

# Dr. KANIVALAN Iwar

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## Professional Summary

*Plant and biodiversity researcher with a strong background in Botany, and a proven ability with over 9 years of research experience across India and South Korea in Plant Taxonomy, Phytosociology, Agrobiodiversity, and metabolite profiling. Skilled in germplasm characterization, Phenotyping, UPLC-MS/TOF-MS, SEM GIS and ecological field surveys, with 20+ peer-reviewed publications in Q1 journals to persevere in challenging environments. Experienced in international collaboration and grant-funded projects. Competitive and driven by a high sense of duty and responsibility. Skilled in building cordial relationships and fostering collaboration, I am confident I can contribute to research endeavors.*

## Research Interests

- **Floristic diversity, Ecological assessments and Climate change impacts**
- **Agrobiodiversity and germplasm characterization,**
- ***In silico* bioactive compound screening**

## Education Details

### Doctor of Philosophy in Botany

Bharathiar University, Coimbatore, Tamil Nadu, India (Nov, 2015 – Nov, 2022)  
Thesis Title: Phytosociological Studies in Theni District of Southern Western Ghats, India  
Key Areas of Focused: Plant Taxonomy and Ecology.

### Master of Science in Botany

Bharathiar University, Coimbatore, Tamil Nadu, India (July 2013 – May 2015)

### Bachelor of Science in Botany

PSG College of Arts & Science, Coimbatore, Tamil Nadu, India (June 2010 – May 2013)

### Diploma in Wildlife Biology

Kongunadu Arts and Science College, Coimbatore, Tamil Nadu, India (July 2021- July 2022)

### Advanced Diploma in Bioinformatics

PSG College of Arts & Science, Coimbatore, Tamil Nadu, India (June 2012– May 2013)

### **Diploma in Bioinformatics**

PSG College of Arts & Science, Coimbatore, Tamil Nadu, India (June 2011– May 2012)

### **Certificate Course in Bioinformatics**

PSG College of Arts & Science, Coimbatore, Tamil Nadu, India (June 2010– May 2011)

## **Research Experience**

### **Research Associate, National Agrobiodiversity Center-Genebank,**

National Institute of Agricultural Sciences, Rural Development Administration,  
Jeonju-si, Jeollabuk-do, Republic of Korea  
Dec 2023 – May 2025

- Biodiversity and characterization of *Allium* Germplasm
- Implemented field experiments, including *Allium* germplasm assessment in open field and greenhouse, phenotyping, seed morphology analysis using SEM, and metabolite analysis using UPLC-MS and UPLC-TOF-MS.
- Authored 7 publications and communicated 4 articles in SCI-Q1 journals.
- Presented findings at international conferences in the Republic of Korea on the *Allium* Germplasm conservation.

### **Ph.D. Researcher, Department of Botany**

Bharathiar University, Coimbatore, Tamil Nadu, India  
Nov 2015 – Nov 2022

- Conducted field-based research on taxonomy and phytosociology of plants
- Implemented field experiments, including assessment and ecological surveys.
- Authored 7 publications in peer-reviewed journals such as *Nordic J. Bot.*, *Intl. J. Bot. Stud. Curr. Appl. Sci. Tech.*
- Presented findings at national and international conferences, enhancing the academic community's understanding of the taxonomy of micro-algae, macro-fungi, pteridophytes, angiosperms, ethnobotanical importance, and ecological aspects.
- Collaborated with interdisciplinary teams to analyze and interpret data effectively.

### **Project Assistant- RUSA 2.0 BCTRC**

Bharathiar University, Coimbatore, Tamil Nadu, India  
Jan 2021 – June 2022

- Assisted in medicinal plant identification, data collection, documentation, and herbarium preparation.
- Contributed to 'Medicinal plants: their role in human health and drug discovery for cancer'.

### **Project Fellow- DST PURSE (II)**

Bharathiar University, Coimbatore, Tamil Nadu, India  
Dec 2017 – Jan 2021

- Assisted in plant identification, ecological assessment, and herbarium preparation.
- Contributed to the flora of the Western Ghats of Tamil Nadu, India, by reporting new species and taxa additions to the regional and state flora.

