

Dr. Yelam Sreenivasulu
Professor
Department of Plant Sciences,
School of Life Sciences,
University of Hyderabad,
HYDERABAD-500046, INDIA
Mail : sreeyelum@uohyd.ac.in ; sree_yelum@yahoo.com

Research Interests:

Plant Reproductive Developmental Biology, Seed Biology and Plant Transgenics

Employment:

July 2020 - till date	Professor, University of Hyderabad, Hyderabad
June 2017 - June 2020	Senior Principal Scientist CSIR-CCMB, Hyderabad
June 2016 - June 2017	Principal Scientist, CSIR-CCMB, Hyderabad
June 2012 - June 2016	Principal Scientist, CSIR-IHBT, Palampur (H.P.)
June 2008 - June 2012	Senior Scientist, [Scientist Gr. IV(3)], CSIR-IHBT-Palampur (H.P.)
June 2004 - June 2008	Scientist Gr. IV (2), CSIR-IHBT- Palampur (H.P.)

Education:

- DBT- Post-Doctoral Fellowship - CSIR-CCMB, Hyderabad, 2002-2004
- Ph. D (Stress Biology) - Vikram University, Ujjain (M.P.) - 1996-2000
- M. Phil (Seed Biology) - Vikram University, Ujjain (M.P.) – 1995-1996
- M. Sc. (Botany) - Vikram University, Ujjain (M.P.) – 1992-1994
(Received *Gold Medal* for the 1st position in M. Sc.)

Research Projects handled:

1. Department of Science and Technology (DST), New Delhi, India - SERB-CRG grant “Elucidation of TRAMGaP mediated Germline Specification and Subsequent Gametophyte Development Mechanism in Arabidopsis”.
2. Institute of Eminence (IoE) grant, University of Hyderabad, Hyderabad.
“Unravelling molecular mechanism governing cell differentiation/specification in embryo sacs of Arabidopsis”
3. Department of Biotechnology (DBT), New Delhi, India – “Bioprospecting Himalayan Bioresources through transgenic and neutraceutical technology” (BT/PR8876/NDB/52/68/2007)

4. Indo-German research and development project within the framework of Indo-German Science & Technology Centre (IGSTC), “Imparting drought stress-tolerance to crop plants by heterologous transfer of high-altitude plant protection mechanisms”.
5. Indian Council of Agricultural Research, New Delhi, India - National Agricultural Innovation Project (NAIP) grant; “Unraveling molecular processes involved in adventive polyembryony towards genetic engineering for fixation of heterosis”.
6. Department of Science and Technology (DST), New Delhi, India - FAST Track grant; “Morphological and Molecular Characterization of Reproductive Development of *Podophyllum hexandrum* Royle. for improvement of seed quality”

Publications:

1. **Sreenivasulu, Y.** and Amritphale, D. (1998) Chemical stimulation of germination and membrane fluidity change in secondarily dormant cucumber seeds. *Current Science* **75**:1396-1399.
2. **Sreenivasulu, Y.** and Amritphale, D. (1999) Membrane fluidity changes during ethanol-induced transition from dormancy to germination in cucumber seeds. *Journal of Plant Physiology* **155**: 159-164.
3. Amritphale, D., **Sreenivasulu, Y** and Singh, B. (2000) Changes in membrane fluidity and protein composition during release of cucumber seeds from dormancy by a higher temperature shift. *Annals of Botany* **85**: 13-18.
4. **Sreenivasulu, Y.** and Amritphale, D. (2000) Changes in the protein composition in cellular membranes of various parts of secondary dormant cucumber seeds treated with ethanol. *Seed Science Research* **10**: 61-70.
5. **Sreenivasulu, Y.***, Chanda SK. and Ahuja. P.S. (2008). Ethanol induced seed germination in *Aconitum heterophyllum* Wall. : An endangered medicinal herb of the Northwest Himalayas. *Indian Journal of Plant Physiology* **13**:159-165.
6. **Sreenivasulu, Y.***, Chanda SK. and Ahuja. P.S. (2009) Endosperm delays seed germination in *Podophyllum hexandrum* Royle – an important medicinal herb *Seed Science and Technology* **37**:10-16.
7. Gill, T., **Sreenivasulu, Y.***, Kumar, S. and Ahuja, PS. (2010) Over-expression of *superoxide dismutase* exhibits lignification of vascular structures in *Arabidopsis thaliana*. *Journal of Plant Physiology* **167**:757-760.
8. Gill. T., Kumar. S., Ahuja, PS. and **Sreenivasulu. Y.*** (2010) Over-expression of *Potentilla* superoxide dismutase improves salt stress tolerance during germination and growth in *Arabidopsis thaliana*. *Journal of Plant Genetics and Transgenics* **1**: 6-10.
9. **Sreenivasulu. Y.***, Rana. B., Chanda SK. and Ahuja, PS. (2010) Development of female gametophyte in *Podophyllum hexandrum* Royle - an important medicinal herb. *Journal of Biology and Life Sciences* **1**:16-21.

