. M. Naveena receive Fellowship (2018) & Dr. Rajib Deb receives Associate Fellowship (2018) from President, NABS

### Dr. E. K. Janaki Ammal Memorial NABS- Best Woman Scientist Awards



Dr. E. V. Soniya (2017)



Dr. P. G. Padmaja (2018)

### Prof. M. S. Swaminathan NABS- Leadership Award



Dr. N. Thajuddin  
receive the  
Award (2017)

## NABS-Best Scientist Awards



**Dr. B.P. Pal Memorial NABS- Best Scientist Award [2017]-Dr. M. Prakash**



**Dr. B.P. Pal Memorial NABS- Best Scientist Award [2018]-Dr. Bikash Mandal**



**Dr. G. S. Venkataraman Memorial NABS- Best Scientist Award [2018]- Dr. Prakash M Halami**

## Dr. G. N. Ramachandran Memorial NABS- Young Scientist Award [2018]



**Dr. D. MubarakAli**

**NABS- Best Research Paper Award**  
**Prof. T. S. Sadasivan Memorial NABS-Best**  
**Research Paper Award [2018]**



**Dr. S. Srivignesh**

**D. Valedictory Function**





## Valedictory function

The valedictory function of the NABS-Conference was held on 27 September 2019 by 02:30pm. Dr. V.A. Parthasarathy, President, NABS presided over the function. Dr. T. L. Baskaran, Treasurer, NABS welcomed the guest and the delegates.



### Left to Right:

- Dr. Joseph Selvin presented the proceedings of the three day deliberations.
- Dr. M. Subramanian, Member, Executive Council of NABS presented the recommendations emanated from deliberations.

**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”*



**Ms. Aswathy V Nair**  
receives  
“**Carl Linnaeus Award**”  
from  
Dr. R. R. Hanchinal,  
Former Chairperson,  
PPV & FRA, New Delhi

**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



**Ms. C. Sowmiya**  
receives  
“**Prof. M. S. Swaminathan Award**”  
from  
Dr. S. Balakrishnan,  
Director, Pondicherry  
University

## Best Oral / Poster Presentation Awards

### 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

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

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##### Themes:

4. Impact of Climate Changes on microbial biodiversity
5. Impact of climate changes on defense strategies
6. Nutrition and Food Security

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

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

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**Themes:****4. Impact of Climate Changes on microbial biodiversity****5. Impact of climate changes on defense strategies****6. Nutrition and Food Security**


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First Place	<b>Kiran Kumar, V.</b> Artificial carbon capture coupled NEW resource recovery: Tubular Plant Microbial Fuel Cell as sustainable carbon negative system.
Second Place	<b>Manju, P.</b> Paddy type Tubular Plant Microbial Fuel Cell with Biochar Anodes – Effect on the biomass production, NEW resource recovery and greenhouse gas emission
Third Place	<b>Sheik Syed Ishack</b> Development of microbial consortium for wastewater treatments

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**Best Oral Presentation Awards****I Place:** Dr. K. Jothibas & Dr. Anirban Roy; **II Place:** Dr. S. Aravind**III Place:** Ms. G.A. Anif Jamal & Dr. M. Prakash M Halami

### 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:

<b>Themes: 1</b>	
<b>Plant, Animal biodiversity and Fishery Sciences</b>	
First Place	<b>Sewali Ghosh</b> Identification of antimicrobial peptide from NGS RNAseq data of tea mosquito bug <i>Helopeltis theivora</i> .
Second Place	<b>Peer Muhamed Noorani, K.</b> Biodegradation of emerging pollutants using fresh water microalgae.
<b>Themes: 2</b>	
<b>Impact of climate change on Agriculture and Forestry biodiversity</b>	
First Place	<b>Sowmiya, C.</b> Influence of weather factors on pollinator abundance of <i>Apis hymenopterans</i> visiting moringa flowers
Second Place	<b>Roshny Prasad</b> Predictive functional profiling of soil microbial communities response to methane activity.
<b>Theme: 3</b>	
<b>Plant Genetic Resources and Protection of Plant Varieties</b>	
First Place	<b>Mariadoss, A.</b> <i>In vitro</i> Organogenesis of <i>Allium humile</i> Kunth: An endemic plant of Nanda Devi Biosphere Reserve
Second Place	<b>Shalini, K.</b> Molecular characterization of <i>Puntius</i> and <i>Dawkinsia</i> species from Southern Western Ghats of India.
<b>Theme: 4</b>	
<b>Plant Genetic Resources and Protection of Plant Varieties</b>	
First Place	<b>Abubakkar Siddik</b> Impact of climate changes on microbial biodiversity.
Second Place	<b>Kishore, J.</b> Modulation of iron uptake by gallic acid: Inhibiting the biofilm formation by <i>Pseudomonas aeruginosa</i> .

