

'Gunvant B. Patil (Ph. D.)

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PROFESSIONAL EXPERIENCES

- Assistant Professor** (Jan 2020- present)
Institute of Genomics for Crop Abiotic Stress Tolerance, Texas Tech University, Lubbock, TX, USA
- Research Scientist (Researcher-6)** (Feb 2017– Jan 2020)
University of Minnesota, St. Paul, MN, USA
- Postdoctoral Associate** (June 2012 – Jan 2017)
University of Missouri, Columbia, MO, USA
- Visiting Researcher** (June 2010 – May 2012)
Swedish University of Agricultural Sciences (SLU), Uppsala, Sweden

EDUCATION

- M.S.** (2003 – 2005)
University of Pune, MS, India
- Ph. D.** (2006 – 2011)
University of Pune, MS, and National Research Centre on Plant Biotechnology, India

AWARDS AND HONORS

- Texas Tech University – Faculty Travel award to attend PAGXXIX, CA. Jan-2022
- Center for Genome Engineering travel award: “*Characterization of a rare silicon transport allele in soybean using a CRISPR/Cas9 multiplexing approach*”. June 2018
- Certificate of Recognition and research award from Director of Interdisciplinary Plant Group, University of Missouri, Columbia, MO. June 2016

MENTORING (Students/Postdocs)

- **Graduate Students (5 in progress):**
 - Arjun Ojha Kshetry (Ph.D. Advisor, Fall 2020)
 - Zhiyuan Liu (Ph.D.Co-Advisor, Fall 2020)
 - Lois Chidinma (MS Advisor, Fall 2021)
 - Leonidas Dagostino (MS Advisor, Fall 2021)
 - Pallavi (Ph.D. Advisor –Summer 2022)
 - Pranav Dawar (Ph.D. Committee member, Biological Sciences)
- **Postdoctoral Research Scholar (5 in progress):**
 - Vikas Devkar
 - Suhas Shinde
 - Anuradha Dhingra
 - Dolores Gutierrez (Co-advisor)
 - Kaushik Ghosh (Co-advisor)

TEACHING

- **Fall 2021** – PSS1321 Agronomic Plant Science
- **Spring 2022** – PSS5325 **Transgenic and Plant Cell Genetics**
- **Lab Teaching Assistant:** University of Missouri. Plant Molecular Biology and Biotechnology (MBB) and conducted lab session for graduate students.

- **Mentor:** IMSD-EXPRESS (Initiative for **M**aximizing **S**tudent **D**iversity) program at the University of Missouri.
- **Guest Lecturer:** University of Minnesota, Course: Application of biotechnology in plant breeding and genetics, (PLSC-3401)

RESEARCH FUNDING

Status	Funding Agency	Role	Total Funding	My Share
Granted (external)				
Granted	United Soybean Board (SCN)	Co-PI	\$315,000	\$45,000
Granted	Texas State Support Committee	Co-PI	\$39,378	\$13,120
Granted	Project Revolution (Cotton Transformation)	PI	\$571,184	\$427,184
Granted	Southern Soybean Board	PI	\$17,500	\$17,500
Granted	USDA-NIFA	Co-PI	\$299,500	\$129,999
Granted	USDA-NIFA	Co-PI	\$144,000	\$28,000
Granted	United Soybean Board (Carbohydrates)	PI	\$95,000	\$25,000
Granted	United Soybean Board (Tocopherol)	Co-PI	\$187,000	\$33,000
Granted	United Soybean Board (Gene -editing)	Co-PI	\$150,000	\$62,000
Transferred	Project Revolution (Cotton Haploid)	Co-PI	\$240,553	\$150,00
			\$2,059,115	\$930,803
Pending				
Pending	Southern Soybean Board	PI	\$39,800	\$39,800
Declined				
Declined	Southern Soybean Board	PI	\$40,000	\$40,000
Declined	Texas State Support Committee	PI	\$28,000	\$28,000
Declined	USDA-AFRI	PI	\$490,959	\$230,000
Declined	Texas State Support Committee	PI	\$28,000	\$14,000
Declined	FFAR	Co-PI	\$522,122	\$251,060
Declined	USDA-Pulse Initiative	PI	\$75,000	\$40,000

SELECTED PUBLICATIONS (Total 43: Complete list of publications > [Google Scholar](#))

Published research articles: **45**
 Published research articles from Texas Tech: **12**
 Book Chapters: **Total 5 (2 from Texas Tech University)**

\$ - Publication by Student or Postdoc

- Corresponding author

2022

1. **Patil GB[#]**, Stupar RM, Zhang F. Protoplast isolation, transfection and gene editing for soybean (Glycine max). In Protoplast Technology. Ed. Kan Wang. Springer Nature
2. Bhardwaj S, Devkar V^{\$}, Kumar A, Alisha, Sharma S, Deshmukh RK, **Patil GB[#]**. Advances and applicability of genotyping technologies in cotton improvement.