10. Gill, T., Dogra, V., Kumar, S. and Ahuja, P.S., **Sreenivasulu, Y.***, (2012) Protein dynamics in *Arabidopsis* seeds over expressing *Potentilla* superoxide dismutase during germination under copper stress. *Journal of Plant Research* **125**:165-172.
11. Rana, B. and **Sreenivasulu, Y.*** (2013) Protein changes during ethanol induced seed germination in *Aconitum heterophyllum*. *Plant Science*, **198**: 27–38.
12. Dogra, V., Sanjoy KC., Ahuja, P.S. and **Sreenivasulu, Y.*** (2013) Dissection of seed germination in high altitude plant *Podophyllum hexandrum* Royle. – Proteomic approach. *Journal of Proteomics*, **78**: 26-38.
13. Pratibha, P., Singh, S.K., Sharma, I., Kumar, R., Srinivasan, R., Bhat, S.R.*, Ahuja, P.S., **Sreenivasulu, Y.*** (2013) Characterization of a T-DNA promoter trap line of *Arabidopsis thaliana* uncovers a cryptic bi-directional promoter, *Gene*, **524**: 22–27.
14. Deswal, R., Gupta, R., Dogra, V.,**Sreenivasulu, Y.**,Rakwal, R., (2013) Plant proteomics in India and Nepal: current status and challenges ahead. *Physiology and Molecular Biology of Plants*, **19**: 461–477.
15. Shafi, A., Dogra, V., Gill, T., Ahuja, P.S., **Sreenivasulu, Y.***. (2014) Simultaneous over-expression of *PaSOD* and *RaAPX* in transgenic *Arabidopsis thaliana* confers cold stress tolerance through increase in vascular lignifications. *PLoS ONE*, **9**: e110302.
16. Shafi, A., Gill, T., **Sreenivasulu, Y.**, Kumar, S., Ahuja, P.S., Singh, A.K. (2015) Improved callus induction, shoot regeneration, and salt stress tolerance in *Arabidopsis* overexpressing superoxide dismutase from *Potentilla atrosanguinea*. *Protoplasma*, **252**:41-51.
17. Dogra, V., **Sreenivasulu, Y.***. (2015) Cloning and functional characterization of β -1, 3-glucanase gene from *Podophyllum hexandrum* — A high altitude Himalayan plant. *Gene*, **554**: 25–31.
18. Kaur, D., Dogra, V., Thapa, P., Bhattacharya, A., Sood, A., **Sreenivasulu, Y.***. (2015) *In vitro* flowering associated protein changes in *Dendrocalamus hamiltonii*. *Proteomics*, **15**: 1291–1306. (Published as **journal's cover page** article).
19. Shafi, A., Chauhan, R., Gill, T., Swarnkar, M.K., **Sreenivasulu, Y.**, Kumar, S., Kumar, N., Shankar, R., Ahuja, P.S., Singh, A.K. (2015) Expression of SOD and APX genes positively regulates secondary cell wall biosynthesis and promotes plant growth and yield in *Arabidopsis* under salt stress. *Plant Molecular Biology*, **87**: 615–631.
20. Sharma, I., Srinivasan, R., Ahuja, P.S., Bhat, S.R., **Sreenivasulu, Y.***. (2015) Identification and characterization of a T-DNA promoter trap line of *Arabidopsis thaliana* uncovers an embryo sac specific bi-directional promoter. *Plant Molecular Biology Reporter*, **33**:1404–1412.

