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Variability of jamun (*Syzygium cumini* L. Skeels) fruit genotypes for biochemical attributes

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Abstract
Jamun (*Syzygium cumini* L. Skeels) is a highly cross-pollinated crop and pollinated primarily by honey bees. Hence, out crossing variability are common in jamun. As most jamun trees are seedling origin, they show immense variation in their biochemical attributes. The present investigation was carried out during year 2022-23 and 2023-24 to assess variability of jamun fruit genotypes for biochemical attributes. During the survey, 20 jamun genotypes were selected from the University campus of Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar district of Maharashtra, India. All these genotypes were evaluated for biochemical attributes for two years 2022-23 and 2023-24. Results indicated that, genotype RHRJ-7/1 showing maximum TSS (17.15 °B), TSS: acid ratio (39.48), total sugars (15.42 percent), reducing sugars (12.05 percent) and Sugar: acid ratio (35.49) while minimum was recorded by the genotype RHRJ-10/4. The lowest titratable acidity (0.44 percent) was observed in the genotype RHRJ-7/1 whereas the highest (0.55 percent) was recorded in RHRJ-10/4. Maximum non-reducing sugars (3.85 percent) was observed in the genotype HN-1, while minimum (1.61 percent) was recorded in RHRJ-14/1.

Keywords: Jamun**,** TSS, total sugars, reducing sugars

Introduction
Jamun (*Syzygium cumini* Skeels) is an evergreen, multipurpose tree and an important underutilized indigenous fruit crop of India, belonging to the Myrtaceae family with the chromosome number of 2n=40. It holds commercial value in tropical and subtropical climates (Sharma *et al.*, 2012) [13]. It has gained major importance as an arid zone fruit crop due to its hardy nature, prolific bearing, highly remunerative and even grown without much care and attention (Alam *et al*., 2020) [1]. Jamun fruits can be consumed as fresh or processed into a variety of products such as juice, squash, jam, jelly, etc.

In addition to its cooling and digestive properties, both fermented and fresh jamun juice is said to provide a number of medicinal benefits, including stomachic, carminative, and diuretic effects (Thaper, 1958) [20]. Fruits help to reduce the risk of chronic diseases such as cancer and cardiovascular diseases (Yeum *et al*., 2003) [21]. The jamun fruit has anti-diabetic properties as it helps to convert starch into energy and control blood sugar level (Joshi *et al*., 2019) [7]. The fruits and seeds of jamun have sweet, acrid, and sour qualities, are used to treat and manage conditions like ringworm, diabetes, and diarrhoea. Moreover, it is said to regulate blood pressure (Bhargava *et al*., 1968) [3].

Due to lack of availability of important variety, the plant material of seedling origin is used in cultivation which are of unknown yield capacity and fruit quality. In India, lot of variation with respect to biochemical fruit characters *viz.* TSS, titratable acidity, TSS: acid ratio, total sugars, reducing sugars, non-reducing sugars and Sugar: acid ratio of this jamun crop is reported. This variation will helpful for develop superior jamun genotype with respect to above mentioned traits. Hence, present study was taken to assess variability of jamun fruit genotypes for biochemical attributes and also to identify superior genotype (s).

Materials and Methods
The present investigation was carried out on 20 different genotypes of seedling origin jamun genotypes selected through an extensive survey in university campus of Mahatma Phule Krishi Vidyapeeth, Rahuri, Dist. Ahmednagar of Maharashtra (India) during year 2022-23 to

2023-24. Three different lots of 50 fresh and well ripen jamun fruits from each tree were taken for biochemical analysis. Different biochemical characteristics like TSS, titratable acidity, TSS: acid ratio, total sugars, reducing sugars, non-reducing sugars and Sugar: acid ratio of fruits were recorded as per standard method.

