

Characterization of different *lotkon* (*Baccaurea sapida* muell. arg.) germplasm

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Abstract: An investigation was carried out to characterize nine accessions of *Lotkon* germplasm. The experiment was conducted at the FTIP-BAU-GPC, Bangladesh Agricultural University, Mymensingh during March to June, 2014. The single factor experiment was laid out in Randomized Complete Block Design (RCBD) with five replications. Nine accessions were taken to study the morphological and chemical characters. Each *Lotkon* accession was considered as individual treatment of the experiment which was five years old. The result of the experiment revealed that significant variations were present for all the parameters studied. In respect of leaf characters viz. total length of leaf, petiole length, lamina length and leaf breadth, the accession no. BS-009 showed significantly highest results whereas the lowest values of the mentioned parameters were observed in the accession no. BS-001. All the parameters in fruit characters gradually increased with the harvesting times from 30 DAFS (days after fruit set) except number of fruits per plant and weight of aril. Number of fruits per plant was found to be the lowest at the final harvest (90 DAFS). The weight of aril increased rapidly upto 50 DAFS and then it became steady upto 90 DAFS. Accession no. BS-007 was the best in respect of physical characters of fruit like length, diameter and weight of aril whereas BS-001 showed the lowest result in these parameters. In respect of yield, accession no. BS-003 was the best in respect of highest number of fruit per plant and yield per plant. Regarding chemical parameters, the maximum percentages of total sugar, reducing sugar and moisture content was contained by the accession no. BS-007. Therefore, the result of the present investigation suggested that characterization of *Lotkon* can be helpful to find out the superior accessions for obtaining improved variety with better yield.

Key words: *Baccaurea sapida*, Characterization, *Lotkon*, Accessions.

Introduction

Fruits those are cultivated in small scale are called as minor fruits. Most of them are grown in and around homestead. Though minor fruits are grown in a small scale but the nutritional value of some fruits are very high (Rahim *et al.*, 2011). *Lotkon* (*Baccaurea sapida* Muell. Arg.) is a most common minor fruits in Bangladesh and belongs to the family Euphorbiaceae. *Lotkon* is an important tropical and subtropical, [evergreen](#), slow growing, dioecious fruit tree. It is grown up to 25m in height with a spreading crown and thin bark (Haegens, 2000). It is an egg-shaped, yellowish colored, pinkish to bright red or purple fruit. The fruit consists of 2-4 large purple-red seed with white aril (Kamaluddin, 2008). It is a native of Sumatra, Borneo and Java (Uji *et al.*, 1992). It is widely cultivated in South-East Asia through Myanmar, Nepal, Bangladesh, India, Srilanka, Thailand and regions of Indo-china, looking them growing wild on the trees (Morton, 1987; Maniruzzaman, 1988; Subhadrabandhu, 2001). In Bangladesh, it is distributed as a homestead and widely cultivated at the district of Narshingdi, Mymensingh and Sylhet (Rahim *et al.*, 2011). The fruit is rich in nutrition and 100 g edible flesh contains: protein-1.42%, fat- 0.45%, fibre-0.64%, mineral salts-0.90%, vitamin B₁ -0.03mg, vitamin B₂ -0.19mg, iron-0.30mg and energy-91 Kcal and rich in vitamin C (Maniruzzaman, 1988). Fruit shows around 10% brix TSS, 4.42% total sugar and 2.1% acidity (Bhowmick, 2010). Its high potassium content may contribute to a reduced risk of developing arthritis, cancer and digestive issues, aids in the performance of the heart, kidneys and other organs. The roots, bark and wood are harvested to treat skin diseases, to relieve eye inflammation and other medicinal uses (Haegens, 2000). Considering its importance, it is exported about 1-1.5 tons by local exporters with vegetables in the local market as well as London and countries of Middle East and Europe during the production time of *Lotkon* resulting farmers are being financially benefited through getting the fair price of *Lotkon* (Kamaluddin, 2008).

