



# Bharathiar University

State University | "A<sup>++</sup>" Grade by NAAC | 46<sup>th</sup> Rank in MoE-NIRF  
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<b>Research Area</b> <ul style="list-style-type: none"><li>• Plant Metabolic Engineering</li><li>• Gene Transformation and Tissue culture</li><li>• Metabolomics</li></ul>	<b>Courses Teaching</b> <ul style="list-style-type: none"><li>•</li></ul>
<b>Research Experience:</b> 27	<b>Teaching Experience:</b> 22
<b>Research Credentials</b> (as on February 2024 – Source: Google scholar) H-index: 20                      Citations: 1269                      i10-index: 27	
<b>Patents :</b> Filed: 1	
<b>Publications</b> International Journals: 33                      Books/Chapters: 1                      National Journals: 9	
<b>Education</b> <b>Ph. D.</b> Subject : Botany Institution : School of Life Sciences, Bharathidasan University Affiliated University : Bharathidasan University Year of Award : February 2001 <b>M. Sc.</b> Subject : Plant Sciences Institution : Bharathidasan University Affiliated University : Bharathidasan University Year of Award : April 1994	
<b>Institutional Responsibilities</b> <b>Purchase Committee Member, DST-PURSE</b> Period :Feb 2017 - Feb 2018 Nature of Responsibility :Purchase Committee	
<b>Visits</b> <ol style="list-style-type: none"><li>1. Training Programme on "INSA NRF Bilateral Exchange Programme" Visiting Scientist. - 2011-08-01 )</li><li>2. 13th International conference on Biotechnology ( 2008-10-01 - )</li><li>3. The 22nd Annual Meeting of the Thai Society for Biotechnology "International Conference on Biotechnology for Healthy Living", ( 2010-09-01 - )</li></ol>	
<b>Publications</b> <b>International Journals - 33</b>	



### **33. Organic extracts from sustainable hybrid poplar hairy root cultures as potential natural antimicrobial and antibiofilm agents**

Protoplasma, Vol 261 (July 2026)

Sonia MalikGowtham KumaraguruMargot BruatShow all 9 authorsFrédéric LamblinFrédéric Lamblin

### **32. Elicitors-induced enhancement of alkaloid and flavonoid production in callus cultures of *Aerva lanata* (L.)**

#### **Juss. Ex-Schult: an assessment of anticancer and toxicity properties**

Plant Cell, Tissue and Organ Culture (PCTOC)Volume 162, article number 57, (2025) (September 2025)

Selvakumar Boobalan, Shanmugam Girija

### **31. Investigating antioxidant, anti-obesity, and anticancer potential in raw and processed flour extracts of barnyard millets**

Journal of Food Measurement and Characterization, Vol 18, Page 6124-6144 (June 2025)

Gowtham Kumaraguru, Arulmathi Ramalingam, Girija Shanmugam, Ashok Kumar Krishna Kumar, Suganthi Muthusamy, Jayanthi Malaiyandi

### **30. Sennosides A and B could contribute to the antimicrobial efficiency of *Senna alexandrina* Mill. against pathogenic bacteria in vitro and in vivo models**

South African Journal of Botany, Vol 175, Page 281-294 (December 2024)

Kumaraguru Gowtham, Govindhan Thiruppathi, Muthusamy Balasubramanian, Malaiyandi Jayanthi, Palanisamy Sundararaj, Shanmugam Girija

### **29. RNA Interference (RNAi) Mechanism and Application in Plants for Enhancement of Natural Products**

Biosynthesis of Natural Products in Plants: Bioengineering in Post-genomics Era, page 141-159 (December 2024)

Kumaresan Kowsalya, Jayachandran Halka, Shanmugam Girija, Packiaraj Gurusaravanan, Muthukrishnan Arun

### **28. Efficient extraction methods and callus culture of quercetin from Indian white radish: yield analysis via HPLC quantification and assessment of cytotoxic activity**

International Journal of Food Science and Technology, Vol 59, Page 3556-3572 (April 2024)

Muthusamy Balasubramanian, Gowtham Kumaraguru, Shanmugam Girija

### **27. Screening and differential oxidative stress responses of hot pepper (*Capsicum annuum* L.) genotypes under cold stress**

