WORLD JOURNAL OF PHARMACEUTICAL RESEARCH
SJIF Impact Factor 8.074
Volume 7, Issue 18, 836-840. Research Article ISSN 2277– 7105

RELATIVE REARING PERFORMANCES OF DIFFERENT ECO-TYPES OF ANTHERAEA MYLITTA D. (SATURNIIDAE: LEPIDOPTERA)

Deepti Kumari[1]*, S.N.P. Yadav Deen[2] and Sarfaraz Ali[3]

[1,2]University Department of Zoology, M.U., Bodh-Gaya.

[3]P.G. Department of Biotechnology, M.U. Bodh Gaya.

Article Received on
21 August 2018,

Revised on 10 Sept. 2018,
Accepted on 01 Oct. 2018,

DOI: 10.20959/wjpr201818-13499

***Corresponding Author**
Deepti Kumari
University Department of Zoology, M.U., Bodh-Gaya.

ABSTRACT

The present communication accounts for the relative rearing performances of Daba, Raily, Modal and Bhandara, the popular eco-types of indigenous tasar silk producing insect distributed over different ecological habitats in the tropical tasar silk producing belts of our country. The results obtained are indicative of the fact that all the four ecotypes of *Antheraea mylitta D* differ among themselves in respect of productivity and quality of tasar cocoons evidenced by E.R.R. % cocoon weight, shell weight and shell ratio presenting evident variations in course of rearing manifestations. The rearing performances of Daba (Jharkhand) followed by Raily (Madhya Pradesh) have registered their supremacy over Modal (Orissa) and Bhandara (Maharashtra) in relation to relative results obtained. The results obtained appear to be the outcome of relative impacts of different ecological conditions of respective eco-habitats of eco-types where they have adjusted and Acclimatised differentially since years together for essential survival.

KEYWORDS: Eco-types, Daba, Raily, Modal, Bhandara, Bivoltine, Saturniidae.

INTRODUCTION

Antheraea mylitta D. belonging to family Saturniidae of order Lepidoptera is a famous indigenous tasar silk producing insect found in the different ecological habitats of tropical tasar silk producing belts of our country. It is bivoltine, wild and polyphagous sericigenous insect and exists in the forms of several ecotypes distributed to various ecological habitats since long where they have locally adjusted, adapted and acclimatised accordingly with their existing ecological conditions and are today recognised as locally adapted types known as

eco-types of *Antheraea mylitta*. The popular eco-types of *Antheraea mylitta* are Daba (Jharkhand), Raily (Madhaya Pradesh), Modal (Orissa) and Bhandara (Maharashtra). Jolly, et al. (1979) mentioned that the eco-types of *Antheraea mylitta* D. inspite of having the same chromosomal number differ among themselves in their behavioural manifestations on account of impact of different ecological conditions of their respective eco-habitats. Kumar and Sharma (1996) mentioned that the ecological factors of habitats influence the biological activities of sericigenous insects to a greater extent and present evident variations in respect of their relative quantitative and qualitative manifestation.

Anonymous (2006) reported the behavioural activities of vanaya silk producing non-mulberry sericigenous insects showing variations in their relative rearing performances under wild conditions. The taxonomic position of Indian non-mulberry silkworms has been worked out by Arora, et al. (1979). Kumar, et al. (2017) found significant variation in respect of coupling behaviour of tasar moths under different conditions. Mishra (2014) revealed the role of dietary and seasonal changes on the growth and development of tropical tasar silkworm. Mohanthy, et al. (2007) studies the bionomics of eco-races of *Antheraea paphia* in relation to different ecological factors and found evident variation in their relative biological manifestations in respect of rearing and breeding performances. Pandey (2012) reported the impact of subtropical environment on the survival of sericigenous insects in relation to seasonal changes. Roy, et al. (2010) revealed a comparative analysis on the rearing performances of some eco-races of eri silkworm, *Philosamia ricini* in relation to seasonal changes and found that the seasonal changes have profound impact on the rearing activities of eri silkworm in respect of productivity and quality of eri cocoons. Singh, et al. (2012) reported the relative impact of different host plants of silkworms presenting significant variation in productivity and quality of cocoon as well as quality of silk yarn.

MATERIALS AND METHODS

The healthy and disease free tasar cocoons of four different ecotypes of *Antheraea mylitta* Viz; Daba (Jharkhand), Raily (Madhya Pradesh), Modal (Orissa) and Bhandara (Maharashtra) were collected from their respective ecological habitats. The collected cocoons were assorted and analysed under laboratory conditions and kept for acclimatisation for a week. After this entire grainage operations were carried out as per the methods suggested by Krishnaswamy, et al. (1973). A lot consisting of 100 freshly hatched larvae divided into five replications (20×5) for each ecotypes of *Antheraea mylitta* were mounted on the *Terminalia*

arjuna host plants and allowed feeding on tender and mature foliages till the formation of tasar cocoons by four different ecotypes. The Data in respect of relative rearing performances of four ecotypes in relation to productivity and quality of tasar cocoons were collected separately and after analysis presented in Table 1. The rearing were carried out during the seed crop (July - August) and commercial crop (September - October) seasons.

