

Jamal Mohamed College (Autonomous)
Tiruchirappalli - 620 020, Tamil Nadu, India

Dr. A. SHAJAHAN

Designation : Associate Professor in Botany

Date of Birth : 23.05.1966

Qualification : M.Sc., M.Phil., Ph.D.



Google scholar overall citations – 152

Scopus rating h index – 8

Cumulative impact factor – 17.327

i10 index - 5

Research Gate (Germany) R^G Score – 16.30

Address for Communication:

Office

PG and Research Department of Botany
(DST-FIST sponsored department)
Jamal Mohamed College (Autonomous)
College with Potential for Excellence
Tiruchirappalli – 620 020
Tamil Nadu, India.
Phone : 0431 – 2331235
Email : shajahan.jmc@gmail.com

Residence

60, Mohamed Nagar,
J.K. Nagar,
Kajamalai (PO),
Tiruchirappalli – 620 023,
Tamil Nadu, India.
Mobile : +91-94438 74731

Date of Entry in the Regular Service: 13.03.2000

Educational Qualifications:

S. No	Degree	Class	University/College	Year of passing
1	B.Sc	First	Scott Christian College, Nagercoil	1987
2	M.Sc	First	Jamal Mohamed College, Tiruchirappalli	1989
3	M.Phil	Distinction	School of Life sciences, Bharathidasan University, Tiruchirappalli	1990
4	Ph.D	Commended	Department of Biotechnology, Bharathidasan University, Tiruchirappalli	1996

Area of Research

Plant Genetic Engineering
Plant Molecular Biology
Secondary Metabolites Production
Plant Tissue Culture
Green House Management

Awards

- Awarded Junior Research Fellowship to work in Tamil Nadu Forest Corporation (TAFCON) Sponsored Project at School of Life Sciences, Bharathidasan, University, Trichy (April 1990 - January 1991).
- Awarded Junior Research Fellowship to work in a Central Silk Board (CSB) Project at Department of Biotechnology, Bharathidasan University, Trichy (December 1991- July 1994).
- Awarded Senior Research Fellowship by CSIR, New Delhi at Department of Biotechnology, Bharathidasan University, Trichy (July 1994 - October 1994).

Service in abroad:

- Kind Khalid Military City (Ministry of Defense), Hafar Al Batin, KSA during November, 1994 – February, 2000 (Large scale propagation of Horticulture and Agricultural plants and Green house management).

Membership in Academic Bodies:

- Life member,
The Horticultural Society of India,
National Agricultural Science Centre, New Delhi.
- Life member,
Medicinal and Aromatic Plants Association of India,
Directorate of Medicinal and Aromatic Plants Research - ICAR, India

Research Projects (Completed & Ongoing):

S. No	Title	Funding Agency	Year of starting	Year of completion
1	Minor project on “Germplasm conservation of endemic medicinally important plant <i>Pavetta hoheneckerii</i> (L.)	UGC – IX plan	2003	2005
2	Major project on “Purification and cloning of Cytokinin oxidase gene for metabolic engineering in <i>Withania somnifera</i> (L.) Dunal”	UGC - X plan	2008	2011
3	Major project on “Optimization of elicitors to enhance withanolide production in hairy root cultures of <i>Withania somnifera</i> (L.) Dunal”	UGC - XII plan	2013 (Ongoing)	2016

Seminar/Conferences/Workshop Organized:

1. Organized UGC, New Delhi sponsored “Seminar on Recent Trends in Biotechnology and its Role in Utilization of Biodiversity” during March 5th and 6th, 2007 at Department of Botany, Jamal Mohamed College, Tiruchirappalli, INDIA.
2. Organized DBT, Govt. of India, New Delhi sponsored 14 days short term training course for Basic techniques in plant molecular biology (for college teachers) during 18th April to 03rd May 2011 at Department of Botany, Jamal Mohamed College, Tiruchirappalli, INDIA.
3. Organized “National Conference on Transgenic Plants and Food Security of Nation-TPFSN 2015” on 27th February 2015, at PG & Research Department of botany, Jamal Mohamed College, Tiruchirappalli, under UGC autonomous grant.

