



# NABS *News Letter*

National Academy of Biological Sciences

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July, 2017 & January 2018

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**Prof. Dr. S. Kannaiyan**  
Former Vice-Chancellor, TNAU &  
Former Chairman, NBA, GOI, Chennai

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## From the Desk of the President.....



Dear NABSians,

*Greetings.*

I convey my wishes for a happy and prosperous New Year 2018 and years ahead.

This issue of NABS News Letter combines July, 2017 and January, 2018 issue. However, all the activities are being covered in the combined issue. We would very much encourage members of NABS to contribute short notes/ short research articles for inclusion in the News Letter.

The 10th NABS-National Conference jointly organized by National Academy of Biological Sciences and Bharthiar University, Coimbatore was a grand success because of your unstinted support and guidance. I would like to place on record my gratitude to Dr. T. Marimuthu, General Secretary and Dr. T. L. Bhaskaran for their efforts in making this happen. I am grateful to the NABS Executive members for their solid support. In the years to come we will plan in such a way the delegates who travel all the way to deliver his / her findings are given sufficient time so as to have more interaction during the sessions.

I am happy to mention that a new award to Ph.D. and M.Sc. students- viz., Carl Linnaeus and Prof. MS. Swaminathan Awards were instituted exclusively to students of higher studies. Hope, this will encourage young biologists doing/ completed Ph.D. and M.Sc. programs.

To reach the unreached colleges and educational institutions, 'Prof.SK Memorial NABS-Lecture Workshop' is also being organized from this year (2018). The details of which is uploaded in the website of NABS [[www.nabsindia.org](http://www.nabsindia.org)]

Let us all pledge to work together and create a 'community of biologists' who will work for the betterment of scientific pursuits.

(V. A. Parthasarathy)  
President, NABS

## 2. Message from Vice-President...



My New Year wishes to all NABSians!

Biodiversity is multiplicity of life forms of all sources from land and aquatic ecosystems which includes plants, animals and microorganisms. Biodiversity is the basis of human survival and economic well-being as it provides a large number of goods and services that sustain our lives. Protecting biodiversity is in our self-interest. Management and utilization of bioresources and their optimum utilization for human welfare is very important. Between 70-80% of the population in developing countries relies on plants as the only source of medicine. Recently, greater attention has been paid to bioprospecting that links biodiversity and industry.

The rich biodiversity built over millions of years is under threat due to unplanned human activities. Many forces including population explosion, over-exploitation, climate change, water scarcity, destruction of forests, industrial effluent discharge in rivers and aquatic environment, improper management of sewage disposal etc., threaten all kinds of biological systems on earth. The problem being faced at present is about the over-exploitation of bio-resources which would not only have negative impact on environment but also sometimes totally destroy the important bio-resources available at local, regional and national levels. Therefore, using bio-resources wealth optimally in a proper manner without its over-exploitation is very important.

India is basically an agricultural country. Therefore, it is important to conserve and protect biodiversity in agro-ecosystem and to manage it with care without affecting the environment. The current losses to biodiversity in agro-ecosystem can be attributed to habitat loss, invasion of introduced species, over-exploitation of living resources and modern agricultural practices. The current rate of extinction demands immediate efforts for conservation of biodiversity. Every citizen of our country has to be made aware of our natural biodiversity wealth and the need to conserve our rich biodiversity for better living not only for our present generation but also for our future generations.

(D.J. Bagyaraj)  
Vice-President

## 3. Message from the Editor...



At the outset I wish all at NABS a healthy, prosperous and blissful 2018!

The year 2017 has yet again been a very successful year for NABS in terms of both activity and membership. We have made several headways and have been through several milestones. We have also been successful in creating a road map to expand our scientific activities. Of course the circumstances have been quite challenging, yet we have steadfastly focused on our priorities that included among others, a strong and robust Academy with science at the heart of everything we do. Nevertheless, showing the society how we can support them by providing scientific solutions when needed with a range of clear and simple ideas has been our forte. It is, therefore, imperative to use the time intelligently and tread forward as decisively and promptly as possible in 2018.

Of course, this can be achieved only through commitment, diligence and more importantly, teamwork.

An urgent issue is to enhance our membership which in turn would enhance our competitiveness towards further growth and a strong scientific culture. Hence, our efforts should not slow down. Instead we need to adopt proactive measures to expand our activities to consolidate our achievements thereby becoming a strong entity. The 'Prof. SK Memorial NABS-Lecture Workshop' is one such Scientific Event proposed by NABS for the benefit of young biologists and teachers who are working in Colleges located in far flung areas. Similarly, launching a journal of international standards and publishing a series of policy papers on biological sciences are important measures the Academy is seriously considering for further expanding our forays into the society.

The executive committee under the dynamic leadership of the president has been streamlining all the activities by placing several systems in place like the Score Card for various awards and fellowships. The initiative taken by the secretary needs a special mention. I would personally like to thank each and everyone at NABS for their ceaseless support and enthusiasm. We would not have been here without such enormous level of backing and patronage from all of you.

