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COLLECTION OF RICE GERMPLASM FROM ADILABAD DISTRICT, ANDHRA PRADESH, INDIA

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In an exploration undertaken in Adilabad district of Andhra Pradesh a total of 107 accessions of rice and nine wild *Oryza* species were collected from 41 sites. A wide range of variability was observed in plant and panicle morphological characteristics. The germplasm was observed to possess tolerance to abiotic stress in addition to kernal quality. A number of landraces of rice grown in the region were sampled.

Key Words : Collection, landrace, rice germplasm

Andhra Pradesh has been identified as an ecological area, rich in rice germplasm with tolerance to abiotic stresses (Chang and Perez, 1975). The national priority for exploration and collection for rice is also high (Anonymous, 1980). In order to collect and conserve the prevailing endemic genetic diversity in rice, a survey was undertaken by the National Buerau of Plant Genetic Resources (NBPGR), Regional Station, Hyderabad in November, 1994 in the Adilabad district of Andhra Pradesh in collaboration with Andhra Pradesh Agricultural University (APAU), Agricultural Research Station, Maruteru.

MATERIALS AND METHODS

Agro-Ecology

Adilabad, the northern most district of Telangana region in Andhra Pradesh, is hilly, and bordering with Maharashtra state. It is inhabited by Savaras, Gonds and other tribals. The district is divided into 52 Mandals and half of the area is covered by forests. Ninety two per cent of the cultivated area is rainfed (Anonymous, 1990). Rice is mainly grown as a rainfed crop

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under subsistence conditions. The farmers still predominantly grow traditional varieties which have been, over a period of time, well adapted to the conditions and are resistant to moisture stress, diseases and pests and require very low inputs.

The explored area is an intermittently semi-wet and dry, an average annual rainfall between 900-1150 mm. The mean annual temperature varies between 21-37°C. The soil was mainly black clay.

Collection Strategy

An intinerary was prepared for the collection of the rice germplasm in consultation with research institutes, Andhra Pradesh state Department of Agriculture, Hyderabad and the areas covered are given in Fig. 1. Farmer's field was taken as a unit area and random samples from the populations and biased samples of the elite material were collected (Chang, 1976, Chang *et al.* 1972, Pandravada and Reddy, 1990). Germplasm samples were also collected from threshing yards and farm stores. Each germplasm sample was given a collector number and passport information was also recorded.

RESULTS AND DISCUSSION

A total of 107 accessions of rice germplasm were collected from 41 sampling sites. The important land races collected were, *Budivivadlu, Cherukuluchchalu, Chinnaluchchalu, Dhaniyamvadlu, Erravadlu, Garikalu, Moddugarekalu, Mukkasolalu, Nallavadlu, Palalutchalu, Pisodeelu, Polalavadlu, Regadivadlu, Tellavadlu, Vattedlu,* etc. and the characteristics are given in Table 1.

Variability observed

Rich variability was observed in maturity duration of rice germplasm varying from (60-150 days), penicle length, compactness; number of grain/penicle, and other seed characteristics. Most of the cultivars are grown as rainfed except few which are under semi-irrigated/irrigated conditions. As per the height, the cultivars has been classified into medium-tall and tall groups. Majority of the cultivars fall under medium-tall category. The glume colour is mainly brown, black, red and in different combinations of the above colours. The landrace, Dhaniyamvadlu (SMS-4150) possessed brown glumes with blackish-purple tips. Among the germplasm collected, 40% possessed awns. Variability in awn colour was also noticed.

Variability in grain shape and size includes very long slender, long slender, long bold, medium-long slender, medium-long bold and short bold types. The kernel colour varied from white to red. The yield potential of the germplasm varied from 2-19 quintals per acre as reported by farmers.

