



NABS

News Letter

National Academy of Biological Sciences

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FOR PRIVATE CIRCULATION ONLY

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Former Chairperson, NBA, GOI, Chennai

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From the Desk of President.....



Dear NABSians,

Greetings.

I convey my wishes for a happy and prosperous New Year 2020 and years ahead.

At the outset let me convey my appreciation and hearty congratulations to the recipients of (i) Prof. S. Kannaiyan Memorial Award Laureates (2018 & 2019) (ii) Dr. APJ Abdul Kalam Memorial NABS-Life Time Achievement Award (for 2017 & 2018), (iii) NABS-Recognition Award (2019), (iv) Fellowship and various NABS-Awards (for 2017 & 2018), (v) Prof. M.S. Swaminathan and Carl Linnaeus Awards and (vi) Best Oral and Poster Presentation Awards which were conferred during the inaugural / Valedictory function / Annual General Body Meeting of NABS during the 11th NABS-National Conference jointly organized by National Academy of Biological Sciences and Pondicherry University, Puducherry from 25 to 27 September 2019.

On behalf of the Executive Council, I place on record our gratitude to Prof. Gurmeet Singh, Vice Chancellor, Pondicherry University who readily agreed to host the conference and for all the support he extended. I take this opportunity to thank all the members of NABS, members of Executive Council, Organizing Secretary, Program Conveners of and members of various committees formed to organize the Conference in a grand manner.

Our appreciations and gratitude are also due to Prof. P. Duraisamy, Vice Chancellor, University of Madras for having allotted a permanent office at CAS in Botany, University of Madras, Guindy Campus, Chennai.

Our hard work and dedication resulted in recognition of all the credentials of NABS received by our members are being recognized by ICAR / ASRB selections, which I feel, is yet another feather on the cap of NABS.

I also thank all the members for having agreed to the newer guidelines proposed for the selection and conferment of Fellowship and Awards in future which I hope, will add flavor to the NABS-Conference.

I am happy that the 12th NABS-National Conference is to be organized as the "First NABS-International Conference from 23 to 25 July 2020 in collaboration with Annamalai University, Annamalai Nagar, Chidambaram, Tamil Nadu.

Let us make it as a grand event. Let us all pledge to work together for the betterment of Science and dissemination of latest knowledge generated in all spheres of biological sciences.

(V. A. Parthasarathy)
President, NABS

2. Message from Vice-President...



My New Year wishes to all NABSians!

Only a few months back (September 2019) we had the 11th NABS-National conference with the theme “Climate change driven challenges on Indian biodiversity: Innovative solutions for sustainable development” at Pondicherry University, Puducherry which was very successful. This conference was well attended by participants from different parts of the country with excellent interaction between the participants. Such interaction between senior scientists and young research scholars and students will definitely help in the progress of biological sciences in the country. In July 2020 we will meet again for the 1st NABS-International Conference with the theme, “Life sciences: contemporary approaches in biological sciences for food, health, nutrition security and conservation of biodiversity”. The theme of this conference is interesting as it covers food, health, nutrition and biodiversity which are interlinked. At present the world organizations like FAO and WHO give much importance to food security. Some of the definitions given by them are given below:

WHO: Food security implies livelihood security ensuring both physical and economic access to balanced diet, safe drinking water, safe environment rich in biodiversity, primary education and basic health care.

FAO: Food security exists when all people, at all times have physical, social and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life.

From the above definitions I am sure you are convinced about the theme of the conference to be held at Annamalai University. Looking forward to meet you all during the conference scheduled at Annamalai University. I convey my best wishes to all the members of NABS, once again, for a happy and prosperous New Year, 2020.

(D.J. Bagyaraj)
Vice-President

3. Message from Editor...



Wishing all at NABS a Happy 2020!

Over the past twelve months, the activities of NABS has continued to grow unhindered, which reflects our success and credibility of our programs. It is, therefore, not surprising that we are generating lot of interest from a wider audience, both at the national and global level.

During 2019, we were witnessing to several important milestones that has positioned NABS for the future. The recognition of National Academy of Biological Sciences by the Indian Council of Agricultural Research (ICAR) and Agricultural Scientists Recruitment Board (ASRB) by awarding marks for the office bearers, Fellows and Awardees when they apply for any higher positions in ICAR/ASRB would help several scientists. These milestones will help us in consolidating our capabilities and further expanding our horizons. The expertise we have at NABS and the commitment of all NABS-ians has been the key to our transformation into a dynamic and effective Academy.

My hearty congratulations to the winners of various awards and fellowship of NABS conferred during the 11th NABS-National Conference held from 25 to 27 September 2019 at Pondicherry University.

An important development has been the allotment of an Office space at CAS in Botany, University of Madras, Guindy Campus. On behalf of NABS, I sincerely thank Prof. P. Duraisamy, Vice Chancellor for this kind gesture.

I am also delighted to inform that the First NABS-International Conference will be held from 23-25 July 2020 in partnership with Annamalai University, Annamalai Nagar, Chidambaram, Tamil Nadu. This shows that we are expanding our realms beyond the national boundaries and are becoming a truly global Academy.