(M. Anandaraj)  
Editor, NABS NL



## Obituary



Prof. Dr. K. Shiva Shankar who was born on 21 January 1938 attained eternal bliss on 26 January 2018 after a brief illness. Prof. Dr. K. Shiva Shankar is a greater teacher, leader, friend and philosopher to students of Agriculture both at Faculty of Agriculture, Annamalai University and University of Agricultural Sciences, Bangalore. His dedication to the cause of students' community shall ever be remembered by all the students' community connected with Agriculture. Prof. Dr. Shiva Shankar is a Fellow of National Academy of Biological Sciences (NABS) and Indian Society of Agronomy. He had specialized training at the Institute for Atomic Sciences in Agriculture, Wageningen besides his MS and D.Sc. in Katholieke University, Belgium. He became a life member of NABS in August 2008. He used to discuss on activities of NABS and gave several new and innovative ideas to enhance and improve the stature of NABS; he has been honored with NABS-Life Time Achievement Award for 2014 by NABS for his outstanding work on Environment Protection. He is the Founder President and Patron, Environment Protection Institute, Bangalore, Karnataka which promotes and disseminates knowledge and skills on Environment, Agriculture, Health & Sanitation especially to rural students, farmers, women and urban / rural professional societies. He made sustained efforts in greening agriculture / waste lands with bio-fuel plantations. He established Rain Water Harvesting System and Solar Lamps in Schools. His initiatives led to the exposure of rural students to issues confronting environment and agriculture. We the students, members of NABS pay our respectful homage to the departed soul and convey our profound grief and sorrow to the family members of Dr. K. Shiva Shankar. May his soul rest in peace!

## 4. News and Events

### 4.1. Tenth NABS-National Conference

The 10th NABS-National Conference with theme, "Recent trends in Life Science: Research, Practices and Application for Sustainable Development" was jointly organized by National Academy of Biological Sciences and Departments of Botany and Zoology, Bharathiar University, Coimbatore, Tamil Nadu from 7-8 September 2017.

#### Chief Patron

Prof. M.S. Swaminathan, Founder Chairman, MS. Swaminathan Research, Foundation, Chennai.

#### Patron

Prof. A. Ganapathi, Vice Chancellor, Bharathiar University, Coimbatore.

#### Organizing Secretaries

Dr. P. Ponnuragan, Associate Professor, Department of Botany & Dr. V. Ramasubramanian, Associate Professor, Department of Zoology, Bharathiar University, Coimbatore.

#### National Organizing Committee

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

*Secretary General:* Prof. Dr. T. Marimuthu, Secretary, NABS.

#### Conveners

Dr. A. Rajendran, Professor & Head, Department of Botany and Dr. M. Ramesh, Professor & Head i/c Department of Zoology, Bharathiar University, Coimbatore.

#### Inaugural function

- The inaugural function of the conference was organized on 7 September 2017 at Dr. Usha Kirtikal Mehta Convention Centre, Bharathiar University, Coimbatore.
- After the invocation, Kuthuvilakku was lit by the dignitaries as a mark of auspicious beginning of the conference.

#### Chief Guest

- Dr. K. Murugan, Vice Chancellor, Thiruvalluvar University, Vellore inaugurated the conference; released 'Phytospectrum' magazine; conferred "Prof. S. Kannaiyan Memorial Award-2017" on Prof. K. Muthuchelian, Former Vice Chancellor, Periyar University, Salem, TN.

#### Presiding dignitary

- Prof. A. Ganapathy, Vice Chancellor, Bharathiar University, Coimbatore presided; released 'Proceedings of 10th NABS National Conference' and delivered presidential address
- Prof. R.R. Hanchinal, Former Chairperson, Protection of Plant Varieties and Farmers' Rights Authority, Ministry of Agriculture and Farmers' Welfare, GoI, New Delhi conferred "Dr.APJ Abdul Kalam Memorial NABS-Life Time Achievement Award" on Prof. N. Anand, Formerly Vice Chancellor, VELS University, Chennai.

#### Felicitations

- Dr. V. A. Parthasarathy, President, National Academy of Biological Sciences, Chennai & Dr. Shilpi Paul, Member Secretary, Science and Engineering Research Board, New Delhi offered felicitation.
- Dr. Ponnuragan, Organizing Secretary, welcomed the gathering; Dr. V. Ramasubramanian, Organizing Secretary, briefed about NABS-10th 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. A. Rajendran, Professor & Head, Department of Botany, BU briefed about 'Phytospectrum' magazine.
- Dr. M. Ramesh, Professor & Head i/c, Department of Zoology, BU briefed about ANIMALIA, the News Letter.
- Dr. T. L. Baskaran, Treasurer, NABS proposed vote of thanks



10th NABS-Conference Venue:  
Dr. Usha Kirtikal Mehta Convention Centre,  
Bharathiar University



Dignitaries on the dais-  
Inaugural function of NABS-Conference



## Prof. S. Kannaiyan Memorial Oration-2017 on 07-09-2017

### Topic: Nanovectors and Drug delivery Systems in Cancer Therapy

#### 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

##### Oration delivered by

**Prof. K. Muthuchelian** (Prof. S. Kannaiyan Memorial Awardee-2017) & Formerly Vice Chancellor, Periyar University Salem, Tamil Nadu.