RESULTS AND DISCUSSION

The results obtained in relation to relative rearing performances of four common ecotypes (Daba, Raily, Modal and Bhandara) of *Antheraea mylitta* during the seed crop and commercial crop seasons in respect of effective rate of rearing (E.R.R.%), cocoon weight, shell weight and shell ratio of tasar cocoons account for significant variations as per table 1.

Table clearly reveals that the effective rate of rearing (58.5%, 53.6%, 48.5% and 45.4%), cocoon weight (12.83gm., 12.95gm., 11.38gm. and 10.25gm.), shell weight (1.81gm., 1.78gm., 1.61gm. and 1.58gm.) and shell ratio (12.75%, 12.62%, 11.71% and 11.48%) of Daba, Raily, Modal and Barharwa ecotypes of *Antheraea mylitta* during the seed crop season as well as effective rate of rearing (60.0%, 55.3%, 51.5% and 48.4%), cocoon weight (12.98gm., 12.99gm., 11.79gm. and 10.53gm.), shell weight (1.97gm., 1.96gm., 1.65gm. and 1.61gm.) and shell ratio (12.97%, 12.93%, 11.89% and 11.60%) of said four ecotypes during the commercial crop season present evident variations among themselves as far as the productivity and quality of tasar cocoons are concerned.

Further the results obtained are indicative of the fact that the rearing performances of Daba (Jharkhand) and Raily (Madhya Pradesh) in respect of productivity and quality of tasar cocoon as compared to Modal (Orissa) and Bharharwa (Maharashtra) are by and large relatively better and significant. However, the relative rearing performances of all the four different ecotypes of *Antheraea mylitta* are better during the commercial crop season than the seed crop season inspite of relative differences among themselves which accounts for the significant impact of seasonal changes on the rearing performances of ecotypes of *Antheraea mylitta*.

The results so obtained are presumed to be the outcome of the relative impact of different environmental factors on different eco-habitats of ecotypes constantly influencing since years together in a process of adjustment, adaptation and acclimatisation of tasar worms with changed eco-physiological make up as such resulting into variations in relative rearing

performances of four different ecotypes of ***Antheraea mylitta*** D. The results obtained are very much at par with the earlier investigations carried out by different sericologists and stand to meaningful and logical conclusion.

Table 1:

S. N.	Eco-types of A.mylitta	Seed Crop				Commercial Crop				C.D. at 0.5% level for seasons
		E.R.R. (%)	Cocoon weight (gm.)	Shell weight (gm.)	Shell ratio (%)	E.R.R. (%)	Cocoon weight (gm.)	Shell weight (gm.)	Shell ratio (%)	
1	Daba (Jharkhand)	58.5	12.83	1.81	12.75	58.5	12.83	1.81	12.75	*
2	Raily (M.P.)	53.6	12.95	1.78	12.62	53.6	12.95	1.78	12.62	*
3	Modal (Orissa)	48.5	11.38	1.61	11.71	48.5	11.38	1.61	11.71	*
4	Bhandara (Maharashtra)	45.5	10.25	1.58	11.48	45.5	10.25	1.58	11.48	*
C.D. at 0.5% level for characters		**	**	*	*	**	**	*	*	

: **Highly Significant

*: **Significant**

REFERENCES

1. Anonymous Vanaya silks. An introduction to Vanaya silk C.S.B. Ministry of Textiles. Govt. of India, 2006; 1: 3-129.
2. Jolly, M.S. and Prasad, G.K. Non-mulberry silks. F.A.O. Agri, Services Bull., 1979; (29): 45-50.
3. Kumar, P.; Sharma, K.B. and Ali Sarfaraz Studies on the coupling behaviour of different tasar moths under various artificial conditions. Int. Journ. of current research, 2017; (9): 53384-54387.
4. Krishnaswamy, S.; Narshimhana, M.N. and Suryanarayan, S.K. Sericulture Manual-2, Silkworm rearing. F.A.O. Agri. Services Bull., 1973; 15/2: 1-131.
5. Mishra, K. Role of foliar constituents and seasonal changes on the growth and development of tropical tasar silkworm. Bio-Scan, 2014; (6): 291-295.
6. Mohanthy, P.K.; Satapathy, R. and Mohanthy, S. Bionomics of eco-races of *Antheraea paphia* Linn., Proceed. 94th India Science Congress No. 2007; (121): 104.
7. Pandey, R.K. Impact of subtropical environment on the silkworm survival. Eco-Scan, 2012; (1): 307-309.

8. Roy, P. and Das, P. Performance of promosing eco-races of eri silkworm (*Philosamia ricini*) in agro-climatic condition of West Odisha. Bio-Scan, 2010; 5(2): 201-205.
9. Singh, B.K. and Prakash, J. Bio-resources of silkworm and its host plants. Eco-Scan, 2012; (1): 473-478.