The Pharma Innovation Journal 2023; 12(6): 2645-2649

www.ThePharmaJournal.com

The Pharma Innovation

ISSN (E): 2277-7695
ISSN (P): 2349-8242
NAAS Rating: 5.23
TPI 2023; 12(6): 2645-2649

www.thepharmajournal.com
Received: 05-04-2023
Accepted: 10-05-2023

Vani NU
Ph.D. Scholar, Department of Horticulture with Specialization in Fruit Science, IGKV, Raipur, Chhattisgarh, India

PC Tripathi
Principal Scientist, Division of Fruit Crops, ICAR-IIHR, Bengaluru, Karnataka, India

A Prabhakar Singh
Head of the Department, Fruit Science Department, College of Agriculture, IGKV, Raipur, Chhattisgarh, India

V Keshava Rao
Principal Scientist, Division of Basic Sciences, ICAR-IIHR, Bengaluru, Karnataka, India

HK Panigrahi
Assistant Professor, Fruit Science Department, College of Agriculture, IGKV, Raipur, Chhattisgarh, India

P Katiyar
Head of the Department, Plant Physiology department, IGKV, Raipur, Chhattisgarh, India

RR Saxena
Professor, Department of Statistics, IGKV, Raipur, Chhattisgarh, India

Corresponding Author:
Vani NU
Ph.D. Scholar, Department of Horticulture with Specialization in Fruit Science, IGKV, Raipur, Chhattisgarh, India

Growth parameters of jamun (*Syzygium cumini* Skeels.) genotypes

Vani NU, PC Tripathi, A Prabhakar Singh, V Keshava Rao, HK Panigrahi, P Katiyar and RR Saxena

Abstract
The present investigation entitled "Growth parameters of jamun (*Syzygium cumini* Skeels.) genotypes" was carried during 2020-22. The study comprised 65 genotypes maintained in the jamun germplasm block of ICAR- Indian Institute of Horticultural Research, Hesaraghatta, Bangalore. Data on growth parameters like plant height, plant girth, plant canopy, leaf length, leaf width, leaf petiole length, leaf length: breadth ratio of 65 jamun genotypes were observed. The genotype PGR-1 recorded maximum plant height (861.67 cm), plant canopy (E-W) (1026.57 cm) and plant canopy (N-S) (1141.5 cm). The genotype SS-6 recorded minimum plant height (402.50 cm), plant canopy (E-W) (237.5 cm) and plant canopy (N-S) (238.33 cm). Maximum plant girth (300.29 cm) was recorded in B-VI-13-1 and the minimum plant girth (58.33 cm) was found in PGR-14. The maximum leaf length (18.08 cm) was obtained in B-VI-12-1 and the minimum leaf length (10.51 cm) in Kaveripatnam-2. Maximum leaf width (8.2 cm) was found in PGR-13 and the minimum leaf width (3.8 cm) in MP-2. The maximum leaf petiole length (3.52 cm) was found in KHA-3 and the minimum petiole length (1.25 cm) in Kaveripatnam-2. The maximum length: breadth (3.07) was recorded in MP-2 and the minimum length: breadth (1.73) in PGR-7.

Keywords: Jamun, genotypes, growth, *Syzygium cumini*

Introduction
One of the hardest fruit crops is jamun (*Syzygium cuminii*), which can thrive easily in neglected swampy places where other fruit trees cannot. The fruit is a good source of iron, sugars, minerals, protein, carbohydrate, vitamins and phytochemicals owing to the formulations of various ayurvedic medicines. etc. Some pharmacological properties of jamun reported are Antidiabetic, Hypolipidemic, Antibilious, Digestive, Carminative, Appetizer, Stomachic, General tonic and liver tonic, Antidiarrheal, Astringent to bowel, Enriches the blood, Strengthens the teeth and gums, Antiscorbutic, Diuretic, Anti-inflammatory, Anthelmintic and Antimicrobial activity. Jamun is indeed a highly valued evergreen tree with medicinal importance, and it is considered as a minor fruit crop in India. Despite its importance, information regarding jamun genetic resources in India is limited, and its complete potential has not been fully discovered yet.