Characterization is an important aspect for documentation of the studied cultivars, which subsequently will help to introduce, select and improve the existing *Lotkon* germplasms. Unfortunately, information regarding the morphological characteristics of *Lotkon* is scanty. So far no systematic research has been conducted in the past about the characteristics of the available commercial *Lotkon* cultivars. Therefore, the present investigation was undertaken to characterize the existing selected *Lotkon* accessions at Fruit Tree Improvement Program (FTIP) BAU-GPC and to find out the superior accession.

Materials and Methods

The experiment was conducted to study the characterization of different *Lotkon* germplasms at the FTIP-BAU Germplasm Centre (GPC), Bangladesh Agricultural University (BAU), Mymensingh, during the period from March to June, 2014. The single factor experiment was laid out in Randomized Complete Block Design (RCBD) with five replications. One accession represented one treatment. The morphological and chemical characters of fruits were determined at the Fruit Tree Improvement Program (FTIP) Department of Horticulture and the Laboratory of Biochemistry and Molecular Biology, BAU, Mymensingh. Data on different parameters like total length of leaf, petiole length, the length of lamina, leaf breadth, length, diameter, weight of individual fruit, weight of peel, aril, rachis and pulp, dry weight of individual fruit, peel, aril and rachis and pulp, total number of fruits per plant, yield per plant and chemical characters like titratable acidity, total sugar, reducing sugar, non-reducing sugar, TSS (Total soluble solids) and moisture content were studied.

Results and Discussion

Morphological characterization

Characterization of leaf

The total length of leaf : The highest total length of leaf (26.56 cm) was obtained from the accession no. BS-009 followed by in the accession no. BS-008 (24.62 cm) and

the lowest value (20.54 cm) was recorded in the accession no. BS-001 (Table 1).

The petiole length: The maximum petiole length of leaf (5.24 cm) was given by the accession no. BS-008 and BS-009 followed by (4.16 cm) in the accession no. BS-007. The minimum petiole length of leaf (2.70 cm) was given by the accession no. BS-001 (Table 1).

The length of lamina: The highest lamina length of leaf (21.32 cm) was recorded in the accession no. BS-009

followed by (20.44 cm) in the accession no. BS-008. The lowest lamina length of leaf (17.36 cm) was given by the accession no. BS-001 (Table 1).

Leaf breadth: The maximum leaf breadth (9.12 cm) was recorded in the accession no. BS-009 followed by (8.14 cm) in the accession no. BS-008. The lowest leaf breadth (6.84 cm) was given by the accession no. BS-001 (Table 1).

Table 1. Leaf characters of different *Lotkon* accessions

Accession No.	Leaf characters			
	Total length (cm)	Petiole length (cm)	Lamina length (cm)	Breadth (cm)
BS-001	20.54	2.70	17.36	6.84
BS-002	20.64	3.10	17.76	6.92
BS-003	21.48	3.18	17.94	7.02
BS-004	21.64	3.52	17.96	7.10
BS-005	21.70	3.76	18.54	7.46
BS-006	22.82	3.94	18.66	7.60
BS-007	24.20	4.16	19.38	8.02
BS-008	24.62	5.24	20.44	8.14
BS-009	26.56	5.24	21.32	9.12
LSD _{0.05}	0.17	0.13	0.22	0.44
LSD _{0.01}	0.24	0.19	0.30	0.61
Level of significance	**	**	**	**

