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Assessment of Genetic Variability, Heritability and Genetic Advance for Quantitative Traits in Potato (*Solanum tuberosum* L.)

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

Twenty-one genotypes of potato were carried out in Randomized Block Design with three replications during *Rabi* season 2020-21 at Horticulture Research Center of Sardar Vallabhbhai Patel University of Agriculture & Technology, Meerut (U.P.). Eleven characters were included in the present investigation to study the variability, heritability, and genetic advance in potato. The analysis of variance was recorded highly significant difference between the genotypes for all eleven traits under studies. The estimates the coefficient of variation relieved that magnitude of phenotypic coefficient of variation was higher than genotypic coefficient of variation for all the characters. High estimates of phenotypic as well as genotypic coefficient of variation were observed in case of length of internodes (cm), followed by plant height, tuber yield plant^{-1}, number of stem plant^{-1}, number of nodes at 30 DAP, number of tubers plant^{-1}. Heritability estimates, as well as genetic progression, were found to be more important than heritability in predicting the outcome of selecting the best individual. High estimates of heritability (h^2) (>80%) were recorded for tuber yield plant^{-1}, followed by number of leaves at 60 DAP, number of nodes at 60 DAP, plant height (cm), number of nodes at 30 DAP, tuber size (cm), length of internodes (cm), number of tubers plant^{-1}, number of stem plant^{-1}, number of leaves at 30 DAP. The highest value of genetic advance in percent of mean (>20%) was exhibited for length of internodes (cm), plant height, tuber yield plant^{-1}, number of stem plant^{-1}, number of nodes at 30 DAP, number of tubers plant^{-1}, number of leaves at 60 DAP, number of nodes at 60 DAP, tuber size (cm).

Keywords: GCV; genetic advance; heritability; PCV; variability.

1. INTRODUCTION

Potato (*Solanum tuberosum* L.) belong to family Solanaceae having chromosome number of 2n=4x=48, originated from Andean region of South America. Potato is derived from Latin word “Papa”. “Potato is known as the “King of vegetable, Aloo, Poor men’s friend”, has emerged from as forth most important food crop in India after rice, wheat and maize” [1]. “In world scenario, India is the second largest producer of potato after China. Total production in India is 512.80 lakh tons and total planted area has been reported 21.51 Lakh ha. Uttar Pradesh was the first among all state of India with the total production of 14500.00 thousand MT and area 6.1 Lakh ha. followed by West Bengal with a production of 13160.00 thousand MT and area 4.6 Lakh ha”. (Anonymous,2019-20). Potato is high calorie’s producing crop, generates twice as many calories per hectare as rice or wheat, are also considered high nutritional value due to high level presence of vitamins like Vitamin- C and amino acids in their tubers. Approximately 90 % of potato in India cultivated in Indo-Gangetic plains during *Rabi* season [2].

“Genetic variability is the basis of all crop improvement programs. Sufficient genetic variability, if present, can be exploited for developing superior cultivar or varieties. The total variability can be partitioned into heritable and non-heritable components with the help of genetic parameters like genotypic and phenotypic coefficients of variation, heritability and genetic advance. Genotypic and phenotypic coefficients of variation are useful in detecting the amount of variability present in the available genotypes. Heritability and genetic advance help in determining the influence of environment expression of the characters and the extent to which improvement is possible after selection” [3]. “Genetic advance is also very important because it indicates the magnitude of the expected genetic gain in the selection cycle” [4].

