

Prof. MANDALI VENKATESWARA RAO F.B.S., F.I.A.A.T.

Dr. M.V.RAO, Ph.D.

UGC Emeritus Fellow

Department of Plant Science
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POSITIONS HELD

Academic Positions

1. **UGC Emeritus Fellow**, Department of Plant Science, Bharathidasan University, Tiruchirappalli-w.e.f. October 2015.
2. **Honorary Professor**, Department of Plant Science, Bharathidasan University, Tiruchirappalli-July 2014-October 2015 .
3. **Professor of Plant Science**, Department of Plant Science, Bharathidasan University, Tiruchirappalli- October 2003-June 2014.
4. **Reader in Plant Science**, Department of Plant Science, Bharathidasan University, Tiruchirappalli- October 1995- October 2003.
5. **Lecturer in Plant Science**, Department of Plant Science, Bharathidasan University, Tiruchirappalli- October 1989 - October 1995.

Administrative Position

Positions held by him are listed here in reverse chronological order

1. **Professor & Head**, Department of Plant Science, Bharathidasan University, Tiruchirappalli- September 2011-June 2014.
2. **Coordinator**-M.Sc. Life Sciences (Five year-Integrated) Program, School of Life Sciences, Bharathidasan University, Tiruchirappalli – August 2009-June 2014.
3. **Coordinator**-Centre of Excellence in Life Sciences, Bharathidasan University, Tiruchirappalli –September 2008-June 2014.
4. **Member**, UGC Expert committee for the evaluation of Minor Research Projects, funding for Seminar/Conferences/ Workshops/Symposia-2016.
5. **UGC Nominee**- Advisory committee -UGC-SAP-DRS- II - Department of Ecology & Environmental Science, Assam University (Central University), Silchar, Assam (May 2015-March 2020).

6. **UGC Nominee**- Advisory committee -UGC-SAP-DRS- II - Department of Biotechnology, Kakatiya University, Warangal, Telangana state (May 2015-March 2020).
7. **Member of Planning Board**(Governor Nominee) -Alagappa University, Karaikudi, Tamil Nadu, 3 years from 26th June 2015.
8. **Member of the Syndicate** (Governor Nominee) – Alagappa University, Karaikudi, Tamil Nadu, 3 years from 11th September 2014.
9. **UGC Nominee**- Advisory committee -UGC-SAP-DRS- II - Department of Biotechnology, Kakatiya University, Warangal, Telangana state (May 2015-March 2020).
10. **Member**, IQAC committee, Tamil University, Thanjavur-2014-2019.
11. **Member**, Institute Biosafety Committee, National Research Centre for Banana, Tiruchirappalli-2014-2016.
12. **Coordinator**-XII Five Year Plan budget (FYP) grant preparation, Bharathidasan University, Tiruchirappalli-2013.
13. **Coordinator**, DST-FIST (Level-II), Department of Plant Science, Bharathidasan University, Tiruchirappalli- 2013-14.
14. **Member**, CAS assessment committee, University of Madras, Chennai-2013.
15. **Member**, CAS selection committee, Bharathidasan University, Tiruchirappalli-2013.
16. **Member**, University Electricity consumption saving Auditing committee, Bharathidasan University, Tiruchirappalli-2013.
17. **Member**, Renovation Committee, Tamil university, Thanjavur-2013.
18. **Member**, UGC Expert committee for the evaluation of Minor Research Projects, funding for Seminar/Conferences/ Workshops/Symposia-2012.
19. **Member**, Admission monitoring committee, Bharathidasan University, Tiruchirappalli- 2012-2013.
20. **Member**, Selection committee-Assistant Professor in Plant Science, Bharathidasan University, Tiruchirappalli – 2012.
21. **Member**, IQAC committee, Tamil University, Thanjavur-2012.
22. **Member**, Space committee, Bharathidasan University, Tiruchirappalli-2012.
23. **Member**, Institutional Animal Ethics Committee, Bharathidasan University, Tiruchirappalli-2012-2015.
24. **Member**, Purchase committee, Bharathidasan University, Tiruchirappalli-2012.
25. **Member, Senate** - Bharathidasan University, Tiruchirappalli –2011-2014.
26. **Chair persons** meet, Tamil Nadu State Council for Higher Education, Chennai-2011.
27. **Deputy Coordinator**, UGC-SAP Department of Plant Science, Bharathidasan University, Tiruchirappalli -2011-14.
28. **Coordinator**, UGC-Non SAP, Department of Plant Science, Bharathidasan University, Tiruchirappalli -2010-12.
29. **Coordinator**-Execution of XI Five Year Plan budget grant of the University-2010-2013.
30. **Member**, DST-PURSE Program Working Committee- 2010-2014.
31. **Coordinator**, M.Sc. Life Sciences (5yr-Integrted) Program, School of Life Sciences, Bhrathidasan University, Tiruchirappalli – 2009-2014.