21. Dogra, V., Bagler, G and **Sreenivasulu, Y***. (2015) Re- analysis of protein data reveals the germination pathway and up accumulation mechanism of cell wall hydrolases during the radical protrusion step of seed germination in *Podophyllum hexandrum* – a high altitude plant. ***Frontiers in Plant Science*, 6:874.**
22. Dogra, V., Sharma, R., **Sreenivasulu, Y***(2016) Xyloglucan endo-transglycosylase/hydrolase (XET/H) gene is expressed during the seed germination in *Podophyllumhexandrum*: a high altitude Himalayan plant. ***Planta***, DOI 10.1007/s00425-016-2520-8 (in press).
23. Pratibha, P., Singh, S.K., Srinivasan, R., Bhat, S.R., **Sreenivasulu, Y***. (2017) Gametophyte development needs mitochondrial Coproporphyrinogen III Oxidase function. ***Plant Physiology*, 174: 258-275.**
24. Singh, S.K, Kumar, V., Srinivasan, R., Ahuja, P.S., Bhat, S.R., **Sreenivasulu, Y***. (2017) The *TRAF Mediated Gametogenesis Progression (TRAMGaP)* gene is required for Megaspore Mother Cell specification and gametophyte development. ***Plant Physiology*, 175: 1220-1237.**
25. Sharma, P., Kumar, V., Singh, S.K., Thakur, S., Siwach, P., **Sreenivasulu, Y.**, Srinivasan, R., Bhat, S.R. (2017) Promoter trapping and deletion analysis show *Arabidopsis thaliana APETALA2* gene promoter is bidirectional and functions as a pollen- and ovule-specific promoter in the reverse orientation. ***Applied Biochemistry and Biotechnology***, 182, 1591–1604.
26. Shafi, A, Gill, T., Zahoor, I., Ahuja, P.S., **Sreenivasulu, Y.**, Kumar, S., Singh, A.K. (2019) Ectopic expression of *SOD* and *APX* genes in *Arabidopsis* alters metabolic pools and genes related to secondary cell wall cellulose biosynthesis and improve salt tolerance. ***Molecular Biology Reports***, 46:1985–2002

***Corresponding author**

Book Chapter:

Sarkar, A., **Sreenivasulu, Y.**,and Rakwal R (2015) Proteomics potential and contribution towards sustainable agriculture . PP: 151-179. Ed: N. Benkeblia, L J Magalie and O L Harry In: *Agroecology within Global Environmental Change: Concepts and Applications*. CRC Press, USA. (ISBN-13: 978-1466565548).

PhDs guided:

S.No.	Name	Topic
1	Vivek Dogra, CSIR-JRF	Identification and characterization of germination specific proteins in <i>Podophyllum hexandrum</i> Royle. Guru Nanak Dev University, Amritsar (Punjab).

2	Sunil Kumar Singh, CSIR-JRF	Isolation and characterization of promoter from male gametophyte of <i>Arabidopsis thaliana</i> , Guru Nanak Dev University, Amritsar (Punjab).
3	Pritu Pratibha, CSIR-JRF	Studies on role of CPO gene in reproductive development of <i>Arabidopsis thaliana</i> , AcSIR-IHBT, Palampur, (H.P.).
4	Rimpy Diman, CSIR-JRF	Studies on the Role of Golgi membrane localized Nucleotide Sugar Transporter (<i>AtNST</i>) in Gametophyte Development of <i>Arabidopsis thaliana</i> , AcSIR-IHBT, Palampur, (H.P.).
5	Ms. Isha Sharma	Elucidation of female gametophyte specific Pectin methylesterase inhibitor role in seed development in <i>Arabidopsis</i> , Guru Nanak Dev University, Amritsar, Punjab.

Teaching:

Assistant Professor, Faculty of Biological Science, Academy of Scientific and Innovative Research (AcSIR), New Delhi, following courses are being taught by me (since 2011) to the PhD students of AcSIR:

- **Plant Developmental Biology (Course Coordinator)**
- **Biology of Macromolecules (Team member)**
- **Cell and tissue engineering (Team member)**

Post- Doctoral Experience/Visits Abroad

1. **Worked as DBT-PDF from 2002-2004 at Centre for Cellular Molecular Biology, Hyderabad**, under the supervision of **Dr. Imran Siddiqi** on “Overexpression and characterization of meiosis specific (DYAD) protein”
2. Attended and given oral presentation in the **IVth International plant dormancy** symposium at Fargo, North Dakota, USA. (**June 8-11, 2009**)
Title: molecular characterization of seed dormancy in *Podophyllum hexandrum* royle.-an important medicinal herb.
3. Visited Prof. **Venkatesan Sundaresan**, Department of Plant Biology, University of California, Davis, CA, 95616 U.S.A. lab from 31st October to 09th November 2011.

