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Survey collection and evaluation of soft flesh jackfruit (*Artocarpus heterophyllus* Lam)

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Abstract
The experiment was conducted during year 2021-2022 in six tahsils of North Ratnagiri region of Maharashtra, India. Thirty genotypes *Viz.*, Dapoli (DPL-1to DPL6), Khed (KHD-1 to KHD-6), Chiplun (CPL-1 to CPL-2), Mandangad (MNG-1to MNG-6) and Guhagar (GHR-1 to GHR-6) were selected for study to identify superior ones. The selected superior genotypes differ widely among themselves. Great variability exists with regards to many tree growth characters *viz.,* tree height 6 m to 13 m, tree trunk girth 197.43 cm to 67.23 cm, height at first branch 0.6 m to 5.3cm, canopy spread N-S 1.5 m to 7.1 m and E-W 2.3 to 8.1m, flowering from 4th December to 25th February, harvesting from 2nd May to 28th June, yield character *viz.,* numbers of fruit per tree 6 to 61 yiled per tree in kg (22.7 kg to 240.2 kg/tree) qualitative character of fruit *viz.,* fruit length (21 cm to 55 cm), fruit breadth 11cm to 25 cm, weight of fruit (kg) (2.6 to 29 kg), weight of fruit rind (kg) 1.4 kg to 14.06kg, thickness of rind (cm) 0.7 cm-2.7 cm, numbers of flake 47 to 159, weight of individual flake with seed (g) 42.00 g to 105.08 g, weight of individual flake without seed (13.89 g - 80.20 g), weight of seed (kg) 0.33 to 3.50 kg, seed to pulp ratio (%) (29.54% to 52.26%), shape of fruit (oblong, spheroid, spherical and clavate) and colour of fruit (greenish yellow, green, brown and yellow), spine density mostly dense colour (7.1 to 7.43), flavour (6.7 to 7.9), and texture (6.8- 7.8). There for on the basis of yield of fruit per tree genotype CPL-4 were found superior and yield per tree in kg genotype DPL-1 found superior, on the basis of harvesting genotype GHR-3 having early maturity and on the basis of organoleptic parameters genotype DPL-3 were found superior.

Keywords: Soft flesh jackfruit, survey, collection, evaluation

Introduction
Artocarpus heterophyllus Lam., belongs to the family Moraceae, along with *Ficus spp*. (fig), *Morus* spp. (mulberry), and *Maclurapomifera* Schneid (osage orange or hedge apple) (Chandler, 1958; Popenoe, 1974) [6, 13]. This family includes over 1,000 species in 67 genera, predominantly tropical shrubs and trees but also a few vines and herbs (Bailey, 1942; Merill, 1912) [4]. Jackfruit is a national fruit of Bangladesh and state fruit of Kerala and Tamil Nādu, where it is commonly referred to as “poor man’s food” as it is cheap and plentiful during the season. In India, it has wide distribution in Assam, Tripura, Bihar, Uttar Pradesh, the foothills of the Himalayas and South Indian States of Tamil Nadu, Kerala and Karnataka. According to the texture of the edible pulp, ripe jackfruits are classified as either soft flesh or firm flesh. The soft flesh kind has thin, fibrous, soft edible meat that is acidic to extremely sweet and has a potent scent. The term "Barka" is used locally. The second variety, known locally as Kapa, has thick, firm to crisp flesh and a milder flavour. There are variations in fruit-bearing sensory quality, flesh type, sweetness, flavour and taste as well as in density, size and shape of the spines on the rind (Azad, 2000 and Haq, 2011) [3]. The fruit is made up of three parts: the bulbs (34%), seeds (18%), and rind (48%). Generally sweet bulbs (hard type i.e., kapa) are consumed by the people. The remaining parts such as bulb of soft flesh (i.e., Barka), seeds and rind are usually wasted. Jackfruit seed enclosed in the soft coloured edible pulp and constitute to about 5.1-12 percent of the fruit. After roasting or boiling, it is consumed (Anon, 1975) [2].
Jackfruit is highly fibrous in nature and rich in nutritive value, containing 18.9 g carbohydrates, 0.8 g minerals, 30 IU vitamin-A and 0.25 mg thiamine for every 100 grams (Samaddar, 1985) [16]. High levels of protein, carbohydrate, calcium and Thiamine have been found in jackfruit (Burkill, 1977) [5] and a good source of potassium and vitamin C. It is rich in vitamins, free sugar (sucrose), fatty acids, ellagic acid and amino acids such as arginine, cystine, histidine, leucine, lysine, methionine, theanine and tryptophan. It also contains significant amounts of carbs, protein, starch, calcium and carbohydrates.

