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Evaluation of Yard Long Bean (*Vigna unguiculata* ssp. *sesquipedalis*) Accessions for Yield and Quality Traits

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ABSTRACT: The present field investigation was carried out to evaluate the performance of forty two accessions of yard long bean (*Vigna unguiculata* L. var. *sesquipedalis*) for yield and quality attributes. The experiment was laid out by adopting Randomized Block Design (RBD) with three replications and 42 treatments at Grapes Research Station farm located at Anaimalayanpatty, Theni district during summer season of 2023. The *per se* performance and estimation of variability including phenotypic coefficient of variation and genotypic coefficient of variation, heritability and genetic advance were estimated for the traits *viz.*, days taken for first flowering, days taken for 50 per cent flowering, plant height, pod length, pod girth, individual pod weight, number of pods plant^{-1} and pod yield plant^{-1}. The genetic parameters for pod length, individual pod weight and pod yield plant^{-1} were recorded with the highest values. Hence, yield improvement in yard long bean would be achieved through selection based on these attributes.

Keywords: Genetic advance, GCV, Heritability, PCV, Variability, Yard long bean.

INTRODUCTION

Yard long bean (*Vigna uniguiculata* ssp. *Sesquipedalis*) is the one of popular leguminous vegetable crops cultivated in India, particularly in some part of Tamil Nadu, southern Kerala, Karnataka and Maharashtra. Other common names of yard long bean are Bora, Asparagus bean, Chinese bean, long poded bean, Peru bean, Snake bean, String bean and Sitao. Yard long bean are mainly grown for its immature pods, young leaves and mature dry seeds (Hazra *et al.,* 2007). Usually, the length of yard long bean pods will grow from 30 cm to 90 cm. Yard long beans provides 17 and 31 per cent of the recommended daily allowances for vitamins A and C respectively. Being a leguminous vegetable, it possess good nutritive value, which supplies vitamin A (865 IU), high percentage of digestible protein (23.52 - 26.27%) in both pod and in leaves, riboflavin (0.09 mg 100 g^{-1}), thiamine (0.07 mg 100 g^{-1}), carotene (564 mg 100 g^{-1}), calcium (72.00 mg 100 g^{-1}), phosphorus (59 mg 100 g^{-1}), magnesium (44 mg 100 g^{-1}) and sodium (Ano and Ubochi 2008). Further, Vaughan and Geissler (2009) found out that edible immature pods are also rich in vitamin C (24 mg), folate and micronutrients *viz.*, manganese (2.92 - 3.34 mg kg^{-1}), zinc (32.58 - 36.66 mg kg^{-1}), iron (25.20 mg kg^{-1}) and cobalt (0.33 - 0.57 mg kg^{-1}). Yard long bean is primarily grown for its crisp and tender green pods, which are eaten as both fresh and cooked form. By evaluation of genetic parameters of variability, particularly genetic gain and heritability are the essential factors for selection, whereas the selection based on high heritable characteristics are found to be more successful. Therefore, the heritability and other factors of variability can be used to determine the gain for specific level of selection intensity and predicted genetic gain additionally gives an idea above level of improvement in a character through the simple selection (Yumkhabam *et al.,* 2019). Even though, the yard long bean is a highly nutritious tropical vegetable, so far there is no high yielding commercial variety coupled with good pod quality characteristics is available in Tamil Nadu. Hence, the systematic breeding approaches are very much essential for the improvement of yard long bean for high pod yield coupled with superior nutritious quality is the need of the hour. Hence, the present study on the evaluation of yard long bean accessions has been attempted for the

identification of elite genotypes through selection for breeding approaches.

MATERIAL AND METHODS

A. Experimental location

The field experimental study was carried out in the farm located at Grapes Research Station, Anaimalayanpatty, Rayappanpatty Post, Theni district during summer season - 2023, Which is situated at 9° 45′26.685 North latitude, 77° 20′50.737 East longitudes and an altitude of the location is 435.05 m above MSL.

B. Experimental material

The field experimental design was laid out by adopting Randomized Block Design (RBD) with three replication and 42 treatments. Seeds were sown at a spacing of 120 cm × 50 cm and covered with the fine top soil. Seeds are sown at a depth of 2 to 3 cm. The vines are tied with the coir rope and trained to reach the "Y" trellis for achieving maximum yield potential of the accessions. Nipping practice was carried out for inducing more laterals with cluster of flowers and so as to ensure maximum pod production. Recommended dose of irrigation, weeding, fertilizers and other cultivation practices are given to the crop as per the guidance of TNAU Agri portal (Anonymous, 2022).