- 32. Member,** Inspection Commission, Centre for Distant Education, Bharathidasan university study centre at Delhi, Global School of Business, Mumbai School of Business-2009.
- 33. Member,** Academic council, Bharathidasan University, Tiruchirappalli- 2009-2014.
Chair Person, Board of Studies, Bharathidasan University, Tiruchirappalli-2009-12.
- 34. Member-** National Team on “Survey and Documentation of Rock Art in Tamil Nadu funded by Indira Gandhi National Centre for the Arts, New Delhi-2008.
- 35. Coordinator,**Centre of Excellence in Life Sciences, Bharathidasan University, Tiruchirappalli –September 2008-June 2014.
- 36. Member,** Selection Committee -X FYP-FIP Teacher fellowship scheme, Bharathidasan University, Tiruchirappalli-2005.
- 37. Deputy Coordinator,** University Vegetation Development Committee, Bharathidasan University, Tiruchirappalli-2004.
- 38. Deputy Coordinator,** DST-FIST (Level-I), Department of Plant Science, Bharathidasan University, Tiruchirappalli-2004-09.
- 39. Member,** Board of Studies, Bharathidasan University, Tiruchirappalli-2002-05.
- 40. Member,** Committee for Development of Garden and Plantation in the University Campus, Bharathidasan University, Tiruchirappalli-1992.
- 41. Member,** Scrutinizing/Selection committee for the appointment of Assistant Professors, Madurai Kamaraj University, Madurai, Periyar University, Salem.
- 42. Member,** Selection committee for the appointment of Assistant Professors in several colleges.
- 43. University nominee,** Board of Studies, Inspection Committee for, Govt. Arts college for Women, Pudukottai(2004 & 2006), H.H.The Rajas college, Pudukottai (2004), Periyar EVR college, Tiruchirappalli (2004), Jamal Mohamed college, Tiruchirappalli (2007 & 2013-15), Holy Cross college, Tiruchirappalli (2007-08), ADM college for women, Nagapattinam (2006-08), St Joseph’s college, Tiruchirappalli (2007-08), Govt. Arts college, Ariyalur (2008), Govt. Arts college, Karur(2008), Kundavai Nachiyar Govt. College for Women, Thanjavur (2008), Govt. Arts College, Musiri (2008).
- 44. Member,** Board of Studies, Madurai Kamaraj University, Madurai, Ayya Nadar Janaki Ammal College, Sivakasi, St.Xaviers College, Palayamkottai, Bangalore University, Bangalore, University of Madras, Chennai and Periyar University, Salem.
- 45. Adjudicator, PhD thesis:**
- Andhra University, Waltair, A.P.
 - Osmania University, Hyderabad, A.P.
 - Sri Venkateswara University, Tirupati, A.P.
 - Sri Padmavati Mahila VisvaVidyalayam (Women’s University), Tirupati, A.P.
 - Sri Krishna Devaraya University, Anantapur, A.P.
 - Acharya Nagarjuna University, Nagarjuna Nagar, A.P.
 - University of Hyderabad (**Central Univ.**), Hyderabad, A.P.

- Bharathiar University, Coimbatore, T.N.
 - Madurai Kamaraj University, Madurai, T.N.
 - Manormanain Sundarnar University, T.N.
 - Mother Teresa University for Women, Kodaikanal, T.N.
 - Tamil University, Thanjavur, T.N.
 - Vellore Institute of Technology, Vellore, T.N.
 - Bangalore University, Bangalore, Karnataka.
 - University of Kerala, Tiruvananthapuram, Kerala.
 - University of Calicut, Calicut, Kerala.
 - Mahatma Gandhi University, Kottayam, Kerala.
 - Pondicherry University (**Central Univ.**), Pondicherry.
 - Guwahati University, Guwahati, Assam.
 - North- Eastern Hill University (Central University), Shillong.
 - Mizoram University (Central University), Aizawl.
 - Lucknow University, Lucknow, U.P.
 - Allahabad University (**Central Univ.**), Allahabad, U.P.
46. External examiner for MSc practical exams & project viva, MPhil project viva and PhD viva.
47. Many MPhil and MSc students from colleges and other colleges from Tamil Nadu carried out their project work in my lab.

