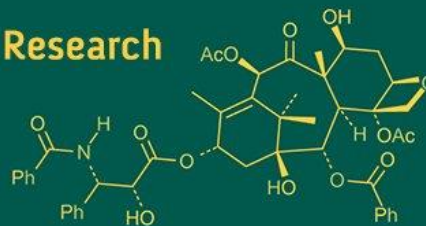


International Journal of Advanced Biochemistry Research



ISSN Print: 2617-4693
ISSN Online: 2617-4707
NAAS Rating (2026): 5.29
IJABR 2026; SP-10(7): 1211-1216
www.biochemjournal.com
Received: 09-04-2026
Accepted: 12-05-2026

RD Nikam

Ph.D (Scholar), Department of Vegetable Science, College of Horticulture, Dapoli, Dr. SKKV, Dapoli, Maharashtra, India

Dr. YR Parulekar

Vegetable Specialist, Vegetable Improvement Scheme, Centre Experimental Station, Wakawali, Maharashtra, India

Dr. PC Haldavanekar

Ex-Registrar, Dr. BSKKV, Dapoli and Associate Dean College of Horticulture, Dapoli, Maharashtra, India

Dr. SV Sawardekar

Professor, Plant Biotechnology Centre Dr. BSKKV, Dapoli, Maharashtra, India

Dr. NV Dalvi

Associate Professor (CAS), College of Horticulture, Dapoli, Maharashtra, India

Dr. SS More

Jr. Soil Scientist, Regional Fruit Research Station, Vengurla, Dist. Sindhudurg, Maharashtra, India

Dr. CP Bal

Ph.D Scholar (GPB) Dept. of Agricultural Botany College of Agriculture, Dapoli Dr. BSKKV, Dapoli, Maharashtra, India

Dr. SM Mhaske

Ph. D (Scholar) Department of Vegetable Science MPKV, Rahuri, Maharashtra, India

Corresponding Author:**RD Nikam**

Ph.D (Scholar), Department of Vegetable Science, College of Horticulture, Dapoli, Dr. SKKV, Dapoli, Maharashtra, India

Mean performance parents and hybrids for yield and yield attributing characters in snake gourd (*Trichosanthes anguina* L.) under Konkan agro-climatic conditions

RD Nikam, YR Parulekar, PC Haldavanekar, SV Sawardekar, NV Dalvi, SS More, CP Bal and SM Mhaske

DOI: <https://www.doi.org/10.33545/26174693.2026.v10.i7So.9209>

Abstract

The present investigation was conducted to evaluate twenty four hybrids and their parents for yield and yield attributing traits using line x tester method. Significant variation in mean performance was noticed for all the yield and yield attributing related traits studied. Different hybrids and parents were found to be superior for different traits. Among the parents L₃ had the highest fruit length (117.46 cm), T₂ (67.11 mm) registered the highest fruit girth, L₃ recorded the highest fruit weight (372.68g), the highest number of fruits per plant recorded in L₄ (17.06) and L₃ registered the highest yield per plant (6.37 kg) as well as the highest yield per hectare (31.86 t). The best performing hybrids for different characters include L₃ x T₃ (124.40 cm) recorded for the highest fruit length, the highest fruit girth was registered in L₂ x T₂ (55.86 mm), L₃ x T₁ (442.21 g) recorded the highest weight of fruit, the highest number of fruits per plant was registered in hybrid L₁ x T₃ (21.12) and L₃ x T₁ registered the highest yield per plant (9.28 kg) as well as the highest yield per hectare (46.35 t).

Keywords: *Trichosanthes anguina* L., snake gourd, line × tester analysis, hybrids, parents, mean performance, fruit yield, yield attributes, fruit length, fruit weight, heterosis, Konkan agro-climatic conditions