2. MATERIALS AND METHODS

The present experiment was conducted at Horticulture Research Center, of Sardar Vallabhbhai Patel University of Agriculture & Technology, Meerut during *Rabi* season 2020-21. Twenty-one different morphological genotypes (Table No.1) collected from Central Potato Research Institute Modipuram, Meerut. The experiment was conducted in Randomized Block Design with three replications to evaluate 21 morphologically distinct potato genotypes. Plot size was 1.8 x 1.0 m with row-to-row spacing 60x60cm and plant to plant spacing 20x20cm sown. Thus, five plants were selected in each individual plot to evaluate morphologically different characters of each genotype. All the recommended agronomical

principles, practices and plant protection measures were followed to cultivate a healthy crop. The observation was observed in five randomly selected plant for eleven quantitative characters viz., germination percentage at 20 DAP, number of leaves at 30 DAP, number of leaves at 60 DAP, number of nodes at 30 DAP, number of nodes at 60 DAP, length of internodes, plant height, number of stem plant^{-1}, number of tubers plant^{-1}, tuber size, tuber yield plant^{-1}. The analysis of variance, genotypic and phenotypic coefficient of variation [5]. heritability [6]. and genetic progress were all done using standard statistical procedures [7].

3. RESULTS AND DISCUSSION

Analysis of variance was eleven characters for twenty-one genotypes from the experiment were subjected to analysis of variance. Mean sum of squares due to genotypes were highly significant for all the characters (Table-2), indicating that there are significant differences among the genotypes with respect eleven characters under study.

The mean performance of twenty-one genotypes of potato for eleven characters is presented in Table-3. The maximum germination % at 20 DAP was found in K. Jyoti and K. Lauvkar (100%) while, minimum germination % at 20 DAP was observed in K. Lima (79.97%). The genotype K. Bahar (28.40) has the maximum number of leaves at 30 DAP and minimum number of leaves at 30 DAP in case of K. Mohan (20.07). The highest number of leaves at 60 DAP was appearance in K. Ganga (645), whereas minimum number of leaves at 60 DAP was noted in K. Mohan (319.00). The genotype K. Gaurav (18.87) has highest number of nodes at 30 DAP while, minimum number of nodes at 30 DAP was observed in K. Sindhuri (9.0). The maximum number of nodes at 60 DAP was observed in K. Gaurav (64.40) while minimum number of nodes at 60 DAP was reported in K. Sinduri (36.40). K. Thar-2 (4.45 cm) has the maximum length of internodes and lowest length of internodes was found in K. Mohan (1.54 cm). The maximum plant height was recorded in K. Thar-2 (57.40 cm) whereas minimum plant height was recorded from K. Lauvkar (23.60cm) in among the all genotypes. The genotype K. Gaurav (7.73) has the maximum number of stem plant^{-1} while K. Surya & K. Lima (3.53) has the minimum number of stem plant^{-1}. A perusal data indicated that maximum number of tubers plant^{-1} was recorded in K. Gaurav (12.67) while minimum number of tubers plant^{-1} was found in K. Thar-2 (4.60). The maximum tuber size was recorded in K. Ganga (5.70 cm.) while, minimum tuber size was observed in K. Frysona (3.71 cm.). K. Ganga (916.00 g) appears to have the highest tuber yield plant^{-1} while K. Frysona (318.00 g) has the lowest tuber yield plant^{-1}. The result was also found earlier by Rangare & Rangare [8]. Prajapati *et al.* [9] Tessema *et al.* [10] and Tessema *et al.* [11].

The estimates of genotypic and phenotypic coefficients of variation for eleven characters of potato germplasm collection are presented in Table No-4 and Fig. 1. The estimates coefficient of variation relieved that magnitude of phenotypic coefficient of variation was higher than genotypic coefficient of variation for all the characters. The highest genotypic coefficient of variation was recorded for length of internodes (cm) (30.07%) followed by plant height (26.60%), tuber yield plant^{-1} (24.89%), number of stem plant^{-1} (23.85%), number of nodes at 30 DAP (22.68%), number of tubers plant^{-1} (20.92%) while moderate genotypic coefficient of variation was observed for number of leaves at 60 DAP (19.15%) followed by number of nodes at 60 DAP (16.46%), tuber size (10.90%) and lowest genotypic coefficient of variation was found for number of leaves at 30 DAP (9.31%) followed by germination % at 20 DAP (4.74%). The highest phenotypic coefficient of variation was observed for length of internodes (cm) (31.37%), followed by plant height (27.44%), number of stem plant^{-1} (25.63%), tuber yield plant^{-1} (25.04%), number of nodes at 30 DAP (23.49%), number of tubers plant^{-1} (21.84%) while moderate phenotypic coefficient of variation was recorded for the characters like number of leaves at 60 DAP (19.42%) followed by number of nodes at 60 DAP (16.95%), tuber size (cm) (11.33%), number of leaves at 30 DAP (10.25%) and lowest phenotypic coefficient of variation was found for germination % at 20 DAP (7.47%). Similar result was also finding earlier by Sattar *et al.* [12] Haydar *et al.* [13] Tripura *et al.* [14] Asefa *et al.* [15] Patel *et al.* [16] and Annigeri & Hiremath [17].