- The inaugural function was concluded after the National Anthem.

#### Valedictory function

##### Chief Guest

Prof. K. Ramaswamy, Vice Chancellor, Tamil Nadu Agricultural University presented "**Carl Linnaeus Award**" to Ms. S. Rageshwari and Ms. M. Suganya; handed over '**Appreciation Certificate**' to Mr. PS. Kuleshwar who presented paper under "**Prof. M.S. Swaminathan Award**" and delivered Valedictory address.

##### Presiding dignitary

Prof. R.R. Hanchinal, Former Chairperson, PPV & FRA, GoI, New Delhi presided; distributed '**Participation Certificates**' to students and delegates; delivered Presidential address.

##### Felicitations

Dr. V. A. Parthasarathy, President, NABS felicitated the award winners and delegates for their commitment and contribution.

Dr. V. Ramasubramanian, Organizing Secretary, welcomed the dignitaries and delegates; Dr. T.L. Baskaran honored the dignitaries; Dr. P. Ponnurugan, Organizing Secretary presented the '**Proceedings of 10th NABS-National Conference**';

Dr. D. J. Bagyaraj, Vice President, NABS honored the Organizing Secretaries-

Dr. P. Ponnurugan and Dr. V. Ramasubramanian.

Prof. T. Marimuthu, General Secretary, 10th NABS-National Conference proposed vote of thanks.



Prof. K. Ramaswamy delivers valedictory address



Prof. RR Hanchinal delivers presidential address



Dr. V.A. Parthasarathy offers felicitations



Organizing Secretaries are honored by Dr. DJ Bagyaraj, Vice President, NABS

The Conference was concluded after National Anthem

#### Technical Sessions

##### Lead Lectures

In all four Lead lectures were presented

##### Oration delivered by

**Dr. A. Kumar**, Principal Scientist, Indian Agricultural Research Institute, New Delhi

##### Topic:

Mechanism of bacterial endophytism in plants: Elucidation by expression analysis of *Arabidopsis-Pseudomonas putida* BP25 transcriptome.

**Dr. Shilpi Paul**, Member Secretary, Science and Engineering Research Board, New Delhi

##### Topic:

Medicinal plants: Phytoconstituents under variable phytogeographical conditions



**Dr. Sanjeeva Nayaka**, Principal Scientist, National Botanical Research Institute, Lucknow

**Topic:**

**Dr. Yashpal S, Malik**, Principal Scientist, Indian Veterinary Research Institute, Lucknow.

**Topic:**

Biotechnological Innovation in Developing Diagnostics for Animal Enteric Viral Infections.

### Oral Presentations

In all four technical sessions were held. (i) Biomedical and Pharmaceutical Sciences (10 oral presentations); (ii) Biotechnology and Nanotechnology (13 oral presentations); (iii) Environmental Sciences (16 oral presentations) & (iv) Plant and Animal Sciences (14 oral presentations).

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

This session was organized on the FN of 7 September 2017 which was chaired by Dr. M. Subramanian, Former Director of Research, TNAU, Coimbatore; Co-chaired by Dr. K. Natarajan, Former Professor of SS & AC, TNAU, Coimbatore with the following panel members.

Dr. N. Mathivanan, Director, CAS in Botany, University of Madras, Chennai; Dr. Renu Agrawal, Former Chief Scientist and Rural Development Coordinator, CSIR-CFTRI, Mysore; Dr. A. Kumar, Principal Scientist, IARI, New Delhi; Dr. S. ThyagaRajan, Prof. & Head, Department of Biotechnology, SRM University, TN. The best paper was selected by the above judging committee. Ms. S. Rageshwari and Ms. M. Suganya shared Carl Linnaeus Award Cash prize of Rs.5000/- (shared) and Certificate of Award was presented during the valedictory function (vide section-5.1B of NL.)

### Poster Presentations

Separate Poster sessions were arranged during the two days conference. The best poster presentations were awarded with a certificate (vide 5.1.B-page of NL).



Scientists / Students explaining their findings to the panel of judges

### Annual General Body Meeting (AGM)

The Ninth Annual General Body meeting of NABS was held at Dr. Usha Kirtilal Mehta Convention Centre, Bharathiar University, Coimbatore on 8 September 2017. 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.



Group photo of all Fellows & awardees during AGM

The President, NABS conferred the Fellowship for 2017 on the elected members of NABS. All the other awards were presented by Prof. R.R. Hanchinal, Former Chairperson, PPV & FRA, GoI, New Delhi (vide 5.1.B.)

## 5. Awards, Recognitions, Honors received by members of NABS / Activities of the members

### 5.1. Awards, Recognitions and Honors

Congratulations to all the NABSians who received awards and recognition from various institution and organizations in the country and outside during 2015-16.