Materials and methods
An experiment was conducted to evaluate the genotypes with respect to growth characters during 2020-21 and 2021-22. The study was carried out with 65 genotypes that were collected and established at germplasm block of the division of fruit crops at ICAR- IIHR, Bengaluru. The experiment was designed with three trees from each genotype and each tree was considered as one replicate. Trees that are well grown, uniform statured trees of jamun were selected for the experiment. The trees were planted in a square pattern, 5 meters apart. Random numbers were used to choose the treatmental trees (Oliver, 1965) [6].
Tree height was recorded with the help of measuring pole from the ground surface to the maximum height attained by the plant and recorded in centimetre (cm). The girth of the trunk is usually signified as the collar portion of the main stem of the plant circumference and was measured at an interval of 30 cm from the ground level and labeled in centimeters. Tree spread was recorded for each tree by putting the measuring tape horizontally with the tree from East-West and North-South and mean spread was worked out in centimetre (cm).

The length of leaf was measured from the point of petiole attachment to the tip of leaf. An average of ten leaves from four different direction of the plant was measured for the analysis of the length with scale and was expressed in centimeters. Leaf breadth of randomly selected ten mature leaves was recorded using a scale and expressed in centimeters. The petiole length was measured from the tip of petiole to the starting point of leaf lamina and expressed in centimeter. The leaf length to leaf breadth ratio was calculated by dividing leaf length by leaf breadth. The data on various characters were subjected to Fisher's method of analysis of variance and the interpretation of data as given by Panse and Sukhatme (1967) [7]. The level of significance used for 'F' and 't' tests was p= 0.05. Critical difference (CD) values were calculated whenever the 'F' test was significant.

Results and Discussion

The analysis of variance (ANOVA) worked out for growth characters of each of the 65 genotypes was drawn out individually for two year 2020-21, 2021-22 and pooled data. The investigation recorded considerable variation for the traits in the studied genotypes.

In the 2020–21 growing season, plant height ranged from 371.67 cm (SS-6) to 819.80 cm (B-IV-13-1). In the years 2021–22, it varied from 416.67 cm (KHA-3) to 940 cm (PGR-1). 553.44 cm was the mean performance for the pooled years (Table-1) while the minimum plant height (402.50 cm) was found in SS-6 and maximum plant height (861.67 cm) in PGR-1 which is at par with B-IV-13-1 (841.57 cm) followed by PGR-12 (767.35 cm) and Jayanagar-2 (738.33 cm). In the 2020–21 growing season, plant girth ranged from 57.67 cm (PGR-14) to 299.90 cm (B-IV-13-1). In the years 2021–22, it varied from 59 cm (PGR-14) to 300.67 cm (B-IV-13-1) (Table 1). 146.1 cm was the mean performance for the pooled years while the minimum plant girth (58.33 cm) was found in PGR-14 and maximum plant girth (300.29 cm) in B-IV-13-1 preceded by B-IV-12-1 (284.24 cm) and Patna (213.78 cm).

In the 2020–21 growing season, plant canopy east-west ranged from 231.33 cm (SS-6) to 1020.14 cm (PGR-1). In the years 2021–22, it varied from 261.67 cm (SS-6) to 1033 cm (PGR-1) (Table 1). 511.09 cm was the mean performance for the pooled years while the maximum plant canopy (E-W) (1026.57 cm) was found in PGR-1 preceded by PGR-7 (999.17 cm) and PGR-9 (914.17 cm) and the minimum plant canopy (E-W) (237.5 cm) in SS-6. In the 2020–21 growing season, plant canopy north-south ranged from 190.00 cm (SS-6) to 1135.00 cm (PGR-1). In the years 2021–22, it varied from 265.00 cm (Kaveripatnam-2) to 1148.00 cm (PGR-1) (Table 1). 503.94 cm was the mean performance for the pooled years while the maximum plant canopy (N-S) (1141.5 cm) was found in PGR-1 pursued by PGR-7 (973.50 cm) and the minimum plant canopy (N-S) (238.33 cm) in SS-6.

