

Faculty Profile of Dr. S. Girija



Dr. S. Girija
Associate Professor
Department of Biotechnology

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Mobile No: 98435-72999

Research Area

- Plant Metabolic Engineering
- Gene Transformation and Tissue culture
- Metabolomics

Education & Career

Education

Ph. D.

Subject : Plant Science

Institution : School of Life Sciences, Bharathidasan University, Trichy-24

Year of Award : 2001

M.Sc.

Subject : Plant Science

Institution : School of Life Sciences, Bharathidasan University, Trichy-24

Year of Award : 1997

Career

Institution : Department of Biotechnology, Bharathiar University. Coimbatore-046.

Designation : Guest Lecturer.

Period : 07/2003-04/2005(22 Months)

Institution : Department of Biotechnology, Bharathiar University. Coimbatore-046

Designation : Lecturer.

Period : 2005-2007(2years)

Institution : Department of Biotechnology, Bharathiar University. Coimbatore-046

Designation : Assistant Professor

Period : 2007-2015(10 Years)

Institution : Department of Biotechnology, Bharathiar University. Coimbatore-046

Designation : Assistant Professor

Period : 2015-Till Date(4 Years)

Past Experience

Institution : Department of Biotechnology, KSR College of Arts and Science, Thiruchengode.

Designation : Lecturer.

Period : 01/2003-07/2003(7 Months)

Awards

Academic Awards

Awarding agency :Nature Science Foundation Coimbatore-641 004

Purpose of award :Best Women Faculty Award

Country :India.

Date of Award :11.01.2020

Academic fellowships for training

Awarding agency : Bilateral Exchange Programme to South Korea.

Name of faculty : Dr. S. Girija.

Country : South Korea.

Purpose : Visiting Scientist.

Duration : 2011 Aug.

Awarding agency : Nature Science Foundation Coimbatore-641 004 .

Name of faculty : Dr. S. Girija.

Country : India.

Purpose : Women Faculty Award.

Duration : 2019-20.

Awarding agency : CSIR.

Name of faculty : Dr. S. Girija.

Country : India.

Purpose : Senior Research Fellow.

Duration : 1997-2000.