South African Journal of Botany, Vol 151, Page 591-599 (December 2022)

Jaya Ganesh Thiruvengadam Nandagopal, Girija Shanmugam

### **26. Effect of silver nitrate and growth regulators on direct shoot organogenesis and in vitro flowering from internodal segment explants of *Alternanthera sessilis* L.**

Biocatalysis and Agricultural BiotechnologyVolume 30, November 2020, 101855 (November 2020)

M Sowmya, U Jinu, D Sarathikannan, N Geetha, S Girija, P Venkatachalam

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

Industrial Crops and ProductsVolume 146, April 2020, 112147 (July 2020)

Malaiyandi Jayanthi, Anandapadmanaban Gokulanathan, Perumalsamy Haribalan, Kilankajae Ashakiran, Chellappan Dinesh Kumar, Dua Kamal, Shanmugam Girija, Balusamy Sri Renukadevi

### **24. Identification of a reaction intermediate and mechanism of action of intermediary enzymes in plumbagin biosynthetic pathway using molecular dynamics simulation**

Catalysts 2020, 10(3), 280 (March 2020)

Muralidharan KS, Roopa Lalitha, Shanmugam Girija, Pravin Kumar R, Akshai PS, Meghana N Swamy, Nayana M, Malaiyandi Jayanthi

### **23. Analysis of flavonoid content, antioxidant, antimicrobial and antibiofilm activity of in vitro hairy root extract of radish (*Raphanus sativus* L.)**

Plant Cell, Tissue and Organ Culture (PCTOC)Volume 140, pages 619–633, (2020) (January 2020)

Balasubramanian Muthusamy, Girija Shanmugam



## **22. Environmentally friendly preparation of gold and silver nanoparticles for sers applications using biopolymer pectin**

Journal of Applied Spectroscopy Vol 81, Issue 6, Pages 962-968 (January 2015)  
YL Balachandran, AY Panarin, IA Khodasevich, SN Terekhov, AC Gutleb, S Girijaa

## **21. Ectopic expression of Arabidopsis RCI2A gene contributes to cold tolerance in tomato**

Transgenic Research Volume 24, pages 237–251, (2015) (September 2014)  
Velu Sivankalyani, Mahalingam Geetha, Kondeti Subramanyam, Shanmugam Girija

## **20. Factors influencing podophyllotoxin production in adventitious root culture of Podophyllum hexandrum**

### **Royle**

Acta physiologiae plantarum, Vol 36, Page 1009-1021 (April 2014)  
Manoharan Rajesh, Ganeshan Sivanandhan, Muthukrishnan Arun, Venkatachalam Vasudevan, Jeevaraj Theboral, Shanmugam Girija, Markandan Manickavasagam, Natesan Selvaraj, Andy Ganapath

## **19. Transfer and Targeted Overexpression of $\gamma$ -Tocopherol Methyltransferase ( $\gamma$ -TMT) Gene Using Seed-Specific Promoter Improves Tocopherol Composition in Indian Soybean Cultivars**

Applied biochemistry and biotechnology, Vol 172, Page 1763-1776 (February 2014)  
Muthukrishnan Arun, Kondeti Subramanyam, Jeevaraj Theboral, Ganeshan Sivanandhan, Manoharan Rajesh, Gnanajothi Kapil Dev, Balusamy Jaganath, Markandan Manickavasagam, Shanmugam Girija, Andy Ganapathi

## **18. An in vitro evidence for caffeic acid, rosmarinic acid and trans cinnamic acid as a skin protectant against $\gamma$ -radiation**

International Journal of Low Radiation, Vol 9, Page 305-316. (January 2014)  
Faruck Lukmanul Hakkim, Miwa Miura, Naoki Matsuda, Ahmed Suleiman Alharassi, Gilles Guillemin, Motohiro Yamauchi, Girija Arivazhagan, Hyuk Song

## **17. Ag nanoparticles: size-and surface-dependent effects on model aquatic organisms and uptake evaluation with NanoSIMS**

