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Chawki Silkworm Performance on Selected Mulberry Hybrids in Different Seasons

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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

Nutritional indices help to find out the quantity of leaf required to produce the silk. It also helps to study conversion rate of ingested food by the silkworm, so that we can analyze the distribution rate of mulberry intake in silkworm for various factors like growth rate, silk production and faecal matter. The first, second and third instar silkworm *Bombyx mori* were reared on eight elite mulberry hybrids & two check varieties.The larvae fed on ME-65 × V1 recorded higher consumption index (0.89),(1.03),(1.09),growth rate (2.25), (2.44), (2.52) and larval weight (0.094g/20 larvae),(0.393g/20 larvae),(2.377g/20 larvae) at first, second and third instar during winter, summer and rainy season respectively. Whereas minimum consumption index (0.46), (0.54), (0.58) growth rate (1.70), (1.91), (1.98) and larval weight (0.062/20 larvae), (0.357g/20 larvae), (2.339g/20 larvae) was recorded when silkworms were reared on ME-67 × V1 at first, second and third instar during

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winter, summer and rainy season respectively. The variation of growth rate among mulberry accessions might be due to difference in biochemical constituents present in the mulberry varieties.

Keywords: Mulberry hybrids; chawki silkworm; rearing performance; seasons.

1. INTRODUCTION

Silkworm *(Bombyx mori* L.*)* is essentially monophagous insect feeds solely on mulberry leaves *(Morus* spp.*)*. Leaf quality is an important parameter used for evaluation of varieties aimed at selection of superior varieties for rearing performance. Since the nutritional status of leaf has a vital role in influencing the performance of different stages of silkworm Anonymous (2003). The selection of mulberry genotypes is an important aspect for better growth and development of silkworm and its economic parameters. Nutritional indices help to find out the quantity of leaf required to produce the silk. It also helps to study conversion rate of ingested food by the silkworm, so that we can analyze the distribution rate of mulberry intake in silkworm for various factors like growth rate, silk production and faecal matter. The consumption indices were estimated for 1 st, 2nd and 3rd instar. The consumption indices were computed on fresh weight basis by gravimetric method (Waldbauer, 1968). Maribashetty *et al. (*1999) studied the food utilization in last two instars of newly evolved multivoltine breeds such as MH1and MH2. These two races have higher assimilation and conversion rate to body and shell ratio compare to control, i.e., PM. According to Rahmathulla *et al*. (2002) studied the nutritional indices and nutritional efficiency parameters of V instar larvae of newly evolved bivoltine hybrids, CSR2×CSR4, CSR2×CSR5 and CSR18×CSR19 under varied environmental conditions. The nutritional indices like ingesta, AD and utilization efficiency of these hybrids were more during un favorable environmental conditions. The present investigation includes to study of the consumption indices of 1 st, 2nd and 3rd instars of silkworm PM ×CSR2.

2. MATERIALS AND METHODS

The experiment was undertaken at Department of Sericulture, University of Agricultural Sciences, Gandhi Krishi Vignana Kendra during three different seasons *viz.*, winter, summer and rainy by feeding individual leaves from Eight mulberry hybrids and two check varieties. The plantation was maintained as per the recommended package of practices. In order to study the nutritional efficiency of silkworm double hybrid FC1×FC2 (*Bombyx mori* L.) on eight mulberry hybrids viz., MI-47 × MI-66, MI-79 × MI-66, ME-03 × MI-66, ME-146 × MI-66, ME-65 × V1, ME-67× V1, ME-02 × MI-66, ME-95 x V1 and two check varieties viz., V1 and S36.The silkworms were reared on each hybrid under laboratory condition from first to third instar following the rearing technique with three replications(CRD statistical design), each consisting fifty for each hybrids were maintained in each instar. The newly hatched larvae were selected randomly and transferred separately with the help of feather to the rearing tray of each replication of each genotype under study. The initial weight of the larvae of each replicate was recorded before providing of food to observe the growth rate. The first, second and third instars were fed with tender leaves. The larvae were fed at a frequency of two times, medium age leaves were fed to the third instar silkworm per day except during moulting periods. The quantity of food was increased with the advancement of larval age to full fill their nutritional requirements. Separate batches of 100 larvae for each genotype under identical conditions were also maintained to replace the dead/unhealthy larvae, if any during observation period and to study other economical larval parameters. Equal weighed amount of food was supplied in each feeding to each replication every day. After every instar of feeding the leftover food and feaces were collected and weighed. The weight of the larvae was recorded after every instar before and after moult. The difference between the weight before and after feeding gave the fresh weight gain of the larva during feeding period. An equal quantity (equal in weight offered as food) of respective mulberry leaves were kept in the separate rearing tray as blank under the same experimental condition to know the evaporation loss from the leaves offered as food.