Introduction

Snake gourd (*Trichosanthes anguina* L.) is an underutilized tropical vegetable crop belonging to family cucurbitaceae with chromosome No 2n = 22. It is commonly known as Serpent gourd, Chichinda and popularly known as “Padwal” in Maharashtra. It is believed to have originated in the Indo-Malayan region. Snake gourd is an annual, herbaceous, day neutral and climbing vegetable crop widely cultivated in tropical and subtropical regions. It is the with regards to Konkan region of Maharashtra. It is commercially grown mainly during rainy season and to some extent during summer, where, sufficient water availability exists. The fruits are tasty and nutritious. The immature fruits are used as vegetable and are important as good source of minerals. Snake gourd is not just valued for its culinary versatility it also contributes to the nutritional quality of diets. The fruit is rich in carbohydrate, proteins, minerals and vitamins A, B, and C. The fruit content 0.5 g protein, 4.4g carbohydrate, 94.1 g water, 18 g calories and 50 g calcium (Devi *et al.*, 2017) ^[1]. Snake gourd is one of the few vegetable crops capable of producing a high yield per unit area however; its average productivity remains relatively low. Although numerous local landraces are cultivated across the country no widely recommended high yielding cultivar is available. Limited efforts have been made to improve the productivity of this crop through systematic breeding programs. Therefore, significant improvement in yield can be achieved through varietal enhancement. The development of superior varieties requires the improvement of important yield contributing traits in snake gourd. Yield is a complex quantitative character influenced by several component traits that are comparatively simple in their inheritance and can be effectively utilized in selection and breeding programs. The primary criterion for evaluating a hybrid is its mean performance which reflects its overall productivity and agronomical potential.

The identification of superior parental lines with high yield potential and desirable yield contributing traits is essential for the development of productive hybrids. The main objective of a hybridization programme is to combine favourable genes from different parents into single genotype thereby enhancing the overall performance of the progeny. The resulting hybrids may be exploited directly as F_1 hybrids to utilize heterosis or advance to subsequent generations for the selection of superior recombinants. The success of a hybrid depends on its genetic constitutions as well as its phenotypic performance under different environmental conditions. Keeping these aspects in view the present investigation was undertaken to evaluate the mean performance of parental lines and their hybrids for growth, flowering, and yield and yield related traits with the aim of identifying superior hybrids in snake gourd.

Materials and method

The present investigation was conducted in the college of Horticulture Dapoli during 2024. In this study, ten genotypes (4 lines and 6 testers) of snake gourd were study crossed in Line x Tester mating design. The analysis of variance for the ten parent and twenty four hybrids in randomized block design with two replications showed highly significant differences among the genotypes for yield

and yield attributing characters studied. The seeds were sown at a spacing of 1 m x 2 m. The observations were recorded on five plants per replication. The observations were recorded for yield and yield attributing characters. The mean performance of selected ten parents and twenty four hybrids combinations derived through line x tester mating design for all yield and yield attributing traits.

Result and discussion

In any crop breeding programme it is important to eliminate undesirable genotypes by evaluating the mean performance of both parents and hybrids. Along with heterosis the per se performance of parents and hybrids should also be considered when selecting superior hybrid combinations. Parents exhibiting high mean performance are more likely to produce superior offspring and are therefore valuable in breeding programmes.

Flowering behaviour

1. Days to 1st male flower

Among the lines, L_3 recorded earliness (32.95 days) to days to 1st male flowering followed by L_4 (33.27 days) while among the testers T_1 registered earliness (34.69 days) to days to 1st male flowering followed by T_2 (34.92 days) and T_3 (35.25 days).

Table 1: Mean performance of lines, testers and their hybrids for flowering behaviour of snake gourd

