

NABS *News Letter*

National Academy of Biological Sciences

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Former Chairman, NBA, GOI, Chennai

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From the Desk of the President.....

Dear NABSians

I am happy to convey my greetings and wishes to all the Fellows elect and awardees for the year 2014. The fellowship and the awards will be presented on 21 / 22 August 2015 at the Inaugural function / Annual meeting of NABS.

The NABS grow in leaps and bounds and with all your unstinted support make us all proud and we hope it will keep growing and serve the cause of biological sciences. I request every Fellow and the Life member of NABS to enroll as many new members to the Academy as possible.

I would like to place on record on behalf of NABSians our sincere thanks and gratitude to University of Mysore which readily agreed to host the 8th series of Interactive Workshop / seminar with the theme- "Biological Products for Crop and Human Health-Problems and Prospects". Dr. S. R. Niranjana, Vice-Chancellor, Gulbarga University, Karnataka who is also the coordinator for NABS National seminar deserves appreciation for spearheading the whole process. We congratulate Prof. Niranjana for having been appointed as Vice Chancellor of Gulbarga University.

I am highly grateful to Prof. R. R. Hanchinal, Chairperson, PPV & FRA, GOI and Prof. K. S. Rangappa, Vice-Chancellor, University of Mysore for patronizing the National Seminar. I also profusely thank all the National Advisory Committee Members for the contributions in organizing the National seminar.

Several awards are instituted in the name eminent scientists- Dr. G. S. Venkataraman Memorial NABS-Best Scientist Award (under Basic Sciences); Dr. B. P. Pal Memorial NABS -Best Scientist Award (Under Agricultural Sciences and Forestry); Dr. V. S. Alwar Memorial NABS-Best Scientist Award (under Veterinary and Fisheries); Dr. Smt. Rajammal P. Devadas Memorial NABS-Best Scientist Award (under Food Sciences)], and NABS-Best Research Paper Award- Prof. T. S. Sadasivan Memorial NABS Best Research Paper Award (under Basic Sciences); Prof. G. Rangawami Memorial NABS Best Research Paper Award (under Agricultural Sciences & Forestry); Dr. C. M. Singh Memorial NABS Best Research Paper Award (Veterinary & Fisheries); Dr. V. Subrahmanyan Memorial NABS Best Research Paper Award (under Food and Nutrition). We, the NABSians pay our tributes to the great scientists who contributed to the Biological Sciences and to the nation at large. I would like to place on record our gratitude to the Screening Committee and the Selection Committee members for their efforts in selecting the Fellows and awardees.

I thank all the NABSians, Vice-President, Secretary, Foreign Secretary, Treasurer, Editor and all the EC members for their tireless efforts in making things happen.

The two prestigious awards have been given to the doyens of the profession, Padma Bhushan Prof. Dr. M. Mahadevappa (Prof. S. Kannaiyan Memorial Award) and Prof. Dr. K. Shiva Shankar (Life Time Achievement Award). Our congratulations to them and NABS is proud of their achievement.

