Advances in Life Science and Technology
ISSN 2224-7181 (Paper) ISSN 2225-062X (Online)
Vol.101, 2025

Performance of Cherry Tomato (*Solanum Lycopersicum var. cerasiforme*) Genotypes for Yield and Fruit Quality in Ethiopia

Melkamu Hinsermu[1], Chongdae Kim[2], Doham Pae[2], Tesfa Binalfew[3], Demis Fikire[4], Minuyelet Jambere[5], Selamawit Ketema[1], Shimelis Aklilu[1], Gebeyehu Wondimu[1], Dessie Getahun[6], Tarkua Hailu[1]
[1]Ethiopian Institute of Agricultural Research (EIAR), Melkassa Agricultural Research Center, P.O. Box 436, Adama, Ethiopia
[2] KOPIA Ethiopia Center, Ethiopian Institute of Agricultural Research, P.O. Box 2003, Ethiopia
[3]The World Vegetable Center (WorldVeg) P. O Box 5689, Addis Abeba, Ethiopia
[4]EIAR, Kulumsa Agricultural Research Center, P.O. Box 489, Asela, Ethiopia.
[5]Amhara Agricultural Research Institute, Woramit Horticulture Research & Training Sub-Center, Bahir Dar, Ethiopia
[6]EIAR, *Fogera* National Rice Research and Training Center P.O. Box 1937, Wereta, Ethiopia
Email of Corresponding Author: melkamuhinsermu12@gmail.com

ABSTRACT
Cherry tomato [Solanum lycopersicum (L.) var. cerasiforme Mill.] is small fruits with a bright red color resembling a cherry and having an excellent taste, sweetness and juiciness. So far, there is no cherry tomato variety was released or registered in Ethiopia. Therefore, a field experiment was conducted at Melkassa, Kulumsa, Fogera, Woramit, Adami-Tulu and Koka testing sites during off-seasons of 2021 and 2022, using irrigation to identify better adapted varieties, with high yield and good quality for national production in Ethiopia. Six cherry tomato genotypes (Sarang, Wonhong No. 1, Wonhong No. 2, Wonhong No. 3, Wonhong No. 4 and Wonhong No. 5) that were imported from National Institute of Horticulture and Herbal Sciences (NIHHS), Rural Development Administration, Republic of Korea were laid out in Randomized Complete Block Design (RCBD) with three replications. The overall analysis of variance across locations and years showed non-significant difference among the genotypes for marketable and total yields though Wonhong No.3 gave higher marketable (24.49 t/ha) and total (26.19 t/ha) yields. However, separate analysis for each site has revealed significant differences among genotypes at Melkassa, Koka, Adami-Tulu and Fogera, unlike at Kulumsa and Woramit that didn't show significant differences for both marketable and total yields in 2021. But there was significant difference during 2022 at Melkassa. Similarly, there was significant differences ($P<0.05$) among these genotypes for fruit number per plant, average fruit weight, number of fruits per cluster, plant height, skin thickness, juice volume of fruit and total soluble solid. Non-significant differences were observed for number of clusters per plant and number of locules. In general, Wonhong Nos.3 and 5 had higher yields and good qualities for productions across the tested locations and years. Consequently, Wonhong No.3 (designated as Jorgie-1) was released for its higher yield, non-crack, good TSS and color, while Wonhong No.5 (renamed as Jorgie-2) was preferred for its smaller fruit size, with reasonable yield and quality (TSS, color & non-crack). Both varieties are officially released in 2023 season for production in different agro-ecologies of Ethiopia, and they are believed to add more economic and nutritional values for the tomato producers (farmers) and the consumers. They can support the intensification of tomato cultivation in peri-urban and urban agriculture, where demands and thus government focus are increasingly growing.
Key words: Cherry tomato varieties, total and marketable yields, TSS, fruit color
DOI: 10.7176/ALST/101-01
Publication date: January 31st 2025

INTRODUCTION

Cherry tomato [*Solanum lycopersicum* (L.) var. *cerasiforme* Mill.] is a cultivated variety of tomato and belongs to the family Solanaceae. Cherry tomato is grown for its edible fruits; they are perfect for making processed products like sauce, soup, ketchup, puree, curries, paste, powder, rasam and sandwich (Anonymous, 2009). It is a tomato variety with small fruit, with different shapes and colors and it is mainly used for fresh consumption. Cherry tomato is small in size, has a sweeter taste and offers several significant nutritional benefits, noted that cherry tomatoes have intense color and flavor, generally round in shape and weighing 10 to 30g. Its fruits are consumed more as a salad fruit rather than as a vegetable. Cherry tomato often called 'salad tomato' (Charlo *et al.,* 2007).

