Curriculum vitae

1. **Name and full correspondence address:** Dr. Abinaya Manivannan,
Room No:38,
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2. **Email(s) and contact number(s):** abinayamanivannan@gmail.com; +91-8940996182

3. **Date of Birth:** 09-07-1989

4. **Academic Qualification**

S.No	Degree	Year	Subject	University/Institution	% of marks
1.	B Tech	2006-2010	Bioinformatics	Tamil Nadu Agricultural University (TNAU), Coimbatore	87
2.	MSc	2010-2012	Genomics	Madurai Kamaraj University (MKU), Madurai	75
3.	PhD	2012-2016	Agriculture and Applied Life Sciences	Gyeongsang National University (GNU), South Korea	94

5. **Ph.D thesis title, Guide's Name, Institute/Organization/University, Year of Award.**

PhD thesis title	Guide's Name	University	Year of award
Evaluation and elicitation of secondary metabolites in micropropagated clones of *Scrophularia kakudensis*	Prof. Byoung Ryong Jeong	Gyeongsang National University, South Korea	2016

6. **Work experience (in chronological order). (Post-doctoral research experience: 7 years and 4 months)**

Position	Institution	Period
Senior Researcher	Institute of Agriculture and Applied Life Sciences, Gyeongsang National University, South Korea	March 2016- Feb 2017
Postdoctoral Research Associate	National Institute of Horticulture and Herbal Sciences, Rural Development Administration, South Korea	March 2017- July 2021
Research Associate III	National Institute of Plant Genome Research, New Delhi	March 2022– August 2022
DST-INSPIRE Faculty	National Institute of Plant Genome Research, New Delhi	August 2022-Present

7. **Professional Recognition/ Award/ Prize/ Certificate, Fellowship received by the applicant**

S.No	Name of Award/Fellowship	Awarding Agency	Year
1.	DST INSPIRE Faculty Fellowship	DST, Govt. of India	2022-2027
2.	Research Associate Fellowship	Rural Development Administration, Govt. of South Korea	2017-2021
3.	Brain Korea 21 Plus Fellowship	Govt. of South Korea	2014-2016
4.	Brain Korea 21 Fellowship	Govt. of South Korea	2012-2013

Patent

1. Jin hee Kim, Eun Su Lee, **Abinaya Manivannan**, Hey Eun Lee, Do Sun Kim. A set of single nucleotide polymorphism probe for backcross analysis of *Raphanus sativus*. (2020) (Korean patent number: PAD18252).

Projects

S.No	Title	Cost in Lakh	Period	Role	Agency	Status
1	Whole genome de novo assembly and identification of functional genes associated with biosynthesis of quinazoline alkaloids in *Adhatoda vasica*, a potential medicinal plants	35 Lakhs	2022 - 2027	PI	DST, GOI	Ongoing

Publications

Total cumulative impact factor: 128; Citations: 1541; h-index: 18 (updated: 28-03-2024)

2023

1. **Abinaya Manivannan,** Soundararajan, P. and Jeong, B.R., 2023. Silicon: A "Quasi-Essential" element's role in plant physiology and development. *Frontiers in Plant Science*, *14*, p.1157185. *(IF: 5.6)*
2. Wei, H., Kong, S., Jayaraman, V., Selvaraj, D., Soundararajan, P. and **Abinaya Manivannan.** 2023. *Mentha arvensis* and *Mentha*× *piperita*-Vital Herbs with Myriads of Pharmaceutical Benefits. *Horticulturae*, *9*(2), p.224. (*Corresponding Author*). *(IF: 3.1)*
3. Singh, G., Ambreen, H., Jain, P., Chakraborty, A., Singh, B., **Abinaya Manivannan** and Bhatia, S., 2023. Comparative transcriptomic and metabolite profiling reveals genotype-specific responses to Fe starvation in chickpea. *Physiologia Plantarum*, *175*(2), p.e13897. *(IF: 6.4)*

