



**Dr. M. MUTHUKUMAR**

#### Contact

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#### Academic Qualifications:

**M.Sc., Ph.D., (Plant Biotechnology)**

#### Research Experience:

- Junior Research Fellow in Ministry of Environment and Forest project entitled “*Ex situ* conservation of some RED DATA listed plants of Eastern and Western Ghats of Tamil Nadu, through *in vitro* methods” during 04-08-2008 to 25-03-2010.
- Working team member of Tamil Nadu Biodiversity Greening Project (TBGP) “**Status and distribution surveys of threatened plant taxa in Kodaikanal Forest Division, Tamil Nadu**”, during August 2014- August 2015.

#### Research Related Experiences:

- ❖ Plant tissue culture (Core expertise)
- Instrument handling,
- ❖ HPTLC (Linomat 5; Scanner 3, Camag, Switzerland)
  - ❖ 2- D Electrophoresis (Bio- Rad)
  - ❖ Ultracentrifuge (Himac, CP 100wx, Preparative, Hitachi)
  - ❖ Fluorescence Spectroscopy (FluoroMax 4, Horiba Scientific)
  - ❖ RTPCR (Real Time) (7500 FAST, Applied Biosystems)
  - ❖ Confocal Laser Scanning Microscope (LSM 710, Carl Zeiss)
  - ❖ Scanning Electron Microscope with EDAX (Vega 3, TESCAN)

## Publications

International		National		Others
Journals	Conferences	Journals	Conferences	Book Chapters
08	05	03	04	03

Cumulative Impact Factor (as per SJR) : 16.54

h - index : 07

i-10 index : 04

Total Citations : 447

## Events Participated & Presented Research Papers

### Conferences / Seminars / Workshops:

1. **Muthukumar M.**, Senthil Kumar T., Rao MV. Entitled “*In vitro* flowering and *ex situ* conservation of *Dendrobium panduratum* var. *panduratum* Hook. f.- an epiphytic orchid from Western Ghats of Tamil Nadu” In XXVIII Annual Conference of Indian Association for Angiosperm Taxonomy & International Symposium on Conservation of Angiosperm Diversity: Hidden Treasure of Today and Tomorrow, 29<sup>th</sup> - 31<sup>st</sup>, October 2018. Held at Department of Botany, **The Maharaj Sayajirao University of Baroda, Vadodara, Gujarat.**
2. **Muthukumar M.**, served as a Resource person for the topic of “Plant Tissue Culture I & Plant Tissue Culture II” in the UGC sponsored Refresher Course- “**Life Sciences**” conducted for University and College teachers on 28-06-2018 by UGC-Human Resource Development Centre, **Bharathidasan University, Tiruchirappalli- 620024, Tamil Nadu.**
3. **Muthukumar M.**, Senthil Kumar T., Rao MV. Entitled “*In vitro* propagation through somatic embryogenesis on *Helicteres isora* L. – a medicinally important tree.” In XXXX All India Botanical Conference of the Indian Botanical Society & National Symposium on Evaluation and Conservation of Plant Germplasm, 15<sup>th</sup> -17<sup>th</sup>, September 2017. Held at Department of Botany, **Punjabi University, Patiala-147002, Punjab.**
4. **Muthukumar M.**, Senthil Kumar T. and Rao MV. Entitled “Phenological studies and its associated problems in *Helicteres isora* L., an important multipurpose tree.” In: 26<sup>th</sup> Annual Conference of Indian Association for Angiosperm Taxonomy (IAAT) and International Seminar on Conservation and Sustainable Utilization of Biodiversity, 7<sup>th</sup>- 9<sup>th</sup> Nov 2016. Held at the Department of Botany, **Shivaji University, Kolhapur, Maharashtra.**
5. **Muthukumar M.**, Senthil Kumar T. and Rao MV. Entitled “Indirect organogenesis of *Helicteres isora* Linn. – medicinally important small tree.” In: 25<sup>th</sup> Annual Conference of Indian Association for Angiosperm Taxonomy (IAAT), Council Meeting of IAPT and International Seminar on Advancements in Angiosperm Systematics and Conservation, 19<sup>th</sup>- 21<sup>st</sup> Nov 2015. Held at the Department of Botany, **University of Calicut, Calicut, Kerala.**
6. **Muthukumar M.**, Muthukrishnan S., Senthil Kumar T. and Rao MV. Entitled “*In vitro* Micropropagation of *Helicteres isora* Linn. – medicinally important small tree. In: 24<sup>th</sup> Annual Conference of Indian Association for Angiosperm Taxonomy (IAAT) and International conference on Trends in Plant Systematics (TIPS), 31<sup>st</sup> Oct- 2<sup>nd</sup> Nov, 2014. Held at Dept. of Plant Science, **Bharathidasan University, Tiruchirappalli, 620024, Tamil Nadu.**