**Name of Member****Name of Award /Recognition received****A. Awards and recognitions received from other organizations****Amaresan, N.**

- Young Scientist award in Agricultural Microbiology-2016 by Association of Microbiologists of India
- Elected as President, Association of Microbiologists of India-Uka Tarsadia Unit (2016)

**Anandaraj, M.****Behere, G.T.**

- Nominated as Chief Editor of Indian Phytopathology for 2017-2019
- Elected as Fellow of Royal Entomological Society (FERS), London United Kingdom (2016)
- Selected NAAS Associateship (2017) by National Academy of Agricultural Sciences (NAAS) under Plant Protection Science

**Francis Borgio, J.**

- Nominated as the Member of the IRMC Main Council by the President of the Imam Abdulrahman Alfaisal University, (Formerly: University Of Dammam), KSA.
- Team Representative of the Department of Genetic Research and Electron Microscopic Unit, Institute for Research and Medical Consultations (IRMC), Imam Abdulrahman Alfaisal University, (Formerly: University of Dammam), Dammam, Kingdom of Saudi Arabia. On 05th June 2016.
- Appointed as Convener - Academic Sub Committee, International Indian School – Dammam, (An Indian Embassy school with >18,000 students), Dammam, Saudi Arabia. On 13th May 2016

**Ganesh Kumar, C.**

- Elected as Fellow of the National Academy of Agricultural Sciences (NAAS) (2016)
- Elected as Fellow of The Biotech Research Society of India (2016)
- Elected as Fellow of the Telangana Academy of Sciences (2016)
- Received AMI-Louis Pasteur Award-2017 from Association of Microbiologists of India

**Kalbande, S. R.**

- Received ISAE Distinguished Service Certificate Award 2015-16 of Indian Society of Agricultural Engineers, New Delhi.
- Received SADHNA Achievers Award 2016 of Society for Advancement of Human and Nature, Solan, HP.

**Krishna Gopal Mandal**

- ISA Fellow 2013 of the Indian Society of Agronomy (ISA), New Delhi (2016)
- Fellow of the West Bengal Academy of Science and Technology (WAST), Kolkata (2016)

**Manivel, P.**

- Received the Best Scientist Award -2016 (Agricultural Sciences (Plant Breeding and Genetics) by PEARL- A Foundation for Educational Excellence, Madurai, Tamil Nadu.

**Murty, USN****Muthukumar, M.**

- Posted as Officiating Director of NIPER from 8 March 2017
- Received "Young Scientist Award (2016) in the field of Botany awarded by International Foundation for Environment and Ecology, Kolkata and Confederation of Indian Universities, New Delhi, India.

**Paroda R.S.**

- Awarded First U.S. Awasthi-IFFCO Award in the category of "Agriculture Development and Agriculture Research".

**Paul Khurana, SM**

- Conferred with 'YL Nene Outstanding Plant Pathology Teacher Award by ISMPP, Udaipur, Rajasthan



### **Prakasam, V.**

- Appointed Director, India Program for STEPS Foundation, (Greece/USA):50th Anniv Celebrations, 2016-17.
- Invited for Key Note in the 9th Olympiad of Mind, Crates (Greece), Sept 14-16, 2017.
- Appointed as Advisor (2017-2019), NewOmics, Australia, Melbourne.
- Appointed as Executive Officer, Krishnamuthi Chief International Agricultural Development Foundation (KIADEF), Coimbatore
- Appointed as Quality Manager, Indian Society for Certification of Organic Products (ISCOP), Coimbatore
- Nominated as Member, Executive Committee, Agricultural College Coimbatore, Past Students Association (ACCOPSA), Coimbatore

### **Prakashkumar, R. Pramod W Ramteke**

- Elected as Fellow, National Academy of Sciences India, (FNASc).
- Elected as Fellow of Society of Plant Protection Sciences.
- Awarded with 'Life Time achievement Award' by Society of Biological Sciences and Rural Development.
- SPR's Noble Award-2016 by Society of Plant Research.
- Dr. J. C. Edward Medal by Bioved Research Institute of Agriculture & Technology.

### **Renu Agrawal**

- Conferred with 'Abdul Kalam Life Time Achievement Award' by international Institute of Economic and Social Reforms.
- Visiting Scientist: Swami Vivekananda Youth movement (Management in Development); Pooja Bhagwat Biotechnology Centre, Pratham chain of schools.

### **Sajeena. A,**

- Received the 'Second Best Poster Presentation Award' during the 6th International Conference on Plant, Pathogens and People- Challenges in Palnt Patholgoy to benefit Human Kind” organized by IPS (2016) for the paper entitled “Fermented extract of Setaria barbata, a common weed and fermented egg- lemon juice extract – novel biopesticides for eco friendly disease management and crop growth”.

