

ABSTRACT FORM

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Comparative analysis of allelic diversity of Indian greater yams

Sheela, M.N¹, Gemma Arnau², Abraham, K¹. and Sreekumari, M.T¹.

Molecular characterization of the genetic diversity of Asiatic yam (*Dioscorea alata* L.) was initiated jointly by the Central Tuber Crops Research Institute (CTCRI), India and Centre de Cooperation Internationale en Recherche Agronomique pour le Developpement (CIRAD), France, using microsatellite markers under the project sanctioned by the Indo-French Centre for the Promotion of Advanced Research (IFCPAR/CEFIPRA). Eighty seven accessions collected from six yam growing states of India were used for diversity analysis. Genotyping was carried out using a multiplex panel of three microsatellite markers, Da3G04, Da2F10 and Da1F07 labeled with the fluorescent dyes. The data were compared with results obtained from Pacific collections. Both Indian and Pacific collections gave amplification of ten alleles with the highly polymorphic primer Da3G04. The size range between smallest and largest allele obtained for Da3G04 was 40bp. Two rare alleles (301bp, 318bp) were present only among Indian accessions while another two rare alleles (296bp, 311bp) were present only among the Pacific accessions. The allele, 307bp, was predominant among both the sets of germplasm. Majority of the Indian accessions (63 Nos) had the allele, 298bp, while only three Pacific accessions had the same. Da 21 (Chuvanna muramchari) was found to be a highly divergent accession even amplifying a unique band of 278bp. Most of the accessions of Indian origin were found to be either diploids or tetraploids amplifying either 1 or 2 alleles. Out of the 15 alleles amplified by the highly polymorphic primer Da2F10, ten were found among Indian accessions. Five alleles (114bp, 123bp, 127bp, 143bp, 148bp) present in a few accessions of Pacific origin were not found in Indian accessions tested. More than 60 percent of the Indian accessions had two alleles (132bp, 141 bp) and these were rarely present in three Pacific accessions. The third marker of the multiplex, Da1F07 amplified only one fragment (213bp) and was not suitable for studying the molecular diversity of Indian accessions. Thirty two Pacific collections had an allele of 314bp of the marker Da3G04 which was also present in a few collections from North east viz. Nagaland, Meghalaya and Assam but not present in collections from South India. The finding that the Indian accessions are different from Pacific accessions with respect to some common alleles indicates the diversification of greater yam in the Pacific regions and Indian centre. Six highly divergent fertile males having good tuber shape viz. Da 102, Da 97, Da119, Da, 165, Da 166 and Da 175 were identified among Indian accessions that could be used in hybridization programme for developing elite hybrids.

Address of the presenting author:

¹ Central Tuber Crops Research Institute, Sreekariyam, Trivandrum , 695 017, Tel:2598551 Fax : 0091-471-2493733

² Centre de Cooperation Internationale en Recherche Agronomique pour le Developpement (CIRAD), Station de Roujol, Guadeloupe, French West Indies

Address: CTCRI, Sreekariyam, Trivandrum , 695 017

Tel:2598551 Fax : 0091-471-2493733 E-mail:....sheelacteri@yahoo.co.in

The Secretary

Indian Society for Root Crops, Central Tuber Crops Research Institute

Sreekariyam, Thiruvananthapuram-695 017, Kerala, India.E-mail: istrctcri@yahoo.co.in Fax: + 91-0471-2590063