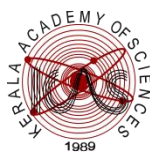


KERALA ACADEMY OF SCIENCES

THIRUVANANTHAPURAM

(www.kas.org.in)



ANNUAL REPORT

(March 2020 - March 2021)

Honourable President, Vice Presidents, Joint Secretary, Treasurer, Executive Council Members, former office bearers, respected Fellows and Life Members of the Academy;

The AGB meeting of KAS, held on March 17th, 2018 at Thiruvananthapuram, elected the new office bearers with Prof. Dr. G. M. Nair as the President for 2 years, and due to the pressing COVID 19 situation, the EC held on 12.9.2020 suggested the extension of the office bearers to another consecutive term, and the AGB meeting held online on September 18th, 2020, approved to extend the current office bearers for another consecutive term of 2 years, up to 2022.

As still we are going through the restrictions of COVID-19, the present AGB meeting is convened online, and I have great pleasure, as the General Secretary of the academy, to report the activities of the Academy for March 2020 - March 2021, for discussion and endorsement by the General Body of KAS.

1. Membership

The Academy has 13 Hon. Fellows, 68 Fellows and 588 Life Members. During the reporting year 39 new life members joined the Academy and I am happy to welcome all the new Life Members to the Academy and urge their continuous support in the activities of KAS.

2. Science Popularization Activities

As we are all going through the COVID-19 pandemic lockdowns and social distancing regulations, the academy also restricted the activities to online mode, keeping COVID-19 protocols. Within the restrictions, the academy could organize different programmes that include national and international seminars, important science and technology day observations and commemorative programmes. The academy could collaborate with several leading national R&D institutions as well as with academic institutions in organizing the programmes.

- i. KAS, in association with KSCSTE- Jawaharlal Nehru Tropical Botanic Garden and Research Institute (JNTBGRI), Palode, Thiruvananthapuram has observed the Environment Day-2020 by organizing a webinar on the topic 'Time for Nature: Conserve the Biodiversity for Humanity', on June 5th 2020. Prof. Dr. G. M. Nair, President, KAS, Dr. R. Prakashkumar, Director, JNTBGRI, Prof. Dr. Oommen V Oommen, Former President,

- KAS, Dr. M. Shaneeth, Vice President, KAS and Dr. Mathew Dan, HoD, Plant Genetic Resources Division, JNTBGRI gave lectures during the programme.
- ii. Sahrdaya College of Engineering and Technology, Thrissur in association with the Academy organized the 'International E- Conference on Deciphering Biomolecules: Paradigms & Challenges' on 12th - 17th Aug 2020. The programme was inaugurated by Dr. G. M. Nair, President, KAS. Dr. T R Santhoshkumar RGCB, Trivandrum. Dr. N. Anil Kumar, King's College, London, Dr. Manoj Pillai SCIEEX, Mumbai, Mr. Muralidhar Nayak, IISc Bangalore, Dr. M M Maheswaran, Nikita Transphase Adducts Ltd, Mumbai, Dr. Rajesh Menon Francis Crick Institute, London and Dr. Tessy Iype MagGenome Pvt Ltd, Kochi delivered lectures in the programme.
 - iii. A National Webinar on 'Herbal Remedies in Managing Pandemics- Scientific Evaluation' was held on 14th September 2020, in association with the Department of Post Graduate Studies & Research in Botany, SD College, Alappuzha. In the webinar, Prof. Dr. G. M. Nair, President, KAS gave the Presidential Address and Dr. K. B. Rameshkumar, Senior Scientist, JNTBGRI and General Secretary, KAS was the resource person.
 - iv. A Webinar on 'Ozone and Life on Earth- the Challenges', was organized on September 16th, 2020, as part of observing the World Ozone Day-2020. The Inaugural Address was delivered by Prof. Dr. G. M. Nair, President, KAS and Pro. Dr. Oommen V Oommen, Former President, KAS delivered the Key Note address on 'Ozone- The Protecting Shield'. The theme presentation was on 'Ozone for Life- 35 Years of Preservation; Way Forward', by Dr. P. Harinarayanan, Principal Scientist, KSCSTE.
 - v. International Webinar on Phytochemistry-2020 and Prof. (Dr.) A. Hisham Endowment Award Ceremony-2020', was held on September 28th and 29th, 2020. The seminar was inaugurated by Dr. A. Ajayaghosh, Director, CSIR-NIIST, Thiruvananthapuram. The special address was delivered by Prof. Dr. Bipin Nair, Amrita School of Biotechnology, Amrita Vishva Vidyapeetham, Kollam. Keynote Presentation was delivered by Dr. G. A. S. Premakumara, Colombo University, Sri Lanka on the topic "Phytochemistry- Uses in Medicinal and Industrial Applications". Prof. Dr. Intan Safinar Ismail, Universiti Putra Malaysia, Malaysia gave the Prof. Dr. A. Hisham Endowment Lecture-2020 on the topic 'Evidence based Traditional Medicinal Plants'. Prof. Dr. A. Hisham Endowment Award was given to Ms. Lekshmi N Menon, JNTBGRI in the programme. Online interaction with scientists in the field of Phytochemistry was an attractive part of the session. Thirty three oral presentations were held in 4 sessions in the programme, and awards were given for best oral presentations. The programme was attended by 262 participants from across the country and abroad.
 - vi. The Academy, in association with the Centre for Biodiversity Conservation, University of Kerala, Thiruvananthapuram, has organized a Webinar on 'Significance of Bioprospecting in Biodiversity Studies', by Prof. Mammen Daniel, an eminent academician and scientist of international repute in the field of Taxonomy, Phytochemistry and Medicinal Plants, on October 26th, 2020.
 - vii. The Academy, in association with the Department of Botany, University of Kerala, Thiruvananthapuram, has organized 'Prof. A. Abraham Endowment Lecture-2020', on the topic "From Cytogenetics to Genomics- the journey so far", as a National Webinar on October 28th, 2020. The programme has been organized as a tribute to the late Prof. A. Abraham, a great academician, scientist and institutional builder. The endowment talk was delivered by Prof. (Dr.) Manoj Dhar, Vice Chancellor, University of Jammu, and a leading