In the field experiment, five plants in each accession were selected and marked for recording observations on morphological and yield attributes *viz.*, days taken for first flowering, days taken for 50 per cent flowering, plant height (m), pod length (cm), pod girth, individual pod weight (g), number of pods plant^{-1} and pod yield plant^{-1} (g plant^{-1}). The statistical analysis of the traits was work out. The methodology of Cochean and Cox (1957) was used to assess the variance of phenotypic and genotypic components. As per the findings of Cockerham (1963), the genotypic and phenotypic coefficient of variation were estimated. According to Lush (1940); Johnson *et al.* (1955) the heritability (h^2) and genetic advance were computed respectively.

RESULTS AND DISCUSSION

The present investigation was attempted on the evaluation of yard long bean with forty two accessions for the selection of the elite genotypes with high yield and quality traits.

For the development of a superior variety, the yield and yield contributing traits needs improvement. However, the yield is a complicated characteristic that is linked to numerous other inherited contributing traits.

The *per se* performance of yard long bean parameters include days taken for first flowering, days taken for 50 per cent flowering, plant height (m), pod length (cm), pod girth (cm), individual pod weight (g), number of pods plant^{-1}, pod yield plant^{-1} (g) are given in the Table 2. The average value, range, coefficient of variation including the Genotypic Coefficient of Variation (GCV) and Phenotypic Coefficient of Variation (PCV), heritability percentage (h^2), Genetic Advance as per cent of mean (GAM) of yard long bean accessions are given in the Table 3.

Among the forty two genotypes of yard long bean evaluated, the earliest flowering was noted in the genotype YLB ACC No.07 (32.20 days) followed by YLB ACC No.01 (32.60 days) and late flowering was recorded in the accession YLB ACC No.32 (42.60 days). In the accession YLB ACC No.01 (33.70 days) 50 per cent of flowers was observed in minimum number of days and YLB ACC No.32 (44.00 days) it takes maximum number of days for 50 per cent flowering, days taken for 50 per cent flowering ranges from 33.70 to 44.00 days with an average value of 38.67 days. The mean height of plants ranges from 1.34 to 4.18 m with an average value of 3.08 m. YLB ACC No.27 (1.34 m) was noticed to be a dwarf plant whereas the tallest was YLB ACC No.05 (4.18 m) followed by YLB ACC No.13 (4.08 m). The genotype YLB ACC No.12 (69.13 cm) shows the maximum length of pod followed by YLB ACC No.35 (68.20 cm) and minimum length was observed in the accession YLB ACC No.31 (20.50 cm). The highest circumference of the pod was registered in the genotype YLB ACC No.01 (3.43 cm) whereas it was the lowest in YLB ACC No.23 (2.10 cm). The weight of single pod of the individual genotypes ranges from 12.03 to 33.29 g. The maximum weight of the pod is recorded in the genotype YLB ACC No.35 (33.29 g) followed by YLB ACC No.17 (32.17 g) and the less weight of pod was recorded in the genotype YLB ACC No.41 (12.03 g). The genotype YLB ACC No.15 (90.00) identified the maximum number of pods plant^{-1} and the minimum number of pods plant^{-1} were found in the YLB ACC No.28 (47.00) The highest yield plant^{-1} was observed in the accession YLB ACC No.12 (2589.22 g) followed by YLB ACC No.15 (2469.54 g) and the accession YLB ACC No.27 (707.58 g) were recorded has the low pod yield plant^{-1} (Table 2).

A. Genetic variability, heritability and genetic advance

Variability was determined using mean value, coefficients of variation such as Phenotypic Coefficient of Variation (PCV) and Genotypic Coefficient of Variation (GCV), heritability (h^2), and genetic advances (%). The results showed that the genotypic coefficient of variation was lesser than the phenotypic coefficient of variation for all of the attributes, representing that the environments interactions in expression of traits. The range of Genetic coefficient of variation (GCV) is from 6.73 to 29.24 per cent. Genetic coefficient of variation (GCV) was found to be the highest for individual pod weight (29.24%), pod length (24.66%) and pod yield plant^{-1} (24.52%), whereas the Genetic Coefficient of Variation (GCV) showed moderate values for the plant height (19.06%), number of pods plant^{-1} (14.65%) and pod girth (13.13%) whereas for the remaining characters *viz.*, days taken for 1st flowering (7.83%) and days for 50 per cent flowering (6.73%) showed the lowest genetic coefficient of variation. The variation of phenotypic coefficient ranges from 7.19 to 29.48 %. Phenotypic coefficient of variation was the highest for individual pod weight (29.48%), pod length (24.78%) and pod yield plant^{-1} (24.73%), whereas values were estimated plant height (19.26%), number of pods plant^{-1} (14.87%) and pod girth (13.44%). Based on the earlier