I look forward to another exciting and productive 2020, and wish you all once again a very happy New Year.

(M. Anandaraj)
Editor, NABS NL

4. News and Events

4.1. News

i. NABS-Credentials are recognized by ICAR/ASRB

- Dr. Anil Kumar Srivastava, Member, Agricultural Scientists Recruitment Board, Krishi Anusandhan Bhawan-I, New Delhi-110012 informed about NABS recognition which reads as follows:

“I am glad to inform you that now I have included National Academy of Biological Sciences as a recognized academy by ASRB and ICAR for awarding the marks to the candidates who are Office bearers/ Fellows/ Associates/ Awardees of National Academy of Biological Sciences and applying for the selection of any posts in ICAR/ ASRB.”

ii. First NABS-International Conference

- The 12th NABS-National Conference which is due in 2020 will be organized as “The First NABS-International Conference with the theme, *“Life Sciences: Contemporary Approaches in Biological Sciences for Food, Health, Nutrition Security and Conservation of Biodiversity”* in collaboration with faculty of Agricultural, Annamalai University, Annamalai Nagar from July 23 to 25, 2020. Dr. M. Prakash, Professor of Plant Breeding and Genetics, Faculty of Agriculture, Annamalai University will be the Organizing Secretary.

4.2. Events

i. Eleventh NABS-National Conference

- The 11th NABS-National Conference with theme, “Climate Change Driven Challenges on Indian Biodiversity: Innovative Solutions for Sustainable Development”** was jointly organized by National Academy of Biological Sciences and Departments of Microbiology, Pondicherry University, Puducherry, India from 25-27 September 2019.

Organizing Secretary	Program Conveners	
Dr. Joseph Selvin Professor and Coordinator Department of Microbiology Pondicherry University Puducherry, India	Dr. S. Sivasankari UGC PDF Department of Microbiology Pondicherry University Puducherry, India	Dr. P. Ramasamy UGC PDF Department of Microbiology Pondicherry University Puducherry, India

Inaugural function

The inaugural function of the conference was held on 25 September 2019 at *Convention-Cultural Complex*, Pondicherry University, Puducherry.

After the invocation, Kuthuvilakku was lit by the dignitaries as a mark of auspicious beginning of the conference.



Release of NABS-Book

Dr. K. P. Viswanatha, Vice Chancellor, MPKV, Rahuri, MS inaugurated the conference; released the book on “The Birth and Evolution of NABS-Through 2004 to 2018” and delivered key note address.

Prof. S. Kannaiyan Memorial Award

Prof. Dr. R.R. Hanchinal, Former Chairperson, PPV & FRA, GoI, New Delhi conferred “Prof. S. Kannaiyan Memorial Award” on Dr. K.P. Viswanatha (*in person*) for the year 2018 and on Prof. Anil Kumar Srivastava (*in absentia*) for the year 2019 and delivered special address as Guest of Honor.



Dr. APJ Abdul Kalam Memorial NABS-Life Time Achievement Award

Dr. P. Duraisamy, Vice Chancellor, University of Madras, Chennai conferred “Dr. APJ Abdul Kalam Memorial NABS-Life Time Achievement Award” on Dr. Y. D. Gaur (2017) and Dr. Brahma Singh (2018) and offered felicitation as Guest of Honor.



NABS-Recognition Award

Dr. V. A. Parthasarathy, President, NABS conferred “NABS-Recognition Award” on Prof. Gurmeet Singh, Vice Chancellor, Pondicherry University, Puducherry and Prof. P. Duraisamy, Vice Chancellor, University of Madras, Chennai.



Release of Abstract cum Souvenir & a book written by a NABS-ian

Prof. Gurmeet Singh, Vice Chancellor, Pondicherry University who presided over the inaugural function released the Abstract cum Souvenir of the conference & a book on “Making Foods Safe and Free from Pathogens” written by Dr. Renu Agrawal. Prof. Gurmeet Singh delivered Presidential address.



Release of NABS-News Letter-July 2019 issue

Dr. P. P. Mathur, Dean, School of Life Sciences, Pondicherry University & Formerly Vice Chancellor, KIIT University released the NABS-News Letter and offered his felicitations.

- Dr. V. A. Parthasarathy, President, National Academy of Biological Sciences, Chennai honored the guests on the dais.
- Dr. Joseph Selvin, Organizing Secretary, welcomed the gathering.
- Dr. T. Marimuthu, Secretary, NABS briefed about the 11th NABS-National Conference.
- Dr. D. J. Bagyaraj, Vice-President, NABS briefed about the activities of the Academy.
- Dr. M. Anandaraj, Editor, NABS-News Letter explained the role of NL in taking the activities of NABS to its members.
- Dr. T. L. Baskaran, Treasurer, NABS proposed vote of thanks.
- The inaugural function was concluded after the National Anthem.



Technical Sessions [26-10-2019]

Prof. S. Kannaiyan Memorial Oration

Topic : Role of Carbon in Agriculture and Environment

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.

Lead / 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.

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, 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- 110012, 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.



*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).

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 (Ph.D 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 microscopium* 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.

