

Annual Scientific Meet 2017

Dr. S. KALIAMOORTHY

Scientist - D

National Orchidarium & Experimental Garden
Botanical Survey of India, Southern Regional Centre
Yercaud – 636 602, Salem District, Tamilnadu

Dr. S. KALIAMOORTHY

Scientist D, BSI, SRC, NOEG, Yercaud

Degree	Title	Remark
Ph.D.	Vascular development <i>in vitro</i> in <i>Cucumis sativus</i> L.	Awarded in 1997
Research Scholar	Name of the Project	Period
Junior Research Fellow (DST project) Department of Plant Sciences, Bharathidasan University, Tiruchirappalli – 620024, Tamil Nadu, India.	Study on the Cambial Activity & Tension Wood Differentiation in some trees.	From July'95 to Feb'97
Research Associate (DST project) Department of Plant Sciences, Bharathidasan University, Tiruchirappalli – 620024, Tamil Nadu, India.	Study on the Cambial Activity & Tension Wood Differentiation in some trees.	From Feb'97 to June'97

Annual Action Plan Projects carried out at BSI since 2002

Sr. No.	Annual Action Plan projects	Period	Achievements and remark
1.	Herbarium Database Development at Central National Herbarium	From 04.09.2002 to 15.04.2003	Data were extracted from the type herbarium specimen and entered into BRAHMS database software.
2.	Micropropagation of rare, endangered & threatened plants at National Orchidarium & Experimental Garden, BSI, SRC, Yercaud.	From 16.04.2003 to 10.04.2006	Protocol for the micropropagation of <i>Dendrobium aequum</i> Lindl., <i>Cymbidium bicolor</i> Lindl. <i>Coelogyne breviscapa</i> Lindl., <i>Aerides maculosum</i> and <i>Bentinckia condapana</i> Berry ex Roxb., were standardized and successfully carried out from lab to land.
3.	Micropropagation of rare, endangered & threatened plants at, BSI, SRC, Coimbatore.	From 11.04.2006 to 21.05.2008	<p>Micropropagation of <i>Moringa concanensis</i> Nimo ex Dalz. & Gibon., was completed. <i>Asymbiotic germination of Paphiopedilum druryi</i> (Bedd.) Stein and <i>P. insigne</i> (Wall.) Pfitz., and <i>Taeniophyllum scaberullum</i> Hook.f. Proocols were standardized and successfully carried out from lab to land.</p> <p>Other Work carried out: Data from herbarium specimen of Robert Wight's collections were entered into BRAHMS database software. Web page was developed on HTML platform. This includes the incorporation of the family Annonaceae, of Wight's collection, in the Madras Herbarium Database web page.</p>

Annual Action Plan Projects carried out at BSI since 2002

Sr. No.	Annual Action Plan projects	Period	Achievements and remark
4.	Deputation Abroad: Deputed to the University of Kwazulu-Natal (Westville Campus), Durban, South Africa for a Short-term Visiting Scientist Programme.	From 24 September 2007 to 31 October 2007.	A collaborative research work was carried out on the "Applications of PCR-Based ISSR markers for genetic diversity analyses of <i>Strychnos</i> ". Report submitted to DBSI.
5.	Micropropagation of rare, endangered & threatened plants of North East India at BSI, Eastern Regional Centre, Shillong.	From 22.05.2008 to 29.03.2013	Protocol for the micropropagation of <i>Cymbidium tigrinum</i> , <i>Nymphaea tetragona</i> , <i>Ilex khasiana</i> , <i>Cymbidium eburneum</i> were standardized and successfully carried out from lab to land. Report submitted to DBSI.

Ongoing Annual Action Plan Projects (Jointly)

Sr. No.	Annual Action Plan Projects	Period	Achievements
1.	<p>Ex-situ conservation of endemic endangered and threatened plants of the region and recording of phenology of flowering / fruiting of species in garden at National Orchidarium & Experimental Garden, BSI, SRC, Yercaud (Dr. S. Kaliamoorthy and Dr. T. S. Saravanan)</p>	<p>From 01.04.2013 to till date</p>	<p>During this period three field tours were conducted Kolli Hills of Tamil Nadu, Idukki District of Kerala covering Munnar, Devikulam, Maraiyoor reserve forests, and Agasthyamala Biosphere Reserve, Bhadra WLS and Khudramukh WLS of Karnataka; Silent Valley National Park of Kerala.</p> <p>Details of Annual Action Plan Tours are as follows:</p> <p>1. Annual Action Plan tour programme (2013-14) (Quarter II) to Kolli Hills, Namakkal District, Tamil Nadu. Totally 41 species belonging to 38 genera under 23 families were surveyed, collected and introduced in NOEG, Yercaud. Among these, 9 species belonging to 9 genera under the family Orchidaceae</p> <p>2. Annual Action Plan tour programme (2013-14) (Quarter IV) to Idukki, Munnar and Marayoor, Kerala. Totally 37 species belonging to 28 genera under 14 families were surveyed, collected and introduced in NOEG, Yercaud. Among these, 23 species belonging to 15 genera under the family Orchidaceae. 45 species including 22 genera of orchid phenology were recorded.</p> <p>3. Annual Action Plan tour programme (2014-15) (Quarter III & IV) to Agasthyamala Biosphere Reserve Forest, Kerala, India. Totally 32 species belonging to 30 genera under 10 families were surveyed, collected and introduced into NOEG, Yercaud. Among these, 23 species belonging to 21 genera under the family Orchidaceae. 80 species including 35 genera of orchid phenology were recorded.</p>

