Dr. H.N. de Silva.
Ms. T.D. Silva.

ABSTRACT

The genus Musa belongs to the Family Musaceae. Musa is dimided into four section, of which Eumusa contains the great majority of the edible bananas. Majority of edible bananas have had their origin from only two wild species, Musa acuminata (AA) and Musa balbisiana (BB). According to the contribution made by these two wild species, the edible banana cultivars can be genetically classified into six different groups, i.e. AA, BB, AB, AAA, AAB and ABB.

An important aspect of the study of plant genetic resources is the characterization and evaluation of the different accessions of the crop under study. The International Board for plant Genetic Resources (IBPGR) encourages the characterization of accessions on a universally understood descriptor list, that will produce a rapid, reliable and efficient means for information storage, retrieval and communication. A revised descriptor list has been developed for the characterization of banana germplasm. In this study an attempt was made to characterize the local cultivars according to this format. The chemical composition of the banana fruit is also known to vary between cultivars. Plantain types contain more starch than the common dessert varieties. Therefore, in this study the local cultivars were also compared for certain biochemical constituents in the fruit.

The results of the characterization study indicated that most cultivars could be effectively distinguished by using the IBPGR minimal set of desriptors. Most characters included in this system were also found to be highly heritable. Characters in male and female parts of the inflorescence were found to be of high diagonostic value. There was wide variation amongst Sri Lankan cultivars for most of the characters studied. However, fertile pollen and abundance of seeds in

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fruit, were seen only in one local cultivar, etikehel, which belonged to the diploid BB group. The bracts of local cultivars except that of Binkehel, which is considered to be an introduction, were found to be deciduous. Striking feature of cultivar Muwanetikehel was the absence of the male bud.

For cooking cultivars moisture and starch contents in the fruit varied from 65.53% to 74.38% and 17.78% to 24.38% respectively. Reducing sugar content was around 1%, but non-reducing sugars were absent, In the case of dessert varieties, the variation between cultivars was more significant, i.e., moisture content, 60.7 - 74.2%; reducing sugars, 1.36 - 4.34%; non-reducing sugars, 4.43 - 11.08%; starch, 4.92 - 12.70% and pH, 3.80 - 4.50. Nethrapalam, being a plantain type, had a higher starch content than others.

Grantee: Dr. H.N. de Silva. Grant No: RG/86/B/5

Title of Project: Characterization of Sri Lankan banana germplasm based on morphological, vegetative and biochemical characters.