(V. A. Parthasarathy)
President, NABS

National Academy of Biological Sciences

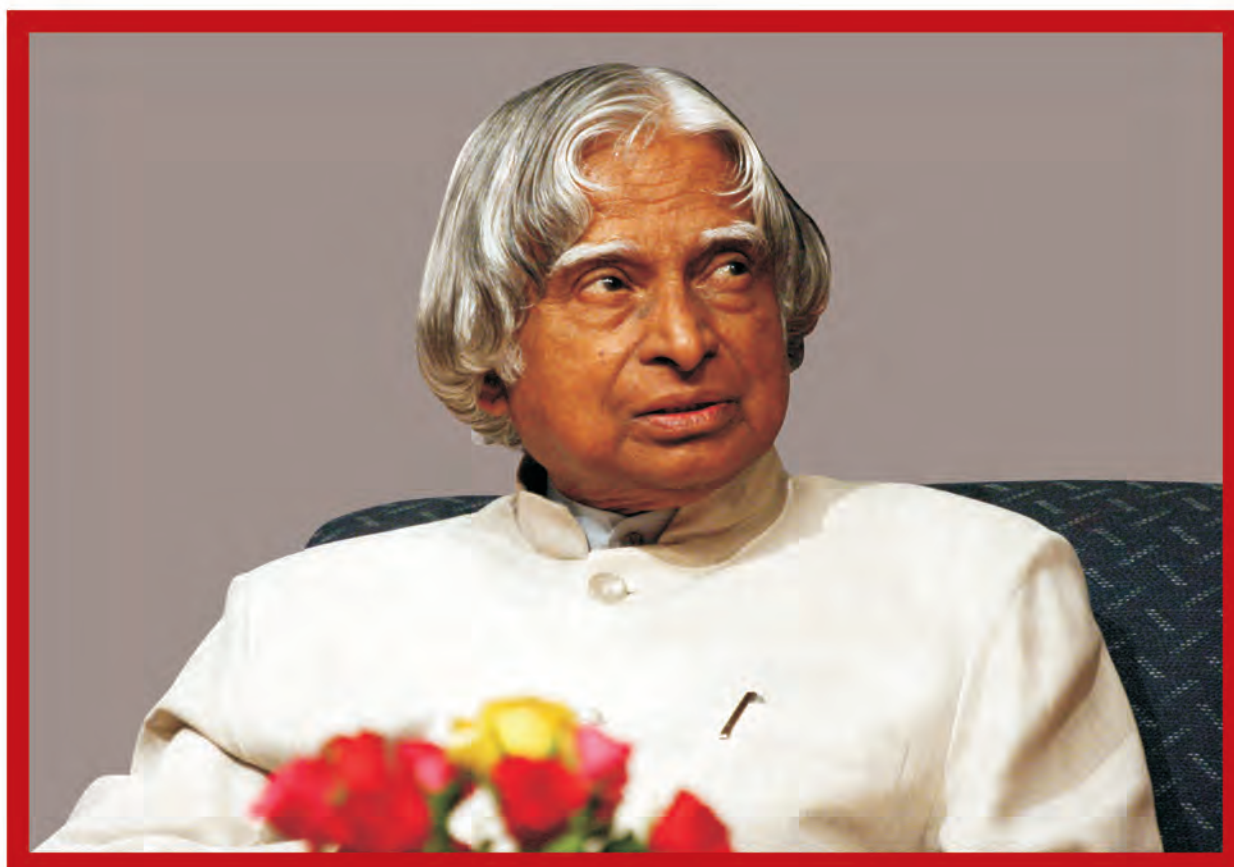
Chennai, Tamil Nadu

Respectfully Pays

HOMAGE TO

Dr. A. P. J. Abdul Kalam

Former President of India



**A GREAT TEACHER, SCIENTIST AND ABOVE ALL
A GREAT HUMAN BEING**

2. From Editor's Desk

Greetings to all at NABS.

I am glad to note that NABS is on the verge of completing 10 years of yeoman service to science and the society. From being a baby nurtured and tutored by our founder President Prof. Dr. S. Kannaiyan and the present Secretary Dr. T. Marimuthu, it has been an exciting journey of self discovery and unprecedented growth for the academy with immense contributions from the global scientific community. Though we are still a fledgling academy and the challenges from bigger academies notwithstanding, we have irrevocably proven that we have the collective strength to draw attention to the systemic challenges faced by the global scientific community. Now, as we approach the second decade of our existence, we must garner all our resources and acumen to provide a specific perspective to the state of present and future science. A mighty challenge today is to confront the world that has never ceased to expand in all directions. While doing so, the global world which has become an entity in its own right, hurls insurmountable challenges that need to be resolved with collective effort. Conversely, NABS with its strong scientific knowledge base and nerves of steel will be able to respond effectively to these challenges and opportunities. We at the academy need to work for the furtherance of science and technologies that are relevant and of quality by developing critical and creative thinking by participating as well as conducting scientific exchanges that would help encourage changes that can put the world on a more sustainable path and stimulate overall development. Besides meetings, workshops and symposia, this newsletter has also been serving as an effective medium to exchange ideas as well as publish new and exciting findings. On behalf of the academy, I sincerely thank all the members who have contributed in making the newsletter an effective medium for communicating their research findings, opinions and views. To make it more effective I urge all the members to push the shorter version of their new findings in this newsletter before communication of the full length paper to research journals.