### **Selvam, P.**

- Selected as Fellow of International Society for Noni Science (FISNS), 2016.
- Received 'Best Oral presentation award' during Noni Search 2016, Lucknow, Dec 2016 for the Paper entitled” “Design, Synthesis of Biogenic silver nanoparticles from Morinda citrifolia L Noni and its anticancer potential”
- Elected as President of antiviral Research Society, Tamil Nadu

### **Shabir Hussain Wani**

- Received Young Scientist Award-2017 by Indian Ecological Society, Punjab Agricultural University Ludhiana, India.
- Received Young Scientist of the Year 2016 from International Foundation on Environment and Ecology, Kolkata and Association of Indian Universities.
- Received Young Achiever Award- 2016 fby Society for Advancement of Human and Nature (SADHNA) YS Parmar University of Horticulture and Forestry Nauni, Solan, Himachal Pradesh, India.
- Visiting Scientist at the Department of Plant Soil and Microbial Sciences, Michigan State University, East Lansing, Michigan USA from July 2016 till date.

### **Sharangi, A. B.**

- Elected as Fellow, Society for Applied Biotechnology.
- (FSAB) (2016) by Society for Applied Biotechnology, Krishnagiri, Tamil Nadu.

- Elected as Fellow, International Society for Research and Development (FISRD) (2016) by International Society for Research and Development, UK.
- Received Reviewer Excellence Award by ARCC (Agricultural Research Communication Center), Karnal, Haryana.
- Nominated as Chief Editor, International Journal of Agricultural Research, Academic Journals Inc., USA
- Received Life time achievement award from Vinus International, 2016
- Received an award for Best Scientific Contributions from CSIR-CFTRI, 2016.
- Received Narasimharao Best Post Award along with the student at National Annual Meeting of Society of Biological Chemists (INDIA), 2016.
- Nominated as Associate Editor for the following peer review journal: *Plant Molecular Biology Reporter*; *Acta Physiologia Plantarum*; *Journal of Plant Biochemistry and Biotechnology*; *Scientific Report* (Nature group of Publications).
- Conferred Fellowship by Indian Association for the Advancement of Veterinary Research (FIAAVR) (2017).

**Shylaja M Dharmesh**

**Tapan Kumar Mondal**

**Veer Singh**

## **B. Awards, Fellowship and recognitions received from National Academy of Biological Sciences during 10th NABS-National Conference and Annual General Body meeting held at Bharathiar University from 7 to 8 September 2017**

### **Prof. S. K. Memorial Award-2017**

**Prof. K. Muthuchelian**

Formerly Vice Chancellor, Periyar University, Salem & Presently Professor & Chair, School of Energy, Environment and Natural Resources, Madurai Kamaraj University, Madurai Conferred with **Prof. S. Kannaiyan Memorial Award (2017)**

### **Dr. APJ Abdul Kalam Memorial NABS-Life Time Achievement Award-2016**

**Prof. N. Anand**

Former Vice Chancellor, VELS University, Chennai, Former Dean (Research) & Director, CAS in Botany University of Madras, Chennai Conferred with **Dr. APJ Abdul Kalam Memorial NABS-Life Time Achievement Award (2016)**

### **NABS-Fellowships for 2016**

**Dr. Narayan Bhaskar**

Conferred with **Fellow of National Academy of Biological Sciences [Under Food Sciences]**

**Dr. Bikash Mandal**

Conferred with **Fellow of National Academy of Biological Sciences [Under Agricultural Sciences & Forestry] - conferred *in absentia***

**Dr. Dinesh Singh**

Conferred with **Fellow of National Academy of Biological Sciences [Under Agricultural Sciences & Forestry]**



**Dr. Narayan Bhaskar**



**Dr. Dinesh Singh**



**Dr. Prakash M Halami**

Conferred with Fellow of National Academy of Biological Sciences  
[Under Basic Sciences]

Dr. Prakash M Halami



**Dr. Yashpal Singh Malik**

Conferred with Fellow of National Academy of Biological Sciences  
[Under Veterinary & Fisheries]

Dr. Yashpal Singh Malik



**Dr. M.K. Naik**

Conferred with Fellow of National Academy of Biological Sciences  
[Under Agricultural Sciences & Forestry] - conferred *in absentia*

**Dr. B. N. Chakraborty**

Conferred with Fellow of National Academy of Biological Sciences  
[Under Basic Sciences]

Dr. B. N. Chakraborty



**Dr. Ram Roshan Sharma**

Conferred with Fellow of National Academy of Biological Sciences  
[Under Agricultural Sciences & Forestry] - conferred *in absentia*

**Dr. Jyoti Prakash Tamang**

Conferred with Fellow of National Academy of Biological Sciences  
[Under Basic Sciences] - conferred *in absentia*

**Dr. Ramesh C. Ray**

Conferred with Fellow of National Academy of Biological Sciences  
[Under Basic Sciences]

Dr. Ramesh C. Ray



**NABS-Best Woman Scientist Award-2016**

**Dr. A. Gnanamani**

Conferred with NABS-Best Woman Scientist Award  
[Under Basic Sciences]



**NABS-Best Scientist Award-2016**

**Dr. Chityal Ganesh Kumar**

Conferred with Dr. G. S. Venkataraman Memorial  
NABS-Best Scientist Award  
[Under Basic Sciences]