Ongoing Annual Action Plan Projects (Jointly)

Sr. No.	Annual Action Plan Projects	Period	Achievements
1.	<p>Ex-situ conservation of endemic endangered and threatened plants of the region and recording of phenology of flowering / fruiting of species in garden at National Orchidarium & Experimental Garden, BSI, SRC, Yercaud (Dr. S. Kaliamoorthy and Dr. T. S. Saravanan)</p>	<p>From 01.04.2013 to till date</p>	<p>During this period three field tours were conducted Kolli Hills of Tamil Nadu, Idukki District of Kerala covering Munnar, Devikulam, Maraiyoor reserve forests, and Agasthyamala Biosphere Reserve, Bhadra WLS and Khudramukh WLS of Karnataka; Silent Valley National Park of Kerala.</p> <p>Details of Annual Action Plan Tours are as follows:</p> <p>4. Annual Action Plan tour programme (2015-16) (Quarter IV) to Bhadra & Kudhramukh WLS, Karnataka.</p> <p>Totally 40 species belonging to 24 genera under 6 families were surveyed, collected and introduced into NOEG, Yercaud. Among these, 34 species belonging to 18 genera under the family Orchidaceae.</p> <p>105 species including 39 genera of orchid phenology were recorded.</p> <p>5. Annual Action Plan tour programme (2016-17) (Quarter II & III) to Silent Valley National park, Kerala, India.</p> <p>Totally 53 species belonging to 32 genera under the family Orchidaceae were surveyed, collected and introduced into NOEG, Yercaud. 110 species including 42 genera of orchid phenology were recorded.</p>

Ongoing Annual Action Plan Projects (Jointly)

Sr. No.	Annual Action Plan Projects	Period	Achievements
1.	Ex-situ conservation of endemic endangered and threatened plants of the region and recording of phenology of flowering / fruiting of species in garden at National Orchidarium & Experimental Garden, BSI, SRC, Yercaud (Dr. S. Kaliamoorthy and Dr. T. S. Saravanan)	From 01.04.2013 to till date	Tissue culture work: Asymbiotic seed germination of 1) <i>Diplocentrum recurvum</i> Lindl. 2) <i>Luisia birchea</i> Blume 3) <i>Dendrobium aqueum</i> Lindl. 4) <i>Coelogyne breviscapa</i> Lindl. 5) <i>Coelogyne nervosa</i> A. Rich. 6) <i>Oberonia brunoniana</i> Wight 7) <i>Bulbophyllum fuscopurpureum</i> Wight 8) <i>Cymbidium bicolor</i> Lindl. 9) <i>Luisia zeylanica</i> Lindl., is being carried out.
2.	Involved with Dr. G.V.S. Murthy, Scientist – F, in a Project on wetland flora covering the following areas Karaivetti Wildlife Sanctuary, Perambalur District (ca. 4.54 sq. km.), Vaduvur Wildlife Sanctuary, Tiruvarur District (ca. 1.28 sq. km.), Udayamarthandapuram Wildlife Sanctuary, Tiruvarur District (ca. 0.5 sq. km.), Point Calimere Wildlife Sanctuary, Nagapattinam District (ca. 17.26 sq. km.).		Project completed, Report submitted to DBSI. One research article published.

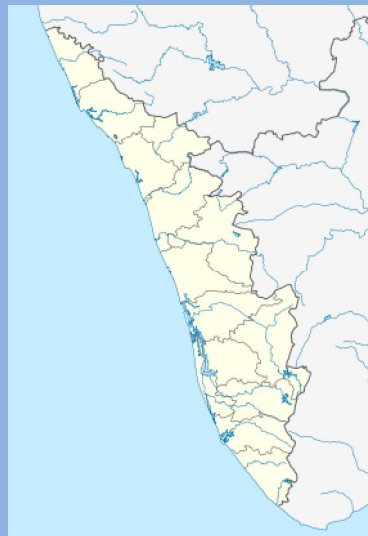
Maps showing the Annual Action Plan tours conducted



Kolli Hills of Tamilnadu



Idukki District of Kerala



ABR, Kerala



Kudramukh National Park



Bhadra WLS



Silent Valley National Park, Kerala



*Bulbophyllum
fuscopurpureum* Wight



Coelogyne nervosa A. Rich.