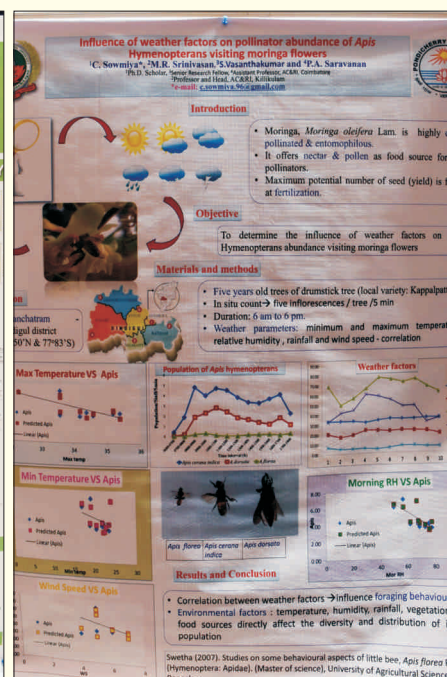
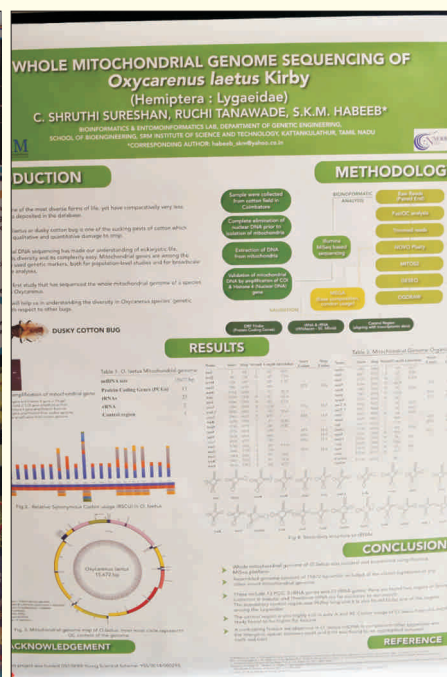
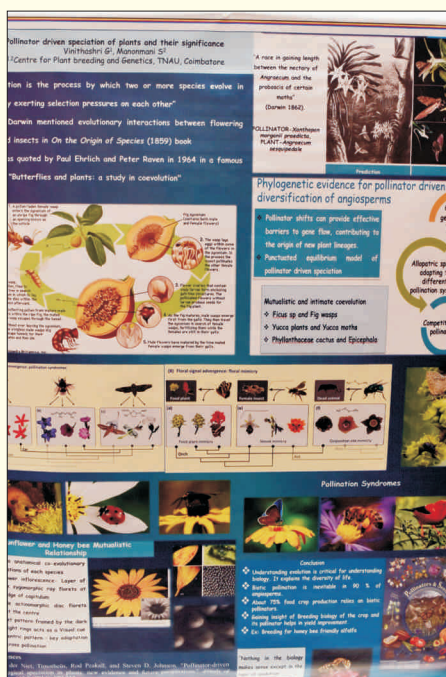
The winners of the Awards

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.



Annual General Body Meeting (AGM)

The 14th Annual General Body meeting of NABS was held at *Convention-cum Cultural Complex*, Pondicherry University, Puducherry on 27 September 2019.

Dr. V.A. Parthasarathy, President, NABS chaired the meeting. The annual report was read out by Prof. T. Marimuthu, Secretary; Dr. M. Anandaraj, Editor-in-chief of NABS NL presented report on NABS News Letter and related activities. Dr. T. L. Baskaran, Treasurer presented the audited statements of receipts and expenditure. The reports were approved by the AGM. The conferment of Fellowship / Awards to selected members was also approved by AGM.

The President, NABS conferred the Fellowship for 2017 & 2018 on the elected members of NABS. All the other awards were presented by Prof. R.R. Hanchinal, Former Chairperson, PPV & FRA, GoI, New Delhi

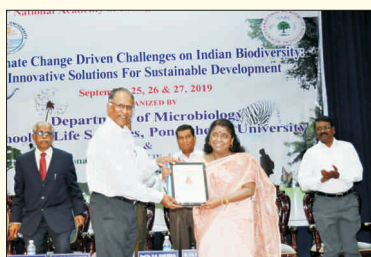
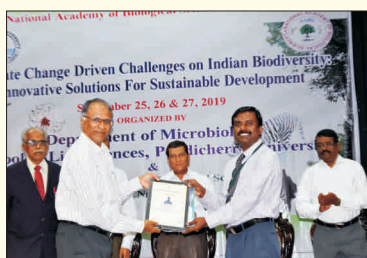
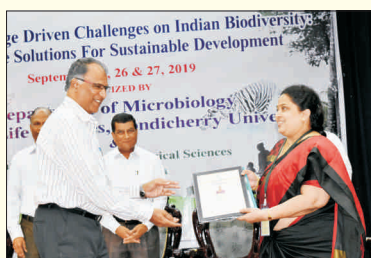
Major decisions of AGM

- In future, all the selected members either for Fellowship or for various other NABS-Awards, except NABS-Best Research Paper Awardees, will be requested to present their findings during the AGM (in a special session of the conference / AGM and receive the award/Fellowship. This decision takes effect from the election from election year 2019.
- A member can apply either for Fellowship or for any one of the award *i.e.* a member can't apply for both Fellowship and an award as was the case earlier. This decision takes effect from Election year 2019.