## Technical Skills

- Laboratory Techniques: Microscopy, DNA extraction, and Computational Analysis.
- Data Analysis Tools: R, GIS, Excel.
- Field Skills: Plant identification, Herbarium techniques, Ecological Impact Assessment,

## Publications

- Indumathi R, Athira P, Arunkumar R, Kanivalan I. Restorative Efficacy of *Elaeocarpus gaussenii* Weibel (Elaeocarpaceae) through *In vitro* evaluations. *Advances in Bioresearch* 2025. 16 (5): 223-231. DOI: 10.15515/abr.0976-4585.16.5.223231
- Dhaarani Vijayakumar, Kousalya Loganathan, Manikandan Selvarasuvasuki, and Kanivalan Iwar. Opposition to Global Acceptance of Biotech Crops. In: *Plant Biotechnology and Food Security: Adoption, Farming Systems, and Sustainable Development* (1<sup>st</sup> Edition). CRC Press. Tylor & Francis Group. Nov 2025. DOI: 10.1201/9781003597797.
- Seong-Hoon Kim, Kanivalan Iwar, Ji-Won Han, Inchan Choi, Jaesu Lee, Kingsley Ochar. Variability of bulb morpho-geometrical properties in onion (*Allium cepa* L.) germplasm collections, using digital imaging tools. *PeerJ* 2025; 13:e19583. DOI:10.7717/peerj.19583
- Kingsley Ochar, Kanivalan Iwar, Young-Wang Na, Seong-Hoon Kim. Phytochemical profiling, antioxidant activity and molecular docking analysis in Chinese cabbage (*Brassica rapa* ssp. *Pekinensis*) germplasm. *Scientia Horticulturae* 2025, 343:114078. DOI: 10.1016/j.scienta.2025.114078
- Dong-Kwan Kim, Kingsley Ochar, Kanivalan Iwar, Bo-Keun Ha, Seong-Hoon Kim. Cowpea (*Vigna unguiculata* L.) production, genetic resources and strategic breeding priorities for sustainable food security: a review. *Frontiers in Plant Science* 2025, 16:1-20 DOI=10.3389/fpls.2025.1562142
- Savithra N, Aron S K Y, Somashekar G M, Palanisamy M, Kanivalan I. Phytochemistry, bioactive potential and chemical characterization of culturable freshwater microalgae *Chlorococcum infusionum* (Schrank) Meneghini. *Notulae Scientia Biologicae* 2025, 17 (1): 12276. DOI: 10.15835/ncb17112276
- Dong-Kwan Kim, Kanivalan Iwar, Kingsley Ochar, Sin-Young Park, Eun-Byul Go, Kyung-Dong Lee and Seong-Hoon Kim. Cowpea (*Vigna unguiculata*) Cultivation and Breeding in

the Republic of Korea: Advances and Future Perspectives. *Agronomy* 2024, 14 (11): 2679. DOI: 10.3390/agronomy14112679

- Kingsley Ochar, Kanivalan Iwar, Vadakkemuriyil Divya Nair, Yun-Jo Chung, Bo-Keun Ha and Seong-Hoon Kim. The Potential of Glucosinolates and their hydrolysis products as Inhibitors of Cytokine storms. *Molecules* 2024, 29:4826. DOI: 10.3390/molecules29204826
- Kanivalan Iwar, Kingsley Ochar, Yun Am Seo, Seong-Hoon Kim. *Alliums* as potential antioxidants and anticancer agents. *International Journal of Molecular Sciences* 2024, 25 (15): 8079. DOI: 10.3390/ijms25158079
- Kim, Woon Ji, Baul Yang, Dong-Gun Kim, Sang Hoon Kim, Ye-Jin Lee, Juyoung Kim, So Hyeon Baek, Si-Yong Kang, Joon-Woo Ahn, Yu-Jin Choi, Kanivalan Iwar, Seong-Hoon Kim and Jaihyunk Ryu. Genotyping-by-Sequencing Analysis Reveals Associations between Agronomic and Oil Traits in Gamma Ray-Derived Mutant Rapeseed (*Brassica napus* L.). *Plants* 2024, 13, (11): 1576. DOI: 10.3390/plants13111576
- Kanivalan Iwar, Kebede Taye Desta, Kingsley Ochar, and Seong-Hoon Kim. Unveiling Glucosinolate Diversity in *Brassica* Germplasm and *In Silico* Analysis for Determining Optimal Antioxidant Potential. *Antioxidants* 2024, 13 (3): 376. DOI: 10.3390/antiox13030376
- Kim, Seong-Hoon, Kingsley Ochar, Kanivalan Iwar, Yoon-Jung Lee, Hae Ju Kang, and Young-Wang Na. Variations of Major Glucosinolates in Diverse Chinese Cabbage (*Brassica rapa* ssp. *pekinensis*) Germplasm as Analyzed by UPLC-ESI-MS/MS. *International Journal of Molecular Sciences* 2024, 25, (9): 4829. DOI: 10.3390/ijms25094829
- Kanivalan Iwar. Advancements and Challenges in Soybean Cultivation and Consumption: The Indian Scenario. *Soybean Industrial Information* 2024, 7(0), 17-19.
- Kanivalan, I and Rajendran, A. A new species *Christisonia rarissima* (Orobanchaceae) from the southern Western Ghats of India. *Nordic Journal of Botany* 2022, e03686: 1-5
- Kanivalan, I and Rajendran, A. IUCN red taxa in the Southern Western Ghats of Theni district, Tamil Nadu, India. *International Journal of Botany Studies* 2021, 6 (3):882-889.
- Kanivalan, I and Rajendran A. Distribution of Critically Endangered species *Burmannia indica* Jonker. Burmanniaceae. *International Journal of Life Science Research* 2021, 9(3): 9-11.
- Rangunath C, Aron Santhosh Kumar Y, Kanivalan, I. and Sruthi R. Phytochemical Screening and GC-MS Analysis of Bioactive Constituents in the Methanolic Extract of *Caulerpa racemosa* (Forssk.) J. Agardh and *Padina boergesenii* Allender & Kraft. *Current Applied*