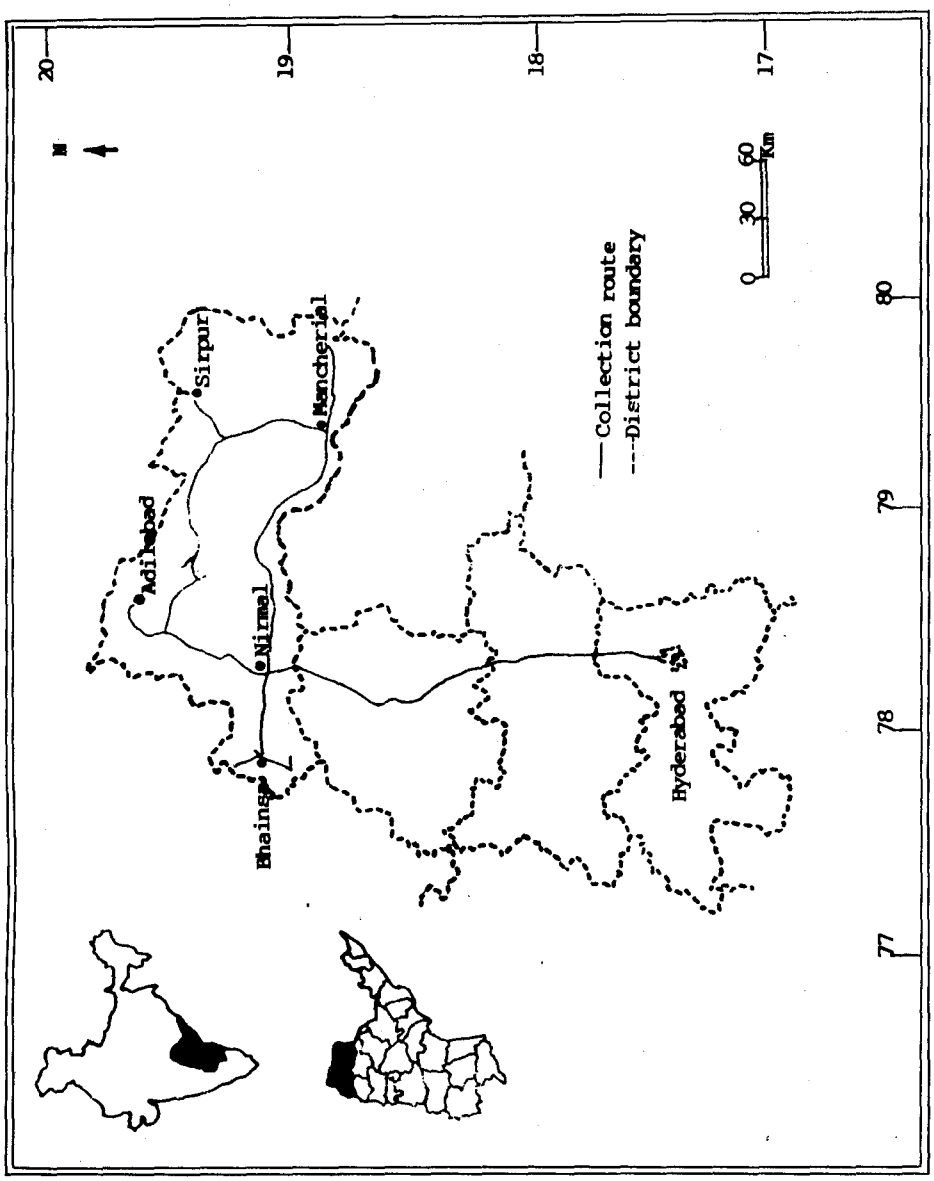

Fig. 1. Exploration route for collection of rice germplasm from Adilabad district of Andhra Pradesh.

Table 1. Characteristics of landraces of rice collected from Adilabad district of Andhra Pradesh, India

Landrace	Characteristics
ATTEDLU	90-110 days maturity, brown glume, short bold grains, red kernel, awned.
BAKKAMASOORI	150 days maturity, medium slender grains, white kernel, non-scented.
BASTARLU	135 days maturity, straw glume, fine grains, white kernel.
BEETLU	90 days maturity, long slender grains, white kernel.
BOFADAVADLU	80 days maturity, long slender grains, awned, white kernel.
BUDIVIVADLU	100 days maturity, straw glume, short bold grains, redkernel.
CHAINA	90 days maturity, straw glume, awned, white kernel.
CHINNALUTCHCHALU	135 days maturity, medium slender grains, straw glume.
CHERUKULUCHCHALU	90-125 days maturity, medium slender grains, white kernel.
DHANIYAMVADLU	120 days maturity, medium bold grains, brown glume, scented.
ERRAVADLU	120 days maturity, medium slender grains, brown glume, red kernel.
GARIKALU	90-95 days maturity, straw glume, medium slender grains, red kernel.
KAKKIREKALAVADLU	120 cm tall, black glume, scented.
KOOKUMBANTHULU	110-115 days maturity, straw glume, awned, red kernel.
LALDHAN	90 days maturity, brown glume, medium slender grains, awned, red kernel.
LUTCHCHALU	110-120 days maturity, straw glume, medium slender grains, fine rice.
MODDUGAREKALU	120 days maturity, brown glume, red kernel, bold grains.
MUKKASOLALU	75 days maturity, brown glume, short bold grains, white kernel.
MULLODLU	60 days maturity, white glume, red kernel, awned.
NALLAVADLU	90-100 days maturity, black glume, red kernel, medium slender grains.
PALALUTCHCHALU	125 days maturity, straw glume, very fine rice, white kernel.
PANTHABHOG	100 days maturity, brown glume, white kernel, irrigated & rainfed rice.
PISSOLAVADU	Straw glume, medium slender grains, awned, whiter kernel.
POLALAVADLU	90 days maturity, straw glume, awned, white kernel.
RAGGALVANGI	95 days maturity, brown glume, white kernel.
REGADIVADLU	120-130 days maturity, straw glume, white kernel.
SOMALUCHCHALU	12 days maturity, brown glume, fine rice, red kernel.
TELLAVADLU	90-95 days maturity, short, bold grains red kernel.

The farmers to continue to grow the above landraces due to its adaptability in their climate, low input requirements, quality and taste of the rice tolerance/resistance to different biotic/abiotic stresses.

The interesting landraces included SMS-4150 (Dhaniyamvadly), SMS-4162 (Kakirekkalavadlu) and SMS-4163 for aromatic rice; SMS-4192 (Panthabhog) and SMS-4194 high yielding; SMS-4130 (Mullodlu) short duration cultivar maturing in about 60 days and SMS-4176 (Polalavadlu) an introgressed form between *O. sativa* and *O. rufipogon*. SMS-4202 (Somaluchchalu) and SMS 4214 (Safed) besides drought tolerance have very fine grain type. The rice germplasm collected from this region is a good source for drought tolerance.

The germplasm has been shared with Andhra Pradesh Agricultural University, Agricultural Research Station, Maruteru, Andhra Pradesh. A part of the collected germplasm have been conserved in National Gene Bank, National Bureau of Plant Genetic Resources, New Delhi.

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