Heritability estimates is an informative parameter to the breeders for selecting the genotypes for further use. The heritability and genetic advance are expressed in Table 4 & Fig. 2. High magnitudes of heritability suggest

Table 1. List of potato genotypes and their source

S. No.	Name of genotypes	S. No.	Name of genotypes
T_1	Kufri Lalit	T_{12}	Kufri Frysona
T_2	Kufri Chipsona-1	T_{13}	Kufri Thar-2
T_3	Kufri Bahar	T_{14}	Kufri Surya
T_4	Kufri Mohan	T_{15}	Kufri Lalima
T_5	Kufri Garima	T_{16}	Kufri Neelkanth
T_6	LR (Lady rosetta)	T_{17}	Kufri Arun
T_7	Kufri Chipsona-3	T_{18}	Kufri Lima
T_8	Kufri Gaurav	T_{19}	ATL (Atlantic)
T_9	Kufri Badshah	T_{20}	Kufri Sinduri
T_{10}	Kufri Jyoti	T_{21}	Kufri Ganga
T_{11}	Kufri Lauvkar		

Source: - Central Potato Research Institute Regional Station, Modipuram, Meerut (U.P.)

Table 2. ANOVA for 11 characters in potato (*Solanum tuberosum* L.)

Source of variation	DF	Germination % at 20 DAP	No. of Leaves at 30 DAP	No. of Leaves at 60 DAP	No. of Nodes at 30 DAP	No. of Nodes at 60 DAP	Length of Internodes (cm)	Plant Height (cm) 65 DAP	No. of Stem per Plant at 65 DAP	No. of Tubers per Plant	Tuber Size (cm)	Tuber Yield per Plant (gm).
Replication	2	23.61	0.59	118.54	1.70	15.77	0.01	0.73	0.38	0.83	0.06	253.55
Treatment	20	85.64**	16.79**	24481.37**	25.87**	184.16**	1.62**	241.87**	4.29**	8.88**	0.71**	54083.20**
Error	40	28.36	1.10	230.68	0.61	3.59	0.05	5.02	0.21	0.26	0.02	208.64

**, ** significant at 5% and 1% level, respectively*

Table 3. Mean performance of 21 genotypes of Potato (*Solanum tuberosum* L.) for eleven characters