## **NABS-Leadership Award-2016**

**Dr. B. Vasantharaj David**

Conferred with NABS-Leadership Award



## **NABS-Young Scientist Award-2016**

**Dr. N. Amaresan**

Conferred with NABS-Young Scientist Award

[Under Basic Sciences]



## **NABS-Best Research Paper Award-2016**

**Dr. R. Sandeep Varma**

Conferred with Dr. C. M. Singh Memorial

NABS-Best Research Paper Award

[Under Veterinary and Fisheries]



**Dr. Yatendra Kumar Satija**

Conferred with Prof. T. S. Sadasivan Memorial

NABS-Best Research Paper Award

[Under Basic Sciences]



## **Carl Linnaeus Award & Prof. M.S. Swaminathan Awards for 2017**

**Ms. S. Rageshwari**

Department of Plant Pathology,

Tamil Nadu Agricultural University, Coimbatore &

**Ms. M. Suganya**

Department of Biotechnology,

K. S. Rangasamy College of Technology, Tiruchengode

Conferred with Carl Linnaeus Award (2017)

[The Award was shared by them]



**Mr. PS. Kuleshwar**

Indian Agricultural Research Institute, New Delhi

Receives Appreciation Certificate

under Prof. M.S. Swaminathan Award (2017)





## Group photo



### 5.2. Activities of members

#### 5.2.1. Dr. S. R. Kalbande

- Organized ICAR sponsored short course on “Eco-friendly Renewable Energy Technologies for Sustainable Power Generation and Energy Conservation” during November 21-30, 2016 as Course Director.

#### 5.2.2. Dr. P. Selvam

- Organized DST- SERB sponsored “National Seminar on Recent Trends in HIV/AIDS Drug Discovery”, December 27-28, 2016.

#### 5.2.3. Dr. Pradeep Sharma

- Visited Department of Biochemistry & Molecular Biology, Oklahoma State University, Stillwater, USA from 15 June to 15 Oct 2017 and worked with Prof. Ramanjulu Sunkar on determining role of small RNAs in abiotic stress.

#### 5.2.4. Dr. Shashikant S. Udikeri

- Visited Islamic Republic of Iran from 16th to 31st August 2017 as International Visiting Fellow of Indian National Science Academy, New Delhi and Academy of Sciences in Iran, Tehran. He carried out consultative experimental field and laboratory visits at Cotton Research Institute of Iran, Gorgan mainly, Agricultural Research and Education and Natural Resources Centre of Tehran, Varamin and Khorasan Razavi Agriculture Research Centre, Mashhad. At GRI, Gorgan three international workshops were conducted by him as resource person and co-organizing secretary for the benefit for research scientists, extension officials farmers and industry representatives.

#### 5.2.5. The Lecture Workshop

- The Lecture Workshop of Indian Academy of Sciences Bangalore, Indian National Science Academy, New Delhi and The National Academy of Sciences India, Allahabad was arranged for two days at Sengamalathayar Educational Trust Women's College, Mannargudi and MR Government Arts College, Mannargudi of Tamil Nadu in which Dr. D. J. Bagyaraj and Prof. T. Marimuthu delivered the following lectures as resource persons.

**At Sengamalathayar Educational Trust Women's College, Mannargudi, Tamil Nadu (11 & 12 October, 2017).**

#### **Prof. T. Marimuthu**

- i. Noni, *Morinda citrifolia* L., and Health Security
- ii. Perspectives of Biological Control of Plant Pathogens

#### **Dr. D. J. Bagyaraj**

- i. Arbuscular Mycorrhizal Fungi for Sustainable Agriculture
- ii. Soil Biodiversity

**At MR Government Arts College, Mannargudi, Tamil Nadu (12 & 13 October, 2017).**

#### **Prof. T. Marimuthu**

- i. The Journey of Mushroom Production: From Cottage Industry to an Entrepreneurial Venture
- ii. Plant Protection Technologies: Do they require a Paradigm shift?

#### **Dr. D. J. Bagyaraj**

- i. Microorganisms and Human Welfare
- ii. Role of Microorganisms in 'P' nutrition of crops

## **6. Carl Linnaeus and Prof. MS Swaminathan Award winning papers**

### **Preamble**

- The awards, in the name of pioneering scientists, are instituted by National Academy of Biological Sciences to bring out the ability of students to choose a hypothesis, problem, planning and execution of research programs and presentation skill of the students engaged in higher studies (M.Sc. & Ph.D.).
- The awards took effect from 10th NABS-National Conference held at Bharathiar University, Coimbatore, Tamil Nadu from 7-8 September 2017.
- Carl Linnaeus Award [*for Ph.D. students*] will carry a certificate and a cash award of Rs.5000/- (Rupees Five thousands only).
- Prof. M. S. Swaminathan Award [*for M.Sc. students*] will carry a certificate and a cash award of Rs.4000/- (Rupees Four thousands only).
- The Papers were presented during 10th NABS-National Conference held at Bharathiar University, Coimbatore. Ms. S. Rageshwari and Ms. M. Suganya shared Carl Linnaeus Award.