Students Guided/Pursuing:

	Ph.D	M.Phil
Completed	06	34
Pursuing	05	04

Thesis under the supervision of Dr. A. Shajahan

1. K. Mohamed Rafi. “Studies on genetic diversity of *Withania somnifera* (L.) Dunal of Tamil Nadu”, 2010 (Awarded).
2. A. Akber. “Somatic embryogenesis through cell suspension culture in Indian commercial cultivars of banana (*Musa Spp.*)” 2011 (Awarded).
3. M. Senthil Kumar. “Comparative studies of *Withania somnifera* (L.) Dunal, and *Withania obtusifolia* Tackh”, 2011 (Awarded).
4. A. Aslam. “Protoplast, cell suspension culture and genetic transformation studies on *Withania somnifera* (L.) Dunal”, 2012 (Awarded).
5. A. Saravavakumar. “Biotechnological approaches in *Withania somnifera* (L.) Dunal for increasing root biomass and withanolide content”, 2013 (Awarded).
6. C. Soundar Raju. “*In vitro* culture studies on *Curcuma amada* Roxb.”, 2015 (Awarded)

Editorial Board

Plant Science Today – Member in editorial board
Jamal Academic Research Journal: an Interdisciplinary – Assistant editor

Acted as Reviewer in International/Indian Journals:

1. Plant cell tissue and organ culture (Springer, Germany)
2. African Journal of Biotechnology
3. Biotechnology Reports (Elsevier, Netherlands)
4. Indian Journal of Biotechnology (CSIR, India)
5. Journal of Environmental Pathology, Toxicology and Oncology (Begell House Publishers, Danbury, Connecticut)
6. British Journal of Pharmaceutical Research

7. European Journal of Medicinal Plants
8. Annual Research & Review in Biology
9. Plant Cell, Biotechnology and Molecular Biology
10. World Journal of Applied Science
11. Journal of Microbiology, Biotechnology and Food Sciences
12. Journal of Herbal Medicine
13. Agricultural Research Journal

Acted as Resource Persons:

S. No	Name of the seminar / conference / workshop and place	Topic	Date
1	Meet scientist, Anna science centre planetarium, Tiruchirappalli – 620 020	Recent advances in plant tissue culture	23/11/2013
2	Teacher education service programme, Jamal institution of education	Home hardening	29/12/2013
3	Botany association lecture, Department of Botany, National college, Tiruchirappalli – 620 001	Plant regeneration via somatic embryogenesis	26/03/2014

Paper Publications	:	37
Book chapters	:	04
Books written	:	02
Gene sequences submitted to NCBI database	:	15
Refresher courses / Training courses attended	:	03

List of patent

- Patent filed for Turmeric somatic embryogenesis protocol at national level. Application No: 750/CHE/2014.

List of Publications:

1. Kulothungan S, Baskaran A, Kashinathan P, **Shajahan A**, Ganapathi A (1993) Morphogenic studies on excised embryo culture of cowpea, *Vigna unguiculata* (L) Walp. *Legume Research*. 16(2): 71-74. **h-index : 5**.
2. Kathiravan K, **Shajahan A**, Ganapathi A (1995) Isolation and characterisation of NaCl resistant cell line in mulberry, *Biologia Plantarum*. 37 (3): 449-451. **Impact Factor : 0.299, h-index : 53**.
3. Kathiravan K, **Shajahan A**, Ganapathi A (1995) A regeneration of plantlet from hypocotyl derived callus of *Morus alba* (L.). *Israel J Plant Sci*. 43(3): 259-262. **Impact Factor : 0.441, h-index : 23**.
4. Kathiravan K, **Shajahan A**, Ganapathi A (1995) Evaluation of *In vitro* response of mulberry genotypes. *Sericologia*. 35(2): 305-307.