The jackfruit has a wide range of medical benefits, but its antioxidant, anti-inflammatory, antibacterial, anticancer and antifungal properties are especially remarkable (Swami and Kalse, 2018) [17].

Being a cross-pollinated and mostly seed propagated tree, jackfruit has innumerable types or forms in terms of fruit characteristics. The types differ widely among themselves and many types available in India under various local names have originated in this way. However, distinct cultivars are not available. Selection of superior genotypes for the fresh market and the processing industry, as well as for high yield and better quality, would be of great value for commercialization of this underutilized nutritive fruit. Thus, present study was under taken to assess the qualitative variations among thirty genotypes and selection or superior quality fruit genotypes.

Material and Methods

The thirty genotypes of soft flesh jackfruits were collected from the north Ratnagiri region *viz.,* Dapoli, Khed, Mandangad, Guhagar and Chiplun tahsils. The analysis were carried out in the Analytical Laboratory, Department of Horticulture, College of Horticulture Dapoli, during the year 2021-22. Pre-existing germplasm sites of Ratnagiri districts were surveyed and thirty superior genotypes were selected. The six tahsil of North-Ratnagiri region was selected for survey of superior types of soft flesh jackfruit genotype. Different genotypes were chosen by collecting the information from local people. The selected soft flesh jackfruit genotype locations were visited to collect required information, latitude and longitude were noted for the further identification of the collection site and morphological observations were taken as per the descriptor of jackfruit developed by IPGRI (2000) [9]. Age of the selected tree ranged from 12 to 78 years, thirty selected genotypes were subjected as a treatment and three fruits from tree were taken as a replication. According to the International Plant Genetic Resources Institute [IPGRI, 2000] [9] morphological variation among jackfruit trees was recorded using jackfruit descriptor. Growth, yield and qualitative measures of vegetative and reproductive characters of jackfruit were measured in the descriptors. The growth and yield characters were measured by observation. The qualitative fruit characters were measured by eye observation and organoleptic test. The data obtained were subjected to statistical analysis by following Random block Design (RBD) as per producer of Cochran and Cox (1959).

Results and Discussion

Tree growth character

Tree character of different selected genotype were presented in Table 1 tree height varied from 6 m to 13 m. The highest tree height (13 m) was recorded in genotype CPL-1 and GHR-4 followed by KHD-5 and CPL-4 (12.5 m), while the genotype MNG-5 recorded lowest tree height (6 m). The highest tree girth was observed in genotype CPL-1 (197.43 cm) followed by GHR-4 (154.46 cm). The genotype MNG-5 recorded for lowest tree girth of 67.23 cm. The minimum height at the first branch was observed in the GHR-3 (0.6 m) genotype followed by MNG-4 (1.1 m) and maximum height at the first branch is observed in genotype Dpl-6 and CPL-1 (5.3 m) followed by KHD-1 (4.8 m). The variation in respect of plant height, tree girth and height at first branch in different genotypes might be due to growth performance and variation in age of respective genotypes in particular climatic as well as edaphic conditions. These results are in agreement with Gaithoiliu *et al*. (2017) [8].

