

IFAR – IPGRI SMALL GRANT PROGRAMME

Interim Report

Project Title:

Characterization of Genetic Diversity of Finger millet – *Eleusine coracana* (L.) Gaertn.
[African millet, Finger millet, Ragi]

Applicant:

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IPGRI Supervisors:

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ICRISAT and MSSRF supervisors:

Dr. H.D. Upadhyaya, Principal Scientist, Genetic Resources , ICRISAT, Patancheru, Andhra Pradesh, India

Dr. M.S. Swaminathan, Chairman, M.S. Swaminathan Research Foundation (MSSRF), Chennai, Tamil Nadu, India

Programme of Work:

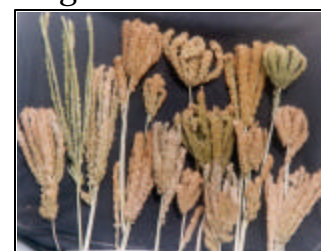
- The objective of the study is to undertake characterization of the finger millet collection held in the ICRISAT Gene Bank in order to identify suitable varieties for effective utilization, better yield, better cooking and eating quality and resistance to biotic and abiotic stresses. The study will identify suitable varieties for fitting into the diverse cropping systems /agroecological conditions in India.

IFAR's Objective:

- The study will address the objective of the IFAR's small grant programme to foster scientific excellence by identifying the suitable varieties for various important specific characters, which is essential for present and future use.

Research focus and methodology:

- **Focus:**
 - The research focused on the characterization of genetic diversity of finger millet germplasm stored in the genebanks at ICRISAT, Pattencheru and MSSRF, Chennai.
- **Methodology:**
 - For the present study, 150 accessions from ICRISAT genebank and 35 accessions from MSSRF gene bank have been used.
 - Field trials have been conducted at ICRISAT locations and MSSRF field site - Namakkal in Tamil Nadu state.



Field characterization data collection:

The following characters were recorded

Morphological and agronomic traits using IPGRI descriptors

- Plant height, days to flowering, total tiller number, number of productive tillers, ear shape, finger branch, finger length, finger width, spikelet shattering, number of grains per spikelet, grain colour, 1000 grain weight, grain yield per plant and total dry forage yield – using IPGRI descriptors for finger millet
- Organic fertilizer
- Score for resistance to disease
- Selection for eating and cooking quality



Deliverables:

- The present study will generate and facilitate utilization of germplasm conserved in the gene bank and will also identify the potential use of varieties for the crop improvement programme for sustainable increase in food production. The study will also identify varieties possessing eating and cooking quality, high yield potential and adaptability to diverse macro-climatic conditions with specific tolerance and resistance to disease. This study will report on the characterization of the world collection of finger millet.
- The study will enhance the professional development of the applicant. The collaboration with both IPGRI and ICRISAT will provide technical backstopping to the applicant with regard to characterization methodologies, tools and analyses of data.

Final Report:

- Accessions taken for characterization include both early and late maturing varieties. Since late maturing varieties have been harvested in the month

of January 2005 and the data is being processed, the final completion report will be submitted later.

- Based on the request, no cost extension has been permitted and the final report shall be submitted in March 2005.

Preliminary findings from the work so far

Some of the accessions matured early and some accessions matured late. Hence harvesting was done in different times. No pest or disease attack was noticed.

Observations recorded on finger types and spikelet arrangement as indicated: Finger types - long open fingers, short open fingers; spikelets in clusters; spikelets serially arranged; spikelets numerous and clustered; large pointed glumes; inflorescence axis divided at base - ascending and incurved at tip; inflorescence branches reflexed; curved; twisted; top curved.



One-day meeting for farmers' interaction was organized at the time when crops were in the field. Farmers have identified few lines of their choice for better cooking and eating quality. There were 45 lines identified by farmers. Plant height, panicle length & compactness, grain color, grain taste by crunching, number of grains per panicle are the characters used by farmers while selecting the lines. Based on the interaction, it was decided to conduct test on eating and cooking quality at the time convenient to them. The methods of preparation, taste preferences, and other relevant cooking aspects related the 14 selected lines were recorded.