Hand refractometer (Erma Japan, range 0 to 32^{0}Brix) was used to determine total soluble solid (TSS) and expressed as degree Brix (^{0}B). Titratable acidity was determined by titrating with standardised 0.1 N NaOH (sodium hydroxide) as described by Ranganna, 1977 [12]. TSS to acid ratio is the ratio of total soluble solids and titratable acidity and the values were recorded. Total sugars was estimated by the method of Lane and Eynon (1923) [9] with the help of Fehlings 'A' and Fehlings 'B' solution. Determination of reducing sugars by the method of Lane and Eynon (1923) [9]. Non-reducing sugars were calculated by subtracting reducing sugars from total sugars. Sugar to acid ratio is the ratio of total sugars and titratable acidity and the values were recorded.

Results and Discussion

The data presented in Table 1. exhibited that in the year 2023, the TSS content varied from 13.10 to 17.00 ^{0}B with population mean of 15.23 ^{0}B. The maximum TSS content was registered in the genotype RHRJ-7/1 (17.00 ^{0}B) followed by Konkan Bahadoli (16.48 ^{0}B), RHRJ-1/13 (16.25 ^{0}B) and HN-1 (16.20 ^{0}B), while minimum in the genotype RHRJ-10/4 (13.10 ^{0}B). In the year 2024, TSS content varied from 13.00 to 17.30 ^{0}B with population mean of 15.25 ^{0}B. The maximum TSS content was registered in the genotype RHRJ-7/1 (17.30 ^{0}B) followed by Konkan Bahadoli (16.85 ^{0}B), HN-1 (16.51 ^{0}B) and HN-2 (16.35^{0}B), while minimum in the genotype RHRJ-10/4 (13.00 ^{0}B). Based on the mean data, the TSS content varied from 13.05 to 17.15 ^{0}B with population mean of 15.24 ^{0}B. The maximum TSS content was registered in the genotype RHRJ-7/1 (17.15 ^{0}B) followed by Konkan Bahadoli (16.67 ^{0}B), HN-1 (16.36 ^{0}B) and HN-2 (16.25^{0}B), while minimum in the genotype RHRJ-10/4 (13.05 ^{0}B).

The total soluble solids (TSS) often measured as degrees Brix, is crucial for fruit quality, indicating sweetness and maturity, influencing consumer preference and marketability. Hence, while selecting superior genotypes, the emphasis is given on the total soluble solids content of the fruits. The variation in total soluble solids may be attributed to favourable temperature and humidity conditions during the fruit growth period which influenced the higher TSS levels in the ripe fruit. The increase in total soluble solids results from the conversion of polysaccharides into monosaccharides or soluble sugars and the genetic characteristics of plant. An increase in total soluble solids (TSS) can also be attributed to the accumulation of sugars and other soluble compounds, which may result from protein hydrolysis and the oxidation of ascorbic acid (Tayade, 2019) [19]. Results corroborate the findings of Singh and Kaur (2016) [14], Gajera *et al.,* (2018) [5], Tayade (2019) [19], Alam *et al.,* (2020) [1], Singh and Swamy (2021) [15], Rajangam and Sankar (2022) [11] and Soundarya (2024) [16] in jamun.

The data depicted in Table 1. indicated that in 2023, the titratable acidity varied from 0.45 to 0.55 percent with population mean of 0.50 percent. The minimum acidity content was recorded in the genotype RHRJ-7/1 (0.45 percent) followed by Konkan Bahadoli (0.46 percent), RHRJ-1/13 (0.47 percent) and HN-1 and HN-2 (0.48 percent), while maximum in the genotype RHRJ-10/4 (0.55 percent). In 2024, the acidity varied from 0.42 to 0.54 percent with population mean of 0.50 percent. The minimum acidity was recorded in the genotype RHRJ-7/1 (0.42 percent) followed by Konkan Bahadoli (0.43 percent) and HN-1 (0.46 percent), while maximum in the genotypes RHRJ-10/4 and RHRJ-10/5 (0.54 percent). Based on mean data, the titratable acidity varied from 0.44 to 0.55 percent with population mean of 0.50 percent. The minimum acidity was recorded in the genotype RHRJ-7/1 (0.44 percent) followed by Konkan Bahadoli (0.45 percent) and HN-1 (0.47 percent), while maximum in the genotype RHRJ-10/4 (0.55 percent).