** Significance at 1% level of probability

Table 2. Length of fruits of different *Lotkon* accessions at different DAFS

Accession No.	Length of fruits (cm)						
	30 DAFS	40 DAFS	50 DAFS	60 DAFS	70 DAFS	80 DAFS	90 DAFS
BS-001	1.99	2.23	2.25	2.33	2.36	2.42	2.50
BS-002	2.28	2.47	2.56	2.76	2.95	3.17	3.32
BS-003	2.34	2.46	2.67	2.84	3.02	3.18	3.35
BS-004	2.28	2.35	2.47	2.68	2.89	3.04	3.25
BS-005	2.20	2.25	2.34	2.54	2.76	2.84	3.06
BS-006	2.12	2.25	2.42	2.60	2.79	3.03	3.22
BS-007	2.39	2.43	2.67	2.88	3.08	3.27	3.45
BS-008	2.18	2.32	2.39	2.47	2.66	2.84	3.04
BS-009	2.05	2.29	2.35	2.47	2.66	2.78	3.00
LSD _{0.05}	0.21	0.09	0.26	0.31	0.17	0.27	0.29
LSD _{0.01}	0.29	0.13	0.36	0.42	0.24	0.37	0.39
Level of significance	*	**	*	**	**	**	**

* Significance at 5% level of probability, ** Significance at 1% level of probability

Table 3. Diameter of fruits of different *Lotkon* accessions at different DAFS

Accession No.	Diameter of fruits (cm)						
	30 DAFS	40 DAFS	50 DAFS	60 DAFS	70 DAFS	80 DAFS	90 DAFS
BS-001	2.15	2.20	2.24	2.34	2.38	2.42	2.52
BS-002	2.41	2.55	2.72	2.93	3.09	3.26	3.47
BS-003	2.27	2.50	2.76	2.99	3.18	3.31	3.47
BS-004	2.32	2.44	2.58	2.76	2.98	3.22	3.41
BS-005	2.22	2.38	2.48	2.67	2.85	3.06	3.27
BS-006	2.23	2.32	2.49	2.69	2.89	3.06	3.32
BS-007	2.61	2.66	2.81	3.00	3.20	3.45	3.65
BS-008	2.22	2.36	2.45	2.66	2.84	3.06	3.23
BS-009	2.20	2.27	2.45	2.64	2.84	3.04	3.21
LSD _{0.05}	0.11	0.18	0.29	0.23	0.16	0.13	0.26
LSD _{0.01}	0.15	0.25	0.39	0.32	0.21	0.19	0.35
Level of significance	**	**	*	**	**	**	**

* Significance at 5% level of probability, ** Significance at 1% level of probability

Characterization of fruit

Length of fruits: Length of fruits varied significantly due to the influence of different accessions. The maximum length of fruits ranged from 2.50 cm to 3.45 cm at 90 DAFS. Among the accessions, length of fruits at 10 days interval increased significantly upto 90 DAFS and the accession no. BS-007 gave maximum length of fruits (3.45 cm) whereas minimum was in the accession no. BS-001 (2.50 cm) (Table 2). The present result is almost similar to

the findings of Rahman *et al.* (2014) who reported that the highest length of fruit was recorded from the genotype BS-Jai 003 whereas the lowest length and 2.2 cm was noted in BS-Jai 004.

Diameter of fruits: The maximum diameter of fruits ranged from 2.52 cm to 3.65 cm at 90 DAFS. The highest diameter of fruit (3.65 cm) was found in the accession no. BS-007 followed by both in the accession no. BS-002 and BS-003 (3.47 cm). The lowest diameter of fruit (2.52 cm)

was given by the accession no. BS-001. The diameter of fruits at 10 days interval increased significantly upto final harvest (90 DAFS) (Table 3). Rahman *et al.* (2014) found

the highest diameter of fruit (3.4 cm) from the genotype BS-Jai 003 which was almost similar to this result.

Table 4. Weight of individual fruit of different *Lotkon* accessions at different DAFS

Accession No.	Weight of individual fruit (g)						
	30 DAFS	40 DAFS	50 DAFS	60 DAFS	70 DAFS	80 DAFS	90 DAFS
BS-001	2.49	3.88	4.85	5.40	5.71	6.00	6.32
BS-002	4.87	6.03	6.33	7.12	8.02	9.77	11.04
BS-003	5.68	6.93	7.79	8.74	9.95	10.84	12.72
BS-004	4.18	4.91	5.58	6.00	6.81	7.54	9.52
BS-005	4.33	5.76	6.21	7.03	8.68	9.54	10.45
BS-006	4.49	6.58	9.22	12.82	13.49	15.15	16.73
BS-007	5.71	6.34	7.86	9.53	10.70	11.79	12.85
BS-008	3.43	4.21	5.30	6.29	7.00	8.37	10.03
BS-009	4.69	5.39	6.14	7.26	8.86	10.00	12.04
LSD _{0.05}	0.10	0.19	0.20	0.57	0.29	0.37	0.66
LSD _{0.01}	0.16	0.27	0.28	0.79	0.39	0.51	0.91
Level of significance	**	**	**	**	**	**	**