5. **Shajahan A**, Kathiravan K, Ganapathi A (1995) Induction of embryo like structures by liquid culture in mulberry *Morus alba* (L.). *Breeding Science*. 45(4): 413-417. **Impact Factor : 0.222, h-index : 35.**
6. Kulothungan S, Ganapathi A, **Shajahan A**, Kathiravan K (1995) Somatic embryogenesis in cell suspension culture of cow pea (*Vigna unguiculata* (L.) Walp.). *Israel J. Pl. Science*. 43: 385-390. **Impact Factor : 0.441, h-index : 23.**
7. **Shajahan A**, Kathiravan K, Ganapathi A (1996) Sex Reversal studies and Hormonal effects on Mulberry (*Morus alba* L.) in *in vitro*. *Plant Tissue Culture*, 6(1): 35-40.
8. Kathiravan K, **Shajahan A**, Ganapathi A (1997) Adventitious shoot formation and plant regeneration from callus cultures of mulberry (*Morus alba* (L.)). *Sericologia*. 37(4): 727-733.
9. **Shajahan A**, Ramesh S. Antibacterial activity of crude ectocarp of pomegranate (*Punica granatum* L.) against some selected enteropathogenic Bacteria. *Asian Jr. Microbiol. Biotech. En. Sc.* 6(4):647-648. **h-index : 11.**
10. Mohamed Rafi K, Sirajudeen K, **Shajahan A** (2005) Antimicrobial activity of the leaf extracts of *Moringa concanensis* (Nimmo), *Ad.Plant Sci.*18: 893-894
11. Prabakar K, Kumar A, **Shajahan A**, Srinivasan K, Mohana Sundari S, Perumal G, Natarajan D, Venketraman BR, Joseph Jerald I, Hussain Syed Bava, MI (2005) Antibiotic Sensitivity of *Pseudomonas aeruginosa* isolated from various clinical samples. *Asian Jr. Microbiol. Biotech. En. Sci.* 7(3):465-467.
12. **Shajahan A**, Kathiravan K, Ganapathi A (1995) Economic micropropagation for mulberry, Indian Silk, Feb.
13. Kathiravan K, **Shajahan A**, Ganapathi A (1995) Selection of salt tolerant mulberry callus tissues from cultured hypocotyls segments, in *Frontiers in Plant Science*, Edited by Irfan Ali Khan, Ukaaz Publications, Hyderabad, India, pp. 311-313.
14. Mohamed Rafi K, **Shajahan A** (2004) Effect of Thiodiazuron on *in vitro* propagation of an endemic and medicinally important plant, *Pavetta indica* L. *JARJ: Int.*1(2): 4-6.
15. Aslam A, Mohamed Rafi K, **Shajahan A** (2007). Effect of terminal flowering on sweetness of leaves in *Stevia rebaudiana* Bertone. *JARJ: Int.* Vol:4 No:1, pp: 20 – 22.
16. Aslam A, **Shajahan A**, Purushothama MG, Radhakrishna Pillai M (2007) Validation and Mobilization of RNAi vector construct into *Agrobacterium tumefaciens*. In *Proceedings of Recent Trends in Biotechnology and its Role in Utilization of Biodiversity*, edited by A.Shajahan, M.H. Muhammad Ilyas and A. Aslam. PG & Reseach Dept. of Botany, Jamal Mohamed College, Trichy.
17. Rajalakshmi K, Kumar P, Saravanakumar A, Aslam A, **Shajahan A**, Ravikumar R (2010) *Arachis* bioassay for soil contaminated with Hexavalent chromium, *Recent Research in Science and Tech.* 2(6): 110-115.