Postions Held In International Institutes/Foriegn Visits

1. **Visiting Scientist** under Indo-US exchange programme, School of Forestry, Auburn University, Auburn, U.S.A., 1987.
2. IX International congress on Plant tissue and cell culture: Plant biotechnology and in vitro biology in the 21st century held at Jerusalem, Israel from June 14-19, 1998.
3. 3rd World Congress on Medicinal Plants for Human Welfare (WOCAMP III), held at Chiang Mai, Thailand, 3-7 Feb 2003.
4. Places visited in USA during INDO - US exchange Programme
 - A.I.D. Bioenergy Systems and Technology Project, Office of Energy, USAID, Washington D.C.
 - Department of Plant Pathology and Plant Genetics, University of Georgia, Athens, Georgia.
 - Environmental Sciences Division, Oak Ridge National Laboratory, Oak Ridge, Tennessee.
 - Hammermill Paper Company and Tree nursery, Selma, Alabama.
 - Institute of Mycorrhizal Research and Development, Athens, Georgia.
 - International Forest Company, Odenville, Alabama.
 - Taylor Forest Nursery, Trenton, South Carolina.

- Tennessee Valley Authority, Division of Research, Office of Agriculture and Chemical Development, Muscle Shoals, Alabama.
- USDA Forest Service, Washington D.C.
- US Department of Energy, Washington D.C.
- USDA Agriculture Research Service, Beltsville, Maryland.
- Winrock International Agency, Washington D.C.

Honours and Awards

1. **Life Member of Swamy Botanical Club** -2004.
2. **Life Member of Indian Association of Biomedical Scientists (IABS)**-2008.
3. **Life Member of Orchid Society of India (OSI)**-2008.
4. **Fellow of Indian Botanical Society (FIBS)**-2013.
5. **Fellow of Indian Association for Angiosperm Taxonomy (FIAAT)**-2013.

ACADEMIC ACHIEVEMENTS

COURSES TAUGHT

Prof.M.V.Rao taught Plant Science and related subjects for more than 27 years. He taught M.Sc. courses in Plant Science (2 years), Plant biotechnology (2 years), Life Sciences (five year-integrated) program. Subjects that he taught include

- Plant diversity (Algae, Bryology, Lichens, Pteridology, Gymnosperms)
- General ecology & Biogeography
- Plant conservation
- Plant developmental biology
- Plant and human welfare
- Ecosystem analysis
- Biomass and Primary productivity
- Plant cell tissue and organ culture
- rDNA technology
- Plant biotechnology
- Plant microbiology
- Microbial biotechnology
- Genetic engineering
- Research methodology

Research Contribution

Dr.Mandali Venkateswara Rao (M.V.RAO) is presently UGC-Emeritus Fellow in the Department of Plant science, Bharathidasan University. He has retired as Professor and Head, Department of Plant science, Bharathidasan University, Tiruchirappalli, Tamil Nadu. He did his Doctoral

Programme at CSIR-NBRI, Lucknow and post-doctoral work with Prof.A.Gnanam, FNA, at Bharathidasan & Madurai Kamaraj Universities, and School of Forestry, Auburn University, Auburn, USA. He has 37 years of research experience (including PhD), 34 years (excluding PhD). His research fields of interest are **Plant tissue culture, Plant Ecology and Soil microbiology.**