The cherry tomato is also beneficial to human health because of its high content of antioxidant and phytochemical compounds including lycopene, β- carotene, flavonoids, vitamin C and many essential nutrients like, total carbohydrate, sugars, protein, calcium, and iron. They are a great source of vitamin-C (13 mg/100 g), dietary fibre (2.0 g), vitamin A (25%) and vitamin K and also a good source of vitamin E (Alpha Tocopherol), thiamine, niacin, vitamin B6, foliate, phosphorus, copper, potassium and manganese (Thapa *et al.,* 2014). Quality parameters in cherry tomato emphasizes on attributes for fresh market and processing. The cherry tomatoes developed for fresh market and processing should have distinct quality characteristics (Kumar *et al.,* 2014).

In Ethiopia, there is no cherry tomato variety has been released or registered yet. In order to fill this gap, six genotypes were introduced through the Technical Cooperation Project (TCP) of the Korean Program for International Cooperation in Agriculture (KOPIA). The project was known as "Development and promotion of tomato technologies for enhancing productivity in Ethiopia". It has been undertaken since 2021. The study was aimed at evaluating and identifying well adapted genotypes, with higher yield and better quality for wider production in Ethiopia.

MATERIAL AND METHODS

Description of study area

The experiment was conducted at four Agricultural Research Centers (Melkassa, Kulumsa, Fogera and Woramit) and two farmers' fields at (Adami-Tulu and Koka, Central Rift Valley) during 2021 and 2022 off-seasons. The descriptions of experimental sites were given in (Table 1), as shown below.

Table 1. The detail description of experimental sites, 2021-2022

Testing site	Agro-ecology	Altitude (m.a.s.l)	Temperature (min/max)	Rainfall (total annual)
Melkassa	Midlands	1,550 m	12.6-28.5 ºC	768 mm
Debre Zeit	Tepid cool sub-moist highlands	1,900 m	8.9-28.3 ºC	851 mm
Kulumsa	cool highland to semi-arid	2,200 m	10-22 ºC	840 mm
Fogera	Midland	1,819 m	12-28 ºC	1,230 mm
Koka	Midlands	1,605 m	12.14-27.39 ºC	896 mm
Adami-Tulu	Midlands	1,655 m	12.8-28.56 ºC	600 mm
Woramit	Midlands	2,240 m	6.2-17.85 ºC	1,250 mm

Experimental design and treatment

The experiment was laid out in Randomized Complete Block Design (RCBD) with three replications. It consisted of six cherry tomato genotypes (Sarang, Wonhong No. 1, Wonhong No. 2, Wonhong No. 3, Wonhong No. 4 and Wonhong No. 5). Area of each experimental plot was 15 m^2 (3m x 5m). Each experimental plot was consisted of five rows (the $2^{nd,}$ 3^{rd} and 4^{th} rows were harvestable row, while the 1^{st} and 5^{th} rows were border rows). The spacing between rows and plants was 100 cm and 30 cm, respectively. And the spacing between plots and blocks was 1.5 m.

Experimental procedure

The six cherry tomato genotypes were introduced from the National Institute of Horticulture and Herbal Science (NIHHS), Rural Development Administration (RDA), Republic of Korea in 2017. Land preparation was done by plowing with a tractor, followed by disking and harrowing to ensure proper soil preparation. Fertilizers, NPS (242 kg/ha) was applied at transplanting, while urea (79 kg/ha) was applied in two splits (50% two weeks after transplanting and the remaining 50% one and a half month after transplanting). Fungicides Ridomil gold and nativo were applied at the rate of (3.5 kg/ha) to control different leaf diseases (bacterial leaf spot and powdery mildew, respectively), and Karate 5% (2.5 l/ha) was also applied against insect pests (African boll worm), and Tutan against tuta absoluta. Other necessary cultural practices were undertaken to all plots uniformly as required.