It is a general fact that if total soluble solids (TSS) increases, the titratable acidity decreases. The differences in titratable acidity percentage among genotypes could be attributed to total soluble solids content of fruit. Fruit acidity, primarily due to organic acids is crucial for flavour, texture, and preservation, playing a key role in the overall quality and organoleptic characteristics of fruits. Therefore, determining the titratable acidity of a jamun fruit is crucial to understanding the acceptability of a particular genotype tastes. The wide variation in titratable acidity may be due to the genetic makeup of plant. This increase in acidity is likely due to enhanced biosynthesis of organic acids during the initial growth phase and decrease in titratable acidity during the later stages of fruit maturity and ripening was observed due to conversion of organic acids into sugars. Additionally, the increase in acidity may be related to elevated CO_2 levels and the associated bicarbonate content of the sap in cooler temperatures. These findings are in accordance with the reports of Gajera *et al.,* (2018) [5], Babu *et al.,* (2019) [2], Tayade (2019) [19], Alam *et al.,* (2020) [1], Singh and Swamy (2021) [15], Rajangam and Sankar (2022) [11] and Soundarya (2024) [16] in jamun.

As revealed from the data presented in Table 1. the TSS: acid ratio varied from 23.82 to 37.78 with population mean of 30.51. The maximum TSS: acid ratio was noted in the genotype RHRJ-7/1 (37.78) followed by Konkan Bahadoli (35.83), RHRJ-1/13 (34.57) and HN-1 (33.75), while minimum in the genotype RHRJ-10/4 (23.82) in the year 2023. The TSS: acid ratio varied from 24.07 to 41.19 with population mean of 30.81. The maximum TSS: acid ratio was noted in the genotype RHRJ-7/1 (41.19) followed by Konkan Bahadoli (39.19), HN-1 (35.89) and RHRJ-9/1 (33.51), while minimum in the genotype RHRJ-10/4 (24.07) in the year 2024. Considering the mean data, the TSS: acid ratio varied from 23.95 to 39.48 with population mean of 30.66. The maximum TSS: acid ratio was noted in the genotype RHRJ-7/1 (39.48) followed by Konkan Bahadoli (37.51), HN-1 (34.82) and RHRJ-1/13 (33.29), while minimum in the genotype RHRJ-10/4 (23.95).

The TSS: acid ratio is a key characteristic that determine the taste, texture and feel of fruit segments. It reflects the balance between sweetness and tartness, influencing taste and consumer preference. The phenotypic and genetic traits of the cultivars may have improved nutrient uptake and increased carbohydrate accumulation in the fruits, contributing to their higher quality. Present results are in accordance with the findings of Kaur and Bal (2015) [8], Deepika (2016) [4], Swamy *et al.,* (2017) [18], Tayade (2019) [19], Singh and Swamy (2021) [15], Rajangam and Sankar (2022) [11] and Soundarya (2024) [16] in jamun.

Table 1: Biochemical attributes of jamun fruit genotypes for TSS, titratable acidity and TSS: acid ratio