Molecular Biologist of the Country who had contributed significantly in the field of Plant Genomics, Molecular Cytogenetics and Metabolomics.

- viii. The Academy, in association with the Inter University Centre for Genomics and Gene Technology, Department of Biotechnology, University of Kerala, has organised the Webinar on ‘Discovery and Development of Phyto-Pharmaceuticals with special reference to Reverse Pharmacology, System Biology and Nutrigenomics’, by Dr C. N. Ramchand, CEO, Saksin Life Sciences Pvt. Ltd., on November 2nd, 2020. Dr. Ramchand, a world renowned scientist, is also an established entrepreneur in the field of nutraceuticals, drug discovery and development of nanotechnology based products. The topic Reverse Pharmacology has special significance in the wake of COVID 19 pandemic and drug development, where novel therapeutic targets are being evolved using Reverse Pharmacology approach.
- ix. The Academy, in association with the Department of Botany, Maharajas College, Ernakulam has organized Prof. P.N. Rajamma Memorial Lecture Series- 2020, as a tribute to late Prof. Rajamma, who was a great academician in the field of plant sciences, associated to Maharajas College, Ernakulam.

The first webinar in the series was on November 06th, 2020, and KAS president, Prof. (Dr.) G.M. Nair delivered the Key note address on the topic ‘Biodiversity: Molecular Interventions in Taxonomy for Diversity Analysis & Utilization’.

The second in this series was on December 2nd, 2020, 7.00 pm, and Sri, Sureshkumar K.A., Head, Department of Botany, Govt College, Chittur delivered the Key note address on the topic ‘Conservation in Post COVID Frame’. Dr. C. Anilkumar, Executive Council Member, KAS and Senior Principal Scientist, KSCSTE, Thiruvananthapuram delivered the Introductory Remarks.

The third in this series was on December 21st, 2020, 7.00 pm, and Dr. Suresh V., Asst. Prof., Govt. Victoria College, Palakkad delivered the Key note address on the topic ‘Challenges in the Cultivation of Scientific Temper’. Dr. T. S. Swapna, Executive Council Member, KAS and HoD, Dept. of Botany, Uty of Kerala, Karyavattom delivered Special Address on the topic ‘Biodiversity Laws’.

The fourth in this series was on December 29th, 2020, on the topic ‘Remote Sensing and Digital Image Processing of Satellite Data’, by Dr. Leena Abraham, HoD, Department of Botany, St. Thomas College, Kozhencherry. Dr. M. Shaneeth, Vice President, KAS and Dy. Head, Energy System Division, VSSC, Thiruvananthapuram delivered Special Address in the session.

The fifth in this lecture series was on December 31st, 2020, on the topic ‘History of Medicinal Plants: Phytochemical Perspective’, by Dr. K. B. Rameshkumar, General Secretary, KAS and Senior Scientist, Phytochemistry and Phytopharmacology Division, KSCSTE-JNTBGRI, Palode, Thiruvananthapuram.