## Abstracts of Carl Linnaeus Award winning papers

### 6.1. DAC-Elisa and RT-PCR based confirmation of systemic and latent infection by Tobacco streak virus in Cotton and Parthenium – S. Rageshwari

Tobacco streak virus (TSV), the causal agent of cotton necrosis, is an emerging disease of national significance in India. Owing to its significance, cotton plants cultivated in Tamil Nadu, India were surveyed for cotton necrosis during 2015-2016. The samples collected from different cotton-growing tracts of Tamil Nadu were observed for the presence of symptoms associated with TSV infection in cotton (*Gossypium hirsutum* and *Gossypium barbadense*).

Serological assay by direct antigen coating enzyme linked immunosorbent assay (DAC-ELISA) revealed the presence of TSV in leaf, square, stem, root, petiole and pollen grains of both asymptomatic and symptomatic samples of variety CO 14 of cotton. Similarly, the presence of TSV in different plant parts including root, stem, leaf, pollen grains and squares in both asymptomatic and diseased plants was confirmed through reverse transcriptase polymerase chain reaction (RT-PCR).

All the samples collected from both asymptomatic and symptomatic samples yielded the expected PCR product of 929 bp including the coat protein gene of TSV and thus confirmed the systemic nature of the virus. Since parthenium (*Parthenium hysterophorus*) serves as a reservoir of TSV, attempts were also made to confirm the systemic nature of TSV in asymptomatic parthenium plants. DAC-ELISA and RT-PCR based detection tools confirmed the presence of TSV in the asymptomatic leaf, stem and pollen grains.

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### 6.2. Synergistic anticancer effect of Genistein and Doxorubicin in Lung Adeno Carcinoma cells- M. Suganya

Genistein is an abundant, naturally occurring isoflavonoid found in soy product that has been demonstrated to increase the anti-neoplastic activity of certain chemotherapy drugs in multiple tumor types. Doxorubicin characterized by damaging DNA, is widely used in the chemotherapy of malignancies, including lung, breast, colon and myeloid leukemia cancers, etc. The present study is to investigate whether synergistic effects exist between the combination of genistein and doxorubicin and its possible mechanism under *invitro* condition. The interactive effect of genistein in combinations with various concentrations of doxorubicin was evaluated in the human lung adeno carcinoma cells (A549). The inhibition of cell proliferation was determined by -3-(4,5)-dimethylthiazol(-2-yl)-2,5-diphenyltetrazolium bromide assay and the mechanisms of nuclear fragmentation as well as chromatin condensation, and DNA fragmentation associated with the appearance of apoptosis. These results suggest that genistein and doxorubicin in combination can inhibit the proliferation of A549 cells efficiently through induction of apoptosis. Overall, the present data suggested that genistein in combination with doxorubicin could enhance the anti-proliferative effects on lung cancer cell and that a combination of both potential drugs is a good candidate for pre-clinical studies in the treatment of different carcinoma cell types.

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## **Abstract of paper presented for Prof MS Swaminathan (for M.Sc. students) Award**

**[Appreciation Certificate given since the minimum number of papers were not received for competition]**

### **6.3. Metagenomic analysis of rice phyllospheric microbiome in relation to blast disease-**

In order to elucidate the phyllosphere bacterial composition of blast susceptible (PRR78) and resistant (Pusa 1602) rice genotypes, metagenomic analysis and culture based method was adopted. Metagenomic analysis led to identification of 9207 and 3199 species with Shannon diversity index of 6.78 and 2.79 respectively for susceptible and resistant genotypes. The susceptible genotype harboured significantly more bacterial communities than resistant cultivar. The cultured isolates were subjected to 16S rDNA sequence based identification. Bacterial species belonging to phylum Proteobacteria was found to be most dominating over other group of bacteria. The present study revealed dominance of pigmented bacterial species on rice phyllosphere. Bacterial species were subjected to in vitro interaction with *Magnaporthe oryzae*. Nineteen out of them were found to completely inhibit the fungal growth. Fourteen of them were found to display fungicidal and five of them showed fungistasis.

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### **6.1.1. Research notes and short communications from members**