Cymbidium bicolor Lindl.



Gastrochilus acaulis (Lindl.)
Kuntze



Papilionanthe subulata
(Koenig) Garay



Eria pauciflora Blume



Calanthe masuca (D. Don)
Lindl.



Coelogyne nervosa A. Rich.



Dendrobium nanum Hook. f.



D. wightii A.D. Hawkes & A.
H. Heller



Habenaria crinifera Lindl.



Satyrium nepalense D. Don



Acanthephippium bicolor
Lindl.



Bulbophyllum fimbriatum
(Lindl.) Rchb.f.



B. neilgherrense Wight



B. tremulum Wight



Cottonia peduncularis (Lindl.)
Rchb.f.



Luisia macrantha Blatt. &
McCann

Rare, endangered and threatened plants in experimental garden part



Thunbergia mysorens
(Wight) T. Anderson



Cycas rumphi Miq.



Nepenthes khasiana
Hook.



Zamia furefurea Ait.



Bentinckia condapana
Berry ex Roxb.



Orthosiphon aristatus
(Blume) Miq.

Rare, endangered and threatened plants in experimental garden part



Crotalaria shevaroyensis
Gamble



Vernonia shevaroyensis
Gamble



Asplenium nidus L.



Arachis villosa Benth.



Psilotum nudum (L.)
Griesch



Selaginella involvens (Sw.)
Spring

Methods of orchid multiplication at Noeg, bsi, src, yercaud



Paphiopedilums multiplied and growing in Mist Chamber



Orchids growing in hanging pots



Orchids growing in hanging pots



Orchids growing in Bamboo plank



Orchids growing in dried fern stem



Orchids growing in beds



Orchids multiplied using Asymbiotic seed germination in vitro method

Some of the Rare, endangered and Threatened orchid species collected and introduced in the botanic garden

Name of the species	Status
<i>Acampe praemorsa</i> (Roxb.) Blatt. & McCann	Rare
<i>Acanthephippium bicolor</i> Lindl.	Rare
<i>Aerides maculosa</i> Lindl.	Endemic
<i>Bulbophyllum fimbriatum</i> (Lindl.) Rchb.f.	Rare, Endemic
<i>Bulbophyllum fuscopurpureum</i> Wight	Rare, Endemic
<i>Bulbophyllum neilgherrense</i> Wight	Endemic
<i>Bulbophyllum tremulum</i> Wight	Endemic
<i>Cleisostoma tenuifolium</i> (L.) Garay	Rare
<i>Cottonia peduncularis</i> (Lindl.) Rchb.f.	Rare
<i>Dendrobium aqueum</i> Lindl.	Rare, Endemic
<i>Dendrobium herbaceum</i> Lindl.	Endemic
<i>Dendrobium ovatum</i> (L.) Kraenzl.	Rare, Endemic
<i>Gastrochilus acaulis</i> (Lindl.) Kuntze	Rare

Some of the Rare, endangered and Threatened orchid species collected and introduced in the botanic garden

Name of the species	Status
<i>H. longicorniculata</i> J. Graham	Rare, Endemic
<i>H. rariflora</i> A. Rich.	Endemic
<i>H. heyneana</i> Lindl.	Rare, Endemic
<i>H. grandifloriformis</i> Blatt. & McCann	Rare, Endemic
<i>Luisia macrantha</i> Blatt. & McCann	Endemic
<i>O. brunoniana</i> Wight	Rare, Endemic
<i>O. proudlockii</i> King & Pantl.	Rare, Endemic
<i>Oberonia santapau</i> Kapadia	Endemic
<i>Oberonia verticillata</i> Wight	Endemic
<i>Pholidota imbricata</i> Lindl.	Endemic
<i>Smithsonia saldanhae</i> C. S. Kumar & Theuerkauf	Rare, Endemic
<i>Trias stocksii</i> Benth. ex Hook.f.	Rare, Endemic

