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ABSTRACT BOOK

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Genetic improvement of local aromatic rice is hindered due to their cross incompatibility with other rice groups and due to undesirable linkages in the resultant recombinants therefore, research programme involving both *in vitro* culture and conventional breeding methods for genetic enhancement of yield, while maintaining their aroma and taste is required. Out of the 110 aromatic rice genotypes maintained at the Regional Research and Technology Transfer Station, Bhawanipatna (OUAT) comprising of Basmati types, local landraces, traditional and released varieties; 36 local aromatic rice genotypes along with 4 released varieties were chosen. On the basis of genetic variability and divergence study, 10 genotypes were selected for tissue culture while four of these were subjected to *in vitro* mutagenesis using 0.2% EMS. Desirable mutants with increased yield were identified, data for nine quantitative traits studied in M₄ generation of the mutants adopting ANOVA for RBD was analysed. Genetic diversity and multivariate analysis for 9 quantitative characters grouped the forty genotypes into ten clusters and 10 genotypes, (Basumati, Kalikati, Parijat, Kanakchampa, Jeerakasal, Karpurajeera, Parbatjeera, Gangabali, Dhanaprasad and CR Dhan 907) promising and best performing genotype from each cluster, were selected for tissue culture. Four genotypes (Gangabali, Kalikati, Karpurajeera and Basumati) exhibiting >50% shoot regeneration efficiency (SRE) were selected for *in vitro* mutagenesis because SRE is the most important character for selecting a genotype for *in vitro* genetic transformation. As the contribution of individual plant yield sums to produce the final yield so high single plant yield was used as an important selection index for grain yield and on the basis of replicated yield trial values, out of 32 desirable mutants, eleven were identified in the M₄ generation to be advanced to M₅ generation and rest added to the germplasm.

Keywords: Aromatic rice, Genotypes, In-vitro mutagenesis

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Mainstreaming of mountain native crops for Nutritional and Livelihood security in Himachal Pradesh

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Mountain native crops diversity in era of increasing importance of cash crops has taken the back seat despite having high economic, nutritional and climate resilience values. Mainstreaming of six mountain crops namely Red Rice, Kidney Beans, Amaranth, Buckwheat, Barley and Rice Beans was carried out in villages of two Panchyats namely,



Kandhi Kamrunag and Jahal of Gohar Block in Mandi District of Himachal Pradesh (N31°30.409, E77°04.745, altitude between 1800-2500 meter). More than 500 farmers were oriented and involved in baby and crowd sourcing for generating production statistics. In all 109 varieties of six crops were used for baby and crowd sourcing trials. Each variety was tested for 10-15 parameters in these trials. Data was collected with farmer's responses and documented for uploading in ClimMob application for. On the basis of data analysis 17 landraces/varieties of selected six target crops with better performance were identified for further multiplication, value chain and product development. Community seed bank initiated at site was enriched with collection of cereals, non cereals, oil crops, vegetables of mountain areas and is serving as the feeding centre for the cultivation of target crops by the farmers in future. Farmer producer Company was incorporated for taking up the complete model from production to marketing of the farmers produce with new brand and packaging having nutritional profile as per FSSAI standards for the products of Red Rice, Kidney Beans, Buckwheat, Barley, Rice Beans and Amaranth. Infrastructure facility for de-husking of Red Rice, showcasing of products and Community Seed Bank were also developed for long term sustainability. It is anticipated that selling of product as brand in good packaging with nutritional profiling will increase farmers returns equivalent or more than commercial crops. This model is expected to empower mountain communities for nutritional and livelihood security with mitigation of women drudgery and climate change.

Keywords: Native crops, Landraces, Community seed bank

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National Herbarium of Cultivated Plants (NHCP): Towards preservation of crop genetic resources

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The National Herbarium of Cultivated Plants (NHCP) is one of the major 25 herbaria in India which is focussing on preservation of crop taxa and crop wild relatives (CWR). It is located in the ICAR-National Bureau of Plant Genetic Resources, New Delhi and holds more than 25,000 specimens belonging to the 4,378 taxa (including species, subspecies and varieties), 1,546 genera and 267 families. In addition to this, economic seed samples and carpological samples also preserved as supplementary collection to facilitate identification of taxa and served as repository for identification, taxonomic study and for teaching. The vouchers of cultigens, cultivars, as well as wild relatives of crops are represented in the repository. The NHCP differs in its mandate from the general herbaria across the country in representing wide range of variability in crop plants depicted as cultivars, primitive types/ landraces, wild/semi-domesticated forms and crop wild relatives (CWR)/ weedy types and also the minor economic species collected from different agro-ecological regions of India under various PGR programmes. Significant