

Resume

Prof. R. K SALGOTRA, Ph.D.

Prof. & Coordinator, School of Biotechnology

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Research Interests: Plant genomics and integration of genomic tools in crop improvement. Molecular breeding for development of crop varieties resistance to biotic and abiotic stresses

SUMMARY

- Research experience in Plant Genomics and Molecular Breeding in rice including Basmati rice, QTL mapping in rice and common bean crops, and Metagenomic approaches for Microbial Characterization of Rhizobacteria.
- Development of rice crop varieties, including Basmati rice for biotic and abiotic stress resistance
- Molecular characterization and Registration germplasm of the region to National Gene Banks and PPV&FR, Filing of Products under Geographical Indications (GIs).
- Administrative Experience as Incharge, Advanced Centre for Rainfed Agriculture (ACRA), SKUAST-Jammu; Incharge, Pulse Research Sub-Station, SKUAST-Jammu; Nodal Officer, SKUAST-J IPR Cell; Coordinator, School of Biotechnology 2012 to till date; Member of various Statutory, Research and Academic bodies.
- Teaching and Research Experience of more than 22 years, Advising PhD and MSc students.
- Visiting Professor, Louisiana State University, USA; Visiting Professor, Queensland University, Brisbane, Australia; Visiting Professor, Louisiana State University, USA; Visiting Scholar, University of Tennessee, TN, USA

EDUCATION

- **Post-doctorate** under the BOYSCAST Fellowship of DST, University of Tennessee, TN, USA.
- **Norman E Borlaug Fellowship** under USDA, Louisiana State University, USA
- **Ph.D. Genetics and Plant Breeding**, CSK HPKV, Palampur, India.
- **M.Sc. (Agri) Genetics and Plant Breeding**, CSK HPKV, Palampur, India.
- **B.Sc. Agriculture**, CSK HPKV, Palampur, India.
Major: Crop Improvement

PROJECTS/GRANTS

- R & D Centre of basmati rice to enhance the export potential in Jammu region.
- DBT sponsored programme for M.Sc. Biotechnology at School of

Biotechnology, SKUAST-Jammu.

- Funds for Improvement of S&T Infrastructure in Universities and Higher Educational Institutions (FIST)
- Strengthening Institutional Capacities for Delivering Competent Skilled Professionals (Institutional Development Plan of SKUAST-Jammu). NAHEP, ICAR.
- Development of Molecular Laboratory for analysis of Purity of Germplasm of Basmati Rice and Other Seeds
- Development of semi-dwarf blast and bacterial blight resistant version of Ranbir Basmati by marker assisted backcross breeding

International

- Identification of causal SNPs in promoter sequence of Co-5 and development of functional gene-based markers for anthracnose resistance in common bean (*Phaseolus vulgaris* L.) (DST India-Mexico Programme)
- Identification and characterisation of phytosulfokine receptor kinase gene family of rice vis-à-vis *Arabidopsis* and elucidating its role in abiotic stress tolerance (DBT South Asian University)

Selected Research Articles

- Chauhan, B.S., Kaur, V. and Salgotra, R.K. (2022). Genetic diversity and population structure analysis to study the evolution of herbicide resistance in *Echinochloa colona* ecotypes in Australia. *Acta Physiologiae Plantarum* 44:32 <https://doi.org/10.1007/s11738-022-03366-x>
- Gupta, C., Salgotra, R.K., Damm, U. and Rajeshkumar, K.C. (2022). Phylogeny and pathogenicity of *Colletotrichum lindemuthianum* causing anthracnose of *Phaseolus vulgaris* cv. Bhaderwah Rajmash from northern Himalayas, India. *3 Biotech* 12:169 <https://doi.org/10.1007/s13205-022-03216-0>
- Jasrotia, S., Salgotra, R.K., Sharma, M. (2021). Efficacy of bioinoculants to control of bacterial and fungal diseases of rice (*Oryza sativa* L.) in northwestern Himalaya. *Braz J Microbiol* 52, 687–704. <https://doi.org/10.1007/s42770-021-00442-1>
- Salgotra, R. K., Gupta, B. B., Javaid Akhter Bhat, Sandeep Sharma (2015). Genetic diversity and population structure of basmati rice (*Oryza sativa* L.) germplasm collected from North Western Himalayas using trait linked SSR markers. *PLoS ONE* 10(7): e0131858. doi:10.1371/journal.pone.0131858
- Sakina A, Mir S, Najeeb S, Zargar SM, Nehvi FA, Rather ZA, Salgotra, RK., Shikari, AB.(2020) Improved protocol for efficacious in vitro androgenesis and development of doubled haploids in temperate japonica rice. *PLoS ONE* 15(11): e0241292. <https://doi.org/10.1371/journal.pone.0241292>
- Wali, A., Gupta, M., Gupta, S., Sharma, V., Salgotra, R.K., Sharma, M. (2020). Lignin degradation and nutrient cycling by white rot fungi under the influence of pesticides. *3 Biotech*. 10:266. <https://doi.org/10.1007/s13205-020-02251-z>
- Sudan, J., Singh, R., Sharma, S., Salgotra, R. K., Sharma, V., Singh, G., Sharma, I., Sharma, S., Gupta S.K., Zargar, S.M. (2019). ddRAD sequencing-based identification of inter-genepool SNPs and association analysis in *Brassica juncea*. *BMC Plant Biology*, 19: 594. <https://doi.org/10.1186/s12870-019-2188-x>
- Samal, P., Pote, T.D., Krishnan, S.G., Singh, A.K., Salgotra, R.K., Rathour, R. (2019). Integrating marker-assisted selection and doubled haploidy for rapid introgression of semi-dwarfing and blast resistance genes into a Basmati rice