Membership

Professional Bodies

Organization :Institutional Biosafety Committee

Type of Membership :Member

Period : 2009-2020

Organization :Tamilnadu Agricultural University

Type of Membership :Instrument Expert Committee Member

Period :2014-2018

Academic Bodies

Organization :Institutional Biosafety Committee

Type of Membership :Biosafety Member

Period :2009-2020

Organization :Bharathiar University

Type of Membership :Women Nominee

Period :2016-2019

Organization :Erode Arts and Science and College

Type of Membership :Board of Studies University Nominee

Period :2016-2019

Organization :Emerald College

Type of Membership :Board of Studies University Nominee

Period :2016-2019

Organization :Hindustan College

Type of Membership :Board of Studies University Nominee

Period :2016-2019

Organization :Angappa College of Arts and Science

Type of Membership :Board of Studies University Nominee

Period :2016-2019

Organization :KSR College

Type of Membership :Board of Studies University Nominee

Period :2016-2019

Organization :NGP college of Arts and Science

Type of Membership :Board of Studies University Nominee

Period :2016-2019

Organization :Bharathiar University as a Women Nominee

Type of Membership :Selection Committee

Period :2016-2019

Organization :Erode Arts and Science and College

Type of Membership :Selection Committee

Period :2016-2019

Organization :Emerald College

Type of Membership :Selection Committee

Period :2016-2019

Organization :Erode College of Arts and Science

Type of Membership :Result Passing Board

Period :2016-2020

Organization :RVS College

Type of Membership :Result Passing Board

Period :2016-2020

Organization :Rathinam College of Arts and Science

Type of Membership :Result Passing Board

Period :2016-2020

Organization :Tamil Nadu Agricultural University

Type of Membership :Instrument expert committee

Period :2014-2017

Organization :Bharathiar University,

Type of Membership :Question Paper Setter

Period :2005-2020

Organization :Bharathidasan University

Type of Membership :Question Paper Setter

Period :2016-2020

Organization :Periyar University,

Type of Membership :Question Paper Setter

Period :2016-2020

Organization :Madras University

Type of Membership :Question Paper Setter

Period :2014-2018

Organization :Avinashilingam University for Women,

Type of Membership :Question Paper Setter

Period :2016-2019

Organization :Karunya University,

Type of Membership :Question Paper Setter

Period :2016-2020

Organization :Tamil Nadu Agricultural University
Type of Membership :Question Paper Setter
Period :2016-2020

Organization :KSR arts and science College
Type of Membership :Question Paper Setter
Period :2016-2020

Organization :Annamalai University
Type of Membership :Question Paper Setter
Period :2018-2020

Visits

Country Visited : Kyung Hee University, South Korea.
Duration of Visit : 4 months
Month and Year : August 2011
Purpose of Visit : Training Programme on “INSA NRF Bilateral Exchange Programme” Visiting Scientist.

Country Visited : 13th International conference on Biotechnology held at Dalian, China.
Duration of Visit : 5 days
Month and Year : October 2008
Purpose of Visit : International conference.

Country Visited :The 22nd Annual Meeting of the Thai Society for Biotechnology “International Conference on Biotechnology for Healthy Living”, Thailand. 1040 – 1049. .
Duration of Visit : 1 year 9 months
Month and Year : September 2010
Purpose of Visit : International conference.

Collaborators

Others

Projects

Funded Projects(National level)

- [Ongoing-3](#)
- [Completed-2](#)

1.Pathway engineering for increasing the plumbagin (anticancer drug) content in plumbago indica for commercial production.

Principle Investigator:Dr. S. Girija
Funding Agency : RUSA 2.0 BCTRC
Amount : Rs 7.8 Lakhs.
Duration : 2020-2022.

2.Synthesis and Analysis of Polyamine coated ZnO Nanoparticle formulations for seed priming to raise drought tolerance in radish (Raphanus sativus L.).

Principle Investigator:Dr. S. Girija
Funding Agency : Department of Biotechnology (DBT)
Amount : Rs 40 Lakhs.
Duration : 2020-2023.

3.Plant cell culture strategies for the enhanced production of Sennoside from Tinneyvelly senna (Senna alexandrina Mill.) and assessing its Pharmacological activity.

Principle Investigator:Dr. S. Girija
Funding Agency :DST-SERB
Amount : Rs 37.2 Lakhs.
Duration : 2019-2022.

1.Analyzing the Economic feasibility of the developed Plant Tissue culture methods for mass production of important horticulture plants using Bioreactors.

Principle Investigator:Dr. S. Girija
Funding Agency :RUSA 2.0.
Duration : 2019-2020

2.Extraction of Flavonoids and Quantification of Quercetin from waste Radish (Raphanus sativus (L.) Leaves.

Principle Investigator:Dr. S. Girija
Funding Agency : TNSCST
Amount : Rs 10,000..
Duration : 2016-2017

3.DNA Barcoding to study the Honey Biodiversity in Mizoram..

Principle Investigator:Dr. S. Girija(CO.PI)
Funding Agency :DBT (NER-TWINNING).
Amount :Rs. 70 lakhs.
Duration : 2014-2017

4.Study of DcAOX Genes Functionality Associated with cell Reprogramming under Abiotic Stresses.

Principle Investigator:Dr. S. Girija(CO.PI)
Funding Agency : Department of science and technology.
Amount : 8 Lakhs.
Duration : 2013-2016

5.Somatic embryogenesis and transfer of gamma TMT gene to increase the vitamin E content in Soybean seeds

Principle Investigator:Dr. S. Girija(Co. PI)
Funding Agency : DBT
Amount : 38 Lakhs.
Duration : 2012-2015

6.Development of Vitamin-E biofortified Indica Rice.