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**Theme: 5**  
**Impact of climate changes on defense strategies**


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- 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.
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**Theme: 6**  
**Nutrition and Food Security**


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- 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.
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**News Coverage of 11<sup>th</sup> NABS-National Conference**
**2 REGION**
**'Need to address biodiversity challenges'**

Workshop hosted by Pondicherry University calls for an urgent national response to climate change

**SPECIAL CORRESPONDENT**  
**PONDICHERY**  
 Scientists participating in a recent workshop have called for an urgent national response to climate change impact on the country's biodiversity.

The three-day event on "Climate Change Challenges on Indian Biodiversity: Innovative Solutions for Sustainable Development" was hosted by the Department of Microbiology, Pondicherry University, to coincide with the 11<sup>th</sup> national conference of the National Academy of Biological Sciences (NABS).

Vice-Chancellor of Pondicherry University Gurmeet Singh in his presidential address underscored the need for a better solution to address the challenges that threaten Indian biodiversity. He also released the abstract of a book, "Making foods safe and free from pathogens" authored by Renu Agrawal.

The Vice-Chancellor was also conferred the NABS recognition award for his contributions as an academic and administrator.

The Vice-president of the NABS, Chennai, D.J. Bhargava, evoked on the outlook of



The three-day event was attended by students of Pondicherry University and several colleges.

**\*SPECIAL ARRANGEMENT**

achievements of NABS. K.P. Viswanath, Vice-Chancellor, Mahatma Phule Krishi Vidyapeeth, Rahuri, R.R. Hanchinal, consultant, Biodiversity International and former chairperson, Protection of Plant Varieties and Farmers Rights Authority, New Delhi, Duralisanti, Vice-Chancellor, University of Madras, P. P. Mathur, (Dean of Life Sciences), D. Marimuthu, Secretary, NABS, Chennai T.J. Baskaran NABS treasurer, were among those who addressed the delegates. A background note from

was endowed with an immense variety of natural resources in its rich animal (91,200 species) and plant heritage (44,447 species), besides over 250 breeds of farm animals.

According to world biogeographic classification, India represents two of the major realms (Palearctic and Indo-Malayan) and three biomes (tropical humid forests, tropical dry/deciduous forests and warm deserts/semi-deserts).

A loss in biodiversity affects the stability of an ecosystem resulting in a reduction

of the food web (by loss of the weak interaction effect), resistance to species invasion and resilience to global environmental change.

India being a large developing country with nearly 700 million rural population was directly dependent on climate-sensitive sectors (agriculture, forests and fisheries) and natural resources (such as water, biodiversity, mangroves, coastal zones, grasslands) for their subsistence and livelihoods.

Simulations using dynamic crop models indicate a decrease

temperature increases in different parts of India. However, this is offset by an increase in CO<sub>2</sub> at moderate rise in temperature and at higher warming; negative impact on crop productivity is projected due to reduced crop durations.

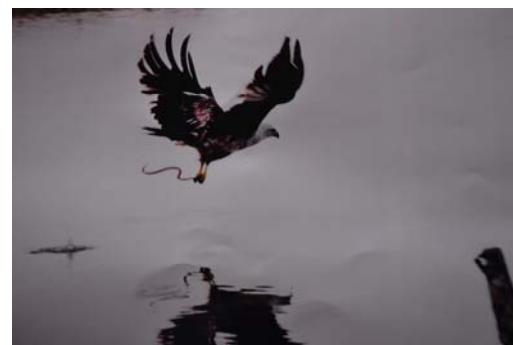
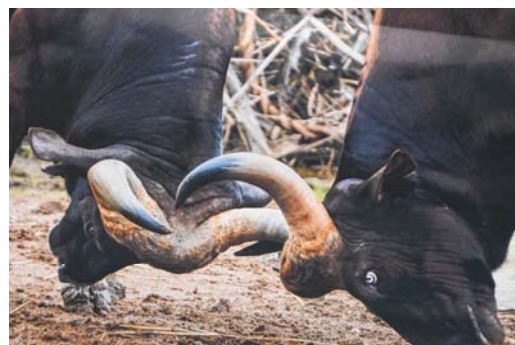
**Land degradation**  
 Globally, about 1,900 million hectares are affected by land degradation, of which 500 million hectares each are in Africa and the Asia-Pacific and 300 million hectares in Latin America. Climate change leading to warming and water stress could further exacerbate land degradation, leading to desertification.