#### **6.1.1a. Development of single basin solar desalination system coupled with vacuum tubes**

A solar still coupled with evacuated tube collector was designed and developed for distillation of water. The daily yield of 8 litre for 0.03 m water depth in basin was obtained in normal sunny days of summer season. The distillate yield were found to be 8.38,8.23,7.45,8.25 ml for sample 1,2,3 and 4 at corresponding average wind velocity of 2.6,1.43,1.94,2.8 m/s, respectively thus the productivity increased with the increase in wind speed. The daily yield of about 8.38,8.23,7.45,8.25 ml for samples 1,2,3 and 4 were recorded at average solar insolation of 541.72, 527.26,51.59,557.96 W/m<sup>2</sup> for particular day ,respectively. Similarly yield of about 8.38,8.23,7.45,8.25 ml for samples 1,2,3 and 4 was recorded at average ambient temperature of 39.25, 38, 38.16, 40.75 °C, respectively. The maximum daily energy efficiency was found to be 34.39, 34.38, 35.7, 35.06 % for samples 1,2,3 and 4, respectively. The maximum daily exergy efficiency was found to be 4.04, 4.27, 4.12, 4.16 % for samples 1,2,3 and 4 ,respectively due to thermal losses in system. As the wind velocity increased, the convective heat loss from glass cover to ambient increased, hence the glass cover temperature decreased which helped to increase the water glass cover temperature difference thereby the overall yield increased. Heat loss coefficient increases until it reaches maximum in solar noon due to high temperature difference between the inside still and the ambient temperature at this time, then it decreased at afternoon. The average internal heat transfer coefficient i.e convective, radiative and evaporative was found to be 3.7, 8.33,99.24 W/m<sup>2</sup>K ,respectively. The external heat transfer coefficient such as average overall top heat loss coefficient was found to be 9.92 W/m<sup>2</sup>K as compared to bottom heat loss coefficient 0.31 W/m<sup>2</sup>K. Therefore distillate yield was found to be maximum economic indicator viz., payback period, benefit cost ratio and net Present worth of the system for distillation of water in solar still with evacuated tube collector was found to be 1 year 7 months and 24 days, 1.26 and Rs.54349, respectively. The value of NPW was found positive. Thus, there was a positive net returns of the investment made in the project. Hence the distillation of water in solar still was found economically viable. The chemical analysis of distilled water suggested that the total dissolved solid was reduced to 19.2 and 38.4 from 953 to 1946 ppm, before distillation

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### **6.1.1b. Genome-wide Association Analysis and QTL Mapping for Resistance to *Pythium sylvaticum* in Soybean (*Glycine max* L.) (2017) Feng Lin, (Plant and Animal Genome Conference, San Diego, USA in January 2017)**

*Pythium* root rot is a threat for soybean growers in United States. It is caused by several oomycete pathogens of the genus *Pythium*, such as *P. sylvaticum*, *P. oopapillum*, and *P. irregulare*. Negligible study has been done for resistance to *P. sylvaticum*, which is the most prevalent species in Michigan. An elite cultivar E09014 developed at Michigan State University was found to carry good resistance to *P. sylvaticum*, and a mapping population of 238 F4:7 RILs was developed by crossing E09014 with E05226-T, having moderate resistance. 92 of the RILs were genotyped with BARCSoySNP6K BeadChips, and a high density linkage map with 1438SNP markers were established into 29 linkage groups. Association analysis suggested two putative QTLs on the long arm end of chromosome 10, each explaining 16.7% (q10a, LOD=5.47) and 12.3% (q10b, LOD=3.85) of the phenotypic variation, respectively (the LOD threshold was determined by permutation 1000 times). Moreover, an association panel consisting of 99 accessions of MSU developed elite lines and 126 accessions from Plant Introductions were genotyped by BARCSoySNP50K BeadChips and were used for genome wide association study (GWAS). Analyses with general linear model (GLM) and mixed linear model (MLM) both found strong peaks on Chr 10, with significant marker Gm10-48769298 ( $R^2=13.8\%$  and  $11.2\%$  for GLM and MLM, respectively), which is close to q10a and q10b. These results strongly support the presence of a major locus on Chr 10 region for resistance to *P. sylvaticum*. Further work is in progress to fine map the QTL and develop markers for MAS.

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### **6.1.1c. Identification and functional characterization of salt responsive genomics resources of rice and its wild species.**

A study to understand the salinity tolerance mechanisms of rice, identifying salinity stress related genes, miRNAs, long non-coding RNAs from tolerant genotype of rice and some of its wild species, revealed that promoter methylation of miRNA genes along with variation of primary miRNA sequences is the major cause for miRNA-mediated salinity stress adaptation in rice. Further, the author has developed novel co-dominant markers in rice for the first time. They are candidate gene-based SSRs and hyper-variable non-coding DNA markers such as genome-wide miRNA-SSRs, long non-coding-SSRs of rice for genotyping application. I have used them to study the genetic diversity of Indian rice germplasm, DNA fingerprinting of released rice cultivar and to identify alternative saltol [salinity tolerance QTL of rice] QTL donors of rice. The author also identified salt responsive miRNAs from rice, *Oryza coarctata*, only halophytic species in the genus *Oryza*, *Oryza glaberrima*, African rice. Using comparative genomics approach; discovered miRNA genes from 9 other *Oryza* species. Experiments are underway to make transgenic rice with some of the miRNA genes of wild species of rice.

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## 7. 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]

Sl. No.	Name of contributor	Amount (Rs.)
	Nil	

- We earnestly appeal to all the rest of the Life members, NABS Fellows / Associate Fellows, Corporate Life Members, Corporate Fellows and well wishers to contribute to this noble cause. The amount may be paid as Cash or through a Demand Draft / Multicity Cheque drawn in favour of National Academy of Biological Sciences payable at Chennai.
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### 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](mailto:secretarynabs@gmail.com))

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