

Effect of Pebrine Disease on the Productivity of Mulberry Silkworm

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ABSTRACT

The present communication deals with the impact of pebrine disease on the productivity and quality of the cocoons of mulberry silk insect. There are four types of disease in which pebrine disease is of very serious nature and causes significant loss of productivity and quality of cocoons.

1. Introduction

Tasar culture which is of great commercial interest suffers heavy loss of crop due to various disease. Jolly and Sen (1972) have mentioned four kinds of diseases. Viz; polyhydrosis (Viral), Flacherie (Bacterial), Pebrine (Sporozon) and Muscardine (Fungal) to affect the quantitative and qualitative characters of mulberry silk. Here we shall investigate the effect of pebrine disease on the productivity of mulberry silk.

2. Material And Method :

The effect of Nosema infection causing pebrine disease among mulberry silkworm, Bombyx-mori, in respect of productivity and qualities of cocoons were examined. The

mother moths having Nosema infection have been considered for egg suffering from sporozoosis divided into five republication (50x5) were collected and further incubated at 26°C± temperate till hatching of the 1st instar larvae. The newly hatched Larvae were mounted on the foliages of mulberry host plants. The cocoons were harvested carefully and analysis in respect of E.R.R. Volume, shell weight, shell ratio, Filament and denier were made. The records in respect of qualities of cocoons and mulberry silk fibres during both the seasons were collected and finally presented in the table. A control was also maintained in respect of different characters in order to understand the relative differences between diseased and non-diseased conditions.

Table – 1

Table showing effect of pebrine disease on the productivity of mulberry silk worm during the seed 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	6.0	10.12	4.35	0.63	8.93	495	2D
2	50	6.0	9.98	4.29	0.65	8.95	493	2D
3	50	7.0	9.95	4.31	0.68	8.98	492	2D
4	50	5.0	10.14	4.28	0.65	8.94	490	2D
5	50	6.0	10.12	4.4	0.64	8.92	491	2D
Av.	50	6.0	10.10	4.32	0.65	8.95	493	2D
Control	80	26.0	11.32	5.95	0.78	9.95	590	3D
C.D. at 0.5% level for characters		**	*	*	*	*	**	NS

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	7.0	10.05	4.95	0.71	9.1	510	3D
2	50	6.0	10.01	4.93	0.72	9.91	512	3D
3	50	7.0	10.13	4.94	0.71	9.92	511	3D
4	50	7.0	10.19	4.95	0.72	9.91	511	3D
5	50	7.0	10.02	4.92	0.74	9.92	512	3D
Av.	50	7.0	10.32	4.83	0.72	9.91	511	3D
Control	80	28.0	11.81	5.92	0.85	10.1	610	4D
C.D. at 0.5% level for characters		**	*	*	*	*	**	NS

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

3. Observation :

It appears from the table I that the E.R.R. percentage (6.0) Cocoon volume (10.10cc) cocoon weight (4.32), shell weight (0.65), shell ratio (8.95%), filament length (493) get affected due to the impact of pebrine disease during the seed crop season. The control lot has shown its supremacy in respect of E.R.R. percentage (26.0), cocoon volume (11.32cc), cocoon weight (5.45gm), shell weight (0.78 gm), shell ratio (9.5%), filament length (590 mtr) and denier (3D) over the treated lot.

Table- 2 show during commercial crop season that the percentage of E.R.R. (7.0), cocoon volume (10.32cc), cocoon weight (9.91%), Filament length (511 mtr) and denier (3D) are inferior than its control due to the effect of disease. The control lot has the percentage of E.R.R. (28.0), cocoon volume (11.81 cc), cocoon weight (5.92 gm), shell weight (0.85 gm), shell ratio (10.10%), filament length (610 mtr) and denier (4D) which show supremacy over the treated lot.

It is thus clear that the pebrine disease evidently affectly the productivity and quality of the mulberry silkworm. The commercial crop season has its supremacy over the seed crop season.

4. Discussion:

Result have indicated that the pebrine disease is of very serious nature and causes significant loss of productivity and quality of cocoons. The effecting rate of rearing, cocoon

weight, shell weight, filament length and denier get adversely affected due to pebrine disease. Jolly and Sen (1972) have reported that this disease appears in the forms of epidemic and destroy the entire crop due to rapid spread of spores of the pathogen causing the disease. The relative potential of pathogen causing pebrine disease has been found to be greater in comparison to the other pathogen causing the disease among the serigenous insects (Sharma, 2005). Thus the results obtained become very much conclusive and raises no doubt that the pebrine disease owing to its greater potential of pathogen and serious mode of infection causes relatively greater harm in relation to productivity and quality of cocoon among the mulberry silk insects.

5. Summary and conclusion :

Laying from the pebrine infected mother of *Bombyx-mori* was prepared and the hatched larvae were reared on the foliage of the mulberry host plant under the domesticated condition during the seed crop and commercial crop season. Results are indicative of the fact that the pebrine disease caused by nosema infection (Protozoon Parasite) seriously affect the productivity as well as quality of the cocoon and silk yarn. Seasonal variations in respect of productivity and quality of cocoon have relatively better than the seed crop season.

From the investigations, it is clear that the pebrine disease cause much harm as compared to other disease. Steriliants used on egg surface provide better results to a desired extent.

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