*Science and Technology* 2020, 20 (3):380-393. DOI: 10.14456/cast.2020.24

- Kanivalan, I and Rajendran, A. Living Fossils in Southern Western Ghats of Theni district, India. *Research and Reviews: Journal of Botany* 2018, 6(3):14-16. DOI: 10.37591/rrjob.v6i3.48
- Rajasekar C., Samydurai P., Kanivalan, I., Rajendran A. Light and Scanning Electron Microscopic Studies on *Utricularia gibba* L.–Lentibulariaceae. *Research and Reviews: Journal of Botany* 2018, 6(3):7-10. DOI: 10.37591/rrjob.v6i3.47
- Pavithra M, Parthipan M, Kanivalan, I. and Rajendran A. *Eragrostis nairii* Kalidass C. (Poaceae): New Record for Southern Western Ghats, India. *Jordan Journal of Biological Science* 2017, 9(3):219-220
- Rajeswari S, Geetha Sree S.J, Kanivalan, I, Anitha P. *In silico* Antibacterial potential of *Curcuma longa* on DNA gyrase of *Escherichia coli* and *Staphylococcus aureus*. *Research and Reviews: Journal of Computational Biology* 2014, 2(3): 1-7
- Kanivalan, I., Parthipan, M. and Rajendran, A. Fasciation in *Merremia tridentata* (L.) Hallier. F. – Convolvulaceae. In *Recent Trends in Life Science: Research, Practices, and Application for Sustainable Development*. MacMillan, New Delhi 2017, pp 281-282.
- Kanivalan, I. and Rajendran, A. Phyco-remediation of Textile Effluent using – *Scenedesmus* spp. In *Proceedings of National Conference on Innovation in Textiles and Fashion (ITF-2016)*. Laser Park Publishing House, Coimbatore. 2016, pp 31-32
- Kanivalan, I., Rajendran, A. and Anuja, J. Diversity of Green Algae in Bodinayakanur of Theni District, Tamilnadu. In *Advances & Challenges in Plant Breeding, Biotechnology & Conservation*. MBGIPS-KFRI, Kerala. 2016, pp 347-351

### Conference Presentations

- *Allium cepa* L. Global distribution and conservation for Agricultural sustainability and Resilience. *Trends in Crop Production and Utilization Research Using AI*. The Korean Society of Crop Science, Seoul, Republic of Korea 2024.
- Exploring the unique characteristics, global distribution, and potential health benefits of Green onion (*Allium fistulosum* L.). *Trends in Crop Production and Utilization Research Using AI*. The Korean Society of Crop Science, Seoul, Republic of Korea 2024.
- Pteridophytes in the Human Welfare. *National Seminar on Bioprospecting of Biodiversity for Agriculture and Medicine: Current Status and Future Prospectives BBAM-19*. Bharathiar University, Coimbatore TN 2019.