In the coming decade, we at NABS are optimistic that the academy will make critical forays in a sustained and coordinated way for ensuring a world that is scientifically literate and self sustaining by learning to live together, learning to be, learning to do and learning to know.

(M. Anandaraj)

3. News and Events

i. Inter-Academy meeting on Science-led development in India during the Silver Jubilee celebrations of NAAS at New Delhi on June 3, 2015.

Dr. D. J. Bagyaraj, Vice-President (NABS) & NASI Sr. Scientist & Chairman, CNBRCD, 41 RBI Colony, Anand Nagar, Bangalore 560 024 represented National Academy of Biological Sciences at the invitation of NAAS President and made a presentation. The gist of the presentation is given below:

NABS was established on Dec 31, 2004 by Prof. S. Kannaiyan, then Chairman, NBA, MoEF, GOI with HQ's at Chennai. The EC at the time of registration was Prof. S. Kannaiyan (Founder President), Prof. N. Anand (Vice-President), Prof. S. S. Gnanamanickam (Secretary), Dr. T. L. Baskaran (Treasurer) and 3 EC Members, Prof. V. Sundararajan, Dr. K. Balaraman and Prof. T. Sunbramoniam.

The Academy was registered as "National Academy of Biological Sciences" under TN Societies Registrations Act, 1975 on March 10, 2005 at Chennai with Reg. No. 110/2005. The Secretariat of the academy functions from 12, Rajiv Gandhi Road, Perungudi, Chennai 600 096 [E-mail: secretarynabs@gmail.com, Website: www.nabsindia.org]

Vision

To provide a common platform for the biologists to interact with each other for mutual benefit and to further the knowledge on areas of biological sciences

NABS Logo

The logo consists of two lined circle within which the following pictures are depicted.

- A mango tree with bearing which represents horticultural and forestry wealth of the country
- Rice ear head which represents food and nutrition security to be provided through research on biological systems
- DNA helix represents advancement in biological sciences especially biotechnology which provides a deep insight in understanding the function of life
- Fish in the bottom of the circle represents all aquatic and terrestrial life of the universe

The Present Executive Council members are Dr. V. A. Parthasarathy (President), Dr. D. J. Bagyaraj (Vice-President), Dr. T. Marimuthu (Secretary), Dr. S. S. Gnanamanickam (Foreign Secretary), Dr. T. L. Baskaran (Treasurer), Dr. M. Anandaraj (Editor - NABS Newsletter) and 13 Executive Council members. A few Eminent Scientists associated with NABS are Prof. M.S. Swaminathan, Dr. R. S. Paroda, Dr. Kirti Singh, Dr. S. Ayyappan, Dr. M. Mahadevappa, Dr. R. R. Hanchinal and Prof. P. I. Peter. Executive Council meets periodically to discuss issues like Election of Fellows, Associate Fellows, Honorary Life Membership, Enrolling Corporate Membership, Discussions on Policy issues and NABS-Newsletter *etc.*

Currently NABS has 593 Life Members, 16 Provisional Life Members, 13 Honorary Life Members, 5 Corporate Life Members and 1 Corporate Fellow.

Recognized branches of biological sciences by the academy are 1. Basic Sciences which includes Botany, Zoology, Microbiology, Biochemistry, Physiology, Genetics, Biotechnology, Molecular Biology, Biophysics, Marine Biology and Environmental Sciences; 2. Agricultural Sciences and Forestry (which includes all agricultural and forestry subjects); 3. Veterinary sciences and Fisheries (which includes all veterinary and animal husbandry and fishery sciences); 4. Food and Nutrition (which includes all food and nutrition subjects).

