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Evaluation of different genotypes on quality parameters of okra [*Abelmoschus esculentus* (L.) Moench.] under Lucknow region

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Abstract
A field experiment was conducted during 2017 at Horticulture Research Farm-II, BBAU, Lucknow, Studies on the "Evaluation of different genotypes on quality parameters of okra [*Abelmoschus esculentus* (*L.) Moench*.] Under Lucknow region, revealed that T.S.S (^{0}B), Ascorbic acid, Acidity and moisture percent were maximized. In the present study, 16 genotypes of okra were evaluated for four characters.

Keywords: Okra, chemical parameters

Introduction
Okra [*Abelmoschus esculentus* (L.) Moench.] are important vegetables crops in India. It is most popular vegetable around the world respect of area, production and availability. Bhindi is cultivated throughout the tropical and warm temperature regions of the world for its fibrous fruits or pods containing round, white seeds. It has occupied a prominent position among vegetables. Okra is known by many local names in different parts of the world. It is called lady's finger in England, Gumbo in U.S.A. and Bhindi in India. Okra is a polyploidy, belonging to the family Malvaceae with 2n =130 or 144 chromosomes. According to Vavilov (1951) [11], it was probably domesticated in the Ethiopian region. Okra is an often-cross pollinated crop, occurrence of out crossing to an extent of 4 -19 % pollination. Okra is a flowering plant in the family Malvaceae. Okra is cultivated comprehensively in the tropical, subtropical and warm areas of the world like India, Africa. Edible fresh and mature fruits contain 88% moisture and large number of chemical components including Vitamin-A 88 IU, Vitamin-B 63 IU and Vitamin-C 13 mg/100 gm. Unripe okra fruits contain 3100 calorie energy, 1.8gm Protein, 90 mg Calcium and 1.0mg iron. Seeds of okra had the oil content 17.3%. It has Ayurvedic medicinal properties. Its leaves are used for preparing a medicament to reduce inflammation. It is an excellent source of Iodine for control of goiter (Chadha, 2001) [3]. It is also very useful against genito-urinary disorders, spermatorrhoea and chronic dysentery (Nandkarni, 1927) [7]. Fresh okra fruit are used as vegetable while the roots and stems are used for preparing "gur" or the brown sugar. Okra seeds are used for oil extraction. In India, okra is one of the most Okra plays a significant role in human nutrition by providing carbohydrates, protein, fat, minerals and vitamins that are generally deficient in basic foods. Okra is a vegetable valued for many of its properties. The fruits are used in making soup, salad and for flavouring when dried and powdered. The tender fruits contain minerals especially calcium, magnesium, iron and phosphorus, protein, vitamin A and C including riboflavin as well as high mucilage**.** Mature okra seeds are good sources of protein and oil and it has been known to be very important in nutritional quality. Its ripe fruit and stems contain crude fibre, which is used in the paper industry. Important vegetable crop grown for its tender green fruits during summer and rainy seasons.

Material and Methods
The experimental material for the present study consisted of sixteen genotypes of okra obtained from Indian institute of vegetable research, Varanasi (U.P.) the experiment was conducted using Randomized Block Design (RBD) with three replications at Horticulture Research Farm II of Department of Horticulture, Babasaheb Bhimrao Ambedkar University, (A Central University), Vidya-Vihar, Rae Bareli Road, Lucknow- 226025 (U.P.) were taken for the investigation during Kharif season of 2017-18. Observation were recorded for T.S.S. (^{0}Brix), Vitamin-C (mg/100gm), Acidity (%), Moisture content (%). The data so obtained were analysed statically.

Result and Discussion

The total soluble solid content in okra fruits significantly. EC-169347 (T_{11}) produced the highest total soluble solid in the okra fruits (7.100%), followed by Prabhani Kranti (T_{15}) (6.733%) and the lowest total soluble solid in okra fruits was recorded with Pusa Sawani (T_9) (4.667%). Similar result was also reported by several other investigator. Hussaini, M. G. B. Babu, K. H. (2007) [7].

Kashi Satdhari (T_{14}) produced the highest vitamin-c in the okra fruits (12.67 mg), followed by Prabhani Kranti (T_{15}) (12.26 mg) and the lowest vitamin-c in okra fruits was recorded with VRO-6 (T_{16}) (9.26 mg). Similar result was also reported by several other investigator like Singh *et al.* (2013) [9]. The different genotypes showed that influence of genotypes decreased acidity content in okra significantly. Kashi Satdhari (T_{14}) produced the lowest rate of acidity 0.663% followed by Prabhani Kranti (T_{15}) 0. 667. The highest acidity content was recorded with IC-140920 (T_1) 0.753%. Karri, S. R. Pinaki Acharyya (2012).

EC-169347 (T_{11}) contain lowest rate of moisture (75.10%) followed by Pusa Makhmali (T_6) (75.90%). The highest moisture content was noted with control Khasi Satdhari (T_{14}) 84.88%. Similar result was also reported by several other investigator like Hazarika *et al.* (1997) Bendale *et al.* (2003).

Table 1: Evaluation of different genotypes on quality parameters of okra [*Abelmoschus esculentus* (L.*)* Moench.] Under Lucknow region.

Treatment	Genotypes	T.S.S. (^{0}Brix)	Vitamin –C (mg/100gm)	Acidity (%)	Moisture (%)
T_1	IC-140920	6.133	10.167	0.663	78.847
T_2	158-10-1	6.467	11.967	0.733	79.870
T_3	IC-12891	5.867	9.400	0.690	75.913
T_4	VRO-5	5.733	12.200	0.680	78.683
T_5	Summer IIVR-11	5.200	10.887	0.737	78.007
T_6	Pusa Makhmali	5.367	11.300	0.733	75.903
T_7	1754	5.600	10.833	0.710	78.813
T_8	Arka Anamika	6.300	10.933	0.677	78.270
T_9	Pusa Sawani	4.667	11.453	0.720	76.617
T_{10}	EC-169419	6.067	10.407	0.697	77.137
T_{11}	EC-169347	7.100	11.500	0.707	75.100
T_{12}	HRB-55	6.833	11.617	0.667	78.427
T_{13}	157-10-1	4.667	9.837	0.690	77.890
T_{14}	Kashi Satdhari	5.233	12.670	0.753	84.880
T_{15}	Prabhani Kranti	6.733	12.267	0.743	82.593
T_{16}	VRO-6	5.833	9.267	0.700	78.460
	SEm. (±)	0.229	0.408	0.012	0.258
	C.D. (P=0.05)	0.664	1.185	0.033	0.750

Conclusion

It is concluded that among the 16 genotypes of okra studied in the present investigation, Kashi Satdhari is the best performing genotype in respect of quality characters followed Prabhani Kranti, HRB-55 and Pusa Sawani. Therefore, it is recommended to okra grown of subtropical region of to grow this Kashi Satdhari for better quality and yield.

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