18. Aslam A, Mohamed Rafi K, Kathiravan K, **Shajahan A** (2010). Class-based stratification matrix for physical leaf traits in phonetic relations of *Withania somnifera* (L.) Dunal accessions. *Plant Syst. Evol.* 288:99–111. **Impact Factor 1.422, h-index : 56.**
20. Mohamed Rafi K, Aslam A, **Shajahan A** (2010). *In vitro* direct rhizogenesis and peroxidase and esterase profile in *Withania somnifera* (L.) Dunal. *Indian Journal of Plant Physiology* (Springer), 15 (2): 172-175. **h-index : 2.**
21. Saravanakumar A, Aslam A, **Shajahan A** (2011) Histochemical localization of cytokinin oxidase/dehydrogenase during the developmental stages of *Withania somnifera* (L.) Dunal. *African Journal of Biotechnology*. 44: 8800- 8804. **Impact Factor 0.57, h-index : 48.**
22. Senthil Kumar M, Aslam A, Vinoth Kumar D, Ramachandran R, **Shajahan A** (2010) Comparative Studies on Leaf-Epidermal Features of *W. somnifera* and *W. obtusifolia* – Highly Medicinal Species of India. *Advanced Biotech.* 10 (02), 29-31.
23. Senthil Kumar M, Vinoth Kumar D, Ramachandran R, **Shajahan A** (2010) Anatomical Studies in *Withania somnifera* L. (Dunal) - an Important Medicinal Plant of India. *Advanced Biotech.* 10 (01), 43-45.
24. Senthil Kumar M, Saravana Kumar A, Aslam A, Ramachandran A, **Shajahan A** (2010) Comparative root anatomical studies of *Withania obtusifolia* (Tackh.) and *Withania somnifera* (L.) Dunal. Important medicinal plants of solanaceae, *Journal of basic and Applied Biology*, 4, (1-2), 38-40.
25. Senthil Kumar M, Saravana Kumar A, Ramachandran A, **Shajahan A** (2010) Evaluation of *Withania obtusifolia* Tackh. (Solanaceae) Leaf and Root extract as an antimicrobial agent, *Journal of basic and Applied Biology*. 4,1-4.
26. Senthil Kumar M, Vinothkumar D, Saravanakumar A, Aslam A, **Shajahan A** (2011) The Phytochemical Constituents of *Withania somnifera* and *Withania obtusifolia* by GCMS Analysis, *International Journal of Pharmacognosy and Phytochemical Research*, 3 (3): 31-34. **Impact Factor: 1.341, h-index : 5.**
27. Saravanakumar A, Aslam A, **Shajahan A** (2012) Development and optimization of hairy root culture systems in *Withania somnifera* (L.) Dunal of withaferin-A production. *African journal of Biotechnology*, 11 (98): 16412-16420, **Impact Factor 0.57**
28. Soundar Raju C, Kathiravan K, Aslam A, **Shajahan A** (2012) An efficient regeneration system via somatic embryogenesis in mango ginger (*Curcuma amada* Rixb.). *Plant Cell Tiss. Org. Cult.* 112:387–393. **Impact Factor: 3.633, h-index : 55.**
29. Ramachandran, A., Senthil Kumar, M., Paneerselvam, K., Vinothkumar, D., **Shajahan, A.** (2013). Identification of inter species genetic variability between two morphologically similar species of *Withania* through protein and RAPD markers. *Internat. J. Pharm. Sci. Rev.* 4(7): 2817-2820. **Impact Factor: 1.89.**