Election of Fellows / Associate Fellows

Every year the nomination for the Fellows and Associate Fellows are called for on 1st of December and the last date will be 31st of December. The Technical Review Committee (TRC) constituted for the purpose will scrutinize applications and place their recommendation to the Executive Council (EC) for approval by the President. NAAS Fellows are also conferred with NABS Fellowship on specific nomination by EC.

Activities of NABS

The academy periodically organizes interactive workshops and seminars on various themes in biological sciences for the benefit of student community, members of NABS and faculties. The Interactive workshops and seminars organized so far are given below.

Date	Venue	Topic of Interactive Workshop (IW) / National Seminar (NS)
01 30-09- 2008	IISR, Calicut, Kerala	Microbial Interactions for Food Security [IW]
02 24-11-2008	CTCRI, Thiruvananthapuram, Kerala	Tuber Crops in Food Security [IW]
03 30-07-2009	Loyola College, Chennai, TN	Biology in Human Welfare [IW]
04 12 & 13-03-2011	PRIST University, Thanjavur, TN	Biotechnological Approaches for Sustainable Development [NS]
05 14 & 15-05-2012	University of Madras, Chennai, TN	Prospects of Medicinal Plant in Promoting Wellness [NS]
06 20 & 21-07-2013	Bharathidasan University, Tiruchirappalli, TN	Microbes and Human Welfare [NS]
07 19 & 20-07-2014	KS Rangasamy College of Technology, Tiruchengode, TN	Biodiversity Conservation: Status, Future and Way Forward [NS]
08 21 & 22-08-2015	University of Mysore, Mysore	Biological Products for Crop, Animal and Human Health: Problems and Prospects [NS]

Awards

NABS bestow several awards which are presented every year during the annual meeting. The awards are:

1. Prof. S. Kannaiyan Memorial Award

- Presented to eminent personality in biological sciences through nomination by EC members

2. NABS- Life Time Achievement Award

- Through nomination by EC members & Fellows)

3. NABS- Best Woman Scientist Award

- Woman Life Member has to apply and selected through Score Card System

4. NABS- Young Scientist Award

- Life Member who are below 35 years has to apply and selected through Score Card System

5. NABS- Best Scientist Award

- Life Member has to apply and selected through Score Card System
- Presented to a scientist in each of the four subjects recognized by NABS.

These awards are named after a distinguished scientist in each of these subjects

Basic Sciences	:	Dr. G. S. Venkataraman Memorial NABS Best Scientist Award
Agricultural Sciences & Forestry	:	Dr. B. P. Pal Memorial NABS Best Scientist Award
Veterinary & Fisheries	:	Dr. V. S. Alwar Memorial NABS Best Scientist Award
Food Sciences	:	Dr. Rajammal P. Devadas Memorial NABS Best Scientist Award

6. NABS- Leadership Award

- Life Member who is 50 and above has to apply and selected through Score Card System.

7. NABS- Best Research Paper Award

- Best research papers published by Life members / Provisional in the last three years are selected.
- These awards are named after a distinguished scientist in each of these subjects

Life Member / Provisional Life has to apply and selected through score card system

Basic Sciences	:	Prof. T. S. Sadasivan Memorial NABS Best Research Paper Award
Agricultural Sciences & Forestry	:	Prof. G. Rangaswami Memorial NABS Best Research Paper Award
Veterinary & Fisheries	:	Dr. C. M. Singh Memorial NABS Best Research Paper Award
Food Sciences	:	Dr. V. Subrahmanyam Memorial NABS Best Research Paper Award

NABS is currently planning to bring out policy papers on topics of current interest like:

(i) Climate change and biological systems, (ii) Biodiversity and Conservation, etc.

With the present EC, full of enthusiasm, zeal and interest we are confident that more scientists will become members of NABS and participate in its vision and mission so that NABS will shine with bubbling activities including interaction with other academies in the years to come.

