

PLANT GENETIC DIVERSITY COLLECTED IN CENTRAL INDIA

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Central India is occupied by several major regions viz., Grid region, Malwa plateau, Narmada valley, Satpura ridge, Chhattisgarh plains in Madhya Pradesh; Vidarbha, Khandesh, Marathwada and Konkan in Maharashtra. It also includes the adjoining regions of Andhra Pradesh and north-west region of Karnataka. To its west are the Western Ghats or Sahyadri ranges, which are enriched for genetic diversity of sesame, okra, rice, horsegram, pigeonpea, chickpea, groundnut, sorghum, castor, niger, little millets, safflower, vegetables, medicinal plants and their wild relatives. Major river basins are Krishna basin, Bhima basin, Godavari basin, Wainganga basin and Tapi Purna basin in Maharashtra. Soils are mostly derived from basalt rocks, have given rise to well known group of soils Alluvial and saline soils are in coastal areas of Maharashtra. The altitude ranges from 0 (sea coast) -1200, (Sahyadri hills) in Central India.

Germplasm collection

A total of 30 exploration trips for crop-specific and multicrop collection were undertaken to various parts of Maharashtra, Madhya Pradesh, adjoining parts of Andhra Pradesh, Karnataka and Gujarat. The explorations were for multicrop (16) and crop-specific (14) which includes explorations in collaboration with National and International organisations. Six collection trips were undertaken in collaboration with DRR, Hyderabad for wild rices in Maharashtra; ICRIAT, Hyderabad for pearl millet and millet in Maharashtra; CRIJAF, Barrakpore and PKV, Akola for chillies in Madhya Pradesh and Maharashtra and NRC- Soybean, Indore for soybean in Malwa region of Madhya Pradesh. Six crop specific explorations were undertaken for collection of sesame, okra and eggplant under NBPGR/IPGRI collaborative programme. The exploration details are presented in Table 1.

Table 1. Diversity collected in different crops in central India

Region explored	Month/year	Samples collected	Crop diversity
MS, MP & parts of AP	May, 1981	2359	Cereals, millets, legume, oilseeds, onion/garlic
S-E MP (Chhattisgarh)	Oct, 1981	671	- do -
S-E MP (Bastar)	Oct, 1981	828	- do -
West Maharashtra	Oct, 1986	266	Oil seeds & legume
Maharashtra & Karnataka	Sep, 1987	308	Millets, fibre, oilseeds & legume
C-W Maharashtra	Dec, 1987	195	- do -
Eastern, Maharashtra	Feb, 1988	243	- do -
N Karnataka & Maharashtra	Apr, 1988	131	- do -
Eastern, Maharashtra	Oct, 1988	15	Oilseeds & pulses
Eastern, Maharashtra	Oct, 1988	177	Wild rice
S-W Maharashtra	Dec, 1988	37	Pulses & oilseeds
Central Maharashtra	Feb, 1988	176	Oilseeds, pulses and vegetables
Western Maharashtra	Sep, 1989	212	Cereals, millets and pulses
Maharashtra & Karnataka	Dec, 1989	106	- do -
S-W Maharashtra	Mar, 1990	115	Rabi oilseeds
N-W Maharashtra	Apr, May, 1990	117	Pulses, oilseeds and cereals
Eastern Maharashtra	Sep, 1990	66	Sesame
Western Maharashtra	Nov, 1990	84	Fibre crops
Maharashtra & M.P.	Feb, Mar, 1991	200	Eggplant & okra
Eastern Maharashtra	Mar, 1991	116	Lathyrus
Madhya Pradesh	Sep, 1991	87	Sesame
Central Maharashtra	Oct, 1991	155	Sesame
Central Maharashtra	Oct, Nov, 1991	31	Oilseeds
N-W Maharashtra	Nov, 1991	27	Okra
Eastern Maharashtra	Mar, 1992	42	Oilseeds
N-W Maharashtra & part of Gujarat	May, 1992	52	Lucern
C-W Maharashtra	Oct, 1992	80	Sesame
Eastern & Central Maharashtra & MP	Jan, 1993	80	Chillies
Malwa region of MP	Oct, 1993	73	Soybean
	Total	7074	

Table 2. Yearwise collection of genetic resources of crop plants from central peninsular India

