

Name of the Faculty: Dr. S. Ramchander, M.Sc (Agri.), Ph.D., Post Doc.

Department: Genetics and Plant Breeding

Area of Specialization: Molecular Breeding and Genomics

1) Research Articles published (International):

- Binodh, A.K., Thankappan, S., Saravana Kumar, R.M., Ramasamy, N, **Selvaraj, R.**, Karthikeyan, R. 2025. Effect of gamma-ray induced mutagenesis on the NBS-LRR domain of mycoplasma resistance proteins in sesame (*Sesamum indicum* L.). *Plant Gene*, 41. 100480. <https://doi.org/10.1016/j.plgene.2024.100480>
- Rithesh, B.N., **S. Ramchander**, S. Manonmani, D. Uma, S. Rajeswari & P. Jeyaprakash. 2025. Evaluation of glycemic index, glycemic load and biochemical traits of rice associated with anti-diabetic properties. *Plant Science Today*, 12 (1): 1-12. <https://doi.org/10.14719/pst.4457>
- Dhivyapriya Dharmaraj, **Ramchander Selvaraj**, Baghyalakshmi Kari, Subashini Govindan, Raveendran Muthurajan and Jeyaprakash Paramasiwam. Marker-Assisted Pseudo-Backcrossing for Developing Climate-Resilient Rice. *Scientific Reports* 14, 30219 (2024). <https://doi.org/10.1038/s41598-024-81598-2>
- Baghyalakshmi, K., Priyanka, R.A., Sarathapriya, G., **Ramchander, S.** et al. Genetic improvement of fiber quality in tetraploid cotton: an overview of major QTLs and genes involved in and edited for the quality of cotton fibers. *J Cotton Res* 7, 33 (2024). <https://doi.org/10.1186/s42397-024-00196-9>
- Kathiresan PK, Binodh AK, Thankappan S, Francis N, **Selvaraj R**, Ramasamy NK, Alagarsamy S. Scouting rice (*Oryza sativa* L.) landraces for moisture stress tolerance using morphometric diversity analysis. *Plant Sci. Today*. 2024. <https://doi.org/10.14719/pst.2911>
- Baghyalakshmi, K., **Ramchander, S.**, Jagadeeshselvam, N., Raveendran, M., & Jeyaprakash, P. (2024). Comparative transcriptome profiling to untie the drought tolerance molecular mechanism of backcross rice (*Oryza sativa* L.) inbred. *Plant Breeding*, 1–13. <https://doi.org/10.1111/pbr.13208>
- **Selvaraj Ramchander**, Andrew-Peter-Leon M. T., Yasin Jeshima Khan, Jegadeesan Souframanien & Madhavan Arumugam Pillai (2024) Molecular and physiological characterization of early semi-dwarf mutants of rice and localisation of SNP variants in Sd1 locus generated through gamma radiation, *International Journal of Radiation Biology*, DOI: 10.1080/09553002.2024.2304827
- Jasmin A, Nilavu, Jayakumar A, Petchiammal I, Lydia Pramitha, Devesena, Neethu Francis, Arumugam Pillai Madhavan and **Selvaraj R.** 2024. A comprehensive review on mutation breeding milestones in cereals: Conventional to advanced molecular approaches to achieve sustainable goals in trait improvement. *Plant Science Today* 11(1):641-653.