findings of Johnson *et al.* (1955) the significance of phenotypic coefficient of variation is higher than the parallel genotypic coefficient of variation, showing the prominence of the environmental factor in their character expression. The number of pods and pod yield plant^{-1} showed the highest genotypic and phenotypic coefficient of variation, which indicates that these attributes have a higher degree on magnitude of variability and as an outcome, more possibilities and greater potential for improvement through selection. Earlier the investigation carried out by Ramkumar and Anuja (2021) supported the present results for selection for pod yield plant^{-1} and pods plant^{-1} of yard long bean with thirty-three genotypes. The highest phenotypic coefficient of variance and genotypic coefficient of variance for pod plant^{-1}, individual pod weight, pod yield plant^{-1} were registered by the Ramkumar and Anuja (2021); Savithiri *et al.* (2018) in yard long bean respectively. Similarly, moderate values of phenotypic coefficient of variance and genotypic coefficient of variance were recorded for plant height and pod girth (Ramkumar and Anuja 2021). This shows that both additive gene and non additive action must be ensured in traits. The low GCV and PCV for days for first flowering and days for 50 % flowering are confirmed by the findings of Chaitanya *et al.* (2014); Savithiri *et al.* (2018) respectively. In this present investigation, pod length, individual pod weight and pod yield plant^{-1} were observed the highest GCV and PCV which are in concurrence with the reports of Singh *et al.* (2016) in the winged bean, Magalingam *et al.* (2013) in dolichos bean and Kumar *et al.* (2014) in cluster bean.

Table 1: Sources of yard long bean accessions used in the present field experiment.

Sr. No.	Accessions	Source
1.	EC-769229	ICAR - NBPGR, Bangalore
2.	EC-769231	ICAR - NBPGR, Bangalore
3.	EC-769233	ICAR - NBPGR, Bangalore
4.	EC-769235	ICAR - NBPGR, Bangalore
5.	EC-769236	ICAR - NBPGR, Bangalore
6.	EC-769240	ICAR - NBPGR, Bangalore
7.	EC-769241	ICAR - NBPGR, Bangalore
8.	EC-769242	ICAR - NBPGR, Bangalore
9.	EC-769244	ICAR - NBPGR, Bangalore
10.	EC-769245	ICAR - NBPGR, Bangalore
11.	EC-769247	ICAR - NBPGR, Bangalore
12.	EC-769248	ICAR - NBPGR, Bangalore
13.	EC-769250	ICAR - NBPGR, Bangalore
14.	EC-769251	ICAR - NBPGR, Bangalore
15.	EC-769252	ICAR - NBPGR, Bangalore
16.	EC-769255	ICAR - NBPGR, Bangalore
17.	EC-769256	ICAR - NBPGR, Bangalore
18.	EC-769257	ICAR - NBPGR, Bangalore
19.	EC-769258	ICAR - NBPGR, Bangalore
20.	IC-471930	ICAR - NBPGR, Bangalore
21.	IC-471931	ICAR - NBPGR, Bangalore
22.	IC-471933	ICAR - NBPGR, Bangalore
23.	IC-471936	ICAR - NBPGR, Bangalore
24.	IC-471938	ICAR - NBPGR, Bangalore
25.	IC-471939	ICAR - NBPGR, Bangalore
26.	IC-471940	ICAR - NBPGR, Bangalore
27.	IC-471941	ICAR - NBPGR, Bangalore
28.	IC-471942	ICAR - NBPGR, Bangalore
29.	IC-471944	ICAR - NBPGR, Bangalore
30.	IC-471947	ICAR - NBPGR, Bangalore
31.	IC-471948	ICAR - NBPGR, Bangalore
32.	IC-471950	ICAR - NBPGR, Bangalore
33.	IC-471951	ICAR - NBPGR, Bangalore
34.	IC-471953	ICAR - NBPGR, Bangalore
35.	IC-628143	ICAR - NBPGR, Bangalore
36.	IC -622601	ICAR - NBPGR, Bangalore
37.	IC-626140	ICAR - NBPGR, Bangalore
38.	IC-626146	ICAR - NBPGR, Bangalore
39.	IC-626148	ICAR - NBPGR, Bangalore
40.	IC-630383	ICAR - NBPGR, Bangalore
41.	IC 630381	ICAR - NBPGR, Bangalore
42.	Kumily Local - 1	Kumily, Idukki district, Kerala

Table 2: *Per se* performance for the days taken for 1st flowering, days taken for 50 % flowering, plant height (m), pod length(cm), pod girth (cm), individual pod weight(g), number of pods plant^{-1} (g) and pod yield plant^{-1} (g) in yard long bean genotypes.