30. Varutharaju, K., Soundar Raju, C., Thilip, C., Aslam, A., **Shajahan, A.** (2013). High efficiency direct shoot organogenesis from leaf segments of *Aerva lanata* (L.) by using thidiazuron. *The Sci. World J.* Doi. 10.1155/2014/652919. **Impact Factor: 1.73, h-index: 45.**
31. Soundar Raju C, Aslam A, Kathiravan K, Palani, P, **Shajahan A** (2014) Direct somatic embryogenesis and plant regeneration from leaf sheath explants of mango ginger (*Curcuma amada* Roxb.). *In Vitro Cell. Dev. Bio. Plant*, **50**:752-759. **Impact Factor: 1.145, h-index : 51.**
32. Thilip C, Soundar Raju C, Varutharaju K, Aslam A, **Shajahan A** (2014) Establishment of adventitious root culture from cell suspensions of *Withania somnifera* (L.) Dunal: an *in vitro* approach for production of withanolides. *Int. J. Pharma Bio Sci*, 6(1):1030 – 1037. **Impact Factor: 0.288.**
33. Soundar Raju, C., Varutharaju, K., Thilip, C., Aslam, A., **Shajahan, A** (2015) Rhizogenesis in cell suspension culture from Mango ginger- a source of Isosorbide and n-Hexadecanoic acid. *Advances in Botany*. DOI:10.1155/2015/942761. **h-index : 25.**
34. Thilip C, Soundar Raju C, Varutharaju K, Aslam A, **Shajahan A** (2015) Improved *Agrobacterium rhizogenes*-mediated hairy root culture system of *Withania somnifera* (L.) Dunal using sonication and heat treatment. *3 Biotech*, 5(6): 949-956. **h-index : 18.**
35. Soundar Raju C, Aslam A, **Shajahan A** (2015) High-efficiency direct somatic embryogenesis and plant regeneration from leaf base explants of turmeric (*Curcuma longa* L.). *Plant Cell Tiss Organ Cult.* 122 (1):79-87. **Impact Factor: 2.61, h-index : 55.**
36. Varutharaju K, Soundar Raju C, Thilip C, **Shajahan A** (2014) Efficient indirect regeneration from leaf derived callus culture of *Aerva lanata* (L.) Juss. Ex Schult. In proceeds of National Level Conference on Recent Innovation and Future Trends in Biology edited by K. Ramar, PG & Research Department of Botany, National College, Tiruchirapalli - 620 001.
37. Varutharaju K, Soundar Raju C, Thilip C, Aslam A, **Shajahan A** (2015) Effect of Thidiazuron on rapid shoot multiplication in *Aerva lanata* (L.) Juss. ex Schult. In Proceeding of Biodiversity Conservation : Aspects and Prospects edited by A. Rajendran and A. Veerasamy, Bharathiyar University, Coimbatore.
38. Soundar Raju C, Aslam A, **Shajahan A** (2016) Germination and storability of calcium-alginate coated somatic embryos of mango ginger (*Curcuma amada* Roxb.). *Hort. Envi and Biotech.*, (Springer) *article in press*. **Impact Factor : 0.725, h-index : 5.**

Chapters written in Books:

1. Kathiravan K, **Shajahan A** and Ganapathi, A. (1997). Selection of salt tolerant mulberry callus tissue culture from cultured hypocotyls segments. In *Frontier's in Plant Science* (Ed.) Irfan Khan, pp. 311-313.
2. Mohamed Rafi K and **Shajahan A** (2005) Germplasm conservation of *Pavetta indica* L. an endemic and medicinally important plant by in vitro culture method – In *Plant Biotechnology*, Edited by N.Jeyabalan, APH publication, New Delhi, India. pp:271-274.

3. **Shajahan A** and Ganapathi A (2005) Ontogeny of somatic embryogenesis in *Morus alba* L. - In Plant Biotechnology, Edited by N.Jeyabalan, APH publication, New Delhi, India. pp: 99-103.
4. Binu V, Aslam A, Mohamed Rafi K and **Shajahan A** (2007) *In vitro* propagation of Date Palm (*Phoenix dactylifera* L.) through shoot tip culture technique. . In Proceedings of Recent Trends in Biotechnology and its Role in Utilization of Biodiversity, Edited by A.Shajahan, M.H. Muhammad Ilyas and A. Aslam. PG & Reseach Dept. of Botany, Jamal Mohamed College, Trichy.
5. **Shajahan A**, Soundar Raju C, Thilip C, Varutharaju K, Musfir Mehaboob V, Faizal K.P and Aslam A (2015) Somatic embryogenesis, fundamental aspects and application. Springer. Chapter:Direct and indirect somatic embryogenesis in mango ginger (*Curcuma amada* Roxb.) (in press).