Conferment Fellowship & Awards for 2017 & 2018

Fellowship-2017 & 2018



Dr. Anjani Kumar Jah, Dr. R. Elanchezhian, Dr. N.P. Singh, Dr. K. Premkumar, Dr. A. Ramesh Sundar, Dr. E.V. Soniya & Varughese George (2017); Dr. Elangovan Vellaichamy, Dr. K. Kathiressan, Dr. Kolla Sreedevi, Dr. K. G. Mandal, Dr. B.M. Naveena, Dr. P. G. Padmaja, Dr. P. Ponnurugan, Dr. V.R. Prabavathy and Dr. Usha Chakraborty (2018) receive Fellowship.



Dr. Rajib Deb receives Associate Fellowship



Dr. E.V. Soniya (2017) & Dr. P.G. Padmaja (2018) receive Dr. E. K. Janaki Ammal Memorial NABS-Best Woman Scientist Award



Dr. B.P. Pal Memorial NABS-Best Scientist Award- Dr. M. Prakash (2017) & Dr. Bikash Mandal (2018) & Dr. G. S. Venkataraman Memorial NABS-Best Scientist Award-Dr. Prakash M Halami (2018) receive the Award.



Dr. N. Thajuddin (Prof. M.S. Swaminathan NABS Leadership Award); Dr. D. MubarakAli (Young Scientist Award) and Dr. S. Srivignesh (Best Research Paper Award) receive the award

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.



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.



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.



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.



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 **Jothibasur, K.** The effect of root exudates flavonoids on rhizosphere bacteria associated with soybean (*Glycinemax*) roots.

Second Place **Dhanasekaran,** Biological extraction of indigo dye from *Indigofera tinctoria* L.

Third Place **Asif Jamal,** G.A., Utilization of 3G's on its anti pathogenicity effect on *Saccharum officinarum* 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 *Bifidobacterium longum* NCIM 5672 for probiotic functionalities and its application using CRISPR Cas system

Third Place **Prakash M Halami,** Genomic view of *Bacillus licheniformis* 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, *Heterorhabditis indica* (Poinar, 1992) and *Steinernema glaseri* (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, *Humboldtia 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



Best Oral Presentation Award

I Place: Dr. K. Jothibasur & 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:

Themes: 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.

Themes: 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

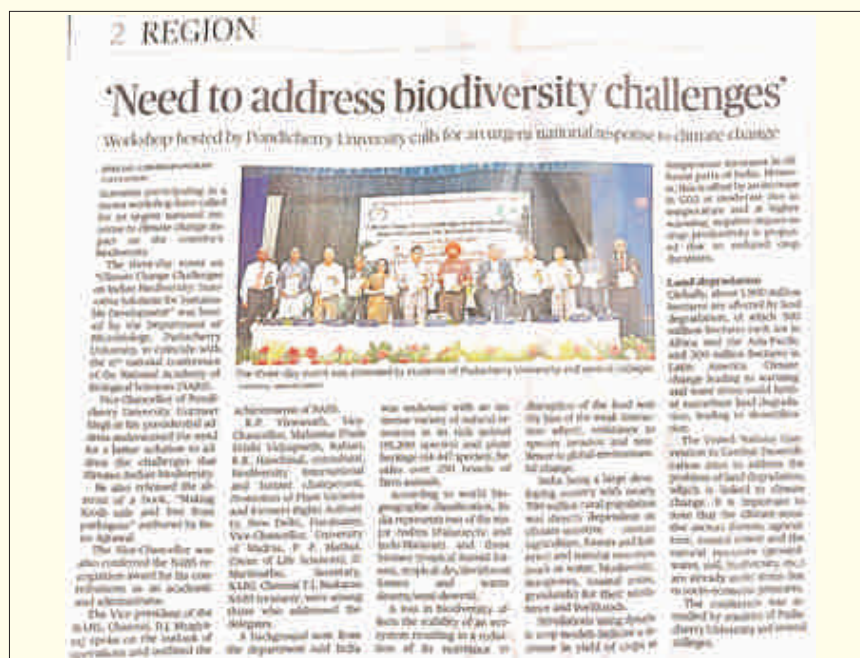
- First Place **Sathya, R.,** Biodiversity of freshwater microalgae documented in-campus, Chennai, Tamil Nadu
- Second Place **Jancy Shopia,** Quantitative determination of Sudan-I in food samples at graphene nanoflakes modified electrode

Honoring the Organizing Secretary and Program Conveners

Dr. V. A. Parthasarathy, President, NABS honored Dr. Joseph Selvin, the Organizing Secretary, and the Program Conveners Dr. S. Sivasankari and Dr. P. Ramasamy for their efforts in organizing the NABS-National conference in a grand manner.

Prof. T. Marimuthu, Secretary, NABS proposed vote of thanks and the conference was concluded with National Anthem.