A diversity of canopy spread was observed among the genotypes. The variation was observed in case of canopy spread N-S direction of 1.5 m to 7.1 m. The genotypes KHD-5 was observed the highest canopy spread of 7.1 m and the lowest of 1.5 m of MNG-6, while the canopy spread E-W direction the highest canopy spread of 8.1 m was observed by the germplasm CPL-1 and the lowest of 2.3 m by MNG-6. Higher plant spread is favourable character which increases the fruit yield. Such type of variation in canopy spread might be due to difference in inherent characters of germplasm located under different agro-climatic conditions. Maximum spread may also be due to deeper root zone which results in better absorption of various nutrients from soil responsible for vigorous growth. Similar variability was reported by Gaithoiliu *et al*. (2017) [8].

The early initiation of flowering was observed in genotype MNG-3 (4th December) and late initiation of flowering was observed in genotype GHR-4 (25th February). According to the study of Ali *et al.* (2015) [1], Jackfruit begins flowering between December and April, and this process may be influenced by the plant's growth and vigour, the agroclimatic, as well as the genetic variability of different genotypes.

Table 1: Tree growth characters of soft flesh jackfruit genotypes

Sr. No	Genotype	Tree height (m)	Tree girth (cm)	Height at first branch (m)	Canopy spread N-S (m)	Canopy spread E-W(m)	Date of flowering	Date of harvesting
1.	DPl-1	11.30	115.02	2.1	3.1	6.2	14/01/2022	17/05/2022
2.	DPL-2	7.2	109.09	1.2	2.6	4.1	21/12/2021	05/05/2022
3.	DPL-3	10.2	112.07	2.4	3.8	6.8	28/12/2021	11/05/2022
4.	DPL-4	9.1	99.64	3.3	2.4	4.5	01/01/2022	02/05/2022
5.	DPL-5	9.3	112.98	2.3	3.2	4.5	12/01/2022	09/05/2022
6.	DPL-6	11.6	120.80	5.3	4.7	7.2	23/01/2022	17/05/2022
7.	KHD-1	12.2	120.11	4.8	6.2	7.1	15/12/2021	12/04/2022
8.	KHD-2	11.2	105.33	1.4	4.2	5.8	10/01/2022	02/06/2022
9.	KHD-3	10.1	93.20	5.3	5.0	7.1	02/02/2022	15/06/2022
10.	KHD-4	12	132.29	4.0	4.8	6.3	12/12/2021	30/04/2022
11.	KHD-5	12.5	130.20	1.5	7.1	6.5	28/01/2022	18/05/2022
12.	KHD-6	10.1	94.58	3.0	3.1	4.5	22/01/2022	10/05/2022
13.	CPL-1	13	197.43	5.3	6.4	8.1	10/12/2021	13/04/2022
14.	CPL-2	9.0	137.22	3.0	3.2	4.0	02/02/2022	09/06/2022
15.	CPL-3	11.3	120.68	1.2	5.9	7.6	06/12/2021	12/04/2022
16.	CPL-4	12.5	110.39	1.8	5.0	7.2	07/02/2022	17/06/2022

17.	CPL-5	8.0	89.23	1.7	3.1	3.6	12/02/2022	16/06/2022
18.	CPL-6	9.2	98.30	1.5	4.3	5.1	25/12/2021	03/05/2022
19.	MNG-1	12	132.12	2.1	4.8	5.3	21/02/2022	28/06/2022
20.	MNG-2	9.1	94.23	1.3	3.5	5.1	14/02/2022	20/06/2022
21.	MNG-3	8.3	92.13	1.5	4.0	4.8	04/12/2021	11/04/2022
22.	MNG-4	10	89.23	1.1	4.2	4.4	09/02/2022	12/06/2022
23.	MNG-5	6.0	67.23	0.9	2.4	2.9	10/02/2022	08/06/2022
24.	MNG-6	7.8	72.23	1.9	1.5	2.3	11/12/2021	16/04/2022
25.	GHR-1	9.0	78.12	1.5	3.4	4.6	22/12/2021	02/05/2022
26.	GHR-2	8.0	97.89	1.7	3.0	4.2	18/12/2021	11/04/2022
27.	GHR-3	11	112.12	0.6	4.6	3.6	13/12/2021	09/04/2022
28.	GHR-4	13	154.46	2.4	3.7	4.2	25/02/2022	22/06/2022
29.	GHR-5	10.3	89.34	1.3	4.8	5.5	18/01/2022	28/05/2022
30.	GHR-6	11.8	109.76	1.8	5.2	4.3	23/01/2022	20/05/2022
Mean		10.20	109.58	2.31	10.20	5.25		
Range		6-13	67.23-197.43	0.6-5.3	1.5-7.1	2.3-8.1		