** Significance at 1% level of probability

Accession No.	Weight of peel (g)						
	30 DAFS	40 DAFS	50 DAFS	60 DAFS	70 DAFS	80 DAFS	90 DAFS
BS-001	1.83	2.17	2.99	3.32	3.60	3.71	3.87
BS-002	3.09	3.31	3.50	3.87	4.10	4.63	5.30
BS-003	4.30	4.85	5.46	6.26	6.80	7.16	7.40
BS-004	2.99	3.29	3.48	3.73	4.00	4.29	4.51
BS-005	2.57	3.04	3.12	3.57	4.00	4.18	4.47
BS-006	2.74	3.95	4.29	5.62	5.90	6.26	6.69
BS-007	3.45	3.89	4.14	4.91	5.25	5.96	6.42
BS-008	2.05	2.49	3.12	3.31	3.60	3.75	4.17
BS-009	3.20	3.48	3.87	4.85	5.40	5.93	6.21
LSD _{0.05}	0.31	0.21	0.30	0.25	0.32	0.25	0.26
LSD _{0.01}	0.43	0.28	0.40	0.34	0.44	0.35	0.36
Level of significance	**	**	**	**	**	**	**

Table 5. Weight of peel of different *Lotkon* accessions at different DAFS

** Significance at 1% level of probability

Table 6. Weight of aril of different *Lotkon* accessions at different DAFS

Accession No.	Weight of aril (g)						
	30 DAFS	40 DAFS	50 DAFS	60 DAFS	70 DAFS	80 DAFS	90 DAFS
BS-001	0.06	0.10	0.17	0.15	0.10	0.08	0.02
BS-002	0.15	0.42	0.26	0.24	0.17	0.11	0.04
BS-003	0.05	0.19	0.21	0.13	0.11	0.06	0.02
BS-004	0.13	0.20	0.25	0.22	0.17	0.09	0.04
BS-005	0.08	0.10	0.19	0.17	0.14	0.09	0.03
BS-006	0.36	0.38	0.42	0.31	0.21	0.13	0.05
BS-007	0.56	0.59	0.61	0.33	0.23	0.14	0.06
BS-008	0.04	0.12	0.14	0.11	0.07	0.04	0.01
BS-009	0.06	0.09	0.15	0.12	0.10	0.07	0.02
LSD _{0.05}	0.08	0.06	0.09	0.08	0.06	0.02	0.02
LSD _{0.01}	0.11	0.08	0.13	0.10	0.08	0.02	0.03
Level of significance	**	**	**	**	**	**	**

** Significance at 1% level of probability

Table 7. Weight of rachis of different *Lotkon* accessions at different DAFS

Accession No.	Weight of rachis (g)						
	30 DAFS	40 DAFS	50 DAFS	60 DAFS	70 DAFS	80 DAFS	90 DAFS
BS-001	0.02	0.05	0.08	0.14	0.19	0.24	0.27
BS-002	0.12	0.24	0.25	0.27	0.33	0.40	0.44
BS-003	0.11	0.14	0.21	0.26	0.30	0.36	0.40
BS-004	0.05	0.16	0.21	0.25	0.29	0.35	0.40
BS-005	0.12	0.15	0.24	0.27	0.31	0.37	0.42
BS-006	0.19	0.21	0.33	0.38	0.41	0.51	0.58
BS-007	0.11	0.17	0.21	0.27	0.31	0.36	0.41
BS-008	0.04	0.06	0.12	0.15	0.20	0.26	0.37
BS-009	0.17	0.21	0.30	0.34	0.37	0.45	0.53
LSD _{0.05}	0.02	0.06	0.08	0.02	0.06	0.08	0.08
LSD _{0.01}	0.02	0.08	0.10	0.03	0.08	0.10	0.10
Level of significance	**	**	**	**	**	**	**