7. **Muthukumar M.**, Senthil Kumar T. and Rao MV. Entitled “Efficient plantlet regeneration from nodal explants of *Zeuxine longilabris* (Lindl.) Benth. ex. Hook. f. (Orchidaceae) – a terrestrial orchid. In: National Symposium on Himalayan Biodiversity: prospects and Challenges, March 20- 21, 2014. Held at Centre for Advance Studies in Botany, Dept. of Botany, **North- Eastern Hill University, Shillong, Meghalaya**.
8. **Muthukumar M.**, Thaniarasu R., Senthil Kumar T., Benjamin JHF. and Rao MV. Entitled “Asymbiotic seed germination of *Gastrochilus acaulis* (Lindl.) Knuzte., an endemic Orchid of Kolli Hills.” In: National Dialouge on Orchid Conservation & Sustainable Development for Community Livelihood, March 08- 09, 2013. Held at **National Research Centre for Orchids, Gangtok, Sikkim**.
9. **Muthukumar M.**, Senthil Kumar T. and Rao MV. Entitled “Preliminary *in vitro* studies of *Helicteres isora* Linn.” In: International symposium and 22<sup>nd</sup> annual conference of Indian Association for Angiosperm Taxonomy on Innovative Prospects in Angiosperm Taxonomy (ISIPAT-2012), Oct 28- 30, 2012. At Dept of Botany, **Sant Gadge Baba Amravati University, Amravati, Maharashtra**.
10. Vignesh K., **Muthukumar M.**, Revathi Lakshmi S., Senthil Kumar T. and Rao MV. Entitled “*In vitro* micropropagation of *Zeuxine longilaris* (Lindl.) Benth. Ex Hook. F.” In: **National symposium on Orchids: Science and Art**, Dec 16- 17, 2008, held at ICSSR Complex, **Punjab University, Chandigarh, Punjab**.

#### Recent Publications

1. Siva, G., Venkatesh, S., Prem Kumar, G., **Muthukumar, M.**, Senthil Kumar T., Prem Kumar, K., Jayabalan, N. (2021) Rapid bio-reduction of Trivalent aurum using *in vitro* Babchi leaf powder and its cytotoxicity against breast cancer MCF-7 cell lines. *Appl Nanosci*. <https://doi.org/10.1007/s13204-021-01958-6>
2. **Muthukumar, M.**, Muthukrishnan, S., Senthil Kumar, T., Rao, M. V. (2020). Direct regeneration, microshoot recovery and assessment of genetic fidelity in *Helicteres isora* L., a medicinally important tree. *Biocatalysis and Agricultural Biotechnology*, 23, 101415.
3. **Muthukumar M.**, Senthil Kumar T., Rao MV. (2017) Phenology and Seed germination of the Indian screw tree *Helicteres isora* L. (Malvales: Malvaceae). *Journal of Threatened Taxa*, 9(12):11040-11044
4. **Muthukumar M.**, Senthil Kumar T., Rao MV. (2016) Indirect organogenesis and evaluation of genetic homogeneity through SCoT and ISSR markers in *Helicteres isora* L., a medicinally important tree. *South African Journal of Botany*, 106:204-210
5. Bhakya S., Muthukrishnan S., Sukumaran M., **Muthukumar M.** (2016) Biogenic synthesis of silver nanoparticles and their antioxidant and antibacterial activity. *Applied Nanoscience*, 6(5):755-766
6. Lavanya AR., **Muthukumar M.**, Muthukrishnan S., Kumaresan V., Senthil Kumar T., Rao AS., Rao MV. (2016) *In vitro* micropropagation of *Simarouba glauca* DC. *Indian Journal of Biotechnology*, 15:107-111
7. Bhakya S., Muthukrishnan S., Sukumaran M., **Muthukumar M.** Senthil Kumar T., Rao MV. (2015) Catalytic degradation of organic dyes using synthesized silver nanoparticles: A green approach. *Journal of Bioremediation & Biodegradation*, 6(5):1-9