S.No	Genotypes	Germination % at 20 DAP	No. of Leaves at 30 DAP	No. of Leaves at 60 DAP	No. of Nodes at 30 DAP	No. of Nodes at 60 DAP	Length of Internodes (cm)	Plant Height (cm) 65 DAP	No. of Stem per Plant at 65 DAP	No. of Tubers per Plant	Tuber Size (cm)	Tuber Yield per Plant (gm).
1	K. Lalit	93.30	23.27	445.20	14.57	49.80	2.34	36.23	4.53	7.87	4.52	573.33
2	K. Chipsona-1	86.60	20.80	385.67	14.67	50.87	1.86	27.35	5.20	7.00	4.00	399.13
3	K. Bahar	95.53	28.40	392.33	10.13	38.87	2.14	27.45	4.40	7.47	4.98	650.00
4	K. Mohan	93.30	20.07	319.00	9.73	38.00	1.54	32.87	3.63	9.73	4.71	527.33
5	K. Garima	97.77	25.00	561.67	13.20	49.13	1.99	24.71	5.07	7.33	4.83	742.00
6	Lady Rosetta (LR)	97.77	24.73	512.00	15.60	52.60	2.27	27.01	6.13	7.73	4.55	484.67
7	K. Chipsona-3	93.30	22.47	456.33	18.07	61.27	2.49	35.33	6.47	9.13	4.34	538.67
8	K. Gaurav	88.87	27.13	605.33	18.87	64.40	2.08	26.45	7.73	12.67	4.01	614.67
9	K. Badshah	91.10	27.07	557.67	15.87	54.67	2.01	38.45	4.80	8.80	3.96	482.00
10	K. Jyoti	100.00	24.87	385.20	11.53	46.40	1.74	27.93	4.87	7.93	4.85	500.33
11	K. Lauvkar	100.00	26.00	443.33	9.27	36.60	1.93	23.60	4.60	8.33	4.73	585.67
12	K. Frysona	86.63	23.30	382.00	10.40	41.67	4.10	51.33	3.67	6.93	3.71	318.00
13	K. Thar-2	93.30	26.60	475.67	13.27	49.40	4.45	57.40	3.93	4.60	4.45	396.33
14	K. Surya	86.67	26.53	438.00	9.93	39.93	1.81	28.27	3.53	6.40	4.70	522.00
15	K. Lalima	86.63	23.20	388.33	12.00	46.00	2.47	25.59	5.33	7.67	4.30	507.33
16	K. Neelkanth	93.30	28.13	622.33	16.13	54.73	2.21	25.95	7.33	9.53	3.76	485.33
17	K. Arun	88.87	22.33	545.33	11.87	47.00	3.35	43.20	4.33	8.60	4.69	671.33
18	K. Lima	79.97	22.93	478.00	10.00	39.87	2.52	30.03	3.53	8.67	4.02	578.67
19	Atlantic (ATL)	97.77	22.67	403.33	10.93	41.67	2.75	35.55	4.27	5.53	4.18	426.00
20	K. Sinduri	88.87	23.40	416.00	9.00	36.40	2.23	40.73	3.87	7.73	3.82	386.67
21	K. Ganga	97.77	26.73	645.00	13.67	50.47	2.25	35.92	5.47	10.47	5.70	916.00
	Mean	92.25	24.55	469.42	12.80	47.13	2.41	33.40	4.89	8.10	4.42	538.36
	Min	79.97	20.07	319.00	9.00	36.40	1.54	23.60	3.53	4.60	3.71	318.00
	Max	100.00	28.40	645.00	18.87	64.40	4.45	57.40	7.73	12.67	5.70	916.00
	SE(d)	4.35	0.86	12.40	0.64	1.55	0.18	1.83	0.38	0.41	0.11	11.79
	C.D.	8.82	1.74	25.16	1.30	3.14	0.36	3.71	0.76	0.84	0.23	23.92
	C.V.	5.77	4.27	3.24	6.11	4.02	8.93	6.71	9.39	6.26	3.10	2.68

Table 4. Estimation of genetic variability parameters for eleven characters in potato

Genotypes	Mean	Min	Max	GCV (%)	PCV (%)	Heritability (%)	GA	GA as % mean
Germination Percent at 20 DAP	92.25	79.97	100.00	4.74	7.47	40.23	5.71	6.19
Number of Leaves at 30 DAP	24.55	20.07	28.40	9.31	10.25	82.62	4.28	17.44
Number of Leaves at 60 DAP	469.42	319.00	645.00	19.15	19.42	97.23	182.62	38.90
Number of Nodes at 30 DAP	12.80	9.00	18.87	22.68	23.49	93.23	5.77	45.11
Number of Nodes at 60 DAP	47.13	36.40	64.40	16.46	16.95	94.37	15.53	32.94
Length of Internodes (cm)	2.41	1.54	4.45	30.07	31.37	91.90	1.43	59.39
Plant Height (cm) 65 DAP	33.40	23.60	57.40	26.60	27.44	94.02	17.75	53.14
Number of Stem / Plant at 65 DAP	4.89	3.53	7.73	23.85	25.63	86.58	2.24	45.72
Number of Tubers per Plant	8.10	4.60	12.67	20.92	21.84	91.78	3.35	41.29
Tuber Size (cm)	4.42	3.71	5.70	10.90	11.33	92.53	0.95	21.59
Tuber Yield per Plant (gm).	538.36	318.00	916.00	24.89	25.04	98.85	274.47	50.98