- Jasmin S A, Prasanth P H, **Ramchander S**, Kumar P D, Devasena N, Naveenkumar R, Thankappan S, Kingsly N.B J. 2023. Assessment of variability parameters and diversity of panicle architectural traits associated with yield in rice (*Oryza sativa* L.). *Plant Science Today*. <https://doi.org/10.14719/pst.2658>
- Arumugam Pillai, M., R. Rajamadhan, E. Murugan, M. T. Andrew- Peter-Leon, **S. Ramchander**, D. Shoba, J. Ramalingam, Jeshima Khan Yasin, J. Souframanien. 2023. Genotype-by-Environmental Interaction effects on Earliness, Semi Dwarfism and Yield of Rice (*Oryza sativa* L.) Mutants in Tamil Nadu, India. *Crop Science*. <https://doi.org/10.1002/csc2.21120>
- Duraiswamy A, Sneha A NM, Jebakani K S, Selvaraj S, Pramitha J L, **Selvaraj R**, Petchiammal K I, Kather Sheriff S, Thinakaran J, Rathinamoorthy S, Kumar P R. Genetic manipulation of anti-nutritional factors in major crops for a sustainable diet in future. *Front Plant Sci*. 2023 Feb 15;13:1070398. doi: 10.3389/fpls.2022.1070398.
- Sudha, R., Rajesh, M., Niral, V., Samsudeen, K., Shil, S., **Ramchander, S.**, & Diwakar, Y. (2023). Analysis of genetic diversity and population structure in worldwide coconut germplasm (*Cocos nucifera* L.) using microsatellite markers. *Scientia Horticulturae*, 309, 111681. <https://doi.org/10.1016/j.scienta.2022.111681>
- Manu, D.G., **Selvaraj, R.**, Kadirimangalam, S et al., (2022) Genetic detection of false smut resistant candidate QTLs by genome-wide association mapping in rice (*Oryza sativa* L.). *Journal of Phytopathology* (Wiley Publication). <https://doi.org/10.1111/jph.13069>
- **Ramchander S**, Leon MTAP, Souframanien J, Arumugam Pillai M. Genetic diversity, allelic variation and marker trait associations in gamma irradiated mutants of rice (*Oryza sativa* L.). *Int J Radiat Biol*. 2021 Oct 27;1-10. doi:10.1080/09553002.2021.1987568.
- Andrew-Peter-Leon, M, T., **Selvaraj, R.**, Kumar, K.K., Muthamilarasan, M., Yasin, J.K and Pillai, M.A. (2021) Loss of Function of OsFBX267 and OsGA20ox2 in Rice Promotes Early Maturing and Semi-Dwarfism in γ -Irradiated IWP and Genome-Edited Pusa Basmati-1. *Front. Plant Sci*. 12:714066. doi: 10.3389/fpls.2021.714066
- Khannetah, K.R., **S. Ramchander**, M. T. Andrew Peter Leon, D. Shoba, S. Saravanan, R. Kannan, Jeshima Khan Yasin, Madhavan Arumugam Pillai. (2021) Genetic diversity analysis in indigenous rice (*Oryza sativa* L.) germplasm for bacterial leaf blight (*Xanthomonas oryzae* pv. *oryzae*) (BB) using resistance genes-linked markers. *Euphytica* 217:145. doi: 10.1007/s10681-021-02862-4
- **Selvaraj, R.**, Singh, A.K., Singh, V.K. et al. Superior haplotypes towards development of low glycemic index rice with preferred grain and cooking quality. *Scientific Reports* (Nature) 11, 10082 (2021). <https://doi.org/10.1038/s41598-021-87964-8>
- Andrew Peter Leon, M.T., **Ramchander, S.**, Kumar, K. K., Muthamilarasan, M., Arumugam Pillai, M. 2021. Assessment of efficacy of mutagenesis of gamma-irradiation in plant height and days to maturity through expression analysis in rice. *PLOS ONE* 16(1): e0245603.