Estimation of Consumption indices: The consumption indices were estimated in first three instars. The consumption indices were computed by gravimetric method (Waldbauer, 1964).

Consumption Index (CI) of Ist, IInd and IIIrd instar silkworm: The consumption index explains in a nutshell the rate at which nutrients

enter into the digestive system. This is expressed as consumption per mean larval weight per day. The instar wise total consumption indices were worked out by following the standard procedure.

The consumption index (CI) was calculated by using formula:

$$CI = \frac{F}{TA}$$

Where,

F = Weight of food consumed (g)
T = Duration of feeding period
A = Mean fresh weight of larvae during the feeding period (g)

$$\text{Mean weight of larvae (g)} = \frac{\text{Initial larval body weight(g)} + \text{Final larval body weight (g)}}{2}$$

Growth rate (GR) of Ist, IInd and IIIrd instar silkworm: Growth rate explains how much fresh matter increased in the body of the larvae, per day per gram of body weight.

$$GR = \frac{G}{TA}$$

Where,

G = increase in the weight of larva during feeding period (g)
T = Duration of feeding period
A = Mean larval weight during feeding period (g)

$$\text{Weight gain of larvae(g)} = \frac{\text{Initial larval body weight(g)} - \text{Final larval body weight (g)}}{2}$$

Larval weight of Ist, IInd and IIIrd instar silkworm (g): Twenty larvae were randomly selected in each replication of every treatment and weighed in different instars. Further, individual larval weight was calculated by taking mean weight of twenty larvae.

Larval duration of Ist, IInd and IIIrd instar silkworm: The larval life is direct importance of the rarer since he has to feed the worms carefully for harvesting of cocoons. The time required to complete the three instars reared on different mulberry hybrids were recorded and expressed in days.

3. RESULTS AND DISCUSSION

Consumption index (CI) of young age silkworm: Comparison of consumption index is a better measure of consumption rather than the bulk food eaten, as it measures the rate at which the food enters the digestive system. Waldbauer (1964) suggest that consumption index is a better measure of behavior of response to food. Since, the rate of food intake is a response of bulk, water content and other physico-chemical properties of whole fresh food and the rate of dry matter intake is largely a function of this response. The consumption index (CI) was found to be decreased from first to third instar and thereafter increased among genotypes. This is attributed to the decrease in efficiency of larvae to convert food into body weight as the age of the larvae advanced even though they consume more food

First instar: The consumption index differed significantly when silkworms were reared on leaves harvested from different mulberry hybrids. The mean consumption index was recorded significantly maximum when silkworm fed with leaves of ME-65 × V1 (0.89) followed by MI-79 × MI-66 (0.83) and V1 (0.79). Whereas mean consumption index was significantly minimum when silkworm fed with leaves of ME-67 × V1 (0.46) when compared to other hybrids. Among the different seasons ME-65 × V1 recorded the highest consumption index of (0.88), (0.85) and (2.30) in winter, summer and rainy season (Table 1).

Second instar: The mean consumption index was recorded significantly maximum when silkworm fed with leaves of ME-65 × V1 (1.03) followed by MI-79 × MI-66 (0.94) and V1 (0.88). Whereas mean consumption index was significantly minimum when silkworm fed with leaves of ME-67 × V1 (0.54) when compared to other hybrids. Among the different seasons ME-65 × V1 recorded the highest consumption index of (1.01), (0.97) and (2.50) in winter, summer and rainy season respectively (Table 1).

