Comparative evaluation of silk-yield of bivoltine silkworm *Bombyxmori* race NB_4D_2 mediated on various varieties of mulberry during spring season in Jammu division.

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Abstract: Larvae of Silkworm race NB_4D_2 when reared on S_{146}mulberry variety leaves spun cocoons with highest Shell weight (0.430g) , Shell ratio (21.84 %) ,filament length (914.00 m)but other parameter like Denier is found to be lowest(2.49mm) whereas on mixed leaves of both Chakmajra and S_{146}mulberry varieties , the traits like Shell weight (0.366g) , Shell ratio (16.65%) , filament length (701.33m) are found to be minimum but maximum Denier (2.74mm). Variety Chakmajra has attained 2nd rank in all these parameters ; Shell weight (0.400g) , Shell ratio (19.49%) , filament length (804.33m) and Denier(2.65mm).The overall result indicates that the Silk obtained from S_{146} mulberry variety is of better quality whereas mixed leaves yield poor Silk . However , Silk of Chakmajra mulberry variety comes in between these two varieties.

Key words: Silkworm Bombyxmori , Race NB_4D_2 , Mulberry leaves , Reeling Parameters

Introduction

Silkworm (Bombyxmori L.) is a monophagous insect surviving solely on mulberry leaves which is being exploited on commercial scale for its productivity ie. Silk-yield. About 70% protein of Silk is directly derived from mulberry leaves. The nutrient contents of mulberry leaves have a great affects on the growth of Silkworm,, Cocoon crop and finally on raw-silk-yield. Worm health and cocoon characters are highly affected by quality and quantity of food (Koul, 1989;Remadevi et al; 1993).The efficiency of converting the ingested and digested food into body, cocoon and cocoon shell varies among the Silkworm breeds under the influence of mulberry varieties and season (Anantha Raman et al., 1995).

Material and Methods

Commercially exploited Silkworm race NB4D2 of Jammu division was selected for the study. Mulberry varieties viz. Chakmajra,S146 and mixed leaves of both Chakmajra and S146 were selected for feeding the Silkworm during experimentation with the objective to analyze the impact of leaves of different mulberry varieties on Silk -yield of bivoltine Silkworm race under study in Jammu division. Three trials were conducted in the rearing house being provided by the J & K Sericulture Development Department at Basic Seed Station ,Miran Sahib , Jammu, as per the methodology laid by Krishnaswami (1978). Mean record of various characters of the three trials were incorporated in the final results. All the data were sratisticallyanalyzed by applying analysis of variance method.

Data obtained on the reeling parameters of Silkworm race NB_4D_2presented in **table 1.**

Cocoon weight

Cocoons are the ultimate products of Silkworm rearing. There is little but significant difference of cocoon weight on various mulberry varieties viz., Chakmajra (2.052g),S_{146}(1.968g) and mixed leaves of both Chakmajra and S_{146}(2.198g)in case of Silkworm race understudy.

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Table 1. Effect of feeding different mulberry variety leaves on Reeling parameters of Silkworm race NB4D2 during spring season.

Mulberry variety	Reeling parameters				
	Average single cocoon weight(g)	Average single shell weight (g)	Average shell ratio (%)	Average Filament length (m)	Average Denier (mm)
Chakmajra	2.052	0.400	19.49	804.33	2.65
S_{146}	1.968	0.430	21.84	914.00	2.49
Mixed	2.198	0.366	16.65	701.33	2.74
Total	6.218	1.196	57.98	2419.66	7.88
Mean	2.072	0.398	19.32	806.55	2.62
S.E.±	0.0064	0.0033	0.021	23.869	0.016
C.D @5%	0.017	0.0092	0.059	66.12	0.046

Shell weight and Shell Ratio

Significantly highest shell weight and shell ratio of the cocoon was recorded in case of S_{146}mulberry variety 0.430 g and 21.84% followed by Chakmajramulberry variety 0.400g and 19.49% but minimum value of shell weight 0.366g and shell ratio 16.65% were recorded on mixed leaves respectively. This clearly indicates that increase in shell weight is understood to have more shell ratio which also show that cocoons spunned by S_{146}leaves feeding larvae have more silk content. Similar findings have also been made earlier by Haque et al., (1990) who reported that BM-I mulberry variety exhibits better results with regard to shell ratio than BM-3 and BM-2 varieties.

Filament length

S_{146}mulberry leaves feeding larvae spun cocoons of longer filament length of 914.00 m with lowest Denier 2.49mm followed by Chakmajra mulberry variety with filament length 804.33m, and Denier 2.65mm. On the other hand shortest filament length of the cocoons 701.33m with highest Denier 2.74mm were recorded from mixed leaves. The results indicates that shorter filament length, more the denier is not preferable for reeling point of view. Nair et al. (2001) also reported that when cocoon shell is unwound to shorter filament of thicker Denier, the industry may not be keen to accept it widely known.

Conclusion

From all these observations, it is concluded that cocoons obtained from S_{146} mulberry variety have maximum shell weight, shell ratio, filament length but minimum Denier. whereas on mixed leaves lowest shell weight, shell ratio, filament length but highest Denier was recorded in case of Silkworm race understudy.As for as Chakmajra is concerned , it attained 2^{nd} rank in all these parameters. Hence, Silk obtained from S_{146} mulberry variety is of better quality whereas mixed leaves yields poor quality silk. However, Silk of Chakmajra mulberry variety comesin between these two.

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