Books written:

1. **Shajahan, A.**, Mohammed Ilyas, M.H. and Aslam, A. Proceedings of the UGC Sponsored Regional Seminar on Recent Trends in Biotechnology and its Role in Utilization of Biodiversity (2007). Published by P.G. and Research Department of Botany, Jamal Mohamed College, Tiruchirappalli- 620 020, Tamil Nadu, India.
2. **Shajahan, A.**, Aslam, A. and Saravanakumar, A. Laboratory manual of Basic techniques in plant molecular biology. Published by JAZYM publication, India (ISBN NO: 978-81-905077-4-3). First edition- 2011.

Gene sequences submitted to international databases:

NCBI, Maryland, USA

1. Targeted partial purification of cytokinin oxidase/ dehydrogenase gene from *Withania somnifera* (**Gene bank accession:** FJ8790124.1)
2. Targeted partial purification of cytokinin oxidase/ dehydrogenase gene from *Nicotiana tobacum* (**Gene bank accession:** FJ872118.1 and FJ872120.1)
3. Targeted partial purification of cytokinin oxidase/ dehydrogenase gene from *Solanum nigrum* (**Gene bank accession:** FJ872119.1)
4. *Penicillium janthinellum* 18S ribosomal RNA gene, partial sequence; internal transcribed spacer 1, 5.8S ribosomal RNA gene, and internal transcribed spacer 2, complete sequence; and 28S ribosomal RNA gene, partial sequence (**Gene bank accession:** HQ176471.1).
5. *Bacillus mycoides* strain WSRB1 16S ribosomal RNA gene, partial sequence (**Gene bank accession:** JF499692.1).

6. *Bacillus mycoides* strain WSRB2 16S ribosomal RNA gene, partial sequence (**Gene bank accession:** JF499693.1).
7. *Brevibacillus sp.* JMCB2 16S ribosomal RNA gene, partial sequence (**Gene bank accession:** KF758467.1).
8. *Brevibacillus sp.* JMCA4 16S ribosomal RNA gene, partial sequence (**Gene bank accession:** KF758465.1).
9. *Sphingobacterium thalpophilum* strain AS34 16S ribosomal RNA gene, partial sequence (**Gene bank accession:** KM019199.1).
10. *Enterobacter aerogenes* strain AS75 16S ribosomal RNA gene, partial sequence (**Gene bank accession:** KM019198.1).
11. *Pseudomonas aeruginosa* strain AS31 16S ribosomal RNA gene, partial sequence (**Gene bank accession:** KM019197.1).
12. *Bacillus pumilus* strain AS02 16S ribosomal RNA gene, partial sequence (**Gene bank accession:** KM019196.1)
13. *Aspergillus amstelodami* strain CSR01 internal transcribed spacer 1, partial sequence; 5.8S ribosomal RNA gene and internal transcribed spacer 2, complete sequence; and 28S ribosomal RNA gene, partial sequence (**Gene Bank accession :** KT232081.1).
14. *Agrobacterium tumefaciens* strain AS38 16S ribosomal RNA gene, partial sequence (**Gene Bank accession :** KT232080.1)
15. *Pseudomonas aeruginosa* strain AS36 16S ribosomal RNA gene, partial sequence (**Gene Bank accession :** KT232079.1)

Details of Incharge / Participation in extra-curricular Activities:

- Acted as a purchase co-ordinator of Jamal Mohamed College from 2003 –2013 (10 years)
- Acted as a Academic audit committee member
- Acting as a Research committee member