Third instar: The mean consumption index recorded was significantly maximum when silkworm fed with leaves of ME-65 × V1 (1.09) followed by MI-79 × MI-66 (1.01) and V1 (0.92). Whereas mean consumption index was significantly minimum when silkworm fed with leaves of ME-67 × V1 (0.58) when compared to other hybrids.Among the different seasons ME-

65 × V1 the highest consumption index of 1.08, 1.04 and 2.59 in winter, summer and rainy season respectively (Table 1).This variation might be due to variation in biochemical constituents of different mulberry hybrids, which play major role on gain in body weight of silkworm. The current findings are similar with the study of Prabhakara *et al*., (2000) who observed that CI was maximum when silkworms reared on local variety compared to M-5 and S-54. Raksha Sharma *et al.*(2024) revealed that Consumption index was maximum when silkworms were reared on C-20 genotype at first (1.74), second (1.92) and third instar (1.96). Consumption index was minimum when silkworm were fed with leaves of MI-79 from first to third instar (1.43 to 1.85) followed by genotype S-36 (1.63 to 1.88 respectively).

Growth rate (GR) of young age silkworm: Growth rate (GR) explains how much of dry matter increases in the larvae per gram of body weight per day. It is directly influencing the speed of development, which depends on the quality of host and physiology of silkworm. The growth rate of young age silkworm in different instars is explained here.

First instar: The growth rate differed significantly when silkworms were reared on leaves harvested from different mulberry hybrids. The mean growth rate was significantly higher when silkworm fed with leaves of ME-65 × V1 (2.25) followed by MI-79 × MI-66 (2.17) and V1 (2.07). Whereas mean growth rate was significantly minimum when silkworm fed with the leaves of ME-67 × V1 (1.70) when compared to other hybrids. Among the different seasons ME-65 × V1 recorded highest growth rate of 2.26, 2.20 and 2.30. Whereas ME-67 × V1 recorded the minimum growth rate of 1.71, 1.67 and 1.73 in winter, summer and rainy season respectively (Table 2).

Second instar: The mean growth rate was recorded significantly higher when silkworm fed with leaves of ME-65 × V1 (2.44) followed by MI-79 × MI-66 (2.36) and V1 (2.31). Whereas mean growth rate was significantly minimum when silkworm fed with leaves of ME-67 × V1 (1.91) when compared to other hybrids. Among the different seasons ME-65 × V1 recorded highest growth rate of 2.43, 2.38 and 2.50. Whereas ME-67 × V1 recorded the minimum growth rate of 1.93, 1.81 and 1.98 in winter, summer and rainy season respectively (Table 2).

Third instar: The mean growth rate recorded significantly higher when silkworm fed with leaves of ME-65 × V1 (2.52) followed by MI-79 × MI-66 (2.42) and V1 (2.37). Whereas mean growth rate was significantly minimum when silkworm fed with leaves of ME-67 × V1 (1.98) when compared to other hybrids. Among the different seasons ME-65 × V1 recorded the highest growth rate of 2.53, 2.45 and 2.59. Whereas ME-67 × V1 the minimum growth rate of 1.96, 1.89 and 2.10 in winter, summer and rainy season respectively (Table 2).

The growth rate was gradually increased from first instar to third instar. The variation of GR among mulberry hybrids might be due to difference in biochemical constituents present in them. Similar differences were noticed by Dutta *et al*. (1996), who reported that the larvae reared on Jatimani had higher GR compared to silkworms reared on K-2 mulberry variety. Prabhakara *et al.* (2000) reported that the larvae reared on S-14 leaves resulted in maximum GR compared to M-5. Krishnaswami *et al*. (1971) opined that the growth rate in *B. mori.* depends on the nutritional content of the mulberry leaves. Raksha *et al.*(2024) reported that the larvae fed on MI-79 higher recorded growth rate (0.68) followed by S-36(0.64). Minimum GR was recorded when silkworms were reared on C-20 (0.57) at first instar.