News Coverage of 11th NABS-National Conference



5. Research Highlights

5.1. Abstract of paper presented for Carl Linnaeus Award [Award winning paper]

Evidence based scientific validation of the Antioxidant potential of *Phyllocephalum rangacharii*(Gamble) Narayana, an ethnomedicinal plant and its quantitative phytochemical evaluation

Phyllocephalum rangacharii (Gamble) Narayana, an erect, slender herb belongs to the Asteraceae family is medicinally used by Cholanaiikkan tribal groups of Kerala to treat skin inflammation and related skin diseases. Traditional medical knowledge can be explored and diverse natural leads may be found and drugs can be prepared with a fusion of ancient wisdom and modern science. Therefore the present study is designed to determine the total phenolic, flavonoid and total tannin content in the ethanolic, hydro ethanolic and aqueous extracts of *P. rangacharii* as well as the antioxidant potential. Antioxidants can be efficient molecules for treatment as well as prevention of a large number of diseases. The antioxidant activities of extracts were evaluated using different methods such as Total antioxidant activity, Ferric Reducing Antioxidant Potential (FRAP) assay, Reducing power activity and ABTS radical scavenging activity. Hydroethanolic extract possess the highest amount of phenols, flavonoids and tannins when compared to other extracts. The results of antioxidant assays also revealed that the hydroethanolic extract has the significant free radical scavenging and reducing power than the other two extracts. The findings of the present study thus justified its use in the traditional folk medicine. The study gains its importance in the current scenario as the researchers from all over the world are now focussing on alternate sources other than synthetic ones which will be more safe, convenient and economically viable.

Aswathy V Nair, S. R. Suja & R. Prakashkumar

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Jawaharlal Nehru Tropical Botanic Garden and Research Institute, Palode, Trivandrum
E-mail: aswathynair96@gmail.com, Mobile: 9544982660

5.2. Abstract of paper presented for Prof. M. S. Swaminathan Award [Award winning paper]

Abundance, foraging behaviour and efficiency of insect pollinators and their effect on moringa yield

Pollinator's survey was conducted in Oddanchatram block of Dindigul district where drumstick is grown in large scale. A total of 27 species of insect pollinators were observed in drumstick ecosystem. Among them, three belonged to *Apis* Hymenoptera, ten to non *Apis* Hymenoptera, seven to Diptera and seven to Lepidoptera. The foraging behaviour of *A. cerana indica* was the maximum at 0800 to 0900 h, *Amegilla zonata* at 1200 to 1300 h and *Episyrpus* sp. at 0800 to 0900 h. Pollination Efficiency Index was found to be the highest in case of *Xylocopa* sp. (7.7) followed by *A. cerana indica* (5.9), *A. dorsata* (5.7) and *Amegilla zonata* (4.6). Thus the present study indicated that *A. cerana indica* was most abundant pollinator but *Xylocopa* sp. was the most efficient pollinator in drumstick ecosystem. *A. cerana indica*'s working hours were more followed by *Amegilla zonata*, *Polistes* sp., *A. dorsata* and *Xylocopa* sp. In case of handling time, *A. cerana indica* spent more time followed by *A. dorsata*, *Amegilla zonata*, *Xylocopa* sp. while *Polistes* sp. expended lesser time. The yield and yield parameters was high when compared to control. Yield parameters included number of fruits per tree which was ranged from 202 while control has 151 fruits. Also the fruit length, fruit girth, individual fruit weight and fruit yield were varied from control. The colony growth parameters viz., sealed honey area, pollen area, sealed brood area and adult bee population also developed. Therefore by managing Indian honey bee colonies, we can get profit on both moringa and colony yield.

¹C. Sowmiya* and ²M.R. Srinivasan

¹Ph.D. Scholar, Department of Agricultural Entomology, AC & RI, Coimbatore

²Professor and Head, AC & RI, Killikulam.

Tamil Nadu Agricultural University, Coimbatore - 641 003

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6. Awards, Recognitions & Honors received by members of NABS

6.1. Awards, Recognitions and Honors

Congratulations to all the NABS-ians who received awards and recognition from various institution and organizations in the country and outside during 2018-19.

A. Awards and recognitions received from other organizations

The Most Admired Gandhian of Tamil Nadu Awards to

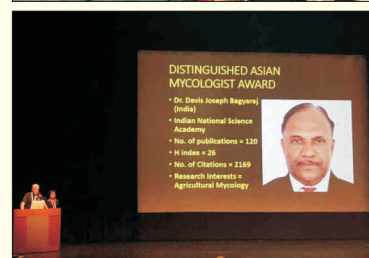
Prof. M. S. Swaminathan

Padmavibushan Prof. M. S. Swaminathan was conferred with “The Most Admired Gandhian of Tamil Nadu Awards” by Fortis Malar Hospital, Chennai and Senior Citizens Group of Besant Nagar [SCGOBN] on 05 December 2019.