Yield character of soft flesh jackfruit genotypes

The variation in total number of fruits per tree in different genotypes. The number of fruits per plant ranged from 6 to 61 with population mean of 25.70. Highest number of fruits per plant (61) was obtained from genotype CPL-4 followed by GHR-5 (48) and DPL-1 (45) and the minimum of (6) was from MNG-6. The variation in number of fruits per tree might be due to genetic diversity amongst number of flowers and fruit set from those flowers at trunk of different genotypes as well as due to climatic conditions.

Similar observations were identified by Chandrasekhar (2014) [7], Rahman *et al*. (2019) and Jayavalli (2020) [11].

The highest yield (240.2 kg/tree) was recorded in germplasm DPL-1 followed by jackfruit genotype CPL-4 (202.1 kg/tree), while the lowest yield (22.7 kg/tree) was recorded in genotype MNG-6. Yield is directly correlated with the number of fruits, retention percentage of fruit and average fruit weight of the individual fruit. In the present study, the yield ranged from 22.7 kg to 240.2 kg/tree which is associated with the findings of Khan *et al.* (2010) and almost similar results were confirmed by Rai and Reddy (2000).

Table 2: Yield of different jackfruit genotypes

Sr. No	Genotypes	Number of fruits per tree	Yield per tree (kg)
1)	DPL-1	45	240.2
2)	DPL-2	22	125.1
3)	DPL-3	19	173.4
4)	DPL-4	15	132.5
5)	DPL-5	07	51.8
6)	DPL-6	37	183.8
7)	KHD-1	08	143.2
8)	KHD-2	16	110.6
9)	KHD-3	11	49.10
10)	KHD-4	27	134.2
11)	KHD-5	39	117.6
12)	KHD-6	13	105.3
13)	CPL-1	41	159.2
14)	CPL-2	12	58.7
15)	CPL-3	24	94.3
16)	CPL-4	61	202.1
17)	CPL-5	32	183.2
18)	CPL-6	29	128.8
19)	MNG-1	43	172.6
20)	MNG-2	38	155.2
21)	MNG-3	19	76.5
22)	MNG-4	12	62.1
23)	MNG-5	16	71.8
24)	MNG-6	06	22.7
25)	GHR-1	29	109.3
26)	GHR-2	25	75.6
27)	GHR-3	07	33.4
28)	GHR-4	37	147.8
29)	GHR-5	48	139.2
30)	GHR-6	33	98.5
Mean		25.70	118.59
Range		6-61	22.7-2402

Quality parameters

The fruit length of thirty soft flesh jackfruit were significantly varied with grand mean of 34. 89 cm. Fruit length ranged from 21 cm to 55 cm. The maximum fruit length (55.00 cm) was obtained in the genotype DPL-1 followed by KHD-1 (51.00 cm) while the genotype MNG-3 (18.00 cm) recorded the minimum length of fruit by genotype DPL-2 (21 cm) (Table 3). The fruit width ranged from 11 cm to 25 cm and maximum fruit breadth (25 cm) was recorded from the genotype KHD-6 which was at par with genotype KHD-1(24 cm), followed by KHD-4 and MNG-5 (22 cm). Whereas, the minimum breadth of fruit (11.00 cm) was obtained from the genotype MNG-3.

The maximum average fruit weight (29 kg) was recorded by genotype KHD-1 which was followed by KHD-6 (14.3 kg) and KHD-2 (12 kg). However, the minimum weight of fruit (2.6 kg) was observed by genotype MNG-3. The variation in fruit weight is correlated with the length and breadth of the fruit which helps in attaining the good fruit size. Beside this, the age, vigour of plant and eco- physiological conditions may also influence the fruit weight. Nowadays small sized jackfruit is preferred due to small family size. Farmer's point of view medium and large sized fruits are economically viable and export market is more preferable.