In the 2020–21 growing season, leaf length ranged from 9.88 cm (Kaveripatnam-2) to 18.03 cm (B-IV-12-1). In the years 2021–22, it varied from 10.64 cm (MP-5) to 19.3 cm (KHA-18) (Table 2). 13.68 cm was the mean performance for the pooled years while the maximum leaf length (18.08 cm) was found in B-IV-12-1 which is at par with B-IV-13-1 followed by KHA-25 (16.69 cm) and the minimum leaf length (10.51 cm) in Kaveripatnam-2. In the 2020–21 growing season, leaf width ranged from 3.44 cm (MP-2) to 8.1 cm (PGR-13). In the years 2021–22, it varied from 3.22 cm (MP-5) to 8.30 cm (PGR-13) (Table 2). 6.19 cm was the mean performance for the pooled years while the maximum leaf width (8.2 cm) was found in PGR-13 pursued by Paiyur-4 (7.67 cm) and the minimum leaf width (3.8 cm) in MP-2.

In the 2020–21 growing season, leaf petiole length ranged from 1.24 cm (DMS-4) to 4.23 cm (KHA-3). In the years 2021–22, it varied from 1.17 cm (Kaveripatnam-2) to 19.3 cm (KHA-21) (Table 2). 2.13 cm was the mean performance for the pooled years while the maximum leaf petiole length (3.52 cm) was found in KHA-3 preceded by Collection-10 (3.23 cm) and the minimum petiole length (1.25 cm) in Kaveripatnam-2. In the 2020–21 growing season, leaf length: breadth ranged from 1.72 (PGR-7) to 3.25 (MP-2). In the years 2021–22, it varied from 1.74 (PGR-7) to 3.31 (MP-5) (Table 2). 2.24 was the mean performance for the pooled years while the maximum length: breadth (3.07) was found in MP-2 which is at par with MP-5 (3.03) preceded by Collection-6 (2.83) and the minimum length: breadth (1.73) in PGR-7.

The similar significant variation in plant height of jamun was reported by Prabhuraj *et al*. (2002) [8], Kaur and Bal (2015) [4], Shamsher and Amarjeet (2016) [9] and Anushma and Anuradha (2018) [1]. The similar variation in plant girth of jamun was reported by Prabhuraj *et al.* (2002a) [8], Laxmikanth (2004) [5], Anushma and Anuradha (2018) [1]. The similar variation in plant canopy of jamun was reported by Singh *et al*. (2016) [11], Swamy *et al*. (2017) [12] and Anushma and Anuradha (2018) [1]. Similar results in leaf parameters were reported by Athani *et al*. (2009) [2], Ayyanar and Subash-Babu (2012) [3], Anushma and Anuradha (2018) [1] and Singh *et al.* (2019) in jamun**.** Similar results were reported by Prabhuraj *et al*. (2002) [8], Athani *et al.* (2009) [2] and Anushma and Anuradha (2018) [1] in jamun.