“Distinguished Asian Mycologist Award” to Dr. D.J. Bagyaraj

Dr. D. J. Bagyaraj, Vice President, NABS, Fellow of NABS, Former Head, Department of Agricultural Microbiology, UAS, GKVK, Bangalore and presently INSA Honorary Scientist, CNBRCD, Bangalore was conferred with “**Distinguished Asian Mycologist Award, 2019**” on Oct 04, 2019 during the Asian Mycological Congress, Held at Mie University, Japan. Asian Mycological Association invites nomination for a distinguished mycologist from each of the 26 countries for “Distinguished Asian Mycologist Award”. Mycological Society of India nominated Dr. D. Joseph Bagyaraj for this award from India. A committee of 5 Members from different countries evaluated the applications based on research publications, international and societal impact of the research work. His contribution on the role of mycorrhizal fungi in sustainable agriculture brought credit to our country.



“Outstanding Crop Protection Scientist” award to Dr. B.V. David of

Dr. B. Vasantharaj David Foundation

The 19th International Plant Protection Congress (IPPC2019) was held at the Hyderabad International Convention Center (HICC), between 10 -14 Nov 2019, which is held every 4 years under the auspices of International Association of Plant Protection Sciences (IAAPS). The Plant Protection Congress is being held for the first time in India in its history of over 100 years. The organizing committee of IPPC2019 has chosen Dr. B. Vasantharaj David for this award considering his outstanding contribution to Plant Protection during the 19th International Plant Protection Congress (IPPC2019).



Name of Member

Name of Award / Recognition received

- | | |
|------------------------------|---|
| Anil Kumar Srivastava | <ul style="list-style-type: none"> ■ Awarded "Doctor of Science (D.Sc. Honoris Causa)" by Nanaji Deshmukh Veterinary Science University, Jabalpur, 2019 ■ Awarded "Life Time Achievement Award" by CANIS Welfare Pet Association, New Delhi, 2019. |
| Brahma Singh | <ul style="list-style-type: none"> ■ Conferred with “Dr A P J Abdul Kalam Award” by Deshabhimani Charitable Society, New Delhi |
| Francis Borgio, J. | <ul style="list-style-type: none"> ■ Recognized as Academic Editor: PLOS ONE- since 06 Mar 2019. ■ Recognized as a Ph.D., supervisor at King Saud University, Riyadh, Saudi Arabia- since 05 February 2019. ■ Appointed as Chairman - Department of Epidemic Diseases Research, Institute for Research and Medical Consultations (IRMC), Imam Abdulrahman Bin Faisal University, Saudi Arabia, on 03 Feb 2019. |

- Hazarika, B. N.

- Appointed as Committee Chairman - Training and Development Committee, Institute for Research and Medical Consultations (IRMC), Imam Abdulrahman Bin Faisal University, Saudi Arabia, on 13 Oct 2019
 - Outstanding contribution to Science Award-2019 for his outstanding contribution to Agricultural and Horticultural Sciences by Dr. B. Vasantharaj David Foundation, Chennai on 17 November 2019.
- Jagesh Kumar Tiwari
Kolla Sreedevi

- ICAR - Hariom Ashram Trust Award in July 2019 by ICAR, New Delhi
 - Outstanding contribution to Science Award-2019 for her significant contribution to Biosystematics, Pest Management and Teaching by Dr. B. Vasantharaj David Foundation, Chennai on 17 November 2019.
- Mandal, K. G.

- Received *BKJF-INCSW SOOKSHMA SINCHAI PURASKAR*, on 18th Jan 2019, conferred by the INCSW of CWC, Ministry of Water Resources, River Development & Ganga Rejuvenation, GoI, and the Bhavarlal & Kantabai Jain Foundation (BKJF), Jalgaon
 - Received the *DR. K.G. TEJWANI AWARD* (biennial 2016-2017), on 6th Feb 2019, conferred by the Indian Association of Soil and Water Conservationists (IASWC), Dehradun
 - Received *K.C. DAS MEMORIAL AWARD*, on 30th Mar 2019, conferred by The Institution of Engineers (India), Odisha State Centre.
- Marimuthu, T.

- Life Time Achievement Award-2019 for his contribution made to Plant Protection / Plant Pathology by Dr. B. Vasantharaj David Foundation, Chennai on 17 November 2019.
- Masarrat Haseeb

- Elected Fellow of Royal Entomological Society, London.
 - Conferred with Life Time Achievement Award in Agricultural Sciences
- Minakshi Prasad

- National Fellow by Indian Association for the Advancement of Veterinary Research (FIAVR 2018) at Tirupati.
 - International Research Ratan Award 2019 by World Research Council, Idamas Learning Center, Malaysia, for Nano based diagnosis and therapeutics.
 - “Life Time Achievement Award” conferred during International Conference on “Sustainable Agriculture Production for Food, Nutrition and Livelihood Security: A Challenge for Asian Farmers” organized by Pragati International Scientific Research Foundation (PISRF), Meerut, India on September 25-27, 2019
 - “Award for Excellence in Research” in Academic Brilliance Awards 2018-19.
 - “Best paper award” received during International Conference, Dept of Bio and Nano technology, GJU & ST, Hisar, Haryana, 2018-19.
 - “Best paper award” for the year 2018-19 by Society for Veterinary Sciences and Biotechnology (SVSBT).
- Naidu, N.V.