Weight of rind and thickness of thirty jackfruit genotype were significantly varied (Table 3). and the weight of rind was ranged from 1.4 to 14.06 kg with a mean value of 3.09 kg. The highest weight of rind was observed in genotype KHD-1 (14.06 kg) followed by KHD-6 (6.86 kg) and lowest in GHR-6 (1.4 kg).

Maximum rind thickness was recorded in genotype KHD-1 (2.7 cm) which was followed by KHD-2 (2.2 cm). The minimum rind thickness (0.7 cm) was observed genotype MNG-3 preceded by (0.8cm) MNG-4 and MNG-6.

The variation was observed in case of number of flakes per fruit in different genotype varied significantly and it ranged from 47 to 159 with mean value 80.36. The maximum number of flakes per fruit. (159.00) was observed in genotype KHD-1which was followed by KHD-6 (132.00). However, the lowest number of bulbs per fruit (47.00) was obtained from genotype MNG-3. Weight of individual flakes without seed ranged from 13.89 g - 80.20 g with a mean value of 48.73 g.

The maximum weight of individual flake without seed was obtained from DPL-3 (80.20 g) followed by GHR-6 (66.09g) and a minimum weight of individual flake without seed (13.89 g) was found from the genotype KHD-1.

Individual flake weight with seed ranged from 42.00 g to 105.08g with a mean value of 61.32 g. The lowest weight of individual flake with seed is observed in genotype CPL-5 (42.00 g) and the highest weight of individual flake with seed is observed in genotype DPL-3 (105.08 g) followed by GHR-5 (88.16 g).

The variation was detected in case of seed weight among the selected genotypes which ranged from 0.33 to 3.50 kg with a mean value of 0.82kg. The maximum seed weight was observed in genotype KHD-1 (3.50 kg) followed by KHD-6 (2.57 kg) and minimum in DPL-2 (0.33 kg). This variation might be attributed to the genetic makeup, weight of the fruit and agroclimatic conditions of trees grown in different areas. The maximum seed-to-pulp ratio (52.26%) was observed in the genotype KHD-6 which was at par with KHD-4 (52.04%) followed KHD-5 (51.30%). Whereas, a minimum seed-to-pulp ratio (29.54%) was in the genotype MNG-1

Table 3: Quality parameter of different fruit of soft flesh jackfruit genotypes

Sr. No.	Genotypes	Length of fruits (cm)	Breadth of fruits (cm)	Weight of fruits (kg)	Weight of rind (kg)	Thickness of rind (cm)	Number of flakes per fruit	Wt. of individual flake without seed	Wt of individual flake with seed	Wt of seed (kg)
1	DPL-1	55	20	7.6	4.10	2.1	113	44.05	56.09	0.94
2	DPL-2	21	11	2.8	1.51	0.9	77	41.23	53.27	0.33
3	DPL-3	39	15	6.4	3.53	1.6	88	80.20	105.08	0.76
4	DPL-4	40	18	6.1	3.22	1.3	92	42.26	55.25	0.73
5	DPL-5	38	15	5.6	3.10	1.5	68	42.08	53.04	0.63
6	DPL-6	35	16	4.6	2.54	1.8	79	53.12	69.50	0.58
7	KHD-1	51	24	29	14.06	2.7	159	13.89	66.16	3.50
8	KHD-2	42	21	12	6.48	2.2	110	66.06	86.08	1.35
9	KHD-3	24	15	4.0	1.90	1.2	66	45.43	50.17	0.50
10	KHD-4	36	22	5.2	2.49	1.6	87	54.68	57.99	0.94
11	KHD-5	36	18	4.6	2.20	1.1	78	55.57	59.27	0.83
12	KHD-6	50	25	14.3	6.86	2.4	132	62.70	80.72	2.58
13	CPL-1	25	19	3.4	1.80	2.1	64	53.78	59.32	0.41
14	CPL-2	30	13	5.6	3.03	2.3	66	38.82	41.50	0.67
15	CPL-3	31	15	4.4	2.43	1.3	58	40.62	44.30	0.55
16	CPL-4	28	19	5.3	2.86	1.1	69	38.12	42.00	0.63
17	CPL-5	40	18	5.8	2.27	1.3	73	45.32	47.85	0.92
18	CPL-6	30	13	4.2	2.01	1.1	62	44.05	47.74	0.75
19	MNG-1	41	19	7.2	3.2	1.4	113	36.11	48.08	0.89
20	MNG-2	37	16	5.6	3.00	1.6	97	50.08	65.14	0.67
21	MNG-3	18	11	2.6	1.56	0.7	47	51.21	62.26	0.43
22	MNG-4	33	18	4.5	2.32	0.8	73	43.80	59.45	0.64
23	MNG-5	36	22	4.9	2.58	1.1	64	37.07	48.40	0.60
24	MNG-6	34	18	3.6	1.89	0.8	56	48.23	58.11	0.56
25	GHR-1	34	17	4.8	2.49	1.2	87	51.26	66.29	0.63
26	GHR-2	27	14	2.9	1.42	2.2	65	61.30	72.04	0.43
27	GHR-3	35	19	5.2	2.68	0.9	71	40.15	50.15	0.72
28	GHR-4	31	16	4.3	2.33	1.8	68	50.26	62.11	0.63
29	GHR-5	33	14	3.2	1.72	1.1	74	64.30	88.16	0.34
30	GHR-6	30	15	2.9	1.40	0.8	55	66.09	84.00	0.37