Table 1: Assessing the variability of jamun genotypes for growth parameters

Sl. no	Genotype name	Plant height (cm)			Plant girth (cm)			Plant spread E-W (cm)			Plant spread N-S (cm)		
		2020	2021	Pooled	2020	2021	Pooled	2020	2021	Pooled	2020	2021	Pooled
1	Selection-45	466.67	496.7	481.67	143.13	144.7	143.92	395	400	397.5	435	441.67	438.33
2	Selection-58	485	493.3	489.17	133.97	134.76	134.37	468.33	480	474.17	451.67	480	465.83
3	Savadatti	418.33	430	424.17	140.25	142.61	141.43	420	428.33	424.17	465	470	467.5
4	Kaithnal	496.67	568.3	532.5	128.48	138.42	133.45	484.33	485	484.67	438.33	461.67	450
5	AJG-85	498.33	510	504.17	146.8	154.91	150.85	489	516.67	502.83	473.33	515	494.17
6	IC-715	390	420	405	128.22	129.26	128.74	473	486.67	479.83	450	455	452.5
7	Konkan Bahadoli	503.33	531.7	517.5	158.57	159.09	158.83	461.67	473.33	467.5	410	418.33	414.17
8	Collection -2	426.67	443.3	435	157.26	158.57	157.92	419.33	448.33	433.83	426.67	435	430.83
9	Collection -3a	438.33	463.3	450.83	159.62	160.14	159.88	476.67	503.33	490	430	516.67	473.33
10	Collection -4a	400	431.7	415.83	112.78	114.35	113.56	308.33	338.33	323.33	391.67	435	413.33
11	Collection -12	508.33	526.7	517.5	153.86	156.22	155.04	500	530	515	485.91	545	515.46
12	Chinnapalli	495	535	515	170.08	173.75	171.92	463.33	486.67	475	496.67	510	503.33
13	Goma Priyanka	498.33	516.7	507.5	144.96	145.75	145.36	416.67	445	430.83	465	467.67	466.33
14	Kaveripattanam-4	513.33	528.3	520.83	155.69	159.09	157.39	420	450	435	445	456.67	450.83
15	Collection-5	568.33	571.7	570	129.79	130.31	130.05	455	461.67	458.33	421.67	468.33	445
16	Collection -3	586.67	625	605.83	142.06	144.18	143.12	365	378.33	371.67	355	378.33	366.67
17	Collection 4	503.33	681.7	592.5	180.03	180.29	180.16	357	380	368.5	471.67	506.67	489.17
18	Collection 6	456.67	526.7	491.67	153.6	163.28	158.44	480	493.33	486.67	450	453.33	451.67
19	Collection -8	474.33	536.7	505.5	159.09	166.68	162.89	435	465	450	415	446.67	430.83
20	Collection -9	418.33	556.7	487.5	127.69	130.05	128.87	330	355	342.5	390	393.33	391.67
21	Collection -10	463.33	506.7	485	140.52	140.78	140.65	360	395	377.5	448.33	488.33	468.33
22	Collection -11	430	565	497.5	163.19	163.28	163.23	468.33	471.67	470	438.33	448.33	443.33
23	Collection -13	493.33	520	506.67	155.17	156.22	155.69	401.67	438.33	420	441.67	465	453.33
24	Kaveripattanam -2	410	473.3	441.67	111.99	114.35	113.17	266	281.67	273.83	255	265	260
25	Hirehally	450	586.7	518.33	155.48	156.48	155.98	362.33	375	368.67	368.33	370.33	369.33
26	Hurulichikkanahally	516.67	558.3	537.5	158.31	158.57	158.44	406.67	408.33	407.5	486.67	490	488.33
27	Dharwad market sample -2	623.33	630	626.67	206.46	206.72	206.59	520	575	547.5	540	544	542
28	Dharwad market sample -3	558.33	581.7	570	178.2	186.05	182.12	536.67	540	538.33	475	491.67	483.33
29	Dharwad market sample -4	700	700	700	183.17	185	184.08	514	553.33	533.67	478.33	484.33	481.33
30	Jayanagar -2	693.33	783.3	738.33	206.72	208.03	207.37	503.33	548.33	525.83	491.67	495	493.33
31	Madhya Pradesh -3	583.33	646.7	615	152.55	170.35	161.45	371.67	385	378.33	381.67	403.33	392.5
32	Madhya Pradesh -5	606.67	655	630.83	202.79	205.15	203.97	501.67	511.67	506.67	519	540	529.5
33	KHA-26	403.33	455	429.17	106.5	121.15	113.83	350	390	370	368.33	405	386.67
34	KHA-3	416.67	416.7	416.67	74.67	85.3	79.99	375	386.67	380.83	351.67	365	358.33
35	KHA-1	458.33	491.7	475	135.54	141.3	138.42	380	446.67	413.33	385	460	422.5
36	KHA-16	483.33	495	489.17	138.16	143.92	141.04	456.67	481.67	469.17	451.67	468.33	460
37	KHA-13	611.67	633.3	622.5	129.09	130.05	129.57	390	426.67	408.33	396.67	423.33	410
38	KHA-14	566.67	616.7	591.67	125.14	136.85	131	381.67	436.67	409.17	393.33	405	399.17
39	KHA-25	383	426.7	404.83	137.9	153.6	145.75	415	443.33	429.17	395	435	415
40	KHA-21	441.67	481.7	461.67	140.78	153.34	147.06	393.33	421.67	407.5	381.67	389.67	385.67
41	KHA-18	540	623.3	581.67	137.25	139.99	138.62	328.33	350	339.17	358.33	363.33	360.83
42	KHA-24	476.67	521.7	499.17	134.5	149.41	141.95	410	436.67	423.33	375	473.33	424.17
43	SS-6	371.67	433.3	402.5	103.62	127.69	115.66	213.33	261.67	237.5	190	286.67	238.33
44	PGR -1	783.33	940	861.67	155.29	155.3	155.3	1020.14	1033	1026.57	1135	1148	1141.5
45	PGR -2	596.1	621.7	608.88	112	113.2	112.6	720	731.67	725.83	864.54	871.67	868.1
46	PGR -4	540.87	551.7	546.27	111.99	112.82	112.4	847.21	855	851.11	820.69	826.67	823.68
47	PGR -5	528.97	560	544.48	115.33	117.66	116.5	660	661.67	660.83	680	696.67	688.33
48	PGR -6	601.97	623.3	612.65	137	137.05	137.02	860.25	868.33	864.29	685.59	691.67	688.63
49	PGR -7	679.83	700	689.92	135	136.14	135.57	990	1008.33	999.17	965	982	973.5
50	PGR -8	621.47	628.3	624.9	104	106.36	105.18	865.18	878.33	871.76	785	788	786.5
51	PGR -9	683.77	708.3	696.05	123.36	123.37	123.37	910	918.33	914.17	860.35	871.67	866.01
52	PGR -10	503.67	527.7	515.67	58	59.24	58.62	460	471.67	465.83	410.12	423.33	416.73
53	PGR -11	598.7	636.7	617.68	63	65.46	64.23	570.24	578.33	574.29	430	445	437.5
54	PGR -14	551.56	581.7	566.61	57.67	59	58.33	608.65	628.33	618.49	534.52	541.67	538.09
55	Block 6-12-1	694.83	698.3	696.58	283.81	284.67	284.24	630	641.67	635.83	550	571.67	560.83
56	Block 6-13-1	819.8	863.3	841.57	299.9	300.67	300.29	645	660	652.5	670	680	675
57	Madhya Pradesh -2	596.67	670	633.33	167.44	169.3	168.37	465	486.67	475.83	455	468.33	461.67
58	PGR -3	586.33	605	595.67	131	131.13	131.07	770	772	771	880	888.33	884.17
59	PGR -12	756.38	778.3	767.35	105	107.06	106.03	660	671.67	665.83	500	518.33	509.17
60	PGR -13	513.93	540.7	527.3	63.98	64.05	64.02	565	568.33	566.67	480	495	487.5
61	Collection -7	481.67	485	483.33	176.36	177.41	176.89	475	513.33	494.17	475	481.67	478.33
62	Chikkodi	673.33	726.7	700	152.03	169.56	160.79	508	508.33	508.17	388.33	391.67	390
63	Paiyur -4	463.33	498.3	480.83	154.38	159.09	156.74	415	443.33	429.17	443.33	455	449.17