2021

1. Nitnaware KM, Raskar KB, Agarwal G, Chávez Montes R^{\$}, Chopra R, Arredondo DL, Nikam TD, **Patil GB[#]**. (2021) Whole-genome characterization and comparative genomics of a novel freshwater cyanobacteria species: *Pseudanabaena punensis*. *Molecular Phylogenetics and Evolution*. 107272 doi.org/10.1016/j.ympev.2021.107272.

2. Deshmukh R, Rana N, Liu Y, Zeng S, Agarwal G, Sonah H, Varshney R, Joshi T, **Patil GB**[#], Nguyen HT (2021) Soybean transporter database: A comprehensive database for identification and exploration of natural variants in soybean transporter genes. *Physiologia Plantarum*. 171(4):756-70.
3. Vuong TD, Sonah H, **Patil G**, Meinhardt C, Usovsky M, Kim KS, Belzile F, Li Z, Robbins R, Shannon JG, Nguyen HT (2021) Identification of genomic loci conferring broad-spectrum resistance to multiple nematode species in exotic soybean accession PI 567,305. *Theoretical and Applied Genetics* 23:1-7.
4. Thakral V, Bhat JA, Kumar N, Myaka B, Sudhakaran S, **Patil G**, Sonah H, Shivaraj SM, Deshmukh R (2021) Role of silicon under contrasting biotic and abiotic stress conditions provides benefits for climate smart cropping. *Environmental and Experimental Botany*. 9:104545
doi.org/10.1016/j.envexpbot.2021.104545
5. Bayer PE, Valliyodan B, Hu H, Marsh JI, Yuan Y, Vuong TD, **Patil G**, Song Q, Batley J, Varshney RK, Lam HM, Nguyen HT (2021) Sequencing the USDA core soybean collection reveals gene loss during domestication and breeding. *The Plant Genome*. e20109. doi.org/10.1002/tpg2.20109
6. Usovsky M, Lakhssassi N, **Patil GB**, Vuong TD, Piya S, Hewezi T, Robbins RT, Stupar RM, Meksem K, Nguyen HT (2021) Dissecting nematode resistance regions in soybean revealed pleiotropic effect of soybean cyst and reniform nematode resistance genes. *The Plant Genome*. 16:e20083.
7. Zhang F, Stupar RM, Voytas DF, **Patil G** (2021) Inventors; University of Minnesota, assignee. Methods for genetic transformation and genome modification in legumes. *United States patent application US 16/913,478*. 2021 Feb 18.
8. Valliyodan B, Brown AV, Wang J, **Patil GB**^{*}, Liu Y, Otyama PI, Nelson RT, Vuong T, Song Q, Musket TA, Wagner R (2021) Genetic variation among 481 diverse soybean accessions, inferred from genomic re-sequencing. *Scientific Data*. 8;8(1):1-9. [Equal Contributing Author]
9. Usovsky M, Ye H, Vuong TD, **Patil GB**, Wan J, Zhou L, Nguyen HT (2021) Fine-mapping and characterization of qSCN18, a novel QTL controlling soybean cyst nematode resistance in PI 567516C. *Theoretical and Applied Genetics* 134(2):621-31.

2020

1. Agarwal G, [...] **Patil GB**, Pandey M, Nguyen H, Guo B, Sunkar R, Niederhuth C, Varshney R (2020) Epigenetics and Epigenomics: Underlying mechanisms, relevance and implications in crop improvement (Accepted: ***Functional & Integrative Genomics***).
2. Kumar N, Kumawat S, Khatri P, Singla P, Tandon G, Bhatt V, Shinde S, **Patil GB**, Sonah H, Deshmukh R (2020) Understanding aquaporin transport system in highly stress-tolerant and medicinal plant species Jujube (*Z. jujuba* Mill.). *J of Biotechnology*. doi.org/10.1016/j.jbiotec.2020.09.026
3. Lakhssassi N, Zhou Z, Liu S, Piya S, Cullen M, El Baze A, Knizia D, **Patil GB**, et al. (2020) Soybean TILLING-by-sequencing+ reveals the role of novel GmSACPD members in the unsaturated fatty acid biosynthesis while maintaining healthy nodule. *J Experimental Botany* doi.org/10.1093/jxb/eraa402.
4. Graham N, **Patil GB**, et al. (2020) Genome editing in dynamic genetic background: the relevance of “Off-Target” edits in plants *Plant Physiology*. doi.org/10.1104/pp.19.01194