Larval weight of chawki silkworm: The mulberry silkworm reared on selected mulberry hybrids recorded varied larval weight during each instar and the weight of each instar of mulberry silkworms are presented (Table 3).

First instar: First instar larval weight of mulberry silkworms fed on leaves of selected mulberry hybrids revealed varied larval weight ranged between 0.062 to 0.094. The maximum mean larval weight was recorded by ME-65 × V1 (0.094g/20 larvae) followed by MI-79 × MI-66 0.089/20 larvae and V1 (0.084/20 larvae). Whereas minimum was recorded in ME-67 × V1 (0.062/20 larvae) when compared to other hybrids. Among the different seasons ME-65 × V1 recorded the maximum larval weight of 0.094/20 larvae, 0.090/20 larvae and 0.098/20 larvae. Whereas ME-67 × V1 recorded the minimum larval weight of 0.061/20 larvae, 0.058/20 larvae and 0.067/20 larvae in winter, summer and rainy season respectively (Table 3).

Table 1. Consumption index of chawki silkworm FC1 × FC2 as influenced by elite mulberry hybrids

Consumption index													
Sl. No.	Mulberry Hybrids	1st instar				2nd instar				3rd instar			
		Seasons				Seasons				Seasons			
		Winter	Summer	Rainy	Mean	Winter	Summer	Rainy	Mean	Winter	Summer	Rainy	Mean
1	MI-47 × MI-66	0.58	0.55	1.90	0.58	0.69	0.65	2.10	0.69	0.73	0.69	2.26	0.73
2	MI-79 × MI-66	0.83	0.78	2.21	0.83	0.95	0.89	2.40	0.94	1.01	0.93	2.47	1.01
3	ME-03 × MI-66	0.48	0.45	1.79	0.49	0.56	0.53	2.00	0.58	0.60	0.56	2.15	0.61
4	ME-146 × MI-66	0.74	0.70	2.12	0.74	0.83	0.80	2.25	0.83	0.87	0.83	2.36	0.87
5	ME-65 × V1	0.88	0.85	2.30	0.89	1.01	0.97	2.50	1.03	1.08	1.04	2.59	1.09
6	ME-67 × V1	0.46	0.42	1.73	0.46	0.53	0.51	1.98	0.54	0.57	0.54	2.10	0.58
7	ME-05 x MI-66	0.52	0.49	1.84	0.53	0.63	0.57	2.05	0.63	0.67	0.62	2.20	0.67
8	ME-95x V1	0.63	0.59	1.94	0.63	0.75	0.70	2.18	0.74	0.79	0.75	2.29	0.79
9	V1	0.78	0.74	2.14	0.79	0.87	0.84	2.35	0.88	0.91	0.87	2.42	0.92
10	S36	0.69	0.65	1.96	0.69	0.78	0.75	2.23	0.79	0.82	0.78	2.31	0.83
	Mean	0.66	0.62	1.99	0.66	0.76	0.72	2.21	0.76	0.81	0.76	2.32	0.81
	F-test	*	*	*	*	*	*	*	*	*	*	*	*
	S.Em ±	0.009	0.008	0.016	0.020	0.019	0.013	0.024	0.024	0.022	0.016	0.025	0.026
	$C.D_{0.05}$	0.033	0.032	0.060	0.079	0.075	0.048	0.092	0.092	0.084	0.061	0.097	0.101
	C.V.	3.103	3.133	1.851	7.312	6.031	4.097	2.540	7.338	6.336	4.927	2.556	7.612

**Significance at 5 % level, S2=2022 Winter season (Nov-Jan), S3=2023 Summer season (March-May), S4=2023 Rainy season (July- Sept)*

Table 2. Growth rate of chawki silkworm FC1 × FC2 as influenced by elite mulberry hybrids