- x. The Academy, in pursuance of its goals, has associated with yet another important online scientific meeting, the International Webinar Series on ‘Food, Chemical and Nanomaterials Toxicity’, being organized by Sree Chitra Tirunal Institute for Medical Sciences and Technology (SCTIMST), Thiruvananthapuram and Central University of Kerala,

Kasaragod, on November 26-28, 2020. An array of eminent scientists from India and abroad shared their views and vision on the topics in the webinar.

- xi. Academy has organized 'Prof. K. T. Augusti Endowment Lecture-2020', as a National Webinar on the topic 'The emerging role of the complement system in depression and other neuropsychiatric disorders, on December 11th, 2020. The speaker of the Webinar was Prof. (Dr.) Anilkumar Pillai, Professor at the Department of Psychiatry and Health Behaviour, Augusta University, Augusta, GA, USA. Dr. Pillai's elaborated on the role of Brain-Derived Neurotrophic Factor (BDNF) in the pathophysiology and treatment outcome of schizophrenia.
- xii. Department of Botany, Vimala College, Thrissur has organised a National Webinar on 18.12.2020, in association with KAS. The Academy President, Prof. G. M. Nair gave the Keynote Address in the Webinar on the topic 'Recent Developments in Biotechnology Research'.
- xiii. Academy has organized the National Webinar on 'AI Sensors and Artificial General Intelligence- Landscape for Future Digital Economy' on 5th February, 2021. Prof. Dr. A.P. James, Professor, IIITMK, and a world renowned scientist in the field of brain-inspired circuits as well as algorithms was the speaker for the webinar. The webinar focused on how to make the sensors themselves intelligent through emerging technologies such as memristor devices, and perhaps eventually for developing supercomputing brains with sensors or near sensors at extremely low energy benchmarks.
- xiv. Academy has organized the National Science Day-2021 celebration as a webinar on 'Advancements in Biotechnological Tools', in association with SN College, Cherthala, on 26th February, 2021. Prof. Dr. G.M. Nair, President, KAS delivered the Keynote Address on the topic 'Science and Technology Innovations and its impact on Society', followed by invited lecture by Dr. John B Johnson, RGCB, Thiruvananthapuram, on the topic 'RNA viruses, tools for next generation therapeutics and vaccines'.

3. Other activities

In addition to the programmes mentioned above, the President, Vice-Presidents, General Secretary and other office bearers and EC members and other respected fellows and members of KAS have actively participated in different science popularization programmes throughout the State, during the reporting period. Its proud to note that Prof. Augusti, founder secretary of KAS was enlisted 434 in ranking in worlds best scientists list, prepared by Stanford Uty. A general meeting on short video presentations was convened online on 9.7.2020, and took suggestions from esteemed members on short video presentations on various scientific topics, however, the concept was not materialized yet.

4. Acknowledgements

The Academy acknowledges gratefully the generous support and co-operation in organizing various programmes by Research/Academic Institutions such as SCTIMST, Thiruvannthapuram, KSCSTE-JNTBGRI, Palode, Centre for Biodiversity Conservation, University of Kerala,

Thiruvananthapuram, Department of Botany, University of Kerala, Thiruvananthapuram, Inter University Centre for Genomics and Gene Technology, University of Kerala, Thiruvananthapuram, Maharajas College, Ernakulam, Vimala College, Thrissur, SN College, Cherthala, Sahrdaya College of Engineering and Technology, Thrissur and SD College, Alappuzha.

The Academy fondly acknowledges all the invitees in various international, national and regional programmes and thankful for their words of wisdom that enlightened the scientific community. KAS is much indebted to the former Office bearers especially Prof. Dr. Oommen V. Oommen, Prof. P. R. Sudhakaran, and Dr. K. G. Ajithkumar for their constant support and advice throughout. A special mention to the efforts by Dr. P.V. Mohanan, SCTIMST, Thiruvannthapuram for his contribution to KAS activities, especially the student's outreach programmes.

The academy also acknowledges the gracious presence of students, research scholars, faculties, scientists and general public in various programmes organized during the period, and for their valuable suggestions and recommendations.

I now express my deep gratitude to the President, Vice Presidents, Jt. Sec., Treasurer, EC members, Fellows and Life Members of the Academy for their invaluable support and guidance in conducting the programmes of the Academy.

Let me conclude the report, with a humble request to all the fellows and members of KAS to actively participate in the forthcoming activities of the academy, so that the programmes become meaningful, taking the academy to greater heights, visibility and fame. Hope we can all meet in person soon in the forthcoming functions.

I place this annual report for discussion and approval of the Annual General Body Meeting-2021.

Dr. K. B. Rameshkumar
General Secretary, KAS