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Research Paper

RELATIVE IMPACT OF DIFFERENT METHODS OF TASAR SILK LARVAL CULTURE IN RELATION TO LARVAL PERIOD AND THERE PRODUCTIVITY

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Abstract

Tasar silkworm, *Antheraea mylitta* D. a wild tropical serigenous insect, reared in outdoor conditions is facing pest and predators problems that lead to extremely low cocoon yield. So for increasing the productivity of the cocoon in relation to quality and quantity we use different methods of larval culture. Other than the outdoor we use indoor, chawaki and artificial diet methods for larval culture and then we studied their effect on productivity of cocoon in relation to E.R.R(%).

Key words: *Antheraea mylitta*, Serigenous insect, outdoor condition, cocoon yield, larval culture, productivity of cocoon(E.R.R).

INTRODUCTION

The different species of genus *Antheraea* of family Saturniidae are well known for producing tasar silk of wide economical importance. Among the different species the *Antheraea mylitta* D is indigenous tropical tasar silkworm which is common and popular, and generally reared on the foliges of tasar host plants like *Terminalia tomentosa*, *Terminalia arjuna* and *Shorea robusta* during the seed crop (July-August) and commercial crop (Sept-October) seasons. Tasar silkworm has been facing problem at the time of outdoor rearing due to environmental disturbance, predators and parasite[1]. However, in order to protect the tasar larvae from the vagaries of nature, the indoor larval culture under controlled conditions has been successfully carried out[2]. Larvae of tasar after passing through five instar stages get transformed into the cocoon with pupa covered with hard shell from where tasar fibre is obtained under the process of reeling [3]. As compared to outdoor natural condition indoor controlled condition the tasar silkworm growth and development in better manner. In the light

of aforesaid fact the present communication has been designed to what is the relative impact of different culture methods of *A. mylitta*.D in relation to total larval period and what is there productivity.

MATERIALS AND METHODS

Antherae mylitta D. cocoons were collected from chaibasha (Jharkhand) and carefully transported to Magadh university Bodh- Gaya(Bihar). Healthy and equal weight and size cocoons were selected by simple microscopic examination for experiment and thereafter stored and acclimatised under the lab condition till the emergence of tasar moths. For experimental purpose the male and female moths were kept in coupling box. The coupling was allowed in night for 10-12 hours under dark condition . Female moths kept for egg laying in paper boxes with blotting paper . The process of incubation of eggs under the laboratory was carried out till the emergence of tasar larvae.The newly emergence larvae were considered for larval rearing.

There are four methods which we were used during the rearing :

- (A) Outdoor method : This is conventional method of larval culture of foliage of tasar host plant under outdoor natural field condition we were used *Terminalia arjuna*. The rearing was carried out till cocoon formation.
- (B) Indoor method : In this method tasar larvae were reared on gamala grown food plants of *Terminalia arjuna* under the indoor controlled laboratory condition , till cocoon formation.
- (C) Chawki rearing: In this method larval culture provides almost natural conditions to larvae in group under specific space under protection to ensure better productivity of tasar cocoons.
- (D) Larval rearing on artificial diet: Larval culture of *Antherae mylitta* D. has been carried out with under given composition of dietary contents as per suggestion of Ito Masao et al 1974.

RESULTS AND DISCUSSION

The relative analysis of various bio-techniques of larval rearing of tropical tasar silkworm *Antherae mylitta* D. namely on its indoor, chawki and artificial methods on its productivity in terms of effective rearing rate(E.R.R%).

Table 1 indicates that the larval rearing of *Antheraea mylitta* D. on its rearing performance carried out under natural condition (outdoor) during rearing season. Table accounts for total larval period 35 days , along with productivity(E.R.R%) of cocoons 37% and the weight of cocoon 53% and the weight of cocoon found 10.36 gram .In case of chwaki rearing the total

larval period for 36 days and productivity found 45% with weight of cocoon is 12.64 gram. The impact of artificial diet on rearing of larvae ,total larval period for 50 days and productivity is about 8% with weight of cocoon 8.3 gram.

CONCLUSION

The comparative result shows that among the four methods , the productivity of tasar cocoons have been found better under indoor condition followed by chawki method then outdoor and then artificial diet culture Indoor method >chawki method >outdoor method > Artificial diet culture. The rearing performance give variation in terms of productivity further for future point of view definitely it will show the effect on the quantity and quality of tasar silk. Tasar silk is one of the essential and old age practice of India.So result showing that we have to improve our indoor rearing method for good yield and productivity.

Table-1: Showing relative impact of different methods of larval culture on their productivity and larval period

S.no	Parameters	Outdoor	Indoor	Chawaki	Artificial diet
1	No. of larvae	50	50	50	50
2	Total larval span(days)	35	42	36	50
3	Productivity E.R.R(%)	37.0	53.0	45.0	8.0
4	Weight of cocoon(gram)	12.74	10.36	12.64	8.3

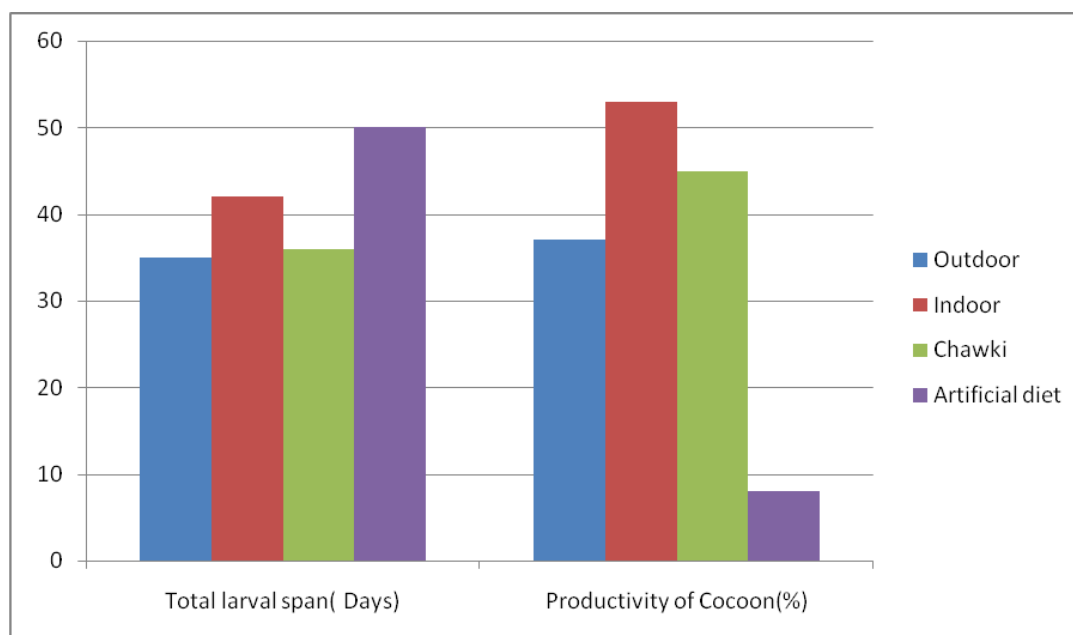


Fig.1: Showing total larval span and productivity of tasar cocoons of A.mylitta under different larval culture

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