Growth rate at different instars													
Sl. No.	Mulberry Hybrids	1st instar				2nd instar				3rd instar			
		Seasons				Seasons				Seasons			
		Winter	Summer	Rainy	Mean	Winter	Summer	Rainy	Mean	Winter	Summer	Rainy	Mean
1	MI-47 × MI-66	1.87	1.81	1.90	1.86	2.03	1.99	2.10	2.04	2.16	2.06	2.26	2.16
2	MI-79 × MI-66	2.17	2.14	2.21	2.17	2.36	2.31	2.40	2.36	2.42	2.37	2.47	2.42
3	ME-03× MI-66	1.76	1.72	1.79	1.76	1.95	1.86	2.00	1.94	2.04	1.92	2.15	2.04
4	ME-146 × MI-66	1.97	1.91	2.12	2.00	2.23	2.18	2.25	2.22	2.29	2.25	2.36	2.30
5	ME-65 × V1	2.26	2.20	2.30	2.25	2.43	2.38	2.50	2.44	2.53	2.45	2.59	2.52
6	ME-67 × V1	1.71	1.67	1.73	1.70	1.93	1.81	1.98	1.91	1.96	1.89	2.10	1.98
7	ME-05 x MI-66	1.80	1.76	1.84	1.80	1.98	1.94	2.05	1.99	2.11	1.96	2.20	2.09

Growth rate at different instars													
Sl. No.	Mulberry Hybrids	1st instar				2nd instar				3rd instar			
		Seasons				Seasons				Seasons			
		Winter	Summer	Rainy	Mean	Winter	Summer	Rainy	Mean	Winter	Summer	Rainy	Mean
8	ME-95x V1	1.89	1.84	1.94	1.89	2.11	2.06	2.18	2.12	2.20	2.12	2.29	2.20
9	V1	2.14	1.94	2.14	2.07	2.31	2.27	2.35	2.31	2.36	2.32	2.42	2.37
10	S36	1.94	1.88	1.96	1.93	2.17	2.12	2.23	2.17	2.26	2.20	2.31	2.26
	Mean	1.95	1.89	1.99	1.94	2.14	2.09	2.21	2.15	2.23	2.15	2.32	2.23
	F-test	*	*	*	*	*	*	*	*	*	*	*	*
	S.Em ±	0.015	0.014	0.016	0.030	0.021	0.021	0.024	0.029	0.032	0.039	0.025	0.042
	$C.D_{0.05}$	0.059	0.055	0.060	0.118	0.083	0.081	0.092	0.111	0.123	0.014	0.097	0.163
	C.V.	1.865	1.776	1.851	3.701	2.362	2.367	2.540	3.162	3.357	4.222	2.556	4.434

**Significance at 5 % level, S2=2022 Winter season (Nov-Jan), S3=2023 Summer season (March-May), S4=2023 Rainy season (July- Sept)*

Table 3. Larval weight (g) of chawki silkworm FC1 × FC2 as influenced by elite mulberry hybrids

Larval weight at													
Sl. No.	Mulberry Hybrids	1st instar				2nd instar				3rd instar			
		Seasons				Seasons				Seasons			
		Winter	Summer	Rainy	Mean	Winter	Summer	Rainy	Mean	Winter	Summer	Rainy	Mean
1	MI-47 × MI-66	0.072	0.068	0.076	0.072	0.369	0.366	0.372	0.369	2.350	2.347	2.354	2.350
2	MI-79 × MI-66	0.088	0.085	0.093	0.089	0.389	0.386	0.393	0.389	2.370	2.366	2.376	2.371
3	ME-03× MI-66	0.066	0.062	0.070	0.066	0.361	0.358	0.365	0.361	2.343	2.340	2.347	2.343
4	ME-146 × MI-66	0.079	0.075	0.083	0.079	0.381	0.378	0.385	0.381	2.363	2.360	2.367	2.363
5	ME-65 × V1	0.094	0.090	0.098	0.094	0.393	0.390	0.397	0.393	2.377	2.373	2.382	2.377
6	ME-67 × V1	0.061	0.058	0.067	0.062	0.357	0.353	0.361	0.357	2.339	2.335	2.342	2.339
7	ME-05 x MI-66	0.068	0.064	0.072	0.068	0.363	0.360	0.369	0.364	2.347	2.343	2.350	2.347
8	ME-95x V1	0.074	0.071	0.078	0.074	0.372	0.369	0.376	0.372	2.354	2.351	2.358	2.354
9	V1	0.084	0.081	0.088	0.084	0.384	0.381	0.388	0.384	2.368	2.364	2.372	2.368
10	S36	0.077	0.073	0.080	0.077	0.377	0.373	0.381	0.377	2.358	2.355	2.363	2.359
	Mean	0.076	0.072	0.080	0.076	0.374	0.371	0.378	0.370	2.356	2.353	2.361	2.356
	F-test	*	*	*	*	*	*	*	*	*	*	*	*
	S.Em ±	0.074	0.072	0.076	0.074	0.013	0.011	0.015	0.014	0.250	0.248	0.251	0.256
	$C.D_{0.05}$	0.022	0.020	0.024	0.022	0.039	0.033	0.045	0.042	0.750	0.744	0.771	0.768
	C.V.	1.639	1.782	1.276	5.993	0.477	0.532	0.503	1.147	0.181	0.184	0.174	0.193