Nanotoxicology, Vol 7, Page 1168-1178 (November 2013)  
Anastasia Georgantzopoulou, Yekkuni L Balachandran, Philipp Rosenkranz, Maria Dusinska, Anna Lankoff, Maria Wojewodzka, Marcin Kruszewski, Cédric Guignard, Jean-Nicolas Audinot, Shanmugam Girija, Lucien Hoffmann, Arno C Gutleb

## **16. Differently environment stable bio-silver nanoparticles: study on their optical enhancing and antibacterial properties**

PLoS One, Vol 8, Page e77043 (October 2013)  
Yekkuni L Balachandran, Shanmugam Girija, Rajendran Selvakumar, Saowanit Tongpim, Arno C Gutleb, Sarvajayakesavalu Suriyanarayanan

## **15. In vitro culture and Agrobacterium-mediated transformation in high altitude tomato (Lycopersicon esculentum Mill.) cultivar Shalimar**

International Journal of Pharmacy Teaching & Practices, Vol 4, Page 483-488 (October 2013)  
C Janani, S Girija, BD Ranjitha Kumari

## **14. Size-controlled green synthesis of silver nanoparticles using dual functional plant leaf extract at room temperature**

International Journal of Green Nanotechnology, Vol 4 Page 310-325 (July 2012)  
Yekkuni L Balachandran, Pazhanisami Peranatham, Rajendran Selvakumar, Arno C Gutleb, Shanmugam Girija

## **13. Evaluation of food protective property of five natural products using fresh-cut apple slice model.**

akistan Journal of Biological Science, Vol 15, Page 10-18 (January 2012)  
Faruk Lukmanul Hakkim, Musthafa Mohamed Essa, Girija Arivazhagan, Nejb Guizani, Song Hyuk

## **12. Somatic embryogenesis, embryogenic cell suspension from Ocimum sanctum leaf callus cultures and its rosmarinic acid accumulation**

Journal of Biotechnology (October 2008)  
F Lukmanul Hakkim, S Girija, R Boopathy



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

Journal of Medicinal Plants Research, Vol 2, Page 250-257 (September 2008)  
F Lukmanul Hakkim, Girija Arivazhagan, R Boopathy

## 10. Chemical composition and antioxidant property of holy basil (*Ocimum sanctum* L.) leaves, stems, and inflorescence and their *in vitro* callus cultures

Journal of agricultural and food chemistry. Vol 55 Page 9109-9117 (October 2007)  
F Lukmanul Hakkim, C Gowri Shankar, S Girija

## 9. Chemical composition and antioxidant property of holy Basil (*Ocimum Sanctum* L.) leaves, stems and inflorescence and their seeds *in vitro* callus cultures

Journal of Agricultural Food Chemistry, Vol 55, Pages 9109-9117 (October 2007)  
FL Hakim, CG Shankar, S Girija

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

International Journal of Diabetes and Metabolism, Vol 3, page 100-106 (March 2007)  
F Lukmanul Hakkim, S Girija, R Senthil Kumar, MD Jalaludeen

## 7. Direct multiple shoot regeneration from shoot tip and nodal explants of *Ocimum sanctum* L. (Tulsi): a medicinal herb.

Plant Cell Biotechnology and Molecular Biology, (July 2006)  
S. Girija, S. Kavitha, S. Deepavathi

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

Scientia Horticulturae, Vol 100 Page 369-375 (March 2004)  
G Ananthakrishnan, R Ravikumar, S Girija, A Ganapathi

## 5. Nucellar tissues of cashew (*Anacardium occi-dentale* L.)

Scientia Horticulturae, Vol 93 Page 373-376 (September 2002)  
Ananthakrishnan, G., Girija S

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

Scientia Horticulturae, Vol 93 Page 343-355 (April 2002)  
G Ananthakrishnan, R Ravikumar, S Girija, A Ganapathi

## 3. Seed Viability and Biochemical Changes Associated with Accelerated Ageing in *Dendrocalamus Strictus* Seeds

Biologia plantarum Vol 45 Page 153-156 (March 2002)  
R Ravikumar, G Ananthakrishnan, S Girija, A Ganapathi