Data collection and analysis

Number fruits per plant, average fruit weight (gm), number of fruits per cluster, number of clusters per plant, marketable and total yield (t/ha), plant height (cm), skin thickness) (mm), no of locules, juice volume of a fruit (ml), total soluble solid, fruit shape, skin color and skin crack were collected at and after harvesting. For total and marketable yields, data from net plots were weighed and extrapolated into tons per hectares, while average

of random samples for five plants were taken for data, like fruits per plant and cluster, plant height and number of locules.

The collected data were subjected to analysis of variance using the GLM procedure of the SAS software version 9.0 (SAS, 2004). The assumptions of ANOVA for normality of distribution and homogeneity of variance were checked and statistical analysis where the F-ratios was found to be significant, mean separation was performed using LSD at the 5% probability level.

RESULTS AND DISCUSSION

Marketable yield

The combined analysis of variance across years and locations for marketable yield was non-significant during both 2021 and 2022 years (Tables 2 & 3). Average marketable yield ranged from 22.42 to 25.6 t/ha in 2021, while it was in 19.2 t/ha to 24.37 t/ha in 2022. Wonhong No.1 gave (25.6 t/ha) followed by Wonhong No.3 (25.5 t/ha), showing both were good marketable yielders during the first season. But, during 2022 year higher marketable yielder (24.37 t/ha) was Sarang, followed by Wonhong No.3 (23.49 t/ha), indicating No.3 was better performer during both seasons.

The individual location analysis of variance showed a significant difference among genotypes at Melkassa, Koka, Adami-Tulu, Fogera, while non-significant at Kulumsa and Woramit for marketable yield in 2021. Sarang variety gave the highest yield (27.97 t/ha), followed by Wonhong No.3 (23.50 t/ha) at Melkassa in 2021. Likewise, Wonhong No.3 was top yielder (36.77 t/ha), followed by Wonhong No.2 (36.53 t/ha) at Koka. Similar results were recorded at Adami-Tulu, with Wonhong No.3 (27.82 t/ha) and Wonhong No.2 (24.47 t/ha). At Fogera, however, Wonhong No.1 gave (26.43 t/ha), followed by Wonhong No.4 (24.60 t/ha). Similar results were also reported (Said *et al*., 2014), as they observed significant variations for yield and yield attributing characters in different accessions of cherry tomato.

During 2022 cropping season, Sarang was the highest yielder (29.57 t/ha), followed by Wonhong No.3 (27.56 t/ha) at Melkassa though their ANOVAs were non-significant at Kulumsa, Woramit and Fogera. Across the two years, No.3 has generally shown promising marketable yields.

Table 2. Average marketable yield (t/ha) of six cherry tomato genotypes at locations of Ethiopia, 2021

Genotypes	Melkassa	Koka	Adami tulu	Kulumsa	Woramit	Fogera	Mean
Sarang	27.97a	28.39bc	16.64c	17.52	26.2	17.81c	22.42
Wonhong No.1	21.92b	33.07abc	23.33abc	23.01	25.85	26.43a	25.6
Wonhong No.2	21.62b	36.53ab	24.47ab	18.45	23.25	19.81bc	24.02
Wonhong No.3	23.50ab	36.77a	27.82a	21.06	20.97	22.88abc	25.5
Wonhong No.4	19.31b	27.61c	22.34abc	20.14	25.21	24.60ab	23.2
Wonhong No.5	18.97b	28.57bc	19.22bc	20.28	28.9	21.33abc	22.88
Mean	22.22	31.82	22.30	20.08	25.06	22.14	23.94
LSD (5%)	4.99	7.63	6.56	6.22	7.53	5.30	4.07
F-test	*	*	*	NS	NS	*	NS
CV (%)	12.4	13.2	16.2	17	16.5	13.2	18.8

Means followed by the same letter are not significantly different at $p < 0.05$

Table 3. Mean marketable yield (t/ha) of six cherry tomato genotypes at six sites of Ethiopia, 2022

Genotypes	Melkassa	Kulumsa	Woramit	Fogera	Average
Sarang	29.57a	18.00	27.21	25.65	24.37
Wonhong No.1	23.56abc	13.95	25.00	23.14	21.07
Wonhong No.2	20.18bc	13.39	29.33	23.19	21.25
Wonhong No.3	27.56ab	15.05	29.46	23.09	23.49
Wonhong No.4	18.04c	16.38	18.30	24.74	19.20
Wonhong No.5	16.14c	15.23	26.33	27.26	21.12
Mean	21.21	15.33	25.94	20.47	21.75
LSD (5%)	5.98	8.19	7.90	9.12	4.13
F- test	*	NS	NS	NS	NS
CV (%)	15.50	29.36	16.74	20.47	10.45