Genotypes	Days taken for 1st flowering	Days taken for 50 per cent flowering	Plant height (m)	Pod length (cm)	Pod girth (cm)	Individual pod weight (g)	Number of pods plant^{-1}	Pod yield plant^{-1} (g)
G_1	32.6	33.7	3.82	57.15	3.42	30.52	69	1985.88
G_2	32.8	34.2	3.05	51.21	3.04	26.58	73	1804.34
G_3	34.2	36.6	3.21	54.5	3.21	26.59	62	1607.58
G_4	32.8	34.2	3.15	47.5	2.8	24.31	63	1551.53
G_5	34.8	36.8	4.18	55.3	2.5	27.48	55	1361.41
G_6	36.6	38.2	3.64	56.8	2.96	28.36	85	2310.63
G_7	32.2	33.8	3.49	43.5	3.14	21.24	59	1153.16
G_8	35.2	36.6	3.05	46.2	2.47	22.76	53	1106.28
G_9	33.8	35.8	2.84	43.4	3.12	29.77	65	1835.05
G_{10}	33.6	34.8	3.18	52	3.08	28.56	74	1913.44
G_{11}	37.4	39.4	3.43	33	2.4	16.62	62	1050.44
G_{12}	36.8	42.8	2.84	69	2.9	32.06	87	2589.22
G_{13}	36.3	38.4	4.08	46.5	3.4	25.62	75	1821.51
G_{14}	33.2	35.3	2.69	31.5	2.7	18.23	77	1303.71
G_{15}	40.8	43	3.92	55.3	2.9	28.55	90	2469.54
G_{16}	38.2	40.2	3.6	50.2	3.4	22.42	63	1312.46
G_{17}	33.2	35	2.74	62.5	3.14	32.17	73	2148.41
G_{18}	36.6	38.6	2.53	37.7	3.2	19.69	69	1158.61
G_{19}	41.02	43.4	2.38	52.3	2.3	22.43	87	1799.41
G_{20}	38.2	40	2.66	49.8	2.6	21.35	75	1501.25
G_{21}	36.3	39.4	3.03	39.2	3.1	21.43	66	1314.38
G_{22}	32.8	34.4	2.83	60.2	2.8	31.52	74	2242.48
G_{23}	38.4	40.4	2.13	28.5	2.1	14.75	59	890.25
G_{24}	36.6	38.4	3.79	43.5	3.5	20.64	63	1197.32
G_{25}	41.8	43.4	4.12	31.5	3.2	17.87	78	1293.86
G_{26}	34.4	36	3.42	53.7	2.8	25.63	69	1668.74
G_{27}	39.4	41.8	1.34	26.4	2.6	13.27	54	707.58
G_{28}	35.2	37.2	2.63	46	3.1	18.98	47	852.6
G_{29}	33.8	35	2.99	50	2.7	20.96	64	1241.44
G_{30}	38	40.2	3.74	22	2.4	13.24	63	870.12
G_{31}	41	43.8	2.76	20.5	2.1	12.33	57	782.81
G_{32}	42.6	44	2.89	39.3	2.8	18.68	74	1282.32
G_{33}	37.6	39.2	3.63	44.2	3.1	21.03	89	1751.67
G_{34}	40.4	42.4	3.59	43.7	2.3	17.37	66	1193.42
G_{35}	33.8	35.4	2.97	68.2	2.9	33.29	71	2297.59
G_{36}	37.5	38.5	2.93	49.54	2.3	12.52	73	950.96
G_{37}	39.9	38.5	2.64	40.79	3.2	14.34	79	1097.86
G_{38}	39.6	41.5	3.17	37.48	2.7	16.73	63	1084.99
G_{39}	41	42.8	2.48	41.24	2.5	12.59	84	1093.56
G_{40}	37.2	39.2	2.26	33.62	3.4	13.47	78	1087.66
G_{41}	39.6	41.00	2.64	48.6	3.3	12.03	70	865.13
G_{42}	38.4	40.8	2.97	46.2	2.9	18.56	72	1236.32
Mean	36.80	38.67	3.08	45.47	2.87	21.58	69.73	1447.30
SE (d)	0.90	0.82	0.07	0.88	0.07	0.55	1.46	34.78
CD (0.05)	1.80	1.63	0.19	1.76	0.13	1.09	2.90	69.18