Plant tissue culPlant tissue culture

1. Standardized plant tissue culture protocols for various **Endangered flora:** *Ceropegia thwaitesii* (Asclepiadaceae), *Elaeocarpus recurvatus* (Elaeocarpaceae), *Hildegardia populifolia* (Sterculiaceae), *Hoya wightii* ssp. *palniensis* (Asclepiadaceae) and *Plectranthus bourneae* (Lamiaceae); **Orchids:** *Acanthephippium bicolor* (Orchidaceae), *Anoectochilus elatus* (Orchidaceae), *Dendrobium aqueum* (Orchidaceae), *Gastrochilus acaulis* (Orchidaceae), *Vanda testiculata* (Orchidaceae), *Vanda testecea* (Orchidaceae) and *Zeuxine longilabris* (Orchidaceae); **Medicinal plants:** *Aegle marmelos* (Rutaceae), *Alpinia galanga* (Zingiberaceae), *Cardiospermum halicacabum* (Sapindaceae), *Centella asiatica* (Apiaceae), *Cassia occidentalis* (Cesalpinaceae), *Cassia tora* (Cesalpinaceae), *Chrysanthemum cinerarifolium* (Asteraceae), *Colocasia esculenta* var. *antiquorum* (Araceae), *Curcuma longa* (Zingiberaceae), *Curculigo orchidoides* (Amaryllidaceae), *Embelia basaal* (Myrsinaceae), *Eryngium foetida* (Apiaceae), *Gymnema elegans* (Asclepiadaceae), *Gymnema sylvestre* (Asclepiadaceae), *Heliotropium indicum* (Scrophulariaceae), *Helicteres isora* (Malvaceae), *Jatropha gossipifolia* (Euphorbiaceae), *Madhuca longifolia* (Sapotaceae), *Mucuna pruriensis* var. *pruriensis* (Fabaceae), *Phyla nodiflora* (Asteraceae), *Oxalis corniculata* (Oxalidaceae), *Rhinacanthus nasutus* (Acanthaceae), *Ricinus communis* (Euphorbiaceae), *Simarouba glauca* (Simaroubaceae), *Solanum trilobatum* (Solanaceae), *Tinospora cordifolia* (Meristemaceae) and *Trichosanthes palmate* (Cucurbitaceae).

2. Worked on *in vitro* production of secondary metabolites from some of the important medicinal plants such as: *Gymnema sylvestre*, *Oxalis corniculata*, *Madhuca longifolia*, *Rhinacanthus nasutus*, *Centella asiatica* and *Tinospora cordifolia* by manipulating through biotic (hairy root culture) as well as abiotic factors (light, nutrients, temperature, growth regulators etc), and pharmacological studies on *Gymnema sylvestre*, *Rhinacanthus nasutus*, *Embelia basaal*, *Aegle marmelos*, *Rhinacanthus nasutus* and *Ceropegia thwaitesii*.

II. Plant ecology

Ecosystem analysis

1. Research work was carried out on grassland ecosystem in saline alkali soils to find out utility of saline soils in terms of species suitability, productivity, nutrient cycling and energy flow.
2. Impact of tree canopy cover of man-made forest on alkali soils, for soil reclamation has been worked out. Mixed canopy cover showed significant effect on reducing the soil pH, electrical conductivity and exchangeable sodium percentage.

3. Study on provenance trails of *Populus deltoides* to find out its growth performance on semi-arid region has been done.
4. Research work was carried out on productivity and nutrient cycling of tropical tree species growing on semi-arid region. Modeling of dry matter transfer and preparation of nutrient budgets were prepared and a comparison of performance of the experimental tree species was made.

Mycorrhizal symbiosis

1. Salt tolerant mycorrhizal studies were carried out with reference to both ecto- and arbuscular mycorrhiza *in vitro* and *in vivo*. Few suitable salt tolerant mycorrhizal strains were found.
2. Experiments on drought tolerance of mycorrhizal tree species were conducted and enhanced growth was observed in mycorrhizal treated plants compared to control.
3. Species specificity of tropical tree species was found out with different arbuscular mycorrhiza.
4. Ectomycorrhizal fungi were used during rooting and hardening process of tissue culture grown plants. Significant results were observed.
5. Two orchid mycorrhizal fungi have been isolated from terrestrial orchid *Acanthephippium bicolor* and used in symbiotic seed germination.

IV. Genetics/Plant breeding

Successfully developed interspecific hybrids of pigeonpea through wide hybridization utilizing the closest wild relatives *Cajanus cajanifolius*, *C. lanceolatus* from secondary gene pool, *C. volubilis* from tertiary gene pool, and studied their progeny for insect and pod borers and bruchid resistance; examined protein levels in crude extracts of seeds from parents and hybrids and tested proteinase inhibitory activity against bovine trypsin and chymotrypsin (collaboration with ICRISAT).