Having said about NABS, it will be worthwhile to discuss the role of science academies towards the society. We can ask the questions like what can science academies offer? Why are academies important? The answer for these could be summarized as follows:

- Academies of science, as networks of scientists, have a fundamental role to play in advancing quality scientific education and research in practice.
- Academies are able to approach their activities from a multi-sectoral perspective, given the diversity of disciplines that are found within their memberships.
- Science academies “bear a social responsibility to connect science with the public”.
- Academies - undertake initiatives to promote multi-disciplinary research for sustainable development in all domains.
- Collaboration among academies helps in rapid growth of new knowledge as well as strengthening science and technology capabilities.
- Such a collaboration will have the credibility to inform the public and policy makers about looming problems and potential solutions.

The paradigms that regulate research funding have undergone significant changes in recent years. The cost of research has gone up because of the general inflation including cost of chemicals, glassware, kits, etc. This has resulted in severe and often unhealthy competition for grabbing the grant. Year-after-year government agencies bring cheers to researchers by promising greater allocation for higher education and research. We are also promised speedy processing of research proposals and quick release of approved grants. In practice these cheers remain “virtual”. We hear about budget cut for research or the grants not released on time.

The science academies jointly can initiate proactive steps to solve this problem. Let us remember the old adage “unity is strength”. Fourteen hands jointly will have more strength compared to only 2 hands. This I am saying because representatives of 7 academies viz. National Academy of Sciences India, Allahabad; Indian Academy of Sciences, Bangalore; Indian National Science Academy, New Delhi; National Academy of Veterinary Sciences (India), New Delhi; National Academy of Agricultural Sciences, New Delhi; National Academy of Dairy Science (India), Karnal and National Academy of Biological Sciences, Chennai are seated on the dais. International agencies/ Academies like ICSU (International Council for Sciences), IAP (Inter-Academy

Partnership / Global Network of Science Academies), AASSA (Association of Academies and Science Societies of Asia) have pointed out the major challenges for the 21st century.

- Population growth - 9 billion by 2050
- Climate change
- Food production
- Water supply and quality
- Energy supply
- Land degradation
- Ecosystem and species preservation
- Emergent diseases

The academies in India have joined together today in the Inter-Academy meeting on Science-led development in India organized by the National Academy of Agricultural Sciences as a part of its Silver Jubilee Celebration Programme. The academies in India can now think/ act jointly as to how we can contribute to this global challenge. For example, twenty Science Academies in Africa have joined together and play a collaborative role in tackling problems and driving development. Similarly association of Academies in India may have the ability to synthesize better, existing primary research into policy recommendations at national level. It may become a key player in providing science-based solutions in efforts to reduce poverty and solve challenges of the 21st century.

ii. Eighth NABS-National Seminar

The eighth NABS-National seminar on "Biological Products for Crop, Human and Animal Health: Problems and Prospects" is scheduled on 21 & 22 August 2015 at University of Mysore, Mysore, Karnataka. Detailed Announcement will follow shortly.

iii. 16th EC Meeting of NABS

Meeting of Executive Council of NABS is scheduled on the AN of 20 August 2015 at University of Mysore, Mysore.

iv. The Annual General Body Meeting (AGM)

The AGM is scheduled on FN of 22 August 2015 at University of Mysore, Mysore.

4. Awards and Recognition received by members of NABS

Congratulations to all the NABSians who received awards and recognition from various institutions and organizations in the country and outside during 2014.

Name of Member	Name of Award /Recognition received
<p>Parthasarathy, V. A.</p> 	<ul style="list-style-type: none"> ■ The President, NABS was conferred with Commendation award for the Commendable services to North East in Horticulture during 41st Foundation day of ICAR Research Complex for NEH Region on the 9 January 2015 by Dr. S. P. Ghosh, Formerly DDG, ICAR in presence of Dr. P. Das (Formerly DDG Extn.), Dr. K. M. Bujarabarua (Formerly DDG Animal Science), Dr. D. N. Borthakur (Founder Director). ■ Delivered First Mangala Rai Oration on "Horticulture - A retrospect and Prospect".
<p>Malhotra, Suresh Kumar</p> 	<ul style="list-style-type: none"> ■ Joined as new Horticulture Commissioner (HC) in the Ministry of Agriculture, Government of India, New Delhi. ■ Awarded Dr. Lakhi Ram Memorial Award-2014 by Society for Recent Development in Agriculture, Meerut for distinguished services in the field of horticulture. ■ Delivered Dr. Lakhi Ram Memorial lecture at Sardar Bhallabh Bhai Patel Agricultural University, Meerut on 13 December, 2014 on "Dynamics of Horticulture Technologies for Golden Revolution".