Table 3: Mean, range, Co-efficient of variance characteristics, heritability, genetic advance and genetic advance as percent of mean in forty two accessions of yard long bean.

Character	Mean	Range		Coefficient of variation		Heritability (h^2)	GA as percent of mean (%)
		Min	Max	GCV (%)	PCV (%)		
Days for 1st flowering	36.80	32.20	42.60	7.83	8.39	0.87	15.05
Days taken for 50% flowering	38.67	33.80	44.00	6.73	7.19	0.87	12.96
Plant height	3.08	1.34	4.18	19.06	19.26	0.98	38.86
Pod length	45.47	20.50	69.00	24.66	24.78	0.99	50.57
Pod girth	2.87	2.10	3.43	13.13	13.44	0.95	26.43
Individual pod weight	21.58	12.03	33.29	29.24	29.48	0.99	59.90
Number of pods plant^{-1}	69.74	47.00	90.00	14.65	14.87	0.97	29.73
Pod yield plant^{-1}	1447.30	707.59	2589.22	24.52	24.73	0.98	60.12

High heritability (h^2) were identified for all the eight traits ranges from 87.09 to 99.08 per cent. The high heritability were reported for the pod length (99.08%), individual pod weight (98.88%), pod yield plant^{-1} (98.38%), plant height (97.95%), number of pods plant^{-1} (97.03%), pod girth (95.41%), day taken for 50% flowering (87.45%) and days for first flowering (87.09%). Earlier findings of Dewangan *et al.* (2017) recorded in dolichos bean and Ramkumar and Anuja (2021) in yard long bean are in consonance with the present view. In this study, range of genetic advance as per cent of mean from 12.96 to 60.12 per cent. High genetic advance as per cent of mean are found in pod yield plant^{-1} (60.12%), individual pod weight (59.90%), pod length (50.56%), plant height (38.86%), number of pods plant^{-1} (29.73%) and pod girth (26.42%), indicates the low impact of environment on their expression, implying that based on phenotype appearance, selection for these traits would be reliable. High heritability (h^2) coupled with the high genetic advance were found for the traits *viz.*, pod yield plant^{-1}, individual pod weight, pod length, plant height, number of pods plant^{-1} and pod girth. These results are similar to the earlier findings of Parmar *et al.* (2013); Dewangan *et al.* (2017) in dolichos bean and Harini *et al.* (2022) in dolichos bean. Moderate genetic advance coupled with high heritability for days taken for 50 per cent flowering and days taken for 1st flowering. Impact of non-additive gene action and profound role of environment on these characters revealed that the expression. The findings are in consistent with those of Ukkund *et al.* (2007).

Based on the results obtained in the present investigation it has been concluded that coefficient of variation such as Phenotypic Coefficient of Variation (PCV) and Genotypic Coefficient of Variation (GCV), heritability (h^2) and genetic advance were recorded the highest for pod length, individual pod weight and pod yield plant^{-1}. As a result, yield improvement in yard long bean would be achieved through the selection based on these yield contributing attributes.

Hence, the selection for yard long bean elite genotypes can be imparted based on the yield and quality attributes mentioned above. For further breeding programmes, the selected genotypes can be used for hybrid development and for the subsequent generation evaluated based on their performance for fixing the best lines with more additive genetic action, which is base accession for high yield.

CONCLUSIONS

On the outset, based on *per se* performance of yard long bean accessions YLB ACC No. 12 followed by YLB ACC No. 15 recorded maximum pod length, individual pod weight, number of pods plant^{-1} and pod yield plant^{-1} respectively and showed significant at CD (0.05) level. Hence, YLB ACC No. 12 is concluded has the best performed accession among the all accessions with the traits. In conclusion, individual plants might be selected with traits such as pods plant^{-1}, pod yield plant^{-1} and individual pod weight based on genetic variability estimates with high levels of heritability and genetic advance.