** Significance at 1% level of probability

Table 8. Weight of pulp of different *Lotkon* accessions at different DAFS

Accession No.	Weight of pulp (g)						
	30 DAFS	40 DAFS	50 DAFS	60 DAFS	70 DAFS	80 DAFS	90 DAFS
BS-001	0.58	1.56	1.61	1.79	1.82	1.97	2.16
BS-002	1.51	2.06	2.32	2.74	3.42	4.63	5.26
BS-003	1.22	1.75	1.91	2.09	2.74	3.26	4.90
BS-004	1.01	1.26	1.64	1.80	2.35	2.81	4.57
BS-005	1.56	2.47	2.66	3.02	4.23	4.90	5.53
BS-006	1.20	2.04	4.18	6.51	6.97	8.25	9.41
BS-007	1.59	1.69	2.90	4.02	4.91	5.33	5.96
BS-008	1.30	1.54	1.92	2.72	3.13	4.32	5.48
BS-009	1.26	1.61	1.82	1.95	2.99	3.55	5.28
LSD _{0.05}	0.18	0.10	0.16	0.08	0.30	0.15	0.32
LSD _{0.01}	0.25	0.15	0.21	0.10	0.42	0.20	0.45
Level of significance	**	**	**	**	**	**	**

** Significance at 1% level of probability

Weight of individual fruit: It is evident from the result that there was a marked variation among the accessions in terms of fruit weight. Among the accessions, weight of individual fruit at 10 days interval increased significantly. The weight of individual fruit ranged from 6.32 g to 16.73 g at 90 DAFS. The accession no. BS-006 produced fruit of maximum weight (16.73 g) followed by the accession no.

BS-007 (12.85 g). The lightest fruit (6.32 g) was observed in the accession no. BS-001 (Table 4). This result agreed with the findings of Pradhan *et al.* (2014) who reported that the fruit weight showed a continuous increase until maturity during 21–77 DAFS. Rahman *et al.* (2014) also who reported that the heaviest fruits was 15.2 g.

Table 9. Number of fruits per plant of different *Lotkon* accessions at different DAFS

Accession No.	Number of fruits per plant						
	30 DAFS	40 DAFS	50 DAFS	60 DAFS	70 DAFS	80 DAFS	90 DAFS
BS-001	568.00	557.00	546.00	538.00	527.00	520.00	512.00
BS-002	5124.00	5115.00	5107.00	5093.00	5081.00	5069.00	5058.00
BS-003	5227.00	5217.00	5208.00	5192.00	5186.00	5174.00	5160.00
BS-004	4401.00	4389.00	4373.00	4365.00	4354.00	4341.00	4336.00
BS-005	2091.00	2083.00	2071.00	2058.00	2041.00	2027.00	2015.00
BS-006	3203.00	3188.00	3172.00	3157.00	3149.00	3138.00	3125.00
BS-007	4214.00	4209.00	4197.00	4189.00	4175.50	4167.00	4152.00
BS-008	4053.00	4047.00	4033.00	4027.00	4018.00	4010.00	4002.00
BS-009	2948.00	2940.00	2932.00	2923.00	2915.00	2901.00	2893.00
LSD _{0.05}	107.85	1155.33	1205.07	136.00	116.36	134.96	177.88
LSD _{0.01}	148.79	1593.95	1662.58	187.63	160.53	186.19	245.41
Level of significance	**	**	**	**	**	**	**