Subramanian, M.



Dilip Kumar Das

Ganesh Kumar

Paul Khurana, SM

Prakashkumar, R.

Ramteke, P. W.

Renu Agrawal

Sudisha

Thajuddin, N.

Tilak, K.V.B.R.

Veer Singh

- Selected as "The Best Rice Scientist of Tamil Nadu" for his significant contribution in the improvement of rice and release of high yielding rice varieties in Tamil Nadu. Dr. S. Ayyappan, Director General, Indian Council of Agricultural Research and Dr. Robert Ziegler, Director General, International Rice Research Institute, The Philippines honored him during Golden Jubilee Celebrations of ICAR-Indian Institute of Rice Research, Hyderabad.
- Awarded Emeritus Fellow 2014-2015 by University Grants Commission, Govt. of India, New Delhi.
- ABAP-Senior Scientist Award - 2014 by Association of Biotechnology and Pharmacy, Guntur for his contribution in the field Mycology and Chemical Biology.
- Nominated as member for NASF by the ICAR.
- Was twice Chair for inspection team for allowing development of Private Universities in MP besides being a Governor's nominee for the Governing Board of JLU, Bhopal.
- Attended the meeting of the Botanical Garden Conservation International (BGCI) held from 25 April to 2 May 2015 in the Missouri Botanical Garden, Saint Louis, USA.
- Awarded NAAS fellowship-Fellow of National Academy of Agricultural Sciences (NAAS) for 2015 for contribution in areas of Natural Resource Management.
- She was instrumental in taking up special training to empower persons with special needs to become a successful entrepreneur. Members of three organizations participated and benefitted through a work shop on "Enabling the Specially-Abled with CSIR-CFTRI Technologies."
- Awarded with Prof. MJ Narasimhan Academic Merit Award for 2014 (South Chapter) by Indian Phytopathological Society (IPS).
- Department of Biotechnology (Govt of India) sanctioned him a major grant for Establishing National Repository for Freshwater Microalgae & Cyanobacteria.
- Delivered 3rd Prof. M.V.Shanta Ram Memorial Lecture at the Prof. Jaya Shankar Telangana State Agricultural University, Hyderabad on 18 April, 2015.
- Received the National Marwar Ratna Award 2014 : "Maharaja Hanwant Singh ji Award" during 557 Jodhpur Foundation Day celebration held on 12h May 2015 at Meharangarh Fort, Jodhpur, Rajasthan.

*Note: Full address of members is available in website of NABS [www.nabsindia.org]

5. Research notes and short communications

Asoka (Saraca asoca (Roxb.) de Wilde): An endangered medicinal plant from Kerala, India

Saraca asoca (Roxb.) de Wilde (Asoka), one of the most legendary and sacred trees of India belongs to the family Fabaceae, (sub family Caesalpinioideae), contributes to many ayurvedic formulations. It is a medium sized evergreen tree 7-10 m in height. In India its distribution is confined to moist zones of Western and Eastern Ghats, Sub Himalayan tracts and Eastern India.

Bark decoction of Saraca asoca has been mentioned in one of the most famous Indian treatise Charaka Samhita (100 A.D.) for the treatment of various types of gynaecological disorders including uterine bleeding associated with fibroids, leucorrhoea and menstrual disturbances without producing any side effects. The plant possesses spasmogenic, uterotonic, anti-microbial, anti-menorrhagic, anti-cancer and anti-oxytocic activities. These multifarious bioactivities of the plant are due to the large number of secondary metabolites present in different parts of the plant. Phytochemical studies have shown the presence of catechols, reducing sugar, sterols, anthraquinones, saponins, tannins, glycosides, leukocyanidins, leukopelargonidin and volatile oil in bark extract of Saraca asoca. Water extracts of the plant parts are rich sources of flavonoids, catechin, epicatechin, epigallocatechin and glucosides.