Crop group	Name of the crop	1981	86	87	88	89	90	91	92	93	Total
Cereals/ pseudo- cereal	Paddy, wheat, maize, barley, Amaranth	291	43	19	111	63	25	-	-	-	552
Millets/ minor millets	Sorghum, pearl millet- <i>Eleusine</i> , <i>Paspalum</i> , <i>Panicum</i> , <i>Setaria</i> , <i>Echinochloa</i>	367	46	68	16	130	33	-	-	-	660
Legumes	Kulthi, lentil, cowpea, mungbean, uridbean, kulthi, khesari, ricebean, swordbean, limbabeen, frenchbean, <i>mucuna</i> , gram, soybean, lablab bean	1185	61	215	272	66	158	-	-	-	1957
Oilseeds	Sesame, ground- nut, niger brassicas, castor, safflower	558	66	90	128	115	108	301	80	73	1519
Bulb- crops	Onion, garlic	537	1	15	2	-	1	-	-	-	556
Vege- tables	Eggplant, chillies, tomatoes, okra, bittergourd, snakegourd, tinda, guar, ashgourd	669	33	83	82	36	229	67	80	-	1279
Fodder Crops	Lucern	-	-	-	-	-	-	52	-	52	
Fire crops	Cotton, sunhemp, jute, kenaf	-	10	3	2	16	53	-	-	-	84
Others	<i>Jatropha</i> , tamarind, <i>dioscorea</i> , tobacco, <i>colocasia</i> , ginger, turmeric, <i>Sesbania</i> , papaya, custard apple, job's tear etc.	221	6	10	40	62	76	-	-	-	415
	Total	3828	266	503	653	488	683	368	212	73	7074

Crop diversity collected

A total of 7074 collections were made in over 65 crops in different crop groups viz, cereal/pseudocereal (552), millet/minor millets (660), legumes (1957), oilseeds (1519), bulb crops (556), vegetables (1279), fibre crops (84), forage crops (52) and others (415) from 2588 collection sites. The samples were taken from threshing yard, farm store and weekly village market also. An effort was also made to collect maximum information on the samples collected. Maharashtra and adjoining areas have maximum diversity of crops viz., sesame, rice, horsegram, pigeonpea, chickpea, groundnut, sorghum, castor, niger, finger millet, foxtail millet, little millet, Amarnath, safflower etc. in agricultural crops; okra eggplant, luffa, gourds, lablab bean, jute and sunhemp in fibre crops; lucern in forage crops. An extra care was taken to collect maximum variability for different traits from large populations. The variability collected was for plant type, plant habit, earliness, high bearing etc. The details of exploration and collection of genetic resources from Central peninsular India is presented in Table 2.

Landraces collected

The local landraces collected were :

Rice : *Tedki, Hiramoti, Ludka, Luchai, Banceri, Lamba, Dubraj, Cello, Daur, Varangal, Columba, Kolhapuri, Kalakaushal, Tamsali, Tamde, Madhuwa, Velvak, lal-umri, Telachi, Tamugudya, Ziri, Ambemohar, Kalinga, Colam, Radhanagri, Phonda, Dhansal, Vaksal, Ranchandra, Navsal, Panch, Masura, Laldhan, Kudai, Dangi, Kodpi, Kamodpandhra, Kamod-lal, Lalsal, Kalabeda, Pandhribeda, Kalabhat, and Majhrail;* Sorghum : *Multi, Dagri, Rao-saheb, Dadar, Maldagri, maldandi, Piwli;* wheat: *Bakshi, Rohila, Bansi, kalakaushal;* groundnut: *Chitra, Pasri, Yarandi, Japani;* brinjal: *Baramasi-hara, Champion, kalindi, kateli, Baramasi, Bengali, Bhohri, Parcel, Kaccharia bhata, Gajni, Golenda, Navrang, Gulabi, Langi, Chopra, Chikni, Ringna;* chickpea: *Chunoli, Sole, Katesole, Lakhya and Madrasi chana;* chillies: *Longi, Paratwada local, Karanja local, Achari, Bihali local, Divani local, Bhiwapuri, Kali, Pandi, Jarela, Batka, Khurasni and Lavangi selapur local;* sesame: *Maghai, Hawri, Nanderi, Tidki, Gopi, Gopya, Dhawdi, Deepali, Heori, Gujarat til, Punjab til, Bhorl and Ghirdi and soybean: Kalitur and Dhusia*

Wild relatives collected

Wild relatives of various crops were also collected during explorations i.e., *Vigna trilobata, Vigna umbellata, Pennisetum hohenackeri, Abelmoschus manihot, A. ficulneus, A. tetraphyllus, A. moschatus, A. tuberculatus, Carthamus oxycantha, Sesamum mulyanum, S. indicum (black seeded wild), Echinochloa crus-galli, Solanum torvum, S. surattense, S. khasianum, Corchorus capsularis, C. trilocularis, C. olitorius, Hibiscus surattense, Oryza nivara, Tephrosia purpurea, Atylosia scarabaeoides, Canavalia gladiata, Jatropha curcas, Physalis peruviana and Ocimum species.*