Principle Investigator:Dr. S. Girija(Co. PI)

Funding Agency : DBT

Amount : 42.86Lakhs.

Duration : 2012-2015/p>

7.Comparative metabolic profiling of Plumbago indica and its in vitro culture for commercial utilization.

Principle Investigator:Dr. S. Girija

Funding Agency : University Grant Commission

Amount : 9.2 Lakhs.

Duration : 2011-2014

8.Genetic Engineering of tomato for cold tolerant by expressing antifreeze protein gene

Principle Investigator:Dr. S. Girija(Co. PI)

Funding Agency : DRDO-DARL

Amount : 9.92 Lakhs.

Duration : 2006-2010

9.Production of α - tocopherol using methyl transferase gene from Arabidopsis thaliana in Lycopersicon esculuntum through Agrobacterium mediated transformation.

Principle Investigator:Dr. S. Girija

Funding Agency : DRDO – Bharathiar University Centre

Amount : 35 Lakhs.

Duration : 2006-2010

10.Production of Cold Tolerant Transgenic tomato using LTI6/RCI2A gene from Arabidopsis thaliana.

Principle Investigator:Dr. S. Girija

Funding Agency :DRDO – FRL, Ministry of Defense, Government of India

Amount : 9.8 Lakhs.

Duration : 2005-2009

11.Production and Rosmarinic acid (antioxidant) from Ocimum sanctum (Tulsi) through tissue culture.

Principle Investigator:Dr. S. Girija

Funding Agency : DRDO – INMAS, Ministry of Defense, Government.

Amount : 7.6 Lakhs.

Duration : 2005-2007

Consultancy Projects

- [Ongoing](#)
- [Completed](#)

Research Guidance

- [Post Doc.](#)
- [Ph.D.](#)
- [M.Phil.](#)
- [M.Sc.](#)

Ongoing

Title

Name

Completed

Title

Name

Ongoing

Sample Data.

Completed

Sample Data.

Ongoing

Sample Data.

Completed

Sample Data.

Ongoing

Sample Data.

Completed

Sample Data.

Research Publication

- [International](#)
- [National](#)
- [Patents](#)
- [Conferences](#)
- [Books / Chapters](#)
- [Database](#)

1. Plumbagin from two Plumbago species inhibits the growth of stomach and breast cancer cell lines.

M Jayanthi., A Gokulanathan., B Sri Renukadevi., **S Girija.**

Industrial crops and Products V: 146-112147.(2020).

2. Direct shoot organogenesis and in vitro flowering from internode segments of *Alternanthera sessilis* L.: An important medicinal plant.
M Sowmya, U Jinu., K Sarathi, N Geetha. **S Grijja**, P Venkatachalam.
Journal of Genetic Engineering and Biotechnology. (Accepted In Press).(2020).
3. Effect of silver nitrate and growth regulators on direct shoot organogenesis and *in vitro* flowering from internodal segment explants of *Alternanthera sessilis* L.
M Sowmya, U Jinu., K Sarathi, N Geetha. **S Grijja**, P Venkatachalam.
Biocatalysis and Agricultural Biotechnology. (30)11:1. 101855.(2020).
4. Effect of Absciscic acid and Selenium foliar sprays on drought mitigation in tomato (*Solanum lycopersicum* L.)
R Surendran. T.N JayaGanesh. M Balasubramanian. **S Girija.**
Materials Today: Proceedings.(2020).
5. Identification of a Reaction Intermediate and Mechanism of Action of Intermediary Enzymes in Plumbagin Biosynthetic Pathway using Molecular Dynamics Simulation.
K Muralidharan., R Lalitha., P Kumar., P.S Akshai, MN Swamy, **S Girija**, M Nayana and M Jayanthi.
Catalysts. 10(3):280.(2020).
6. Analysis of flavonoid content, antioxidant, antimicrobial and antibiofilm activity of *in vitro* hairy root extract of radish (*Raphanus sativus*L.).
M Balasubramanian. **S Girija.**
PCTOC, V: 17(33).(2020).
7. Comparative Analysis of Antioxidant Potential and Andrographolide Contents in *Andrographis paniculata* (L.) Nees and *Andrographis echiioides* (L.) Nees
V Vigneshwaran, M Balasubramanian. **S Girija.**
European Journal of Pharmaceutical and Medical Research. ISSN 2394-3211.(2019).
8. Elite hairy roots of *Raphanus sativus* (L.) as a source of antioxidants and flavonoids.
M Balasubramanian. M Anbumegala, R Surendran. M Arun, **S Girija.**
3 biotech, V: 17(33).(2018).