Mean	34.89	17.21	6.08	3.09	1.47	80.36	48.73	61.32	0.82
Range	18-55	11-25	2.6-29	1.4-14.06	0.7-2.7	47-159	13.89-80.2	42.00-105.08	0.33-3.50
S.E.m(±)	1.55	1.48	0.97	0.65	0.39	1.38	5.55	3.00	0.1061
C.D.at 5%	3.330	4.296	2.828	1.89	1.54	4.014	16.049	8.676	0.307

Organoleptic evaluation

The organoleptic test is the final judgment for acceptance of the fruit quality of the selected genotypes. The present study revealed that remarkable variation by organoleptic evaluation in all the characters of flakes.

The maximum score for the genotype DPL-3 (8) is due to the attractive yellow colour which attracts the attention of the panel followed by KHD-1 (7.8) at par with KHD-2 (7.6) and MNG-2. The lowest score was observed in genotype DPL-6 (7.1) due to the unattractive crimson white colour of other genotypes at par with each other.

The lowest score was obtained by genotype MNG-3(6.7) whereas the highest score in genotype DPL-3 (7.9). This exhibits variation in the presence of flavour in the bulb which is one of the most important characteristics for its suitability for table purpose. This is in agreement with Rai *et al*. (2003) and Jagdeesh *et al.* (2007).

The maximum score for the texture was recorded by genotypes DPL-3 (7.8) and KHD-1 (7.8) which was at par with KHD-2 (7.7) and MNG-3 (7.7) due to slightly firm texture while the minimum score recorded by genotype DPL-4 (6.8) due to much soft texture of the flakes. This is very close to the finding of Jayavalli (2020) [11].