Sr. No	Treatments	Days to 1 st male flower	Days to 1 st female flower	Nodal position of 1 st male flower	Nodal position of 1 st female flower
Lines					
L_1	PKM-1	34.78	53.93	4.73	9.41
L_2	Manusree	34.85	52.86	4.31	8.85
L_3	Phule Vaibhav	32.95	49.75	3.88	8.53
L_4	Konkan Shweta	33.27	50.71	4.69	8.80
	Mean	33.96	51.81	4.40	8.90
Testers					
T_1	PLR-1	34.69	51.60	4.89	9.75
T_2	PLR-2	34.92	52.91	5.01	9.84
T_3	DPL SG - 2	35.25	53.28	4.24	8.84
T_4	DPL SG - 3	36.45	54.68	4.89	9.55
T_5	DPL SG - 4	36.78	54.24	5.19	9.66
T_6	DPL SG - 5	36.71	55.01	5.51	9.98
	Mean	35.80	53.62	4.95	9.60
F₁ hybrids					
H_1	$L_1 \times T_1$	28.99	42.96	3.20	6.54
H_2	$L_1 \times T_2$	30.69	46.11	3.45	7.05
H_3	$L_1 \times T_3$	28.57	42.08	3.34	6.43
H_4	$L_1 \times T_4$	34.91	49.98	4.04	7.39
H_5	$L_1 \times T_5$	34.58	50.76	4.58	7.86
H_6	$L_1 \times T_6$	30.98	50.15	4.63	7.98
H_7	$L_2 \times T_1$	29.01	44.94	3.36	6.76
H_8	$L_2 \times T_2$	29.87	46.76	3.71	7.04
H_9	$L_2 \times T_3$	29.09	44.28	3.47	6.79
H_{10}	$L_2 \times T_4$	33.75	51.64	4.09	8.97
H_{11}	$L_2 \times T_5$	31.93	52.77	3.97	8.40
H_{12}	$L_2 \times T_6$	33.94	50.65	4.24	8.81
H_{13}	$L_3 \times T_1$	28.40	41.56	3.17	6.01
H_{14}	$L_3 \times T_2$	29.10	43.47	3.27	6.59
H_{15}	$L_3 \times T_3$	28.73	45.10	3.23	6.49
H_{16}	$L_3 \times T_4$	30.73	48.85	3.60	6.95
H_{17}	$L_3 \times T_5$	31.30	50.74	3.93	7.05
H_{18}	$L_3 \times T_6$	32.70	49.70	4.05	8.03
H_{19}	$L_4 \times T_1$	28.86	43.07	3.34	6.71
H_{20}	$L_4 \times T_2$	31.19	45.99	3.41	7.02
H_{21}	$L_4 \times T_3$	28.93	43.66	3.37	6.81
H_{22}	$L_4 \times T_4$	33.63	52.11	4.02	8.61
H_{23}	$L_4 \times T_5$	34.69	52.52	4.37	7.77
H_{24}	$L_4 \times T_6$	34.41	50.71	4.61	8.37
	Mean	31.21	47.61	3.77	7.37
Ch	Standard check	32.93	50.80	4.69	8.59
	Range	28.40-36.78	41.56-55.01	3.17-5.51	6.01-9.98
	Result	SIG	SIG	SIG	SIG
	SEm±	1.08	1.82	0.35	0.60
	CD (5%)	3.09	5.24	1.00	1.70

In case of crosses, the cross $L_3 \times T_1$ registered earliness (28.40 days) to 1st male flowering which was at par with $L_1 \times T_3$ (28.57 days), $L_3 \times T_3$ (28.73 days), $L_1 \times T_1$ (28.99 days), $L_2 \times T_1$ (29.01 days), $L_2 \times T_3$ (29.09 days), $L_3 \times T_2$ (29.10 days), $L_2 \times T_2$ (29.87 days), $L_1 \times T_2$ (30.69 days), $L_3 \times T_4$ (30.73 days), $L_1 \times T_6$ (30.98 days), $L_4 \times T_2$ (31.19 days), $L_3 \times T_5$ (31.30 days), $L_2 \times T_5$ (31.93 days) and $L_3 \times T_6$ (32.70 days). The comparison of mean values between parents and crosses indicated the presence of hybrid vigour for this character as the hybrids recorded improved performance over the parents where might be due to expression of negative heterosis in the hybrids. Similar results were obtained by Triveni *et al.* (2020) ^[10] in ridge gourd, Sharma *et al.* (2025) ^[8] in sponge gourd and Srinivasulu *et al.* (2025) ^[9] in bitter gourd.

2. Days to 1st female flower

Among the lines, Phule Vaibhav (L_3) (49.75 days) noted minimum days to 1st female flower followed by Konkan Shweta (50.71 days). Among the testers, PLR-1 (51.60 days) recorded minimum days to 1st female flower opening followed by DPL-SG-2 (53.28 days).

In case of crosses, the cross $L_3 \times T_1$ exhibited earliness (41.56 days) to 1st female flowering and was at par with $L_1 \times T_3$ (42.08 days), $L_1 \times T_1$ (42.96 days), $L_4 \times T_1$ (43.07 days) and $L_3 \times T_2$ (43.47 days), $L_4 \times T_3$ (43.66 days), $L_2 \times T_3$ (44.28 days), $L_2 \times T_1$ (44.94 days), $L_3 \times T_3$ (45.10 days), $L_4 \times T_2$ (45.99 days), $L_1 \times T_2$ (46.11 days) and $L_2 \times T_2$ (46.76 days). The comparison of mean values between parents and crosses indicated the presence of hybrid vigour for this trait. Similar results were obtained by Triveni *et al.* (2020) ^[10] in ridge gourd, Sharma *et al.* (2025) in sponge gourd and Srinivasulu *et al.* (2025) ^[9] in bitter gourd.