FUTURE SCOPE

The identified high yield accessions could be evaluated various agro-climatic zones to assess their superiority for one to three years for commercial cultivation. High yielding accessions can be also taken for the future breeding programmes, especially for pest and disease tolerance/ resistance.

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Conflict of Interest. None.

REFERENCES

Ano, A. O. and Ubochi, C. I. (2008). Nutrient composition of climbing and prostrate vegetable cowpea accessions. *African Journal of Biotechnology*, *7* (20), 3795-3798.

Anonymous,(2022).https://agritech.tnau.ac.in/horticulture/horti_vegetables_vegetable%20cowpea.html

Chaitanya, V., Reddy, R.S.K. and Kumar, P.A. (2014). Variability, heritability, and genetic advance in indigenous Dolichos bean (*Dolichos lablab Var. typicus*) genotypes. *Plant Arch. 14*(1), 503-506.

Cochean, W. G. and Cox, G. M. (1957). Experimental designs. *Soil Science*, *84*(5), 425.

Cockerham, C. C. (1963). Estimation of genetic variance in statistics. Genetics and Plant breeding. National research Council, Washington, DC, pp:53.

Dewangan, R., Bahadur, V., Choyal, P., Ramesh, Xaxa, S., Singh, V. P., Sachan, S. and Kerketta, A. (2017). Study on Genetic Variability, Heritability and Genetic Advance in Dolichos Bean (*Lablab purpureus* L.) Genotypes. *International Journal of Current Microbiology Applied Science*, *6*(8), 3228-3232.

Harini, M., Ramar, A., Janavi, G. J. and Madhan Mohan, M. (2022). Evaluation of Dolichos bean (*Lablab purpureus* var. *typicus*) germplasm for yield and quality. *Biological Forum – An International Journal*, *14*(3), 129-134.

Hazra, P., Chattopadhaya, A., Dasgupta, T., Kar, N., Das, P. K. and Som, M. G. (2007). Breeding strategy for improving plant type, pod yield and protein content in vegetable cowpea (*Vigna unguiculata). Acta Horticulture.752*, 275-280.

Johnson, H. W., Robinson, H. F., and Comstock, R. E. (1955). Estimates of genetic and environmental variability in soybeans *1*. *Agronomy Journal*, *47*(7), 314-318.

Kumar, V., Ram, R. B. and Yadav, R. K. (2014). Genetic diversity in cluster bean [*Cyamopsis tetragonoloba*(L.)] for morphological characters. *Indian Journal of Science and Technology*, *7*(8), 1144-1148.

Lush, J. L. (1940). Intra-sire correlations or regressions of offspring on dam as a method of estimating heritability of characteristics. *Journal of Animal Science*, *1940*(1), 293-301.

Magalingam, V., Yassin, M. and Kumar, R. (2013). Genetic variability and character association in dolichos bean. *SAARC Journal of Agriculture, 11*(2), 161-171.

Parmar, A. M., Singh, A. P., Dhillon, N. P. S. and Jamwal, M. (2013). Genetic variability studies for morphological andyield traits in dolichos bean (*Lablab purpureus* L.). *World Journal of Agricultural Sciences*, *9*(1), 24-28.

Ramkumar, K. and Anuja, S. (2021). Genetic variability, Heritability and Genetic advance studies in yard long bean (*Vigna unguiculata* spp. *sesquipedalis*) genotypes. *Annals of Plant and Soil Research*, *23*, 215-217.

Savithiri, N., Beaulah, A., Thingalmaniyan, K. S., Rajeswari, S. and Kumar, R. (2018). Study on Genetic Variability for Yield and Quality of different Genotypes of Yard Long bean (*Vigna unguiculata* sub sp. *sesquipedalis* (L.) Verd.). *International Journal of Current Microbiology and Applied Sciences*, *7*(9), 3613-3617.

Ukkund, K. C., Madalageri, M. B., Patil, M. P., Mulage, R. and Kotlkal, V. K. (2007). Variability studies in green chilli (*Capsicum annuum* L.). *Karnataka Journal of Agricultural Science*, *20***,** 102-104.

Vaughan, J. and Geissler, C. (2009). *The new Oxford book of food plants*. OUP Oxford.

Yumkhabam, T., Deo, C., Ramjan, M., Chanu, N. B. and Semba, S. (2019). Estimation of genetic variability, heritability and genetic advance for yield and its component traits of garden pea (*Pisum sativum* L.) in North East India. *Journal of Pharmacognosy and Phytochemistry*, *8*(3), 4034-4039.

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