Table 4: Organoleptic Score of different jackfruit genotypes

Sr. No.	Genotypes	Colour	Flavour	Texture
1)	DPL-1	7.5	7.6	7.6
2)	DPL-2	7.3	6.7	7.0
3)	DPL-3	8.0	7.9	7.8
4)	DPL-4	7.5	7.0	6.8
5)	DPL-5	7.2	7.0	6.9
6)	DPL-6	7.1	7.0	7.0
7)	KHD-1	7.8	7.8	7.8
8)	KHD-2	7.6	7.7	7.7
9)	KHD-3	7.4	7.6	7.2
10)	KHD-4	7.4	7.2	7.5
11)	KHD-5	7.7	7.8	7.2
12)	KHD-6	7.4	7.3	7.6
13)	CPL-1	7.2	7.1	7.0
14)	CPL-2	7.5	7.5	7.5
15)	CPL-3	7.5	7.6	7.5
16)	CPL-4	7.4	7.7	7.3
17)	CPL-5	7.4	7.5	7.2
18)	CPL-6	7.2	7.3	7.3
19)	MNG-1	7.3	7.1	7.2
20)	MNG-2	7.6	7.2	7.0
21)	MNG-3	7.5	6.7	7.7
22)	MNG-4	7.3	7.8	7.0
23)	MNG-5	7.6	7.5	7.2
24)	MNG-6	7.2	7.0	7.1
25)	GHR-1	7.6	7.4	7.5
26)	GHR-2	7.5	7.5	7.6
27)	GHR-3	7.6	7.5	7.0
28)	GHR-4	7.2	7.0	7.1
29)	GHR-5	7.1	7.0	7.2
30)	GHR-6	7.2	7.0	7.2
Mean		7.43	7.33	7.29
Range		7.1-8	6.7-7.9	6.8-7.8