## 2. Somatic embryogenesis in mung bean (*Vigna radiata* (L.) Wilczek)

Indian Journal of Experimental Biology, Vol 38 and Page 1241-1224 (December 2000)  
Girija S, Ganapathi A and Ananthakrishnan G

## 1. Micropropagation of *Crossandra infundibuliformis* (L.) Nees

Scientia Horticulturae, Vol 82 & Page 331-337 (December 1999)  
S Girija, A Ganapathi and G Vengadesan

## National Journals - 9

### 9. Characterization and Cytotoxic Activity of *Dalbergia latifolia* Wood Extract

American Journal of Agriculture and Forestry 2020; 8(5): 208-213 (October 2020)  
Thangamani Dhandapani, KR Sasidharan, Girija Shanmugam, Vimaladevi Sadanandam, Ragunathan Vasudevan, Suryanarayanan Lalitha, Ravichandran Anandalakshmi

### 8. Somatic embryogenesis for *Agrobacterium* mediated transformation of tomato - *Solanum lycopersicum* L.

International Journal of Biotechnology Applications, 2011, Vol. 3, No. 2, 72-79 ref. 27 (October 2012)  
Kilankaje Ashakiran, Mahadevan Chidambareswaran, Mahadevan Chidambareswaran, Vaithiyathan Govindasamy, Vaithiyathan Govindasamy, Velu Sivankalyani, Velu Sivankalyani, Shanmugam Girija, Shanmugam Girija



## 7. Production of rosmarinic acid in *Ocimum sanctum* (L.) cell suspension cultures by the influence of growth regulators

Int J Biol Med Res, Vol 2, Issue 4, Pages 1158-61 (November 2011)

FL Hakkim, S Kalyani, M Essa, S Girija, H Song

## 6. Somatic embryogenesis for *Agrobacterium* mediated transformation of tomato-*Solanum lycopersicum*. L

International Journal of Biotechnology Application (August 2011)

Kilankaje Ashakiran, Mahadevan Chidambareswaran, Vaithyanathan Govindasamy, Velu Sivankalyani, Shanmugam Girija

## 5. Genotype specific shoots regeneration from different explants of tomato (*Solanum lycopersicum* L.) using

### TDZ

Asian Journal of Plant Science and Research, 2011, 1 (2):107-113 (August 2011)

Kilankaje Ashakiran, Velu Sivankalyani, Malaiyandi Jayanthi, Vaithyanathan Govindasamy, Shanmugam Girija

## 4. SOMATIC EMBRYOGENESIS FOR AGROBACTERIUM MEDIATED TRANSFORMATION OF TOMATO-

### SOLANUM LYCOPERSICUM L.

International Journal of Biotechnology Applications ISSN: 0975-2943 & E-ISSN: 0975-9123, Vol. 3, Issue 2, 2011, pp-72-77 (August 2011)

ASHAKIRAN Kilankaje, S Girija

## 3. Production of rosmarinic in *Ocimum sanctum* cell cultures by the influence of sucrose, phenylalanine,

### yeast extract, and methyl jasmonate

Int J Biol Med Res, vol 2, Issue 4, Page 1070-1074 (April 2011)

F Lukmanul Hakkim, S Kalyani, M Essa, S Girija, H Song

## 2. Plants as green nanofactories: application of plant biotechnology in nanoparticle synthesis-a review.

Plant Cell Biotechnology and Molecular Biology (November 2009)

Shanmugam Girija, YL Balachandran, J Kandakumar

## 1. AM associations of bamboo rhizosphere in different study sites of Tamil Nadu.

Indian Forester, Vol 127 Page 804-808 (June 2001)

R. Ravikumar, G. Ananthkrishnan, S. Girija, A. Ganapathi

## Books/Chapters - 1

### 1. Plant Molecular Biology and Analytical techniques.

AkiNik Publishers New Delhi. (February 2020)

Dr.S.Girija

## Patents

### Filed - 1

1. Expression of *Arabidopsis thaliana*  $\gamma$ -tocopherol methyl transferase cDNA enhances the  $\gamma$ -tocopherol (Vitamin E) content in tomato (*Solanum lycopersicum* L.) 01-1970 202341018164 S Girija