Seminars/symposia attended:

1. Changes in protein profile of cellular membranes accompanying acetone-induced breakage of secondary seed dormancy in cucumber (Presented in 13th M.P.Young Scientist Congress).
2. National Symposium on Plant Physiology held at Annamalai University, Chidambaram during Dec.18-20, 1998.
3. National Workshop on Radiochemistry and Applications of Radioisotopes at Vikram University, Ujjain from Feb.1-10, 1999.
4. National Symposium on Plant Physiology and Biochemistry held at DAVV, Indore from Feb.15-17, 1999.
5. Participated in Symposium on “The current Excitement in Biology” held at CCMB Hyderabad, India from 24 to 29th November 2002.
6. **Attended 8th ADNAT** (Association for promotion of DNA fingerprinting and other DNA technologies) symposium on “Comparative and functional genomics “held at Centre for Cellular and Molecular Biology (CCMB), Hyderabad, India from Feb23rd and 24th 2004.
7. Lecture given on “Exposure to molecular techniques” Plant Tissue Culture and its Implications (2006) in a **National Bioresource Development Board, DBT, New Delhi. Sponsored training programme at CSIR-IHBT, Palampur.**
8. Vivek Dogra, **Sreenivasulu, Y.**, Chanda SK. and Ahuja. P.S. (2008) “Molecular Dissection of Seed dormancy/germination in *Podophyllum hexandrum* Royle –an important medicinal herb” in National Symposium on new biology in agriculture. From 7-8th November, 2008, organized by Panjab University, Chandigarh in collaboration with All India Biotech Association (AIBA).
9. Vivek Dogra, **Sreenivasulu, Y.**, Chanda SK. and Ahuja. P.S. (2008) “Analysis of protein profiles during the seed germination in *Podophyllum hexandrum* Royle.” In 30th Annual meeting of plant tissue culture association (India), National symposium on Plant Propagation, conservation, modification and characterization. From April 3-4, 2009, organized by The Institute of Himalayan Bioresource Technology (CSIR), Palampur (H.P.).
10. Bindu Rana, **Sreenivasulu, Y.**, Chanda SK. and Ahuja. P.S. (2008) Protein changes during ethanol induced seed germination in *Aconitum heterophyllum*. In 30th Annual meeting of plant tissue culture association (India), National symposium on Plant Propagation, conservation, modification and characterization. From April 3-4, 2009, organized by The Institute of Himalayan Bioresource Technology (CSIR), Palampur (H.P.).
11. **Poster presented in “Proteomic Forum-2013** (Freie Universität, Berlin, Germany; March 17 to 21, 2013) Vivek Dogra and **Yelam Sreenivasulu*** (2013)

Analysis of seed germination mechanisms in *Podophyllum hexandrum* Royle. – a high altitude medicinal plant (PM028).

12. **Poster presented in “24th ICAR-2013”**, Sydney, Australia from 24-28 June, 2013. Singh, S.K., Srinivasan, R., Bhat, S.R., Ahuja, P.S. and **Sreenivasulu, Y.*** (2013) TRAF like protein of *Arabidopsis thaliana*: an orthlog of human is essential for pollen wall development.

Invited Lectures:

1. An invited lecture delivered on “**Identification and characterization of novel gametophyte development specific promoters/genes from Arabidopsis**” in Arabidopsis workshop-2014 from 8-10 October, 2014 at CSIR-CCMB, Hyderabad.
2. Invited talk on “**Isolation and analysis of novel seed development mutants in Arabidopsis**” in a National Symposium on Germplasm to Genes: Harnessing Biotechnology for food security and health organized by The Society for Plant Biochemistry and Biotechnology and ICAR-NRCPB, New Delhi from 9-11, August, 2015.
3. An invited lecture delivered on “**Role of tetrapyrrole biosynthetic pathway in gametophyte and subsequent seed development in Arabidopsis**” in Arabidopsis-2016 from 20-22 March 2016 at IISER, Mohali, Punjab.
4. An invited lecture delivered on “**Plant Reproductive Biology: Molecular mechanism that uncover novel seed development pathways for fixation of heterosis**” in 4th International Plant Physiology Congress, CSIR-NBRI, Lucknow, during 2nd -5th December 2018.