- Dixit, S., Singh, U.M., Singh, A.K., Alam, S., Venkateshwarlu, C., Nachimuthu, V.V., Yadav, S., Abbai, R., **Selvaraj, R.**, et al., (2020). Marker Assisted Forward Breeding to Combine Multiple Biotic-Abiotic Stress Resistance/Tolerance in Rice. *Rice* (Springer), 13:29. doi:10.1186/s12284-020-00391-7
- Abbai R, Singh VK, Nachimuthu VV, Sinha P, **Selvaraj R**, Vipparla AK, Singh AK, Singh UM, Varshney RK, Kumar A. 2019. Haplotype analysis of key genes governing grain yield and quality traits across 3K RG panel reveals scope for the development of tailor-made rice with enhanced genetic gains. *Plant Biotechnology Journal* 1-11. doi: 10.1111/pbi.13087
- Shoba, D., M. Raveendran, S. Manonmani, S. Utharasu, D. Dhivyapriya, G. Subhasini, **S.Ramchander**, S.Robin* et al., 2017. Development and Genetic Characterization of a Novel Herbicide (Imazethapyr) Tolerant Mutant in Rice (*Oryza sativa* L.). *Rice* (Springer), 10(10): 1-12. doi 10.1186/s12284-017- 0151-8.

2) Research Articles published (National):

- Susmi, T.G., N. Devasena*, **S. Ramchander**, Patrica Kalaiarasi, Lydia Pramitha, K. Indira Petchiammal, P. Dinesh Kumar and S. Agalya Jasmin. (2025). Morphological characterization of strong culm traits and their association with yield performance in rice (*Oryza sativa* L.). *Electronic Journal of Plant Breeding*, 16 (2):1-10. <https://doi.org/10.37992/2025.1602.020>
- Vikram, B., J. Lydia Pramitha*, **S. Ramchander**, P. Dinesh Kumar, J. Patricia Kalaiarasi and N. Devasena. Stability analysis in rice (*Oryza sativa* L.) through AMMI and GGE biplots. *Electronic Journal of Plant Breeding*, 16 (2):1-10. [EJPBhttps://doi.org/10.37992/2025.1602.021](https://doi.org/10.37992/2025.1602.021)
- Paranivalavanraj P, Udhaya Kumar, Silambarasan Murugan, Vanathi D, **Ramchander S**, et al.. (2025). Study on Growth Behaviours of Rice Cultivars under Dry Direct Seeded Conditions during Samba Season. *Journal of Advances in Biology & Biotechnology*, 28 (4), pp.978-985. {10.9734/jabb/2025/v28i42254}.
- Tomisha G., Silambarasan M., Sharmili K., **Ramchander S** and Naveenkumar R. (2025). Evaluation of Rice Cultivars for Performance Under Direct-seeded Rice System in the Foothills of Siruvani. *Journal of Scientific Research and Reports*, 31 (4): 495-501.
- Gilbert, J.G., S. Agalya Jasmin, **S. Ramchander***, K. Indira Petchiammal, R. Samundeswari and P. Dinesh Kumar. (2024). Evaluation of anaerobic germination and submergence tolerance in rice (*Oryza sativa* L.) suitable for direct seeded condition. *Electronic Journal of Plant Breeding*, 15 (2), 1-9.
- Bernald A.G., N.B. John Kingsly, Gokul M, **Ramchander S**, Joseph P.A and Dinesh Kumar P. (2023). Evaluating Drought Tolerance in Rice through In-Vitro PEG Screening and Analysing the Effectiveness of Drought Tolerant Traits through Correlation. *Biological Forum – An International Journal*, 15(9): 415-423 (UGC care)