S. N.	Genotype	Total Soluble Solid (°B)			Titratable acidity (%)			TSS: acid ratio		
		2023	2024	Mean	2023	2024	Mean	2023	2024	Mean
1	RHRJ-1/13	16.25	16.00	16.13	0.47	0.50	0.49	34.57	32.00	33.29
2	RHRJ-4/5	13.71	13.80	13.76	0.54	0.51	0.53	25.39	27.06	26.22
3	RHRJ-6/4	14.71	14.53	14.62	0.53	0.51	0.52	27.75	28.49	28.12
4	RHRJ-7/1	17.00	17.30	17.15	0.45	0.42	0.44	37.78	41.19	39.48
5	RHRJ-7/5	13.73	13.23	13.48	0.54	0.53	0.54	25.43	24.96	25.19
6	RHRJ-8/2	15.71	15.50	15.61	0.49	0.52	0.51	32.06	29.81	30.93
7	RHRJ-8/3	15.41	15.61	15.51	0.50	0.47	0.49	30.82	33.21	32.02
8	RHRJ-8/4	15.65	15.39	15.52	0.49	0.47	0.48	31.94	32.74	32.34
9	RHRJ-9	14.20	14.74	14.47	0.52	0.53	0.53	27.31	27.81	27.56
10	RHRJ-9/1	15.50	15.75	15.63	0.50	0.47	0.49	31.00	33.51	32.26
11	RHRJ-9/7	15.35	15.10	15.23	0.50	0.53	0.52	30.70	28.49	29.60
12	RHRJ-9/10	15.45	15.55	15.50	0.50	0.52	0.51	30.90	29.90	30.40
13	RHRJ-10/4	13.10	13.00	13.05	0.55	0.54	0.55	23.82	24.07	23.95
14	RHRJ-10/5	13.70	13.40	13.55	0.54	0.54	0.54	25.37	24.81	25.09
15	RHRJ-13/1	16.10	16.00	16.05	0.49	0.51	0.50	32.86	31.37	32.11
16	RHRJ-14/1	15.00	15.35	15.18	0.51	0.50	0.51	29.41	30.70	30.06
17	RHRJ-14/2	15.20	15.00	15.10	0.51	0.53	0.52	29.80	28.30	29.05
18	HN-1	16.20	16.51	16.36	0.48	0.46	0.47	33.75	35.89	34.82
19	HN-2	16.14	16.35	16.25	0.48	0.50	0.49	33.63	32.70	33.16
20	Konkan Bahadoli	16.48	16.85	16.67	0.46	0.43	0.45	35.83	39.19	37.51
	Range	13.10-17.00	13.00-17.30	13.05-17.15	0.45-0.55	0.42-0.54	0.44-0.55	23.82-37.78	24.07-41.19	23.95-39.48
	Min.	13.10	13.00	13.05	0.45	0.42	0.44	23.82	24.07	23.95
	Max.	17.00	17.30	17.15	0.55	0.54	0.55	37.78	41.19	39.48
	Mean	15.23	15.25	15.24	0.50	0.50	0.50	30.51	30.81	30.66
	S.D.	1.07	1.19	1.12	0.03	0.04	0.03	3.78	4.49	4.04
	SE	0.24	0.27	0.25	0.01	0.01	0.01	0.84	1.00	0.90
	CV (%)	7.01	7.79	7.35	5.55	7.04	5.90	12.38	14.58	13.18

The analysis of total sugars content reveals variability among the different jamun genotypes as noted from the Table 2. In the year 2023, the total sugars content varied from 11.13 to 15.44 percent with population mean of 13.63 percent. The maximum total sugars content was found in the genotype RHRJ-7/1 (15.44 percent) followed by RHRJ-1/13 (14.82 percent), Konkan Bahadoli (14.80 percent) and HN-1 (14.57 percent), while minimum in the genotype RHRJ-10/4 (11.13 percent). In the year 2024, the total sugars content varied from 10.95 to 15.40 percent with population mean of 13.55 percent. The maximum total sugars content was found in the genotype RHRJ-7/1 (15.40 percent) followed by RHRJ-1/13 (15.13 percent), Konkan Bahadoli (14.96 percent) and HN-1 (14.92 percent), while minimum in the genotype RHRJ-10/4 (10.95 percent). Based on mean data, the total sugars content varied from 11.04 to 15.42 percent with population mean of 13.59 percent. The maximum total sugars content was found in the genotype RHRJ-7/1 (15.42 percent) followed by RHRJ-1/13 (14.98 percent), Konkan Bahadoli (14.88 percent) and HN-1 (14.75 percent), while minimum in the genotype RHRJ-10/4 (11.04 percent).

