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Impact of Virosis & Bacteriosis on the Productivity & Quality of Tasar Cocoons of Antheraea Mylitta Drury

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ABSTRACT
Present scenario tasar culture suffer great loss of crop due to diseases in tune of 20% to 50%.The present communication accounts of viral, fungal &bacterial infection very prominent in the tropical tasar silkworm. Antheraea mylitta D are economic character of tasar. The result obtained have clearly revealed that the effective of cocoon weight, shell weight, shell ratio and rate of rearing and filament length and size of tasar silkworm. Thus the impact of disease has been found of serious nature affecting metabolic processes and productivity, quality of tasar cocoons as well as the quality of tasar silk yarn during the seed crop and commercial crop seasons.
The result obtained by very much in confirms with the earlier work carried out by Jolly et al.(1984). Chowdhury (1965), Sharma & Ambastha (2012). Sharma & Ranjan (2002).
KEY WORDS:- Antheria mylitta D., tropical tasar silk worm, filament length & size, virosis, Bacteriosis.

I. INTRODUCTION

A. mylitta D is a gall form insect. It distribution with varied tropical countries like India, Srilanka, China, Thiland etc. suffer mainly face diseases, like sporozoasis, virosis bacteriosis & mycosis. It is endemic to forest of Bhagalpur & Munger district of Bihar. The impact of bacteriosis & virosis on the productivity & quality of tasar silk yarn are also reported to cause significant harm and loss of crop reported Jolly & Sen (1979).

As a matter of fact silk producing insects suffer great loss of crop. It retards the proper growth and development of a silkworm length & width of the worm get shortened, thus it is commonly known as short worm disease. The mycosis diseases more or less like it further known that the said diseases are caused due to the pathogens having different nature & mode of infection. Attempts have been taken to understand the general pathological conditions behavioral manifestations. The pathological aspects are still in the initial stage of investigation.

Abnormal food in the form of bad quality leaves causes digestive trouble followed by the increases of intestinal bacteria. The leaves of T. Arjuna trees infected quality or potassium deficiency has been found to be the major causes of virosis & bacteriosis.

II. MATERIAL & METHOD

The present study obtained wild area at Bihar & Jharkhand & M.U. sericulture lab as the symptoms in the infected larva virosis stand with loss of appetite in sluggishness. The body becomes of soft & turns slightly brownish. In about six hours the feeding ceases and the larva becomes immobile. After another 12 hours the body loses its natural shape, distends lengthwise and turns brownish. The larva dies in about 24 hrs. The appearance of symptoms depth it hangs head down ward remaining attached to the host twig only with the help of its claspers; and dark brawn fluid & oozes out it drops from the moths.

The skin after death is so fragile that it gets ruptured even with a slight injury. The body colour which is brown initially turn to dark and then blackish in about 12hrs.death. The dead larva emits obnoxious odour at this stage & another 24hrs.becomes mass of melted tissue.

The individuals have been observed to succumb during spinning after pupation and even on emergence. The dead pupae melt typically making the cocoons dirty. The infected moth passes flaccid body with crumpled small wings. The cocoons farmed by the infected larvae are flimsy. Mere or less identical symptoms have been noticed in the viral diseases of other species of Antheriaea militta D. However different authors connect the virosis of the former three species (Grasse) with additional symptoms like “flabby body” (Antheraea asselmensis) and Antheraea Pernyi) and discharge of soft excrement” (A Pernyi and A yamamai).

A standardized technique for isolating cytoplasm, polyhedral viruses in pure form from Antheraea myllita D consist in dissolving polyhedral in 20% sodium carbonate for 30 sec (A. mylitta) followed by centrifugation.

III. RESULTS &DISCUSSION

The results were affected of cocoons & rate of rearing weight. Shell weight and mostly silk production.

A. mylitta were slit up by minimum pH changes into the virus and its protein in solution. The study has shown that the virus particles consist of and inner core and outer protein shell. The inner core contains 12 large sub-units but made up of large number of much small sub-units but this number in not yet known. It has been possible to reveal the paracristal lattice in the cytoplasm polyhedral from A. mylitta D after treatment with alkaline pH.

Actually little is known about the causative agents of the bacteriosis in Antheraea Gram negative bacteria microscopic & Gram positive bacilli (Isolated rods) and big rods in chain have been observed in the larvae of Antherea mylitta D showing SAL,CTE and RP in the individuals having these symptoms in the bacterial flora detected has not yet been categorized.

The protozoan disease of Antherea mylitta D. is caused by a microsporidian, which is mono sporoblastic in nature the spore of Nosema are bright, oval in shape but vary in size they are 5.80+ 1.16 µ in length and 2.30+ 0.46µ in width.

Antherea mylaitta D. rearing the estimated crop has to diseases is to extent of 40% polyhedrosis accounts for about 20% while the loses due to bacteriosis and mycosis and 15% and 5% respectively, Among the bacterial diseases the incidence of SAL is highest(8%) whereas CTE ranks next(5%) the lowest damage has been recovered with RP(2%).