9. Effect of sample extraction, preparation methods on HPLC quantification of plumbagin in *in vivo* and *in vitro* plant parts of *Plumbago zeylanica* L.
K Muralidharan. M Jayanthi. R Surendran. M Balasubramanian. S **Girija**.
African Journal of Biotechnology, V: 8:128. 1021-1030. (2018).
10. Morphological and Biochemical study on drought induced Tirunelveli Senna (*Senna Alexandrina* Mill.).
V Govindasamy. S **Girija**.
International Journal of Research Instinct ISSN ONLINE 2348-2095. (2018)
11. Can *Ocimum basilicum* L. And *Ocimum tenuiflorum* L. *in vitro* culture be a potential source of secondary metabolites?.
K Bhuvaneshwari., A Gokulanathan., M Jayanthi., V Govindasamy., L Milella., Lee S., D.C Yang., S **Girija**.
Food Chemistry. 194:55-60. (2016).
12. Modified in planta transformation procedure for *Agrobacterium tumefaciens* mediated *NptII* in brinjal (*Solanum melongina*).
J. A Jenifer, S **Girija**, A Hari, R Sudha, E.P Venkatasalam,
Progressive Horticulture 48 (2), 219-226. (2016).
13. Environmentally friendly preparation of gold and silver nanoparticles for SERS applications using biopolymer pectin.
Y. L. Balachandran, A. Y Panarin, I. A Khodasevich., S. N Terekhov., A. C Gutleb., S **Girija**.
Journal of Applied Spectroscopy. V. 81, N 6:872-878. (2015).
14. Ectopic expression of *Arabidopsis RCI2A* gene contributes to cold tolerance in tomato.
V Sivankalyani, M Geetha, K Subramanyam and S **Girija**.
Transgenic Research. (2015)
DOI 10.1007/s11248-014-9840-x.
15. Factors Influencing podophyllotoxin production in adventitious root culture of *Podophyllum hexandrum* Royle.
M Rajesh, G Sivanandhan, M Arun, V Vasudevan, J Theboral, S **Girija**, M Manickavasagam, N Selvaraj and A Ganapathi.
Acta Physiologiae Plantarum. 36:1009-1021. (2014)
DOI: 10.1007/s11738-013-1479-3.
16. Punctured-Hypocotyl Method for High-efficient Transformation and adventitious shoot regeneration of Tomato.

V Sivankalyani, S Takumi, S Thangasamy, K Ashakiran, **S Girija**.

Scientia Horticulturae 165:357-364.(2014)

DOI: 10.1016/j.scienta.2013.11.034.