2019

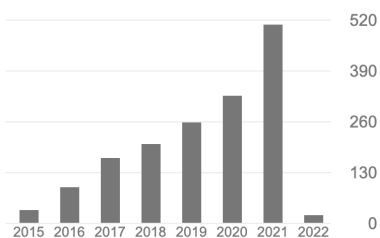
5. Lin L, De Velde J, Nguyen N, Meyer R, An YQ, Song L, .. **Patil GB** et al. (2020) Traceback of Core Transcription Factors for Soybean Root Growth Maintenance under Water Deficit. *bioRxiv* doi.org/10.1101/2020.03.19.999482.

6. Lakhssassi N, **Patil G** et al (2019) Genome reorganization of the GmSHMT genes in soybean showed a lack of functional redundancy in resistance to SCN. *Scientific Reports* 9 – 1:16.
7. **Patil G** et al. (2019) Whole genome re-sequencing reveals the impact of copy number variants of the Rhg4 genes on broad-based resistance to soybean cyst nematode. *Plant Biotechnology Journal*: doi.org/10.1111/pbi.13086
8. Do TD, Vuong TD, Dunn D, Clubb M, Valliyodan B, **Patil GB**, Chen P, Xu D, Nguyen HT, Shannon JG. (2019) Identification of new loci for salt tolerance in soybean by high-resolution genome-wide association mapping. *BMC Genomics* 20(1):318.
9. Vats S, Kumawat S, Kumar V, **Patil GB**, Joshi T, Sonah H, Sharma TR, Deshmukh R (2019) Genome editing in plants: Exploration of technological advancements and challenges. *Cells* 8(11):1386.
10. Vishwakarma K, Mishra M, **Patil GB**, Mulkey S, Ramawat N, Pratap Singh V, Deshmukh R, Kumar Tripathi D, Nguyen HT, Sharma S (2019) Avenues of the membrane transport system in adaptation of plants to abiotic stresses. *Critical Reviews in Biotechnology* 39(7):861-83.
11. Valliyodan B, Cannon SB, .. **Patil GB** et al. (2019) Construction and comparison of three reference-quality genome assemblies for soybean. *The Plant Journal* 100(5):1066-82.

2009 – 2019 ([Google Scholar](#))

GOOGLE SCHOLAR Citation Record (upto Jan 11, 2022)

	All	Since 2017
Citations	1642	1486
h-index	23	22
i10-index	32	29



PATENTS (2)

- Meksem K, Nguyen H, Lakhssassi N, Klepadlo M, **Patil GB** (2020) Broad Resistance to Soybean Cyst Nematode. United States Patent Application US16/739,985.
- Zhang F, Stupar R, **Patil GB** (2020) A method for plant transformation and genome modification of legume species. United States Patent Application - 09531-0440001 (Provisional)

INVITED TALKS (Poster Presentations total 16)

- The Plant and Animal Genome (PAG) conference, San Diego, CA. Jan. 12- 16, 2019.
- Soy2016 - Molecular & Cellular Biology of the Soybean, The Ohio State University, Aug, 7-10, 2016.
- The Plant and Animal Genome (PAG) conference, San Diego, CA. Jan. 9- 13, 2016.

COMMUNITY SERVICE (Articles Reviewed 70+; Edited 5)

- **Academic Editor:** PLoS One, Scientific Reports, Frontiers in Plant Sciences, International J. of Genomics
- **Guest Editor:** The Plant Genome
- **Peer reviewer:** PLoS Genetics, *Plant Science*, *Frontiers in Plant Sciences*, *Molecular Breeding*, *Indian J of Genetics*, *Plant Breeding*, *BMC Plant Biology*, *Scientific Reports*, *Biologia Plantarum* and others
- Communication Chair (2012-2017) for MU Post-doctoral Association (MUPA), University of Missouri
- Travel grant judge: American Phytopathological Society (APS)

PROFESSIONAL MEMBERSHIP

- Member of the American Society of Plant Biologist (ASPB)
- Member of the American Phytopathological Society (APS)
- Member of The Crop Science Society of America (CSSA)