** Significance at 1% level of probability

Table 10. Dry weight of different *Lotkon* accessions

Accession No.	Dry weight of fruit (g)					
	Individual fruit	Peel	Pulp	Aril	Rachis	
BS-001	0.87	0.45	0.35	0.03	0.03	
BS-002	1.07	0.55	0.42	0.05	0.05	
BS-003	1.25	0.80	0.38	0.03	0.04	
BS-004	1.00	0.54	0.38	0.04	0.03	
BS-005	1.03	0.53	0.43	0.03	0.04	
BS-006	1.40	0.80	0.48	0.05	0.07	
BS-007	1.22	0.61	0.43	0.14	0.04	
BS-008	0.95	0.50	0.39	0.03	0.03	
BS-009	1.06	0.58	0.39	0.03	0.06	
LSD _{0.05}	0.12	0.09	0.06	0.04	0.03	
LSD _{0.01}	0.17	0.13	0.08	0.06	0.04	
Level of significance	**	**	**	**	**	

** Significance at 1% level of probability

Weight of peel: The maximum weight of peel ranged from 3.87 g to 7.40 g at 90 DAFS. The highest weight of peel (7.40 g) was found in the accession no. BS-003 followed by (6.69 g) in the accession no. BS-006. The lowest weight of peel (3.87 g) was recorded in the accession no. BS-001 (Table 5). Pradhan *et al.* (2014) reported that weight of peel increased gradually from 70th DAFS and became maximum on 91th DAFS (67.89 %).

Deb *et al.* (2013) also reported that the peel weight was recorded minimum (4.75 g) in ACC-12 and it was found maximum in ACC-11 (6.10 g) which is similar to this experiment.

Weight of aril: In the experiment, weight of aril increased rapidly upto 50 DAFS and then it became steady at 90 DAFS. The study showed the accession no. BS-007 gave maximum weight of aril and increased more rapid from 30

to 50 DAFS whereas minimum weight of aril was found in the accession no. BS-008. The maximum weight of aril ranged from 0.01 g to 0.06 g at 90 DAFS. The highest weight of aril (0.06 g) was recorded in the accession no. BS-007 followed by (0.05 g) in the accession no. BS-006. The lowest weight of aril (0.01 g) was found in the accession no. BS-008 (Table 6).

Weight of rachis: The maximum weight of rachis ranged from 0.27g to 0.58 g at 90 DAFS. The highest weight of rachis (0.58 g) was given by the accession no. BS-006 followed by (0.53 g) in the accession no. BS-009. The lowest weight of rachis (0.27 g) was given by the accession no. BS-001 (Table 7).

Weight of pulp: The highest weight of pulp (9.41 g) was given by the accession no. BS-006 followed by (5.96g) in the accession no. BS-007. The accession no. BS-001 showed the (2.16 g) weight of pulp which was the lowest (Table 8).

Number of fruits per plant : The maximum number of fruits per plant ranged from 568.00 to 5227.00 at 30 DAFS. The highest number of fruits (5227.00) was given by the accession no. BS-003 followed by 5124.00 in the accession no. BS-002. The lowest number of fruits (568.00) was given by the accession no. BS-001. Again, in the final harvest at 90 DAFS, the maximum number of fruits per plant ranged from 512.00 to 5160.00. The

highest number of fruits (5160.00) was given by the accession no. BS-003 followed by 5058.00 in the accession no. BS-002. The lowest number of fruits (512.00) was given by the accession no. BS-001 (Table 9). Rahman *et al.* (2014) reported that the highest number of fruits per plant (6000) was produced from the genotype BS-jai 005 and the minimum (600) was noted in BS-Jai 004.

The dry weight of fruits: The dry weight of all parameters of fruit was observed in this experiment varied significantly due to influence of different accession. The highest dry weight of fruit (1.40 g) was given by the accession no. BS-006 and the lowest dry weight of fruit (0.87 g) given by the accession no. BS-001. As like as individual weight of fruit, the similar result in dry weight of peel (0.80 g) was given by both accession no. BS-003 and BS-006 which was maximum and the minimum dry weight of peel (0.45 g) was given by the accession no. BS-001. The highest dry weight of pulp (0.48 g) was also given by the accession no. BS-006 and the lowest dry weight of pulp (0.35 g) given by the accession no. BS-001. In case of dry weight of rachis, the highest result (0.068 g) was given by the accession no. BS-006 and the lowest result (0.033 g) given by the accession no. BS-001 (Table 10).

