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Studies on Self-incompatibility in Mango (*Mangifera indica* L.) Germplasm

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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Short Research Article

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ABSTRACT

The investigation was carried out during the period 2022-2023 at Mango Research Station, Nuzvid, Eluru District, Andhra Pradesh. In the present study among the genotypes evaluated, six genotypes *viz*., F-4 (47.22%), G-19 (39.38%), D-13 (30.98%), C-24 (25.35%), E-2 (25.13%) and H-16 (22.43%) recorded higher fruit set percentage than best check Chinnarasam (16.56%). Whereas the lower fruit set percentage was recorded in H-32 (2.23%).

Keywords: Mangifera indica; self-incompatibility; fruit set percentage; genotypes.

1. INTRODUCTION

Mango (*Mangifera indica* L.) is the most nutritive and delicious fruit crop belonging to the Anacardiaceae family and originated in Indo-Burma region. Due to its popularity and importance, mango is often named 'King of fruits' for its luscious flavour and taste. It is recognized as the pride fruit of India, being the richest source of vitamin A (4800 I.U.), vitamin C, minerals and other nutrients [1] India, mango is cultivated in an area of 2325 thousand hectares with production of 208.99 lakh tonnes and 9.0 MT/ha productivity. The major mango-growing states in India encompass Uttar Pradesh, Karnataka, Andhra Pradesh, Telangana, Bihar, West Bengal and Gujarat *etc*. Notably, in Andhra Pradesh it is cultivated in an area of 378.94 thousand ha, yielding a production of 4926.22 MT and productivity of 13 MT/ha (NHB Data base, 2020-21). Low productivity of some mango cultivars is associated with low fruit set and high fruit drop of immature fruits. Self incompatibility is reported as the serious factor affecting low fruit set in many mango cultivars [2-8]. Self incompatibilty was reported in several commercial Indian mangos such as Bombay Green, Chausa, Dasheri and Langra [9-10].

2. MATERIALS AND METHODS

The experiment was laid out in an Randomised Block Design consisting of 36 genotypes and 4 checks *viz*., Banaganapalle, Chinnarasam, Jalal and Suvarnarekha with 3 replications [11].

2.1 Bagging Methodology

When the panicle reaches maturity *i.e.* 10% of the flowers are opened, the opened flowers are removed and the panicle is covered with a muscline cloth bag. After 15 days of bagging the per cent fruit set was recorded [12-13].

3. RESULTS AND DISCUSSION

3.1 Per Cent Fruit Set (15 days after Bagging)

Significant variation was observed with respect to fruit set percentage at 15 days after bagging among the genotypes studied (Table 1). The fruit set percentage ranged from 2.23% to 47.22%, with a mean value of 12.93% and sixteen genotypes were found to possess higher fruit set percentage over the mean. Among the genotypes evaluated, six genotypes *viz*., F-4 (47.22%), G-19 (39.38%), D-13 (30.98%), C-24 (25.35%), E-2 (25.13%) and H-16 (22.43%) recorded higher fruit set percentage than best check Chinnarasam (16.56%). Whereas the lower fruit set percentage was recorded in H-32 (2.23%). Similar findings were reported by Nady and Sanaa [3] who stated that fruit set (25%) was maximum when mango cv. Sedik was self-pollinated [14-19].

Table 1. Fruit set percentage at 15 days after bagging in mango genotypes.

S.No.	Accessions	Fruit set percentage at 15 days after bagging
1.	B-6	11.24
2.	B-9	2.62
3.	B-10	4.28
4.	B-17	18.35
5.	B-20	6.60
6.	C-1	15.07
7.	C-6	18.63
8.	C-13	4.35
9.	C-24	25.35
10.	D-7	3.90
11.	D-12	12.70

S.No.	Accessions	Fruit set percentage at 15 days after bagging
12.	D-13	30.98
13.	E-2	25.13
14.	E-3	5.09
15.	E-6	21.64
16.	E-8	13.84
17.	E-11	10.38
18.	F-4	47.22
19.	F-10	19.65
20.	F-12	12.07
21.	F-16	6.27
22.	G-7	3.51
23.	G-19	39.38
24.	G-28	4.62
25.	G-30	12.04
26.	H-5	13.60
27.	H-7	5.03
28.	H-16	22.43
29.	H-17	6.50
30.	H-32	2.23
31.	H-49	14.09
32.	H-58	16.03
33.	I-1	6.31
34.	I-2	8.06
35.	I-3	6.33
36.	I-4	6.02
37.	Banaganapalle	7.41
38.	Chinnarasam	16.56
39.	Jalal	8.06
40.	Suvarnarekha	3.64
	Mean	12.93
	CD @ 5%	5.58
	SEm±	1.98

4. CONCLUSION

In the present findings among the genotypes evaluated, six genotypes *viz*., F-4 (47.22%), G-19 (39.38%), D-13 (30.98%), C-24 (25.35%), E-2 (25.13%) and H-16 (22.43%) recorded a significantly higher fruit set percentage than best check Chinnarasam (16.56%).

DISCLAIMER (ARTIFICIAL INTELLIGENCE)

This is purely a databased article and infact we have prepared this article as short article with less content and data prepeapred is from the experiments.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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