

# Relative Evaluation of the Effect of the Bacteriosis on the Productivity of Mulberry Silk

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**Abstract – The present investigation provides the effect of bacteriosis on the productivity and quality of the cocoons of mulberry silkworm.**

**Keywords: Bacteriosis, Mulberry Silk, Cocoons, Insect Disease.**

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## INTRODUCTION

The persistent thrust of silk in national and international market has led us to recognise the vital importance of silk. Silk is actually produced by the sericigenous insect which are numerous in nature and some of them are reared economically in the larger interest of our rural economy. It constitutes the main raw material of our chief cottage industry and provides fruitful source of income to millions. The export of silk brings handsome amount of much needed foreign exchange.

Due to various disease, Tasar culture suffers a great loss of crop. Jolly and sen (1972) have reported four kinds of disease in tasar silkworms, viz. Poly hedrosis (Viral), flacheri (Bacterial), pebrine (Sporozon) and Muscardin (fungal). Sen and Jolly (1967) while studying the predisposing factors responsible for the outbreak of varial and bacterial diseases in the Indian Tasar silkworm, have predicted that the viral infection increases significantly with the increase in average atmospheric temperature and relative humidity .The bacterial infection on the contrary increases significantly with the decrease in average temperature and relative humidity. Various authors Ashan [1982], Bariar and Sharma [1996], Griyaghey et.al [1974], Jolly and Agrawal [1975], Kumar and Sharma [1992], Sharma [2005], and Sharma, Krishna, Kaur and Rajesh [2015], have worked out in the field of mulberry seetor for improving the productivity and quality of mulberry silk produced by Bombyx- mori. Among the different factors affecting the productivity and quality of silk, the impact of diseases has been found to be very serious. Here we shall provide and discuss the effect of bacteriosis on the productivity and quality of cocoons of mulberry silk insect.

## MATERIAL AND METHOD:

Bombyx-mori prevailing in tropical and temperate belts in our county was evaluated in relation to effects of bacterial infection on the productivity and qualities of the cocoon as well as on silk fiber. The eggs from bacterial infected moths were collected. A lot of eggs divided into five replications (50x5)

was incubated at  $26^{\circ}\text{C} \pm 1$  temperature. The hatched larvae were brushed on the chopped leaves of mulberry plant. The rearing were carried out till cocoon formation during both the seasons of rearing. The data in relation to productivity, cocoon volume, cocoon weight, shell weight, shell ratio, filament length and Denier in relation to bacterial infection among two different seasons were recorded in the Tables. A control was also maintained for the relative evaluation of the impact of bacteriosis under diseased and non diseased in respect of productivity and qualities of cocoons and silk fiber.

### Observation:-

The impact of bacteriosis on the productivity and quality of mulberry cocoons during the seed crop and the commercial crop seasons have been examined and the results so obtained have been presented in the Tables – 1 and 2.

Table- 1 reveals that the percentage of E.R.R. (8.0), volume of cocoon (10.51cc), cocoon weight (80%), filament length (493 mtr) and denier (2D) are relativity inferior than its control. The percentage of E.R.R. (26.0), volume of cocoons (11.0 cc), cocoon weight (5.95 grm), shell weight (0.78 grm.) shell ratio (9.95%), filament length (590) and denier (3D) are evidently superior than the bacteriosis lot of mulberry silkworm during the seed crop season.

Similarly the Table - 2 accounts for the impact of bacteriosis on the productivity and the quality of cocoons during the commercial crop season. Table shows that the percentage of E.R.R. (9.0), volume of cocoon (10.61 cc), cocoon weight (4.86 gm), shell weight (0.65 gm), shell ratio (8.81%), filament length (498 mtr) and denier (3D) are inferior to its control. The percentage of E.R.R. (28.0) volume of cocoons (11.81cc), cocoons weight (2.92gm), shell weight (0.85 gms), shell ratio (10.10%) filament length (610 mtrs) and denier (4D) of the control lot are evidently superior than the bacteriosis lot. It is further clear that the percentage of E.R.R. and filament length are highly significant. When the bacteriosis lot and the control lot are being compared the seasonal differences have been also found to be highly significant. The commercial crop season has been found to be superior than the seed crop season as far as the qualitative and quantitative characters of mulberry silk are concerned

**Table – 1**

Table showing impact of Bacteriosis on the productivity of mulberry silk, worm during the crop season.