8. Lavanya AR., Muthukrishnan S., **Muthukumar M.**, Benjamin JHF., Senthil Kumar T., Kumaresan V., Rao MV. (2014) Indirect organogenesis from various explants of *Hildegardia populifolia* (Roxb.) Schott & Endl. – A threatened tree species from Eastern Ghats of Tamil Nadu, India. *Journal of Genetic Engineering and Biotechnology*, 12:95-101
9. Muthukrishnan S., Benjamin JHF., **Muthukumar M.**, Ahamed Sherif N., Senthil Kumar T., Rao MV. (2012) *In vitro* propagation of *Ceropegia thwaitesii* Hook- an endemic species of Western Ghats of Tamil Nadu, India. *African Journal of Biotechnology*, 11(59):12277-12285
10. Parthibhan S., Benjamin JHF., **Muthukumar M.**, Ahamed Sherif N., Senthil Kumar T., Rao MV. (2012) Influence of nutritional media and photoperiods on *in vitro* asymbiotic seed germination and seedling development of *Dendrobium aqueum* Lindley. *African Journal of Plant Science*, 6(14):383-393
11. Ahamed Sherif N., Parthibhan S., **Muthukumar M.**, Benjamin JHF., Abubacker MN., Senthil Kumar T., Rao MV. (2012) A preliminary report on the symbiotic germination of *Acanthephippium bicolor* Lindley, An endangered Orchid of Tamil Nadu. *International journal of current science*, 2:100-104

## BOOK CHAPTERS

1. Senthil Kumar T., **Muthukumar M.**, Thaniarasu, R., Jayabalan, N., Rao MV. (2018) Plant Tissue culture techniques In: Thajuddin, N., Dhanasekaran, D., Muralidharan, G., Senthil Kumar, T., (Eds.) *Laboratory methods in Biology*, Jazym publications, pp65-89
2. Lavanya AR., **Muthukumar M.**, Muthukrishnan S., Kumaresan V., Senthil Kumar T., Venkatesh MV., Rao MV. (2016) Effect of Plant Growth Regulators and Additives on Indirect Organogenesis of *Simarouba glauca* DC In: Anis M., Ahmad N. (Eds.) *Plant Tissue Culture: Propagation, Conservation and Crop Improvement*, Springer, Singapore pp71-82
3. Ahmed ABA., Komalavalli N., **Muthukumar M.**, Benjamin JHF., Rao AS., Kim S., Rao MV. (2010) Pharmacological activities, Phytochemical investigations and *In vitro* studies of *Gymnema sylvestre* R.Br.- A Historical Review. *Comprehensive Bioactive Natural Products*, Stadium Press LLC, pp75-99

## Workshops Participated

1. Basic Training course on “Flow Cytometry (BD FACS Calibur)” by BD Biosciences at BD- JH FACS Academy, Jamia Hamdard University, New Delhi.
2. Industry-Academia National Workshop on “Light Microscopy – From Basics till Optical sectioning” by CARL-ZEISS at Bharathidasan University, Tiruchirappalli.