The incidence of mortality as a result of different infections is not indention in all the rearing seasons. During first season the mortality due to polyhedrosis is much higher as compared to bacteriosis; the ratio being (70:30), It is almost reverse during the second season (40:60) However out of the total bacterial casualty, the relative incidence ratio for SPL, CTE&RP remain nearly the same (60:30:10) during the rearing seasons third crop the major loss is due to bacterial diseases. The total diseases mortality in Antheraea mylitta D rearing is about 25%. However in respect of viral and bacterial diseases the eastern and western zones the mortality due to bacterial infections is more than eastern zone, where the viral infection is predominating.

The most common mode of transmission of polyhedrosis in Antheraea mylitta D is per oral. It has been shown that any concentration of polyhedral suspension above 0.005% feed to the first instars larvae by smearing uniformly over the egg surface is lethal. Even under the dose 0.005 %(100eggs/ml) which has been established to be sub lethal, larval, pupa& adult mortality to turn 50.0%, 10.5% and 4.9% respectively. Among the emerged moths which looked apparently normal about 3%infection was detected.

There is no evidence in favour of transoviral transmission of polyhedral virus in Antheraea mylitta D Rearing of the eggs of infected mothers with and without surface sterilization has revealed that while in latter the total larval morality due to polyhedral transmission. It this insect the larval hatching out of the egg from infected mothers have been shown to die in the first instars itself.

The fact the several female moths of Antheraea mylitta in spite of having the Nosema infection emerge as appenenthy normal adults indicates that these survivors harbor non-progressive or late infection acquene either transovarially or per orally during their larval period the fecundity of such female and hatchability of the eggs wane found to be greatly reduced.

The female were capable of transmitting the parasite transversally, the progenies mostly developed progressive infection and succumbed to the pathogen. A few pupae obtained (4%) were carrying the infection.

The transmission of the bacteriosis is only per oral. There is no indication whatever of a transoviral transmission of the bacterial infections. It has been seen that fecundity of the bacterial infected mother moths and the hatchability of the eggs were normal. The pregenesis of these female when reproduced behaved like those of infection free mothers.

The exciting cause of diseases depends upon certain contributing or predisposing factors, important factors which have been seen to contribute towards the quick multiplication humidity, respiration, density of population nutrition age & traumatism.

It has been observed that high temperature associated with high humidity creates a congenital pathological state for provoking virosis in Antherae mylitta D while the induction of bacteriosis is accelerated with the disease in these two factors. The seasonal & Zonal variation shown in respect of the incidence of bacterial and viral diseases of Antherae mylitta are mainly attributed to the influence of atmospheric temperature and humidity which varies at different places owing to change of the altitude. In A. mylitta high humidity has been held responsible for the appearance of mycosis.

The respiratory disturbances resulting in successive alternation of digestive, nervous and muscular systems provide condition for the micro organism to grow different as covid-19 in human being.

They have noted worked out by Jolly et. Al (1974) and chowdhury (1965). They have noted the symptoms of virosis, bacteriosis sporozoasis & mycosis in tasar silk worm. They have mentioned that the virosis in silk insects is recognized with loss of appetite resulting in sluggishness. The body becomes soft & turns slightly pale in about 6 hours the feeding ceases and the larva become immobile, larva die in about 24 hours after the appearance of symptoms on death it hangs head downwards, remaining attached to the host twig only with the help of claspers and dark brown flood oozes out it drops from the mouth. The silk worm infected with the viral has been observed to succumb during spinning, after population and even on emergence. The infected moth posse's flaccid body with crimpled small wings. The cocoons formed by the infected larvae are flimsy Sharma & Ambastha (2013) has mentioned the different symptoms of Antheraea mylitta D under bacterial infection.

Table 1. Weight gain of A. mylitta during T. arjuna leaves on food plant and Instar.

Instar	**Wt. Gain**	**Primary Food plant**	**Wt. Gain**	**Coeff.of Deviation at 5%**
1st	0.0066	1st	0.1620	0.0016
2nd	0.0305	2nd	0.1756	0.0704
3rd	0.1122	3rd	0.1848	0.0116
4th	0.5500	4th	0.2000	0.0233

Table 2. Mean value of Environmental conditions and economics traits of Antherae mylitta D in relation. Environmental conditions (Temp. C^0 RH% and Rainfall in cm)

Economic Traits	**E_1**	**E_2**	**E_3**	**CD at 5%**
Min Temp	20	22	24	0.0030
Max. Temp	26	26	35	0.0068
Fecundity	175	200	160	0.0190
Hatching%	50	75	38	0.0115
ERR%	35	59	22	0.0175
Larval Span(day)	20	35	60	0.0188
Cocoon wt.(g)	12.00	16.00	10.00	0.0087
Shell wt. (g)	1.5	2.5	1.5	0.0121
Absolute silk yield (g/dif.)	50.00	150.00	125.00	0.0001
Filament length (m)	550	900	600	0.0105

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