64	Patna	658.33	731.7	695	212.74	214.83	213.78	490	521.67	505.83	483	496.67	489.83
65	Dhoopdal	445	468.3	456.67	141.82	144.44	143.13	488.67	505	496.83	443.33	488.33	465.83
	Mean	532.42	574.47	553.44	144.07	148.12	146.10	500.72	521.46	511.09	493.49	514.39	503.94
	SE (m)	16.68	15.426	11.66	6.82	2.961	3.674	15.2	11.276	9.559	9.77	10.173	7.215
	CD @ 5%	46.68	43.166	32.628	19.09	8.284	10.281	42.54	31.553	26.749	27.33	28.468	20.188

Table 2: Mean performance on growth characters of jamun genotypes

Sl. no	Genotype name	Leaf length (cm)			Leaf width (cm)			Leaf petiole length (cm)			Leaf length: width		
		2020	2021	Pooled	2020	2021	Pooled	2020	2021	Pooled	2020	2021	Pooled
1	Selection-45	13.05	14.73	13.89	5.69	6.6	6.15	2.17	2.15	2.16	2.3	2.23	2.26
2	Selection-58	12.39	13.01	12.7	5.39	5.94	5.67	2.24	1.94	2.09	2.3	2.19	2.25
3	Savadatti	12.49	13.54	13.02	5.72	6.33	6.03	2.12	2.04	2.08	2.18	2.14	2.16
4	Kaithnal	12.57	14.33	13.45	5.75	6.16	5.96	1.68	1.8	1.74	2.19	2.33	2.26
5	AJG-85	12.26	13.95	13.11	5.32	5.94	5.63	2.56	2.16	2.36	2.31	2.35	2.33
6	IC-715	14.25	15.11	14.68	6.3	6.07	6.19	1.46	1.81	1.64	2.26	2.49	2.38
7	Konkan Bahadoli	11.24	12.36	11.8	5.67	6.97	6.32	2.75	2.07	2.41	1.98	1.77	1.88
8	Collection -2	12.53	14.71	13.62	6.09	6.72	6.41	2.22	2.58	2.4	2.06	2.19	2.12
9	Collection -3a	12.93	12.77	12.85	6.49	7.02	6.76	2	2.01	2.01	1.99	1.82	1.91
10	Collection -4a	12.98	14.84	13.91	5.15	6	5.58	2.09	1.74	1.92	2.52	2.48	2.5
11	Collection -12	12.79	10.99	11.89	5.5	5.57	5.54	2.52	1.87	2.2	2.33	1.97	2.15
12	Chinnapalli	12.06	13.88	12.97	5.75	6.87	6.31	2.28	1.71	2	2.1	2.02	2.06
13	Goma Priyanka	12.9	12.45	12.68	6.3	6.76	6.53	2.23	1.64	1.94	2.05	1.84	1.95
14	Kaveripattanam-4	11.96	13.87	12.92	6.44	7.32	6.88	1.92	1.96	1.94	1.86	1.9	1.88
15	Collection-5	12.36	15.77	14.07	4.57	7.06	5.82	1.7	1.81	1.76	2.7	2.23	2.47
16	Collection -3	15.33	16.07	15.7	5.52	6.23	5.88	1.67	1.76	1.72	2.78	2.58	2.68
17	Collection 4	12.6	13.28	12.94	5.1	5.41	5.26	1.76	1.83	1.8	2.47	2.46	2.46
18	Collection 6	13.34	14.05	13.7	4.94	4.75	4.85	2.83	2.19	2.51	2.7	2.96	2.83
19	Collection -8	14.03	11.4	12.72	6.78	5.19	5.99	2.61	2.44	2.53	2.07	2.2	2.13
20	Collection -9	15.11	13.94	14.53	6.57	6.33	6.45	3.25	1.78	2.52	2.3	2.2	2.25
21	Collection -10	12.91	16.21	14.56	5.12	6.39	5.76	3.37	3.09	3.23	2.53	2.54	2.53
22	Collection -11	14.63	11.76	13.2	6.23	5.43	5.83	2.82	2.82	2.82	2.35	2.17	2.26
23	Collection -13	12.08	12.28	12.18	5.46	6.98	6.22	2.79	2.37	2.58	2.21	1.76	1.99