- Godwin Gilbert J., Agalya Jasmin S., **Ramchander S.**, Indira Petchiammal K., Samundeswari R. and Dinesh Kumar P. (2023). Evaluation of Rice Accessions for Anaerobic Germination, Yield and Attributing Parameters in Direct Seeded Rice Condition. *Biological Forum – An International Journal*, 15(9): 230-239.
- Sherina Jebakani, K., D. Aishwarya, J. Lydia Pramitha, **S. Ramchander**, N. Devasena, D. Wilson, P. Dinesh Kumar and, R. Samundeswari. (2023). Assessing the genetic diversity and association of traits among the rice *Oryza sativa* L. landraces and varieties from Tamil Nadu. *Electronic Journal of Plant Breeding*, 14 (3), 818-832.
- Aishwarya Duraiswamy, K. Sherina Jebakani, J. Lydia Pramitha, **S. Ramchander**, N. Devasena, D. Wilson, P. Dinesh Kumar and, P. Ramesh Kumar. (2023). Evaluating the variability parameters among rice *Oryza sativa*. L landraces and varieties from Tamil Nadu. *Electronic Journal of Plant Breeding*, 14 2, 487-495.
- Agalya Jasmin S., Hari Prasanth P., **Ramchander S.**, Dinesh Kumar P., Devesena N., Naveenkumar R., Sugitha Thankappan and John Kingsly N.B. (2023). Association and Path Coefficient Analysis in Rice Germplasm for Panicle Architectural and Yield Attributing Traits. *Biological Forum – An International Journal*, 15(5): 296-303 (UGC care)
- Hari Prasanth P., Agalya Jasmin S., **Ramchander Selvaraj**, Dinesh Kumar P., Devasena N., Sharmili K. and Wilson D. (2023). Principal Component and Cluster Analysis on Eating and Cooking Quality Parameters in Rice (*Oryza sativa* L.) Germplasm. *Biological Forum An International Journal*, 15(5): 326-332. (UGC care)
- Baghyalakshmi, K., **Ramchander, S.**, Raveendran, M and Jeyaprakash, P. 2020. Unravelling of Osmotic genes involved in Drought tolerance in Backcross inbred lines of rice (*Oryza sativa* L.) cultivars. *Research Journal of Biotechnology*, 15(7): 52-56.
- Mohanapriya, B., P. Jeyaprakash, M. Raveendran, R. P. Soundararajan, **S. Ramchander**, G. Subashini, P. Prabhakaran, K. Manonmani and S. Robin. 2019. Marker assisted introgression for brown planthopper resistance genes Bph20 and Bph21 in CO43Sub1 variety of rice. *Electronic Journal of Plant Breeding*, 10(2): 645-652. doi:10.5958/0975-928X.2019.00081.4
- Rithesh, B.N., **S. Ramchander**, S. Rajeswari, D. Uma, S. Robin1 and P. Jeyaprakash. 2018. Characterization of Physio-Chemical Properties of Starch among Traditional and Commercial Varieties of Rice (*Oryza sativa* L.) using Rapid Visco Analyser. *International Journal of Current Microbiology and Applied Sciences*, 7(10): 1490-1503.
- Baghyalakshmi, K., P.Jeyaprakash, **S.Ramchander**, T. Radhamani and M. Raveendran. 2018. Comparative study on Backcross Inbred Lines of IR64 rice (*Oryza sativa* L.) introgressed with drought QTLs under varied moisture regimes over different seasons. *International Journal of Current Microbiology and Applied Sciences*, 7(1): 2716-2725.
- Dhivyapriya, D., **S. Ramchander**, A. Kalamani, M. Raveendran, P. Jeyaprakash and S. Robin. 2017. Evaluation of SALTOL QTL introgression in rice: A study on Co-existence

of salinity tolerance and phytoremediation effect. International Journal of Current Microbiology and Applied Sciences, 6(12): 303-309.