17. Transfer and Targeted Overexpression of γ -Tocopherol Methyltransferase (γ -TMT) Gene Using Seed-Specific Promoter Improves Tocopherol Composition in Indian Soybean Cultivar.
M Arun, K Subramanyam, J Thebora, G Sivanandhan, M Rajesh, G Kapil Dev, B Jaganath, M Manickavasagam, **S Girija** & A Ganapathi.
Applied Biochemistry and Biotechnology.172:1763-1776. (2013)
DOI 10.1007/s12010-013-0645-9.
18. Differently Environment Stable Bio-Silver Nanoparticles: Study on Their Optical Enhancing and Antibacterial Properties.
YL Balachandran, **S Girija**, R Selvakumar, S Tongpim, AC Gutleb, Suriyanarayanan.
PLoS ONE 8(10): e77043. (2013).
Doi:10.1371/journal.pone.0077043.
19. *In vitro* Culture and *Agrobacterium* Mediated Transformation in High Altitude Tomato (*Lycopersicon esculentum* Mill.) Cultivar Shalimar.
C Janani, **S Girija**, BD Ranjitha Kumari.
International Journal of Pharmacy Teaching and Practices, 4(1), 483-488.(2013).
20. Characterization of the active antiproliferative principles of *Jatropha curcus* and *Jatropha gossypifolia* on HeLa cell lines.
TH Nazeema and **S Girija**.
International Journal of Pharmacy and Pharmaceutical Science. 5(2)346-355. (2013).
21. Ag nanoparticles: size and surface dependent effects on model aquatic organisms and uptake evaluation with Nano SIMS.
A Georgantzopoulou, YL Balachandran, P Rosenkranz, M Dusinska, A Lankoff, M Wojewodzka, M Kruszewski, C Guignard, JN Audinot, **S Girija**, L Hoffmann and A Gutleb.
Nano toxicology. 7(7):1168-78.(2012).
22. Size-Controlled Green Synthesis of Silver Nanoparticles using Dual Functional Plant Leaf Extract at Room Temperature.
YL Balachandran, P Peranantham, R Selvakumar, AC Gutleb, and **S Girija**.

International Journal of Green Nanotechnology. 4:1-16.(2012).

23. Induction of In vitro Roots from leaf callus of *Ocimum basilicum* L. and *O. tenuiflorum* L.
K Bhuvaneshwari, B Sathiya, A Gokulanathan, M Jayanthi and **S Girija**.
Plant cell Biotechnology and Molecular Biology. 13.(1&2): 15-20.(2012).
24. Comparative phytochemical investigations and in-vitro pharmacological studies of two medicinal species of *Jatropha* from South India.
TH Nazeema and **S Girija**.
European Journal of Experimental Biology, 2 (2):421-426. (2012).
25. Evaluation of Food Protective Property of Five Natural Products using Fresh-cut Apple Slice Model.
FL Hakkim, Mathiraj, M Essa, **S Girija**, N Guizani, and H Song.
Pakistan Journal of Biological Science .15(1):10-8. (2012).
26. Genotypic specific shoot regeneration from different explants of tomato using TDZ.
K Ashakiran, V Sivankalyani, M Jayanthi, V Govindasamy and **S Girija**.
Asian Journal of Plant Science Research. 1(2) : 107 -113 (2011).
27. Production of rosmarinic acid in *Ocimum sanctum* L. cell cultures by the influence of sucrose, phenylalanine, yeast extract and methyl jasmonate.
FL Hakkim, V Sivankalyani, M Essa, **S Girija** and H Song.
International Journal of Biological and Medical Research. 2(4): 1070 -1074. (2011).
28. Production of rosmarinic acid in *Ocimum sanctum* (L) cell suspension cultures by the influence of growth regulators.
FL Hakkim, V Sivankalyani, M Essa, **S Girija** and H Song.
International Journal of Biological and Medical Research. 2 (4): 1158-1161. (2011).
29. Somatic embryogenesis, embryogenic cell suspensions from *Ocimum sanctum* (L.) leaf callus cultures and their rosmarinic acid accumulation.
FL Hakkim, V Sivankalyani, M Essa, **S Girija** and H Song.
International Journal of Biological and Medical Research. 2(4): 1064-1069. (2011).
30. Somatic embryogenesis for *Agrobacterium*-mediated transformation tomato (*Solanum lycopersicon* L.).

K Ashakiran, V Chidambereshwaran, M Govindasamy, V Sivankalyani and **S Girija**.

International Journal of Biotechnology Application. 3(2):72-77. (2011).

31. Plants as green Nanofactories – Application of plant biotechnology in nanoparticle synthesis – A Review.

S Girija, YL Balachandran and J Kandakumar.

Plant cell Biotechnology and Molecular Biology. 10(3&4): 79-86 (2009).