The variations observed in total sugars content among different jamun genotypes can be ascribed to their genetic makeup of the plants as well as agro-climatic factors such as temperature, humidity, soil type, nutrient and water availability during the growth and development stage of the fruits. Determination of sugar in fresh fruit is a very important indicator of quality as it contributes to overall energy intake and also blood sugar levels. These results are in agreement with the results of Ghosh *et al.,* (2017) [6], Babu *et al.,* (2019) [2], Tayade (2019) [19], Alam *et al.,* (2020) [1], Singh and Swamy (2021) [15], Rajangam and Sankar (2022) [11] and Soundarya (2024) [16] in jamun.

Data depicted in Table 2. indicated that in the year 2023, the reducing sugars content varied from 8.80 to 11.96 percent with population mean of 10.57 percent. The maximum reducing sugars was found in the genotype RHRJ-7/1 (11.96 percent) followed by Konkan Bahadoli (11.62 percent), RHRJ-1/13 (11.25 percent) and HN-1 (11.02 percent), while minimum in the genotype RHRJ-10/4 (8.80 percent). In the year 2024, the reducing sugars content varied from 9.12 to 12.13 percent with population mean of 10.49 percent. The maximum reducing sugars was found in the genotype RHRJ-7/1 (12.13 percent) followed by RHRJ-1/13 (11.55 percent), Konkan Bahadoli (11.44 percent) and RHRJ-6/4 (10.90 percent), while minimum in the genotype RHRJ-10/4 (9.12 percent). Based on mean data, the reducing sugars content varied from 8.96 to 12.05 percent with population mean of 10.53 percent. The maximum reducing sugars content was found in the genotype RHRJ-7/1 (12.05 percent) followed by Konkan Bahadoli (11.53 percent), RHRJ-1/13 (11.40 percent) and HN-1 (10.90 percent), while minimum in the genotype RHRJ-10/4 (8.96 percent).

In fruits, both reducing and non-reducing sugars play crucial roles in flavor, sweetness, and overall quality, with reducing sugars being essential for reactions like the Maillard reaction, while non-reducing sugars contribute to overall sweetness and storage stability. Reducing sugars is the dominating sugars present in jamun fruits. The reducing sugars content in fruits from various jamun genotypes varied due to differences in their hereditary traits. The higher levels of reducing sugars in RHRJ-7/1 genotype may be attributed to a greater presence of monosaccharides and disaccharides, such as glucose and fructose, in these fruits during maturation. These results were in agreement with those of Gajera *et al.,* (2018) [5], Babu *et al.,* (2019) [2], Tayade (2019) [19], Singh and Swamy (2021) [15], Rajangam and Sankar (2022) [11] and Soundarya (2024) [16] in jamun.

Table 2: Biochemical attributes of jamun fruit genotypes for total sugars, reducing sugars and non-reducing sugars

S. N.	Genotype	Total sugars (%)			Reducing sugars (%)			Non-reducing sugars (%)		
		2023	2024	Mean	2023	2024	Mean	2023	2024	Mean
1	RHRJ-1/13	14.82	15.13	14.98	11.25	11.55	11.40	3.57	3.58	3.58
2	RHRJ-4/5	12.26	12.35	12.31	9.91	10.10	10.01	2.35	2.25	2.30
3	RHRJ-6/4	13.26	13.03	13.15	10.77	10.90	10.84	2.49	2.13	2.31
4	RHRJ-7/1	15.44	15.40	15.42	11.96	12.13	12.05	3.48	3.27	3.38
5	RHRJ-7/5	12.27	11.86	12.07	9.85	9.15	9.50	2.42	2.71	2.57
6	RHRJ-8/2	14.33	14.00	14.17	10.84	10.50	10.67	3.49	3.50	3.50
7	RHRJ-8/3	13.51	13.87	13.69	9.92	10.22	10.07	3.59	3.65	3.62
8	RHRJ-8/4	14.06	13.98	14.02	10.73	10.46	10.60	3.33	3.52	3.43
9	RHRJ-9	13.29	13.00	13.15	10.50	10.28	10.39	2.79	2.72	2.76
10	RHRJ-9/1	14.00	13.50	13.75	10.45	10.13	10.29	3.55	3.37	3.46
11	RHRJ-9/7	13.26	13.05	13.16	10.24	10.55	10.40	3.02	2.50	2.76
12	RHRJ-9/10	13.71	13.92	13.82	10.50	10.76	10.63	3.21	3.16	3.19
13	RHRJ-10/4	11.13	10.95	11.04	8.80	9.12	8.96	2.33	1.83	2.08
14	RHRJ-10/5	12.22	12.06	12.14	9.50	9.15	9.33	2.72	2.91	2.82
15	RHRJ-13/1	14.45	14.33	14.39	10.98	10.52	10.75	3.47	3.81	3.64
16	RHRJ-14/1	12.25	12.55	12.40	10.71	10.87	10.79	1.54	1.68	1.61
17	RHRJ-14/2	14.41	14.19	14.30	10.93	10.57	10.75	3.48	3.62	3.55
18	HN-1	14.57	14.92	14.75	11.02	10.78	10.90	3.55	4.14	3.85
19	HN-2	14.56	14.04	14.30	11.00	10.70	10.85	3.56	3.34	3.45
20	Konkan Bahadoli	14.80	14.96	14.88	11.62	11.44	11.53	3.18	3.52	3.35
	Range	11.13-15.44	10.95-15.40	11.04-15.42	8.80-11.96	9.12-12.13	8.96-12.05	1.54-3.59	1.68-4.14	1.61-3.85
	Min.	11.13	10.95	11.04	8.80	9.12	8.96	1.54	1.68	1.61
	Max.	15.44	15.40	15.42	11.96	12.13	12.05	3.59	4.14	3.85
	Mean	13.63	13.55	13.59	10.57	10.49	10.53	3.06	3.06	3.06
	S.D.	1.13	1.19	1.15	0.73	0.76	0.73	0.58	0.69	0.62
	SE	0.25	0.27	0.26	0.16	0.17	0.16	0.13	0.15	0.14
	CV (%)	8.28	8.76	8.46	6.90	7.29	6.93	18.93	22.51	20.26

The data regarding non reducing sugars is displayed in the Table 2. It is revealed from the table that, in the year 2023, non-reducing sugars content varied from 1.54 to 3.59 percent with population mean of 3.06 percent. The maximum non reducing sugars was found in the genotype RHRJ-8/3 (3.59 percent) followed by RHRJ-1/13 (3.57 percent), HN 2 (3.56 percent), RHRJ-9/1 (3.55 percent) and HN-1 (3.55 percent), while minimum in the genotype RHRJ-14/1 (1.54 percent). In the year 2024, the non reducing sugars content varied from 1.68 to 4.14 percent with population mean of 3.06 percent. The maximum non reducing sugars content was found in the genotypes namely, HN-1 (4.14 percent), RHRJ-13/1 (3.81 percent) and RHRJ-8/3 (3.65 percent). Whereas, minimum non reducing sugars content was registered in the genotype RHRJ-14/1 (1.68 percent). As per mean data, the non reducing sugars content varied from 1.61 to 3.85 percent with population mean of 3.06 percent. Mean over two years indicated that, the maximum non reducing sugars content was registered in the genotype HN-1 (3.85 percent) followed by RHRJ-13/1 (3.64 percent), RHRJ-8/3 (3.62 percent) and RHRJ-1/13 (3.58 percent), whereas the genotype RHRJ-14/1 recorded the minimum non reducing sugars content i.e. 1.61 percent.

Non reducing sugars in fruits, like sucrose, are important for fruit quality, flavor, and storage. The variations observed in non reducing sugars content among different jamun genotypes may be due to their genetic makeup of the trees, agro-climatic factors such as temperature, humidity, soil type and nutrient and water availability during the growth and development stage of the fruits. These results were in parallel line with those of Suradkar *et al.*, (2017) [17], Gajera *et al.*, (2018) [5], Babu *et al.*, (2019) [2], Tayade (2019) [19], Singh and Swamy (2021) [15], Rajangam and Sankar (2022) [11] and Soundarya (2024) [16] in jamun.