2022

1. Agarwal, Y., Shukla, B., **Abinaya Manivannan** and Soundararajan, P., 2022. Paradigm and Framework of WUS-CLV Feedback Loop in Stem Cell Niche for SAM Maintenance and Cell Identity Transition. *Agronomy*, *12*(12), p.3132. *(IF: 3.9)*
2. Fan, C., Manivannan, A. and Wei, H., 2022. Light Quality-Mediated Influence of Morphogenesis in Micropropagated Horticultural Crops: A Comprehensive Overview. *BioMed Research International*, *2022*. *(Equal contribution as first author) (IF: 3.4)*

2021

1. Hye Eun Lee, **Abinaya Manivannan**, Sun Yi Lee, Koeun Han, Jun-Geol Yeum, Jinkwan Jo, Jin-Hee Kim, Il Rae Rho, Ye-Rin Lee, Eun-Su Lee, Byoung-Cheorl Kang, and Do-Sun Kim. Chromosome level assembly of homozygous inbred line "Wongyo-3115" facilitates the construction of a high density linkage map and identification of QTLs associated with fruit firmness in octoploid strawberry (*Fragaria x ananassa*). (2021). *Frontiers in Plant Sciences, (Equal contribution as first author)* doi: 10.3389/fpls.2021.696229 (IF = 5.7).

2. **Abinaya Manivannan**, Sena Choi, Tae-Hwan Jun, Eun-Young Yang, Jin-Hee Kim, Eun-Su Lee, Hye-Eun Lee, Do-Sun Kim and Yul-Kyun Ahn. Genotyping by sequencing based discovery of SNP markers and

construction of linkage map from F_5 population of pepper with contrasting powdery mildew resistance trait. (2021). *Biomed Research International, 15:2021* (IF = 3.4).

2020

1. **Abinaya Manivannan**, Prabhakaran Soundararajan, Yoo Gyeong Park, and Byoung Ryong Jeong. Physiological and proteomic insights into red and blue light mediated enhancement of in vitro growth in *Scrophularia kakudensis* – a potential medicinal plant. (2020). *Frontiers in Plant Sciences, 11, 22045.* (IF=5.7).

2. **Abinaya Manivannan**, Eun-Su Lee, Koeun Han, Hye-Eun Lee and Do-Sun Kim. Versatile nutraceutical potentials of watermelon – a modest fruit loaded with pharmaceutically valuable phytochemicals. (2020). *Molecules, 25 (22), 5258* (IF = 4.4).

2019

1. Jin-Hee Kim, **Abinaya Manivannan**, Do-Sun Kim, Eun-Su Lee, and Hye-Eun Lee. Transcriptome sequencing assisted discovery and computational analysis of novel SNPs associated with flowering in *Raphanus sativus* in-bred lines for marker-assisted backcross breeding. (2019). *Horticulture Research. 6(1)1-12* (IF = 6.7) (Equal contribution as first author).

2. **Abinaya Manivannan**, Jin-Hee Kim, Do-Sun Kim, Eun-Su Lee, and Hye-Eun Lee. Deciphering the nutraceutical potential of *Raphanus sativus*- a comprehensive overview. (2019). *Nutrients.11:402.* (IF = 5.7).

3. Boling Liu, Prabhakaran Soundararjan, **Abinaya Manivannan**. Mechanisms of silicon mediated amelioration of salt stress in plants. (2019). *Plants. 8 (9)309.* (IF = 3.9) (Corresponding author).

4. Prabhakaran Soundararajan, Abinaya Maivannan, Chung Ho Ko, Ji Eun Park, and Byoung Ryong Jeong. Evaluation of Relative Toxicity Caused by Deicing Agents on Photosynthesis, Redox Homeostasis, and the Osmoregulatory System in Creeper-type Plants. (2019). *Horticulture, Environment, and Biotechnology.* 60:175-186 (IF: 1.8).

2018

1. **Abinaya Manivannan**, Jin-Hee Kim, Eun-Young Yang, Yul-Kuyn Ahn, Eun-Su Lee, Sena Choi, and Do-Sun Kim. Next-generation Sequencing Approaches in Genome-wide Discovery of Single Nucleotide Polymorphism Markers Associated with Pungency and Disease Resistance in Pepper. (2018). *Biomed Research International.* (IF = 3.4).