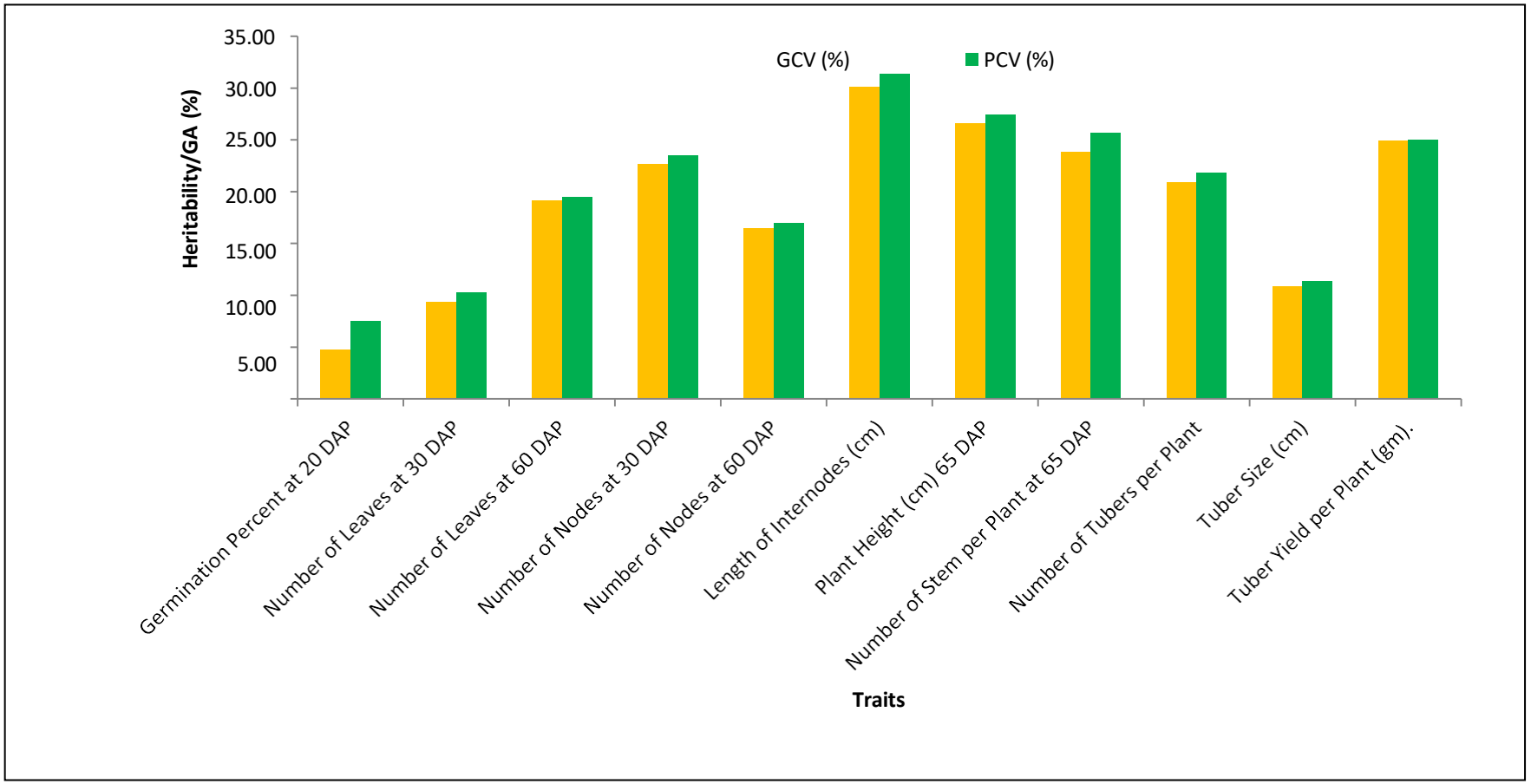

Fig. 1. Genotypic coefficient of variation and phenotypic coefficient of variation