3. Nodal position to 1st male flower

The parental mean for node at which first male flower appeared in lines ranged from 3.88 (L_3) to 4.73 (L_1) whereas in testers, it ranged from 4.24 (T_3) to 5.51 (T_6) and among crosses, it was in the range of 3.17 ($L_3 \times T_1$) to 4.61 ($L_4 \times T_6$). Node to first male flower is directly related with earliness. Similar results for the lowest node number for 1st male flower appearance was reported by Krishnamoorthy (2019) ^[3] in ridge gourd, Tullur *et al.* (2023) in bottle gourd, Kumar *et al.* (2024) ^[4] and Sharma *et al.* (2025) ^[8] in sponge gourd.

4. Nodal position to 1st female flower

The node at which 1st female flower appeared among various lines ranged from 8.53 (L_3) to 9.41 (L_1) while in among testers, it ranged from 8.84 (T_3) to 9.98 (T_6). In various hybrids studied, it ranged from 6.01 ($L_3 \times T_1$) to 8.97 ($L_2 \times T_4$). Earliness of the female flowering node in

hybrids compared to their parents might be due to heterosis. The accumulation of favourable dominant genes and complementary gene interactions that promote early flower initiation. Such genetic effects might lead to faster node development and earlier appearance of female flower in the hybrids. Similar results were obtained by Krishnamoorthy (2019) ^[3] in ridge gourd, Tullur *et al.* (2023) in bottle gourd and Sharma *et al.* (2025) ^[8] in sponge gourd.

Fruit characters

1. Length of fruit (cm)

The length of fruit among various parents ranged between 51.28 cm (T_2) to 117.46 cm (L_3) whereas, the length of fruit among different hybrids ranged from 52.90 cm ($L_2 \times T_2$) to 124.40 cm ($L_3 \times T_3$).

The length of fruit is directly related to the size of fruit which affect the average fruit weight and therefore the yield. The *per se* performance of crosses and parents, revealed that the crosses had higher as well as lower mean values in case of length of fruit than parents. This variation in fruit length might be due to differences in inheritance patterns. These results are more or less same similar with the finding recorded Devi *et al.* (2017) ^[1] in snake gourd, Krishnamoorthy (2019) ^[3] in ridge gourd, Reddy *et al.* (2019) ^[6] in sponge gourd, Madhavi *et al.* (2021) ^[5] in ridge gourd and Islam *et al.* (2022) ^[2] in snake gourd.

2. Diameter of fruit (mm)

Among the lines, the highest diameter of fruit was recorded in Manusree (48.02 mm) followed by L_4 (44.84 mm). Out of 6 testers, PLR-2 (67.11 mm) observed the highest diameter of fruit followed by PLR-1 (44.83 mm) while DPL-SG-3 (31.69 mm) recorded the lowest weight of fruit. Out of 24 hybrids, the cross combination $L_2 \times T_2$ (55.86 mm) recorded significantly the highest diameter of fruit and was at par with $L_3 \times T_2$ (53.83 mm), $L_3 \times T_1$ (51.62 mm) and $L_2 \times T_1$ (51.08 mm). This variation might be due to differences in genetic makeup and interaction of favourable and unfavourable alleles inherited from the parental lines. Similar findings were also reported by Devi *et al.* (2017) ^[1] in snake gourd and Islam *et al.* (2022) ^[2] in snake gourd.

Yield and yield attributing parameters

1. Weight of fruit (g)

Among the lines, maximum weight of fruit was recorded in Phule Vaibhav (372.68 g) whereas Manusree (324.61 g) produced the lowest weight of fruit. Out of 6 testers, DPL-SG-2 (340.02 g) observed the highest weight of fruit followed by PLR-1 (338.21 g). Among 24 hybrids, the cross $L_3 \times T_1$ recorded significantly the highest fruit weight (442.21 g) which was at par with $L_1 \times T_3$ (422.83 g) while, cross $L_2 \times T_4$ (335.04 g) had the lowest fruit weight among.