Means followed by the same letter are not significantly different at $p < 0.05$

Total yield

The combined analysis of variance across years and locations for total yield of cherry tomato genotypes were non-significant during both 2021 and 2022 years (Tables 4 & 5). It ranged from 23.92 to 26.83 t/ha in 2021. Wonhong No.3 gave the top total yield (26.83 t/ha), followed by Wonhong No.1 (26.69 t/ha). But in 2022 the higher total yield (27.22 t/ha) was recorded from Sarang, followed by Wonhong No.3 (25.56 t/ha).

The separate analysis of variance for each site showed significant differences among genotypes at Melkassa, Koka, Adami-Tulu, Fogera, but it was non-significant at Kulumsa and Bahir-Dar for total yield in 2021. Sarang was top yielder (31.27 t/ha) at Melkassa during 2021, whereas Wonhong No.3 (37.71 t/ha) and Wonhong No.2 (37.38 t/ha) were good total yielder at Koka. Similarly, Wonhong No.3 was top total yielder (30.13 t/ha), followed by Wonhong No.2 (26.86 t/ha) at Adami-Tulu. At Fogera site, nevertheless, Wonhong No.1 was high yielder (26.77 t/ha), followed by Wonhong No.4 (24.91 t/ha). Ramya *et al.* (2016) have shown similar results for cherry tomato varieties, with wide variability of yield components and fruit quality characteristics (flavor, aroma, color and texture). In short, Wonhong No.3 was good total yielder (27.56 t/ha) during 2022 at Melkassa even though it was non-significantly different from other varieties at Kulumsa, Woramit and Fogera (Table 5).

Table 4. Mean total yield (t/ha) of six cherry tomato genotypes at six sites of Ethiopia, 2021

Genotypes	Melkassa	Koka	Adami tulu	Kulumsa	Woramit	Fogera	Combined
Sarang	31.27a	30.17ab	20.00b	18.74	27.51	18.35c	24.34
Wonhong No.1	23.13b	33.84ab	25.11ab	24.11	27.14	26.77a	26.69
Wonhong No.2	23.01b	37.38a	26.86ab	19.57	24.41	20.12bc	25.22
Wonhong No.3	25.05b	37.71a	30.13a	22.51	22.02	23.55abc	26.83
Wonhong No.4	20.23b	28.19b	23.66ab	21.24	26.47	24.91ab	24.14
Wonhong No.5	20.23b	29.22b	20.74b	21.06	30.34	21.94abc	23.92
Mean	23.84	32.75	34.42	21.21	26.32	22.61	25.19
LSD (5%)	5.19	7.52	6.31	6.75	7.91	5.54	4.13
F-test	**	*	*	NS	NS	*	NS
CV (%)	12	12.6	14.2	17.5	16.5	13.5	18.3

Means followed by the same letter are not significantly different at $p < 0.05$

Table 5. Mean total yield (t/ha) cherry tomato national trial at six environments of Ethiopia, 2022

Genotypes	Melkassa	Kulumsa	Woramit	Fogera	Average
Sarang	29.57a	19.21	27.21	32.93	27.22
Wonhong No.1	23.56ab	14.46	25.00	27.45	22.62
Wonhong No.2	20.18bc	14.03	29.33	29.45	23.25
Wonhong No.3	27.56ab	16.12	29.46	29.11	25.56
Wonhong No.4	18.04c	17.22	18.30	30.34	20.97
Wonhong No.5	16.14c	15.84	26.33	33.27	22.88
Mean	22.51	16.15	25.94	30.41	23.75
LSD (5%)	7.43	8.48	7.90	10.59	4.58
F- test	*	NS	NS	NS	NS
CV (%)	18.16	28.88	16.74	19.14	10.62

Means followed by the same letter are not significantly different at $p < 0.05$

Table 6. Marketable, unmarketable & total yield (t/ha) of the two cherry tomato varieties recommended for general release in Ethiopia, 2023

