

## **Study of conservation measures of Germplasm in the form of seeds of local food plants in reference to East Nimar area (MP)**

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### **Abstract**

Desi or local seeds are well suited to local agro-climatic situation, but it is seen that damage to our indigenous biodiversity of plants has accelerated in the past five to ten years. In Nimar region specially in tribal rural areas, many unique fruit, fodder, crop and vegetable plants were noted as local varieties but now a days their frequency become less and less due to many reasons. Establishment of local seed bank in the area may provide one solution for conservation of the unique germplasm of plants in the form of seeds.

**A** seed is the ripened ovule of a flowering plant containing an embryo and capable normally of germination to produce a new plant. Seeds are of immense biological and economic importance. They contain high protein, oil, starch as reserve that help in the early stages of growth and development in a plant.

Seeds fundamentally are means of reproduction, because each seed is a living plant capable of exhibiting almost all the processes found in a mature plant. Conservation of seed is very important as a mean of protecting our natural heritage. Collection of seeds stored for short to long term helps prevent the extinction of native plant species. Establishment of seed bank provide conditions necessary for the

longevity of seeds. Seeds are stored under low temperature that keep seeds dormant till they are needed for replanting. Seed banks help to preserve crop diversity, provide protection from climate change and natural disaster.

Many plants that were used centuries ago by humans are used less frequently now.<sup>2</sup> Seed bank offer a way to preserve historical and cultural values. Seed banks are considered as seed libraries containing valuable information about evolved strategies to combat plant stress and can be used to create genetically modified versions of existing seeds. Nimar region is situated in the south west part of Madhya Pradesh lying between 21°-05' N latitude and 74°-25' to 76°-14' E longitude. The whole area is occupied by black cotton soil and the area is arid and dry. The vegetation

and flora of the area is rich and diverse.<sup>5</sup> There are certain unique local plant species in the rural areas and field areas which are important as food, fodder, crop or vegetables. The present study is aimed to analyse these plants in the area, as they require conservation and one of the ways is through establishment of seed bank. Many plants of the area became less frequent which were used centuries ago. So establishment of seed bank is a way to preserve such historical and cultural values.

The data was collected from farmers and the information was collected through baseline survey and checklists. Plant species were analysed season wise and identified with the help of relevant literature.<sup>4,6</sup> Five sites were selected, they were site 1 – village Palasi, site 2- village Titiya joshi, site 3-village Bhandariya, site 4- village Korgala and site 5- village Bherukheda. Elderly people of selected sites were visited to access more information.

Table-Local Food Plants at different sites

S. no.	Plant Local name	Plant species	Family	Category	Site 1	Site 2	Site 3	Site 4	Site 5
1	Desi Aam (mango)	<i>Mangifera indica</i> L.	Anacardiaceae	Fruit	+	+	+	+	+
2	Desi Ber	<i>Ziziphus</i> sp.	Rhamnaceae	Fruit	+	+	+	+	+
3	Jamun	<i>Syzygiumcumini</i> L.	Myrtaceae	Fruit	+	+	-	-	+
4	Khajur	<i>Phoenix dactylifera</i> L.	Arecaceae	Fruit	-	-	-	+	+
5	Karonda	<i>Carissa carandas</i> L.	Apocynaceae	Fruit	+	+	-	-	+
6	Desi cotton	<i>Gossypium</i> sp.	Malvaceae	Crop	-	-	-	-	-
7	Desi wheat	<i>Triticum</i> sp.	Poaceae	Crop	-	-	-	-	-
8	Desi jowar	<i>Sorghum</i> sp.	Poaceae	Crop	-	-	+	-	+
9	Tori	<i>Luffa acutangula</i> Roxb.	Cucurbitaceae	Vegetable	+	+	-	-	+
10	Tumbi	<i>Lagenaria siceraria</i> L.	Cucurbitaceae	Vegetable	+	-	-	-	-
11	Desi tomato	<i>Lycopersicon esculentum</i> Mill.	Solanaceae	Vegetable	-	-	+	+	-
12	Kachari (Dangari)	<i>Cucumis melo</i> (agrestis)	Cucurbitaceae	Vegetable	+	+	+	+	+
13	Kakoda	<i>Momordica dioica</i> Roxb.	Cucurbitaceae	Vegetable	+	-	-	+	+
14	Kanduri	<i>Coccinia</i> sp.	Cucurbitaceae	Vegetable	+	+	+	+	+

15	Bhura kaddu	<i>Benincasa hispida</i> Thunb. Cogn.	Cucurbitaceae	Vegetable	-	-	-	+	-
16	Amari bhaji	<i>Abelmoschus</i> <i>sabdariffa</i> L.	Malvaceae	Vegetable	+	+	+	+	+
17	Gol bhaji	<i>Portulaca</i> sp.	Portulacaceae	Vegetable	+	-	+	-	-
18	Chirota bhaji	<i>Cassia tora</i> L.	Fabaceae	Vegetable	+	+	+	+	+

Site:- 1-village Palasi, Site 2-village Titiya joshi, Site 3-village Bhandariya, Site 4- village Korgala, Site 5-village Bheru kheda. (+ indicates plant species present & - indicates plant species not found).

Hybrid seed production is predominant in the modern agriculture. It is the main contributor to the drastic rise in agricultural output. Hybrids are chosen to improve characteristics of the plants as better yield, disease resistance, and drought resistance, improve ingredient quality and colour, but seeds of next generation from hybrids will not consistently have the desired characteristics. Desi seeds are well suited to local agro climatic situations.<sup>1,3</sup>

In the different sites of the fields of the area it was noted that the frequency of the plants as desi cotton, local varieties of wheat and jowar, vegetables like *tori*, *desi brinjal*, *kachari*, *kakoda*, *kanduri*, Amari and *Gol bhaji* etc. become less and less. These are seen in tribal areas mainly, where irrigation facilities are not available. Farmers also do not adopt these crops due to low productivity. Even many people of the young generation were unable to identify them easily or they never use these plants or their parts. Local varieties of wheat as pissi and lal gehu (red wheat) seeds were not found at any place. Desi fruit plants were

noted, only where they were existed previously, now farmers plant only hybrid varieties of fruits. Some local vegetables as *jhumaki tori*, *Abhayi falli*, varieties of *sem* and *sangri* not seen at any site. Seed bank at local level in the area is essential, as it provides conditions necessary for the longevity of the seeds. Seed banks provide protection from the climate change, natural disasters and provide seed materials for research. So there is a need to establish a seed bank in the area to have available genes that plant breeders need to increase yield, disease resistance, drought tolerance, nutritional quality, taste etc. of crops and to forestall loss of genetic diversity in rare or imperilled plant species in an effort to conserve biodiversity *ex situ*. The young generation should know about local varieties of plants and their importance. Field day organisation is also helpful to show performance of desi seeds and it may develop awareness in people. Storage of seeds and other propagules of these plants should be encouraged and traditional methods of storage should also be used.

References :

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