2. Yul-Kyun Ahn, **Abinaya Manivannan**, Sandeep Karna, Tae-Hwan Jun, Eun-Young Yang, Sena Choi, Jin-Hee Kim, Do-Sun Kim, and Eun-Su Lee. Whole genome resequencing of *Capsicum baccatum* and *Capsicum annuum* to discover single nucleotide polymorphism related to powdery mildew resistance. (2018) *Scientific Reports.* (IF: 4.3).

3. Prabhakaran Soundararajan, **Abinaya Manivannan**, Chung Ho Ko and Byoung Ryong Jeong. Silicon Enhanced Redox Homeostasis and Protein Expression to Mitigate the Salinity Stress in *Rosa hybrida* 'Rock Fire'. (2018) *Journal of Plant Growth Regulation*. 37:16-34 (IF: 4.1)

4. Hao Wei, Sowbiya Muneer, **Abinaya Manivannan**, Ya Liu, Ji Eun Park, Byoung Ryong Jeong. Slight vapor deficit accelerates graft union healing of tomato plug seedling. (2018) *Acta Physiol Plantarum,* 40:147. (IF=2.3).

5. Wei Hao, **Abinaya Manivannan**, Chen Yuze, Byoung Ryong Jeong. Effect of different cultivation systems on the accumulation of nutrients and phytochemicals in *Ligularia fischeri.* (2018) *Horticultural Plant Journal.* 4:24-29. (IF= 3.0)

6. Kim Soohoon, **Abinaya Manivannan**, Park Yoo Gyeong, Jeong Byoung Ryong. Physiological and biochemical

modulations upon root induction in rose cuttings as affected by growing medium. (2018) *Horticultural Plant Journal.* 4:257-264. (IF= 3.0).

2017

1. **Abinaya Manivannan** and Ahn, Y.K. Silicon Regulates Potential Genes Involved in Major Physiological Processes in Plants to Combat Stress (2017). *Frontiers in Plant Science, 8*, p.1346. (IF= 5.7).

2. Prabhakaran Soundararajan, **Abinaya Manivannan**, Cho, Y.S. and Jeong, B.R. Exogenous Supplementation of Silicon Improved the Recovery of Hyperhydric Shoots in Dianthus caryophyllus L. by Stabilizing the Physiology and Protein Expression (2017). *Frontiers in plant science, 8* (IF= 5.7) (Equal contribution as first author).

3. **Abinaya Manivannan**, Prabhakaran Soundararajan Cho, Y.S., Park, J.E. and Jeong, B.R. Sources of silicon influence photosystem and redox homeostasis-related proteins during the axillary shoot multiplication of *Dianthus caryophyllus*. (2017). *Plant Biosystems*, pp.1-7 (IF= 2.8).

4. **Abinaya Manivannan**, Prabhakaran Soundararajan, Yoo Gyeong Park, Hao Wei, SooHoon Kim, and Byoung Ryong Jeong. Blue and red light emitting diodes improve the growth and physiology of in vitro grown carnation 'Green Beauty' and 'Purple Beauty'. (2017). *Horticulture Environment Biotechnology*. (IF= 1.5).

5. **Abinaya Manivannan**, Prabhakaran Soundararajan, Yoo Gyeong Park, and Byoung Ryong Jeong. Assessment of the Genetic Diversity and Phylogenetic Relationship of *Dianthus caryophyllus* germplasm using ISSR and RAPD Molecular Marker. (2017) *Acta Horticulturae*. 1185:191-196.

6. Yoo Gyeong Park, Sowbiya Muneer, Prabhakaran Soundararajan, **Abinaya Manivannan**, and Byoung Ryong Jeong. Light Quality During Night Interruption Affects Morphogenesis and Flowering in Geranium. (2017) *Horticulture, Environment, and Biotechnology*. 58:212-217 (IF: 1.8)

7. Prabhakaran Soundararajan, **Abinaya Manivannan**, Chung Ho Ko and Byoung Ryong Jeong. Leaf Physiological and Proteomic Analysis to Elucidate Silicon Induced Adaptive Response under Salt Stress in *Rosa hybrida* 'Rock Fire', (2017) *International Journal of Molecular Science.* 18: 8 (IF: 5.9).