Varieties	Location	Marketable Yield (t/ha)	Unmarketable Yield (t/ha)	Total Yield (t/ha)
Wonhong No-3	Melkassa	24.94	0.94	25.88
	Koka on farm	28.70	0.45	29.15
	Wonji on farm	16.42	0.08	16.49
	Debre Zeit	29.02	0.18	29.20
	Kulumsa	20.40	0.14	20.54
	Woramit	24.88	0.00	24.88
	Mean	**24.06**	**0.30**	**24.36**
Wonhong No-5	Melkassa	22.90	0.63	23.53
	Koka on farm	24.85	0.54	25.39
	Wonji on farm	14.04	0.09	14.13
	Debre Zeit	23.74	0.15	23.89
	Kulumsa	19.50	0.17	19.67
	Woramit	22.52	0	22.52
	Mean	**21.26**	**0.26**	**21.52**

Vegetative and fruit quality parameters

There was significant difference ($P<0.05$) among genotypes in terms of fruit number per plant, average fruit weight, number of fruits per cluster, plant height, skin thickness, juice volume of fruit and total soluble solid. Ramya *et al.* (2016) have reported similar result on cherry tomato's wide variability for yield components and fruit quality characteristics, like flavor, aroma, color and texture. As shown in Table 7, non-significant difference was observed for number of clusters per plant and number of locules. The highest fruit number per plant was from Wonhong No.1 (127), followed by Wonhong No.2 (126) and Wonhong No.5 (125), while the lowest (107) was recorded from Wonhong No.4. Likewise, the highest (24.83 g) average fruit weight was obtained from genotype Sarang, the next (21.43 g) was from Wonhong No.3, against the lowest (13.40 g) that was registered from Wonhong No.5. Similarly, the highest number (30) of fruits per cluster was obtained from Wonhong No. 2, which was succeeded by that of Wonhong No. 3 (27).

The tallest height (170.33) was recorded for Wonhong No. 3, followed by Wonhong No. 4 (169.60 cm) and Wonhong No. 5 (149.13 cm). In the same manner, the highest skin thickness (3.31 mm) was recorded from Wonhong No. 3, while the softest (2.98 mm7) was obtained from Wonhong No. 2. Maximum juice volume of fruit (26.33 ml) was also recorded from Sarang against the minimum (14 ml) of Wonhong No. 5. Similar results were reported for average fruit weight and shape (Rodríguez *et al.,* 2003); fruit yield, average fruit weight and

pericarp thickness (Garzón, 2011). Generally, Wonhong Nos. 3 & 5, were superior in their overall performance, and thus were approved for cultivation in Ethiopia.

Table 7. Vegetative and quality characters of the six cherry tomato genotypes, 2021-22

Genotypes	Fruits No/plant	Av. fruit Wt. (gm)	No of fruits/ cluster	No. cluster/plant	Plant height (cm)	Skin thickness (mm)	No of locules	Juice vol (ml)	%TSS
Sarang	109.0b	24.83a	26.25bc	8.20	163.00ab	3.14ab	2.28	26.33a	5.75c
Wonhong No.1	127.4a	20.43ab	26.71abc	7.13	154.67bc	3.08ab	2.35	24ab	6.23ab
Wonhong No.2	126.7a	14.17c	30.23a	6.73	159.13b	2.98b	2.37	18.67c	6.37a
Wonhong No.3	118.1ab	21.43a	26.94ab	7.80	170.33a	3.31a	2.21	23.83b	5.91bc
Wonhong No.4	107.4b	15.10bc	22.8 c	7.2	169.60a	3.08ab	2.21	22.00b	6.20ab
Wonhong No.5	124.9a	13.40c	23.89bc	7.00	149.13c	3.01b	2.29	14.00d	6.32ab
Mean	119	18.22	26.15	7.34	160.98	3.1	2.3	21.47	6.10
LSD (5%)	14.2	6.14	3.61	1.61	9.10	0.24	0.17	2.43	0.40
F-test	*	**	**	NS	*	*	NS	**	*
CV (%)	17.9	18.52	20.7	12.09	3.11	11.6	11.5	6.24	9.8

Means followed by the same letter within a column are not significantly different at 5 % level of significance

Table 8. Characteristics of six cherry tomato genotypes in Ethiopia, 2021-2022

Genotypes	Fruit size (relative)	Fruit shape	Skin color	Skin crack (due to heat)
Sarang	Large	Plum	Red	Observed
Wonhong No.1	Medium	Plum	Red	None
Wonhong No.2	Medium	Plum	Red	None
Wonhong No.3	Medium	Plum	Red	None
Wonhong No.4	Medium	Plum	Red	None
Wonhong No.5	Small	Plum	Red	None

