

Performance of Exotic Mango Genotypes under Bangalore Condition

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Introduction

Mango (*Mangifera indica*) is reported to be native of India and is under cultivation in India for more than 4000 years. Owing to allopolyploidy and cross pollination, India is home to more than 1000 varieties. Though the varietal wealth is quite rich, only about 30 varieties commercially grown and very few of these meet the export standards. This is because much of the indigenous gene pool is yet to be properly exploited for addressing the present day needs. It is believed that the large variability has hindered its improvement (Naik, *et al.*, 1958). Many of the indigenous varieties that were introduced from India during earlier times and their progenies have become commercial varieties elsewhere. Although, growth in mango is genetically controlled, the environmental interaction has brought about changes in growth pattern under different climatic conditions. Hence, some of the accessions behave differently when grown under different climatic conditions. Thus, as a part of crop improvement programme exotic introductions made from various part of the world are being evaluated in the field genebank. Most of these exotic accessions have excellent skin colour. Keeping in view the identification of donor parents for various horticultural traits, the introduced accessions were evaluated for different morphological and fruit quality traits.

Materials and Methods

The materials used for the study consisted of ten exotic accessions viz., Carabao, EC 95862, Kensington, Kitchner, La Resource 1, La Resource 2, Nom Dok Moi, Ostin, Sensation, Tommy Atkins and three popular Indian cultivars viz., Alphonso, Dasehri and Banganapalli collected and maintained in the Field Gene Bank at IIHR, Bangalore. The plants were of uniform age and standard package of practices were followed. The accessions were evaluated for a period of two years from 2001-2003. Observations on morphological and fruit quality parameters were recorded from fully matured fruits adopting randomized complete block design with three replications consisting of five fruits per replication. The means of all characters were subjected to statistical analysis.

Results and Discussion

The genotypes evaluated showed considerable degree of variation in the morphological and fruit parameters. The analysis of variance carried out for the accessions revealed that there was a significant variation for all the characters. The fruit shape was round in EC 95862 and Tommy Atkins, elliptic in Kensington and oblong in other accessions. Similar variation in fruit shape was also reported by Singh (1972) and Sharma (1987). Breeding varieties with attractive skin colour coupled with firm flesh and thick skin helps in meeting the domestic and international demand. The genotypes Ostin and Tommy Atkins possessed attractive red skin thus, could be selected for breeding varieties with attractive red blush. The flesh texture was firm in Kitchner, Nom Dok Moi, Sensation and Tommy Atkins, while the skin was thick to very thick in Kitchner and Sensation. Thus, the genotypes Sensation and Kitchner could be exploited in breeding varieties with good keeping quality. The fruit weight differed significantly among the genotypes. The variety Ostin recorded higher fruit weight (503.3g), which is at par with Tommy Atkins and the popular Indian cv. Banganapalli, while EC 95862 recorded the lowest fruit weight (155g). According to Chadha (1998) major emphasis in the hybridization programme has been large fruits with attractive red skin coupled with good keeping quality. Thus, the accession Ostin and Tommy Atkins could be exploited for breeding of fruits with better size coupled with attractive skin colour. The total soluble solids are an important trait in deciding the fruit quality. The TSS was high (20.7 B) in Nom Dok Moi which was at par with La Resource-2, EC 95862 and Alphonso. On the other hand Tommy Atkins and Kitchner recorded low TSS (15.5 B). Higher percentage of pulp recovery is a desirable trait in breeding (Chadha 1998). It was found to be more in Ostin, Nom Dok Moi and Kensington (>70%), which were at par with Alphonso. Some of the varieties and hybrids have been found to be suitable for processing as they have high pulp recovery coupled with other desirable traits (Doreyappa Gowda *et al.*, 1994; Yadav *et al.*, 1978 and Kalra *et al.*, 1994; Iyer *et al.*, 1991). Hence, selection

of such genotypes helps in higher pulp recovery for processing or for table purpose.

Poor fruit set has been an important constraint in mango improvement (Chadha 1998). The percentage of bisexual flowers is one of the important factors in deciding the fruit set. In the present study it was observed that the per cent bisexual flowers were more (>4.0%) in Kensington, Tommy Atkins and Sensation which were almost at par with the popular Indian cultivar 'Dasehri' (4.33%). Hence, these accessions could help in overcoming the problem of poor fruit set to some extent.

The Co-efficient of variation was more for the characters fruit weight (13.11%) and bisexual flowers (11.10%), which shows that there is wider variability for these characters which helps in selection.

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Field Screening of Strawberry Germplasm for Resistance against Foliar Diseases

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Strawberry (*Fragaria x ananassa* Duch) is an important soft fruit grown throughout the country. It belongs to family Rosaceae and is derived from the hybridization of two native American species namely, *F. chiloensis* Duch and *F. virginiana* Duch, which was first developed in France in the 17th century (Sharma and Vamdagni, 2000). Delicate in flavour and rich in vitamin and minerals, strawberry is now a favoured food in the diet of millions of people around the globe. It can also be processed into a series of products through various processes such as canning, drying, freeze-drying, candying, freezing and jam making etc. Strawberry is attacked by a number of foliar diseases (Bose, 1970; Lele and Phatak, 1965), amongst these, foliar diseases, leaf spot and blight are of utmost importance (Bhardwaj *et al.*, 1998). Keeping in view the seriousness of these foliar diseases, an attempt has been made to screen the various lines for durable resistance of strawberry.

Evaluation of Germplasm

Thirty-five genotypes of strawberry including commercial varieties, local collections and breeding lines were screened for resistance against foliar diseases under natural epiphytotic conditions. The experiment was laid out in a Randomized Block Design with three replications at the University research farm of Dr. YS Parmar University of Horticulture and Forestry, Nauni (30° 52'N, 77° 11'E, 1270 amsl) (Himachal Pradesh) during 2003. All the recommended agronomical practices were followed in raising the crop, except application of fungicides in controlling the leaf spots. The screening was done on the basis of consecutive observations on occurrence of the above diseases in each genotype throughout the growing period. A 0-5 point scale was used for recording the disease severity. The percent disease index (PDI) was calculated as per McKnney, (1923).