2016

1. **Abinaya Manivannan**, Prabhakaran Soundararajan, Yoo Gyeong Park, and Byoung Ryong Jeong. Chemical Elicitor-Induced Modulation of Antioxidant Metabolism and Enhancement of Secondary Metabolite Accumulation in Cell Suspension Cultures of *Scrophularia kakudensis* Franch. (2016). *International Journal of Molecular Sciences*. *17*: 399; doi:10.3390/ijms17030399. (IF= 5.9).

2. **Abinaya Manivannan**, Prabhakaran Soundararajan, Sowbiya Muneer, Chung Ho Ko, and Byoung Ryong Jeong. Silicon mitigates salinity stress by regulating the physiology, antioxidant enzyme activities, and protein expression in *Capsicum annum* 'Bugwang'. (2016). *BioMed research international* http://dx.doi.org/10.1155/2016/3076357. (IF= 3.4).

2015

1. **Abinaya Manivannan**, Prabhakaran Soundararajan, Yoo Gyeong Park, and Byoung Ryong Jeong. In Vitro Propagation, Phytochemical Analysis, and Evaluation of Free Radical Scavenging Property of *Scrophularia kakudensis* Franch Tissue Extracts. *BioMed research international.* (2015). http://dx.doi.org/10.1155/2015/480564. (IF= 3.4).

2. **Abinaya Manivannan**, Prabhakaran Soundararajan, Laras Sekar Arum, Chung Ho Ko, Sowbiya Muneer, and Byoung Ryong Jeong. Silicon-mediated enhancement of physiological and biochemical characteristics of *Zinnia*

elegans ‘Dreamland Yellow’ grown under salinity stress. (2015). *Horticulture Environment Biotechnology*. 56:721-731. (IF= 1.8).

3. **Abinaya Manivannan**, Prabhakaran Soundararajan, Nur Halimah, Chung Ho Ko, Byoung Ryong Jeong. Blue LED Light Enhances Growth, Phytochemical Contents, and Antioxidant Enzyme Activities of Rehmannia glutinosa Cultured In Vitro. (2015). *Horticulture, Environment and Biotechnology*. 56(1):105-113. (IF= 1.8).

4. **Abinaya Manivannan**, Prabhakaran Soundararajan, Yoo Gyeong Park, Sugunadevi Sakkiah, Byoung Ryong Jeong. Binding Mode Investigation of Polyphenols from Scrophularia Targeting Human Aldose Reductase Using Molecular Docking and Molecular Dynamics Simulations. (2015). *Journal of Chemistry* (http://dx.doi.org/10.1155/2015/434256). (IF= 2.5).

5. **Abinaya Manivannan**, Sonali Jana, Prabhakaran Soundararajan, Chung Ho Ko, and Byoung Ryong Jeong. Antioxidant enzymes metabolism and cellular differentiation during the developmental stages of somatic embryogenesis in *Torillis japonica* (Houtt.) DC. (2015). *Plant Omics Journal*. 8(5): 461-471.

6. Prabhakaran Soundararajan, **Abinaya Manivannan**, Yoo Gyeong Park, Sowbiya Muneer, Byoung Ryong Jeong. Silicon Alleviates Salt stress by Modulating Antioxidant Enzyme Activities in *Dianthus caryophyllus* ‘Tula’. (2015). *Horticulture Environment Biotechnology*. 56(2):233-259. (Equal contribution as first author). (IF= 1.8).

7. Sowbiya Muneer, Chung Ho Ko, Prabhakaran Soundararajan, **Abinaya Manivannan**, Yoo Gyeong Park, Byoung Ryong Jeong. Proteomic Study Related to Vascular Connections in Watermelon Scions Grafted onto Bottle-Gourd Rootstock under Different Light Intensities. (2015). *PLoS One* (DOI: 10.1371/journal.pone.0120899). (IF= 3.2).