Table 2: Mean performance of lines, testers and their hybrids for length of fruit (cm) and diameter of fruit (mm) of snake gourd

Sr. No	Genotypes	Length of fruit (cm)	Diameter of fruit (mm)
Lines			
L ₁	PKM-1	113.62	30.60
L ₂	Manusree	56.74	48.02
L ₃	Phule Vaibhav	117.46	41.68
L ₄	Konkan Shweta	78.45	44.84
	Mean	91.56	41.28
Testers			
T ₁	PLR-1	81.23	44.83
T ₂	PLR-2	51.28	67.11
T ₃	DPL SG - 2	104.21	44.19

T ₄	DPL SG - 3	91.40	31.69
T ₅	DPL SG - 4	90.62	36.08
T ₆	DPL SG - 5	83.28	37.44
	Mean	83.67	43.55
	F₁ hybrids		
H ₁	L ₁ X T ₁	117.76	39.14
H ₂	L ₁ X T ₂	101.70	44.07
H ₃	L ₁ X T ₃	119.97	38.21
H ₄	L ₁ X T ₄	106.30	36.38
H ₅	L ₁ X T ₅	114.32	35.37
H ₆	L ₁ X T ₆	110.52	38.97
H ₇	L ₂ X T ₁	74.06	51.08
H ₈	L ₂ X T ₂	52.90	55.86
H ₉	L ₂ X T ₃	76.41	50.82
H ₁₀	L ₂ X T ₄	64.40	46.45
H ₁₁	L ₂ X T ₅	71.82	49.60
H ₁₂	L ₂ X T ₆	64.75	48.83
H ₁₃	L ₃ X T ₁	121.36	51.62
H ₁₄	L ₃ X T ₂	101.93	53.83
H ₁₅	L ₃ X T ₃	124.40	50.07
H ₁₆	L ₃ X T ₄	104.01	46.09
H ₁₇	L ₃ X T ₅	117.27	49.30
H ₁₈	L ₃ X T ₆	103.85	50.26
H ₁₉	L ₄ X T ₁	91.80	49.99
H ₂₀	L ₄ X T ₂	77.11	50.76
H ₂₁	L ₄ X T ₃	88.06	49.18
H ₂₂	L ₄ X T ₄	83.76	45.82
H ₂₃	L ₄ X T ₅	85.87	46.71
H ₂₄	L ₄ X T ₆	79.89	49.10
	Mean	93.92	46.98
Ch	Standard Check	78.31	44.87
	Range	51.28-124.40	30.60-55.86
	Result	SIG	SIG
	SEm±	3.91	1.56
	CD (5%)	11.25	4.48

The result coincides in with following studies Devi *et al.* (2017) ^[1] in snake gourd, Krishnamoorthy (2019) ^[3] in ridge gourd, Reddy *et al.* (2019) ^[6] in sponge gourd, Madhavi *et al.* (2021) ^[5] in ridge gourd and Islam *et al.* (2022) ^[2] in snake gourd.

2. Number of fruit plant⁻¹

Among the lines, L₄ (17.06) recorded maximum number of fruits per plant followed by PKM-1 (16.63) and L₃ (16.59). In testers, DPL-SG-3 (17.06) exhibited maximum number of fruits per plant followed by DPL-SG- 4 (17.00) and DPL-SG- 5 (16.68). Among the crosses, the cross L₁ X T₃ (21.12) exhibited maximum number of fruits per plant followed by L₃ X T₁ (21.02), L₄ X T₁ (20.19), L₁ X T₁ (19.94), L₂ X T₁ (19.75) and L₂ X T₃ (19.68). Based on *per se* performance of crosses and parents, it was observed that the several crosses recorded highest mean values for number of fruits per plant than parents might be due to the presence of hybrid vigour. Similar results were recorded by Devi *et al.* (2017) ^[1] in snake gourd, Madhavi *et al.* (2021) ^[5] in ridge gourd, Islam *et al.* (2022) ^[2] in snake gourd and Kumar *et al.* (2024) ^[4] in bottle gourd.

3. Yield plant⁻¹ (kg)

Among the lines, L₃ exhibited the highest yield per plant (6.37 kg) followed by L₄ (5.89 kg). Among the testers, T₃ registered the highest yield per plant (5.64 kg) followed by T₁ (5.62 kg) and T₂ (5.48 kg). Among the crosses, hybrid L₃ X T₁ (9.28 kg) recorded the highest yield per plant and was at par with L₁ X T₃ (8.82 kg), L₄ X T₁ (8.45 kg), L₁ X T₁ (8.24 kg) and L₃ X T₃ (7.85 kg). Among the 24 crosses L₄ X T₆ (5.54 kg) recorded the lowest yield per plant. The higher

performance in certain crosses can be attributes to the expression of hybrid vigour and dominance effect whereas lower performance might be due to poor gene combinations or the segregation of less favourable genes. Parallel results were obtained by Devi *et al.* (2017) ^[1] in snake gourd, Krishnamoorthy (2019) ^[3] in ridge gourd, Reddy *et al.* (2019) ^[6] in sponge gourd, Madhavi *et al.* (2021) ^[5] in ridge gourd, Islam *et al.* (2022) ^[2] in snake gourd and Kumar *et al.* (2024) ^[4] in bottle gourd.