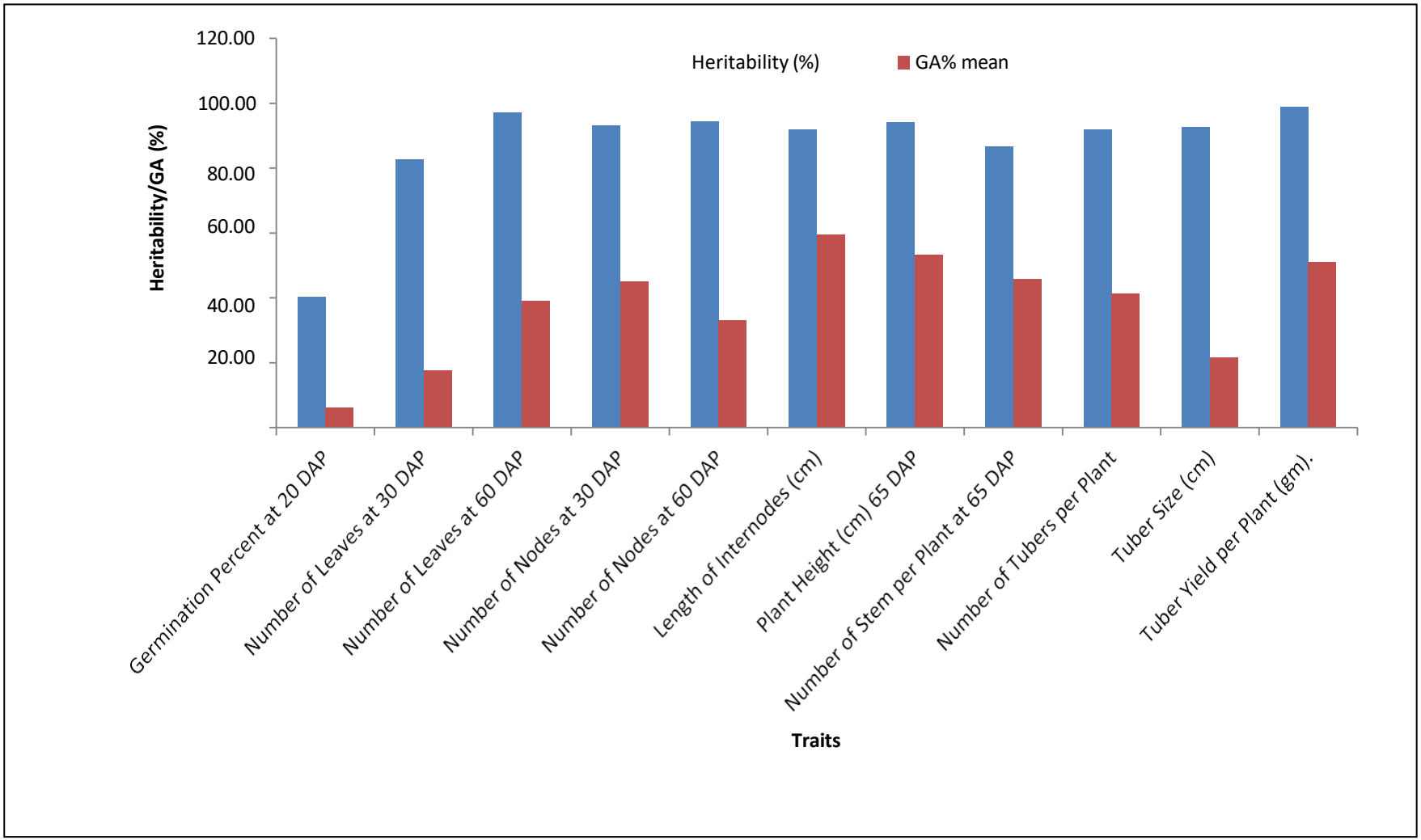

Fig. 2. Heritability and genetic advance as (%) of mean

the major role of genotypic factors in the expression of characters. In the present, investigation almost high heritability values were recorded ranging from 40.23% to 98.85% for all the characters under study. High estimates of heritability (h^2) (>80%) were recorded for tuber yield plant^{-1} (98.85%) followed by number of leaves at 60 DAP (97.23%), number of nodes at 60 DAP (94.37%), plant height (cm) (94.02%), number of nodes at 30 DAP (93.23%), tuber size (cm) (92.53%), length of internodes (cm) (91.90%), number of tubers plant^{-1} (91.78%), number of stem plant^{-1} (86.58%), number of leaves at 30 DAP (82.62%) and lowest heritability (h^2) (60-80%) was estimates for the germination % at 20 DAP (40.23%). In the present study, the range of genetic advance was varying from 6.19% to 59.39%. The estimates of genetic advance as percent of mean was exhibited high (>20%) for length of internodes (cm) (59.39%) followed by plant height (53.14%), tuber yield plant^{-1} (50.98%), number of stem plant^{-1} (45.72%), number of nodes at 30 DAP (45.11%), number of tubers plant^{-1} (41.29%), number of leaves at 60 DAP (38.90%), number of nodes at 60 DAP (32.94%), tuber size (cm) (21.59%) and moderate genetic advance as percent of mean (10-20%) was observed for number of leaves at 30 DAP (17.44%) while lowest genetic advance as percent of mean (<10) was exhibited for the germination % at 20 DAP (6.19%). The above estimates gave an indication that substantial genetic improvement can be achieved in these characters. Some of these characters have been also reported by Ozturk & Yildrim [18] Nasiruddin *et al.* [19] Luthra *et al.* [20] Seid *et al.* [21] and Zeleke *et al.* [3]

4. CONCLUSION