2014

1. Sowbiya Muneer, Yoo Gyeong Park, **Abinaya Manivannan**, Prabhakaran Soundararajan, Byoung Ryong Jeong. Physiological and Proteomic Analysis in Chloroplasts of *Solanum lycopersicum* L. under Silicon Efficiency and Salinity Stress. (2014). *International Journal of Molecular Sciences*. 15(12):21803-21824. (IF= 5.9)

2. Prabhakaran Soundararajan, **Abinaya Manivannan**, Yoo Gyeong Park, Chung Ho Ko, Byoung Ryong Jeong. Shoot organogenesis and somatic embryogenesis in Rehmannia glutinosa Libosch.-An important medicinal plant. (2014). *International Journal of Advanced Research*, *2*(11), 957-967.

Book chapters

1. Shilpha, J., **Abinaya Manivannan**, Soundararajan, P. and Jeong, B.R., 2023. Heat Stress Mitigation by Silicon Nutrition in Plants: A Comprehensive Overview. *Benefits of Silicon in the Nutrition of Plants*, pp.329-346.
2. Yoo Gyeong Park, Young Hoon Park, **Abinaya Manivannan**, Prabhakaran Soundararajan, and Byoung Ryong Jeong. (2020). Exploiting the Genetic Diversity of Ornamentals. In. Reid, M. (ed). Achieving sustainable cultivation of ornamental plants. Burleigh Dodds Science Publishing Limited, UK, pp. 1-47.
3. Prabhakaran Soundararajan, **Abinaya Manivannan**, and Byoung Ryong Jeong. Different Antioxidant Defense Systems in Halophytes and Glycophytes to Overcome Salinity Stress. (2019) In: Gul B., Böer B., Khan M., Clüsener-Godt M., Hameed A. (eds) Sabkha Ecosystems. Tasks for Vegetation Science, vol 49. Springer, Cham. https://doi.org/10.1007/978-3-030-04417-6_20.

4. **Abinaya Manivannan**, Prabhakaran Soundararajan, and Byoung Ryong Jeong. Role of Reactive Oxygen Species Signaling in Cell Proliferation and Differentiation: An Overview. *Revisiting the Role of Reactive Oxygen Species (ROS) in Plants: ROS Boon Or Bane for Plants?*, p.319. (2017). Wiley and Sons, NJ, USA. (ISBN: 978-1-119-28729-2).
5. Prabhakaran Soundararajan, **Abinaya Manivannan**, and Byoung Ryong Jeong. Role of Reactive Oxygen Species Signaling in Seed Germination: An Overview. In. V.P. Singh, S. Singh, D.K. Tripathi, S.M. Prasad, and D.K. Chauhan (eds). Revisiting the Role of Reactive Oxygen Species (ROS) in Plants. (2017). Wiley Publications, UK, pp. 291-306.
6. **Abinaya Manivannan**, Prabhakaran Soundararajan, and Byoung Ryong Jeong. Light quality mediated enhancement of medicinal plant production in hydroponics system under controlled environment. *Controlled Environment Agriculture-Production of specialty crops providing human health benefits through hydroponics.* (2016). Nova Science publications, NY, USA. (ISBN: 978-1-63484-489-5)
7. **Abinaya Manivannan**, Prabhakaran Soundararajan, and Byoung Ryong Jeong. Silicon-mediated modulations of genes and secondary metabolites in plants: A comprehensive overview. (2016). *Silicon in Plants: Advancements and Future Prospects*. Taylor & Francis groups, CRC Press, FL, USA.

8. Prabhakaran Soundararajan, **Abinaya Manivannan** and Byoung Ryong Jeong. (2016). Signaling Patterns of Reactive Oxygen Species and Phytohormones during Transition Period of Quiescent Seeds into Metabolically Active Organisms. In. A. Susana and B. Alma (eds). New Challenges in Seed Biology - Basic and Translational Research Driving Seed Technology. InTech Open, Croatia, European Union, pp. 75-96.
9. Prabhakaran Soundararajan, **Abinaya Manivannan** and Byoung Ryong Jeong. Regulatory Mechanisms by Silicon to Overcome the Salinity-Induced Imbalance of Essential Nutrient Elements. In. D.K. Tripathi, V.P. Singh, P. Ahmad, D.K. Chauhan, and S.M. Prasad (eds). (2016). Silicon in Plants: Advances and Future Prospects. Taylor and Francis Groups, CRC Press, FL, USA, pp. 47-66.