- Manu, D.G*, Pramoda, S.S, Ramanathan, A, **Ramchander, S**, Manonmani, S, Jeyaprakash, P and S. Robin. 2017. Phylogenetic and Secondary Structure analysis of rice false smut (*Ustilaginoidea virens*) fungal isolates using internal transcribed spacer ITS1, 5.8S and ITS2. Journal of Pharmacognosy and Phytochemistry, 6(4): 97-102.
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- Aiyyswaraya, S., R.Saraswathi, **S.Ramchander**, N. Jaivel, D.Uma, D.Sudhakar and S.Robin. 2017. Evaluation of Rice (*Oryza sativa* L.) Germplasm for the identification of high folate accessions using HPLC. International Journal of Current Microbiology and Applied Sciences, 6(11): 5328-5346.
- Manu, D.G*, Pramoda, S.S, Ramanathan, A, **Ramchander, S**, Manonmani, S, Jeyaprakash, P and S. Robin. 2017. Isolate Characterization and Pathogenesis of *Ustilaginoidea virens* causing False Smut Disease in Rice (*Oryza sativa* L.). International Journal of Current Microbiology and Applied Sciences, 6(7): 632-640.
- **Ramchander S**, Raveendran M and Robin S. 2016. Mapping QTLs for Physiological Traits Associated with Drought Tolerance in Rice (*Oryza Sativa* L.). Journal of Investigative Genomics (ISSN:2373- 4469), 3(3): 1-7. doi 10.15406/jig.2016.03.00052.
- Dhivyapriya, D., A. Kalamani, **S. Ramchander**, M. Raveendran and S. Robin. 2016. Estimation of gas exchange parameters in backcrossed introgressed lines of rice (*Oryza sativa* L.) with different combination of drought QTLs. Applied Biological Research, 18 (2): 106-114.
- **Ramchander, S** and Arumugam Pillai, M. 2016. Semi-dwarf narrow rolled leaf mutant in rice: Photosynthetic efficiency and physiological response to gibberellic acid (GA3). Journal of Applied and Natural Science, 8(3): 1312-1316.
- Baghyalakshmi, K., P.Jeyaprakash, **S.Ramchander**, M. Raveendran and S. Robin. 2016. Effectiveness of drought yield QTLs on physiological traits and yield in backcross inbred lines of rice under moisture stress condition. Green Farming, 7(6): 1271-1276.
- Baghyalakshmi, K., P. Jeyaprakash, **S. Ramchander**, M. Raveendran and S. Robin. 2016. Fine mapping of rice drought QTL and study on combined effect of QTL for their physiological parameters under moisture stress condition. Journal of Applied and Natural Science (4.84), 8(4): 1992-1998.
- Baghyalakshmi, K., P. Jeyaprakash, **S. Ramchander**, M. Raveendran and S. Robin. 2016. Determination of stress indices for selection of superior genotypes under drought situation in rice (*Oryza sativa* L.). International Journal of Agricultural Sciences, 8(38): 1791- 1795.