DPL-1 Jackfruit genotype

DPL-2 Jackfruit genotype

DPL-3 Jackfruit genotype

DPL-4 Jackfruit genotype

DPL-5 Jackfruit genotype

DPL-6 Jackfruit genotype

KHD-1 Jackfruit genotype

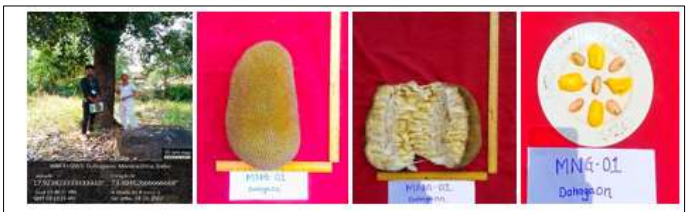
KHD-2 Jackfruit genotype

KHD-3 Jackfruit genotype

KHD-4 Jackfruit genotype

KHD-5 Jackfruit genotype

KHD-6 Jackfruit genotype



MNG-1 Jackfruit genotype

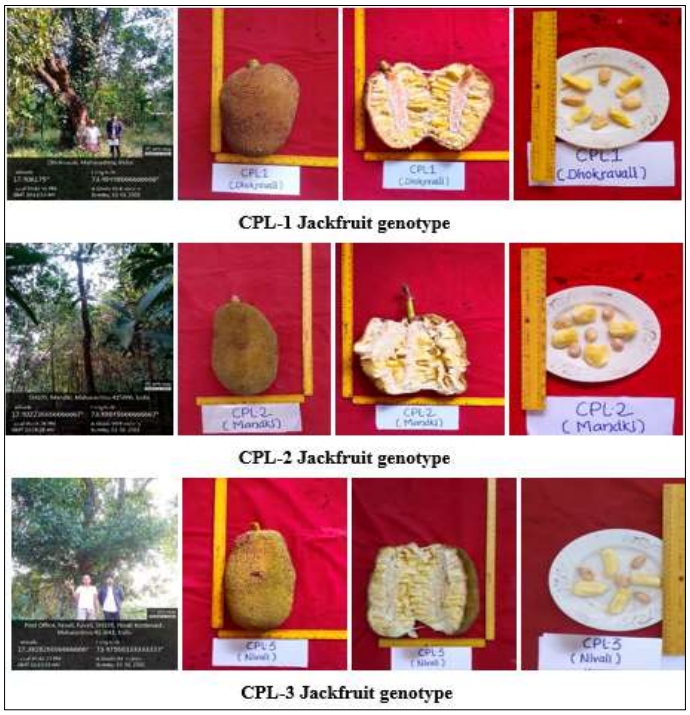
MNG-2 Jackfruit genotype

MNG-3 Jackfruit genotype

MNG-4 Jackfruit genotype

MNG-5 Jackfruit genotype

MNG-6 Jackfruit genotype



CPL-1 Jackfruit genotype

CPL-2 Jackfruit genotype

CPL-3 Jackfruit genotype

CPL-4 Jackfruit genotype

CPL-5 Jackfruit genotype

CPL-6 Jackfruit genotype

GHR-1 Jackfruit genotype

GHR-2 Jackfruit genotype

GHR-3 Jackfruit genotype

GHR-4 Jackfruit genotype

GHR-5 Jackfruit genotype

GHR-6 Jackfruit genotype

Conclusion

It can be concluded from the above results that among the selected genotypes of jackfruit genotype GHR-3 (early maturity) in quality. Genotype CPL-4 have high yielding capacity where in terms of yield kg per tree observed higher in genotype DPL-1. The genotype KHD-1 was found to be superior in terms of fruit weight, rind thickness, number of flakes per fruit and seed weight per fruit, while sensory profiling genotype DPL-3 found superior.

References

1. Ali Abu, Saleh Mohammad Yousuf, Md. Hamin Reza, Md. Samasuzzaman, Md. Harunor Rashid, Asma Anwari, *et al*. Evaluation of existing jackfruit germplasm. International Journal of Natural and Social Sciences. 2015;2(4):108-112.
2. Anonymous. Official methods of analysis. Association of agricultural Chemist, Washington D.C. 1975.
3. Azad AK, Jones JG, Haq N. Assessing morphological and isozyme variation of jackfrait (*Artocarpus heterophyllus* Lam.) in Bangladesh. Agroforest Syst. 2007;71:109-25.
4. Bailey LH. Manual of Cultivated Plants. Macmillan Co. New York; c1949. p. 338.
5. Burkill HM. The useful plants of west tropical Africa. Royal Botanic Gardens: Kew, U.K. 1997;2(4):160-1.
6. Chandler WH. Evergreen Orchards. 2nd Ed. Henry Kimpton, London. 1958.
7. Chandrasekhar V. Survey and characterization of jackfruit (*Artocarpus heterophyllus* Lam.) germplasm available in Andhra Pradesh to identify elite trees. Ph.D. Thesis. Dr. Y.S.R. Horticultural University, Venkataramannagudem, Andhra Pradesh. 2014.
8. Gaithoiliu P, Lolly SP, Binu M. Diversity of jackfruit (*Artocarpus heterophyllus* Lam.) in Rongram Block of West Garo Hills, Meghalaya. Int. J ScL Em. Tech. 2017;6(3):1940-47.
9. IPGRI. Descriptors for jackfruit (*Artocarpus heterophyllus* Lam.). IPGRI, Rome. 2000. ISBN 92-90423-450-3.
10. Jagadeesh SL, Reddy BS, Basavaraj N, Swamy GSK, Kirankumar Gorbal, Laxminarayan Hegde, *et al*. Inter tree variability for fruit quality in jackfruit selections of Western Ghats of India. Sci. Hortic. 2007;112(4):382-87.
11. Jayavalli R. Identification and Evaluation of High Yielding Good Quality Jack Genotypes. Int. J Curr. Microbiol. App. Sci. 2020;9(6):2429-2456.
12. Merrill ED. A Flora of Manila. (1976 reprint). Manila: Bu. of Printing; c1912. p. 369.
13. Popenoe W. Manual of Tropical and Sub-tropical Fruits, 414-419. New York: Halfner Press Co. 1974.
14. Rahaman M, Karim M, Haque M, Rahaman M. Evaluation of jackfruit germplasm for yield and yield contributing characters Bangladesh J Agril. Res. 2019;44(1):167-177.
15. Rai Mathura, Vishal Nath, Bikash Das, Ashok Rai, Manoj Kumar. Evaluation of Jackfruit genotypes for yield ad quality attributes under Eastern Indian Condition, Horticulture and Agro Forestry Research Programme, Plandu, Ranchi -834 010. The Orissa Journal of Horticulture, 2002, 31(1).
16. Samaddar HM, Bose TK, Mishra SK. Jackfruit. In Fruits of India: tropical and subtropical. Culcutta, India: Naya Prokash; c1985. p. 638–49.
17. Swami SB, Kalse SB. Jackfruit (*Artocarpus heterophyllus* Lam.) Biodiversity, Nutritional Contents and Health. 2018. DOI: 10.1007/978-3-319-54528-8_87-1.