- *Acacia pinnata* L.– A potential medicinal plant. *International Conference on Phytomedicine*. Bharathiar University, Coimbatore TN 2018.
- Association of Phytoplanktons in Bladderworts – *Utricularia* L. *National Symposium on Algal Diversity and Resource Status: Current Trends in Utilization and Prospects for Innovation*. V.O.Chidambaram College, Tuticorin, TN 2017.
- Fasciation in *Merremia tridentata* (L.) Hallier. F. – Convolvulaceae. *10<sup>th</sup> NABS-National Conference on “Recent Trends in Life Science: Research, Practices and Application for Sustainable Development*. Bharathiar University, Coimbatore, TN 2017.
- Fern and Fern allies in Bodi Hills Southern Western Ghats of Theni District, India. *National Seminar on “Biodiversity Conservation and Sustainable Utilization (NSBCS-2017)*. Bharathiar University, Coimbatore, TN 2017.
- Molecular Docking studies of Angoroside-C and Martynoside of *Leucas aspera* against HER2/ERBB2 Receptor. *National Conference on Insights of Genetics in Molecular Medicine (IGMM’17)*. Bharathiar University, Coimbatore, TN 2017.
- Diversity of Wild Mushrooms of Bodinayakanur, India. *National Conference on Challenges and Opportunities in Mycological Research*. CAS in Botany, University of Madras, Guindy Campus, Chennai, TN 2016.
- Diversity of Freshwater Algae in Bodi Hills of Southern Western Ghats, Tamil Nadu. *National Seminar on Biodiversity Products and Industrial Application (BPIA-2015)*. Periyar University, Salem, TN 2015.
- Diversity of Diatoms in Bodi of Theni District, Tamil Nadu. *National Seminar on Biodiversity and Conservation NSBC-2015*. Bharathiar University, Coimbatore, TN 2015.
- Macrofungi in Theni District of Tamil Nadu, India. *National Seminar on Biodiversity and Conservation NSBC-2015*. Bharathiar University, Coimbatore, TN 2015.
- Diversity of Mushrooms in Karin Sholai of Anamalai hills in the Southern Western Ghats. *National Seminar on “Emerging Trends in Biodiversity Conservation and Sustainable Utilization (NSBCS)*. Bharathiar University, Coimbatore, TN 2014.
- Molecular modeling and analysis of *Cassia auriculata* phytochemicals against midgut trypsin of *Anopheles stephensi*. *3<sup>rd</sup> International Congress on “Global Warming on Biodiversity of Insects: Management and Conservation Strategies*. Bharathiar University, Coimbatore, TN 2013.

## Training Programmes

- *Botanical Nomenclature*. Bangalore University, Karnataka, 2020.
- *Plant Taxonomy*. Osmania University, Hyderabad, Telangana, 2020.
- *Morphology of Family Poaceae*. Oiko Essence Edutours LLP, Mumbai, 2020.
- *Application of Remote Sensing, GIS, and GPS in Forest Resource Assessment*. GIS Centre, Forest Research Institute (FRI), Indian Council for Forestry Research and Education, Dehradun, 2020.
- *3<sup>rd</sup> Botanical Nomenclature Course*. Botanical Survey of India (SRC), Coimbatore, TN, 2019.
- *Classical and Modern Methods in Plant Taxonomy & Biosystematics*. CSIR-NBRI, Lucknow, UP, 2018.
- *Lichen Identification and Nomenclature*. Botanical Survey of India (CRC), Allahabad, UP, 2017.
- *Hands-on Training in Mapping Bioresources with FOSS GIS Software*. Center for Biodiversity Informatics (Botany), Jamal Mohamed College, Tiruchirapalli, TN, 2017.
- *Seed Collection and Conservation*. University of Kerala, Thiruvananthapuram, Kerala, 2017.
- *Data Science Research – Biological Data Management*. Center for Biodiversity Informatics (Botany), Jamal Mohamed College, Trichy, TN, 2017.
- *In vivo and In vitro cultivation practices of lucrative Orchids*. Bharathiar University, TN, 2017.
- *Think Tank Initiation for IPR Policy Implementation*. IPR Cell, Bharathiar University, TN, 2017.
- *Research Tools and Techniques using SPSS Package*. Bharathiar University, TN, 2016.
- *Identification of Marine Plankton*. CAS in Marine Biology, Annamalai University, TN, 2016.
- *Plant Taxonomy of Primitive Plants*. Malabar Botanical Garden and Institute for Plant Sciences (MBGIPS), Kozhikode, Kerala, 2015.
- *Bonsai Techniques*. Bharathiar University, TN, 2015.
- *Bioinformatics Applications with Special focus on Genomics and Proteomics*. Bioinformatics Center and ARIS Cell, Madras Veterinary College, Tamilnadu Veterinary and Animal Science University, Chennai, TN 2012.
- *Marine Biotechnology for Undergraduate Science Students*. AMET University, Chennai, TN 2012.
- *Commercial Utilization of Marine Algae for Alginate Production and its application in Textile Printing*. PSG College of Arts & Science, Coimbatore, TN 2010.

- *Plant Tissue Culture Technology* [SJS] project sponsored by the NSTEDB, Govt. of India]. Dr. G.R.D. College of Science, Coimbatore, TN 2009.

## Fellowships

- Project Assistant- RUSA 2.0 BCTRC, Bharathiar University, June 2022.
- Project Fellow- DST-PURSE (Phase II), Bharathiar University, 2017.
- UGC PG Merit Scholarship for University Rank Holder, Bharathiar University, 2013.

## References

**Dr. T. Parimelazhagan.** Professor,  
Department of Botany, Bharathiar University, Coimbatore, Tamil Nadu, India  
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Botanical Survey of India, Southern Regional Circle, TNAU Campus, Coimbatore, TN  
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National Agrobiodiversity Center, National Institute of Agricultural Sciences,  
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