Other Projects Handled Jointly in the capacity of Co-Investigator

Sr. no.	Funding Agency	Name of the Project and duration	Achievements and remark
1.	Department of Biotechnology	<p>"Multiplication and <i>ex situ</i> conservation of <i>Rhododendrons</i> of North East India"</p> <p>Since May 2008 to 31 December 2009.</p>	Project completed and Final Report submitted to DBSI and DBT.
2.	Department of Biotechnology	<p>"Preventing extinction and improving conservation status of threatened plants through application of biotechnological tools" for the period 2012-13 (one year)</p>	After one year, got transferred to NOEG, BSI, SRC, Yercaud
3.	MoEF & CC	<p><i>Ex-situ</i> Conservation and Propagation of Indigenous, Threatened and Endemic Plants through Improvement of Infrastructure Facilities in National Orchidarium & Experimental Garden (NOEG) (Lead Garden Proposal) 2015 to 2020 (5 Years Project). Ongoing project.</p>	<p>Date of Sanction: 24/07/2015</p> <p>A Progress report from 24-07-2015 to 01-12-2016, and UC were submitted. Awaiting 2nd Year grant.</p>

Civil works carried out in MoEF&CC funded Lead Garden Project



Renovation of pathways

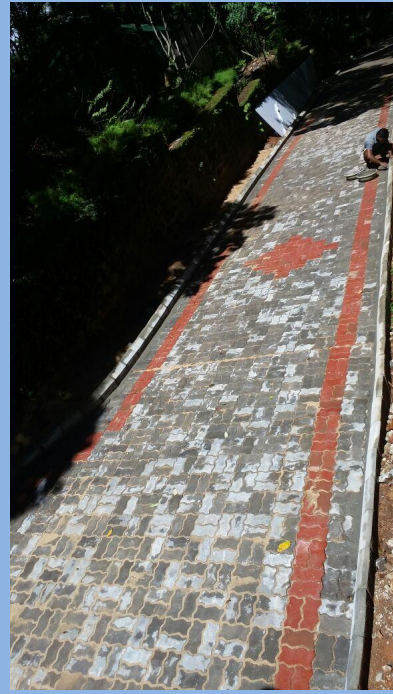
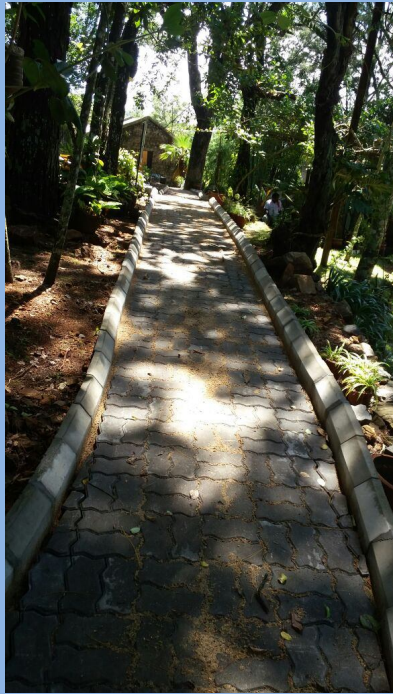


Compound wall construction



Green House renovation

Civil works carried out in MoEF&CC funded Lead Garden Project



Renovation of sub and main pathways

Administrative works carried out

- BSI, SRC, NOEG Yercaud (From **16.04.2003 to 10.04.2006**)
 - Performed second officer-In-charge duty as and when required
- BSI, SRC, Coimbatore (**11.04.2006 to 21.05.2008**)
 - Performed Drawing and Disbursing officer duty,
 - Departmental Purchase Committee; and other committees constituted time to time by HOO for verification of store and library sections.
- BSI, ERC, Shillong (From **22.05.2008 to 29.03.2013**)
 - Assisted Head of Office for the preparation of Scientific & Technical reports of BSI, ERC, Shillong.
 - Performed the duties of Drawing & Disbursing Officer at BSI, ERC, Shillong.
 - Looked after the maintenance and development of Assam Herbarium, museum of BSI, ERC, Shillong.
 - Performed the duties of Purchase Committee as member at BSI, ERC, Shillong.
 - Vehicle in-charge
- BSI, SRC, NOEG, Yercaud (From **01 April 2013 to till date**)
 - In-charge from 01.04.2013 to till date

Projects handled Individually/Jointly

- Number of projects carried out:
 - In-house projects:
 - Individually – 3 Projects
 - Jointly - 2 Projects
 - External Funded Projects as co-investigator – 3
- Number of book chapter published: One
- Number of papers published individually: 15
 - individually: 2
 - first author : 6
 - jointly or co-author: 7
- Number of new taxa: Nil
- new combinations/names:
- new reports (communicated)
 - Published: One (State)
 - India: 3 nos.
 - Regions and states: 3

Projection for 2017-18

- **Title of the AAP:** Ex situ conservation of Endemic, Endangered and Threatened plants of the region and documentation of phenology of species in garden.

Executing officials: Dr.S. Kaliamoorthy, Scientist –D, and Dr. T.S. Saravanan, Bot. Asst.

Place of study: Mukurthi National Park, Tamil Nadu.

Collection of orchids.

- Q2: Field tour September-2017
- Q3: Field tour December-2017