

Relative effects of constant temperature at egg surface level on the quantative and qualatative characters of *antheraea mylitta* during seed crop season

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Abstract : Temperature play important role in the economy of the organism. The process of incubation carried out at different temperatures at egg level is supposed to accelerate or stimulate the metabolic changes in positive or negative direction. It is because the metabolic changes at egg level in respect of enzymatic action requires optimum or conducive temperature of incubation for proper growth and development at embryonic stage. It is also logical to assume that the growth and desired development at initial level contribute to subsequent development as controlled and regulated by incubation temperature.

(Keywords : Tasar, silk, *Antheraea mylitta*)

Introduction

The production of precious silk is essentially based on sericigenous insects, which are abundant in nature, but some of them are reared commercially under outdoor conditions for the invigoration of our rural economy. The premier of our silk producing insect, *Bombyx-mori* is domesticated and is famous for producing beautiful mulberry silk. However, it was itself a wild worm at a time, but this has been forgotten by us. The non-mulberry silk worms are by and large wild and polyphagous in nature and these are usually cultured under natural conditions on the various food plants in the forest areas by aboriginals, tribals and by underprivileged class of our society for their economic sustenance.¹⁻⁵

At the global level, the main silk producing countries are China, Japan, India,

U.S.S.R. , Korea, Brazil, Sri Lanka and Madagascar producing about 51, 400 tones of valuable silk for the purpose of dress making materials and also as an earner of foreign currency. However, India has the unique distinction of being the only country on the world silk map, which produces all the four popular varieties of natural silk viz. taser, eri, muga and mulberry. sericulture today is being practised in the mulberry and non-mulberry sectors for the uplift of seri-culture industries.⁶⁻⁸

Tasar culture in India is not an industry but a tradition. For long it remained obscure as an exclusive craft of tribals and hillfolks inhabiting the forests of Central and North Eastern India. It was in the recent past that this tribal tradition assumed importance and attracted attention at a national level. The rich production potentialities within the country and a steady demand of the products outside, promoted commercial exploitation of this craft, which culminated in the transformation of an age old tradition to an industry of immense potentiality.⁹⁻¹²

Tasar, today, is an indispensable and growing part of tribal culture and a medium for the transformation of the whole rural economy in relation to the entire national structure. The industry has rich national resources (food plants) and man-power (tribals) and the challenge is to utilize these to bring about a balanced development in keeping with their traditions and the way of life.

TABLE : 1
Relative effects of 30°C constant temperature at egg surface level on the quantitative and qualitative characters of *Antheraea mylitta* during seed crop season.

S.No.		Replication (No. of Eggs)	Hatching %	E.R.R. %	Cocoon Wt. (gm)	Shell Wt. (gm)	Shell ratio (%)	Filament length (mtr)
Experimental Lot	1.	20 × 5	68.0	42.0	11.92	1.52	10.59	729
	2.	20 × 5	70.0	43.0	11.95	1.56	10.60	730
	3.	20 × 5	69.0	43.0	11.98	1.58	10.62	731
	4.	20 × 5	71.0	41.0	11.97	1.53	10.61	732
	5.	20 × 5	72.0	41.0	11.95	1.54	10.61	730
	Av.	20 × 5	70.0	42.0	11.96	1.54	10.62	731
Control		20 × 5	64.0	28.0	11.00	1.10	10.21	680
C.D. at 0.5% level for characters			* *	* *	*	*	*	*

E.R.R. = Effective Rate of Rearing * * = Highly significant * = Significant N.S.= Not Significant

Experimental

A lot of 500 eggs divided in to four replications (125 × 4) were subjected to variable temperature of 30°C-25°C-35°C and 25°C-10°C-30°C in a set during the incubation period for both the seasons. The variable temperature treatment on eggs at 30°C for 24hr., 35°C for 24hr. and 35°C till hatching was given. The results in respect of various economic characters were carefully collected during both the seasons and recorded in the tables. The rearing of hatched larvae was carried out on Arjuna host plant under outdoor conditions. The harvesting of cocoons were carried out and analysis of the cocoons in respect of economic characters of tasar was made as per the method suggested .

Results and Discussion

Table 1 further shows that the percentage of hatching (70.0 : 64.0), E.R.R. percentage (42.0 : 28.0), cocoon weight (11.96 : 11.0gm), shell weight (1.54 : 1.10gm), shell ratio (10.62 : 10.21) and filament length (731 : 680mtr) between the treatment and control at a constant temperature of 30°C during the seed crop season present evident variation in respect of fecundity, productivity and also quality of cocoons of *Antheraea mylitta* during the seed crop season. The percentage of hatching, E.R.R. along with cocoon weight, shell weight and filament length have been found to account for the significant variations.

Table - 2 :**Relative effects of 30°C constant temperature at egg surface level on the quantitative and qualitative characters of *Antheraea mylitta* during commercial crop season.**

S.No.		Replication (No. of Eggs)	Hatching %	E.R.R. %	Cocoon Wt. (gm)	Shell Wt. (gm)	Shell ratio (%)	Filament length (mtr)
Experimental Lot	1.	20 × 5	72.0	44.0	12.10	1.61	10.73	740
	2.	20 × 5	71.0	45.0	12.08	1.62	10.72	741
	3.	20 × 5	69.0	43.0	12.06	1.62	10.71	740
	4.	20 × 5	73.0	44.0	12.11	1.61	10.70	742
	5.	20 × 5	71.0	43.0	12.09	1.61	10.72	741
	Av.	20 × 5						
Control		20 × 5	65.0	29.0	11.32	1.18	10.38	710
C.D. at 0.5% level for characters			*	* *	*	N.S.	*	* *

E.R.R. = Effective Rate of Rearing * = Highly significant * = Significant N.S.= Not Significant

Likewise table 1 reveals the effect of 30°C temperature at egg level in respect of hatching, productivity and quality of cocoon during the commercial crop season. Table reveals that the percentage of hatching (71.0 : 65.0), E.R.R. (43.0 : 29.0), cocoon weight (12.09 : 11.32), shell weight

(1.61 : 1.18), shell ratio (10.72 : 10.38) and filament length (741 : 710) between the treatmental lot and control present significant variation and evidently shows the superiority of 30°C temperature of incubation over the control in respect of characters.

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