- Fellow of Bose Science Society presented by Tamil Nadu Scientific Research Organization, Pudukottai, T.N.
 - Fellow of A.P. Akademi of Sciences by Govt. of A.P.
 - Life Time Achievement Award for 2019 instituted by Astha Foundation, CSAUAT, Meerut, U.P.
 - Prof. M.S.Swaminathan Best Scientist Award for 2018 by Tamil Nadu Scientific Research Organization, Pudukottai, T.N.
- Padmaja, P.G.

- Woman Scientist Award-2019 for her Commendable Contribution to Insect-Plant Interactions by Dr. B. Vasantharaj David Foundation, Chennai on 17 November 2019.
- Philomena George

- Life Time Achievement Award-2019 for her contribution made to Higher Education, Technology Development and Commercial Production in Plant Biotechnology by Dr. B. Vasantharaj David Foundation, Chennai on 17 November 2019.
- Promod W Ramteke

- Life Time Achievement Award-2019 for his contribution made to Environmental Biotechnology by Dr. B. Vasantharaj David Foundation, Chennai on 17 November 2019.

- | | |
|---------------------|---|
| Rajib Deb | <ul style="list-style-type: none"> ■ Awarded Membership (Biological Sciences) 2019 from National Academy of Sciences (India). ■ In Sc Young Achiever Award 2019. ■ International Travel Grant, SERB, DST. ■ Certificate of appreciation Teacher Innovation Award-2019 from Sri Aurobindo Society. ■ Publon's Academy top Peer Reviewer Award 2019 by Web of Science Group jointly with Publons |
| Raaman N | <ul style="list-style-type: none"> ■ "Conferment of D.Sc. on Dr. N. Raaman, Former Director, CAS in Botany, University of Madras, Guindy Campus, Chennai during the annual convocation of University of Madras on 15 July 2019. |
| Yashpal Singh Malik | <ul style="list-style-type: none"> ■ Sir FM Burnet Research Team Award of Indian Society for Veterinary Immunology and Biotechnology ■ Visiting Scientist for 4 weeks at Wuhan Institute of Virology, China |

7. Activities of Members of NABS

7.1. Anil Kumar Srivastava-

- Delivered convocation address during 5th Convocation of Nanaji Deshmukh Veterinary Science University, Jabalpur, February 2019.
- Delivered convocation address during 16th Convocation of Swami Keshwanand Rajasthan Agricultural University, Bikaner, Rajasthan, August 09, 2019.
- Served as a Member of the Committee for “Agricultural Policies and Action-Plans for a Secure and Sustainable Agriculture”, by Principal Scientific Advisor to Prime Minister, Govt. of India, 2019.
- Served as the Convener of XIV Agricultural Science Congress on Innovations for Agricultural Transformation for Theme: Animal Sciences-Livestock, Dairy & Poultry, New Delhi, 20-24 February 2019.

7.2. Dr. D. J. Bagyaraj-

- Delivered Endowment Lecture on "Soil Biodiversity: Current Scenario" organized by School of Post Graduate Studies, TNAU, Coimbatore on August 29, 2019.

7.3. Dr. T. Marimuthu-

- Attended National conference on “Trends in higher education, taxonomy, agriculture, biotechnology and toxicology” organized by Dr. B. Vasantharaj David Foundation at Hotel Vijay Park, Arumbakkam, Chennai on 17 November 2019 and received an award- Life Time Achievement Award-2019 for the contribution made to Plant Protection / Plant Pathology.

7.4. Dr. B. Vasantharaj David-

- Launched “Dr. B. Vasantharaj David Foundation” for promoting Science and Green Environment during the conference on “Trends in Higher Education, Taxonomy, Agriculture, Biotechnology and Toxicology” held on 17 November 2019 at Hotel Vijay Park, Chennai.

7.5. Dr. N. V. Naidu-

- Participated in the workshop on 2019 CGIAR platform for Big Data in Agriculture held at ICRISAT- jointly organized by CIAT, ICRISAT and IFRI from 16 to 18 October, 2019.
- Organised All India Workshops on Oilseeds, Groundnut, Pulses Cotton and Nano technology in 2019.

7.6. Dr. Varugese George-

- Visited Santo Tomas University, Manila, Philippines as the Lead PI of the ASEAN- INDIA Collaborative Research Program funded by SERB DST, Govt. of India from 20.02.2019 to 01.03.2019. During the visit delivered invited lectures at the College of Pharmacy, College of Science and at Research Center for the Natural and Applied Sciences.

