Research Paper :

Effect of different mulberry varieties on rearing of silkworm *Bombyx mori* L. in Maharashtra

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SUMMARY

The study was conducted to evaluate the rearing performance of silkworm CSR2 x CSR4 on different mulberry varieties during October-November 2008, in rearing house of Sericulture Research unit, Marathwada Agricultural University, Parbhani, Maharashtra. An experiment was laid out in randomized block design with ten treatments and three replications. Each treatment consisted of 100 silkworms. The studies revealed that muberry variety V-1 was found statistically superior in improving economic traits than the rest of the mulberry varieties. Silkworms reared on V-1 mulberry variety were found sigificnatly superior in larval period (23.06 hours), cocoon yield/10,000 larvae brushed (18.96 kg), disease percentage (3.60%), filament length (970m) than rest of the treatments. However, variety Kanva-2 was at par with V-1 in all treatments. Variety, Mizosava was found to have highest larval period (24.36 hours), disease percentage (6.75%), and lowest cocoon yield/10,000 larvae brushed (15.50), filament length (670 m).

Key words : Mulberry varieties, *Bombyx mori* L, Larval period, Shell ratio, Cocoon yield

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The silkworm (*Bombyx mori* L.) is a monophagous and highly domesticated insect. Mulberry (*Morus* sp.) the sole food plant of silkworm. plays vital role in the growth and development of silkworm and in turn the silk production. Leaf quality and quantity not only influence the silkworm growth and development, but also the cocoon production and quality of raw silk. Nutrition plays an important role in improving the growth and development of the silkworm. like other organisms. Legay (1958) stated that silk production is dependent on the larval nutrition and nutritive value of mulberry leaves and play a very effective role in producing good quality cocoon. The silkworm growth and development are dependant on the composition of mulberry leaves, which alone contributes out 38.2 per cent (Miyashita, 1986). Success of sericulture industry and its ultimate profitability thus depends on the production of good quality leaves at an economical cost.

The raw silk production in Maharashtra during 2008-09 was 200 MT (Giridhar *et al.,* 2008).There is tremendous scope for Sericulture in Maharashtra Hence, present studies were undertaken to evaluate different mulberry varities for rearing performance of *B. mori* in Maharashtra

MATERIALS AND METHODS

The present investigation was carried out in Randomized Block Design with ten treatments and three Replication in rearing house of Sericulture Research Unit, Marathwada Agricultural University, Parbhani, Maharashtra during October-November 2008. Disease free layings of silkworm hybrid CSR2 X CSR4 were used as a test race against ten mulberry varieties *viz*., V-1, Kanva-2, BER-1, T-6, T-7, BER-779, P-16, Mizosava, A-1 and LMP. The fresh mulberry leaves of these ten varieties were obtained from already established mulberry garden around the rearing house of Sericulture Research Unit. Improved technology of silkworm rearing as described by Krishnaswami (1978) was adopted in this investigation.

The newly hatched larvae were fed with chopped pieces of fresh mulberry leaves of above ten different varieties. The leaves were chopped into small pieces of 0.5 cm and sprinkled over the newly hatched worms for their feeding. The feeding was given two times in a day at 8.00 am and 8.00 pm. The rearing trays were cleaned daily as per recommended times. The silkworm, *B. mori* moults four times during its larval growth period. The stage between two moults is called as instars and hence there are five instars in life period of

silkworm, *B. mori* During moulting, the worms cease feeding and hence were not provided any food. Moulting is completed in 20 to 30 hrs. After completion of each moult, a bed disinfectant Vijeta @ 4 kg/100 DFLs was dusted to control the diseases and feeding was given after half an hour.

After full development, the ripe worms were identified, as they looked translucent with creamy colour. The ripe worms ceased to eat, crawled towards periphery of the trays and tried to spin the cocoons and they were hand picked and put on the plastic mountages. The worms spun the cocoons within 48 to 72 hours. The pupae remained inside the cocoons till emergence.

The harvesting of cocoon was carried out on fifth day of release of worms on plastic mountages. Randomly selected ten cocoons of each treatment were used for recording cocoon weight.

RESULTS AND DISCUSSION

The data pertaining to larval period, cocoon yield per 10,000 larvae brushed, disease incidence and cocoon filament length are presented in Table 1.

The results on larval duration of silkworm revealed that the larval duration was lowest in the treatment V-1 (23.06 days). It was followed by Kanva-2, A-1, LMP, T-7, BER-1, P-16 which were at part with V-1. The highest larval duration was recorded when larvae were fed with the leaves of Mizosava variety (24.36 days).

The data on cocoon yield / 10,000 larvae brushed indicated that the larvae fed with leaves of V-1 mulberry variety yielded significantly highest cocoon yield / 10000 larvae brushed (18.96 kg). The next best treatments were Kanva -2, A-1, BER-779 and P-16 which wer at par with each other. The larvae reared on Mizosava leaves gave lowest cocoon yield / 10,000 larvae brushed (15.50 kg) which was at par with T-6 (16.03 kg).

The results on disease incidence revealed that the disease incidence was minimum in the treatment V-1 (3.60 %), which was at par with Kanva -2 (3.95%). The next treatments were BER0779, A-1, T-7, T-6, LMP and P-16. The maximum disease incidence was recorded in the treatment Mizosava (6.75 %) which was at par with BER-1 (6.55 %).

The highest filament length was recorded when the larvae were reared on V-1 mulberry variety (9.70 m) which was at par with Kanva -2 (928 m). The next treatments in decreasing order were BER-1, A-1, BER-779, T-7, T-6, P-16, LMP and Mizosava. Gawade (2006) recorded lowest larval duration in Kanva-2 (22.13 days) which was at par with V-1 (22.23 days) and cocoon yield per 10,000 larvae brushed in V-1 (21.17 kg) followed by Kanva -2 (19.77 kg). Tayade *et al.* (1986) reported that S-54 and Kanva -2 were superior in improving economic traits of mulberry silkworm. Venkatesh and Rayar (2005) observed longer cocoon filament length (963.53 m) in larvae fed with leaves of V-1 mulberry variety. Laxmi and Kaiser (2000) suggested to feed V-1 and Kanva-2 mulberry varieties to reduce disease incidence in silkworm. The findings of the present investigations are more in conformity with the above research workers.

Table 1 : Effect of different mulberry varieties on rearing performance of silkworm (*Bombyx. mori* L.) in Maharashtra

Sr. No.	Treatments	Larval period (hours)	Yield / 1000 larvae brushed (kg)	Disease percentage (%)	Filament length (m)
1.	V-1	23.06	18.96	3.60 (10.94)	970
2.	Kanva-2	23.20	17.50	3.95 (11.39)	928
3.	BER-1	23.50	16.58	6.55 (14.77)	867
4.	T-6	24.10	16.03	4.60 (12.39)	755
5.	T-7	23.46	16.34	4.50 (12.25)	764
6.	BER-779	23.93	17.20	4.25 (11.83)	785
7.	P-16	23.60	16.96	5.65 (13.69)	720
8.	Mizosava	24.36	15.50	6.75 (15.00)	670
9.	A-1	23.30	17.35	4.40 (12.11)	810
10.	LMP	23.40	16.10	4.85 (12.66)	705
	S.E. ±	0.20	0.18	0.21	11.66
	C.D. (P=0.05)	0.62	0.55	0.64	34.61

(Figures in the parenthesis are arcsine values)

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