V. Plant physiology

Studied the effect of water, salinity and relative humidity stress on chickpea reproduction and identified QTLs and candidate genes for salinity tolerance in 188 RILs derived from the ICCV 2 × JG 11 cross (collaboration with ICRISAT).

Presently he is contributing on *ex-situ* conservation of (IUCN category) endangered flora with special emphasis to tropical orchids. He is also working on *in vitro* production of secondary metabolites from prominent medicinal plants.

INFRASTRUCTURE CREATED

Five year integrated M.Sc. Program

A five-year integrated program in M.Sc. Plant Science was started in the academic year 1987-1988 under the dual stewardship of Prof.G.R.Rao, then Coordinator of School of Life Sciences and Prof.A.Gnanam, then Vice-chancellor, Bharathidasan University, Tiruchirappalli, with view to catch the young minds and mould them towards research. Students who have studied Botany and Zoology / Biology in +2 are admitted to the program. The Bharathidasan University is perhaps the first to have started such a program in India. From the academic year 1990-1991 onwards five-year integrated M.Sc. Life Science Program is being offered instead of five-year integrated M.Sc. Plant Science program.

As the School of Life Sciences of Bharathidasan University has gone from strength to strength and it has recently been recognized as a “Centre of Excellence in Life Sciences” by the Govt. of Tamil Nadu with a grant of Rupees One Crore, under Coordinatorship of Prof.M.V.Rao since 2009.

Centre of Excellence in Life Sciences (CELS)

He has established the Central Instrumentation Facility for the School of Life Sciences (SLS) under Centre of Excellence in Life Sciences (CELS) funded by Tamil Nadu State Government and DST-PURSE.

Centre of Excellence in Life Sciences has received special grant to the tune of Rs. 100 lakhs from Tamil Nadu State Government for the purpose of creating the advance instrumentation facility to feed and strengthen the growing needs of Biological research. Bharathidasan University, Tiruchirappalli has contributed the matching grant of Rs. 240 lakhs towards the facility premises.

The centre facility has the following high tech instrumentation facility: RT-PCR (7500 model), 2-D Gel Electrophoresis with Chemidoc Luminescence system, Ultra centrifuge, HPTLC system, UV/Visible Spectrofluorimeter and Confocal microscope.

Thus the CELS intended for collaborative research, with participation by faculty from within the SLS, as well as Scientists from other institutions in the country and abroad, so as to earn recognition for SLS as an international referral center and also to offer the various programs in the manner most effective, making available to students all the facilities thus built so as to render the programs at the same wave length as the ones offered at the central institutes.

Laboratory established

He has established full-fledged Plant tissue culture laboratory for guiding PhD, MPhil and MSc students and conducting practical for MSc students.

Departmental facility

He has also established Instrumentation facility in the Department of Plant Science, under DST-FIST (Rs.65 lakhs) facility, UGC-Non-SAP (Rs.20 lakhs), UGC-SAP (Rs.65 lakhs) and UGC Innovative program (Rs.56 lakhs).

The facility has: 2-D Gel Electrophoresis systems, Gel documentation system, -86°C freezers, Fluorescence microscope, Table top refrigerated centrifuge, Analytical and preparative HPLC system (2nos), Gene gun, Electroporator, Chemi fluorescence attachment for Gel system, Water purification system, CO₂ incubator, High speed centrifuge, Vacuum spray drier, Computation and Networking facility.