SUMMARY AND RECOMMENDATIONS

Cherry tomato is small fruits with a bright red color resembling a cherry and having an excellent taste, sweetness and juiciness. It is almost new in Ethiopia and no cherry tomato variety was released or registered as of now. Therefore, a field experiment was conducted at four Agricultural Research Centers (Melkassa, Kulumsa, Fogera and Woramit) and two on farmer fields (Adami Tulu and Koka) during off- seasons of 2021 and 2022, using irrigation to identify better varieties in terms of yield and quality for wider production in Ethiopia. Six genotypes (Sarang, Wonhong No.1, Wonhong No.2, Wonhong No. 3, Wonhong No. 4 and Wonhong No. 5) were tested in three times replicated RCBD at six sites over two years (i.e., 12 environments).

The combined analysis of variance across location and years showed non-significant differences among the genotypes for marketable and total yields, implying their stability across the tested environments. However, separate analysis of variance for individual locations, showed significant differences among the genotypes at Melkassa, Koka, Adami-Tulu and Fogera, in contrast to Kulumsa and Woramit which showed non-significant for both marketable and total yields in 2021. During the subsequent year of 2022, there was significant difference only at Melkassa, while non-significant at the remaining five sites. Wonhong No.3 and No.5 showed higher yields and better qualities (TSS, color & non-crack), and thus were released for general production and table purposes in Ethiopia, under local names Jorgie-1 & -2 for No.3 & No.5, respectively. (Jorgie means rosy color or rosina in local Oromo language of Ethiopia).

ACKNOWLEDGMENTS

The authors would extend their sincere acknowledgments to the Korean Government through RDA and KOPIA for financing this project and NIHHS for sharing with us their valuable genotypes. We also thank EIAR-MARC

for hosting and facilitating the execution of this study and Dr Adugna Wakjira (KOPIA project advisor) for write up, comments & suggestions. Similarly, we also extend our appreciations for the collaborating Research Centers (Debre Zeit, Kulumsa, Fogera and Woramit) and others who rendere support for effective implementation of the entire project.

REFERENCES

Anonymous. 2009. Cherry tomato nutritional information; USDA National Nutritional Database for Standard Reference. (www.lose-weight-withus.com/cherry tomato- nutrition.html).

Charlo HCO, Castoldi R, Ito LA, Fernandes C, Braz LT. 2007. Production of cherry tomato under protected cultivation carried out with different types of pruning and spacing. Acta Hort. 761:323- 326.

Ethiopian Institute of Agricultural Research (EIAR). 2021. EIAR Portal. Available at: http://www.eiar.gov.et

Garzón, J.P. 2011. Characterization and morpho-agronomic evaluation of the cherry tomato collection of the National University of Colombia, Faculty of Agricultural Sciences, National University of Colombia, Palmira, Colombia, MS thesis.

Kumar K, Trivedi J, Sharma D, Nair SK. 2014. Evaluation for fruit production and quality of cherry tomato (*Solanum lycopersicum* L. var. *cerasiforme*). Trends in Biosciences.7(24):4304-4307.

Ramya, R., Ananthan, M. and Krishnamoorth, V. 2016. Evaluation of cherry tomato [*Solanum lycopersicum* L. var. *cerasiforme* (Dunnal) A. Gray] genotypes for yield and quality traits. *Asian Journal of Horticulture*. 11: 329-334

Rodríguez, A., Prohens, J., Solbes, E., Fernández, P. and Nuez, F. 2003. Characterization of North American heirloom tomatoes. *Report of the Tomato Genetics Cooperative*. 53: 28.

Said, A. F. A, Al Fasri, K, Khan, I. A, Ali, A, Khan, M. M. and Iqbal, Q. 2014. Evaluation of adaptability and nutritional quality of 54 tomato accessions grown in Oman. Journal of Food, Agriculture and Environment 12 (2): 40-50.

Thapa, R. P, Jha, A. K., Deka, B. C, Reddy Krishna, A. N, Verma, V. K. and Yadav, R. K. 2014. Genetic divergence in tomato in subtropical mid-hills of Meghalaya. Indian Journal of Horticulture 71 (1): 123-125.