The United Nations Convention to Combat Desertification aims to address the problem of land degradation, which is linked to climate change. It is important to note that the climate-sensitive sectors (forests, agriculture, coastal zones) and the natural resources (groundwater, soil, biodiversity, etc.) are already under stress due to socio-economic pressures.

The conference was attended by students of Pondicherry University and several



## Delegates enjoy the performance of students



## E. Recommendations of 11<sup>th</sup> NABS-National Conference

### **"Climate Change Driven Challenges on Indian Biodiversity: Innovative solutions for Sustainable Development"**

The 11<sup>th</sup> NABS conference on "*Climate Change Driven Challenges on Indian Biodiversity: Innovative Solutions of Sustainable Development*" was held from 25<sup>th</sup> September to 27<sup>th</sup> September 2019 at Pondicherry University in collaboration with the Department of Microbiology, School of Life Sciences, Pondicherry University, Puducherry. There were seven sessions covering 15 invited lectures by eminent scientist in various fields of biology covering climate change. There was a parallel session on oral presentations by various scientists distributed in six technical sessions- (i) Plant, Animal biodiversity and Fishery Sciences, (ii) Impact of Climatic Changes on Agriculture and Forestry Biodiversity, (iii) Plant Genetic Resources and Protection of Plant Varieties, (iv) Impact of Climatic Changes on Microbial biodiversity, (v) Impact of climate changes on defense strategies and (vi) Nutrition and Food security

### **The salient recommendations are as follows**

1. Biodiversity inventories carried out across the globe has indicated that there are about 1.5 millions of species described and about 50 million still unexplored / undescribed. The scariest truth is that more than half of all hotspots have already lost over 90% of their intact habitat.
2. In the field of agriculture, the present production system leads to loss of biodiversity as being affected by climate change. This causes genetic erosion and shifting of crop suitability from one zone to another. The major cause of climate is the greenhouse gases such as CO<sub>2</sub>, methane, nitrous oxide *etc.*, it is recommended that governmental effort to reduce the pollution would aid in mitigating the problem. Stubble burning adds to the quandary. There must be balance between agro biodiversity and production system. We should create awareness among the communities, documentation of traditional practices for future use and promote the concept of sacred forests. Encourage establishment of community seed banks and policy support to promote sustainable use of plant genetic resources.
3. It is imperative to protect the endemic genetic materials, particularly in alpine and temperate deserts as they house the most useful endangered medicinal plants in areas such as Eastern and Western Himalayas besides Western Ghats. It is estimated that there are about 8500 traditional medicinal plants used in Indian folklore. Hence surveying and conserving these genetic materials must be considered on priority.



4. Exploration in cold deserts had revealed the presence of over 920 genera that includes fruit trees, ornamentals and medicinal plants. The golden bush named as 'brahmphal' is a typical example of "weed to wealth" by realizing the potential as antioxidant and promoting the products for human health.
5. Among the most useful ecosystem that could protect from vagaries of nature, mangrove systems are to be considered as prime importance. The mangrove forest cover in India should be increased at 180km<sup>2</sup> / year to mitigate the climate change which would aid in significant removal of atmospheric CO<sub>2</sub> besides protecting the coastline against cyclones, floods as well as fish fauna. It would be a panacea for containing green house gases. It would also protect the coastal zones from threats of tsunami.
6. Biodiversity includes microbes as well which are also affected by climate change. There must be funding to microbial prospecting for searching microbes for use in fermentation technology, anti-biofilm compounds and antifungal besides medicinal uses.
7. Climate change has great deleterious effect on water. To feed our population we may have to divert our land for agriculture for food production. For the use of secondary metabolites produced by plants, it would be prudent to use bioreactor technology as being done in Japan and South Korea for commercial production of Ginseng and Barbarine. This would also generate employment to young graduates.
8. Another area to suitably conserve water and space is protected cultivation using solar power. This has led to the cultivation of vegetables required for the defense forces serving at -30°C. The protected cultivation also paved the way for hydroponics which in turn could be adopted for higher productivity of vegetables in Ladakh.

9. Climate change affects human health as in case of the habitat changes of the vectors of human diseases like malaria and filaria and the adaptation of habitat changes due to intrusion of sea water into freshwater by vectors. We must have strategies to handle this situation.
10. The climate change affects the insect pests affecting food crops. Pests considered minor have become serious. There are migrations of insect pests causing invasion. It is also causing extinction of insect fauna. New encounter, as described by FAO, is a cause for concern. This happens when new crops are introduced to a new region; some of the pests of these crops follow the crops and attack the existing crops of the region.