Replication	No of worms Mounted	E.R.R. (%)	Cocoon Volume (cc)	Cocoon Weight (gm)	Shell Weight (gm)	Shell Ratio (%)	Filament Length (mtr)	Denier of Fibrine
1	50	8.00	10.51	4.54	0.61	8.00	493	2D
2	50	7.98	10.53	4.55	0.63	8.00	492	2D
3	50	7.99	10.50	4.53	0.62	7.93	494	2D
4	50	8.05	10.52	4.53	0.59	8.10	493	2D
5	50	8.10	10.51	4.55	0.60	7.92	494	2D
Av.	50	8.00	10.51	4.54	0.36	8.00	493	2D
Control	50	26.0	11.00	5.95	0.78	9.95	590	3D
C.D. at 0.5% level for characters		**	*	*	*	NS	**	*

\*\* highly Significant, \* : Significant, NS: Not Significant

**Table- 2**

Table showing effect of pebrine disease on the Productivity of Mulberry Silk, worm during the Commercial Crop Season.

Replication	No of worms Mounted	E.R.R. (%)	Cocoon Volume (cc)	Cocoon Weight (gm)	Shell Weight (gm)	Shell Ratio (%)	Filament Length (mtr)	Denier of Fibrine
1	50	9.00	10.61	4.86	0.65	8.10	493	3D
2	50	9.12	10.63	4.85	0.64	8.82	499	3D
3	50	8.94	10.62	4.84	0.66	8.80	496	3D
4	50	8.99	10.59	4.88	0.67	8.81	495	3D
5	50	9.00	10.60	4.85	0.63	8.81	499	3D
Av.	50	9.00	10.61	4.86	0.65	10.10	498	3D
Control	50	28.0	11.81	5.92	0.85	NS	610	4D
C.D. at 0.5% level for characters		**	*	*	*	NS	**	*

Note :- \*\*: Highly Significant \* Significant NS : Not Significant

weight, filament length and denier during the seed crop and commercial crop season. Seasonal variations in respect of productivity and quality of cocoons have been observed. Commercial crop season is relatively better than the seed crop season. Results obtained become very clear when one considers the fact that different pathogens causing different diseases are different species and have different mode of sterilants used on egg surface provide better result to a desired extent.

## REFERENCE:

1. Ashan, M. M. (1982). Breeding behavior of diseased silk worms under different condition, Ann. Rep. C.T. R.S., pp. 84-86.
2. Bariar, A.K. and Sharma, K.B. (1996). Effect of different disease on the qualitative characters of silk cocoons, Bull pure and applied sciences vol. 15, pp. 19-21
3. Griyaghey, V.P; Sen, S. K. and Jolly, M.S. (1974). Int. Proc. Non. Mulb., Vol. I, pp. 203 - 206
4. Jolly, M.S. and Sen, S.K. (1972). Ind silk, Feb., pp. 17-18
5. Jolly, M. S. and Agrawal, S. C. (1975). Ann. Rep. C.T.R.S., Ranchi. Proj. 2 : 1, pp. 65-69.
6. Kumar, A. and Sharma K.B. (1992). Bio-Journ, Vol. 4, pp. 98-101
7. Sen, S. K. and Jolly, M. S. (1967). Ind Seri. (1), pp. 67-72
8. Sharma K.B. (2005). Some investigation on the bio- Pathological Manifestation of tasar silk worm : Proc. Zool. Soc (2), pp. 75-77
9. Sharma, A., Krishna, V., Kaur, P. and Rajesh, R. (2015). Characterization and screening of various mulberry varieties through morpho-biochemical characteristics J. of Global Biosciences, Vol. 4 (1), pp. 1186–1192.

## DISCUSSION AND CONCLUSION:

The present investigation deals with the impact of bacteriosis on the productivity and the quality of the cocoons of mulberry silk insect. Larvae infected with bacteria have been evaluated in respect of percentage of E.R.R. cocoon volume, cocoon weight, shell weight, shell ratio, filament length and denier. It has been found that the bacterial infection significantly reduces the E.R.R. percentage, shell

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