24	Kaveripattanam -2	9.88	11.14	10.51	5.14	5.22	5.18	1.33	1.17	1.25	1.92	2.13	2.03
25	Hirehally	13.69	12.68	13.19	6.85	5.77	6.31	2.59	2.23	2.41	2	2.2	2.1
26	Hurulichikkanahally	13.17	13.13	13.15	4.54	5.93	5.24	1.75	1.97	1.86	2.9	2.21	2.56
27	Dharwad market sample -2	14.1	13.35	13.73	5.92	5.79	5.86	2.44	2.22	2.33	2.38	2.31	2.34
28	Dharwad market sample -3	12.8	14.93	13.87	5.45	6.21	5.83	2.08	2.33	2.21	2.35	2.4	2.38
29	Dharwad market sample -4	13.89	15.17	14.53	5.52	6.03	5.78	1.24	1.6	1.42	2.52	2.52	2.52
30	Jayanagar -2	15.39	13.09	14.24	6.62	6.26	6.44	1.97	1.46	1.72	2.33	2.09	2.21
31	Madhya Pradesh -3	13.39	12.37	12.88	6.58	6.79	6.69	3.16	2.66	2.91	2.04	1.82	1.93
32	Madhya Pradesh -5	13.44	10.64	12.04	4.88	3.22	4.05	1.32	1.42	1.37	2.76	3.31	3.03
33	KHA-26	13.9	12.65	13.28	5.79	5.39	5.59	2.05	2.17	2.11	2.4	2.35	2.37
34	KHA-3	13.63	13.6	13.62	6.2	6.32	6.26	4.23	2.81	3.52	2.2	2.15	2.18
35	KHA-1	15.19	15.29	15.24	6.48	5.97	6.23	2.06	2.59	2.33	2.34	2.56	2.45
36	KHA-16	11.82	13.83	12.83	6.57	7.25	6.91	2.27	2.12	2.2	1.8	1.91	1.85
37	KHA-13	15.68	15.9	15.79	6.44	6.07	6.26	1.46	1.88	1.67	2.44	2.62	2.53
38	KHA-14	14.03	11.9	12.97	5.46	6.74	6.1	1.33	1.54	1.44	2.57	1.77	2.17
39	KHA-25	16.9	16.48	16.69	7.43	6.85	7.14	1.75	2.83	2.29	2.27	2.41	2.34
40	KHA-21	15.91	17.29	16.6	6.48	6.66	6.57	2.33	3.11	2.72	2.46	2.6	2.53
41	KHA-18	14.16	19.3	16.73	6.31	6.92	6.62	1.91	1.84	1.88	2.24	2.79	2.52
42	KHA-24	12.51	15.61	14.06	4.98	6.25	5.62	2.79	2.59	2.69	2.51	2.5	2.51
43	SS-6	14.13	14.13	14.13	6.31	6.55	6.43	2.77	2.77	2.77	2.24	2.17	2.2
44	PGR -1	13.87	14.07	13.97	6.76	6.86	6.81	1.7	1.7	1.7	2.05	2.05	2.05
45	PGR -2	13.93	13.93	13.93	7.44	7.44	7.44	2	2	2	1.87	1.87	1.87
46	PGR -4	14.04	14.07	14.06	6.6	6.7	6.65	1.95	1.95	1.95	2.13	2.1	2.11
47	PGR -5	13	13.12	13.06	6.48	6.64	6.56	2	2	2	2.01	1.98	1.99
48	PGR -6	12.48	12.54	12.51	6.2	6.3	6.25	2.32	2.32	2.32	2.01	1.99	2
49	PGR -7	11.41	11.51	11.46	6.63	6.63	6.63	2.02	2.02	2.02	1.72	1.74	1.73
50	PGR -8	11.64	11.64	11.64	5.98	6.06	6.02	2.06	2.06	2.06	1.95	1.92	1.93
51	PGR -9	11.95	12.04	12	6.25	6.25	6.25	2.26	2.26	2.26	1.91	1.93	1.92
52	PGR -10	12.93	13.33	13.13	6.9	6.9	6.9	2	2	2	1.87	1.93	1.9
53	PGR -11	13.83	13.93	13.88	7.02	7.08	7.05	2.14	2.14	2.14	1.97	1.97	1.97
54	PGR -14	15.37	15.37	15.37	6.99	7.07	7.03	3.01	3.01	3.01	2.2	2.18	2.19
55	Block 6-12-1	18.03	18.13	18.08	7.02	7.05	7.04	2.08	2.08	2.08	2.57	2.57	2.57
56	Block 6-13-1	17.85	17.95	17.9	6.64	6.72	6.68	2.6	2.61	2.6	2.69	2.67	2.68
57	Madhya Pradesh -2	11.19	12.01	11.6	3.44	4.15	3.8	1.6	1.28	1.44	3.25	2.9	3.07