Above the results, it is concluded that the highest genotypic coefficient of variation and phenotypic coefficient of variation was recorded for length of internodes (cm), followed by plant height, tuber yield plant^{-1}, number of stem plant^{-1}, number of nodes at 30 DAP, number of tubers plant^{-1}. This indicates possibility of obtaining higher selection response in respect of these different characters for yield improvement.

High heritability was recorded for tuber yield plant^{-1}, number of leaves at 60 DAP, number of nodes at 60 DAP, plant height (cm), number of nodes at 30 DAP, tuber size (cm), length of internodes (cm), number of tubers plant^{-1}, number of stem plant^{-1}, number of leaves at 30 DAP. The genetic advance as percent of mean was exhibited high for length of internodes (cm), plant height, tuber yield plant^{-1}, number of stem plant^{-1}, number of nodes at 30 DAP, number of tubers plant^{-1}, number of leaves at 60 DAP, number of nodes at 60 DAP, tuber size (cm). The highest heritability coupled with high genetic advance as % of mean for the traits indicated additive genes action and more helpful in estimate the gain under selection.

CONFERENCE DISCLAIMER

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Rahman MH, Islam MS, Sonom S. Genetic diversity of potato (*Solanum tuberosum* L.). Bangladesh Journal of Plant Breeding and Genetics. 2016;29(1):39-43.
2. Mandi V, Panja S, Battacharya C, Sarkar KK. Studies on the scope of genetic improvement for yield and yield related traits in potato (*Solanum tuberosum* L.) production. International Journal of Current Research. 2016;8(5):31427-31433.
3. Zeleke AA, Abebe TD, Getahun BB. Estimation of Genetic Variability, Heritability and Genetic Advance in Potato (*Solanum tuberosum* L.) Genotypes for Tuber Yield and Yield