32. Antioxidant property of selected *Ocimum* species and their secondary metabolite content.

LF Hakkim, **S Girija**, R. Boopathy.

Journal of Medicinal Plants Research. 2(9):250-257.(2012).

33. Chemical composition and Antioxidant property of holy basil (*Ocimum sanctum* L.) field grown plant parts and their in vitro callus culture.

LF Hakkim, C Gowrishankar and **S Girija**.

Journal of Agriculture and Food Chemistry. 55 (22), 9109–9117. (2007).

34. Effect of aqueous and ethanol extracts of *Cassia auriculata* L. flowers on diabetes using alloxan induced diabetic rats.

LF Hakkim, **S Girija**, R Senthilkumar and AM Jalaludeen.

International Journal of Diabetes and Metabolism 15: 100-106. (2007).

35. Direct Multiple Shoot regeneration from shoot tip and nodal explants of *Ocimum sanctum* L., (Tulsi) a medicinal herb.

S Girija, S Kavitha and S Deepavathi

Plant cell Biotechnology and Molecular Biology. 7 (1&2): 23- 28.(2006).

36. Selection of efficient arbuscular mycorrhizal fungi in the rhizosphere of cashew and their application in cashew nursery.

G Ananthakrishnan, R Ravikumar, **S Girija** and A Ganapathi.

Scientia Horticulturae. 100: 369-375.(2004).

37. In vitro adventitious shoot formation from cotyledon explants of cashew (*Anacardium occidentale* L.)

G Ananthakrishnan, R Ravikumar, **S Girija** and A Ganapathi.

Scientia Horticulturae. 93: 343-355. (2002).

38. Seed viability and biochemical changes associated with accelerated ageing in *Dendrocalamus strictus* seeds.

R Ravikumar, G Ananthakrishnan, **S Girija** and A Ganapathi.

Biologia Plantarum. 45: 153-156. (2002).

39. Nucellar tissues of cashew (*Anacardium occi-dentale* L.) 367Catley, JL, Brooking, IR, Davies, LJ and Halligan, EA Temperature and irradiance effects on *Sandersonia aurantiaca* flower shape.
G Ananthakrishnan, **S Girija**,
Scientia Horticulturae 93 373-376.(2002).
40. AM association of bamboo rhizosphere in different study sites of Tamil Nadu.
R Ravikumar, G Ananthakrishnan, **S Girija** and A Ganapathi.
Indian Forester. 127(7): 804-808. (2001).
41. Somatic embryogenesis in mung bean (*Vigna radiata* (L.) Wilczek).
S Girija, A Ganapathi and G Ananthakrishnan.
Indian Journal of Experimental Biology. 38: 1241-1244. (2000).
42. Micropropagation of *Crossandra infundibuliformis* (L.) Nees.
S Girija, A Ganapathi and G. Vengadesan.
Scientia Horticulturae .82: 331-337. (1999)

1. Plant Molecular Biology and Analytical techniques.
Dr.S.Girija.AkiNik Publishers New Delhi.2020
2. School of Distance Education PG Diploma Microbial Biotechnology Study
Material
Girija S.Genetic Engineering,Bharathiar University
3. Herbal perspectives: Present and future. Dr. S. Girija.Satish Serial Publishing
House.2011
4. High frequency plant regeneration from papery cotyledon explants of
Jatropha curcas L. for *Agrobacterium* – mediated transformation. In
proceedings: The 22nd Annual Meeting of the Thai Society for Biotechnology
“International Conference on Biotechnology for Healthy Living”, Thailand.

1040 – 1049.Girija S.TSB 2010. October, 2010

5. Biochemical and Physiological analysis in PKM-1 and CO-3 varieties of tomato (Solanum lycopersicum Mill.)
Girija S,Macmillan publishers India. 2017
6. Exogenous Auxins Improve Adventitious Rooting and Enhance Salt Tolerance in Petunia hybrida.
Girija S,Macmillan publishers India. 2017

Alumini Reflections: