RESEARCH ARTICLE Agricultural Science Digest, Volume 41 Issue 3: 420-426 (September 2021)

Morpho-biochemical Characterization of Brinjal (*Solanum melongena* L.) Genotypes during *Kharif* Season

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10.18805/ag.D-5268

ABSTRACT

Background: Brinjal is one of the most popular and important vegetable crops grown throughout the year in India and other parts of the world. Though a large number of brinjal genotypes are available in India, only a few have good quality and yield during *kharif*. Therefore, the current study was carried out to identify and/or superior varieties with high yield and better quality brinjal during *kharif*, 2017-2018 consisted of thirty brinjal genotypes obtained from different places of India.

Methods: All the genotypes were evaluated for fifteen morphological and six biochemical characters *viz.,* plant height (cm), plant spread (cm), number of primary branches per plant, leaf blade length (cm), leaf blade width (cm), number of leaf prickles, days to first flowering (days), days to 50% flowering (days), fruit pedicel length (cm), fruit length (cm), fruit circumference (cm), number of fruits per plant, fruit weight (g), fruit yield per plant (kg), fruit yield per hectare (t), moisture content (%, FW), crude fiber content (%, DW), crude protein content (%, DW), ascorbic acid (mg/100g FW), solasodine content (mg/100g DW) and total phenol content (mg GAE/ g FW).

Result: Mean performance of brinjal genotypes revealed significant variation for morpho-biochemical characters. This variation may be due to the effect of genotype, environment or their interaction. Morphological characters of brinjal genotypes revealed that among the thirty genotypes, eighteen genotypes *viz.,* Kuchia, Brinjal-3, Khoruah-1, Brinjal-6, Brinjal-8, Brinjal-4, Seujia Bengena, Brinjal-1, Brinjal-9, Brinjal-2, Brinjal Long, Green Long, Boga Bengena, Kajala, Sagolishingia, Long Khoruah, Brinjal-7 and Koni Bengena were found to be the superior performers for fruits/plant, primary branches per plant, days to first flowering, days to 50% flowering and fruit yield during *kharif*. The mean performance for biochemical characters also revealed wide variability among the genotypes in respect to quality performance.

Key words: Biochemical, Brinjal, Characterization, *Kharif*, Morphological, Variability.

INTRODUCTION

Brinjal (*Solanum melongena* L., 2n = 2x = 24) belongs to the family Solanaceae, is one of the most popular and principle vegetable crop grown throughout the year in India and other parts of the world. The cultivated brinjal is presumed to be of Indian origin with China as secondary centre of origin. In India, it is grown in an area of 730 ('000 hectare) with a total production of 12801 ('000 MT) and the productivity of 17.54 MT/ha. In Assam, it is cultivated in an area of 17.76 ('000 hectare), production 286.35 ('000 MT) and the productivity of 16.12 MT/ha (Horticulture Statistics at a Glance, 2018). Brinjal can play a vital role in the achieving the nutritional security. Presence of small quantities of solasodine improve flavor, but at levels above 20 mg/g it imparts the bitter taste. Being an important source of plant nutrients and consumer preference it is necessary to increase the brinjal production throughout the year.

Though India has large number of brinjal genotypes, only a few have yield and better quality during *kharif*. However, in the face of increasing population, there is a need for increased production and productivity of brinjal for both the seasons. This fact draws the attention to identify and/or superior varieties with higher yield and better quality during *kharif* to mitigate the needs of the people and also to maximize the yield of the brinjal crop. To overcome the problem of low performance during *kharif*, there remains a need to explore or collect different brinjal genotypes from various places and to evaluate brinjal genotypes for superiority over existing cultivars and for their direct use as varieties or as parents in development of superior hybrids for the *kharif* season.

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How to cite this article: Saikia, J., Phookan, D.B., Barua, N.S., Das, P., Saikia, L. and Saikia, J. (2021). Morpho-biochemical Characterization of Brinjal (*Solanum melongena* L.) Genotypes during *Kharif* Season. Agricultural Science Digest. 41(3): 420-426. DOI: 10.18805/ag.D-5268.

Submitted: 19-10-2020 **Accepted:** 08-02-2021 **Online:** 12-03-2021

MATERIALS AND METHODS

The present experiment was carried out at Assam Agricultural University, Jorhat in the Department of Horticulture during *kharif*, 2017-18. The experimental site was situated at 26°47′N latitude and 94°12′E longitude and at an elevation of 86.8 m above mean sea level. The experiment was laid out in randomized block design with three replications. The row to row and plant to plant spacing were maintained at 75 cm × 60 cm, respectively.

The experimental material consisted of thirty brinjal genotypes obtained from various places of India. Information regarding characters of collected genotypes was taken during the site of collection. The genotypes were transplanted in the month of March, 2017. All the recommended package of practices was followed to raise a healthy crop. The observations were recorded on five randomly selected plants of each genotype in each replication. The data for morphological traits *viz.,* plant height (cm), plant spread (cm), number of primary branches per plant, fruit pedicel length (cm), fruit length (cm), fruit circumference (cm), number of fruits per plant, fruit weight (g), fruit yield per plant (kg) and fruit yield per hectare (t) were recorded at fruit maturity stage and the traits like, leaf blade length (cm), leaf blade width (cm) and number of leaf prickles were recorded on fifth leaf from top at full foliage stage. The data on days to first flowering (days) and days to 50% flowering (days) were recorded from the date of transplanting. For biochemical analysis of the traits, the fruits were collected at fully mature stage. The moisture (%, FW) and crude fiber content (%, DW) of fruits were determined by Rangana (1986) method. Crude protein content (%, DW) was estimated by Micro-Kjeldahl's method described by Humphries (1956). Ascorbic acid (mg/100g FW) content was determined by using 2, 6-Dichlorophenol indophenols dye according to A.O.A.C. (1970). The solasodine content (mg/100g DW) was estimated by colorimetric method proposed by Chandler and Dodds (1983), with the modification of the procedure originally developed by Lancaster and Mann (1975). The total phenol content (mg GAE/gFW) was determined by the method of Singlleton and Rossi (1965) using Folin-Ciocalteu reagent.

RESULTS AND DISCUSSION

Plant height

Data presented in Table 1 revealed that there was significant different among the genotypes for plant height. Among the genotypes, Seujia Bengena (65.13 cm) exhibited the highest plant height which was at par with Khoruah-1 (64.53 cm), Kuchia (64.40 cm) and Brinjal-3 (63.00 cm). Green Round (30.33 cm) recorded the shortest plant height which was statistically at par with Gulabi (32.67 cm). These results are consonance with the findings of Pujer *et al.,* 2017 and they observed highest plant height of 82.00 cm to lowest by 40.40 cm.

Plant spread

Plant spreads of genotypes were presented in Table 1. Among the genotypes, Seujia Bengena (77.63 cm) recorded the highest plant spread which was at par with Khoruah-1 (76.23 cm), Brinjal-3 (75.60 cm), Brinjal-2 (75.43 cm), Long Khoruah (74.33 cm) and Brinjal-4 (73.87 cm). Green Round (42.13 cm) recorded the lowest plant spread which was statistically at par with Brinjal (45.00 cm). The present results are also in line with the findings of Uddin *et al*., 2014.

Number of primary branches

The mean values of number of primary branches per plant were presented in Table 1. The genotype Seujia Bengena (7.24) recorded highest number of primary branches per plant which was statistically at par with Koni Bengena (7.22), Khoruah-1 (7.20), Brinjal-3 (7.15), Brinjal-9 (6.91), Brinjal-4 (6.61), Brinjal-10 (6.44), Brinjal-6 (6.19) and Long Khoruah (6.07), respectively. The lowest number of primary branches per plant was recorded for Green Round (2.94) which was at par with Brinjal-5 (3.15), Brinjal (3.29), Longai (3.38), JC-1 (3.44) and Bor Bengena (3.47). Similar range of primary branches per plant has also been reported by Ahmed *et al.* 2014 and Sanas *et al.* 2014. This character ultimately results yield. More the branches more will be the number of flower and ultimately more will be the fruit yield per plant. These results were in confirmation with the findings of Singh (2013); Kumar *et al*. 2011 and Mohanty (2001).

Leaf blade length

The mean value for leaf blade length was presented in Table 1. For the genotypes, the mean value ranged from 21.57 cm (Seujia Bengena) to 12.70 cm (Koni Bengena).

Leaf blade width

Among the entries, the highest leaf blade width was exhibited by Bor Bengena (14.23 cm) and the lowest was observed in the genotype Brinjal-4 (7.53 cm).

Leaf prickles

The mean value of number of leaf prickles was presented in Table1. Among the genotypes, Sagolishingia (31.21) recorded the highest number of leaf prickles whereas, the genotype Brinjal (1.33) recorded the lowest number of leaf prickles which was statistically at par with Longai (2.11), Gulabi (2.67), Green Round (4.33), Brinjal-5 (4.67), PPL (5.20), Kuchia (7.00), JC-1 (7.08), Khoruah-2 (7.33), Brinjal-8 (7.67), Green Long (7.67) and Brinjal Long (7.67), respectively.

Days to first flowering

The mean performance of brinjal genotypes for days to first flowering revealed significant variation among the genotypes. Brinjal-3 recorded the lowest estimate for days to first flowering (58.27) which was at par with Khoruah-1 (58.37), Seujia Bengena (58.67), Koni Bengena (58.97), Kuchia (59.27), Brinjal-2 (59.60), Brinjal-8 (59.77), Brinjal-9 (59.90), Brinjal-10 (59.97), Brinjal-4 (60.50), Kajala (60.67), Brinjal-6 (60.73), PPL (60.90), Boga Bengena (61.30), Brinjal (61.43), Brinjal-1 (61.70), Longai (62.30), Khoruah-2 (62.53) and Brinjal Long (63.23), respectively. A maximum day taken for first flowering was observed for HRS-4 (73.33).

Days to 50% flowering

Data on days taken to 50% flowering presented in Table 1 revealed significant difference among the genotypes. The shortest duration of (68.33) days for 50 per cent flowering was exhibited by Brinjal-3 and Khoruah-1. The longest duration (83.33) day for 50% flowering was exhibited by HRS-4.

Fruit pedicel length

As revealed from the data presented in Table 2, there was significant difference among the genotypes in respect of fruit

pedicel length. Among the entries, highest fruit pedicel length of 7.37 cm was recorded for the genotype JC-1 and lowest fruit pedicel length of 3.67 cm was exhibited by Longai.

Fruit length

The genotypes showed significant difference on fruit length. It was evident from the data that JC-1 exhibited the highest fruit length (25.73 cm) which was followed by PPL (22.70 cm), Brinjal-5 (21.27) and Bor Bengena (21.23 cm). Green Round (7.33 cm) recorded the lowest fruit length which was at par with Brinjal-3 (7.47 cm), Brinjal-4 (7.67 cm) and Boga Bengena (7.77 cm), respectively.

Fruit circumference

Among the entries, the mean fruit circumference ranged from 18.32 cm (Khoruah-1) to 5.03 cm (Sagolishingia).

Fruit number per plant

The highest number of fruits per plant (88.93) was recorded in Brinjal-3 which was statistically at par with Kuchia (86.92), Brinjal-6 (83.40), Seujia Bengena (81.36), Brinjal-1 (75.67), Brinjal-8 (72.33), Koni Bengena (70.77), Long Khoruah (70.33), Sagolishingia (68.25), Khoruah-1 (68.10), Boga Bengena (63.38), Brinjal-2 (60.52), Brinjal-4 (59.52) and Brinjal-9 (53.26), respectively. The lowest fruit per plant (3.85) was recorded for Bor Bengena and PPL.

Fruit weight

The mean values for fruit weight of genotypes were presented in Table 2. Among the thirty entries fruit weight varied from 138.66g (Bor Bengena) to 18.28g (Koni Bengena).

Table 1: Mean performance of brinjal genotypes for quantitative traits (*kharif*, 2017-18).

Genotypes	Plant height (cm)	Plant spread (cm)	Number of primary branches	Leaf blade length (cm)	Leaf blade width (cm)	Number of leaf prickles	Days to first flowering	Days to 50% flowering
Khoruah-1	64.53	76.23	7.20	13.80	10.83	9.67	58.37	68.33
Khoruah-2	39.93	70.53	4.26	14.37	8.70	7.33	62.53	71.67
Khoruah-3	60.33	68.50	4.57	15.47	11.50	18.07	65.77	75.00
Koni Bengena	49.57	55.97	7.22	12.70	9.27	13.00	58.97	69.00
Seujia Bengena	65.13	77.63	7.24	21.57	11.63	9.33	58.67	69.33
Sagolishingia	46.50	58.67	5.98	14.77	10.67	31.21	68.10	78.33
Long Khoruah	51.33	74.33	6.07	16.70	9.67	20.86	64.50	74.67
Boga Bengena	43.43	60.77	4.81	16.03	10.77	8.89	61.30	71.33
HRS-4	49.33	63.40	4.23	16.77	10.23	8.15	73.33	83.33
Kuchia	64.40	65.67	5.91	15.87	9.47	7.00	59.27	70.00
Pusa Purple Long	57.27	62.00	4.46	18.87	9.83	5.20	60.90	71.33
JC-1	57.73	71.57	3.44	19.23	12.53	7.08	66.73	77.00
Kajala	38.67	55.57	4.22	13.40	8.63	10.00	60.67	71.67
Brinjal Long	43.00	65.30	5.43	15.93	9.57	7.67	63.23	75.00
Gulabi	32.67	53.00	4.87	14.47	8.33	2.67	68.73	78.33
Longai	47.33	57.57	3.38	15.57	11.30	2.11	62.30	72.00
Green Round	30.33	42.13	2.94	14.33	10.50	4.33	65.40	76.33
Brinjal	34.33	45.00	3.29	17.59	9.17	1.33	61.43	71.00
Green Long	53.33	64.00	5.79	14.30	11.17	7.67	65.67	76.00
Bor Bengena	54.67	66.57	3.47	19.50	14.23	13.00	66.93	77.00
Brinjal-1	56.40	73.20	5.63	15.67	11.53	20.35	61.70	73.00
Brinjal-2	38.03	75.43	5.93	14.63	10.90	16.71	59.60	70.00
Brinjal-3	63.00	75.60	7.15	13.70	10.37	18.91	58.27	68.33
Brinjal-4	60.83	73.87	6.61	14.57	7.53	12.33	60.50	71.00
Brinjal-5	51.27	65.80	3.15	16.30	8.80	4.67	64.67	75.67
Brinjal-6	52.53	65.97	6.19	15.03	9.63	12.67	60.73	70.33
Brinjal-7	56.43	73.10	5.52	16.43	9.10	8.67	68.70	78.00
Brinjal-8	40.70	64.03	5.55	18.77	9.20	7.67	59.77	71.00
Brinjal-9	58.97	64.30	6.91	14.63	9.97	16.46	59.90	70.33
Brinjal-10	51.50	66.50	6.44	12.83	8.50	17.26	59.97	70.00
Grand mean	50.45	65.07	5.26	15.79	10.12	11.01	62.89	73.14
S. Ed (±)	1.79	2.12	0.60	0.31	0.41	3.25	2.55	2.56
CD (5%)	3.59	4.24	1.19	0.62	0.81	6.50	5.09	5.11
CV (%)	4.35	3.99	13.87	2.39	4.92	36.14	4.96	4.28

Fruit yield per plant

Among the genotypes, Kuchia (4.93 kg) recorded the highest fruit yield per plant which was at par with Brinjal-6 (4.34 kg), Brinjal-3 (4.19 kg), Brinjal-8 (4.13 kg), Khoruah-1 (3.94 kg), Brinjal-10 (2.87 kg) and Brinjal-4 (2.86 kg), respectively. Lowest fruit yield per plant was recorded for the genotype Green Round (0.18 kg). Gogoi *et al.* (2018) evaluated five hybrid brinjal varieties *viz.,* Ketan, Vijay Kiron, Utkal Green, NV-2035, Sarpan Bharata and two local cultivars *viz.,* JC-1, Longai at Horticultural Research Station, Kahikuchi, Guwahati as late *rabi* crop during 2014-16. They observed significant variation in plant growth parameters and fruit yield as Utkal Green recorded the highest per plant fruit yield (2.32 kg/plant) leading to the maximum total marketable yield (469.66 q/ha) and longer active fruiting duration (43.70 days).

Fruit yield per hectare

Fruit yield per hectare revealed significant difference among the genotypes as presented in Table 2. The highest fruit yield per hectare was recorded for Kuchia (82.99 t/ha) which was statistically at par with Brinjal-3 (80.26 t/ha), Khoruah-1 (79.81 t/ha), Brinjal-6 (68.52 t/ha), Brinjal-8 (64.44 t/ha), Brinjal-4 (55.18 t/ha), Seujia Bengena (54.67 t/ha), Brinjal-1 (52.22 t/ha) and Brinjal-10 (51.70 t/ha), respectively. The lowest fruit yield per hectare was recorded for the genotype Green round (40.00 t/ha).

Moisture content

Moisture content of genotypes showed significant difference among them as presented in Table 3. The highest mean value for moisture content was exhibited by Longai (93.38%)

Table 2: Mean performance of brinjal genotypes for fruit-related quantitative traits (*kharif*, 2017-18).

Genotypes	Fruit pedicel length (cm)	Fruit length (cm)	Fruit circumference (cm)	Number of fruits/ plant	Fruit weight (g)	Fruit yield/plant (kg)	Fruit yield (t/ha)
Khoruah-1	5.70	8.97	18.32	68.10	68.81	3.94	79.81
Khoruah-2	5.20	8.20	13.11	14.86	29.82	0.79	13.85
Khoruah-3	6.23	9.83	17.77	10.07	32.64	0.71	7.41
Koni Bengena	4.47	8.30	9.29	70.77	18.28	1.40	24.89
Seujia Bengena	6.20	15.97	7.65	81.36	21.48	2.41	54.67
Sagolishingia	6.00	12.33	5.03	68.25	22.14	1.30	28.82
Long Khoruah	7.33	15.33	6.15	70.33	19.27	1.21	26.96
Boga Bengena	6.10	7.77	12.43	63.38	22.09	1.38	30.67
HRS-4	6.40	13.97	16.34	3.95	102.16	0.46	10.29
Kuchia	6.67	20.40	10.42	86.92	66.85	4.93	82.99
Pusa Purple Long	6.00	22.70	9.66	3.85	75.24	0.24	5.33
JC-1	7.37	25.73	12.53	4.19	135.75	0.48	10.59
Kajala	5.57	18.70	7.56	24.29	53.13	1.38	29.11
Brinjal Long	6.90	19.63	10.30	38.39	57.19	2.06	45.70
Gulabi	5.67	14.00	7.72	31.03	19.78	0.59	13.11
Longai	3.67	13.57	17.29	5.67	89.22	0.49	10.81
Green Round	4.33	7.33	13.15	5.44	33.88	0.18	4.00
Brinjal	4.47	10.80	16.82	4.60	61.66	0.24	5.24
Green Long	6.33	13.00	9.40	32.00	55.35	1.59	35.40
Bor Bengena	6.57	21.23	18.18	3.85	138.66	0.69	15.41
Brinjal-1	5.27	15.27	7.49	75.67	36.32	2.35	52.22
Brinjal-2	5.67	11.47	8.46	60.52	37.08	2.18	48.37
Brinjal-3	4.60	7.47	14.67	88.93	45.25	4.19	80.26
Brinjal-4	4.53	7.67	10.63	59.52	52.74	2.86	55.18
Brinjal-5	5.47	21.27	7.62	4.18	53.45	0.20	4.37
Brinjal-6	4.63	9.97	11.45	83.40	49.46	4.34	68.52
Brinjal-7	5.70	21.10	10.36	23.38	50.34	1.15	25.48
Brinjal-8	3.70	10.37	17.47	72.33	57.71	4.13	64.44
Brinjal-9	5.63	16.63	7.58	53.26	37.11	2.20	49.02
Brinjal-10	5.50	19.00	8.26	82.74	39.05	2.87	51.70
Grand mean	5.60	14.27	11.44	43.23	52.73	1.76	34.48
S. Ed (±)	0.24	0.35	0.26	20.87	14.08	1.04	16.81
CD (5%)	0.47	0.69	0.53	41.75	28.16	2.08	33.62
CV (%)	5.20	2.98	2.83	59.21	32.70	72.02	59.71

which was at par with Bor Bengena (93.19%), Brinjal-7 (93.05%), JC-1 (92.83%), Seujia Bengena (92.65%), Khoruah-1 (92.56%), PPL (92.55%), HRS-4 (92.43%), Kajala (92.18%) and Brinjal-4 (91.91%), respectively. The lowest moisture content was recorded in Sagolishingia (88.43%).

Crude fiber content

Data on crude fiber content (Table 3) revealed significant variations among the entries. Brinjal-1 exhibited maximum crude fiber content (2.95%) which was at par with Green Round (2.94%), Green Long (2.85%), Brinjal Long (2.64%), Brinjal-9 (2.62%), Brinjal-8 (2.58%) and Khoruah-3 (2.51%), respectively. Minimum crude fibre content was recorded in Khoruah-1 (1.12%).

Crude protein content

The mean value of crude protein content for the genotypes was presented in Table 3. Khoruah-1 (1.82%) recorded the highest estimate for crude protein content which was statistically at par with Brinjal Long (1.74%) and Brinjal-10 (1.79%). Minimum crude protein content was exhibited by Khoruah-3 (0.89%) which was at par with Green Round (0.95%), Brinjal-1 (0.95%), Brinjal (0.97%), Sagolishingia (0.98%), Boga Bengena (1.00%), Long Khoruah (1.04%) and Khoruah-2 (1.05%). A similar result was reported by Jayalakshmi and Praneetha (2018) with protein content 12.48 mg/100g to 9.32 mg/100g.

Ascorbic acid

The mean value of ascorbic acid content of genotypes was presented in Table 3. The highest ascorbic acid content was found in genotype Seujia Bengena (12.30 mg/100g) which was statistically at par with Bor Bengena (12.18 mg/100g). The lowest ascorbic acid content was recorded for Khoruah-2 (9.09 mg/100g). Similar type of findings was reported by

Table 3: Mean performance of brinjal genotypes for biochemical traits (*kharif*, 2017-18).

Genotypes	Moisture (%, FW)	Crude fiber (%, DW)	Crude protein (%, DW)	Ascorbic acid (mg/100g FW)	Solasodine content (mg/100g DW)	Total phenol (mg GAE/g FW)
Khoruah-1	92.56	1.12	1.82	11.77	4.86	0.92
Khoruah-2	89.41	2.48	1.05	9.09	8.15	1.17
Khoruah-3	89.94	2.51	0.89	9.13	8.02	1.35
Koni Bengena	91.20	2.16	1.06	11.42	5.01	1.88
Seujia Bengena	92.65	1.62	1.08	12.30	5.26	1.46
Sagolishingia	88.43	2.44	0.98	9.85	8.39	1.13
Long Khoruah	90.17	2.47	1.04	10.79	7.74	1.14
Boga Bengena	90.90	1.44	1.00	9.58	6.58	2.08
HRS-4	92.43	1.93	1.26	10.71	8.08	0.22
Kuchia	89.50	2.35	1.30	11.31	8.24	0.89
Pusa Purple Long	92.55	1.41	1.46	11.04	7.01	0.86
JC-1	92.83	1.77	1.35	12.16	5.55	0.33
Kajala	92.18	1.15	1.10	10.57	5.63	1.11
Brinjal Long	91.20	2.64	1.74	9.53	7.11	0.72
Gulabi	92.02	1.34	1.17	9.43	5.61	1.77
Longai	93.38	1.79	1.53	10.89	5.89	0.30
Green Round	90.14	2.94	0.95	9.56	8.21	1.83
Brinjal	90.06	2.13	0.97	10.64	7.27	1.21
Green Long	89.92	2.85	1.16	9.66	8.13	0.22
Bor Bengena	93.19	1.69	1.45	12.18	4.85	0.18
Brinjal-1	89.28	2.95	0.95	10.48	8.42	2.24
Brinjal-2	91.85	1.65	1.26	9.72	5.89	1.19
Brinjal-3	91.01	1.64	1.36	10.99	5.67	1.22
Brinjal-4	91.91	1.86	1.26	10.55	6.88	1.01
Brinjal-5	90.39	2.39	1.20	9.50	8.10	1.22
Brinjal-6	90.91	2.22	1.25	10.24	6.98	1.09
Brinjal-7	93.05	1.56	1.63	11.98	5.99	1.16
Brinjal-8	91.57	2.58	1.54	10.00	6.36	0.90
Brinjal-9	91.46	2.62	1.34	11.61	6.54	1.22
Brinjal-10	91.31	2.01	1.79	11.91	7.09	1.14
Grand mean	91.25	2.06	1.27	10.62	6.78	1.11
S. Ed (±)	0.74	0.23	0.08	0.57	0.38	0.22
CD (5%)	1.47	0.45	0.16	1.15	0.75	0.45
CV (%)	0.99	13.46	7.66	6.62	6.80	24.72

Jayalakshmi and Praneetha (2018) with 12.13 mg/100g to 7.27 mg/100g of ascorbic acid content. These results was also in consonance with the findings of earlier workers Pujer *et al.* 2017 recorded highest ascorbic acid content of (18.50 mg/100g) in genotype CBB-49 and CBB-50 and the lowest (4.00 mg/100g) by genotype A 10. Presence of ascorbic acid and phenolics in brinjal act as a powerful antioxidant. It is very good source of dietary fibre, lowers risk of coronary heart disease. Brinjal fruits act as an excellent remedy for those suffering liver complains (Shukla and Naik, 1993). Brinjal fruits also play an important role in narcotic, anti-asthmatic and anti-rheumatic properties (Daunay *et al.* (1991).

Solasodine content

Data on solasodine content were presented in Table 3. Among the genotypes, Brinjal-1 exhibited the highest amount of solasodine content (8.42 mg/100g) which was statistically at par with Sagolishingia (8.39 mg/100g), Kuchia (8.24 mg/100g), Green Round (8.13 mg/100g), Brinjal-5 (8.10 mg/100g), HRS-4 (8.08 mg/100g), Khoruah-3 (8.02 mg/100g) and Long Khoruah (7.74 mg/100g), respectively. The lowest amount of solasodine content was exhibited by Bor Bengena (4.85 mg/100g) which was at par with JC-1 (5.55 mg/100g) and Khoruah-1 (4.86 mg/100g). This finding was supported by other findings of Jayalakshmi and Praneetha (2018) found 0.042% to 0.020% of solasodine content in brinjal genotypes. Generally, a bitter taste and off-flavour brinjal fruits may be produced when the fruit contained high glycoalkaloids. Similar results were earlier reported by Dhruve *et al.* 2014 and Kumar and Arumugam (2013). According to Chauhan *et al.* (2011) an alkaloid solasodine is present in the roots and leaves of brinjal plants which can be used in treating diabetes. Glycoalkaloids have antimicrobial, insecticidal and fungicidal properties which account for their activity against several insects, pests and herbivores.

Total phenol content

The mean values for total phenol content were presented in Table 3. The highest total phenol content was exhibited by the genotype Brinjal-1 (2.24 mg/g) which was statistically at par with Boga Bengena (2.08 mg/g), Koni Bengena (1.88 mg/g) and Green Round (1.83 mg/g), respectively. Minimum total phenol content was recorded in Bor Bengena (0.18 mg/g) which was at par with Brinjal (0.22 mg/g), HRS-4 (0.22 mg/g), Longai (0.30 mg/g) and JC-1 (0.33 mg/g). A similar result was earlier reported by Jayalakshmi and Praneetha (2018) found 1.24 mg/g to 1.01 mg/g of phenol content. Pujer *et al.* 2017 recorded highest phenol content of (2.35%) in genotype CBB-50 to lowest (0.54%) in genotype CBB-40. Reshmika *et al.* 2016 recorded phenol content of (470mg/ 100g to 19.50 mg/100g). The phenols of the fruits play an important role in reducing the fruit borer infestation level and the resistance or susceptible nature could depend upon the relative content of the total phenols in the fruits.

CONCLUSION

The study revealed wide variability among the genotypes with respect to morphological and biochemical traits. Among the thirty entries, eighteen entries *viz*., Kuchia, Brinjal-3, Khoruah-1, Brinjal-6, Brinjal-8, Brinjal-4, Seujia Bengena, Brinjal-1, Brinjal-9, Brinjal-2, Brinjal Long, Green Long, Boga Bengena, Kajala, Sagolishingia, Long Khoruah, Brinjal-7 and Koni Bengena were found to be promising for *kharif* season. Hence, these genotypes were identified as superior genotypes for *kharif* and could be utilized to mitigate the need of the breeder for further in breeding program.

ACKNOWLEDGEMENT

The authors gratefully acknowledge the Assam Agricultural University, Jorhat for its financial support and assistance during the study.

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