Related Traits. Turkish Journal of Agriculture-Food Science and Technology. 2021;9(12):2124-2130.
4. Idahosa DO, Alika JE, Omoregie AU. Genetic variability, heritability and expected genetic advance as indices for yield and yield components selection in cowpea (Vigna unguiculata (L) Walp). Academia arena. 2010;2(5):22-26.
5. Burton GW, Devane EH. Estimating heritability in tall fescue (Festuca arundinaceae) from replicated clonal material, Agronomy Journal. 1952;45:478-481.
6. Hanson CH, Robinson HF, Comstock RE. Biometrical studies on yield in segregating population of Korean lespedesa. Agron. J. 1956;48:268-272.
7. Johnson HW, Robinson HF, Comstock RI. Estimates of Genetic and environmental variability in soybean, Agronomy Journal. 1955;47(2):314-318.
8. Rangare SB, Rangare NR. Classificatory analysis of potato (*Solanum tuberosum* L.) genotypes for yield and yield attributing traits. The Pharma Innovation Journal. 2017;6(8):94-102.
9. Prajapati DR, Patel RN, Gami RA. Study of genetic variability of tuber yield and storage related traits in potato (*Solanum tuberosum* L.). International Journal of Chemical Studies. 2020;8(3):188-192.
10. Tessema L, Mohammed W, Abebe T. Evaluation of potato (*solanum tuberosum* L.) varieties for yield and some agronomic traits. Open Agriculture. 2020;5(1):63-74.
11. Tessema GL, Mohammed AW, Abebe DT. Genetic variability studies for tuber yield and yield attributes in Ethiopian released potato (*Solanum tuberosum* L.) varieties. Peer J. 2022;10: e12860.
12. Sattar MA, Sultana N, Hossain MM, Rashid MH, Islam AA. Genetic variability, correlation and path analysis in potato (*Solanum tuberosum* L.). Bangladesh Journal of Plant Breeding and Genetics. 2007;20(1):33-38.
13. Haydar A, Islam MA, Ara T, Khokan EH, Khalequzzaman KM. Studies on genetic variability, correlation and path analysis in potato. International Journal of Sustainable Agricultural Technology. 2009;5(5):40-44.
14. Tripura A, Das A, Das B, Priya B, Sarkar KK. Genetic studies of variability, character association and path analysis of yield and its component traits in potato (*Solanum tuberosum* L.). Journal of Crop and Weed. 2016;12(1):56-63.
15. Asefa G, Mohammed W, Abebe T. Genetic Variability Studies in Potato (*Solanum Tuberosum* L.) Genotypes in Bale Highlands, South Eastern Ethiopia. J. Biol. Agric. Healthc. 2016;6:117-119.
16. Patel AB, Patel RN, Gami RA, Patel JA, Patel PC. Genetic Variability among the Potato (*Solanum tuberosum* L.) Genotypes as Affected by Harvesting Period for Processing Purpose and Tuber Yield. Current Agriculture Research Journal. 2018;6(3):372-377.
17. Annigeri SV, Hiremath SM. Genetic variability studies in potato (*Solanum tuberosum* L.) genotypes under northern transitional zone of Karnataka. The Pharma Innovation Journal. 2022;11(2): 1764-1767.
18. Ozturk G, Yildirim Z. Heritability estimates of some quantitative traits in potatoes. Turkish Journal of Field Crops. 2014; 19(2):262-267.
19. Nasiruddin M, Haydar FMA, Islam AKMR, Hossain MM. Study of Genetic Variability and Correlation of Potato (*Solanum tuberosum* L.) genotypes grown in Bangladesh. Plant Environment Development. 2014;3(2):09-13.
20. Luthra SK, Gupta VK, Lal M, Tiwari JK. Genetic parameters for tuber yield components, late blight resistance and keeping quality in potatoes (*Solanum tuberosum* L.). Potato Journal, 2018; 45(2):107-115.
21. Seid E, Mohammed W, Abebe T. Genetic variability, heritability and genetic advance in potato (*Solanum tuberosum* L.) for processing quality, yield and yield related traits. Int. J. Plant Breed Crop Sci. 2020;7:928-936.

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