**Significance at 5 % level, S2=2022 Winter season (Nov-Jan), S3=2023 Summer season (March-May), S4=2023 Rainy season (July- Sept)*

Second instar: Mulberry silkworms fed on leaves of selected mulberry hybrids recorded varied larval weight ranged between 0.357 to 0.393. The maximum mean larval weight was recorded by ME-65 × V1 (0.393g/20 larvae) followed by MI-79 × MI-66 (0.389g/20 larvae) and V1 (0.3840g/20 larvae). Whereas minimum was recorded in ME-67 × V1 (0.357g/20 larvae) when compared to other hybrids. Among the different seasons ME-65 × V1 recorded the maximum larval weight of 0.393g/20 larvae, 0.390g/20 larvae and 0.397g/20 larvae. Whereas ME-67 × V1 recorded the minimum larval weight of 0.357g/20 larvae, 0.353g/20 larvae and 0.361/20 larvae in winter, summer and rainy season respectively (Table 3).

Third instar: Mulberry silkworms fed on leaves of selected mulberry hybrids recorded varied larval weight ranged between 0.357 to 0.393. The maximum mean larval weight was recorded by ME-65 × V1 (2.377g/20 larvae) followed by MI-79 × MI-66 (2.371g/20 larvae) and V1 (2.368g/larvae). Whereas minimum recorded in ME-67 × V1 (2.339g/20 larvae) when compared to other hybrids. Among the different seasons ME-65 × V1 recorded the maximum larval weight of 2.377g/20 larvae, 2.373g/20 larvae and 2.382g/20 larvae. Whereas ME-67 × V1 recorded the minimum larval weight of 2.339g/20 larvae, 2.335g/20 larvae and 2.342/20 larvae in winter, summer and rainy season respectively (Table 3).

This might be due to the fact that these hybrids found rich in moisture content and nutrient status. These findings were on par with Sujathamma *et al*. (2001) who reported that the nutritive quality of leaves of Tr-10 and S-13 varieties found superior, as larvae fed on these two varieties have shown higher values of larval weight. Raksha (2015) reported mulberry silkworms fed with leaves of selected mulberry genotypes exhibited marked difference in larval weight (g/20 larvae). Worms nourished with leaves of MI-79 recorded higher larval weight in first, second and third instars (0.096, 0.388, 2.366g/20 larvae respectively). However, C-20 recorded lower larval weight of 0.080g/20 larvae in first instar, 0.360g/20larvae in second instar and 2.033g/20larvae in third instar. Sudan *et al.* (2024) evaluated the effects of adding spermidine to mulberry leaves on *Bombyx mori* L. larvae survival. The experimental groups in this experiment were given mulberry leaves treated with different doses of spermidine, such as Spd 25, 50, 75, and 100 µM. The larvae were separated into control and experimental groups. The findings demonstrated that larvae fed leaves laced with spermidine had higher survival rates than the control group. However, compared to the control group, the treated group's mortality rate was decreased. These findings indicate that spermidine could be a useful nutritional enhancement in sericulture, promoting better larval health and increased silk production.