4. Yield hectare⁻¹ (t)

Among the lines, L₃ exhibited the highest yield per hectare (31.86 t) followed by L₄ (29.47 kg) whereas line L₂ (27.56 t) registered minimum yield per hectare. Among the testers, T₃ recorded maximum yield per hectare (28.20 t) followed by T₁ (28.12 t) and T₂ (27.42 t). Among the crosses, hybrid L₃ X T₁ (46.35 t) recorded the highest yield per hectare and was at par with L₁ X T₃ (44.54 t), L₄ X T₁ (42.39 t), L₁ X T₁ (41.12 t) and L₃ X T₃ (39.40 t) whereas, L₄ X T₆ (27.81 t) recorded the lowest yield per hectare. From *per se* performance of crosses and parents, it was observed that the crosses had higher as well as lower mean values in case of fruit yield per hectare than parents might be due to the presence of hybrid vigour, favorable gene interactions and improved yield contributing traits compared to their parents. Devi *et al.* (2017) ^[1] in snake gourd, Krishnamoorthy (2019) ^[3] in ridge gourd, Reddy *et al.* (2019) ^[6] in sponge gourd, Madhavi *et al.* (2021) ^[5] in ridge gourd, Islam *et al.* (2022) ^[2] in snake gourd, Tullur *et al.* (2023) in bottle gourd and Sharma *et al.* (2025) ^[8] in sponge gourd.

Table 3: Mean performance of lines, testers and their hybrids for yield and yield attributing parameters of snake gourd

Sr. No	Treatments	Weight of fruit (g)	Number of fruits plant ⁻¹	Yield plant ⁻¹ (kg)	Yield ha ⁻¹ (t)
Lines					
L ₁	PKM-1	334.61	16.63	5.60	28.02
L ₂	Manusree	324.61	16.48	5.51	27.56
L ₃	Phule Vaibhav	372.68	16.59	6.37	31.86
L ₄	Konkan Shweta	346.28	17.06	5.89	29.47
	Mean	344.55	16.69	5.84	29.22
Testers					
T ₁	PLR-1	338.21	16.63	5.62	28.12
T ₂	PLR-2	332.72	16.48	5.48	27.42
T ₃	DPL SG - 2	340.02	16.59	5.64	28.20
T ₄	DPL SG - 3	306.84	17.06	5.23	26.17
T ₅	DPL SG - 4	301.54	17.00	5.13	25.63
T ₆	DPL SG - 5	315.04	16.68	5.25	26.27
	Mean	322.40	16.74	5.39	26.97
F₁ hybrids					
H ₁	L ₁ X T ₁	412.95	19.94	8.24	41.12
H ₂	L ₁ X T ₂	400.71	18.67	7.45	37.20
H ₃	L ₁ X T ₃	422.83	21.12	8.82	44.54
H ₄	L ₁ X T ₄	345.01	16.55	5.69	28.54
H ₅	L ₁ X T ₅	376.45	17.12	6.39	32.21
H ₆	L ₁ X T ₆	399.23	16.38	6.64	33.26
H ₇	L ₂ X T ₁	397.28	19.75	7.84	39.33
H ₈	L ₂ X T ₂	392.81	18.90	7.39	36.31
H ₉	L ₂ X T ₃	392.41	19.68	7.70	38.51
H ₁₀	L ₂ X T ₄	335.04	16.99	5.67	28.46
H ₁₁	L ₂ X T ₅	352.21	15.98	5.60	28.14
H ₁₂	L ₂ X T ₆	372.68	16.22	6.06	30.33
H ₁₃	L ₃ X T ₁	442.21	21.01	9.28	46.35
H ₁₄	L ₃ X T ₂	402.35	19.01	7.61	38.25
H ₁₅	L ₃ X T ₃	410.32	19.21	7.85	39.40
H ₁₆	L ₃ X T ₄	364.81	19.30	7.01	35.15
H ₁₇	L ₃ X T ₅	375.76	16.39	6.14	30.74
H ₁₈	L ₃ X T ₆	384.21	16.11	6.20	30.94
H ₁₉	L ₄ X T ₁	419.61	20.19	8.45	42.39
H ₂₀	L ₄ X T ₂	396.20	18.90	7.47	37.39
H ₂₁	L ₄ X T ₃	386.94	19.20	7.39	37.10
H ₂₂	L ₄ X T ₄	352.09	16.79	5.90	29.55
H ₂₃	L ₄ X T ₅	368.57	15.35	5.66	28.79
H ₂₄	L ₄ X T ₆	380.68	14.61	5.54	27.81
	Mean	389.55	18.05	7.00	35.07
Ch	Standard Check	348.68	16.91	5.91	29.73
	Range	301.54-442.21	14.61-21.10	5.13-9.28	25.63-46.35
	SEm±	5.93	0.62	0.48	1.50
	CD (5%)	17.04	1.77	1.38	4.30