Table 11. Biochemical characters of different *Lotkon* accessions

Accession No.	TTA (%)	Total sugar (%)	Reducing sugar (%)	Non-reducing sugar (%)	TSS (%)	Moisture content (%)
BS-001	2.24	3.04	1.97	1.07	10.96	86.26
BS-002	2.04	4.00	2.79	1.21	12.49	88.16
BS-003	2.12	3.95	2.68	1.27	11.90	90.88
BS-004	2.02	4.02	2.81	1.21	12.09	89.53
BS-005	2.09	3.96	2.73	1.23	10.49	89.09
BS-006	2.07	4.01	2.76	1.25	11.42	89.45
BS-007	1.98	4.23	3.12	1.11	12.17	92.52
BS-008	2.01	4.13	3.06	1.07	9.90	90.49
BS-009	2.23	3.29	2.06	1.23	10.95	91.17
LSD _{0.05}	0.15	0.15	0.19	0.10	0.60	0.08
LSD _{0.01}	0.20	0.20	0.26	0.15	0.20	0.82
Level of significance	**	**	**	**	**	**

** Significance at 1% level of probability, TTA%= Titratable acidity, TSS= Total soluble solids

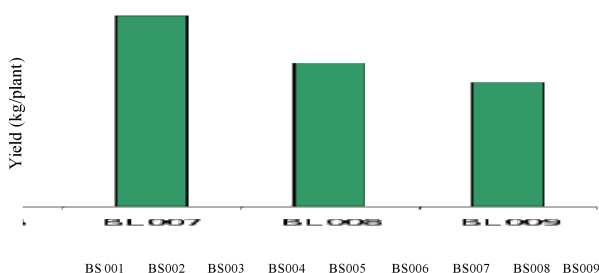


Fig. 1. Yield of different *Lotkon* accessions. The vertical bar indicates LSD at 1% level of significance

Yield per plant: The highest yield (65.69 kg per plant) was shown by the accession no. BS-003 followed by 55.84 kg per plant in the accession no. BS-002. The lowest yield (3.24 kg per plant) was recorded in the accession no. BS-001 (Fig 1). Rahman *et al.* (2014) reported that the yield ranged from 5.20 kg to 55.4 kg per plant. The maximum yield of 55.4 kg/plant was obtained from the genotype BS-

Jai 005 whereas the minimum of 5.2 kg/plant was recorded from BS-Jai 004 which is partially similar to this result.

Biochemical characterization: The biochemical characteristics of fruits like titratable acidity, total sugar, reducing sugar, non-reducing sugar, TSS and moisture content showed significant result. Maximum percentages of titratable acidity, non-reducing sugar and TSS were 2.24%, 1.27% and 12.49% which were found in the accession no. BS-001, BS-003 and BS-002, respectively. Minimum percentages of non-reducing sugar and TSS were also found in the accession no. BS-008 which was 1.07% and 9.90%, respectively. The maximum percentages of total sugar, reducing sugar and moisture content were found in the accession no. BS-007 which was 4.23%, 3.12% and 92.52%, respectively. Minimum percentages of titratable acidity (1.98%) was found in the accession no. BS-007. The minimum percentages total sugar, reducing sugar, non-reducing sugar and moisture content was found in the accession no. BS-001 which was 3.04%, 1.97%, 1.07% and 86.26%, respectively (Table 11). Pradhan *et al.* (2014) noticed in their experiment with

Lotkon that titratable acidity was 3.07% and the reducing sugar showed a gradual increase from 2.24 to 4.28 mg 100⁻¹ g pulp, from 49 to 98th DAFS. Rahman *et al.* (2014) found that the total soluble solids (TSS%) were the highest in BS-Jai 001 (13.6%) while the lowest TSS in BS-Jai 003 (12.4%). Total soluble solids content observed in the present study agreed with the above report.

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