4. CONCLUSION

The study highlights the significant impact of different mulberry hybrids on the consumption index, growth rate and laraval weight of the chawki silkworm, *Bombyx mori* L. Among the tested hybrids, ME-65 × V1 demonstrated the highest consumption index, growth rate and larval weight across all instars during different seasons, indicating its superior nutritional quality for silkworm rearing. In contrast, the ME-67 × V1 hybrid exhibited the lowest consumption index, growth rate and laraval weight, suggesting its lesser suitability for silkworm nourishment. The observed variations in growth rates can be attributed to the biochemical composition of the mulberry leaves, which directly influences the silkworm's development and overall productivity. Therefore, selecting appropriate mulberry genotypes is crucial for enhancing silkworm growth and optimizing cocoon production in sericulture practices.

DISCLAIMER (ARTIFICIAL INTELLIGENCE)

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc) and text-to-image generators have been used during writing or editing of this manuscript.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

Anonymous. (2003). *Package of practices for silkworm rearing and mulberry cultivation in Kashmir* (Technical Document). Directorate of Extension Education, Sher-e-Kashmir University of Agricultural Sciences and Technology of Kashmir, 1–20.

Dutta, L. C., Saikia, M. K., & Dutta, S. K. (1996). Nutritional efficiency of two multivoltine

breeds of *Bombyx mori* L. native to Assam. *Indian Journal of Sericulture, 35*(1), 32–34.

Krishnaswami, S., Kumararaj, S., Vijayaraghavan, K., & Kasiviswanathan, K. (1971). Silkworm feeding trials for evaluating the quality of mulberry leaves as influenced by variety, spacing and nitrogen fertilizers. *Indian Journal of Sericulture, 10*, 79–89.

Maribashetty, V. G., Raghuraman, R., Venkatesh, H., & Puttaswamy, S. (1999). Comparative nutritive value of bush and tree mulberry leaves in bivoltine seed rearing. *Sericologia, 39*(1), 67–72.

Prabhakara, M. K., Reddy, D. N. R., & Narayanaswamy, K. C. (2000). Consumption and utilization of mulberry leaves by the silkworm, *Bombyx mori* L. *Bulletin of the Indian Academy of Sericulture, 4*(1), 52–60.

Rahmathulla, V. K., Suresh, H. M., Mathur, V. B., & Geetha Devi, R. G. (2002). Feed conversion efficiency of elite bivoltine CSR hybrids of silkworm, *Bombyx mori* L. reared under different environmental conditions. *Sericologia, 42*(2), 197–203.

Raksha, C. M., Chikkalingaiah, Shyla, P. N., Pretish Chavan, & Chethan, M. N. (2024). Performance of different mulberry genotypes on growth rate of Chawki mulberry silkworm, *Bombyx mori* (Lepidoptera: *Bombycidae*). *International Journal of Applied Research, 10*(6), 330–332.

Raksha. (2015). *Studies on performance of elite mulberry genotypes (Morus spp) under rainfed during different seasons* (M.Sc. Thesis). UAS, GKVK, Bengaluru, 45–70.

Sudan, N., Sharma, M., Gupta, R. K., & Bali, K. (2024). Enhancing silkworm (*Bombyx mori* L.) larval survivability through spermidine supplementation. *Journal of Advances in Biology & Biotechnology.*

Sujathamma, P., Dandin, S. B., & Savithri. (2001). Quality evaluation of mulberry (*Morus* spp.) genotypes through bioassay under Rayalaseema conditions of Andhra Pradesh. *Indian Journal of Sericulture, 40*(1), 27–34.

Waldbauer, G. P. (1964). Quantitative relationship between the number of fecal pellets, fecal weight and the weight of food eaten by tobacco hornworm, *Protoparce sexta* (Johan) (Lepidoptera: *Sphingidae*). *Entomologia Experimentalis et Applicata, 7*(4), 310–314.

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