- variety 'Ranbir Basmati'. *Euphytica*, 215:149.
<https://doi.org/10.1007/s10681-019-2473-7>
- Reetika Mahajan, Zargar, S. M., Salgotra, R. K., Ravinder Singh, Aijaz Ahmed Wani, Muslima Nazir, Parvaze A. Sofi. (2017). Linkage disequilibrium based association mapping of micronutrients in common bean (*Phaseolus vulgaris* L.): a collection of Jammu and Kashmir, India. *3 Biotech.*, 7: 295, DOI 10.1007/s13205-017-0928-x.
- Puja Rattan, Sanjeev Kumar, Salgotra, R. K., Samnotra, R. K. and Falguni Sharma (2014). Development of interspecific F1 hybrids (*Solanum melongena* x *Solanum khasianum*) in eggplant through embryo rescue technique. *Plant Cell Tissue & Organ Culture*. DOI 10.1007/s11240-014-0591-4.
- Salgotra, R. K., Gupta B. B., Reginald J. Millwood, MuthukumarBalasubramaniamand C. N. Stewart, Jr (2011). Introgression of bacterial leaf blight resistance and aroma genes using functional marker-assisted selection in rice (*Oryza sativa* L.). *Euphytica* 187 : 313-323.
- Salgotra, R. K., N. Stewart and B. B. Gupta (2011). High throughput functional marker assay for deduction of *Xa/xa* and *fgr* genes in rice (*Oryza sativa* L.). *Electrophoresis*, 32, 2216–2222.
- Sudan, J., Sharma, S., Salgotra, R.K., Pandey, R.K., Neelam, D. and Singh, R. (2023). Elucidating the process of SNPs identification in non-reference genome crops. *Journal of Biomolecular Structure and Dynamics*.
<https://doi.org/10.1080/07391102.2023.2194002>
- Salgotra, R.K. and Chauhan, B.S. (2023). Genetic diversity, conservation, and utilization of plant genetic resources. *Genes*, 14, 174. <https://doi.org/10.3390/genes14010174>
- Gupta, C. and Salgotra, R.K. (2022). Epigenetics and its role in effecting agronomical traits. *Front. Plant Sci.* 13:925688. doi: 10.3389/fpls.2022.925688
- Zargar SM, Mir RA, Ebinezer LB, Masi A, Hami A, Manzoor M, Salgotra RK, Sofi NR, Mushtaq R, Rohila JS and Rakwal R (2022) Physiological and Multi-Omics Approaches for Explaining Drought Stress Tolerance and Supporting Sustainable Production of Rice. *Front. Plant Sci.* 12:803603. doi: 10.3389/fpls.2021.803603
- Salgotra, R.K. and Stewart, C.N., Jr. (2022). Genetic augmentation of legume crops using genomic resources and genotyping platforms for nutritional food security. *Plants*, 11, 1866.
doi.org/10.3390/plants11141866
- Functional Markers for Precision Plant Breeding. *Intl. J. of Molecular Science*, 21, 4792; doi:10.3390/ijms21134792
- Salgotra, R. K., Gupta, B. B. and Stewart, C. N. (2013). From genomics to functional markers in the era of next-generation sequencing. *Biotechnology Letter* 36(3): 417–426.