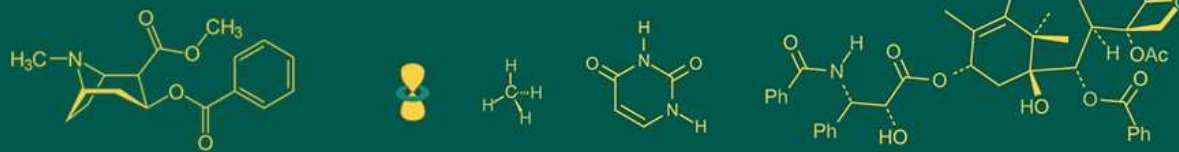


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## Studies on organoleptic evaluation in mango (*Mangifera indica* L.) germplasm

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### Abstract

The present investigation entitled “Studies on organoleptic evaluation in mango (*Mangifera indica* L.) germplasm” was carried out during the period 2022-23 at Mango Research Station, Nuzvid, Eluru District, Andhra Pradesh. In the present study, none of the genotypes recorded maximum peel colour and appearance score compared to the check Banaganapalle (9.65), which was maximum among the checks. Four genotypes viz., I-1 (9.71), C-13 (9.68), D-13 (9.63) and F-16 (9.61) recorded more pulp colour and appearance score than the check Banaganapalle (9.56) which was maximum among the checks. Among the genotypes evaluated, seven genotypes viz., G-28 (9.92), F-16 (9.85), B-9 (9.78), F-10 (9.76), H-32 (9.74), E-6 (9.72) and D-12 (9.65) recorded higher score for pulp texture than the best check Banaganapalle (9.64). Among the genotypes evaluated only one genotype viz., E-2 (9.47) recorded significantly highest score for pulp taste and flavour compared to the best check Chinnarasam (9.04). None of the genotypes recorded maximum score for overall acceptability of fruit compared to the check Banaganapalle (9.35), which was maximum among the checks.

**Keywords:** Organoleptic evaluation, mango germplasm, Banaganapalle, Chinnarasam

### 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 (Bhamini *et al.*, 2018) <sup>[1]</sup>. In 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) <sup>[4]</sup>. Organoleptic evaluation of the mangoes especially for colour has a great impact on consumers decision to buy a particular type of fruit or its products (Gossinger *et al.*, 2008) <sup>[2]</sup>. Thus, fruit colour serves as a good index of the quality of the product and consumer perception. Acceptance for colour, taste and flavour of fruits is considerably important all over the world that enhances the import potential. The objective of this study was to assess the sensory attributes of various mango genotypes and checks grown in the mango research station, nuzvid to recommend a comparatively better genotypes for indigenous processing and export purposes.

### Material and Methods

The experiment was conducted to study organoleptic evaluation in mango (*Mangifera indica* L.) germplasm at Mango Research Station, Nuzvid during the period 2022-23. The experimental design is Completely Randomized Design (CRD) which consists of 40 treatments *i.e.*, 36 genotypes and 4 checks with 3 replications.

Organoleptic evaluation of ripe fruits was carried out by a panel of semi-trained judges. The sensory characters like skin colour, pulp colour and appearance, pulp texture, taste and flavour and overall acceptability were evaluated on a 9-point Hedonic scale using the score card as mentioned in Table 1. The mean of scores given by the judges were used for statistical analysis.

**Table 1:** Hedonic scale rating for various sensory attributes described by Manasa *et al.* (2019) [3].

Scale	Peel colour and appearance	Pulp Colour and appearance	Pulp Texture	Pulp taste and flavour	Overall acceptability
1	Poor	Poor	Poor	Poor	Poor
3	Fair	Fair	Fair	Fair	Fair
5	Good	Good	Good	Good	Good
7	Very good	Very good	Very good	Very good	Very good
9	Excellent	Excellent	Excellent	Excellent	Excellent

## Results and Discussion

### 1. Peel colour and appearance

There were significant differences among genotypes with respect to peel colour and appearance (Table 2). The score for peel colour and appearance ranged from 1.45 to 9.65, with a mean value of 5.17 and twenty genotypes exceeded the general mean value. None of the genotypes recorded maximum peel colour and appearance score compared to the check Banaganapalle (9.65), which was maximum among the checks. The minimum peel colour and appearance score was recorded in H-32 (1.45). similar range of peel colour and appearance (4.31 to 7.91) was reported by Manasa *et al.* (2019) [3] in mango.

### 2. Pulp colour and appearance

Pulp colour and appearance, varied significantly among the genotypes from 1.08 to 9.71, with a mean value of 6.12 and twenty genotypes were found to possess higher pulp colour and appearance score over the mean (Table 2). Four genotypes *viz.*, I-1 (9.71), C-13 (9.68), D-13 (9.63) and F-16 (9.61) recorded more pulp colour and appearance score than the check Banaganapalle (9.56) which was maximum among the checks. The minimum pulp colour and appearance score was recorded in G-19 and Jalal (1.08). Similar results were reported by Manasa *et al.* (2019) [3] with respect to pulp colour and appearance which ranged from (4.91 to 8.15) in mango.