7.7. Dr. Minakshi Prasad-

- Delivered invited guest speaker at CBLU, Bhiwani, Haryana on “Impact of science metrologies in 21st century” on 8th Nov., 2019 under Extension Lecture Series, 2019
- Delivered Lead guest speaker in 60th Annual Conference of “Association of Microbiologists of India (AMI-2019)” and International Symposium on “Microbial Technologies in Sustainable Development of Energy, Environment, Agriculture and Health” from November 15-18, 2019 At Central University of Haryana, Mahendergarh.
- Chairperson in Technical session “Veterinary Microbiology’ in International AMI 2019 at CUH, Mahendergarh.
- Chairperson in Technical session & Co-Chair in plenary session in International Conference on “Sustainable Agriculture Production for Food, Nutrition and Livelihood Security: A Challenge for Asian Farmers” organized by PISRF, Meerut, India on September 25-27, 2019), Meerut, India on September 25-27, 2019
- Convener- One Day Symposium on 'Advances in Equine Health and Management', 27th Feb., 2019 at ICAR-NRCE, Hisar.
- Chair & Co-chairperson for sessions in World Congress of Ayurveda WCABHU-14-16 March 2019 at Varanasi.
- Governing Council Member of National Academy of Veterinary Sciences (NAVS) up to 2019-20
- Advisory Board Member, 2018-19 onwards, Society of Veterinary Biochemists and Biotechnologists of INDIA (SVBBI)
- Member Asian council of Science Editors 2018; Asian council of Science
- Apex committee Core member International science congress, 8-9 December 2018-19 at Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India
- Sectional President, Animal Veterinary and Fisheries, International Science Congress ISC-2018, 8-9 December 2018-19 at Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India
- TWAS award by “The World Academy of Sciences” as visiting expert to visit Ethiopia, University of Mekelle, Ethiopia under “TWAS Visiting Expert Programme 2019”

8. Publications

AK Singh, A. K., Janakiram, T., Chakrabarti, SK., Bhardwaj, V. and **Tiwari, JK.** (Eds.) 2018. Indian Potato Varieties. ICAR-CPRI, Shimla. P.182

Paul Khurana, S.M. and Rajarshi Kumar Gaur (Eds.) 2019. Plant Biotechnology: Progress in Genomic Era, Springer Nature Singapore Pvt. Ltd., p. 670

9. An appeal to contribute for Corpus Fund

Corpus Fund for Prof. S. Kannaiyan Memorial Award is being mobilized. NABS thankfully acknowledge the contributions made by members to Prof. S. Kannaiyan Memorial Corpus Fund [vide list below- continuation]

S.No.	Name of contributor	Amount (Rs.)	S.No.	Name of contributor	Amount (Rs.)

We earnestly appeal to all the rest of the Life members, NABS Fellows / Associate Fellows, Corporate Life Members, Corporate Fellows, Awardees of NABS and well- wishers to contribute to this noble cause. The Fund shall be transferred on line to the Savings Account of **National Academy of Biological Sciences.** [Vide details for online transfer in item 8 of NL]

10. An appeal to contribute to defray cost of printing - NABS Book

The members of NABS were requested to contribute to defray the expenses incurred on printing the book. Many members have responded. The contribution by members is listed. The contribution shall be transferred on line to the Savings Account of **National Academy of Biological Sciences**. [vide list below-] [Vide details for online transfer in item 10.1. of NL].

S.No.	Name of contributors	Amount (Rs.)	S.No.	Name of contributors	Amount (Rs.)
1.	Parthasarathy, V.A.	5000.00	2.	Marimuthu, T.	2000.00
3.	Anandaraj, M.	2000.00	4.	Baskaran, T. L.	2000.00
5.	Hanchinal, R.R.	2000.00	6.	Chenna Reddy Aswath	2000.00
7.	Vivekanandan, P.	2000.00	8.	Pious Thomas	1000.00
9.	Mathivanan, N.	2000.00	10.	Bagyaraj, D.J.	2000.00
11.	Subramanian, M.	2000.00	12.	Sam Gnanamanickam	10000.00
13.	Banumathi Kannaiyan	3000.00	14.	Natarajan, K.	2000.00
15.	Deiveeka Sundaram	500.00			

11. Enroll yourself as member and be a part of NABS

Types of Membership available (one time payment)

A. Life Member	: ₹ 5,000/- or US\$ 200/-
b. Provisional Life Membership	: ₹ 5,000/- or US\$ 200/-
c. Corporate Life Member	: ₹ 10,000/- or US\$ 400/-
d. Corporate Fellow	: ₹ 1,00,000/- or US\$ 4000/-

- Duly filled membership form shall be sent as Secretary NABS in WORD format by E-mail to secretarynabs@gmail.com
- The prescribed membership fee shall be transferred on line

11.1. Account details of National Academy of Biological Sciences

Name of the account holder : National Academy of Biological Sciences
Account number : **10496978637**
Type of account : Savings Account
Name of Bank : State Bank of India, Valmikinagar Branch, Thiruvannamiyur, Chennai - 600 041
Branch code / IFSC code : Branch code: 11721 - IFSC code: SBIN0011721

Down load your application from www.nabsindia.org

Address for all correspondences

Prof. T. Marimuthu, Ph.D., FNABS., FISNS.
Secretary, NABS

NABS-Secretariat, Room No. 209, Second Floor, CAS in Botany, University of Madras, Guindy Campus, Chennai - 600 025.
E-mail: secretarynabs@gmail.com Visit: www.nabsindia.org

Disclaimer

The authors are responsible for the information related to Research notes and short communications of this issue

Published by

Prof. T. Marimuthu, Ph.D., FNABS., FISNS.
Secretary, NABS
On behalf of National Academy of Biological Sciences

An appeal to members of NABS

Kindly inform change of address including phone numbers and E-mail to the Secretary, NABS by E-mail (secretarynabs@gmail.com)

Printed and circulated to members as E-copy on 01-01-2020