Asoka trees are the major ingredients of many pharmaceutical preparations like Ashokarishtam, Asokagritham, Asokadirasakriya etc. The expanding trade in medicinal plants has serious implications on the survival of several plant species, with many under serious threat to become extinct. The pharmaceutical industry

in India requires about 5,300 tonnes of Asoka bark annually. The demand for bark is increasing with a growth rate of 15%. Due to wide use, the plant has been almost depleted from its natural habitat. The plant Asoka is presently threatened by over-exploitation and International Union for Conservation of Nature and Natural Resources (IUCN) has red listed this species under the threat category 'Globally Vulnerable'.

Asoka is reported as one among the 36 threatened and endangered medicinal plants of South India. There is no recent report on the presence of this species in Wild status from Kerala State. A Conservation Assessment Management Program (CAMP) Workshop for Rare Endangered and Threatened Medicinal Plants of South India conducted by Foundation for Revitalization of Local Health Traditions (FRLHT) pointed that the wild occurrence of this species in Kerala is doubtful and gave the regional status for this plant as data deficient (DD) for Kerala.

The recent collection from Kattalapara and Pallivasal forest of Kollam district and Aralam forest of Aralam Wild Life Sanctuary, Kannur district, shows its presence in wild from Kerala state. Sporadic populations of 25 trees were noted from Kattalapara forest and 15 trees from Pallivasal forest, Kollam district, five trees from Aralam forest, Kannur district and only two trees from Nelliampathy forest, Palakkad district were recorded.

In Karnataka a very good wild population of Saraca was recorded from Kudachathri to Mookambika temple near the Souwparnika riverside and known as 'Asokahadi'. Asoka tree is under serious threat of extinction due to extensive extraction from the wild, mostly by destructive methods. Hence, the wild population might have been disappeared from human habitat and nearby forests. So, a more detailed assessment of wild distribution and biology of this medicinal plant would be valuable. Wild seeds from this plant are to be collected from deep forests and raise good nurseries for enormous planting to conserve this endangered species from its extinction.

R. Prakashkumar and P. S. Udayan

*Malabar Botanical Garden & Institute of Plant Sciences, Post Box No 1, Calicut, Kerala-673 014, India &
PG Department of Botany & Research Centre, Sree Krishna College, Guruvayur, Ariyannur, Thrissur District, Kerala-680 102, India*

6. 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]

55. Dr. M. Subramanian

57. Dr. M. Subramanian

59. Dr. C. K. Narayana

56. Dr. Gero Benckiser

58. Dr. P. Giridhar

60. Dr. Vijai Kumar Gupta

61. Dr. K. Shiva Shankar

- 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.
- The fund may also be electronically transferred to the Savings Bank account of the Academy held at State Bank of India; Branch: Valmiki Nagar, Chennai-600 041 / Branch code: 11721 / IFS code: SBIN0011721.
- SB Account No. of the Academy: 10496978637

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

Types of Membership available (one time payment)

A. Life Member	:	₹2,500/-	or	US\$ 100/-
b. Corporate Life Member	:	₹10,000/-	or	US\$ 400/-
c. Corporate Fellow	:	₹1,00,000/-	or	US\$ 4000/-

- Details of Payment : The prescribed membership fee may be paid either as Indian rupee or US \$ or Demand Draft / Multicity Cheque drawn in favor of "National Academy of Biological Sciences" payable at Chennai.
- The fee may also be electronically transferred to the SB account of the academy held at State Bank of India, Valmikinagar branch, Thiruvanniyur, Chennai- 600 041, Tamil Nadu.
- **Account No.: 10496978637 / IFS code: SBIN0011721**
- Down load your application from www.nabsindia.org

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Disclaimer

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

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