### 3. Pulp texture

Considerable variation was observed with respect to pulp texture. The pulp texture ranged from 1.05 to 9.92, with a mean value of 8.38 and thirty two genotypes were found to possess higher pulp texture score over the mean (Table 2).

Among the genotypes evaluated, seven genotypes *viz.*, G-28 (9.92), F-16 (9.85), B-9 (9.78), F-10 (9.76), H-32 (9.74), E-6 (9.72) and D-12 (9.65) recorded higher score for pulp texture than the best check Banaganapalle (9.64). The minimum score for pulp texture was recorded in H-16 (1.05). Similar results were reported by Manasa *et al.* (2019) [3] who stated that pulp texture ranged from (4.82 to 8.22) in mango.

### 4. Pulp taste and flavour

Pulp taste and flavour ranged from 1.04 to 9.47 with a mean value of 4.47 and nineteen genotypes exceeded the general mean value, indicating significant variability among the genotypes (Table 2). Among the genotypes evaluated only one genotype *i.e.* E-2 (9.47) recorded significantly highest score for pulp taste and flavour compared to the best check Chinnarasam (9.04). The lowest score for pulp taste and flavour was recorded in D-7 and H-5 (1.04), respectively. The results were in conformity with those of Manasa *et al.* (2019) [3] who reported similar range of pulp taste and flavour (4.57 to 8.45) in mango.

### 5. Overall acceptability

The score for overall acceptability ranged from 2.83 to 9.35, with a mean value of 6.03 and twenty genotypes had higher overall acceptability score than the general mean (Table 2). None of the genotypes recorded maximum score for overall acceptability of fruit compared to the check Banaganapalle (9.35), which was maximum among the checks. The least score for overall acceptability of fruit was recorded in C-1 (2.83). Similar range of overall acceptability (4.65 to 8.18) was reported by Manasa *et al.* (2019) [3] in mango.

**Table 2:** Organoleptic evaluation of mango genotypes.

S. No.	Accessions	Peel colour and appearance	Pulp Colour and appearance	Pulp Texture	Pulp taste and flavour	Overall acceptability
1.	B-6	3.48	5.16	9.37	5.69	5.92
2.	B-9	5.65	5.59	9.78	9.24	7.56
3.	B-10	3.14	9.07	5.09	5.58	5.72
4.	B-17	3.52	9.19	9.16	3.09	6.24
5.	B-20	5.86	5.48	5.42	5.64	5.60
6.	C-1	3.19	1.36	1.68	5.08	2.83
7.	C-6	5.07	3.82	9.31	5.27	5.87
8.	C-13	5.23	9.68	9.59	3.49	7.00
9.	C-24	3.58	9.24	9.07	3.76	6.41
10.	D-7	3.24	1.47	9.24	1.04	3.75
11.	D-12	3.61	1.29	9.65	1.69	4.06
12.	D-13	3.05	9.63	9.49	3.25	6.35
13.	E-2	9.17	9.02	1.26	9.47	7.23
14.	E-3	5.39	1.19	9.53	5.82	5.48
15.	E-6	5.51	9.56	9.72	3.19	7.00
16.	E-8	3.34	9.25	9.48	3.56	6.41
17.	E-11	5.26	1.79	9.25	5.03	5.33
18.	F-4	5.75	1.45	9.02	1.92	4.53
19.	F-10	3.06	9.16	9.76	1.45	5.86
20.	F-12	3.29	1.28	9.51	1.76	3.96
21.	F-16	5.62	9.61	9.85	9.12	8.55
22.	G-7	5.85	9.43	5.08	3.78	6.04

23.	G-19	3.17	1.08	9.36	5.02	4.66
24.	G-28	3.54	5.27	9.92	3.65	5.60
25.	G-30	5.26	9.56	9.17	3.19	6.80
26.	H-5	3.49	1.92	9.59	1.04	4.01
27.	H-7	9.14	9.29	9.26	5.27	8.24
28.	H-16	5.92	5.06	1.05	3.54	3.89
29.	H-17	3.06	5.38	9.21	3.39	5.26
30.	H-32	1.45	1.67	9.74	5.14	4.50
31.	H-49	5.27	9.29	9.56	3.72	6.96
32.	H-58	3.72	1.54	9.29	3.47	4.51
33.	I-1	9.16	9.71	9.12	3.16	7.79
34.	I-2	9.42	9.02	5.64	5.09	7.29
35.	I-3	5.04	5.84	9.04	5.65	6.39
36.	I-4	9.26	9.29	9.39	5.22	8.29
37.	Banaganapalle	9.65	9.56	9.64	8.53	9.35
38.	Chinnarasam	6.49	7.86	9.26	9.04	8.16
39.	Jalal	3.15	1.08	8.09	1.54	3.46
40.	Suvarnakha	9.59	9.47	9.42	5.28	8.44
	Mean	5.17	6.12	8.38	4.47	6.03
	CD @ 5%	0.26	0.29	0.34	0.22	0.15
	SEm±	0.09	0.10	0.12	0.08	0.05

### Conclusion

None of the genotypes recorded maximum score for overall acceptability of fruit compared to the check Banaganapalle (9.35), which was maximum among the checks.

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