Conclusion

Among the parent, Phule Vaibhav (L₃), Konkan Shweta (L₄), PKM-1 (L₁), PLR-1 (T₁) and DPL-SG-2 (T₃) were found to be the most promising and good general combiner for most of the characters, which contributes to the yield. The cross combinations, Phule Vaibhav X PLR-1, PKM-1 X DPL SG-2, Konkan Shweta X PLR-1, PKM-1 X PLR-1 and Phule Vaibhav X DPL SG-2 exhibited significantly favourable mean performance for growth, flowering and yield and yield attributing characters of snake gourd.

References

1. Devi ND, Mariappan S, Arumugam T. Heterosis in snake gourd (*Trichosanthes cucumerina* L.) for growth and earliness. *Int J Curr Microbiol Appl Sci*. 2017;6(3):387-393.
2. Islam MR, Rahman S, Pramanik S, Ferdousi J. Heterosis studies in snake gourd (*Trichosanthes cucumerina* L.). *Bangladesh J Agric Res*. 2022;47(1):1-12.
3. Krishnamoorthy V. Per se performance of ridge gourd (*Luffa acutangula* Roxb.) hybrids for growth and flowering. *Int J Chem Stud*. 2019;7(4):2643-2647.
4. Kumar R, Ram CN, Kumar V, Kumar S, Lalu P, Rajbhar R. Mean performance of parents and hybrids for fruit yield and yield-contributing traits in bottle gourd (*Lagenaria siceraria* (Mol.) Standl.). *Int J Adv Biochem Res*. 2024;8(6):566-571.
5. Madhavi N, Naram NL, Reddy J, Uma JK, Ratna BD, Uma K. Evaluation of ridge gourd hybrids for growth and yield. *Pharma Innovation J*. 2021;10(5):1385-1388.
6. Reddy MV, Patil MG, Suneetha C, Kandpal K. Evaluation of sponge gourd genotypes and hybrids for yield and related traits. *Int J Curr Microbiol Appl Sci*. 2019;9:108-115.
7. Riggs TJ. Breeding F1 hybrid varieties. *J Hortic Sci*. 1988;63:362-369.

8. Sharma A, Singh B, Sharma YK, Bairwa SK, Singh U, Choudhary A. Evaluation of sponge gourd (*Luffa cylindrica*) hybrids for yield-contributing traits. *Curr Hortic.* 2025;13(2):66-70.
9. Srinivasulu B, Vijaya PS, Naram NL, Paratpara RN, Kumar K. Performance of bitter gourd (*Momordica charantia*) hybrids for growth and yield attributes in the northern coastal region of Andhra Pradesh. *Indian J Agric Sci.* 2025;95(8):974-981.
10. Triveni D, Priyadarshani P, Mohapatra, Pramanik K, Mounica N, Sudha RY. Mean performance study of ridge gourd (*Luffa acutangula* (L.)) genotypes based on some quantitative and qualitative characters. *J Pharmacogn Phytochem.* 2020;9(4):298-300.
11. Tulluru NK, Uma KJ, Babu MR, Paratpararao M, Kranthi RG, Sekhar V. Per se performance of parents and hybrids in bottle gourd (*Lagenaria siceraria* (Mol.) Standl.) for growth, yield and quality attributing characters. *Pharma Innovation J.* 2023;12(8):1786-1792.