The data of sugar: acid ratio is presented in Table 3. Sugar: acid ratio varied from 20.24 to 34.31 with population mean of 27.31. The maximum sugar: acid ratio was registered in the genotype RHRJ-7/1 (34.31) followed by Konkan Bahadoli (32.17), RHRJ-1/13 (31.53) and HN-1 (30.35), while minimum in the genotype RHRJ-10/4 (20.24) in the year 2023. The sugar: acid ratio varied from 20.28 to 36.67 with population mean of 27.39. The maximum sugar: acid ratio was registered in the genotype RHRJ-7/1 (36.67) followed by Konkan Bahadoli (34.79), HN-1 (32.43) and RHRJ-1/13 (30.26), while minimum in the genotype RHRJ-10/4 (20.28) in the year 2024. Based on mean data, the sugar: acid ratio varied from 20.26 to 35.49 with population mean of 27.35. The maximum sugar: acid ratio was registered in the genotype RHRJ-7/1 (35.49) followed by Konkan Bahadoli (33.48), HN-1 (31.39) and RHRJ-1/13 (30.90), while minimum in the genotype RHRJ-10/4 (20.26).

The sugar-acid ratio in fruits is also a key indicator of fruit quality, particularly flavor and ripeness. Both sugars and acid content play a significant role in determining the taste of fruit (Ali, 2013). A high sugar: acid ratio influences taste of the fruits, higher the ratio sweeter will be the fruit. These findings are in similar line with those reported by Swamy *et al.*, (2017) [15], Naitam (2018), Tayade (2019) [19], Singh and Swamy (2021) [15] and Soundarya (2024) [16] in jamun.

Table 3: Biochemical attributes of jamun fruit genotypes for Sugar: acid ratio

S. N.	Genotype	Sugar: acid ratio		
		2023	2024	Mean
1	RHRJ-1/13	31.53	30.26	30.90
2	RHRJ-4/5	22.70	24.22	23.46
3	RHRJ-6/4	25.02	25.55	25.28
4	RHRJ-7/1	34.31	36.67	35.49
5	RHRJ-7/5	22.72	22.38	22.55
6	RHRJ-8/2	29.24	26.92	28.08
7	RHRJ-8/3	27.02	29.51	28.27
8	RHRJ-8/4	28.69	29.74	29.22
9	RHRJ-9	25.56	24.53	25.04
10	RHRJ-9/1	28.00	28.72	28.36
11	RHRJ-9/7	26.52	24.62	25.57
12	RHRJ-9/10	27.42	26.77	27.09
13	RHRJ-10/4	20.24	20.28	20.26
14	RHRJ-10/5	22.63	22.33	22.48
15	RHRJ-13/1	29.49	28.10	28.79
16	RHRJ-14/1	24.02	25.10	24.56
17	RHRJ-14/2	28.25	26.77	27.51
18	HN-1	30.35	32.43	31.39
19	HN-2	30.33	28.08	29.21
20	Konkan Bahadoli	32.17	34.79	33.48
	Range	20.24-34.31	20.28-36.67	20.26-35.49
	Min.	20.24	20.28	20.26
	Max.	34.31	36.67	35.49
	Mean	27.31	27.39	27.35
	S.D.	3.66	4.13	3.82
	SE	0.82	0.92	0.85
	CV (%)	13.41	15.08	13.96

Conclusion

After the evaluation of jamun genotypes for biochemical attributes, it can be concluded that, considerable high variability for biochemical characters of fruit were recorded among all the jamun genotypes under study. Among the 20 genotypes evaluated, RHRJ-7/1, Konkan Bahadoli, HN-1 and HN-2 recorded the highest TSS, TSS: acid ratio, total sugars, reducing sugars, sugar: acid ratio and lowest titratable acidity. The result of the present investigation will be helpful for selecting parent material for further jamun improvement programme on the basis of their superiority of biochemical characters of jamun fruit of these superior genotypes i.e., RHRJ-7/1, Konkan Bahadoli, HN-1 and HN-2.

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