Ph.D. GUIDANCE

List of Ph.D. students awarded

S.No	Name of Student	Thesis title	Year of award	Placement
1.	Syamala Thiagarajan	Productivity and nutrient cycling in <i>Acacia auriculiformis</i> A.Cunn.ex.Benith., <i>Acacia holocericea</i> A.Cunn.ex.Don, <i>Casurina equisetifolia</i> J.R.Forst., <i>Eucalyptus tereticornis</i> Sm. and <i>Leucaena leucocephala</i> (Lam.) De Wit plantations of semi-arid region	1997	Collegiate service
2.	Armugam.S	<i>In vitro</i> culture studies in <i>Aegle marmelos</i> (L.) Corr., a rare medicinal tree	1998	Malaysia-Industry
3.	Komalavalli.N	<i>In vitro</i> studies on <i>Gymnema elegans</i> Wight & Arn. Ex Wight and <i>Gymnema sylvestri</i> (Retz.) R.Br.ex Roemer & Schultes	2000	Collegiate service
4.	Alagumanian.S	<i>In vitro</i> studies on <i>Centella asiatica</i> (L.) Urban, an ayurvedic medicinal herb	2001	Collegiate service
5.	Jeyaseelan. M	<i>In vitro</i> studies in <i>Cardiospermum halicacabum</i> (L.)-a medicinal herb	2001	Collegiate service
6.	Kumaresan. V	<i>In vitro</i> studies on <i>Oxalis corniculata</i> L	2006	Collegiate service
7.	Mridula.K	<i>In vitro</i> studies on <i>Tinospora cordifolia</i> Miers.	2006	
8.	Bakrudeen Ali Ahmed. A	<i>In vitro</i> production of gymnemic acid from <i>Gymnema sylvestri</i> (Retz) R.Br. Ex Roemer & Schultes.	2007	Post Doc-Malaysia
9.	Lavanya. A.R.	<i>In vitro</i> studies on endangered tree species-	2007	Collegiate

		<i>Hildegardia populifolia</i> (Roxb.) Schott & Endl. and economically important tree species – <i>Simarouba glauca</i> DC.		service
10.	Gouthaman. T	<i>In vitro</i> studies on <i>Rhinacanthus nasutus</i> (L) Kurz a medicinal plant	2008	Collegiate service
11.	Babu.G	Phytochemical investigation and hepatoprotective screening of <i>Embelia basaal</i> (Roem. & Schult.) Dc.	2010	Collegiate service
12.	Sandhya Rani Vanam	Broadening the genetic base of Pigeon pea by the utilization of <i>Cajanus platicarpus</i>	2014	Post Doc-Singapore
13.	Pushpavalli.R	Physiological and Genetic Deciphering of Water, Salinity and Relative Humidity Stress effects in Chickpea (<i>Cicer arietinum</i> L.)	2015	Post Doc-Australia
14.	Revathi Lakshmi. S	Ex situ conservation of <i>Hoya wightii</i> ssp. <i>palniensis</i> K.T.Mathew and <i>Brachystelma glabrum</i> Hook.f.-endemic plants through <i>in vitro</i> technology	2015	Collegiate service
15.	Muthukrishnan. S	Ex situ conservation and biomedical application of <i>Ceropegia thwaitesii</i> Hook- An endemic species from Western Ghats of Tamil Nadu, India	2017	SERB-NPDF
16.	Parthiban. S	<i>In vitro</i> studies on <i>Dendrobium aqueum</i> Lindley- An endemic, red listed plant of Peninsular India	2017	

Current PhD students

S.No	Name of Student	Thesis title	Session of registration/Thesis submission
1.	Ahamed Sherif. N	Ex situ conservation and bioprospecting of <i>Anoectochilus elatus</i> Lindley- an endangered terrestrial orchid	January 2009. Thesis submitted (Sept 2016)
2.	Baradwaj.R.G	Seed dormancy breakage, <i>in vitro</i> propagation and anti-colorectal adenocarcinoma activity of <i>Alpinia galanga</i> (L.) Willd.	July 2010. Thesis submitted (June 2017)
3.	Senbagalakshmi. P	<i>In vitro</i> production of secondary metabolites from <i>Gymnema sylvestre</i> R.Br.- a potent antidiabetic plant	April 2009
4.	Santosh Kumar V.V.	Molecular characterization of ABA receptors in rice	April 2013
5.	Rakesh Kumar Verma	Identification and functional validation of abiotic stress responsive gene in rice	April 2013

M.Phil students guided

S.No	Name of Student	Thesis title	Year of award
1.	Selvaraj. M	Growth and productivity of VAM inoculated tropical tree seedlings	1990
2.	Yasodha.R	Salt stress effects on growth and biochemical composition of <i>Pisolithus tinctorius</i> (Pers.) Coker and Couch under <i>in vitro</i> conditions	1990
3.	Senthil Kumar.D	Biomass, productivity and nutrient cycling in a <i>Eucalyptus tereticornis</i> plantation grown on semi-arid region	1992
4.	Suresh.R	<i>In vitro</i> clonal multiplication of castor (<i>Ricinus communis</i> L.)	1993
5.	Subha shanthi	Micropropagation of <i>Catharanthus roseus</i> L. G.Don.	2007
7.	Preethi.V	<i>In vitro</i> micropropagation and callus induction of <i>Stachytarpheta jamaicensis</i> (L.) Vahl.	2009
8.	Thiripura Sundari.U	In vitro regeneration of <i>Coccinia grandis</i> (L.) Voigt. and screening of its phytochemicals and antimicrobial activities	2010