58	PGR -3	15	15	15	7.34	7.54	7.44	2.05	2.05	2.05	2.04	1.99	2.02
59	PGR -12	12.3	12.32	12.31	5.23	5.23	5.23	1.74	1.74	1.74	2.35	2.36	2.35
60	PGR -13	14.84	14.84	14.84	8.1	8.3	8.2	1.81	1.81	1.81	1.83	1.79	1.81
61	Collection -7	13.39	12.66	13.03	5.92	6.56	6.24	2.48	1.92	2.2	2.26	1.93	2.1
62	Chikkodi	16.43	13.97	15.2	7.29	5.97	6.63	1.82	1.73	1.78	2.26	2.34	2.3
63	Paiyur -4	14.31	15.48	14.9	7.1	8.24	7.67	2.16	2.17	2.17	2.02	1.88	1.95
64	Patna	11.6	12.26	11.93	4.7	4.94	4.82	1.96	1.77	1.87	2.47	2.48	2.48
65	Dhoopdal	12.44	12.81	12.63	5.1	7.05	6.08	1.67	2.08	1.88	2.44	1.82	2.13
	Mean	13.51	13.86	13.69	6.05	6.34	6.19	2.17	2.09	2.13	2.26	2.22	2.24
	SE (m)	0.202	0.215	0.139	0.082	0.087	0.062	0.032	0.033	0.024	0.046	0.033	0.032
	CD @ 5%	0.565	0.6	0.388	0.23	0.245	0.173	0.089	0.093	0.067	0.13	0.093	0.091