- **Ramchander, S.**, Ushakumari, R and Arumugam Pillai, M. 2015. Lethal dose fixation and sensitivity of rice varieties to gamma radiation. *Indian Journal of Agricultural Research*, 41(1): 24-31.
- **Ramchander, S.**, Arumugam Pillai, M. and Ushakumari, R. 2015. Assessment of mean performance and variability estimates of semi- dwarf and early mutants in M3 generation of White Ponni rice (*Oryza sativa* L.). *Biochemical and Cellular Archives*, 15 (1): 71-75.
- **Ramchander, S.**, Ushakumari, R and Arumugam Pillai, M. 2015. Prediction of Variability Estimates in Mutant Populations of Rice (*Oryza sativa* L.). *Annals of Plant and Soil Research*, 17 (Special Issue): 106-110.
- **Ramchander, S.**, Ushakumari, R and Arumugam Pillai, M. 2015. Quality characteristics of rice mutants generated through gamma radiation in white ponni. *International Journal of Agricultural Sciences*, 7(10): 714-718.
- **Ramchander, S.**, S. Sheelamary, K. Baghyalakshmi, S. Revathi and M. Arumugam Pillai. 2015. Response on callusing and regeneration of two quality rice (*Oryza sativa* L.) varieties. *Journal of Innovative Agriculture* (ISSN 2394-5389), 2 (3): 18-22.
- Baghyalakshmi K.*, Subashini G, **Ramchander S.**, Chimili S.R and Shajitha P. 2015. Selection of superior genotypes in spring wheat (*Triticum Aestivum* L.) through combining ability analysis. *International Journal of Agricultural Sciences* (4.82), 7(7): 559-564.
- Baghyalakshmi K.*, Vinoth R., Ulaganathan V. and **Ramchander S.** 2015. Chromosomal behaviour studies during meiosis: a cross between *Triticum timopheevi* and *Triticum sphaerococcum*. *International Journal of Agricultural Sciences*, 7(13): 854-857.
- **Ramchander, S.**, Ushakumari, R and Arumugam Pillai, M. 2014. Association analysis of yield and yield contributing traits in Semi- dwarf and Early mutants of rice. *Trends in Biosciences*, 7 (11): 1147-1150.
- **Ramchander, S.**, Arumugam Pillai, M. and Ushakumari, R. 2014. Determination of Lethal Dose and Effect of Ethyl Methane Sulphonate in Rice Varieties (*Oryza sativa* L.). *Trends in Biosciences*, 7 (11): 1151-1156.
- **Ramchander, S.**, Robin, S and Raveendran, M. 2014. Correlation Analysis for Physio-Morphological Traits of Drought Resistance in Advanced Backcross Population of Rice (*Oryza sativa* L.). *Trends in Biosciences*, 7 (16): 2117-2122.
- **Ramchander, S.**, Arumugam Pillai, M. and Ushakumari, R. 2014. Effectiveness and Efficiency of Physical and Chemical mutagens inducing chlorophyll mutants in two quality rice genotypes. *The Madras Agricultural Journal* (3.98), 101(7-9): 212-218.
- **Ramchander, S.**, Raveendran, M and Robin, S. 2014. Performance of Backcross Inbred Lines of rice (*Oryza sativa* L.) across different water regimes and their genome analysis. *The Bioscan*, 9(4): 1657- 1661.
- **Ramchander, S.**, Robin, S and Raveendran, M. 2013. Identification of drought-tolerant genotypes in Backcross inbred lines of rice using drought indices. *Vegetos*, 26 (2): 307 – 311.

- Baghyalakshmi K, and **S. Ramchander**. 2018. Targeted genome editing and its application in crop improvement (Review article). New Age International Journal of Agriculture Research and Development, 2 (1): 9 – 17.

3) Book Chapters Published:

Name of the Book	Title of the Chapter	Year of Publication	Publisher	ISBN No.
Life Science: Research, Practices and Application for Sustainable Development	Genetic analysis of yield and yield components in Jatropha (G.Subashini, N.Manivanan, M.Paramathma and S.Ramchander)	2017	Macmillan Publishers Pvt. Ltd.	ISBN No. 978-93870-0007-0
Plant Breeding (Tamil)	A study on callus induction and regeneration capacity in rice (Tamil) (S.Ramchander, K.Baghyalakshmi, D.Dhivyapriya and S.Aiyaswaraya)	2017	Thannambikkai offset printers	ISBN No.978-93-87314-01-6
Bio-stimulants in Crop Protection	UNDERSTANDING BIO- STIMULANT ACTIVITIES OF Pseudomonas -A BIOCONTROL AGAINST BROWN SPOT OF RICE	2022	PS, Scientific Publications, India	ISBN: 978-93-91342-85-2

4) Popular articles:

Title	Author's Name	Publisher	Year of Publication
The Classics of Tea (<i>Camellia sinensis</i>)	Baghyalakshmi, K, Ulaganathan, V, Subhashini, G and Ramchander, S	Kisan World (A Journal of Agriculture and Rural Development)	2015
Antioxidants Rich Foods: Importance and their Nutritive	S.Ramchander	AGROBIOS Newsletter	2016

value			
Red Rice Consumption: Add flavour to Healthy life	S.Ramchander	AGROBIOS Newsletter	2016
Dicoccum Wheat and its therapeutic properties	Baghyalakshmi. K, Ramchander.S, Ulaganathan.V and Velprabhakar.S	Kisan World (A Journal of Agriculture and Rural Development	2016