Research Projects Undertaken

1. UGC-Minor research project. Salt stress effects on biochemical composition of *Pisolithus tinctorius* (Pers.) Coker and Com., under *in vitro* conditions, 1993-95.Sanction no. 9856/E3/92 dt.06.03.1993. Amount Rs.10,000.
2. UGC -Minor research project. Micropropagation of *Centella asiatica* (L.) Urb., a rare medicinal plant",1998-99.Sanction no.12300/E2/98 dt.31.12.1998. Amount Rs.12,000.
3. UGC-Minor research project.Plant regeneration from callus cultures of *Centella asiatica* (L.) Urb., a rare medicinal plant, 1999-2000. Sanction no. 7673/E2/99 dt.01.11.1999. Amount Rs.15,000.
4. Ministry of Environment and Forest (MOEF) Major research project.*Ex situ* conservation of some of the Red Data Listed plants of Eastern and Western Ghats of Tamil Nadu, through *in vitro* methods, 2006-2009. Sanction no.23/2/2006-Re dated 12.09.2006. Amount Rs.13,48,043.
5. UGC Major research project. Sanction no.32-405/2006(SR) dt.26.02.2006. Amount Rs.6,66,963/-. Conservation and reintroduction of *Elaeocarpus recurvatus* and *Hoya wightii* ssp. *palniensis*, endangered plants of Western Ghats of Tamil Nadu, 2007-2010.
6. UGC Major research project. *Ex-situ* conservation and antibacterial studies of *Plectranthus bourneae* Gamble, an endemic red data listed plant, 2011-2014.Sanction no. F.NO. 40-325/2011 (SR) 30.06.2011. AmountRs. 11,04,533.

7. Tamil Nadu State Forest Dept project-Status and distribution surveys of threatened taxa in wild as per IUCN guidelines under Tamil Nadu Biodiversity and greening project. 2013-2015. Amount Rs. 2,92,800/- Sanction no. 934/2012 dt. 20.2.2013.

Training Programmes/Refresher Courses/Workshops/Summer Institutes Attended/ Conducted

1. Attended summer institute on agroforestry in western Himalaya organized by the ICAR held at Himachal Pradesh Krishi Vishwa Vidyalaya, Nauni, Solan, U.P. from June 13th -July 7th, 1983.
2. Attended training programme at School of Forestry, Auburn University, Auburn, U.S.A. from April 15- Oct 14, 1987 under Indo-US exchange programme.
3. Attended UGC sponsored refresher course in Botany organized by Academic Staff College, Bharathidasan University, Tiruchirappalli from Nov 1-28, 1990.
4. Attended short term training course on "Application of tissue culture in crop improvement" sponsored by DBT, conducted at Calicut University, Calicut from Oct 7-25, 1991.
5. Attended UGC sponsored orientation course organized by Academic Staff College, Bharathidasan University, Tiruchirappalli from March 15th-April 11th, 1994.
6. Attended UGC sponsored refresher course in Biochemistry organized by Acharya Nagarjuna University, Nagarjuna nagar, A.P. from Jan 2 -22, 1995.
7. Attended UGC sponsored refresher course in Botany organized by Academic Staff College, Bharathidasan University, Tiruchirappalli from Jan 18th-Feb 14th, 1996.
8. Coordinated UGC sponsored Refresher course in Botany (Plant tissue culture and molecular biology) organized by Academic Staff College, Bharathidasan University, Tiruchirappalli, from Feb 25-Mar 25, 1997.
9. Attended INSA sponsored Refresher course in Plant Genetic Engineering organized by School of Biotechnology, Madurai Kamaraj University, Madurai, from 7-21 December 2004.

PUBLICATIONS IN JOURNALS

1. S.C.Verma, M.V.Rao and A.S.Murthy. 1980. Productive potential of grassland vegetation on sub-standard soil of Lucknow, U.P. **New Botanist** 7:156-162.
2. M.M.Haider, **M.V.Rao** and A.S.Murthy. 1981. Effect of nitrogen on growth and development of Gladiolus. **Indian J Hort.** 38: 241-245.
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