Conclusion

There is a lot of diversity among the genotypes under study for plant height, plant girth, plant canopy, leaf length, leaf width, leaf petiole length, leaf length: breadth. The genotypes which recorded highest mean performance for growth characters are PGR-1 for plant height (861.67 cm), plant canopy (E-W : 1026.57 cm) and plant canopy (N-S: 1141.5 cm), B-VI-13-1 for plant girth (300.29 cm), B-VI-12-1 for leaf length (18.08 cm), PGR-13 for leaf width (8.2 cm), KHA-3 for leaf petiole length (3.52 cm), MP-2 for length: breadth (3.07). PGR-1, PGR-13, B-VI-13-1, B-VI-12-1 and KHA-3 were superior in recording the growth attributes thereby improving the other attributes of jamun genotypes which can be harnessed for conservation and utilized further for breeding purpose.

Acknowledgements

The author would like to thank their respective advisory committee and Institutes for rendering academic support for the successful completion of the research work. I am thankful to all the scientists and professors for their assistance in the completion of this research work.

References

1. Anushma PL, Anuradha S. Assessing variability in morphological traits of jamun (*Syzygium cumunii* Skeels) genotypes. J Plant Develop. Sci. 2018;10(11):629-632.
2. Athani SI, Revanappa, Allolli TB. Tree architectural characters and yield of *Syzygium cumunii* (Jamun) strains. J of Ecob. 2009;25(3):293- 296.
3. Ayyanar M, Subash-Babu P. *Syzygium cumunii* (L.) Skeels: A review of its phytochemical constituents and traditional uses. Asian Pac. J Trop. Biomed. 2012;2(3):240-246.
4. Kaur M, Bal JS. An evaluation of Jamun (*Syzygium cuminii*) germplasm for conservation of elite ones. Hort .Flora Res. Spectru. 2015;4(4):342-346.
5. Laxmikanth. Investigation of elite jamun (*Syzygium cuminii*) selects. M.Sc. (Hort) thesis, Univ. of Agril. Sci., Dharwad, 2004.
6. Oliver Lacey L. Statistical Methods in Experimentation. 1965;1:11-30.
7. Panse, Sukhathme PV. Statistical methods for Agricultural workers. Indian council of Agricultural Research, New Delhi, 1967.
8. Prabhuraj HS, Swamy GSK, Athani SI, Patil BR, Hulamani NC, Patil PB. Variability in morphological characteristics of jamun (*Syzygium cumunii* Skeels) trees. My For. 2002a;38(2):187-190.
9. Shamsher S and Amarjeet K. Characterization of jamun genotypes in central and sub-montaneous zone of Punjab. Hort flora Res. Spect. 2016; 06(11):9933-9936.
10. Singh S, Singh SP, Vaibhav Singh, Kumari Shikha. Studies on floral biology, fruit set and fruit drop of different genotypes of jamun (*Syzygium cumunii* Skeels). The Pharma Innovation Journal. 2019;8(1):558-561
11. Singh SY, Vivela DS, Swamy GSK. Genetic variation for morphological and physicochemical traits in jamun (*Syzygium cuminii* Skeels). Asian J Hortic. 2016;11:163-167.
12. Swamy GSK, Anushma PL, Jagadeesha RC. Morphological characterization of elite Jamun (*Syzygium cuminii* Skeels) genotypes. Int. J. Minor Fruits, Medicinal and Aromatic Plants. 2017;3(1):09-15.